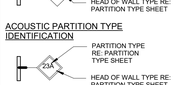
ABBREVIATIONS

#	POUND(S) or NUMBER	KO	KNOCKOUT
&	AND	KPL	KICK PLATE
<	ANGLE	LAB	LABORATORY
@	AT	LAM	LAMINATE
A&MB	AIR AND MOISTURE BARRIER	LAV	LAVATORY
A&WB	AIR AND WEATHER BARRIER	LDR	LEADER
A/V	AUDIO/VISUAL	LH	LEFT HAND
AB	ANCHOR BOLT/AIR BARRIER	LIQ	LIQUID
ACS DR	ACCESS DOOR	LKR	LOCKER
ACST	ACOUSTICAL	LLH	LONG LEG HORIZONTAL
ACT	ACOUSTICAL CEILING TILE	LLV	LONG LEG VERTICAL
AD	AREA DRAIN	LNTL	LINTEL
ADD	ADDENDUM	LP	LIGHTING POLE or LIGHT PROOF
ADJ	ADJACENT or ADJUSTABLE	LR	LIVING ROOM
AFF	ABOVE FINISHED FLOOR	LS	LANDSCAPE
AFG	ABOVE FINISH GRADE	LT	LIGHT
AGGR	AGGREGATE	LV	LOW VOLTAGE
AHU	AIR HANDLING UNIT	LVR	LOUVER
ALT	ALTERNATE	MACH	MACHINE
ALUM	ALUMINUM	MAG	MAGNETIC
ANOD	ANODIZED	MAS	MASONRY
APPROX	APPROXIMATE	MATL	MATERIAL
ARCH	ARCHITECT/ARCHITECTURAL	MAX	MAXIMUM
ASI	ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS	MB	MOISTURE BARRIER
		MECH	MECHANICAL
ASPH	ASPHALT	MED	MEDIUM
ASSY	ASSEMBLY	MEMB	MEMBRANE
AUTO	AUTOMATIC	MEP	MECHANICAL, ELECTRICAL and PLUMBING
AVE	AVENUE		
AVG	AVERAGE	MEZZ	MEZZANINE
AWP	ACOUSTICAL WALL PANEL	MFR	MANUFACTURER
B.O.	BY OWNER	MH	MANHOLE
B.O.F.	BY OWNER, FUTURE	MIN	MINIMUM
BALC	BALCONY	MIRR	MIRROR
BD	BOARD	MISC	MISCELLANEOUS
BITUM	BITUMINOUS	MM	MILLIMETERS
BLDG	BUILDING	MO	MASONRY OPENING
BLKG	BLOCKING	MTD	MOUNT(ED)
BM	BEAM or BENCH MARK	MTL	METAL
BN	BULLNOSE	MULL	MULLION
BOT	BOTTOM	MW	MICROWAVE
BR	BEDROOM	(N)	NEW
BRG	BEARING	N	NORTH
BSMT	BASEMENT	NIC	NOT IN CONTRACT
BTWN	BETWEEN	NO	NUMBER
CAB	CABINET	NOM	NOMINAL
CCD	CONSTRUCTION CHANGE DIRECTIVE	NRC	NOISE REDUCTION COEFFICIENT
CCTV	CLOSED CIRCUIT TELEVISION	NTS	NOT TO SCALE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION	OA	OVERALL or OUTSIDE AIR
		OC	ON CENTER
CEM	CEMENT/CEMENTITIOUS	OD	OUTSIDE DIAMETER
CF	CONTRACTOR FURNISHED	OF	OUTSIDE FACE or OWNER-FURNISHED
CFA	COLD FLUID APPLIED WATERPROOFING	OFD	OVERFLOW DRAIN
CFLG	COUNTER/FLASHING	OFF	OFFICE
CG	CORNER GUARD	OH	OVERHEAD or OPPOSITE HAND
CIP	CAST IN PLACE	OI	OWNER-INSTALLED
CJ	CONTROL JOINT	OPNG	OPENING
CK	CORK TILE	OPP	OPPOSITE
CL	CENTERLINE	OZ	OUNCE
CLG	CEILING	PAR	PARALLEL
CLL	COLUMN LINE	PC	PRECAST
CLO	CLOSET	PERF	PERFORATED
CLR	CLEAR	PERIM	PERIMETER
cm	CENTIMETERS	PL	PROPERTY LINE or PLATE
CMU	CONCRETE MASONRY UNIT	PLAM	PLASTIC LAMINATE
CO	CHANGE ORDER or CLEANOUT	PLAS	PLASTIC
COL	COLUMN	PLBG	PLUMBING
COMM	COMMUNICATION	PLYWD	PLYWOOD
CONC	CONCRETE	PNL	PANEL
CONF	CONFERENCE	POL	POLISHED
CONN	CONNECTION	PR	PAIR or PROPOSAL REQUEST
CONSTR	CONSTRUCTION	PREFAB	PREFABRICATED
CONT	CONTINUOUS	PREFIN	PREFINISHED
CONTR	CONTRACTOR	PRIM	PRIMARY
CORR	CORRIDOR or CORRUGATED	PRKG	PARKING
CPT	CARPET	PROJ	PROJECT
CT	CERAMIC TILE	PS	PRESTRESSED
CTR	COUNTER	PSF	POUNDS PER SQUARE FOOT
CTV	CABLE TELEVISION	PSI	POUNDS PER SQUARE INCH
CU	CUBIC	PT	POST-TENSION(ED) or PORCELAIN TILE or PAINT or PRESSURE-TREATED
CUH	CABINET UNIT HEATER		
CY	CUBIC YARD	PTD	PAPER TOWEL DISPENSER
DBL	DOUBLE	PTDR	PAPER TOWEL DISPENSER AND RECEPTACLE
DEG	DEGREE		
DEMO	DEMOLISH or DEMOLITION	PTN	PARTITION
DEPT	DEPARTMENT	PTR	PAPER TOWEL RECEPTACLE
DET	DETAIL	PV	PHOTOVOLTAIC
DF	DRINKING FOUNTAIN	PVC	POLYVINYL CHLORIDE
DH	DOUBLE-HUNG	QT	QUARRY TILE
DIA	DIAMETER	QTR	QUARTER
DIAG	DIAGONAL	QTY	QUANTITY
DIM	DIMENSION	R	RISER or RADIUS
DISP	DISPENSER	RB	RUBBER BASE
DIV	DIVISION	RCP	REFLECTED CEILING PLAN
DMPF	DAMPROOFING	RD	ROOF DRAIN or ROAD
DN	DOWN	RE or REF	REFER TO or REFERENCE
DR	DOOR or DINING ROOM	REC	RECESS(ED)
DS	DOWNSPOUT	RECPT	RECEPTACLE
DSPL	DISPOSAL	REF	REFRIGERATOR
DW	DISHWASHER	REINF	REINFORCED
DWG	DRAWING	REM	REMOVE
DWR	DRAWER	REQD	REQUIRED
E	EAST	RESIL	RESILIENT
EA	EACH	REV	REVISE, REVISED or REVISION(S)
EF	EACH FACE	RF	RESILIENT FLOORING
EJ	EXPANSION JOINT	RFG	ROOFING
EL	ELEVATION	RH	RIGHT HAND
ELEC	ELECTRICAL	RL	ROOF LEADER
ELEV	ELEVATOR	RM	ROOM
EMER	EMERGENCY	RO	ROUGH OPENING
ENGR	ENGINEER	ROW	RIGHT OF WAY
EOS	EDGE OF SLAB	RPM	REVOLUTIONS PER MINUTE
EQ	EQUAL	RST	REINFORCING STEEL
EQUIP	EQUIPMENT	RTF	RUBBER TILE FLOOR
ES	EACH SIDE	RTU	ROOF TOP UNIT
ESMT	EASMENT	RVS	REVERSE (SIDE)
EST	ESTIMATE	RWC	RAIN WATER CONDUCTOR
EW	EACH WAY	S	SOUTH
EWC	ELECTRIC WATER COOLER	SC	SOLID CORE
EWH	ELECTRIC WATER HEATER	SCD	SEAT COVER DISPENSER
EXCL	EXCLUDE(D)/EXCLUDING	SCHED	SCHEDULE
EXH	EXHAUST	SD	SOAP DISPENSER/SMOKE DETECTOR/STORM DRAIN
EXH DT	EXHAUST DUCT	SECT	SECTION
EXH FN	EXHAUST FAN	SF	SQUARE FEET
EXP	EXPOSED	SHT	SHEET
EXP BT	EXPANSION BOLT	SHTHG	SHEATHING
EXST	EXISTING	SHWR	SHOWER
EXT	EXTERIOR	SIM	SIMILAR
F	FARENHEIT	SND	SANITARY NAPKIN DISPENSER
FA	FIRE ALARM	SNR	SANITARY NAPKIN RECEPTACLE
FACP	FIRE ALARM CONTROL PANEL	SPEC(S)	SPECIFICATION(S)
FBO	FURNISHED BY OWNER	SPKLR	SPRINKLER
FD	FLOOR DRAIN	SPKR	SPEAKER
FDC	FIRE DEPARTMENT CONNECTION	SPRT	SUPPORT
FDTN	FOUNDATION	SQ	SQUARE
FE	FIRE EXTINGUISHER	SST	STAINLESS STEEL
FEC	FIRE EXTINGUISHER CABINET	STD	STANDARD
FF EL	FINISH FLOOR ELEVATION	STL	STEEL
FH	FIRE HYDRANT	STOR	STORAGE
FHC	FIRE HOSE CABINET	STRUCT	STRUCTURE or STRUCTURAL
FHMS	FLAT HEAD MACHINE SCREW	SUSP	SUSPEND(ED)
FHV	FIRE HOSE VALVE	SYM	SYMBOL
FHWS	FLAT HEAD WOOD SCREW	SYMM	SYMMETRICAL
FIN	FINISH(ED)	SYS	SYSTEM
FIN FLR	FINISHED FLOOR	T	TREAD
FIXT	FIXTURE	T&B	TOP AND BOTTOM
FLASH	FLASHING	T&G	TONGUE AND GROOVE
FLG	FLOORING	T.O.	TOP OF
FLR	FLOOR	TB	TOWEL BAR
FLUOR	FLUORESCENT	TEL	TELEPHONE
FOC	FACE OF CONCRETE	TEMP	TEMPORARY or TEMPERATURE
FOF	FACE OF FINISH	TG	TRANSFER GRILL
FOM	FACE OF MASONRY	THERM	THERMAL
FOS	FACE OF STUD	THK	THICK
FOW	FACE OF WALL	THRES	THRESHOLD
FR	FIRE RESISTIVE or FIRE RATED	TMPD	TEMPERED
FRG	FURRING	TOC	TOP OF CONCRETE/CURB
FRP	FIBERGLASS REINFORCED PANEL(ING)	TOS	TOP OF STEEL/SLAB
FRT	FIRE RETARDANT TREATED	TOW	TOP OF WALL
FT	FOOT (FEET)	TPD	TOILET PAPER DISPENSER
FTG	FOOTING	TS	TUBE STEEL
FURN	FURNISH(ED) or FURNITURE	TSTAT	THERMOSTAT
FUT	FUTURE	TV	TELEVISION
FVC	FIRE VALVE CABINET	TYP	TYPICAL
G	GROUND	UL	UNDERWRITER'S LABORATORY
GA	GAGE	UNFIN	UNFINISHED
GALV	GALVANIZED	UNO	UNLESS NOTED OTHERWISE
GB	GRAB BAR	UR	URINAL
GC	GENERAL CONTRACTOR	V	VOLT
GCMU	GLAZED CONCRETE MASONRY UNIT(S)	VCT	VINYL COMPOSITION TILE
GEN	GENERATOR	VENT	VENTILATION
GFRC	GLASS-FIBER REINFORCED CONCRETE	VERT	VERTICAL
GI	GALVANIZED IRON	VEST	VESTIBULE
GL	GLASS or GLAZING	VIF	VERIFY IN FIELD
GLU LAM	GLUE-LAMINATED	VOL	VOLUME
GR	GRADE	VRFY	VERIFY
GT	GROUT or GLASS TILE	VTR	VENT THROUGH ROOF
GYP	GYPSUM	VWC	VINYL WALL COVERING
GYP BD	GYPSUM BOARD	W	WEST or WIDE
HAS	HEADED ANCHOR STUD	W.O.	WHERE OCCURS
HB	HOSE BIBB	W/	WITH
HC	HOLLOW CORE or HANDICAPPED	W/O	WITHOUT
HDAS	HEADED DEFORMED ANCHOR STUD	WR	WATER RESISTANT
HDR	HEADER	WC	WALL COVERING or WATER CLOSET
HDW	HARDWARE	WD	WOOD
HM	HOLLOW METAL	WDW	WINDOW
HORIZ	HORIZONTAL	WF	WIDE FLANGE
HR	HOUR	WP	WATERPROOF
HSKG	HOUSEKEEPING	WPM	WATERPROOF MEMBRANE
HT	HEIGHT	WRB	WEATHER RESISTANT BARRIER
HVAC	HEATING, VENTILATION and AIR CONDITIONING	WSCT	WAINSCOT
		WT	WEIGHT
HW	HOT WATER	WWR	WELDED WIRE REINFORCEMENT
HWY	HIGHWAY	XFMR	TRANSFORMER
IBC	INTERNATIONAL BUILDING CODE	YD	YARD
ID	INSIDE DIAMETER or INTERIOR DESIGN(ER)		
IN	INCH(ES)		
INCAND	INCANDESCENT		
INCL	INCLUD(ED)		
INFO	INFORMATION		
INSUL	INSULATION/INSULATED		
INT	INTERIOR		
INV	INVERT		
JAN	JANITOR		
JST	JOIST		
JT	JOINT		
KD	KNOCKDOWN		
KIT	KITCHEN		

GENERAL NOTES

1	THE TERM "GC" SHALL MEAN THE GENERAL CONTRACTOR AND ITS SUB-CONTRACTORS.
2	THE GC SHALL THOROUGHLY FAMILIARIZE ITSELF WITH THE CONTRACT DOCUMENTS AND THE SITE. SHOULD THE GC FIND DISCREPANCIES IN, OR OMISSIONS FROM THE DRAWINGS OR SPECIFICATIONS, SHOULD THE GC BE IN DOUBT AS TO THEIR INTENT OR MEANING, OR HAS QUESTIONS CONCERNING CONSTRUCTABILITY OR CODE COMPLIANCE, THE GC SHALL SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. SHOULD A CONFLICT OCCUR BETWEEN THE DRAWINGS AND SPECIFICATIONS THAT IMPLYING GREATER QUANTITY OR QUALITY SHALL PREVAIL.
3	THE INTENT OF THE CONTRACT DOCUMENTS IS TO PROVIDE A COMPLETE PROJECT. EVERY ITEM NECESSARILY REQUIRED MAY NOT BE SPECIFICALLY MENTIONED OR SHOWN. UNLESS EXPRESSLY STATED, SYSTEMS AND EQUIPMENT SHALL BE COMPLETELY OPERATIONAL. PROVIDE INCIDENTAL, ACCESSORY, AND ANY OTHER ITEMS NOT SPECIFIED, BUT REQUIRED, FOR A COMPLETE AND FINISHED ASSEMBLY.
4	THE ENTIRE SET OF CONTRACT DOCUMENTS REPRESENT THE PROJECT AS A WHOLE. THE GC IS RESPONSIBLE FOR PROVIDING SUFFICIENT INFORMATION TO ITS SUB-CONTRACTORS TO DETERMINE AND PERFORM THEIR SCOPE OF WORK.
5	ANY ELECTRONIC CAD AND/OR BUILDING INFORMATION MODELING (BIM) FILES PROVIDED BY THE ARCHITECT OR ITS CONSULTANTS IS SOLELY TO ASSIST THE GC IN PREPARATION OF SHOP DRAWINGS AND/OR LAYOUT OF THE PROJECT. CAD AND BIM FILES ARE NOT A PART OF THE CONTRACT DOCUMENTS AND ANY INFORMATION CONTAINED THEREIN DOES NOT SUPERSEDE ANY INFORMATION ON THE CONTRACT DOCUMENTS.
6	THE GC IS RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION, COORDINATION OF TRADES, AND SCHEDULING OF THE WORK.
7	THE GC SHALL NOT REVISE, SUBSTITUTE, OR CHANGE THE WORK WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT.
8	NOT EVERY CONDITION MAY BE DRAWN OR DETAILED. CONDITIONS SIMILAR TO DETAILED CONDITIONS SHALL BE CONSTRUCTED TO THE SAME SIZE AND CHARACTER AS THOSE FOR SIMILAR CONDITIONS.
9	THE GC SHALL FOLLOW THE RECOMMENDATIONS OF THE OWNER'S GEOTECHNICAL CONSULTANT. SHOULD THE GC FIND DISCREPANCIES WITH THE CONTRACT DOCUMENTS, THE GC SHALL SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
10	DO NOT SCALE DRAWINGS.
11	PROVIDE NECESSARY BLOCKING IN WALLS, PARTITIONS, AND CEILINGS FOR ITEMS INCLUDING, BUT NOT LIMITED TO: CEILING AND PARTITION-MOUNTED FIXTURES, GRAB BARS, HANDRAILS, TOILET ACCESSORIES, CABINETRY, PANELING, COUNTERTOPS, SHELVES, CLOSET RODS, WHITE BOARDS, AND DECORATIVE ELEMENTS.
12	THE CONSTRUCTION DOCUMENTS ARE THE PROPERTY OF OZ ARCHITECTURE, INC. AND ITS CONSULTANTS AND ARE TO BE USED AS INSTRUMENTS OF SERVICE FOR CONSTRUCTION OF THIS PROJECT ONLY. USE OF THESE DOCUMENTS BY THE GC FOR ANY OTHER PROJECT OR PURPOSE WITHOUT THE WRITTEN CONSENT OF OZ ARCHITECTURE IS PROHIBITED.

GRAPHIC STANDARDS

STRUCTURAL GRID


DOOR IDENTIFICATION

ROOM/SPACE IDENTIFICATION

CODE ROOM/SPACE IDENTIFICATION

INTERIOR ELEV. IDENTIFICATION

EXTERIOR ELEV. IDENTIFICATION

BUILDING SECTION IDENTIFICATION

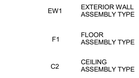
WALL/DETAIL SECTION IDENTIFICATION

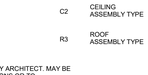
DETAIL IDENTIFICATION

ENLARGED DETAIL IDENTIFICATION

PARTITION TYPE IDENTIFICATION

ACOUSTIC PARTITION TYPE IDENTIFICATION

WINDOW INDENTIFICATION


GLAZING IDENTIFICATION


FLAG NOTE IDENTIFICATION

ROOM/FINISH IDENTIFICATION

RCP/FINISH IDENTIFICATION

FINISH IDENTIFICATION

ACCESSORY IDENTIFICATION

ELEVATION REFERENCE

MATERIAL PATTERNS

ASSEMBLY IDENTIFICATION

EW1	EXTERIOR WALL ASSEMBLY TYPE
F1	FLOOR ASSEMBLY TYPE
C2	CEILING ASSEMBLY TYPE
R3	ROOF ASSEMBLY TYPE

* ROOM AREAS: VERIFY BASIS OF MEASUREMENT USED BY ARCHITECT. MAY BE CALCULATED TO CENTERLINE OF SURROUDNING PARTITIONS OR TO INSIDE FINISH SURFACES

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

100% CD / PACKAGE 3

10/26/2022

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VICINITY MAP

ALTERNATES

NOTE: SEE SHEETS A-100 FOR ALTERNATE CONDITIONS WHERE NOTED

ADD ALTERNATE 1: TRASH & ELECTRICAL EQUIPMENT ENCLOSURES

- BASE BID: CONCRETE PADS FOR DUMPSTERS & ELECTRICAL EQUIPMENT, NO ENCLOSURE WALLS OR GATES
- ALTERNATE 1: TRASH & ELECTRICAL EQUIPMENT ENCLOSURES TO BE MASONRY WITH METAL GATES

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LICENSED ARCHITECT
09/07/2022

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COLORADO SPRINGS, CO 80918

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DATE:	10/26/2022
REVISIONS:	

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SHEET TITLE:
COVER SHEET

SCALE: As indicated
SHEET NUMBER
G3-000

10/26/2022 8:38:50 PM
BIM 360://121091.00 Anschutz Engineering Center/121091_00_UCCS Anschutz Engineering Center_A21_Central.rvt

Sheet Number	Sheet Name	2022_0727 - BID PACKAGE 1	2022_0803 - 30% CONSTRUCTION DOCUMENTS	2022_0807 - ADDENDA 1 - PKG 1	2022_0907 - BID PACKAGE 2	2022_0921 - 75% CDS / GMP; ADDENDA 3 - PKGS 1 & 2	2022_1026 - 100% CDS / PACKAGE 3; ADDENDA 4 - PKGS 1 & 2
GENERAL							
G3-000	COVER SHEET	X			X		X
G-000	COVER		O			O	
G-001	SHEET LIST		O		O	O	X
G-100	SITE CODE PLAN		O		O	O	X
G-101	LEVEL 1 & 2 BUILDING CODE PLANS		O		O	O	X
G-102	LEVEL 3 & ROOF BUILDING CODE PLANS		O		O	O	X
G-103	CODE ELEVATIONS		O		O	O	X
G-104	COMCHECK					O	X
G-200	SIGNAGE SCHEDULE & DETAILS		O			O	X
G-201	SIGNAGE PLANS		O			O	X
G-401	STANDARD MOUNTING HEIGHTS - ANSI 2009		O			O	X
G-501	EXTERIOR ASSEMBLIES		O		O	O	X
G-502	STANDARD PARTITION TYPES		O		O	O	X
CIVIL							
C1.00	COVER SHEET	X	O			O/X	X
C1.01	GENERAL NOTES	X				X	
C2.00	EXISTING CONDITIONS AND DEMOLITION PLAN	X				X	X
C2.01	EXISTING CONDITIONS AND DEMOLTION PLAN - SHOPS BUILDING					X	
C2.10	EROSION CONTROL PLAN	X				X	
C2.20	EROSION CONTROL DETAILS	O					
C2.21	EROSION CONTROL DETAILS	O					
C3.00	OVERALL GRADING PLAN	X				X	X
C3.01	DETAILED GRADING - LAB BUILDING	X				X	X
C3.02	DETAILED GRADING - LAB BUILDING	X				X	
C3.03	DETAILED GRADING - SHOP BUILDING	X				X	
C3.50	SHOP BUILDING ADDITIONAL PARKING PLAN					X	
C4.00	OVERALL UTILITY PLAN	X				X	X
C5.00	STORM SEWER PLAN AND PROFILE	X				X	X
C5.01	STORM SEWER PLAN AND PROFILE	X				X	
C5.02	STORM SEWER PLAN AND PROFILE	X				X	
C5.03	STORM SEWER PLAN AND PROFILE	X				X	
C5.04	STORM SEWER PLAN AND PROFILE - SHOPS BUILDING	X					X
C5.05	HEADWALL INTO 128X83 STORMLINE DETAILS					X	
C5.10	POND DETAILS	X					
C5.11	POND DETAILS	X					
C5.15	PERIMETER DRAIN PLAN	X					
C6.00	SANITARY SEWER COVER SHEET	X				X	
C6.01	UTILITY NOTES	X				X	
C6.02	SANITARY SEWER PLAN AND PROFILE	X				X	
C6.03	WATER SERVICE PLAN	X				X	
C7.00	WATER MAIN COVER SHEET	X				X	
C7.01	WATER NOTES	X					
C7.10	ENG BUILDING ADDITION WATER PLAN AND PROFILE	X				X	X
C7.11	ENG BUILDING ADDITION WATER PLAN AND PROFILE	X				X	
C7.12	SHOP BUILDING WATER PLAN	X				X	
C8.00	UTILITY DETAILS	O					
C8.01	UTILITY DETAILS	O				X	
C8.02	UTILITY DETAILS	O				X	
C8.03	UTILITY DETAILS	O					
C8.04	UTILITY DETAILS	X					
C9.00	OVERALL SITE PLAN		O			O	X
C9.01	DETAILED HORIZONTAL CONTROL PLAN - LAB BUILDING		O			O	X
C9.02	DETAILED HORIZONTAL CONTROL PLAN - SHOP BUILDING		O			O	X
C9.03	LINE AND CURVE TABLE - LAB BUILDING		O			O	X
C10.00	SITE DETAILS		O			O	X
C10.01	SITE DETAILS		O			O	X
LANDSCAPE							
L-100	LANDSCAPE SHEET INDEX AND NOTES		O			O	X
L-101	LANDSCAPE PLAN SHOP BUILDING		O			O	X
L-101A	SHOPS BUILDING JOINTING PLAN					O	X
L-102	LANDSCAPE PLAN LAB BUILDING		O			O	X
L-102A	LAB BUILDING JOINTING PLAN					O	X
L-201	PLANTING PLAN SHOP BUILDING		O			O	X
L-202	PLANTING PLAN LAB BUILDING		O			O	X
L-300	LANDSCAPE DETAILS		O			O	X
L-301	LANDSCAPE DETAILS		O			O	X
L-302	LANDSCAPE DETAILS		O			O	X
L-303	LANDSCAPE DETAILS					O	X
L-304	LANDSCAPE DETAILS					O	X
L-305	LANDSCAPE DETAILS					O	X
L-306	LANDSCAPE DETAILS						X
L-307	LANDSCAPE DETAILS						X
L-400	PLANTING DETAILS		O			O	X
STRUCTURAL							
S-001	GENERAL NOTES		O		P	O	X
S-002	GENERAL NOTES		O		P	O	X
S-003	GENERAL NOTES & QUALITY ASSURANCE		O		P	O	X
S-004	QUALITY ASSURANCE		O		P	O	X
S-005	SNOW LOAD PLAN				O	O	X
S-050	PERMANENT SHORING WALL PLAN	X			O	O	
S-051	PERMANENT SHORING WALL SECTIONS	X			O	O	X
S-101	FOUNDATION PLAN		O		X/P	O	X
S-102	LEVEL 2 FRAMING PLAN		O		O	O	X
S-103A	LEVEL 3 FRAMING PLAN - LAB BUILDING		O		O	O	X
S-103B	FOUNDATION PLAN - SHOP BUILDING		O		P	O	X
S-104	ROOF FRAMING PLANS		O		O	O	X
S-201	LAB BUILDING ELEVATIONS		O		O	O	X
S-202	SHOP BUILDING ELEVATIONS		O		O	O	X
S-205	EXTERIOR BUILDING SECTIONS		O		P	O	X
S-206	EXTERIOR BUILDING SECTIONS AND DETAILS		O		P	O	X
S-210	MAIN STAIR PARTIAL PLANS		O		X/P	O	X
S-211	STAIR PARTIAL PLANS		O		X/P	O	X
S-250	CORE WALL ELEVATIONS		O		P	O	X
S-251	CORE WALL ELEVATIONS		O		P	O	X
S-300	TYPICAL SLAB-ON-GRADE DETAILS		O		P	O	X
S-301	SLAB-ON-GRADE DETAILS				P	O	X
S-305	TYPICAL DRILLED PIER DETAILS		O		X/P	O	X
S-306	DRILLED PIER DETAILS		O		X/P	O	X
S-307	TYPICAL GRADE BEAM DETAILS				P	O	X
S-308	GRADE BEAM DETAILS				P	O	X
S-310	TYPICAL CONCRETE DETAILS		O		P	O	X
S-400	MASONRY WALL DETAILS		O		O	O	X
S-401	MASONRY SUPPORTING STEEL DETAILS		O		O	O	X
S-500	TYPICAL STEEL DETAILS		O		O	O	X
S-501	TYPICAL STEEL DETAILS		O		O	O	X
S-510	PERFORMANCE STAIRS AND CURTAIN WALL DETAILS		O		O	O	X
S-515	BRACED FRAME ELEVATIONS		O		O	O	X
S-516	STEEL DETAILS		O		O	O	X
S-530	TYPICAL SLAB ON METAL DECK DETAILS		O		O	O	X
S-531	TYPICAL ROOF DECK DETAILS		O		O	O	X
S-532	STEEL DETAILS					O	X
S-540	PERFORMANCE SPECIFIED FRAMING		O		O	O	X
S-545	TYP CF LOAD BEARING DETAILS		O		O	O	X
S-546	TYP CF LOAD BRG FLR & METAL STUD SHEAR WALL DETAILS		O		O	O	X
S-547	TYP CF LOAD BRG FLR & METAL STUD SHEAR WALL DETAILS					O	X
S-548	TYP CF SHEAR WALL ELEVATIONS						X

Sheet Number	Sheet Name	2022_0727 - BID PACKAGE 1	2022_0803 - 30% CONSTRUCTION DOCUMENTS	2022_0807 - ADDENDA 1 - PKG 1	2022_0907 - BID PACKAGE 2	2022_0921 - 75% CDS / GMP; ADDENDA 3 - PKGS 1 & 2	2022_1026 - 100% CDS / PACKAGE 3; ADDENDA 4 - PKGS 1 & 2
ARCHITECTURE							
A-001	LEVEL 1 SLAB CONTROL PLAN				X	O	X
A-002A	LEVEL 2 & 3 SLAB CONTROL PLAN					O	X
A-002B	LEVEL 3 SLAB CONTROL PLAN - SHOP BLDG				X	O	X
A-100	SITE PLAN	X				O	X
A-100A	ALTERNATES SITE PLAN		O				
A-101	LEVEL 1 FLOOR PLAN & RCP		O		O	O	X
A-102	LEVEL 2 FLOOR PLAN & RCP		O			O	X
A-103A	LEVEL 3 FLOOR PLAN & RCP - LAB BLDG		O			O	X
A-103B	FLOOR PLAN & RCP - SHOP BLDG		O		O	O	X
A-104	ROOF PLANS		O			O	X
A-140	FINISH LEGEND		O			O	X
A-141	LEVEL 1 INTERIOR FINISH & FURNITURE PLANS - LAB BLDG		O			O	X
A-142	LEVEL 2 INTERIOR FINISH & FURNITURE PLANS - LAB BLDG		O			O	X
A-143A	LEVEL 3 INTERIOR FINISH & FURNITURE PLANS - LAB BLDG		O			O	X
A-143B	INTERIOR FINISH & FURNITURE PLANS - SHOP BLDG		O			O	X
A-150	INTERIOR FLOOR FINISH PLANS		O			O	X
A-201	BUILDING ELEVATIONS - LAB BLDG		O		O	O	X
A-202	BUILDING ELEVATIONS - SHOP BLDG		O		O	O	X
A-203	BRICK ELEVATIONS - LAB BLDG						X
A-204	BRICK ELEVATIONS - SHOP BLDG						X
A-301	BUILDING SECTIONS - LAB BLDG		O		O	O	X
A-302	BUILDING SECTIONS - SHOP BLDG		O		O	O	X
A-400	ENLARGED DRAWINGS - SITE	X		X		O	X
A-401	ENLARGED DRAWINGS - SITE		O			O	X
A-402	ENLARGED DRAWINGS - SITE					O	X
A-403	ENLARGED DRAWINGS - SITE					O	X
A-404	ENLARGED DRAWINGS - SITE					O	X
A-405	ENLARGED DRAWINGS - RESTROOMS		O		O	O	X
A-406	ENLARGED DRAWINGS - RESTROOMS		O			O	X
A-407	ENLARGED DRAWINGS - RESTROOMS		O		O	O	X
A-408	ENLARGED DRAWINGS - RESTROOMS		O			O	X
A-410	WALL SECTIONS - LAB		O		O	O	X
A-411	WALL SECTIONS - LAB		O		O	O	X
A-412	WALL SECTIONS - SHOP		O		O	O	X
A-420	INTERIOR ELEVATIONS		O			O	X
A-421	INTERIOR ELEVATIONS		O			O	X
A-422	INTERIOR ELEVATIONS		O			O	X
A-423	INTERIOR ELEVATIONS		O			O	X
A-424	INTERIOR ELEVATIONS		O			O	X
A-425	INTERIOR ELEVATIONS		O			O	X
A-426	INTERIOR ELEVATIONS		O			O	X
A-428	INTERIOR ELEVATIONS		O			O	X
A-429	INTERIOR ELEVATIONS		O			O	X
A-430	INTERIOR ELEVATIONS		O			O	X
A-431	INTERIOR ELEVATIONS		O			O	X
A-432	INTERIOR ELEVATIONS		O			O	X
A-433	INTERIOR ELEVATIONS		O			O	X
A-434	INTERIOR ELEVATIONS		O			O	X
A-435	INTERIOR ELEVATIONS		O			O	X
A-436	INTERIOR ELEVATIONS		O			O	X
A-437	INTERIOR ELEVATIONS		O			O	X
A-438	INTERIOR ELEVATIONS		O			O	X
A-439	INTERIOR ELEVATIONS		O			O	X
A-440	INTERIOR ELEVATIONS		O			O	X
A-441	INTERIOR ELEVATIONS		O			O	X
A-442	INTERIOR ELEVATIONS					O	X
A-451	STAIR & ELEVATOR PLANS & SECTIONS		O		O	O	X
A-452	STAIR & ELEVATOR PLANS & SECTIONS		O		O	O	X
A-453	STAIR & ELEVATOR PLANS & SECTIONS		O		O	O	X
A-454	STAIR & ELEVATOR PLANS & SECTIONS		O			O	X
A-455	STAIR DETAILS - STAIR ONE		O			O	X
A-456	STAIR DETAILS - STAIR TWO & THREE					O	X
A-457	ELEVATOR & SHAFT DETAILS						X
A-501	EXTERIOR DETAILS - TRANSITIONS					O	X
A-502	EXTERIOR DETAILS - FOUNDATION		O		O	O	X
A-504	EXTERIOR DETAILS - EXPANSION JOINT				O	O	X
A-505	EXTERIOR DETAILS - EXPANSION JOINT		O			O	X
A-506	EXTERIOR DETAILS - GLAZING					O	X
A-507	EXTERIOR DETAILS - DOOR					O	X
A-508	EXTERIOR DETAILS - BRICK		O			O	X
A-509	EXTERIOR DETAILS - BRICK		O			O	X
A-511	EXTERIOR DETAILS - ENTRIES					O	X
A-512	EXTERIOR DETAILS - ROOF		O			O	X
A-513	EXTERIOR DETAILS - ROOF						X
A-520	EXTERIOR MOCK UP					O	X
A-551	INTERIOR DETAILS		O			O	X
A-552	INTERIOR DETAILS		O			O	X
A-553	INTERIOR DETAILS						X
A-601	DOOR SCHEDULES, TYPES & DETAILS		O			O	X
A-621	EXTERIOR GLAZING SYSTEMS - LAB BLDG		O			O	X
A-631	INTERIOR GLAZING SYSTEMS - LAB BLDG		O			O	X
A-632	EXTERIOR & INTERIOR GLAZING SYSTEMS - SHOP BLDG		O			O	X
FIRE PROTECTION							
F-001	FIRE PROTECTION LEGENDS & NOTES		O			O	X
F-101A	FIRE PROTECTION PLAN SERIES - LAB BLDG		O			O	X
F-103B	FIRE PROTECTION PLAN SERIES - SHOP BLDG		O			O	X
PLUMBING							
P-001	PLUMBING LEGENDS & NOTES		O		X	O	X
P-002	PLUMBING SCHEDULES		O			O	X
P-101A	DOMESTIC WATER PLAN SERIES - LAB BLDG		O			O	X
P-103B	PLUMBING PLAN SERIES - SHOP BLDG		O			O	X
P-104B	PLUMBING PLAN SERIES - SHOP BLDG					O	X
P-109A	WASTE & VENT PLAN SERIES - FOUNDATION - SHOP BLDG				X	X	X
P-110A	WASTE & VENT PLAN SERIES - FOUNDATION - LAB BLDG		O		X	X	X
P-111A	WASTE & VENT PLAN SERIES - LAB BLDG		O			O	X
P-120A	COMPRESSED AIR PLAN					O	X
P-401	PLUMBING DETAILS		O			O	X

Sheet Number	Sheet Name	2022_0727 - BID PACKAGE 1	2022_0803 - 30% CONSTRUCTION DOCUMENTS	2022_0807 - ADDENDA 1 - PKG 1	2022_0907 - BID PACKAGE 2	2022_0921 - 75% CDS / GMP; ADDENDA 3 - PKGS 1 & 2	2022_1026 - 100% CDS / PACKAGE 3; ADDENDA 4 - PKGS 1 & 2
MECHANICAL							
M-001	MECHANICAL LEGENDS & NOTES		O			O	X
M-002	MECHANICAL SCHEDULES		O			O	X
M-003	MECHANICAL SCHEDULES		O			O	X
M-004	MECHANICAL SCHEDULES		O			O	X
M-005	MECHANICAL SCHEDULES					O	X
M-006	MECHANICAL SCHEDULES						X
M-007	MECHANICAL SCHEDULES						X
M-101A	HVAC PLAN SERIES - LAB BLDG		O			O	X
M-103B	MECHANICAL PLAN SERIES - SHOP BLDG		O			O	X
M-104A	MECHANICAL PLAN SERIES - ROOF - LAB BLDG		O			O	X
M-111A	HVAC PIPING PLAN SERIES - LAB BLDG		O			O	X
M-301	MECHANICAL SCHEMATICS		O			O	X
M-302	MECHANICAL SECTION VIEWS					O	X
M-303	VRF INFORMATION						X
M-401	MECHANICAL DETAILS		O			O	X
M-402	MECHANICAL DETAILS		O			O	X
M-501	MECHANICAL CONTROLS		O			O	X
M-502	MECHANICAL CONTROLS		O			O	X
M-503	MECHANICAL CONTROLS		O			O	X
M-504	MECHANICAL CONTROLS		O			O	X
M-505	MECHANICAL CONTROLS						X
ELECTRICAL							
1E-001	ELECTRICAL LEGENDS & NOTES	X			X		
1E-011	ELECTRICAL ONE-LINE DIAGRAM AND DETAILS	X			X		
1E-100	ELECTRICAL SITE PLAN	X			X	X	X
1E-111	POWER PLAN SERIES				X		
E-001	ELECTRICAL LEGENDS & NOTES		O			O	X
E-002	ELECTRICAL SCHEDULES		O			O	X
E-003	COMCHECK						X
E-011	ELECTRICAL ONE-LINE DIAGRAM AND DETAILS		O			O	X
E-012	ELECTRICAL ONE-LINE DIAGRAM SHOP					O	X
E-100	ELECTRICAL SITE PLAN		O			O	X
E-101A	LIGHTING PLAN SERIES - LAB BLDG		O			O	X
E-103B	ELECTRICAL PLAN SERIES - SHOP BLDG		O			O	X
E-111A	POWER PLAN SERIES - LAB BLDG		O			O	X
E-121A	FIRE ALARM PLAN SERIES - LAB BLDG		O			O	X
E-201	ENLARGED ELECTRICAL PLANS		O			O	X
E-202	ENLARGED ELECTRICAL PLANS					O	X
E-301	ELECTRICAL PANEL SCHEDULES		O			O	X
E-302	ELECTRICAL PANEL SCHEDULES		O			O	X
E-401	ELECTRICAL DETAILS		O			O	X
E-402	ELECTRICAL DETAILS		O			O	X
TELECOMMUNICATIONS							
TA-001	AUDIOVISUAL COVER SHEET		O			O	X
TA-002	AUDIOVISUAL SCHEDULES						
TA-101	LEVEL 1 FLOOR PLAN - AUDIOVISUAL		O		O		X
TA-102	LEVEL 2 FLOOR PLAN & RCP - AUDIOVISUAL		O			O	X
TA-103A	LEVEL 3 FLOOR PLAN & RCP - LAB BLDG - AUDIOVISUAL		O			O	X
TA-103B	LEVEL 3 FLOOR PLAN & RCP - SHOP BLDG - AUDIOVISUAL		O			O	X
TA-401	AUDIOVISUAL ENLARGED DRAWINGS					O	X
TA-410	AUDIOVISUAL ELEVATIONS		O			O	X
TA-411	AUDIOVISUAL ELEVATIONS		O			O	X
TA-412	AUDIOVISUAL ELEVATIONS		O			O	X
TA-413	AUDIOVISUAL ELEVATIONS					O	X
TA-501	AUDIOVISUAL DETAILS					O	X
TA-502	AUDIOVISUAL DETAILS					O	X
TA-601	AUDIOVISUAL FUNCTIONAL DIAGRAMS		O			O	X
TA-602	AUDIOVISUAL FUNCTIONAL DIAGRAMS		O			O	X
TA-603	AUDIOVISUAL FUNCTIONAL DIAGRAMS		O			O	X
TA-604	AUDIOVISUAL FUNCTIONAL DIAGRAMS		O			O	X
TN-001	TECHNOLOGY LEGEND	O	O			O	X
TN-002	TECHNOLOGY RESPONSIBILITY MATRIX					O	X
TN-003	TELECOMMUNICATIONS RISER DIAGRAM		O			O	X
TN-004	TELECOMMUNICATIONS PATHWAYS AND SPACES DIAGRAM		O			O	X
TN-100	TECHNOLOGY SITE PLAN	O	O		O	O	X
TN-101	TECHNOLOGY LEVEL 1 FLOOR PLAN & RCP		O		O	O	X
TN-102	TECHNOLOGY LEVEL 2 FLOOR PLAN & RCP		O			O	X
TN-103A	TECHNOLOGY LEVEL 3 FLOOR PLAN & RCP - LAB BLDG		O			O	X
TN-103B	TECHNOLOGY LEVEL 3 FLOOR PLAN & RCP - SHOP BLDG		O			O	X
TN-104	TECHNOLOGY LOWER ROOF FLOOR PLAN					O	X
TN-401	TECHNOLOGY ENLARGED DRAWINGS		O			O	X
TN-501	TELECOMMUNICATIONS DIAGRAMS		O			O	X
TN-502	TELECOMMUNICATIONS DIAGRAMS					O	X
TN-601	ELECTRONIC SECURITY FUNCTIONAL DIAGRAMS		O			O	X
TN-611	ELECTRONIC SECURITY DOOR DIAGRAMS		O			O	X
TN-612	ELECTRONIC SECURITY CAMERA DIAGRAMS		O			O	X

ISSUE KEY	
X	ISSUED FOR CONSTRUCTION / STAMPED
P	ISSUED FOR PERMIT / STAMPED
O	FOR REFERENCE ONLY

NOTES:
1. ISSUE COLUMNS ARE SEQUENTIAL, FROM LEFT TO RIGHT.
2. SHEET NUMBERS & ASSOCIATED SHEET NAMES MAY CHANGE ACROSS ISSUANCES AS THE CONTRACT DOCUMENTS ARE REFINED.

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ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

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APPROVED: DS
DATE: 10/26/2022
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ISSUED FOR:
100% CD / PACKAGE 3

SHEET TITLE:
SHEET LIST

SCALE:

SHEET NUMBER
G-001

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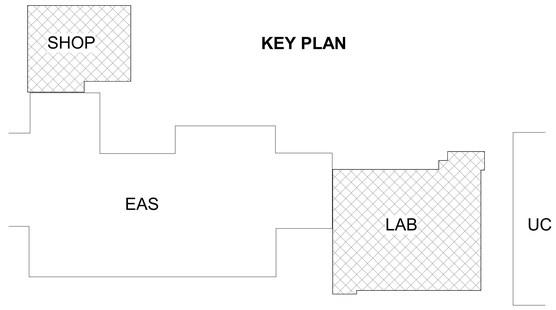


KEY PLAN

SITE CODE INFORMATION

APPLICABLE CODES:
2018 INTERNATIONAL BUILDING CODE (IBC)
2018 INTERNATIONAL FIRE CODE (IFC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL PLUMBING CODE (IPC)
2018 INTERNATIONAL FUEL AND GAS CODE (IFGC)
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2009 ICC/ANSI A117.1
2020 NATIONAL ELECTRICAL CODE (NEC)
LOCAL AMENDMENTS

OCCUPANCY CLASSIFICATION: B (A-3 AS ACCESSORY)
CONSTRUCTION TYPE: IIB
FIRE SUPPRESSION: FULLY SPRINKLERED PER NFPA 13.

FIRE RESISTANCE REQUIREMENTS:
EXTERIOR NON-BEARING WALLS*: 1 HR < 5', 1 HR < 10', 0 HR < 30'

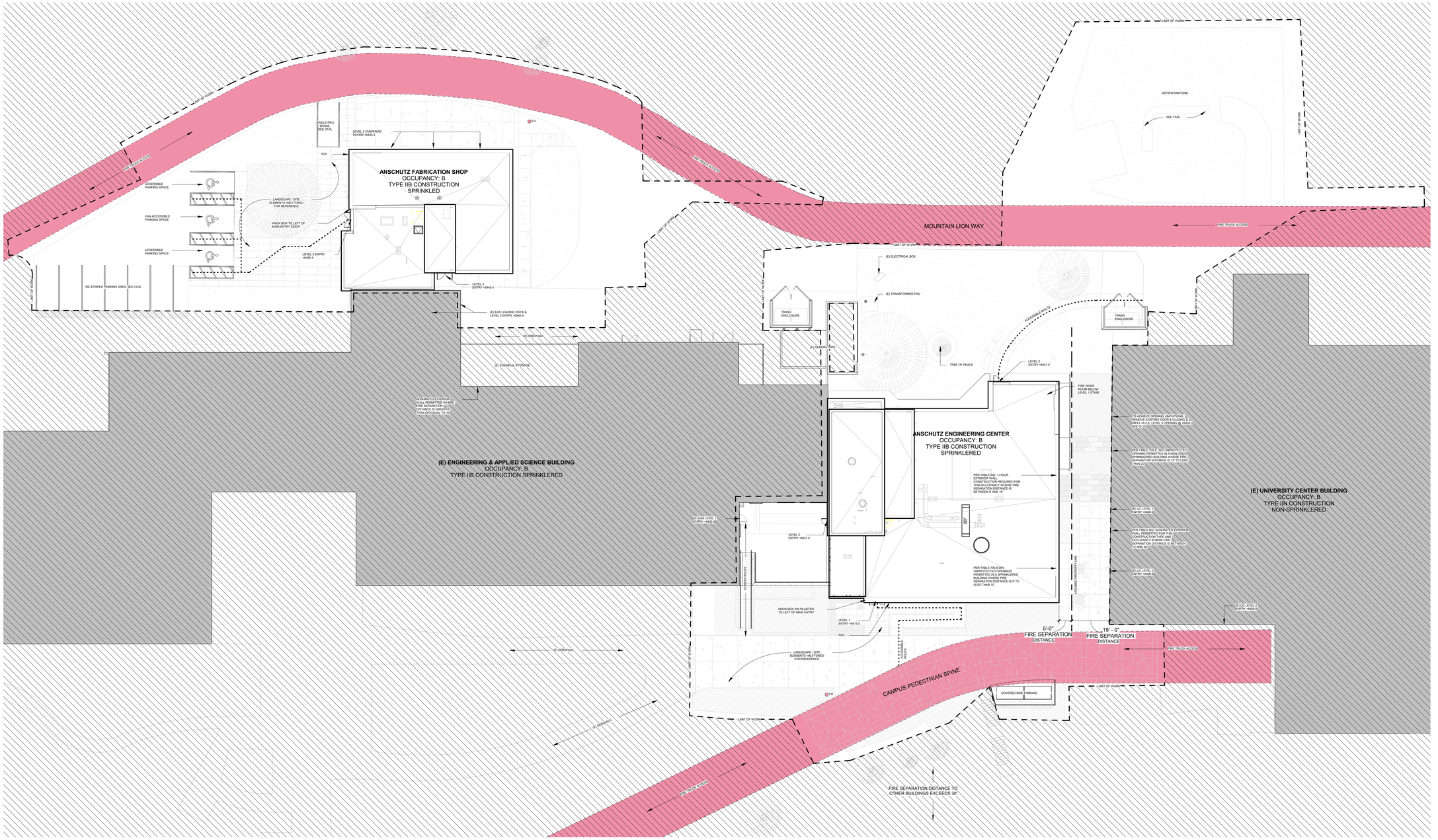
ALLOWABLE AREA OF UNPROTECTED OPENINGS BASED ON FIRE SEPARATION DISTANCE:
0'-3': NOT PERMITTED
3'-5': 15%
5'-10': 25%
10'-15': 45%
15'-20': 75%
>20': NO LIMIT

SITE CODE PLAN GRAPHICS LEGEND

NEW LAB BUILDING & SHOP BUILDING FIT WITHIN ALLOWABLE AREA OF EXISTING EAS BUILDING. NO ASSUMED PROPERTY LINES OR FIRE SEPARATION REQUIRED BETWEEN THESE BUILDINGS. SEE NOTES ON G-101.

- FH — NEW FIRE HYDRANT
- (E) FH — EXISTING FIRE HYDRANT
- FIRE TRUCK ACCESS
- AREA NOT IN SCOPE
- LIMIT OF WORK

NOTE: THIS SHEET IS INTENDED TO BE PRINTED IN COLOR



1 SITE CODE PLAN
1/16" = 1'-0"

TRUE NORTH
PROJECT NORTH

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SHEET TITLE:
SITE CODE PLAN

SCALE: As indicated
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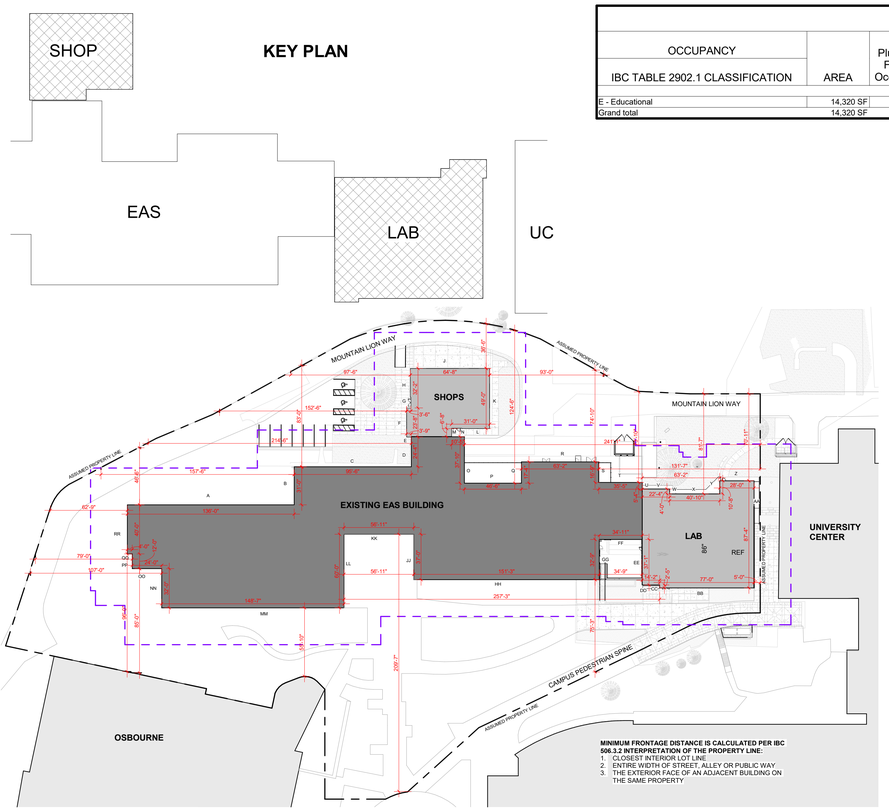

3 FRONTAGE INCREASE DIAGRAM

1" = 50'-0"

PLUMBING FIXTURE CALCULATIONS - LAB BLDG

OCCUPANCY			DESIGN POPULATION		WATER CLOSETS				LAVS				TUB / SHOWER REQ'D.	TUB / SHOWER PROVIDED	DF REQ'D	DF PROVIDED	SS REQ	SS PROVIDED
IBC TABLE 2902.1 CLASSIFICATION	AREA	Plumbing Fixture Occupants	MEN	WOMEN	MEN REQ'D.	MEN PROVIDED	WOMEN REQ'D.	WOMEN PROVIDED	MEN REQ'D.	MEN PROVIDED	WOMEN REQ'D.	WOMEN PROVIDED						
E - Educational	14,320 SF	459	230	230	4.60	5	4.60	5	5.00	5	5.00	5	0	1	4.59	8 (4 HI-LO)	1	3
Grand total	14,320 SF	459	230	230	4.60	5	4.60	5	5.00	5	5.00	5	0	1	4.59	8 (4 HI-LO)	1	3

CODE PLAN NOTES

1	BUILDING SHALL BE SPRINKLERED THROUGHOUT IN ACCORDANCE WITH IBC CHAPTER 9 AND NFPA 13. PROVIDE DRY SPRINKLER SYSTEM WHERE APPROPRIATE AND AT ALL UNCONDITIONED LOCATIONS.
2	AREA OF REFUGE IS NOT REQUIRED PER 1009.3.3, EXCEPTION 2.
3	SEE G-500 SERIES SHEETS FOR LISTED ASSEMBLIES FOR FLOOR/CEILINGS, ROOF/CEILINGS, EXTERIOR WALLS, AND PARTITIONS. LISTED FIRE-RESISTIVE ASSEMBLIES MAY BE SUBSTITUTED WITH APPROVAL OF AUTHORITY HAVING JURISDICTION AND ARCHITECT.
4	SEE DOOR SCHEDULE, SHEET A-600 FOR DOOR RATINGS. ALL RATED DOORS TO COMPLY WITH IBC 716
5	ALL PENETRATIONS THROUGH FLOORS AND RATED WALLS TO BE FIRESTOPPED IN ACCORDANCE WITH IBC CHAPTER 7.
6	THE GC IS TO COORDINATE FIRE DEPARTMENT CONNECTION (FDC) LOCATION WITH AUTHORITY HAVING JURISDICTION AND ARCHITECT.
7	THE GC IS TO COORDINATE KNOX BOX LOCATION WITH FIRE DEPARTMENT AND ARCHITECT.

CODE PLAN FUNCTION & USE LEGEND - IBC TABLE 1004.5

- ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM
- ASSEMBLY AREAS WITHOUT FIXED SEATS, UNCONCENTRATED (TABLES & CHAIRS)
- EDUCATIONAL - CLASSROOM AREA
- BUSINESS AREAS
- SHOPS AND OTHER VOCATIONAL ROOM AREAS

EXIT ACCESS TRAVEL DISTANCE

PATH SEGMENT NAME	PATH SEGMENT LENGTH	MAX DISTANCE ALLOWED
COMMON PATH OF EGRESS		
MAX DISTANCE COMMON PATH ROOM 301	77' - 6"	100' - 0"
TRAVEL DISTANCE		
MAX EXIT ACCESS DISTANCE PATH F	243' - 1"	300' - 0"

CODE SHEET GRAPHICS LEGEND

Room name 101 — ROOM NUMBER
AREA 15000 SF — OCC'PANT LOAD FACTOR 100
OCCUPANTS 1 — OCCUPANCY CLASSIFICATION A-2
REQUIRED EXITS

- FW — CHAPTER 7 CODE CONSTRUCTION DESIGNATION
- 1 HR. RATED ASSEMBLY
- 2 HR. RATED ASSEMBLY
- 3 HR. RATED ASSEMBLY
- 1/2 HR. RATED ASSEMBLY
- SMOKE PARTITION (NON-RATED ASSEMBLY)
- NON-RATED ASSEMBLY
- 23 — EXIT LOAD AT DOOR
- REQUIRED EXIT DESIGNATION
- NAMED PATH OF TRAVEL - SEE SCHEDULE FOR TOTAL TRAVEL DISTANCE
- EGRESS PATH — DIRECTION OF TRAVEL
- FE — FIRE EXTINGUISHER
- A — SIGNAGE TYPE TAG

FIRE RESISTANCE DESIGNATIONS

FW	FIRE WALL (IBC SECTION 706)
FB	FIRE BARRIER (IBC SECTION 707)
FP	FIRE PARTITION (IBC SECTION 708)
SB	SMOKE BARRIER (IBC SECTION 709)
SP	SMOKE PARTITION (IBC SECTION 710)
SE	SHAFT ENCLOSURE (IBC SECTION 713)

BUILDING CODE INFORMATION

APPLICABLE CODES:
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2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2009 ICC/ANSI A 117.1
2020 NATIONAL ELECTRICAL CODE (NEC)

OCCUPANCY CLASSIFICATION:
LAB BLDG: B SINGLE OCCUPANCY, WITH A-3 AS AN ACCESORY OCCUPANCY, NON-SEPARATED PER IBC 508.3
SHOP BLDG: B SINGLE OCCUPANCY, WITH A-3 AS AN ACCESORY OCCUPANCY, NON-SEPARATED PER IBC 508.3

CONSTRUCTION TYPE: LAB & SHOP BLDGS: TYPE IIB

FIRE SUPPRESSION: LAB & SHOP BLDGS: FULLY SPRINKLERED PER NFPA 13.

BASIC ALLOWABLE, PER TABLE 506.2: 69,000 SF PER FLOOR, 207,000 SF TOTAL
ACTUAL ALLOWABLE, PER 506.2.3, EQ. 5-2: 81,420 SF PER FLOOR, 162,840 SF TOTAL

	(E) EAS	LAB	SHOPS	TOTAL	BASIC	ACTUAL
LEVEL 1	-	7,138	-	7,138	69,000	81,420
LEVEL 2	35,300	6,724	-	42,024	69,000	81,420
LEVEL 3	35,300	6,718	3,438	45,456	69,000	81,420
TOTAL	70,600	20,580	3,438	94,618	207,000	162,840
ALLOWABLE HEIGHT, PER 504.3 & 4:			4 STORIES, 75 FT			
ACTUAL HEIGHT:			LAB BLDG: 3 STORIES, 56 FT SHOP BLDG: 1 STORY, 20 FT			

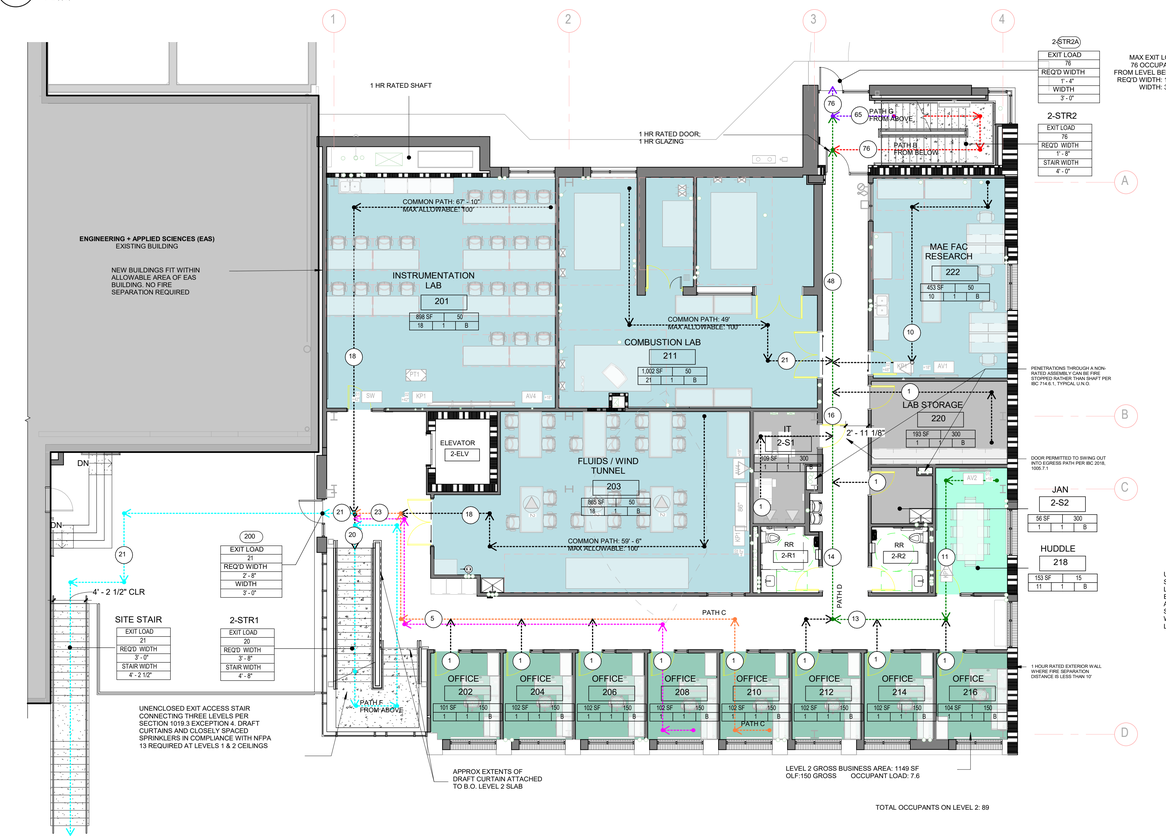
TABLE 601: FIRE RESISTANCE REQUIREMENTS:
PRIMARY STRUCTURAL FRAME: 0 HR
EXTERIOR BEARING WALLS: 0 HR
INTERIOR BEARING WALLS: 0 HR
EXTERIOR NON-BEARING WALLS*: 1 HR < 10' PER TABLE 602
INTERIOR NON-BEARING WALLS: 0 HR
FLOOR CONSTRUCTION: 0 HR
ROOF CONSTRUCTION: 0 HR
* EXTERIOR NON-BEARING WALLS WITH FIRE SEPARATION DISTANCE > 10' NEED ONLY BE RATED FOR FIRE EXPOSURE FROM INSIDE.

TABLE 705.8: ALLOWABLE AREA OF UNPROTECTED OPENINGS BASED ON FIRE SEPARATION DISTANCE:
0'-3': NOT PERMITTED
3'-5': 15%
5'-10': 25%
10'-15': 45%
15'-20': 75%
>20': NO LIMIT

EXIT WIDTH:
STAIRS: .3" PER OCCUPANT
OTHER: .2" PER OCCUPANT
EXIT ACCESS TRAVEL DISTANCE (MAXIMUM LENGTH): 300 FEET
COMMON PATH OF EGRESS TRAVEL (MAXIMUM LENGTH): 100 FEET

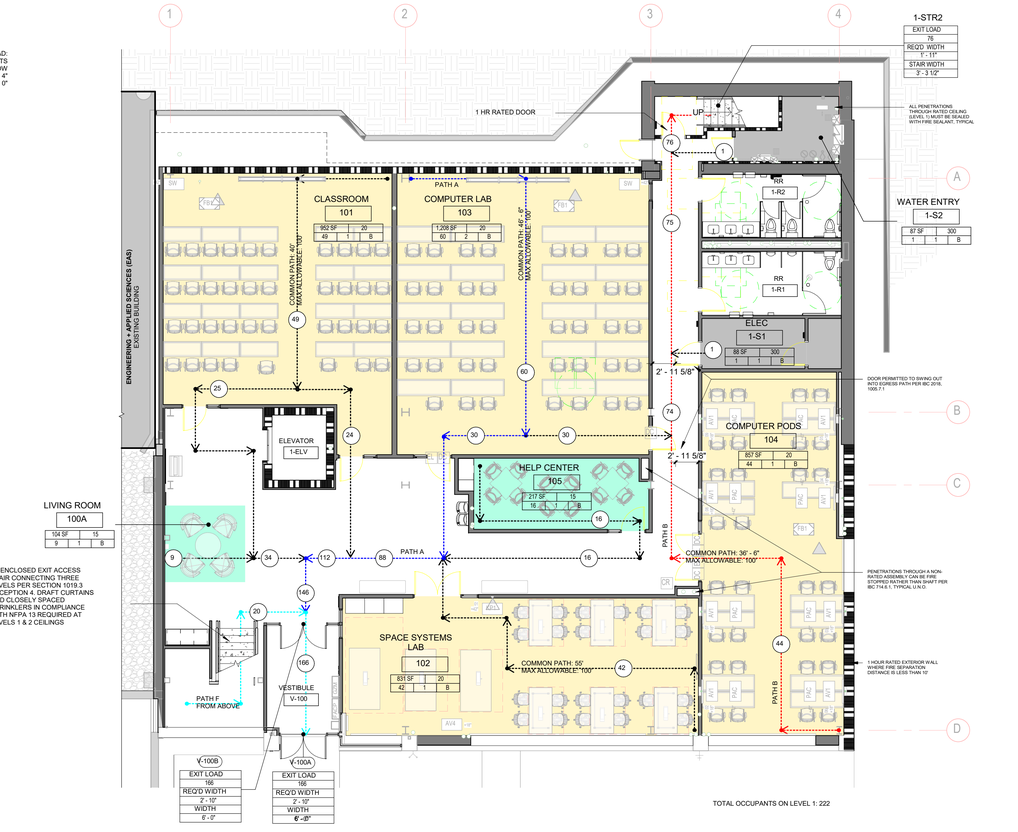
ROOF COVERING CLASSIFICATION (MINIMUM): CLASS C
INTERIOR WALL & CEILING FINISH REQUIREMENTS (MINIMUM):
EXIT STAIRS & EXIT PASSAGEWAYS: CLASS B
CORRIDORS & EXIT ACCESS STAIRS: CLASS C
ROOMS: CLASS C

IECC COMPLIANCE PATH: C401.1, PRESCRIPTIVE PATH



2 LEVEL 2 CODE PLAN - LAB BLDG

1/8" = 1'-0"



1 LEVEL 1 CODE PLAN - LAB BLDG

1/8" = 1'-0"

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STATE OF COLORADO — DAVID JOHN SCHAFER — #203158 — LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

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REVISIONS:

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SHEET TITLE:
LEVEL 1 & 2 BUILDING CODE PLANS

SCALE: As indicated
SHEET NUMBER
G-101

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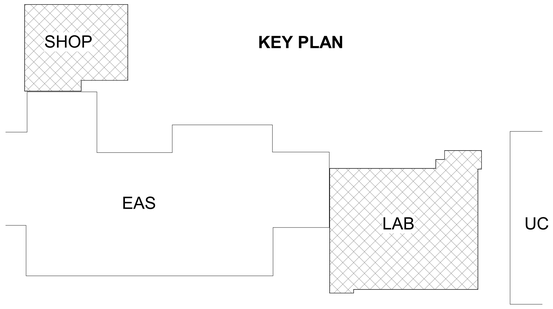

KEY PLAN

PLUMBING FIXTURE CALCULATIONS - LAB BLDG

OCCUPANCY		Plumbing Fixture Occupants	DESIGN POPULATION		WATER CLOSETS				LAVS				TUB / SHOWER REQ'D.	TUB / SHOWER PROVIDED	DF REQ'D	DF PROVIDED	SS REQ	SS PROVIDED
IBC TABLE 2902.1 CLASSIFICATION	AREA		MEN	WOMEN	MEN REQ'D.	MEN PROVIDED	WOMEN REQ'D.	WOMEN PROVIDED	MEN REQ'D.	MEN PROVIDED	WOMEN REQ'D.	WOMEN PROVIDED						
E - Educational	14,320 SF	459	230	230	4.60	5	4.60	5	5.00	5	5.00	5	0	1	4.59	8 (4 HI-LO)	1	3
Grand total	14,320 SF	459	230	230	4.60	5	4.60	5	5.00	5	5.00	5	0	1	4.59	8 (4 HI-LO)	1	3

CHEMICAL LIST MAXIMUM ALLOWABLE QUANTITY (IBC Table 307.1)

ECE:		Class:	Storage:	Use-Closed Systems:	Use-Open Systems:	Actual Use:
Flammable Liquids	Solder Flux	IB	120 gal	120 gal	30 gal	<1 gal
	Isopropyl Alcohol	IB	120 gal	120 gal	30 gal	<1 gal
Flammable Gases	Natural Gas	Gaseous	1,000 f3	1,000 f3	N/A	NONE
Inert Gases	Nitrogen (N_2)	Gaseous	Not Limited	Not Limited	Not Limited	32 gal

Combustion Lab:		Class:	Storage:	Use-Closed Systems:	Use-Open Systems:	Actual Use:
Flammable Gases	Natural Gas	Gaseous	1,000 f3	1,000 f3	N/A	.0167 ft3
	Hydrogen (H_2)	Gaseous	1,000 f3	1,000 f3	N/A	.0167 ft3
	Ethylene (C_2H_4)	Gaseous	1,000 f3	1,000 f3	N/A	.0167 ft3
	Propane (C_3H_8)	Gaseous	1,000 f3	1,000 f3	N/A	.0167 ft3
Oxidizing Gases	Oxygen (O_2)	Gaseous	1,500 f3	1,500 f3	N/A	8.1 ft3
	Nitrous Oxide (N_2O)	Gaseous	1,500 f3	1,500 f3	N/A	8.1 ft3
Inert Gases	Carbon Dioxide (CO_2)	Gaseous	Not Limited	Not Limited	Not Limited	250 ft3
	Helium (He)	Gaseous	Not Limited	Not Limited	Not Limited	250 ft3
	Argon (Ar)	Gaseous	Not Limited	Not Limited	Not Limited	250 ft3
	Nitrogen (N_2)	Gaseous	Not Limited		Not Limited	250 ft3
Combustable Liquids	JP-8	II	120 gal	120 gal	30 gal	<10 gal
	Jet A	II	120 gal	120 gal	30 gal	<10 gal
	Formaldehyde	IIIA	330 gal	330 gal	80 gal	<1 gal
Flammable Liquids	Heptane	IA	30 gal	30 gal	10 gal	<1 gal
	Ethanol	IB	120 gal	120 gal	30 gal	<10 gal
	Methanol	IB	120 gal	120 gal	30 gal	<1 gal
	Acetone	IB	120 gal	120 gal	30 gal	<1 gal
	Isopropyl Alcohol	IB	120 gal	120 gal	30 gal	<1 gal
	Soldering Flux	IB	120 gal	120 gal	30 gal	<1 gal
	PVC Cement	IB	120 gal	120 gal	30 gal	<1 gal
Combustable Dust	Sodium Hydroxide (NaOH)	N/A	See Note*	See Note*	See Note*	<10 lb

Does not meet critera for classification:	Note
Pipe Thread Compound Rhodamine 6g Fluorescein DCM	* Where manufactured, generated, or used in such a manner that the concentration and conditions create a fire or explosion hazard based on the information prepared in accordance with Explosion Control Requirements in IBC Table 414.5.1

2018 IECC COMPLIANCE - PRESCRIPTIVE PATH WITH COMCHECK

OPAQUE THERMAL INSULATION COMPONENT R-VALUES	
ROOFS, INSULATION ENTIRELY ABOVE DECK	R-30 CI
WALLS, METAL FRAMED, ABOVE GRADE	R-13 BATT, R-18 CI
WALLS, MASS	R-18 CI
WALL, BELOW GRADE	R-18 CI
FLOORS, UNHEATED SLAB-ON-GRADE	R-10 CI, 24" BELOW
OPAQUE THERMAL INSULATION COMPONENT U-VALUES	
DOORS, SWINGING	U 0.37
DOORS, OVERHEAD	U 0.31
FENESTRATION COMPONENT U-VALUES	
FIXED FENESTRATION	U 0.36
ENTRANCE DOORS	U 0.63
STAIR ONE CURTAIN WALL	U 0.23
SKYLIGHT	U 0.50
FENESTRATION COMPONENT SHGC VALUES	
FIXED FENESTRATION	SHGC 0.38
ENTRANCE DOORS	SHGC 0.33
STAIR ONE CURTAIN WALL	SHGC 0.23
SKYLIGHT	SHGC 0.40
AIR BARRIER	
CONTINUOUS FROM ROOF TO WALL TO SLAB-ON-GRADE	

CODE PLAN NOTES

1	BUILDING SHALL BE SPRINKLERED THROUGHOUT IN ACCORDANCE WITH IBC CHAPTER 9 AND NFPA 13. PROVIDE DRY SPRINKLER SYSTEM WHERE APPROPRIATE AND AT ALL UNCONDITIONED LOCATIONS.
2	AREA OF REFUGE IS NOT REQUIRED PER 1009.3.3, EXCEPTION 2.
3	SEE G-500 SERIES SHEETS FOR LISTED ASSEMBLIES FOR FLOOR/CEILINGS, ROOF/CEILINGS, EXTERIOR WALLS, AND PARTITIONS. LISTED FIRE-RESISTIVE ASSEMBLIES MAY BE SUBSTITUTED WITH APPROVAL OF AUTHORITY HAVING JURISDICTION AND ARCHITECT.
4	SEE DOOR SCHEDULE, SHEET A-600 FOR DOOR RATINGS. ALL RATED DOORS TO COMPLY WITH IBC 716
5	ALL PENETRATIONS THROUGH FLOORS AND RATED WALLS TO BE FIRESTOPPED IN ACCORDANCE WITH IBC CHAPTER 7.
6	THE GC IS TO COORDINATE FIRE DEPARTMENT CONNECTION (FDC) LOCATION WITH AUTHORITY HAVING JURISDICTION AND ARCHITECT.
7	THE GC IS TO COORDINATE KNOX BOX LOCATION WITH FIRE DEPARTMENT AND ARCHITECT

CODE PLAN FUNCTION & USE LEGEND - IBC TABLE 1004.5

- ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM
- ASSEMBLY AREAS WITHOUT FIXED SEATS, UNCONCENTRATED (TABLES & CHAIRS)
- EDUCATIONAL - CLASSROOM AREA
- BUSINESS AREAS
- SHOPS AND OTHER VOCATIONAL ROOM AREAS

EXIT ACCESS TRAVEL DISTANCE

PATH SEGMENT NAME	PATH SEGMENT LENGTH	MAX DISTANCE ALLOWED
COMMON PATH OF EGRESS		
MAX DISTANCE COMMON PATH ROOM 301	77' - 6"	100' - 0"
TRAVEL DISTANCE		
MAX EXIT ACCESS DISTANCE PATH F	243' - 1"	300' - 0"

CODE SHEET GRAPHICS LEGEND

Room name 101 — ROOM NUMBER
AREA 15000 SF — OCCUPANT LOAD FACTOR
OCCUPANTS 100 — OCCUPANCY CLASSIFICATION
REQUIRED EXITS
CHAPTER 7 CODE CONSTRUCTION DESIGNATION
1 HR. RATED ASSEMBLY
2 HR. RATED ASSEMBLY
3 HR. RATED ASSEMBLY
1/2 HR. RATED ASSEMBLY
SMOKE PARTITION (NON-RATED ASSEMBLY)
NON-RATED ASSEMBLY
EXIT LOAD AT DOOR
REQUIRED EXIT DESIGNATION
NAMED PATH OF TRAVEL - SEE SCHEDULE FOR TOTAL TRAVEL DISTANCE
DIRECTION OF TRAVEL
FIRE EXTINGUISHER
SIGNAGE TYPE TAG

FIRE RESISTANCE DESIGNATIONS

FW	FIRE WALL (IBC SECTION 706)
FB	FIRE BARRIER (IBC SECTION 707)
FP	FIRE PARTITION (IBC SECTION 708)
SB	SMOKE BARRIER (IBC SECTION 709)
SP	SMOKE PARTITION (IBC SECTION 710)
SE	SHAFT ENCLOSURE (IBC SECTION 713)

BUILDING CODE INFORMATION

APPLICABLE CODES:
2018 INTERNATIONAL BUILDING CODE (IBC)
2018 INTERNATIONAL FIRE CODE (IFC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL PLUMBING CODE (IPC)
2018 INTERNATIONAL FUEL AND GAS CODE (IFGC)
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2009 ICC/ANSI A117.1
2020 NATIONAL ELECTRICAL CODE (NEC)

OCCUPANCY CLASSIFICATION:
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TOTAL	70,600	20,580	3,438	94,618	207,000	162,840

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ACTUAL HEIGHT: LAB BLDG: 3 STORIES, 56 FT; SHOP BLDG: 1 STORY, 20 FT

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EXTERIOR NON-BEARING WALLS*: 1 HR < 10' PER TABLE 602
INTERIOR NON-BEARING WALLS: 0 HR
FLOOR CONSTRUCTION: 0 HR
ROOF CONSTRUCTION: 0 HR
* EXTERIOR NON-BEARING WALLS WITH FIRE SEPARATION DISTANCE > 10' NEED ONLY BE RATED FOR FIRE EXPOSURE FROM INSIDE.

TABLE 705.8: ALLOWABLE AREA OF UNPROTECTED OPENINGS BASED ON FIRE SEPARATION DISTANCE:
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3'-5': 15%
5'-10': 25%
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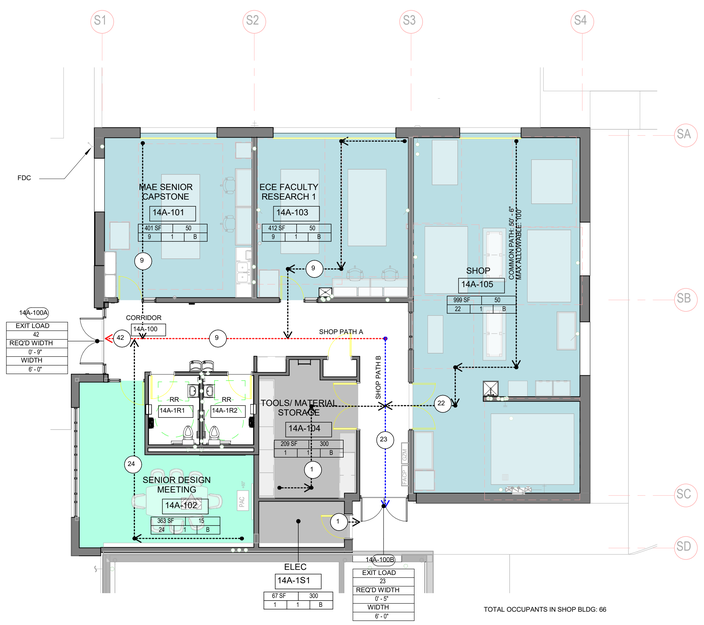
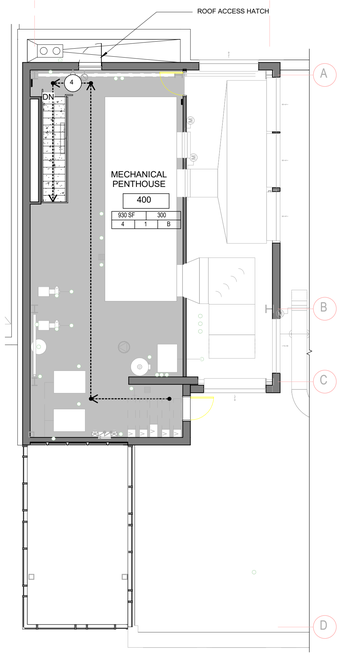
EXIT WIDTH:
STAIRS: .3" PER OCCUPANT
OTHER: .2" PER OCCUPANT
EXIT ACCESS TRAVEL DISTANCE (MAXIMUM LENGTH): 300 FEET
COMMON PATH OF EGRESS TRAVEL (MAXIMUM LENGTH): 100 FEET

ROOF COVERING CLASSIFICATION (MINIMUM): CLASS C
INTERIOR WALL & CEILING FINISH REQUIREMENTS (MINIMUM):
EXIT STAIRS & EXIT PASSAGEWAYS: CLASS B
CORRIDORS & EXIT ACCESS STAIRS: CLASS C
ROOMS: CLASS C

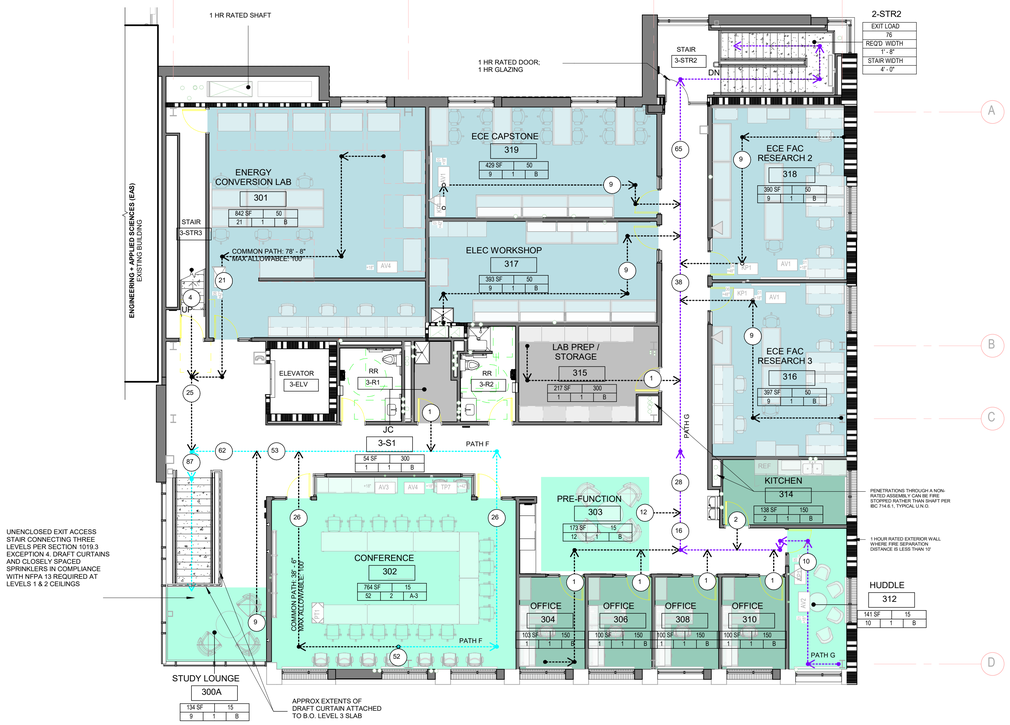
IECC COMPLIANCE PATH: C401.1, PRESCRIPTIVE PATH



TOTAL OCCUPANTS IN SHOP BLDG: 66



TOTAL OCCUPANTS ON LEVEL 4: 4



UNENCLOSED EXIT ACCESS STAIR CONNECTING THREE LEVELS PER SECTION 1019.3 EXCEPTION 4. DRAFT CURTAINS AND CLOSELY SPACED SPRINKLERS IN COMPLIANCE WITH NFPA 13 REQUIRED AT LEVELS 1 & 2 CEILINGS

TOTAL OCCUPANTS ON LEVEL 3: 148

3 LEVEL 3 CODE PLAN - SHOP BLDG
1/8" = 1'-0"

2 ROOF CODE PLAN - LAB BLDG
1/8" = 1'-0"

1 LEVEL 3 CODE PLAN - LAB BLDG
1/8" = 1'-0"

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ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
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SHEET TITLE:
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SCALE: As indicated
SHEET NUMBER
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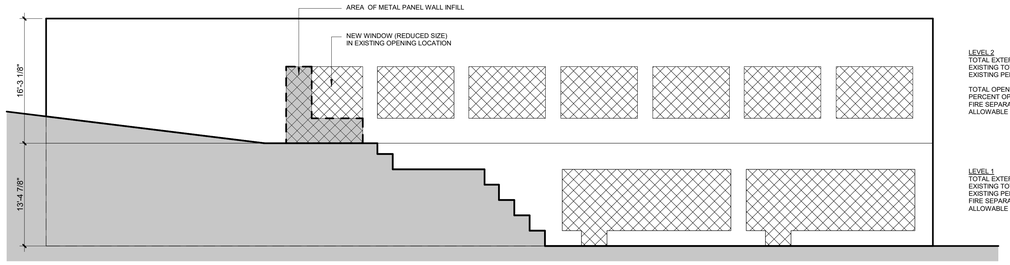


LEVEL 2
TOTAL EXTERIOR WALL AREA: 1881 SF
EXISTING TOTAL OPENING AREA: 505 SF
EXISTING PERCENT OPENINGS: 26%

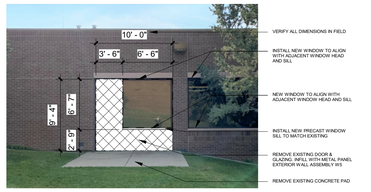
TOTAL OPENING AREA W/INFILL: 450 SF
PERCENT OPENINGS W/INFILL: 24%
FIRE SEPARATION DISTANCE: 15'
ALLOWABLE OPENING AREA: 25%

LEVEL 1
TOTAL EXTERIOR WALL AREA: 1550 SF
EXISTING TOTAL OPENING AREA: 365 SF
EXISTING PERCENT OPENINGS: 23%
FIRE SEPARATION DISTANCE: 15'
ALLOWABLE OPENING AREA: 25%

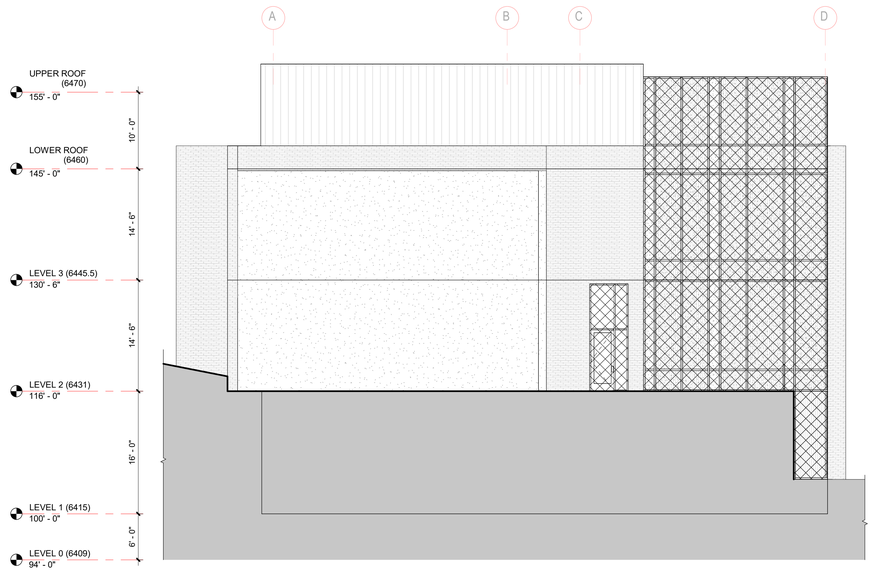
EXTERIOR WALL OPENINGS
TOTAL EXTERIOR WALL AREA: 3431 SF
TOTAL EXISTING OPENING AREA: 870 SF
PERCENT OPENINGS: 25%
FIRE SEPARATION DISTANCE: 15'
ALLOWABLE OPENING AREA: 25%

5 WEST CODE ELEVATION - UNIVERSITY CENTER

1/8" = 1'-0"



UNIVERSITY CENTER WINDOW INFILL



LEVEL 4
TOTAL EXTERIOR WALL AREA: 984 SF
TOTAL OPENING AREA: 288 SF
PERCENT OPENINGS: 29%
FIRE SEPARATION DISTANCE: N/A
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 3
TOTAL EXTERIOR WALL AREA: 1135 SF
TOTAL OPENING AREA: 348 SF
PERCENT OPENINGS: 31%
FIRE SEPARATION DISTANCE: N/A
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 2
TOTAL EXTERIOR WALL AREA: 1135 SF
TOTAL OPENING AREA: 418 SF
PERCENT OPENINGS: 37%
FIRE SEPARATION DISTANCE: N/A
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 1
TOTAL EXTERIOR WALL AREA: 1181 SF
TOTAL OPENING AREA: 51 SF
PERCENT OPENINGS: 4%
FIRE SEPARATION DISTANCE: N/A
ALLOWABLE OPENING AREA: NO LIMIT

EXTERIOR WALL OPENINGS ABOVE GRADE
TOTAL EXTERIOR WALL AREA: 3305 SF
TOTAL OPENING AREA: 1105 SF
PERCENT OPENINGS: 33%
FIRE SEPARATION DISTANCE: N/A
ALLOWABLE OPENING AREA: NO LIMIT

EXTERIOR WALL OPENINGS
TOTAL EXTERIOR WALL AREA: 4435 SF
TOTAL OPENING AREA: 1105 SF
PERCENT OPENINGS: 25%
FIRE SEPARATION DISTANCE: N/A
ALLOWABLE OPENING AREA: NO LIMIT

4 WEST CODE ELEVATION - LAB BLDG

1/8" = 1'-0"

LEVEL 4
TOTAL EXTERIOR WALL AREA: 416 SF
TOTAL OPENING AREA: 199 SF
PERCENT OPENINGS: 48%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 3
TOTAL EXTERIOR WALL AREA: 1316 SF
TOTAL OPENING AREA: 711 SF
PERCENT OPENINGS: 54%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 2
TOTAL EXTERIOR WALL AREA: 1316 SF
TOTAL OPENING AREA: 711 SF
PERCENT OPENINGS: 54%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 1
TOTAL EXTERIOR WALL AREA: 1452 SF
TOTAL OPENING AREA: 870 SF
PERCENT OPENINGS: 60%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 0
TOTAL EXTERIOR WALL AREA: 462 SF
TOTAL OPENING AREA: 0 SF
PERCENT OPENINGS: 0%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

EXTERIOR WALL OPENINGS ABOVE GRADE
TOTAL EXTERIOR WALL AREA: 3655 SF
TOTAL OPENING AREA: 2484 SF
PERCENT OPENINGS: 53%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

EXTERIOR WALL OPENINGS
TOTAL EXTERIOR WALL AREA: 4961 SF
TOTAL OPENING AREA: 2490 SF
PERCENT OPENINGS: 50%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

3 SOUTH CODE ELEVATION - LAB BLDG

1/8" = 1'-0"

LEVEL 4 FSD B
TOTAL EXTERIOR WALL AREA: 970 SF
TOTAL OPENING AREA: 346 SF
PERCENT OPENINGS: 36%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 3 FSD A
TOTAL EXTERIOR WALL AREA: 1266 SF
TOTAL OPENING AREA: 296 SF
PERCENT OPENINGS: 23%
FIRE SEPARATION DISTANCE: 5'
ALLOWABLE OPENING AREA: 25%

LEVEL 2 FSD A
TOTAL EXTERIOR WALL AREA: 1266 SF
TOTAL OPENING AREA: 232 SF
PERCENT OPENINGS: 18%
FIRE SEPARATION DISTANCE: 5'
ALLOWABLE OPENING AREA: 25%

LEVEL 1 FSD A
TOTAL EXTERIOR WALL AREA: 1397 SF
TOTAL OPENING AREA: 64 SF
PERCENT OPENINGS: 5%
FIRE SEPARATION DISTANCE: 5'
ALLOWABLE OPENING AREA: 25%

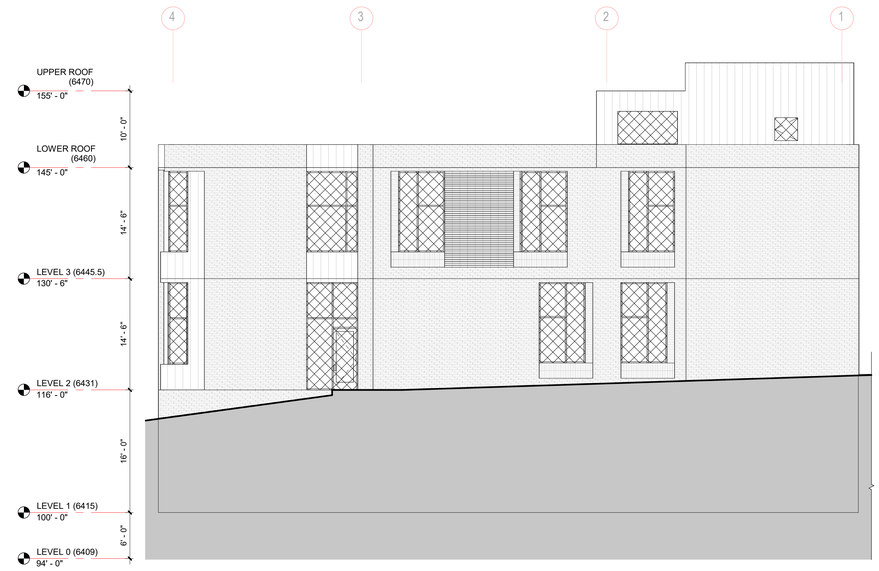
LEVEL 0 FSD A
TOTAL EXTERIOR WALL AREA: 524 SF
TOTAL OPENING AREA: 0 SF
PERCENT OPENINGS: 0%
FIRE SEPARATION DISTANCE: 5'
ALLOWABLE OPENING AREA: 25%

EXTERIOR WALL OPENINGS ABOVE GRADE FSD A
TOTAL EXTERIOR WALL AREA: 3912 SF
TOTAL OPENING AREA: 620 SF
PERCENT OPENINGS: 16%
FIRE SEPARATION DISTANCE: 5'
ALLOWABLE OPENING AREA: 25%

EXTERIOR WALL OPENINGS FSD A
TOTAL EXTERIOR WALL AREA: 4454 SF
TOTAL OPENING AREA: 620 SF
PERCENT OPENINGS: 14%
FIRE SEPARATION DISTANCE: 5'
ALLOWABLE OPENING AREA: 25%

2 EAST CODE ELEVATION - LAB BLDG

1/8" = 1'-0"



LEVEL 4
TOTAL EXTERIOR WALL AREA: 418 SF
TOTAL OPENING AREA: 42 SF
PERCENT OPENINGS: 10%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 3
TOTAL EXTERIOR WALL AREA: 1316 SF
TOTAL OPENING AREA: 285 SF
PERCENT OPENINGS: 22%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 2
TOTAL EXTERIOR WALL AREA: 1316 SF
TOTAL OPENING AREA: 246 SF
PERCENT OPENINGS: 19%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

LEVEL 1
TOTAL EXTERIOR WALL AREA: 1462 SF
TOTAL OPENING AREA: 0 SF
PERCENT OPENINGS: 0%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

EXTERIOR WALL OPENINGS ABOVE GRADE
TOTAL EXTERIOR WALL AREA: 3062 SF
TOTAL OPENING AREA: 576 SF
PERCENT OPENINGS: 19%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

EXTERIOR WALL OPENINGS
TOTAL EXTERIOR WALL AREA: 4531 SF
TOTAL OPENING AREA: 576 SF
PERCENT OPENINGS: 13%
FIRE SEPARATION DISTANCE: OVER 30'
ALLOWABLE OPENING AREA: NO LIMIT

1 NORTH CODE ELEVATION - LAB BLDG

1/8" = 1'-0"

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STATE OF COLORADO
DAVID JOHN SCHAFER
#203158
LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
DRAWN: WM
CHECKED: CD
APPROVED: LM
DATE: 10/26/2022
REVISIONS:

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ISSUED FOR:
100% CD / PACKAGE 3

SHEET TITLE:
CODE ELEVATIONS

SCALE: 1/8" = 1'-0"
SHEET NUMBER
G-103

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Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C402.5.6 [FI37][1]	Weatherseals installed on all loading dock cargo door openings and provide direct contact along the top and sides of vehicles parked in the doorway.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.5.8 [FI26][3]	Recessed luminaires in thermal envelope to limit infiltration and be IC rated and labeled. Seal between interior finish and luminaire housing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Insulation Inspection	Complies?	Comments/Assumptions
C303.1 [IN3][1]	Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the roof slope is <=3 in 12.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.2.1 [IN20][1]	Insulation installed on a suspended ceiling having ceiling tiles is not being specified for roor/ceiling assemblies. Continuous insulation board installed in 2 or more layers with edge joints offset between layers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C303.1 [IN10][2]	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C303.2 [IN7][1]	Above-grade wall insulation installed per manufacturer's instructions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.1.3 [IN19][3]	Non-swinging opaque doors have R-4.75 insulation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.2.1.1 [IN4][3]	Skylight curbs are insulated to the level of roofs with insulation above deck or R-5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C105 [IN6][1]	Installed above-grade wall insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
C402.2.3 [IN8][2]	Installed floor insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
C402.2.6 [IN18][3]	Radiant panels and associated components, designed for heat transfer from the panel surfaces to the occupants or indoor space are insulated with a minimum of R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C105 [IN2][1]	Installed roof insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports. For some ceiling systems, verification may need to occur during Framing Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
C402.5.1.1 [IN1][1]	All sources of air leakage in the building thermal envelope are sealed, caulked, gasketed, weather stripped or wrapped with moisture vapor-permeable wrapping material to minimize air leakage.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.7 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8.2, C405.8.2.1 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.5.5, C403.2.4.3 [ME3][3]	Stair and elevator shaft vents have motorized dampers that automatically close. Refernece section C403.7.7 for operational details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.7.7 [ME58][3]	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed. Reference section language for operational details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Framing / Rough-In Inspection	Complies?	Comments/Assumptions
C303.1.3 [FR12][2]	Fenestration products rated in accordance with NFRC.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C303.1.3 [FR13][1]	Fenestration products are certified as to performance labels or certificates provided.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.4.3 [FR10][1]	Vertical fenestration SHGC value.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
C402.4.3 [FR11][1]	Skylight SHGC value.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
C402.4.3, C402.4.3.4 [FR8][1]	Installed vertical fenestration U-factor and SHGC consistent with label specifications and as reported in plans and COMcheck reports.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
C402.4.3.4 [FR9][1]	Installed skylight U-factor and SHGC consistent with label specifications and as reported in plans and COMcheck reports.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
C402.5.1.2.1 [FR19][1]	The building envelope contains a continuous air barrier that is sealed in an approved manner and material permeability <= 0.004 dfm/ft2. Air barrier penetrations are sealed in an approved manner.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.5.2, C402.5.4 [FR18][3]	Factory-built fenestration and doors are labeled as meeting air leakage requirements.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.5.7 [FR17][3]	Vestibules are installed on all building entrances. Doors have self-closing devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C303.2 [FO4][2]	Slab edge insulation installed per manufacturer's instructions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C303.2.1 [FO6][1]	Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C105 [FO3][2]	Installed slab-on-grade insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*
C402.2.4 [FO7][2]	Slab edge insulation depth/length. Slab insulation extending away from building is covered by pavement or >= 10 inches of soil.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Envelope Assemblies table for values.*

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

COM*check* Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR1][1]	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.4.1 [PR10][1]	The vertical fenestration area <= 30 percent of the gross above-grade wall area.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.4.1 [PR11][1]	The skylight area <= 3 percent of the gross roof area.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.4.2 [PR14][1]	In enclosed spaces > 2,500 ft2 directly under a roof with ceiling heights >15 ft. and used as an office, lobby, atrium, concourse, corridor, storage, gymnasium/exercise center, convention center, automotive service, manufacturing, non-refrigerated warehouse, retail store, distribution/sorting area, transportation, or workshop, the following requirements apply: (a) the daylight zone under skylights is >= half the floor area; (b) the skylight area to daylight zone is >= 3 percent with a skylight VT >= 0.40; or a minimum skylight effective aperture >= 1 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C402.4.2.2 [PR15][1]	Skylights in office, storage, automotive service, manufacturing, non-refrigerated warehouse, retail store, and distribution/sorting area have a measured haze value > 90 percent unless designed to exclude direct sunlight.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Window: Other Window: Fixed, Perf. Specs.: Product ID Kawneer 451T, SHGC 0.36, VT 1.00, [Bldg. Use 2 - School/University] (c)	250	---	---	0.360	0.380

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) 'Other' components require supporting documentation for proposed U-factors.
(c) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
(d) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 13% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2018 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Door: Insulated Metal, Non-Swinging, [Bldg. Use 2 - School/University]	335	---	---	0.310	0.179
EAST					
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	3600	13.0	18.0	0.038	0.064
Window: Other Window: Fixed, Perf. Specs.: Product ID KAWNEER 451T, SHGC 0.36, VT 0.75, [Bldg. Use 1 - School/University] (c)	550	---	---	0.360	0.380
Ext. Wall: Concrete Block, 8in., Solid Grouted, Light Density, Furring: Metal, [Bldg. Use 1 - School/University]	1750	0.0	18.0	0.047	0.090
Window: Other Window: Fixed, Perf. Specs.: Product ID KAWNEER 451T, SHGC 0.36, VT 0.75, [Bldg. Use 1 - School/University] (c)	100	---	---	0.360	0.380
Ext. Wall: Other Exterior Wall, Heat capacity 0.0, [Bldg. Use 1 - School/University] (b)	215	---	---	0.300	0.064
Window: Other Window: Fixed, Perf. Specs.: Product ID Kawneer 1600, SHGC 0.30, VT 1.00, [Bldg. Use 1 - School/University] (c)	214	---	---	0.300	0.380
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 2 - School/University]	1200	13.0	18.0	0.038	0.064
Door: Insulated Metal, Swinging, [Bldg. Use 2 - School/University]	36	---	---	0.360	0.370
Window: Other Window: Fixed, Perf. Specs.: Product ID Kawneer 451T, SHGC 0.36, VT 1.00, [Bldg. Use 2 - School/University] (c)	100	---	---	0.360	0.380
SOUTH					
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	4300	13.0	18.0	0.038	0.064
Window: Other Window: Fixed, Perf. Specs.: Product ID KAWNEER 451T, SHGC 0.36, VT 1.00, [Bldg. Use 1 - School/University] (c)	1900	---	---	0.360	0.380
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID KAWNEER 1600, SHGC 0.36, VT 0.75, [Bldg. Use 1 - School/University] (c)	36	---	---	0.360	0.770
Ext. Wall: Other Exterior Wall, Heat capacity 0.0, [Bldg. Use 1 - School/University] (b)	700	---	---	0.300	0.064
Window: Other Window: Fixed, Perf. Specs.: Product ID Kawneer, SHGC 0.30, VT 1.00, [Bldg. Use 1 - School/University] (c)	699	---	---	0.300	0.380
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 2 - School/University]	800	13.0	0.0	0.124	0.064
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 2 - School/University]	700	13.0	18.0	0.038	0.064
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID Kawneer 451T, SHGC 0.36, VT 1.00, [Bldg. Use 2 - School/University] (c)	100	---	---	0.360	0.770
WEST					
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	1400	13.0	18.0	0.038	0.064
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID KAWNEER 1600, SHGC 0.36, VT 1.00, [Bldg. Use 1 - School/University] (c)	36	---	---	0.360	0.770
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	2100	13.0	0.0	0.124	0.064
Ext. Wall: Other Exterior Wall, Heat capacity 0.0, [Bldg. Use 1 - School/University] (b)	1000	---	---	0.300	0.064
Window: Other Window: Fixed, Perf. Specs.: Product ID Kawneer 1600, SHGC 0.30, VT 1.00, [Bldg. Use 1 - School/University] (c)	999	---	---	0.300	0.380
Ext. Wall: Solid Concrete, 12in. Thickness, Normal Density, Furring: Metal, [Bldg. Use 1 - School/University]	575	0.0	18.0	0.048	0.090
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 2 - School/University]	1100	13.0	18.0	0.038	0.064

COM*check* Software Version COMcheckWeb

Envelope Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	UCCS AEC
Location:	Colorado Springs, Colorado
Climate Zone:	5b
Project Type:	New Construction
Vertical Glazing / Wall Area:	22%
Skylight / Roof Area	0%

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
Reduced Lighting Power, 1.0 credit

Building Area	Floor Area
1-School/University : Nonresidential	20580
2-School/University : Nonresidential	3438

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Floor: Unheated Slab-On-Grade, Vertical 2 ft., [Bldg. Use 1 - School/University] (d)	450	---	10.0	0.540	0.540
Roof: Insulation Entirely Above Deck, [Bldg. Use 1 - School/University]	7300	---	30.0	0.032	0.032
Skylight: Metal Frame with Thermal Break: Glass, with Curb, Perf. Specs.: Product ID Skylight, SHGC 0.40, VT 1.00, [Bldg. Use 1 - School/University] (c)	28	---	---	0.500	0.500
Floor: Unheated Slab-On-Grade, Vertical 2 ft., [Bldg. Use 2 - School/University] (d)	250	---	10.0	0.540	0.540
Roof: Insulation Entirely Above Deck, [Bldg. Use 2 - School/University]	3500	---	30.0	0.032	0.032
NORTH					
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	3350	13.0	18.0	0.038	0.064
Window: Other Window: Fixed, Perf. Specs.: Product ID KAWNEER 451T, SHGC 0.48, VT 0.75, [Bldg. Use 1 - School/University] (c)	300	---	---	0.360	0.380
Ext. Wall: Concrete Block, 12in., Solid Grouted, Medium Density, Furring: Metal, [Bldg. Use 1 - School/University]	1350	0.0	18.0	0.047	0.090
Window: Other Window: Fixed, Perf. Specs.: Product ID KAWNEER 451T, SHGC 0.48, VT 0.75, [Bldg. Use 1 - School/University] (c)	250	---	---	0.360	0.380
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID KAWNEER 451T, SHGC 0.48, VT 0.75, [Bldg. Use 1 - School/University] (c)	24	---	---	0.360	0.770
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 2 - School/University]	1250	13.0	18.0	0.038	0.064

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APPROVED:	DS
DATE:	10/26/2022
REVISIONS:	

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ISSUED FOR:
100% CD / PACKAGE 3

SHEET TITLE:
COMCHECK

SCALE:

SHEET NUMBER
G-104

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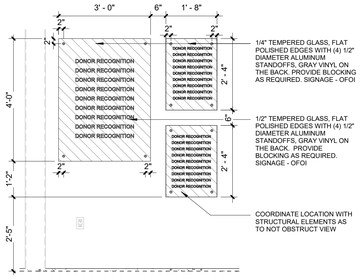
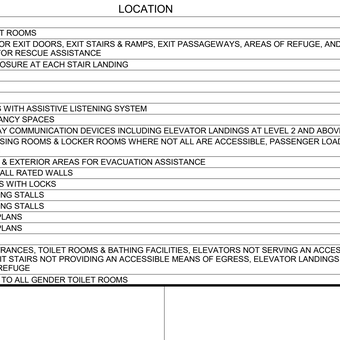
SIGNAGE TYPE SCHEDULE_IBC 2015

SIGN DESIGNATION	SIGN TYPE	LOCATION	CODE REFERENCE	VISUAL CHARACTERS	TACTILE	BRAILLE	PICTOGRAM	INT'L SYMBOL OF ACCESSIBILITY	PLACEMENT	COMMENTS
A	TOILET ROOM	ACCESSIBLE TOILET ROOMS	IBC 2902.4 & 1111	YES	YES	YES	YES	YES		
B	TACTILE EXIT	DOORS AT: EXTERIOR EXIT DOORS, EXIT STAIRS & RAMPS, EXIT PASSAGEWAYS, AREAS OF REFUGE, AND EXTERIOR AREAS FOR RESCUE ASSISTANCE	IBC 1013.4	YES	YES	YES	NO	NO		
C	STAIR IDENTIFICATION	INSIDE STAIR ENCLOSURE AT EACH STAIR LANDING	IBC 1023.9	YES	YES	YES	NO	NO	VISIBLE WHEN DOOR IS OPEN OR CLOSED	
D	ROOM IDENTIFICATION	OUTSIDE ROOM	ADAAG 216.2	YES	YES	YES	NO	NO		ROOM SIGNS ARE NOT REQUIRED, BUT IF PROVIDED THEY MUST MEET REQUIREMENTS
E	IN CASE OF FIRE	ELEVATORS	IBC 3002.3	YES	NO	NO	YES	NO	ABOVE EACH ELEVATOR CALL BUTTON	NOT USED AT ENTRY LEVEL & ELEVATORS PART OF AN ACCESSIBLE MEANS OF EGRESS OR USED FOR SELF-EVACUATION
F	ELEVATOR FLOOR INDICATOR	ELEVATORS	ICC A117.1 407.2.3	YES	YES	YES	NO	NO	BOTH ELEVATOR JAMBS	
G	ASSISTIVE LISTENING SYSTEM	ASSEMBLY SPACES WITH ASSISTIVE LISTENING SYSTEM	IBC 1111.3 & 1108.2.7	YES	NO	NO	YES	NO	NEAR ENTRANCE TO ROOM	PICTOGRAM TO BE INTERNATIONAL SYMBOL OF ACCESS FOR HEARING LOSS
H	MAXIMUM OCCUPANCY	ASSEMBLY OCCUPANCY SPACES	IBC 1004.3	YES	NO	NO	NO	NO	CONSPICUOUS PLACE NEAR MAIN DOOR	MAXIMUM OCCUPANCY OF ROOM PER CODE PLAN
I	2-WAY COMMUNICATION	ADJACENT TO 2-WAY COMMUNICATION DEVICES INCLUDING ELEVATOR LANDINGS AT LEVEL 2 AND ABOVE	IBC 1009.8.2, 1009.10 & 1009.11	YES	NO	NO	YES	NO	ADJACENT TO 2-WAY COMMUNICATION DEVICES	
J	ACCESSIBLE ELEMENTS	ENTRANCES, DRESSING ROOMS & LOCKER ROOMS WHERE NOT ALL ARE ACCESSIBLE, PASSENGER LOADING ZONES & LOCKERS	IBC 1111.1	YES	NO	NO	NO	YES	ENTRANCE TO ELEMENT	
K	AREA OF REFUGE	AREAS OF REFUGE & EXTERIOR AREAS FOR EVACUATION ASSISTANCE	IBC 1009.9 & 1009.11	YES	YES	YES	NO	YES	AT DOOR TO REFUGE AREA	ILLUMINATION ALSO REQUIRED
L	RATED WALL	ABOVE CEILING AT ALL RATED WALLS	IBC 703.7	YES	NO	NO	NO	NO	WITHIN 15' OF END OF WALL & 30' O.C. ALONG LENGTH OF WALL	NOT REQUIRED IN R-2 OCCUPANCY WHERE CEILING IS NOT ACCESSIBLE
M	LOCKED DOOR	MAIN ENTRY DOORS WITH LOCKS	IBC 1010.1.9.3	YES	NO	NO	NO	NO	DOOR FRAME ABOVE DOOR	ALLOWED AT MAIN DOORS OF GROUP A WITH A MAXIMUM OCCUPANT LOAD OF 300 AND GROUP B, F, M & S
N	ACCESSIBLE PARKING	ACCESSIBLE PARKING STALLS	IBC 1111.1 & ICC A117.1 502.7	YES	NO	NO	NO	YES	POST OR BUILDING-MOUNTED CENTERED ON PARKING SPACE, 5'-0" TO BOTTOM OF SIGN	
O	ACCESSIBLE PARKING PAVEMENT MARKING	ACCESSIBLE PARKING STALLS	NA	YES	NO	NO	NO	YES	CENTERED ON PARKING STALL, ALIGNED WITH FRONT	NOT REQUIRED BY CODE
P	STOP SIGN	AS INDICATED ON PLANS	NA	YES	NO	NO	NO	NO	POST-MOUNTED, 5'-0" TO BOTTOM OF SIGN	SEE PLAN FOR SIGN CONTENT
Q	TRAFFIC	AS INDICATED ON PLANS	NA	YES	NO	NO	NO	NO	POST OR BUILDING-MOUNTED, 5'-0" TO BOTTOM OF SIGN	
R	NO SMOKING	BUILDING ENTRIES	NA	YES	NO	NO	YES	NO	CONSPICUOUS PLACE NEAR DOOR	REQUIRED FOR LEED
S	DIRECTIONAL	INACCESSIBLE ENTRANCES, TOILET ROOMS & BATHING FACILITIES, ELEVATORS NOT SERVING AN ACCESSIBLE ROUTE, EXITS & EXIT STAIRS NOT PROVIDING AN ACCESSIBLE MEANS OF EGRESS, ELEVATOR LANDINGS & WITHIN AREAS OF REFUGE	IBC 1111.1 & 1009.10	YES	NO	NO	NO	YES		
T	TOILET ROOM - ALL GENDER RESTROOMS	DOORS THAT LEAD TO ALL GENDER TOILET ROOMS		YES	YES	YES	YES	YES		

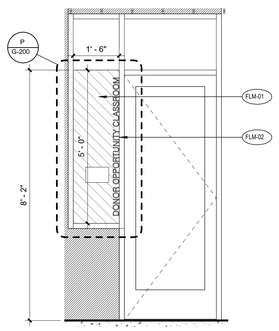
NOTES:
1. VISUAL CHARACTERS TO COMPLY WITH ICC A117.1 703.2 & ADAAG 703.5
2. TACTILE CHARACTERS TO COMPLY WITH ICC A117.1 703.3 & ADAAG 703.2
3. BRAILLE CHARACTERS TO COMPLY WITH ICC A117.1 703.4 & ADAAG 703.3
4. PICTOGRAMS TO COMPLY WITH ICC A117.1 703.5 & ADAAG 703.6
5. SYMBOLS OF ACCESSIBILITY TO COMPLY WITH ICC A117.1 703.6 & ADAAG 703.7
6. MOUNT SIGNS 1'-6" FROM LATCH-SIDE DOOR JAMB TO CENTER OF SIGN UNLESS OTHERWISE NOTED.
7. MOUNT SIGNS 5'-0" AFF TO TOP UNLESS OTHERWISE NOTED.
8. PROVIDE A WHITE BACKER AT ALL SIGN LOCATIONS THAT OCCUR ON GLASS.
9. SIGNAGE FONTS, LOGOS, AND FORMAT SHALL COMPLY WITH UCCS BRAND STANDARDS



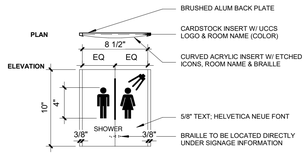
3 BOARD OF REGENTS PLAQUE + DONOR LIST
1/2" = 1'-0"



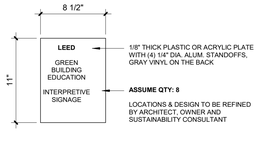
2 ENLARGED DONOR SIGNAGE - 2 DOOR
1/2" = 1'-0"



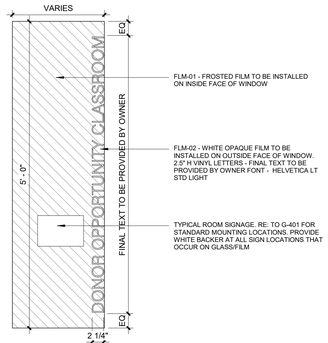
1 DONOR ROOM SIGNAGE
1/2" = 1'-0"



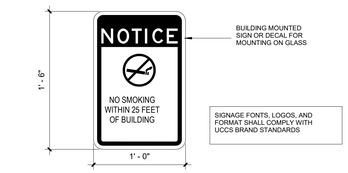
W SHOWER ROOM SIGN - ALL GENDER SHOWER
1 1/2" = 1'-0"



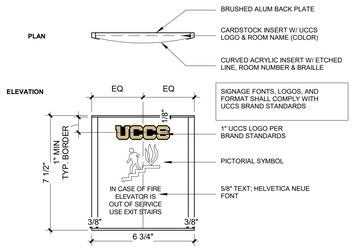
LEED GREEN BLDG EDUCATION INTERPRETIVE SIGNAGE
G
1 1/2" = 1'-0"



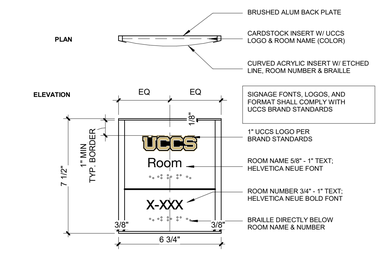
P ENLARGED DONOR SIGNAGE FILM
1" = 1'-0"



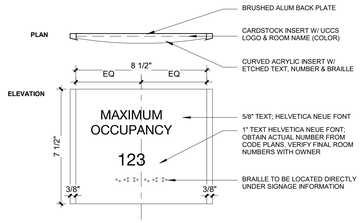
R NO SMOKING NOTICE SIGN
1 1/2" = 1'-0"



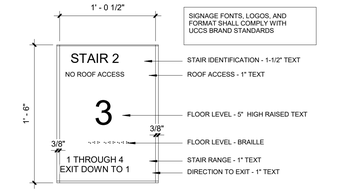
E IN CASE OF FIRE SIGN
3" = 1'-0"



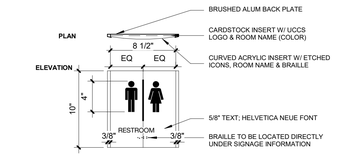
D ROOM IDENTIFICATION SIGN
3" = 1'-0"



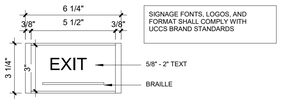
H MAXIMUM OCCUPANCY SIGN
3" = 1'-0"



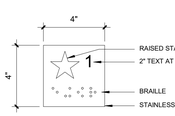
C STAIR INDENTIFICATION SIGN
1 1/2" = 1'-0"



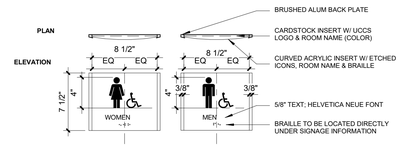
T TOILET ROOM SIGN - ALL GENDER RESTROOM
1 1/2" = 1'-0"



B TACTILE EXIT SIGN
3" = 1'-0"



F ELEVATOR FLOOR IDENTIFICATION SIGN
3" = 1'-0"



A TOILET ROOM SIGNS
1 1/2" = 1'-0"

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phone 303.861.5704
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STATE OF COLORADO
DAVID JOHN SCHAFER
#203158
LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
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PROJ. NO. 121091.00
DRAWN: AR
CHECKED: KM
APPROVED: DS
DATE: 10/26/2022

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SHEET TITLE:
SIGNAGE SCHEDULE & DETAILS

SCALE: As indicated
SHEET NUMBER
G-200

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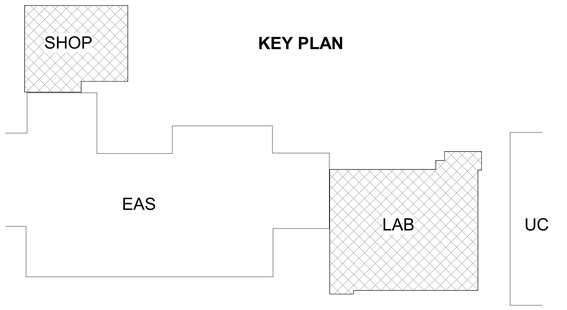
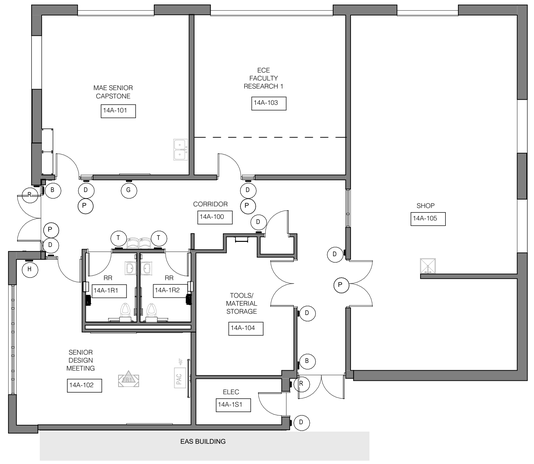
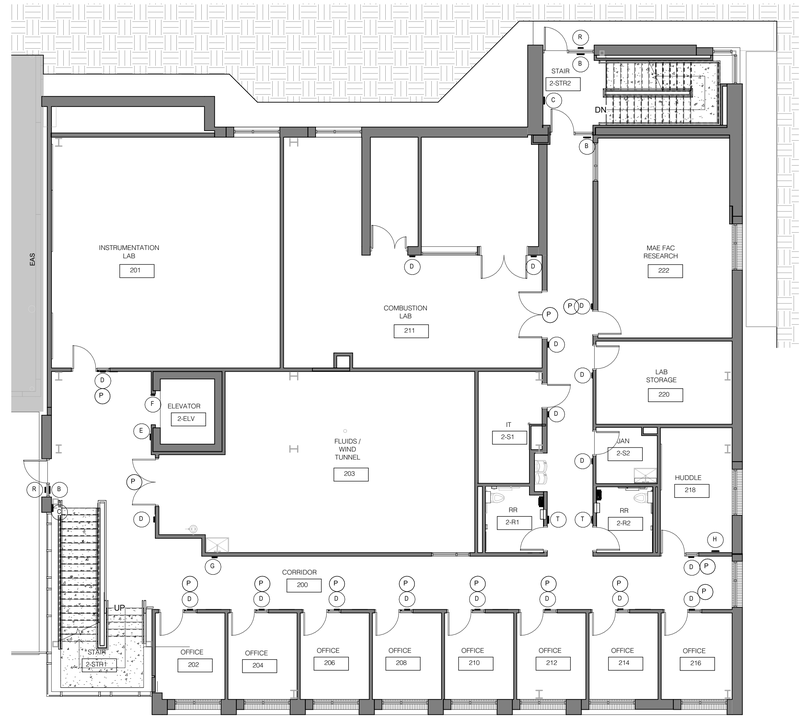


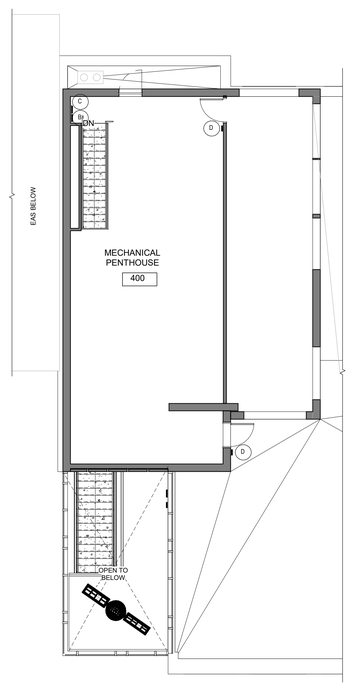
KEY PLAN



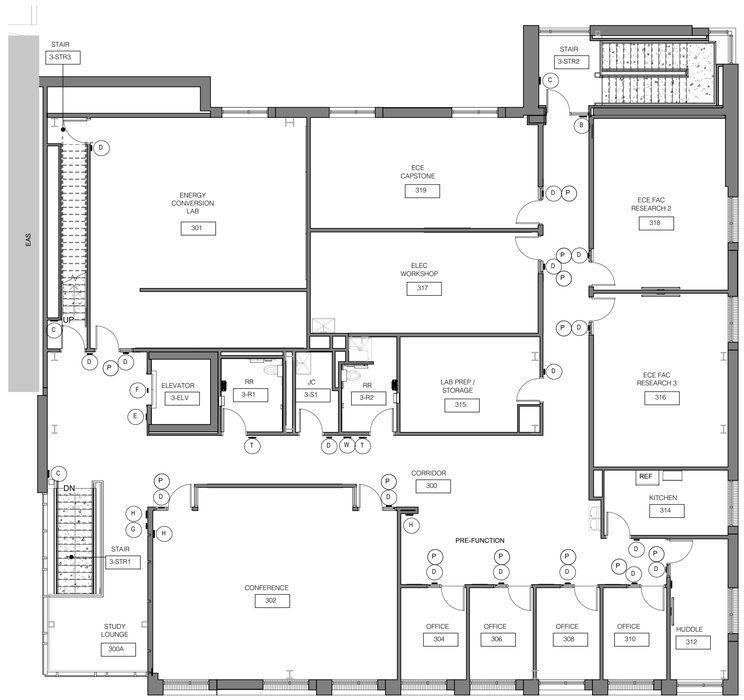
4 LEVEL 3 SIGNAGE PLAN - SHOPS
1/8" = 1'-0"



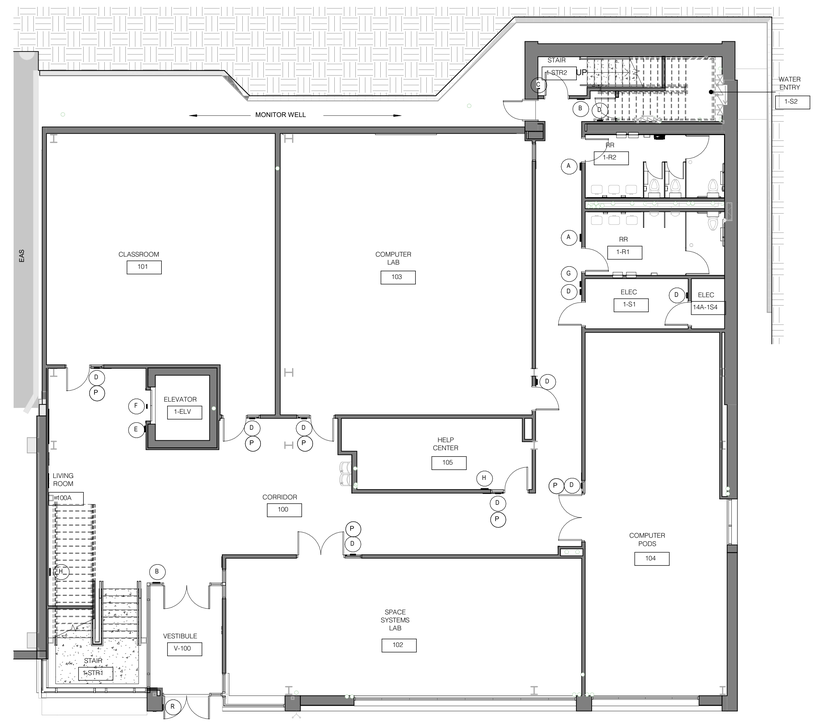
2 LEVEL 2 SIGNAGE PLAN
1/8" = 1'-0"



5 LOWER ROOF SIGNAGE PLAN
1/8" = 1'-0"



3 LEVEL 3 SIGNAGE PLAN - LAB
1/8" = 1'-0"



1 LEVEL 1 SIGNAGE PLAN
1/8" = 1'-0"

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REVISIONS:	

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SHEET TITLE:
SIGNAGE PLANS

SCALE: 1/8" = 1'-0"
SHEET NUMBER
G-201

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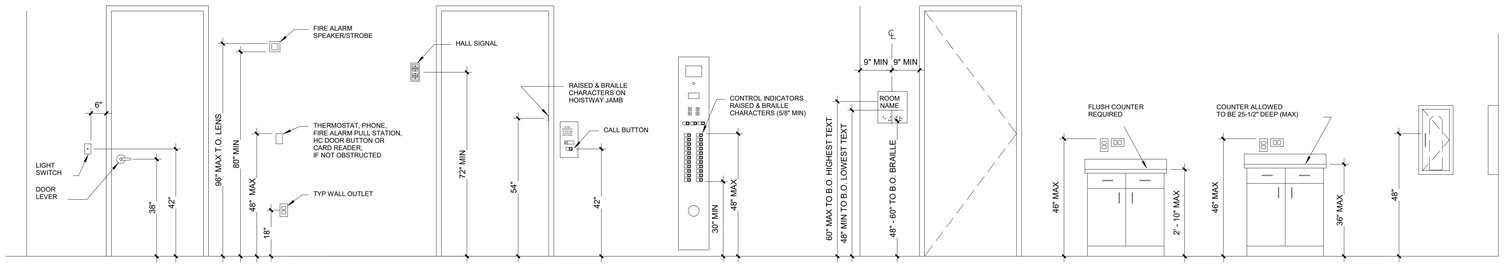
ICC/ANSI A117.1-2009 TABLE 603.6
MAXIMUM REACH DEPTH AND HEIGHT

MAXIMUM REACH DEPTH	0.5 INCH (13 MM)	2 INCHES (51MM)	5 INCHES (125MM)	6 INCHES (150 MM)	9 INCHES (230MM)	11 INCHES (288 MM)
MAXIMUM REACH HEIGHT	48 INCHES (1220 MM)	46 INCHES (1170 MM)	42 INCHES (1065 MM)	40 INCHES (1015 MM)	36 INCHES (915 MM)	34 INCHES (865 MM)



DOOR & DEVICES
(PUBLIC, TYPE A & TYPE B)
ICC A117.1-2009
SECTIONS 703 & 308

ELEVATOR CONTROLS
(PUBLIC)
ICC A117.1-2009
SECTIONS 407 & 703

ELEVATOR CAR CONTROLS
(PUBLIC)
ICC A117.1-2009
SECTION 407

TACTILE SIGN
(PUBLIC)
ICC A117.1-2009
SECTION 703

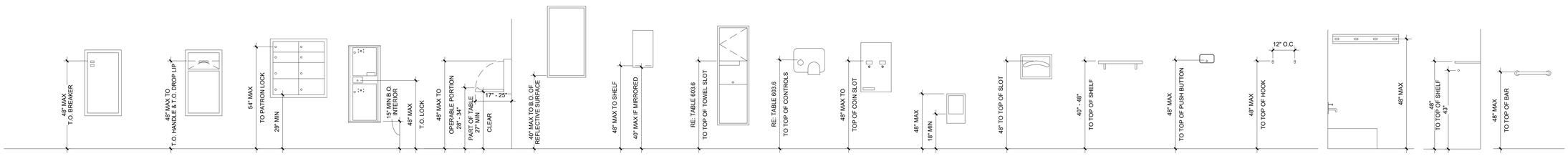
OUTLET & SWITCHES AT COUNTER-
PARALLEL APPROACH
(PUBLIC & TYPE A)
ICC A117.1-2009
SECTIONS 1003.9 & 308.3.2

OUTLET & SWITCHES AT COUNTER-
PARALLEL APPROACH
(TYPE B)
ICC A117.1-2009
SECTIONS 1004.9 & 308.3.2

FIRE EXTINGUISHER CABINET
(PUBLIC)
ICC A117.1-2009
SECTION 308.3.1

GENERAL NOTES

1. DIMENSIONS ARE COMPLIANT WITH ICC A117.1-2009.
2. NOT ALL FIXTURES AND DEVICES INDICATED MAY BE USED IN THE PROJECT.
3. MOUNTING HEIGHTS INDICATED MAY BE SUPERCEDED BY MORE SPECIFIC INFORMATION ELSEWHERE IN THE DOCUMENTS.
4. "PUBLIC" INDICATES ELEMENTS TO COMPLY IN PUBLIC AREAS.
5. PROVIDE BLOCKING / REINFORCEMENT FOR ALL ACCESSORIES PER MANUFACTURER'S INSTRUCTIONS.
6. GRAB BARS SHALL NOT ROTATE WITHIN THEIR FITTINGS & SHALL WITHSTAND A VERTICAL OR HORIZONTAL FORCE OF 250 LBS APPLIED TO ANY POINT ON THE GRAB BAR, FASTENEER, MOUNT, OR SUPPORT.
7. SHOWER & BATHTUB SEATS SHALL WITHSTAND A VERTICAL OR HORIZONTAL FORCE OF 250 LBS APPLIED TO ANY POINT ON THE SEAT, FASTENER, MOUNT OR SUPPORT.
8. BLOCKING TO BE 2X LUMBER OR 3/4" PLYWOOD UNLESS OTHERWISE NOTED
9. ALL APPLIANCES & PLUMBING FIXTURES MUST COMPLY WITH APPLICABLE ANSI & ADA REQUIREMENTS. OPERABLE PARTS SHALL: 1) BE 34" - 48" AFF.; 2) BE OPERABLE WITH ONE HAND, 3) NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST, AND 4) BE ACTIVATED BY NO MORE THAN 5 LBS OF FORCE.
10. DOOR THRESHOLDS MUST HAVE A MAXIMUM HEIGHT OF 1/2" WITH A 1:2 BEVEL.



ELECTRICAL PANEL
(TYPE A & TYPE B)
ICC A117.1-2009
SECTIONS 1003.9 & 1004.9

MAIL DROP
(PUBLIC)
ICC A117.1-2009
SECTION 308

MAIL BOX
(PUBLIC)
ICC A117.1-2009
SECTION 308

PARCEL BOX
(PUBLIC)
ICC A117.1-2009
SECTION 308

BABY CHANGING STATION
(PUBLIC)
ICC A117.1-2009
SECTIONS 309 & 902

MIRROR
(PUBLIC & TYPE A)
ICC A117.1-2009
SECTION 603.3

MEDICINE CABINET
(PUBLIC & TYPE A)
ICC A117.1-2009
SECTIONS 603.3 & 308

PAPER TOWEL DISPENSER
(PUBLIC)
ICC A117.1-2009
SECTION 603.6

HAND DRYER
(PUBLIC)
ICC A117.1-2009
SECTION 603.6

NAPKIN/TAMPON VENDOR
(PUBLIC)
ICC A117.1-2009
SECTION 308

RECESSED NAPKIN DISPOSAL (PUBLIC)
ICC A117.1-2009
SECTION 308

TOILET SEAT COVER DISPENSER
(PUBLIC)
ICC A117.1-2009
SECTION 308

SHELF
(PUBLIC & TYPE A)
ICC A117.1-2009
SECTIONS 603 & 308

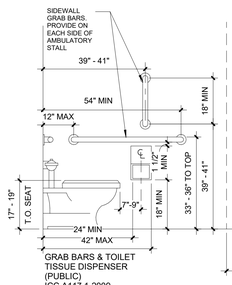
SOAP DISPENSER
(PUBLIC)
ICC A117.1-2009
SECTION 603

ROBE/COAT HOOKS
(PUBLIC & TYPE A)
ICC A117.1-2009
SECTION 308

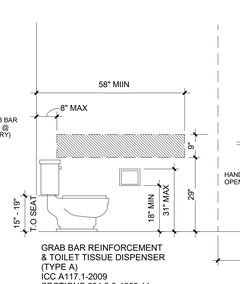
MOP HOLDER
(PUBLIC)
ICC A117.1-2009
SECTION 308

ACCESSIBLE SHELF & ROD
(TYPE A)
ICC A117.1-2009
SECTION 308

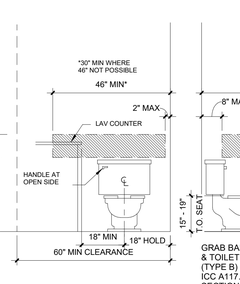
TOWEL BAR
(PUBLIC & TYPE A)
ICC A117.1-2009
SECTION 308



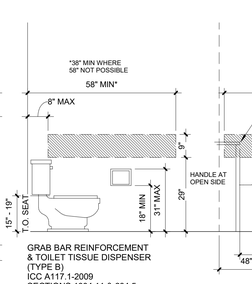
GRAB BARS & TOILET TISSUE DISPENSER
(PUBLIC)
ICC A117.1-2009
SECTION 604
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

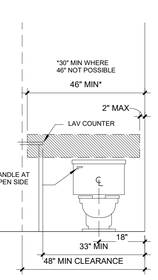


GRAB BAR REINFORCEMENT & TOILET TISSUE DISPENSER (TYPE A)
ICC A117.1-2009
SECTIONS 604.5 & 1003.11

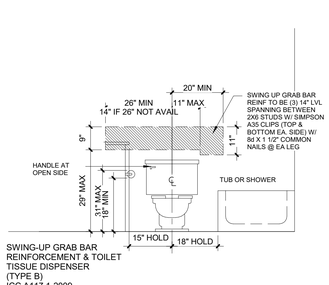


GRAB BAR REINFORCEMENT & TOILET TISSUE DISPENSER (TYPE B)
ICC A117.1-2009
SECTIONS 1004.11 & 604.5
FAIR HOUSING ACT DESIGN MANUAL

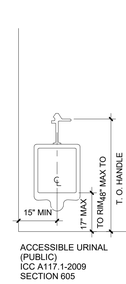




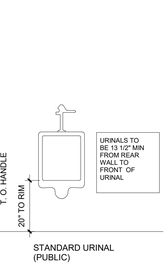
GRAB BAR REINFORCEMENT & TOILET TISSUE DISPENSER (TYPE B)
ICC A117.1-2009
SECTIONS 1004.11 & 604.5
FAIR HOUSING ACT DESIGN MANUAL



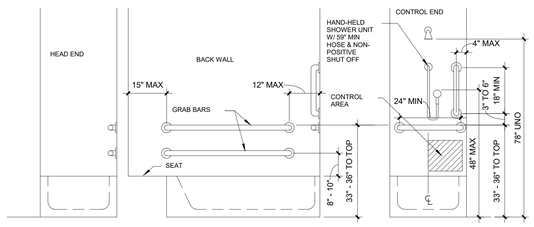
SWING-UP GRAB BAR REINFORCEMENT & TOILET TISSUE DISPENSER (TYPE B)
ICC A117.1-2009
SECTION 1004.11 & 1004.11.1.5



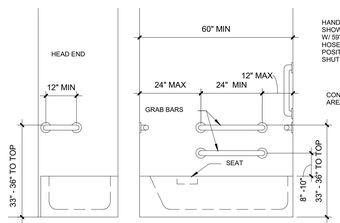
ACCESSIBLE URINAL
(PUBLIC)
ICC A117.1-2009
SECTION 605



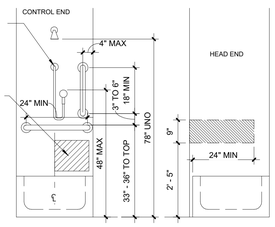
STANDARD URINAL
(PUBLIC)



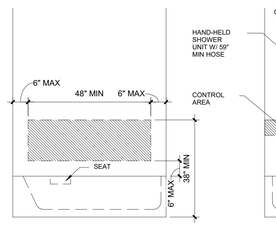
GRAB BARS AT TUB W/ PERMANENT SEAT
(PUBLIC)
ICC A117.1-2009
SECTION 607

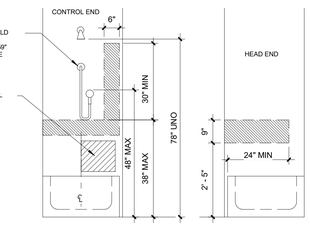


GRAB BARS AT TUB WITHOUT PERMANENT SEAT
(PUBLIC)
ICC A117.1-2009
SECTION 607

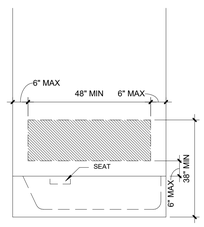


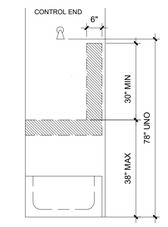
GRAB BAR REINFORCEMENT AT TUB
(TYPE A)
ICC A117.1-2009
SECTIONS 1003.11 & 607.4
FAIR HOUSING ACT DESIGN MANUAL

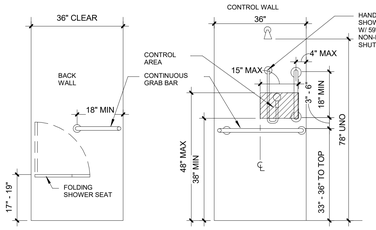




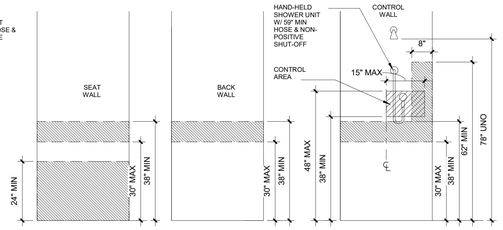
GRAB BAR REINFORCEMENT AT TUB
(TYPE B)
ICC A117.1-2009
SECTIONS 1004.11 & 607.4
FAIR HOUSING ACT DESIGN MANUAL



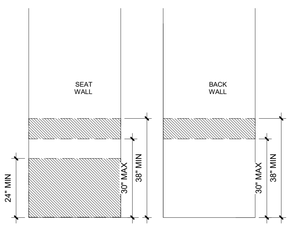




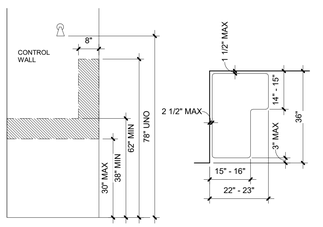
SHOWER
(PUBLIC)
ICC A117.1-2009
SECTION 608



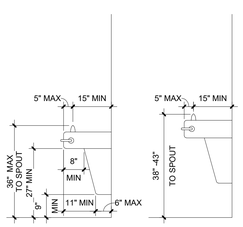
GRAB BAR REINF AT SHOWER
(TYPE A)
ICC A117.1-2009
SECTIONS 1003.11 & 608
FAIR HOUSING ACT DESIGN MANUAL



GRAB BAR REINF AT SHOWER
(TYPE B)
ICC A117.1-2009
SECTIONS 1004.11 & 608.3
FAIR HOUSING ACT DESIGN MANUAL

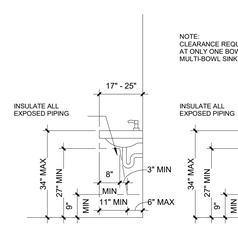


FOLDING SHOWER SEAT PLAN
(PUBLIC)
ICC A117.1-2009
SECTIONS 608.2.1.3 & 610

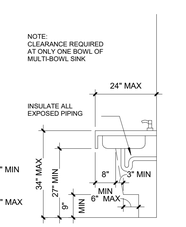


DRINKING FOUNTAIN
(PUBLIC)
ICC A117.1-2009
SECTION 602.2

DRINKING FOUNTAIN
(PUBLIC, STANDING)
ICC A117.1-2009
SECTION 602.3



LAVATORY
(PUBLIC)
ICC A117.1-2009
SECTION 606.2



KITCHEN SINK
(PUBLIC & TYPE A)
ICC A117.1-2009
SECTIONS 606.2 & 1003.12.4

1 STANDARD MOUNTING HEIGHTS - ANSI 2009

1/2" = 1'-0"

OZ ARCHITECTURE
3003 Larimer Street
Denver, Colorado 80205
phone 303.861.5704
www.ozarch.com

STATE OF COLORADO
BRYAN JOHN SCHAFER
#203158
LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
DRAWN: OZ
CHECKED: KM
APPROVED: LM
DATE: 10/26/2022

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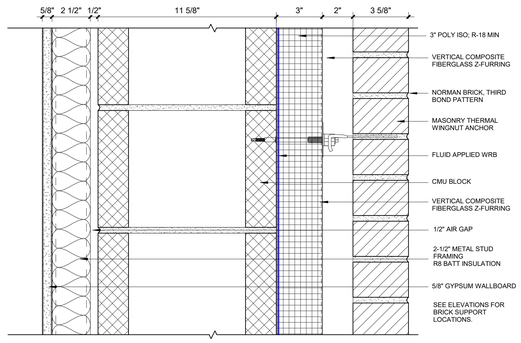
ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD / PACKAGE 3

SHEET TITLE:
STANDARD MOUNTING HEIGHTS - ANSI 2009

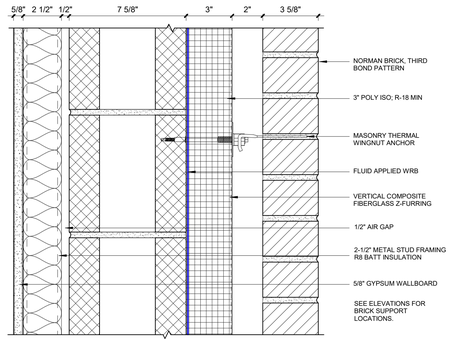
SCALE: 1/2" = 1'-0"
SHEET NUMBER
G-401

10/26/2022 8:42:33 PM BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt



W10 BRICK ON 12" CMU

3" = 1'-0" UL U938 AT 1-HR RATED WALLS WHERE OCCURS RE: CODE PLANS

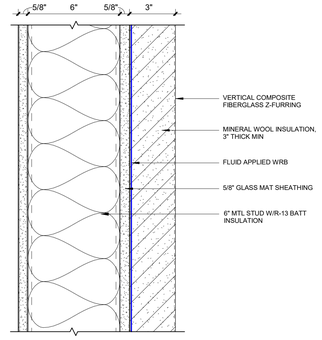


W11 BRICK ON 8" CMU

3" = 1'-0" UL U938 AT 1-HR RATED WALLS WHERE OCCURS RE: CODE PLANS

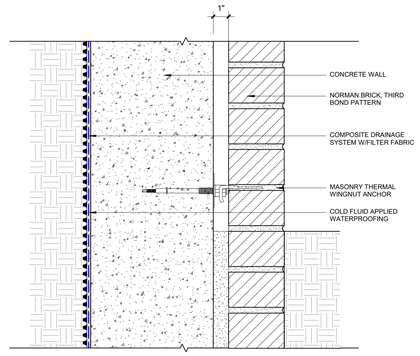
W11a BRICK ON 8" CMU

AT TRASH ENCLOSURE - OMIT INSULATION, FURRING AND GYPSUM BOARD. PAINT INSIDE FACE OF CMU. 1" AIR GAP



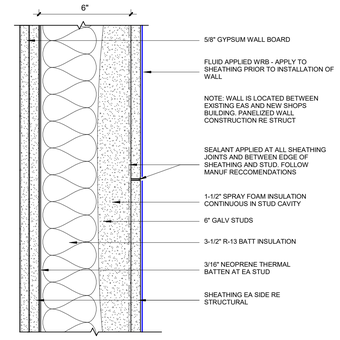
W12 INSULATION ON MTL STUD

3" = 1'-0" UL U419 AT 1-HR RATED WALLS WHERE OCCURS RE: CODE PLANS



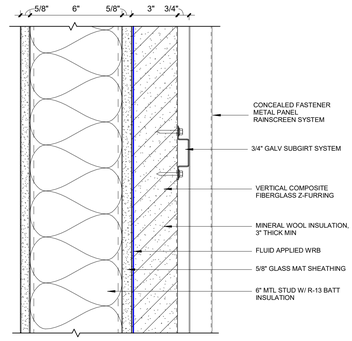
W13 CONCRETE WALL - MASONRY

3" = 1'-0"



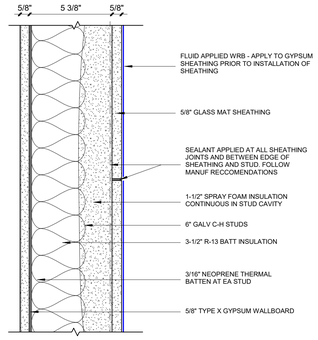
W14 EXTERIOR PANELIZED WALL

3" = 1'-0"



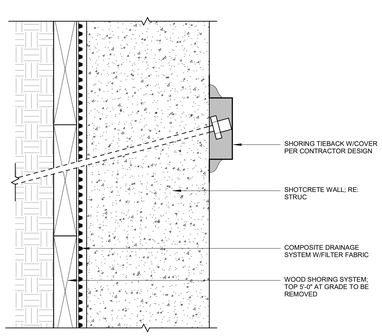
W5 CONCEALED FASTNER MTL PANEL ON MTL STUD

3" = 1'-0"



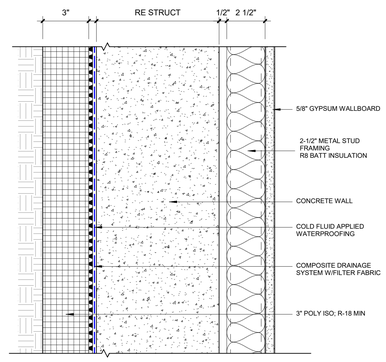
W6 EXTERIOR SHAFT WALL

3" = 1'-0"



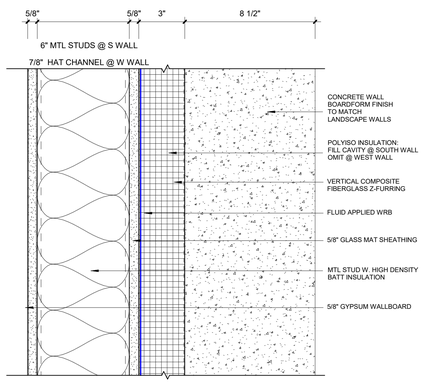
W7 SHORING WALL

3" = 1'-0"



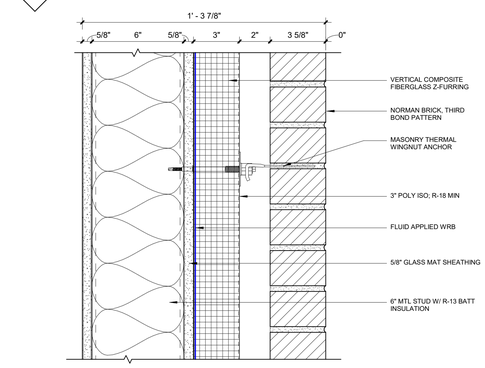
W8 CONCRETE WALL

3" = 1'-0"



W9 CONCRETE WALL - BOARDFORM

3" = 1'-0"



W1 BRICK ON MTL STUD W/2" AIR SPACE

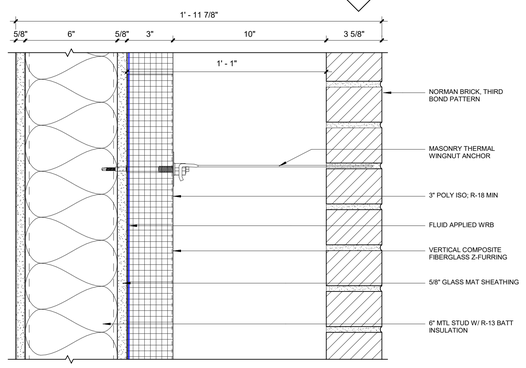
3" = 1'-0" UL V454 AT 1-HR RATED WALLS WHERE OCCURS RE: CODE PLANS

W1a BRICK ON CH STUD W/2" AIR SPACE

6" GALV C-H SHAFTWALL METAL STUDS IN LIEU OF 6" METAL STUDS

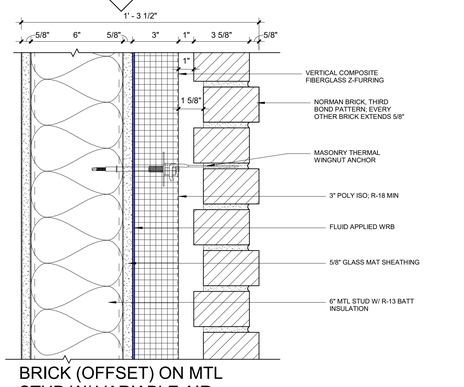
W1b BRICK ON MTL STUD W/2" AIR SPACE

STACKED BOND COURSING IN-LIEU OF 1/3 BOND COURSING



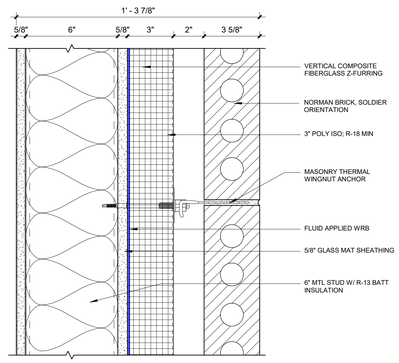
W2 BRICK ON MTL STUD W/ 13" AIR SPACE

3" = 1'-0"



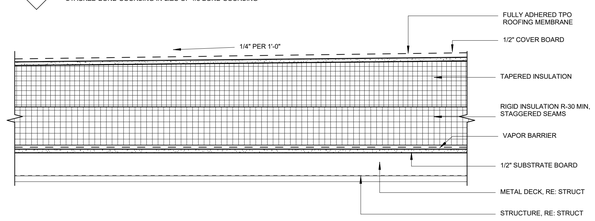
W3 BRICK (OFFSET) ON MTL STUD W/ VARIABLE AIR SPACE

3" = 1'-0" UL V454 AT 1-HR RATED WALLS WHERE OCCURS RE: CODE PLANS



W4 BRICK (SOLDIER) ON MTL STUD W/ 2" AIR SPACE

3" = 1'-0" UL V454 AT 1-HR RATED WALLS WHERE OCCURS RE: CODE PLANS

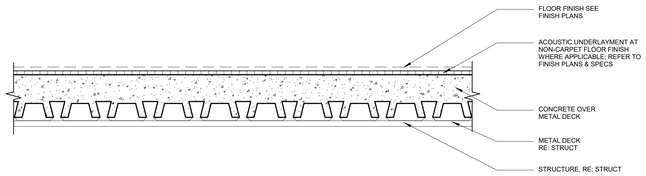


R1 TYPICAL ROOF ASSEMBLY

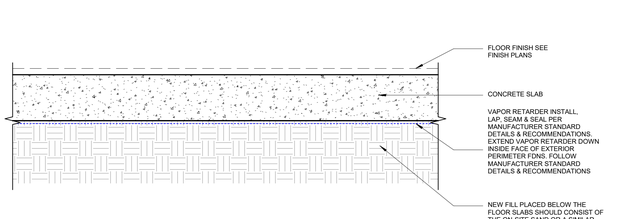
ROOF TYPE R1a - OMIT RIGID INSULATION - INCLUDE TAPERED INSULATION FOR 1/4" DRAINAGE SLOPE - USE 1/4" COVER BOARD

ROOF ASSEMBLIES

1 1/2" = 1'-0"



F2 TYPICAL FLOOR ABOVE GRADE



F1 SLAB ON GRADE

FLOOR ASSEMBLIES

1 1/2" = 1'-0"

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DAVID JOHN SCHAFER
#203158
LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
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CHECKED: CR
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
EXTERIOR ASSEMBLIES

SCALE: As indicated
SHEET NUMBER
G-501

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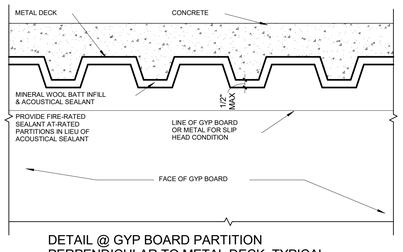
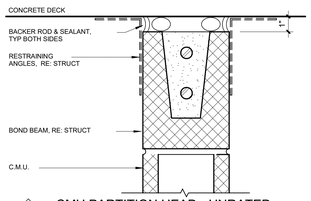


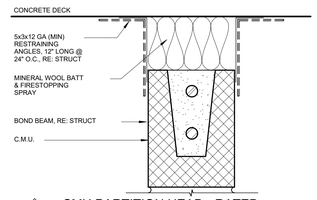
DETAIL @ GYP BOARD PARTITION PERPENDICULAR TO METAL DECK, TYPICAL CONDITION

A,C,E,H



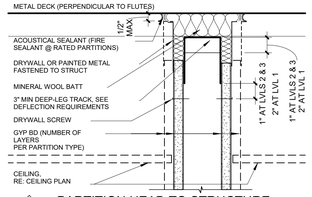
8 - X CMU PARTITION HEAD - UNRATED

JOINT SIZE INDICATED ALLOWS FOR 1/2" MOVEMENT
INCREASE JOINT SIZE IF MORE MOVEMENT IS REQUIRED
JOINT SIZE = 2 X MOVEMENT REQUIRED
VERIFY SEALANT MOVEMENT CAPABILITY



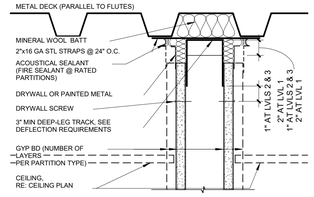
8 - X CMU PARTITION HEAD - RATED

UL HW-D-1045 FOR 1-HR & 2-HR RATING, WHERE OCCURS
PROVIDES FOR MAX. OF 1/2" MOVEMENT
UL HW-D-1070 FOR 2-HR RATING W/O RESTRAINING ANGLES, WHERE OCCURS, PROVIDES FOR MAX. OF 1" MOVEMENT

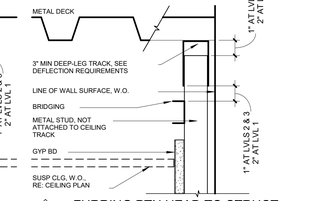


- - C PARTITION HEAD TO STRUCTURE

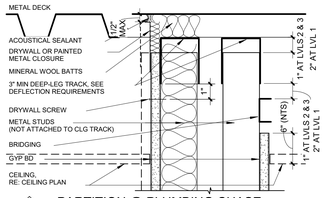
UL HW-D-0538 (PERPENDICULAR TO DECK FLUTES) & UL HW-D-0264 (PARALLEL TO DECK FLUTES) FOR 1-HOUR & 2-HOUR RATING



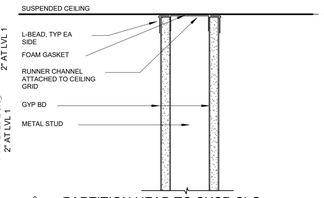
- - B FURRING PTN HEAD TO STRUCT



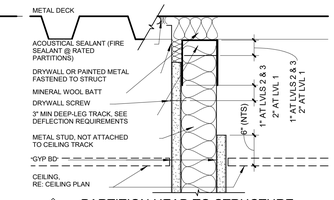
- - A FURRING PARTITION HEAD



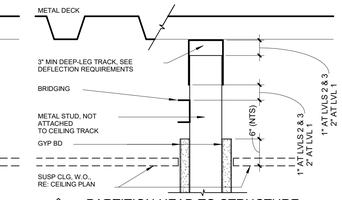
- - H PARTITION @ PLUMBING CHASE



- - F PARTITION HEAD TO SUSP CLG

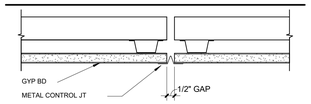


- - E PARTITION HEAD TO STRUCTURE

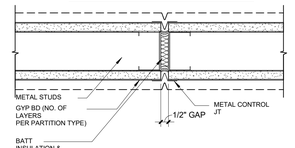


- - D PARTITION HEAD TO STRUCTURE

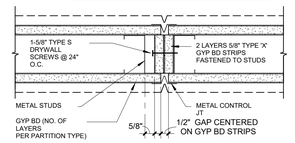
CONTROL JOINT DETAILS:



@ SUSPENDED CEILING



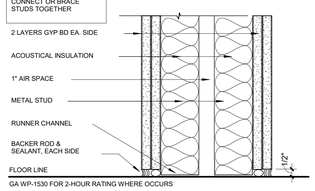
@ NON-RATED PARTITION



@ RATED PARTITION

GA SRS-1101 FOR 1-HR RATING & GA SRS-1201 FOR 2-HR RATING

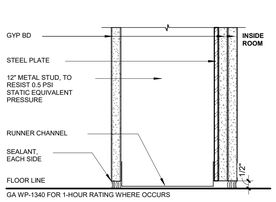
NOTE: DO NOT CONNECT OR BRACE STUDS TOGETHER



GA WP-1530 FOR 2-HOUR RATING WHERE OCCURS

8 - - ACOUSTIC PARTITION - STC 50-54

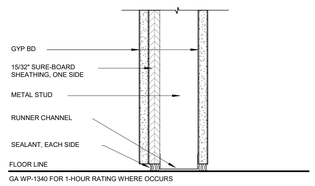
SEE BELOW FOR STUD SIZE



GA WP-1340 FOR 1-HOUR RATING WHERE OCCURS

912 BLAST RESISTANT PARTITION

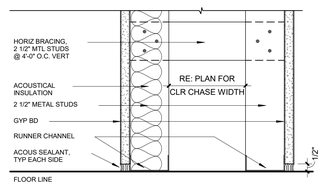
TO BE SPECIFIED BY STRUCTURAL ENGINEER



GA WP-1340 FOR 1-HOUR RATING WHERE OCCURS

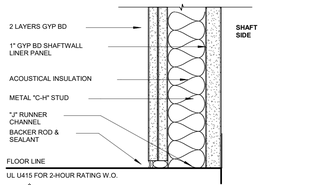
76- LOAD BEARING PARTITION

WITH 6" STUD - PARTITION WIDTH = 7 1/4"



72 - PLUMBING CHASE

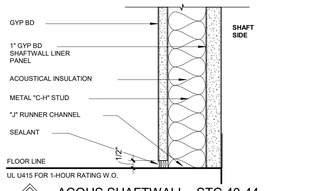
PARTITION WIDTH = 6 1/4" + CLEAR CHASE WIDTH



UL U415 FOR 2-HOUR RATING W.O.

6 - - ACOUS SHAFTWALL - STC 45-49

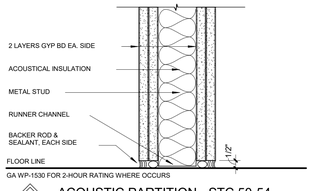
SEE BELOW FOR STUD SIZE
STC PER GA WP-7076



UL U415 FOR 1-HOUR RATING W.O.

5 - - ACOUS SHAFTWALL - STC 40-44

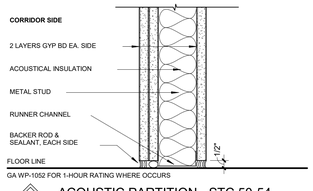
SEE BELOW FOR STUD SIZE
STC PER GA WP-6850



GA WP-1530 FOR 2-HOUR RATING WHERE OCCURS

4 - - ACOUSTIC PARTITION - STC 50-54

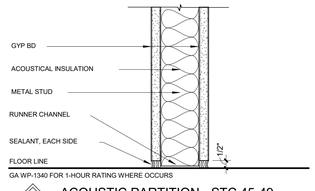
SEE BELOW FOR STUD SIZE



GA WP-1052 FOR 1-HOUR RATING WHERE OCCURS

3 - - ACOUSTIC PARTITION - STC 50-54

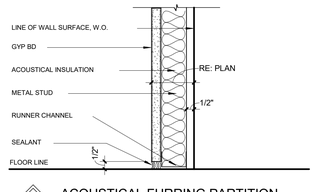
SEE BELOW FOR STUD SIZE



GA WP-1340 FOR 1-HOUR RATING WHERE OCCURS

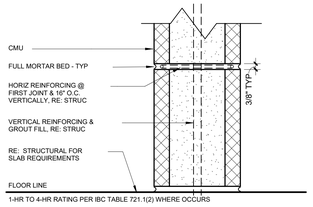
2 - - ACOUSTIC PARTITION - STC 45-49

SEE BELOW FOR STUD SIZE
STC PER GA WP-1072



1 - - ACOUSTICAL FURRING PARTITION

SEE BELOW FOR STUD SIZE



1-HR TO 4-HR RATING PER IBC TABLE 721.1(2) WHERE OCCURS

88 - CMU PARTITION

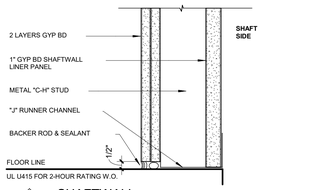
WITH 8" CMU
PARTITION WIDTH = 7 5/8"

810 - CMU PARTITION

WITH 10" CMU
PARTITION WIDTH = 9 5/8"

812 - CMU PARTITION

WITH 12" CMU
PARTITION WIDTH = 11 5/8"



UL U415 FOR 2-HOUR RATING W.O.

62 - SHAFTWALL

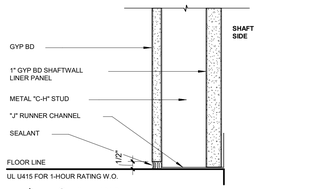
WITH 2 1/2" C-H STUD - PARTITION WIDTH = 3 3/4"

64 - SHAFTWALL

WITH 4" C-H STUD - PARTITION WIDTH = 5 1/4"

66 - SHAFTWALL

WITH 6" C-H STUD - PARTITION WIDTH = 7 1/4"



UL U415 FOR 1-HOUR RATING W.O.

52 - SHAFTWALL

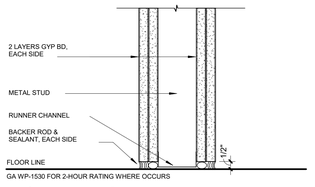
WITH 2 1/2" C-H STUD - PARTITION WIDTH = 3 1/8"

54 - SHAFTWALL

WITH 4" C-H STUD - PARTITION WIDTH = 4 5/8"

56 - SHAFTWALL

WITH 6" C-H STUD - PARTITION WIDTH = 6 5/8"



GA WP-1530 FOR 2-HOUR RATING WHERE OCCURS

41 - PARTITION

WITH 1 5/8" STUD - PARTITION WIDTH = 4 1/8"

42 - PARTITION

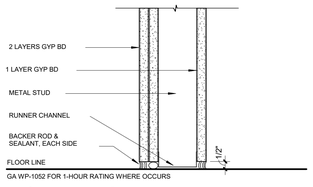
WITH 2 1/2" STUD - PARTITION WIDTH = 5"

43 - PARTITION

WITH 3 5/8" STUD - PARTITION WIDTH = 6 1/8"

46 - PARTITION

WITH 6" STUD - PARTITION WIDTH = 8 1/2"



GA WP-1052 FOR 1-HOUR RATING WHERE OCCURS

31 - PARTITION

WITH 1-5/8" STUD - PARTITION WIDTH = 3 1/2"

32 - PARTITION

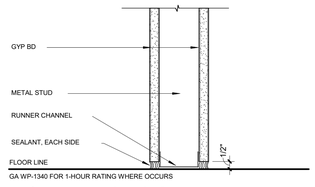
WITH 2-1/2" STUD - PARTITION WIDTH = 4 3/8"

33 - PARTITION

WITH 3-5/8" STUD - PARTITION WIDTH = 5 1/2"

36 - PARTITION

WITH 6" STUD - PARTITION WIDTH = 7 7/8"



GA WP-1340 FOR 1-HOUR RATING WHERE OCCURS

21 - PARTITION - STC 35-39

WITH 1-5/8" STUD - PARTITION WIDTH = 2 7/8"

22 - PARTITION

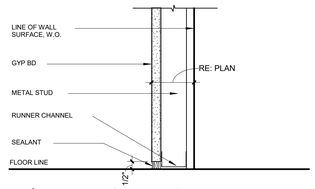
WITH 2-1/2" STUD - PARTITION WIDTH = 3 3/4"

23 - PARTITION

WITH 3-5/8" STUD - PARTITION WIDTH = 4 7/8"

26 - PARTITION

WITH 6" STUD - PARTITION WIDTH = 7 1/4"



10 - FURRING PARTITION

WITH 7/8" FURRING CHANNEL - PARTITION WIDTH = 1 1/2"

11 - FURRING PARTITION

WITH 1 5/8" STUD - PARTITION WIDTH = 2 1/4"

12 - FURRING PARTITION

WITH 2 1/2" STUD - PARTITION WIDTH = 3 1/8"

13 - FURRING PARTITION

WITH 3-5/8" STUD - PARTITION WIDTH = 4 1/4"

16 - FURRING PARTITION

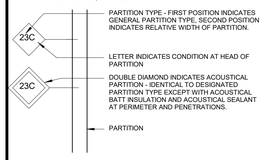
WITH 6" STUD - PARTITION WIDTH = 6 5/8"

INTERIOR PARTITION TYPES

3" = 1'-0"

PARTITION TYPES - LEGEND

1. REFERENCE LEGEND, RE: FLOOR PLANS



PARTITION TYPES GENERAL NOTES

1. NOT ALL PARTITION TYPES DELINEATED MAY BE USED.
2. SEE FLOOR PLANS (A-100 SERIES SHEETS) FOR DESIGNATION OF PARTITION TYPES.
3. SEE CODE PLANS (G-100 SERIES SHEETS) FOR FIRE RATINGS OF PARTITIONS.
4. PARTITIONS ARE TO EXTEND TO UNDERSIDE OF STRUCTURE, UNO.
5. WHERE TWO DIFFERING PARTITION TYPES ABUT IN A LINE AND ALONG A CONTINUOUS LENGTH OF PARTITIONS, THE CONTINUOUS FINISHED SURFACES OF THESE PARTITIONS SHALL ALIGN, UNO.
6. STUD SPACING TO BE 24" O.C. UNO. SEE STRUCTURAL FOR BEARING WALL REQUIREMENTS.
7. PROVIDE PARTITIONS TO MEET MAXIMUM ALLOWABLE DEFLECTION OF L/240 WITH 5 P.S.F. LATERAL LOAD. MAXIMUM ALLOWABLE DEFLECTION FOR PARTITIONS TO RECEIVE TILE SHALL BE L/360. MAXIMUM ALLOWABLE DEFLECTION FOR PARTITIONS TO RECEIVE STONE SHALL BE L/720. ADJUST STUD SPACING, GAGE OR GRADE AS REQ'D.
8. PROVIDE FOR 1" DEFLECTION AT ALL PARTITION HEADS, UNO. AT METAL STUD FRAMED WALLS PROVIDE MINIMUM 3" DEEP-LEG TRACKS.
9. WOOD-FRAMED PARTITION HEADS ARE CONDITION "C" OR "G" UNO.
10. PROVIDE DOUBLE 20 GAGE STUD AT EACH DOOR JAMB IN METAL STUD PARTITIONS. PROVIDE DOUBLE WOOD STUDS AT EACH DOOR JAMB IN WOOD-FRAMED PARTITIONS.
11. DO NOT PLACE GYPSUM BOARD JOINT AT CORNER OF DOOR FRAME.
12. USE 5/8" TYPE-X GYPSUM BOARD AT FIRE-RATED PARTITIONS UNO OR CALLED FOR BY LISTED ASSEMBLY. USE 5/8" GYPSUM BOARD AT ALL OTHER LOCATIONS UNO.
13. USE WATER-RESISTANT GYPSUM BOARD FOR PARTITIONS IN TOILET ROOMS AND JANITOR'S CLOSETS.
14. USE WATER-RESISTANT GLASS-MAT GYPSUM BOARD FOR CEILINGS IN SHOWER ROOMS. COMPLY WITH IBC CHAPTER 25.
15. USE WATER-RESISTANT GLASS-MAT GYPSUM BOARD OR CEMENTITIOUS BACKER UNITS AND SPACE STUDS AT 16" O.C. AT PARTITIONS TO RECEIVE TILE OR STONE.
16. PARTITIONS THAT DO NOT GO TO STRUCTURE ABOVE SHALL HAVE INTERSECTING PARTITION OR BE BRACED TO STRUCTURE @ 12' O.C.
17. PROVIDE CONTROL JOINTS IN CEILINGS EXCEEDING 2500 S.F. AND IN PARTITIONS AND FURRING RUNS EXCEEDING 30 FT. IN LENGTH. VERIFY EXACT LOCATIONS WITH ARCHITECT. SEE DETAILS THIS SHEET.
18. FIRE-RESISTIVE PARTITIONS SHALL BE CONSTRUCTED IN FULL COMPLIANCE WITH TESTING REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS FOR CONDITIONS AS REQUIRED.
19. CONSTRUCTION OF ALL SYSTEMS SHALL EQUAL THAT OF THE TESTED ASSEMBLY. GC MAY SUBSTITUTE ANOTHER LISTED ASSEMBLY FOR THAT INDICATED WITH PRIOR APPROVAL OF THE AUTHORITY HAVING JURISDICTION AND THE ARCHITECT.
20. TESTING FACILITIES ARE ABBREVIATED AS FOLLOWS:
    - FM - FACTORY MUTUAL
    - GA - GYPSUM ASSOCIATION
    - NER - NATIONAL EVALUATION REPORT
    - UL - UNDERWRITERS LABORATORIES INC.
    - WHI- WARNOCK HERSEY INTERNATIONAL
21. THROUGH-PENETRATIONS AND MEMBRANE-PENETRATIONS IN FIRE-RATED PARTITIONS SHALL BE FIRESTOPPED IN ACCORDANCE WITH IBC CHAPTER 7.
22. PROVIDE ACOUSTICAL SEALANT AT ALL PENETRATIONS IN ACOUSTICAL PARTITIONS.
23. ACOUSTICAL BATT INSULATION TO TERMINATE AT THE STRUCTURE UNO.
24. CONCEALED SPACES IN COMBUSTIBLE CONSTRUCTION TO BE FIRE-BLOCKED IN ACCORDANCE WITH IBC CHAPTER 7.

OZ ARCHITECTURE
3003 Larimer Street
Denver, Colorado 80205
phone 303.861.5704
www.ozarch.com

STATE OF COLORADO
BRYAN JOHN SCHAFER
#203158
LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO.	121091.00
DRAWN:	OZ
CHECKED:	OZ
APPROVED:	Approver
DATE:	10/26/2022

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ANSCHUTZ ENGINEERING CENTER

ISSUED FOR:
100% CD / PACKAGE 3

SHEET TITLE:
STANDARD PARTITION TYPES

SCALE: As indicated

SHEET NUMBER
G-502

10/26/2022 8:42:39 PM
BIM 360://121091.00 Anschutz Engineering Center/121091_00_UCCS Anschutz Engineering Center_A21_Central.rvt

UNIVERSITY OF COLORADO - COLORADO SPRINGS
ANSCHUTZ ENGINEERING BUILDING ADDITION
1420 AUSTIN BLUFFS PKWY, COLORADO SPRINGS, 80918

LOCATED IN THE NE1/4 OF SECTION 29, T13S, R66W, 6TH P.M.
COUNTY OF EL PASO, CITY OF COLORADO SPRINGS, STATE OF COLORADO

ABBREVIATIONS:

APPROX	APPROXIMATE
ARCH	ARCHITECT
BLDG	BUILDING
BM	BENCHMARK
BOC	BACK OF CURB
CIP	CAST IRON PIPE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONT	CONTOUR
COR	CORNER
CU	COPPER
DEMO	DEMOLITION
DIA OR ø	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DTL.	DETAIL
EL	ELEVATION
ELEC	ELECTRICAL
ESMT	EASEMENT
EX	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FGW	FINISHED GRADE AT WALL
FHY	FIRE HYDRANT
FL	FLOW LINE
FT	FOOT
GB	GRADE BREAK
GR	GRATE (AREA OR VALLEY INLETS)
GV	GATE VALVE
HERCP	HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HGL	HYDRAULIC GRADE LINE
HORZ	HORIZONTAL
HP	HIGH POINT
INV	INVERT
LF	LINEAL FEET
LP	LOW POINT
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MH	MANHOLE
MIN	MINIMUM
N.I.C.	NOT IN CONTRACT
NTS	NOT TO SCALE
PT	POINT OF HORIZONTAL TANGENCY
PCC	POINT OF COMPOUND CURVE
PD	PERIMETER DRAIN
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PI	POINT OF HORIZONTAL INTERSECTION
PIV	PRESSURE INDICATOR VALVE
PL	PROPERTY LINE
PLBG	PLUMBING
POC	POINT OF CURVE
POT	POINT OF TANGENT
PRC	POINT OF REVERSE CURVE
PRKG	PARKING
PRV	PRESSURE REDUCING VALVE
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
R.O.W.	RIGHT OF WAY
SSWR	SANITARY SEWER
SF	SQUARE FOOT
STA	STATION
STRM	STORM SEWER
STRC	STRUCTURAL
SWLK	SIDEWALK
SY	SQUARE YARD
TELE	TELEPHONE
TB	THRUST BLOCK
TEMP	TEMPORARY
TOC	TOP OF CURB
TOW	TOP OF WALL (RE: NOTE BELOW)
TYP.	TYPICAL
UD	UNDER DRAIN
UG	UNDERGROUND
VERT	VERTICAL
VC	VERTICAL CURVE

NOTE: TOW SHALL BE TOP OF WATER ON UTILITY SHEETS ONLY AND TOP OF WALL ON ALL OTHER SHEETS.

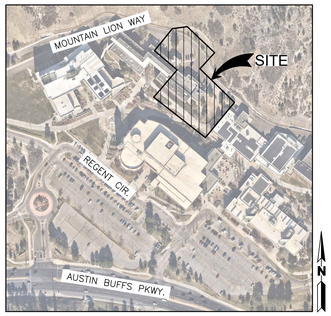
PROJECT CONTACTS

CIVIL ENGINEER:
MARTIN/MARTIN
12499 WEST COLFAX AVENUE
LAKEWOOD, COLORADO 80215

ARCHITECT:
OZ ARCHITECTURE
3003 LARIMER STREET
DENVER, CO 80205

LANDSCAPE ARCHITECT:
WENK ASSOCIATES
1130 31ST STREET, SUITE 101
DENVER, COLORADO 80205

SURVEYOR:
NV5
5445 MARK DABLING BLVD, SUITE 100
COLORADO SPRINGS, COLORADO 80918



VICINITY MAP
NOT TO SCALE

4 100% CONSTRUCTION DOCUMENT SHEET LIST TABLE

SHEET #	SHEET TITLE
C9.00	OVERALL SITE PLAN
C9.01	DETAILED HORIZONTAL CONTROL PLAN – LAB BUILDING
C9.02	DETAILED HORIZONTAL CONTROL PLAN – SHOP BUILDING
C9.03	LINE AND CURVE TABLE – LAB BUILDING
C10.00	SITE DETAILS
C10.01	SITE DETAILS

BID PACKAGE 1 SHEET LIST TABLE

SHEET #	SHEET TITLE
C1.00	COVER SHEET
C1.01	GENERAL NOTES
C2.00	EXISTING CONDITIONS AND DEMOLITION PLAN
C2.01	EXISTING CONDITIONS AND DEMOLITION PLAN– SHOPS BUILDING 2
C2.10	EROSION CONTROL PLAN
C2.20	EROSION CONTROL DETAILS
C2.21	EROSION CONTROL DETAILS
C3.00	OVERALL GRADING PLAN
C3.01	DETAILED GRADING – LAB BUILDING
C3.02	DETAILED GRADING – LAB BUILDING
C3.03	DETAILED GRADING – SHOPS BUILDING 2
C3.50	SHOP BUILDING ADDITIONAL PARKING PLAN
C4.00	OVERALL UTILITY PLAN
C5.00	STORM SEWER PLAN AND PROFILE
C5.01	STORM SEWER PLAN AND PROFILE
C5.02	STORM SEWER PLAN AND PROFILE
C5.03	STORM SEWER PLAN AND PROFILE
C5.04	STORM SEWER PLAN AND PROFILE – SHOPS BUILDING 2
C5.05	HEADWALL INTO 128X83 STORMLINE DETAILS
C5.10	POND DETAILS
C5.11	POND DETAILS
C5.15	PERIMETER DRAIN PLAN
C6.00	SANITARY SEWER COVER SHEET
C6.01	UTILITY NOTES
C6.02	SANITARY SEWER PLAN AND PROFILE
C6.03	WATER SERIVCE PLAN
C7.00	WATER MAIN COVER SHEET
C7.01	WATER NOTES
C7.10	ENG BUILDING ADDITION WATER PLAN AND PROFILE
C7.11	ENG BUILDING ADDITION WATER PLAN AND PROFILE
C7.12	SHOPS BUILDING WATER PLAN
C8.00	UTILITY DETAILS
C8.01	UTILITY DETAILS
C8.02	UTILITY DETAILS
C8.03	UTILITY DETAILS
C8.04	UTILITY DETAILS

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	HEAVY DUTY DRIVE LANES	
	CONCRETE/ SIDEWALK	
5750	CONTOURS	5750
	UTILITY CROSSING	#
ST	STORM SEWER	ST
ST	STORM MANHOLE	ST
RD	ROOF DRAIN	RD
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	SS
	CLEAN OUT	
W	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
	WATER METER	
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	
OHE	OVERHEAD ELECTRIC	
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
G	GAS LINE	G
FO	FIBER OPTIC	FO
D.W.	MONITOR WELL	
	SIGN	
	DIRECTION OF FLOW	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
ELEV.	SPOT ELEVATIONS	ELEV.
DRIVE	DESCRIPTIONS	DRIVE

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE, LAKEWOOD, COLORADO 80215
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Scott Paling 37116 10/26/22

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1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21
4 ADDENDA 4 PKG 1&2 2022/10/26

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
COVER SHEET

SCALE:
SHEET NUMBER
C1.00

BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt
2/21/2022 3:31:06 PM

MARTIN/MARTIN CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE, LAKEWOOD, COLORADO 80215
303.431.6100 MARTINMARTIN.COM

MARTIN/MARTIN, INC. GENERAL NOTES:

IN ADDITION TO THE CITY OF COLORADO SPRINGS STANDARD NOTES, THE FOLLOWING SHALL APPLY:

1. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF PLANS AND ONE COPY OF THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS ON THE JOB SITE AT ALL TIMES.

2. CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER (48)–HOURS PRIOR TO THE START OF CONSTRUCTION. A PRE–CONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE UNIVERSITY OF COLORADO SPRINGS (UCCS) (24)–HOURS PRIOR TO START OF WORK.

3. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS AT AND ADJACENT TO THE JOB SITE, INCLUDING, BUT NOT LIMITED TO, SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK, TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL AND SECURITY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

4. THE CITY OF COLORADO SPRINGS/OWNER/ENGINEER CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON OR NEAR THE CONSTRUCTION SITE.

5. ALL TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SAFETY OF WORKERS PROVIDED FOR AS REQUIRED BY THE MOST RECENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION." THESE REGULATIONS ARE DESCRIBED IN SUBPART P, PART 1926 OF THE CODE OF FEDERAL REGULATIONS. SHEETING AND SHORING SHALL BE UTILIZED WHERE NECESSARY TO PREVENT ANY EXCESSIVE WIDENING OR SLOUGHING OF THE TRENCH WHICH MAY BE DETRIMENTAL TO HUMAN SAFETY, TO THE PIPE BEING PLACED, OR TO ANY EXISTING SITE IMPROVEMENTS OR STRUCTURES. THE CONTRACTOR MAY BE REQUIRED TO USE AN APPROVED PILING INSTEAD OF SHEETING AND SHORING.

6. CONTRACTOR SHALL OBTAIN ALL PERMITS FOR STREET CUTS, UTILITY INTERRUPTIONS AND TRAFFIC CONTROL.

7. AT LEAST FIVE [5] WORKING DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO UNIVERSITY OF COLORADO COLORADO SPRINGS (UCCS). THE TRAFFIC CONTROL PLAN SHALL BE PREPARED BY A CERTIFIED TRAFFIC CONTROL SUPERVISOR AND SHALL BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. NO WORK SHALL BEGIN UNTIL ALL TRAFFIC CONTROL DEVICES HAVE BEEN PLACED IN ACCORDANCE WITH THE PLAN. THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN THE TRAFFIC CONTROL DEVICES FOR THE ENTIRE DURATION OF THE PROJECT OR UNTIL THE ROADWAY HAS BEEN OPENED AND THE PERMANENT TRAFFIC CONTROL DEVICES HAVE BEEN INSTALLED.

8. ALL TRENCH BACKFILL AND SUBGRADE PREPARATION SHALL BE TESTED TO ENSURE COMPLIANCE WITH CITY OF COLORADO SPRINGS STANDARDS AND SHALL BE TESTED AT CITY OF COLORADO SPRINGS REQUIRED FREQUENCIES BY A CITY OF COLORADO SPRINGS APPROVED PRIVATE SOILS TESTING FIRM. TEST RESULTS SHALL BE SUBMITTED TO, REVIEWED, AND APPROVED BY, THE CITY OF COLORADO SPRINGS ENGINEERING DIVISION PRIOR TO INSTALLING BASE COURSE, ASPHALT OR CONCRETE ON PREPARED SUBGRADE. ALL BASE COURSE DENSITY SHALL ALSO BE TESTED BY THE PRIVATE SOILS FIRM AT CITY OF COLORADO SPRINGS REQUIRED FREQUENCIES TO ENSURE COMPLIANCE WITH CITY OF COLORADO SPRINGS REQUIREMENTS. BASE COURSE TEST RESULTS SHALL ALSO BE APPROVED BY THE CITY OF COLORADO SPRINGS ENGINEERING DIVISION PRIOR TO INSTALLING PAVEMENT. ALL CONCRETE AND ASPHALT PLACED SHALL BE TESTED IN ACCORDANCE WITH CITY OF COLORADO SPRINGS MINIMUM MATERIALS TESTING STANDARDS. TEST RESULTS SHALL BE REVIEWED AND APPROVED BY THE CITY OF COLORADO SPRINGS ENGINEERING DIVISION PRIOR TO INITIATION OF THE REQUIRED (2) YEAR WARRANTY PERIOD.

9. CONTRACTOR SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL HEALTH AND SAFETY RULES AND REGULATIONS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES DURING CONSTRUCTION AND FOR COORDINATING WITH THE APPROPRIATE UTILITY COMPANY FOR ANY UTILITY CROSSINGS REQUIRED. REPAIR OF DAMAGED UTILITIES SHALL BE AT THE CONTRACTORS EXPENSE, INCLUDING BUT NOT LIMITED TO UNKNOWN UNDERGROUND UTILITIES.

11. EXISTING FENCES, TREES, SIDEWALKS, CURBS AND GUTTERS, LANDSCAPING, STRUCTURES, AND IMPROVEMENTS DESTROYED, DAMAGED OR REMOVED DUE TO CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED OR RESTORED IN LIKE KIND AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE INDICATED ON THESE PLANS.

12. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MAINTAINING REASONABLE ACCESS TO AND FROM ALL OF THE ADJACENT PROPERTIES THROUGHOUT THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE REQUIRED TO MEET (INDIVIDUALLY OR COLLECTIVELY) WITH ALL ADJACENT PROPERTY OWNERS WHO'S DRIVEWAY ACCESS WILL BE AFFECTED BY THE WORK. AS CONSTRUCTION CONDITIONS CHANGE AND THE WORK PROGRESSES, THE CONTRACTOR SHALL BE REQUIRED TO PERIODICALLY UPDATE THOSE PROPERTY OWNERS SO THAT THEY ARE KEPT INFORMED ABOUT THEIR ACCESS.

13. OWNER/DEVELOPER SHALL OBTAIN A STORMWATER CONSTRUCTION PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT, WATER QUALITY CONTROL DIVISION, PRIOR TO CLEARING, GRADING, OR EXCAVATING A SITE OF ONE–HALF ACRE OR MORE, OR LESS THAN ONE–HALF ACRE AND PART OF A LARGER DEVELOPMENT. A COPY OF THE APPROVED PERMIT MUST BE SUBMITTED TO UCCS PRIOR TO THE START OF CLEARING, GRADING OR EXCAVATING OF THE SITE. A COPY OF THE APPROVED PERMIT MUST ALSO BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.

14. CONTRACTOR SHALL OBTAIN A COLORADO STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT FOR ALL AREAS WHERE DEWATERING IS REQUIRED FROM AN EXCAVATION AND WATER IS DISCHARGED INTO A STORM SEWER, CHANNEL, IRRIGATION DITCH OR ANY WATERS OF THE UNITED STATES. A COPY OF THE APPROVED PERMIT MUST BE SUBMITTED TO UCCS PRIOR TO THE START OF ANY DEWATERING. A COPY OF THE APPROVED PERMIT MUST ALSO BE AVAILABLE ON THE PROJECT SITE AT ALL TIMES DURING CONSTRUCTION.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING STORM RUNOFF AND ANY GROUNDWATER ENCOUNTERED DURING THE CONSTRUCTION OF ANY PORTION OF THIS PROJECT. GROUNDWATER SHALL BE PUMPED, PIPED, REMOVED AND DISPOSED OF IN A MANNER WHICH DOES NOT CAUSE FLOODING OF EXISTING STREETS NOR EROSION ON ABUTTING PROPERTIES IN ORDER TO CONSTRUCT THE IMPROVEMENTS SHOWN ON THESE PLANS. NO CONCRETE SHALL BE PLACED WHERE GROUNDWATER IS VISIBLE OR UNTIL THE GROUNDWATER TABLE HAS BEEN LOWERED BELOW THE PROPOSED IMPROVEMENTS. ANY UNSTABLE AREAS, AS A RESULT OF GROUNDWATER, ENCOUNTERED DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE STABILIZED AS AGREED UPON BY THE CONTRACTOR, UCCS, AND THE GEOTECHNICAL ENGINEER AT THE TIME OF OCCURRENCE.

16. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING AND VERIFYING ELEVATIONS OF ALL EXISTING SEWER MAINS, WATER MAINS, CURBS, GUTTERS AND OTHER UTILITIES AT THE POINT OF CONNECTION SHOWN ON THE PLANS, AND AT ANY UTILITY CROSSINGS PRIOR TO INSTALLING ANY OF THE NEW IMPROVEMENTS. IF A CONFLICT EXISTS AND/OR A DESIGN MODIFICATION IS REQUIRED, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO MODIFY THE DESIGN.

17. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT ALL UTILITIES TO COORDINATE SCHEDULES.

18. CONTRACTOR SHALL NOTIFY ALL BUSINESSES/RESIDENTS IN WRITING 48 HOURS PRIOR TO ANY SHUT–OFF IN SERVICE. THE NOTICES MUST HAVE CONTRACTOR'S PHONE NUMBER AND NAME OF CONTACT PERSON, AND EMERGENCY PHONE NUMBER FOR AFTER HOURS CALLS. ALL SHUT OFFS MUST BE APPROVED BY THE CITY OF COLORADO SPRINGS UTILITY DIVISION, AND CITY OF COLORADO SPRINGS VALVES AND APPURTENANCES SHALL BE OPERATED BY CITY OF COLORADO SPRINGS PERSONNEL, UNLESS WRITTEN PERMISSION IS GIVEN OTHERWISE. (2)

19. THE CONTRACTOR SHALL NOT OPERATE ANY CONSTRUCTION VEHICLES NOR PERFORM ANY CONSTRUCTION OPERATIONS BEFORE 7 AM OR AFTER 6 PM, MONDAY THROUGH FRIDAY OR BEFORE 8 AM AND AFTER 5 PM ON SATURDAYS. NO WORK WILL BE ALLOWED ON SUNDAYS OR HOLIDAYS. UCCS RESERVES THE RIGHT TO FURTHER RESTRICT OR MODIFY THESE HOURS OF OPERATION IF CONDITIONS WARRANT.

20. REFER TO LANDSCAPE PLANS PREPARED BY WENK ASSOCIATES, INC. FOR FINAL LANDSCAPE LAYOUT AND DETAILS. TRAILS SHOWN ON LANDSCAPE CONSTRUCTION PLANS SHALL BE FIELD FIT TO ATTAIN 4.8% MAX SLOPE AND 2% CROSS SLOPE PER ADA REQUIREMENTS, UNLESS OTHERWISE NOTED.

21. COMPACTION OF ALL TRENCHES MUST BE ATTAINED AND COMPACTION TEST RESULTS SUBMITTED TO THE ENGINEER AND UCCS PRIOR TO FINAL ACCEPTANCE.

22. RECORD DRAWINGS SHOWING ALL CHANGES FROM THE APPROVED CONSTRUCTION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND OWNER PRIOR TO INITIATION OF THE REQUIRED (1)–YEAR WARRANTY PERIOD. THE RECORD DRAWINGS WILL CONSIST OF A MARKED–UP SET OF "ISSUED FOR CONSTRUCTION" DRAWINGS VERIFYING THE FOLLOWING:
    - ALL LENGTHS, SIZES, AND MATERIALS OF INSTALLED PIPE, MANHOLES, AND ANY OTHER IMPROVEMENT.
    - HORIZONTAL LOCATIONS EITHER BY STATION AND OFFSET, OR BY NORTHING AND EASTING COORDINATES OF ALL MANHOLES, BENDS, CLEANOUTS, VALVES, TAPS, WYES, STUBS, PLUGS, TEES, ETC.
    - INVERT ELEVATIONS OF STORM SEWER AND SANITARY SEWER MANHOLES, INLETS, OUTLETS, STUB ENDS, TOP OF PIPE ELEVATIONS OF EACH UTILITY CROSSING, ETC.
    - CONSTRUCTED SLOPE OF STORM AND SANITARY PIPES BETWEEN MANHOLES AND STRUCTURES.
    - TOP OF PIPE ELEVATION AT REGULAR INTERVALS AND/OR FITTINGS FOR WATER LINES.
    - ELEVATIONS AT FLOWLINE OF CURB AND GUTTER AT DESIGN LOCATIONS AND GRADE BREAKS. ELEVATION OF INLET AND TRENCH DRAIN GRATES. TOP OF CURB AT CURB INLETS.
    - ANY OTHER VARIATIONS FROM THE CONSTRUCTION DOCUMENTS MUST BE CLEARLY NOTED AND DETAILED ON THE PLANS.
    - AS–BUILT FIELD NOTES, FROM WHICH THE AS–BUILT DRAWINGS ARE PREPARED, ARE TO BE PROVIDED AND STAMPED/SIGNED AND DATED BY A COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR. (2)

25. THE CONTRACTOR SHALL WARRANT ALL WORK TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF (1)–YEAR FROM THE DATE OF ACCEPTANCE INTO THE WARRANTY PERIOD OF ALL CONSTRUCTION.

26. DURING CONSTRUCTION AND UPON COMPLETION OF CONSTRUCTION, THE SITE SHALL BE CLEANED AND RESTORED TO A CONDITION EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED BEFORE CONSTRUCTION.

27. CONTRACTOR SHALL REVIEW THE GEOTECHNICAL REPORT TITLED GEOTECHNICAL INVESTIGATION ANSCHUTZ ENGINEERING CENTER, DATED APRIL 21, 2022, AND PREPARED BY CTL THOMPSON, INC. FOR PAVEMENT DESIGN AND RECOMMENDATIONS REGARDING EXCAVATION, COMPACTION, MATERIALS, EMBANKMENT, PAVEMENT SUBEXCAVATION, MOISTURE CONTROL, AND TOPSOIL REMOVAL AND REPLACEMENT. FINAL PAVEMENT DESIGN TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER AFTER SUBGRADE IS COMPLETE. CONTRACTOR TO COORDINATE THIS WORK. THE CONSTRUCTION METHODS FOR EXCAVATION/EMBANKMENTS, COMPACTION, AND SUBGRADE PREPARATION SHALL BE IN STRICT CONFORMANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS. ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF DISCREPANCIES BETWEEN THE GEOTECHNICAL REPORT RECOMMENDATIONS AND REQUIREMENTS OF THESE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS.

28. THESE CONSTRUCTION DOCUMENTS ARE INTENDED SOLELY FOR THE CONSTRUCTION OF THE DEVELOPMENT DEPICTED HEREIN. PERIODIC, SYSTEMATIC MAINTENANCE IS NECESSARY FOR THE OWNER TO REALIZE THE DESIGN LIFE AND PERFORMANCE OF THE FACILITIES OF THIS PROJECT. INSPECTION, MAINTENANCE AND REPAIR ARE THE SOLE RESPONSIBILITY OF THE OWNER. THE DESIGN RELIES UPON A RESPONSIBLE EFFORT BY THE OWNER TO MAINTAIN THE FACILITIES, THUS, ANY DAMAGES ARISING OUT OF THE OWNER'S FAILURE TO PERFORM SAID MAINTENANCE ARE BEYOND THE DESIGNERS CONTROL. MARTIN/MARTIN EMPHASIZES THE IMPORTANCE OF A MAINTENANCE PROGRAM AND IF REQUESTED, WOULD BE AVAILABLE TO SUBMIT A PROPOSAL FOR ASSISTING THE OWNER IN THE DEVELOPMENT OF A COMPREHENSIVE, SYSTEMATIC MAINTENANCE PROGRAM TO MAINTAIN THE MAJOR INFRASTRUCTURE COMPONENTS OF THIS PROJECT. OWNER SHOULD BE COGNIZANT OF THE IMPORTANCE OF MAINTAINING DRAINAGE PATTERNS AND TO AVOID EXCESSIVE IRRIGATION. THE SOILS TYPICALLY FOUND IN COLORADO ARE SENSITIVE TO EXCESS MOISTURE. THIS COULD POTENTIALLY RESULT IN PAVEMENT/STRUCTURE MOVEMENTS WHICH MAY BE UNACCEPTABLE AND COMPROMISE THE DESIGN INTENT AND FUNCTIONALITY OF THE PROJECT. MARTIN/MARTIN RECOMMENDS THE OWNER MAINTAIN A COMPLETE SET OF SOILS/DRAINAGE REPORTS AND DESIGN PLANS OF THE PROJECT FOR FUTURE REFERENCE.

THE DESIGN PLANS SHOWN HEREIN WERE DEVELOPED BASED UPON THE GEOTECHNICAL INVESTIGATIONS/ANALYSIS/ENGINEERING CRITERIA DEVELOPED BY CTL THOMPSON, INC., AS PRESENTED IN THE GEOTECHNICAL REPORT ENTITLED GEOTECHNICAL INVESTIGATION ANSCHUTZ ENGINEERING CENTER, DATED APRIL 21, 2022, SIGNED AND SEALED BY TIMOTHY A. MITCHELL, P.E. MARTIN/MARTIN, INC. RELIED UPON THE ENGINEERING ANALYSIS AND CONCLUSIONS OF THIS REPORT IN THE PREPARATION OF THESE CIVIL ENGINEERING PLANS AND DOCUMENTS. NO INDEPENDENT INVESTIGATIONS AND/OR ANALYSIS WAS CONDUCTED BY MARTIN/MARTIN, INC. THESE PLANS WERE PROVIDED TO THE GEOTECHNICAL ENGINEER FOR REVIEW AND VERIFICATION THAT THESE PLANS DEVELOPED BY MARTIN/MARTIN PROPERLY INTERPRETED AND APPLIED THE CRITERIA AND RECOMMENDATIONS ESTABLISHED BY THEIR GEOTECHNICAL REPORT FOR THIS PROJECT.

ACCESSIBLE ROUTES:

1. ALL CONSTRUCTION AND VERIFICATION/TESTING SHALL BE IN ACCORDANCE WITH RULES AND REGULATIONS OF LOCAL, STATE AND FEDERAL JURISDICTIONS, AND THE MOST CURRENT REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT ("ADA"); ARCHITECTURAL BARRIERS ACT ACCESSIBILITY STANDARD – ABAAS AS PROVIDED FOR IN THE REGULATIONS OF THE UNITED STATES ACCESS BOARD, UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS) AND AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) – ANSI A117.1 . ADDITIONALLY, MEET REQUIREMENTS BY THE UNITED STATES DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION WHICH REQUIREMENTS ARE PRINCIPALLY LISTED IN 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, PROPOSED GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES ("PROWAG") AND LOCAL STANDARDS, FOR ANY ACCESSIBLE ROUTE.

2. NOTES AND REQUIREMENTS WITHIN THE CONSTRUCTION DOCUMENTS ARE A SUPPLEMENT TO, AND NOT A REPLACEMENT FOR THE REFERENCED REGULATIONS.

3. CONTRACTORS ARE TO BE AWARE WHEN REFERRING TO THE ABOVE STANDARDS, RULES AND REGULATIONS THAT PUBLISHED VALUES FOR DIMENSION AND SLOPE ARE FOR FINISHED CONSTRUCTION, NO TOLERANCE IS PERMITTED BELOW MINIMUM AS SHOWN ON DRAWINGS OR ABOVE MAXIMUM VALUES AS INDICATED IN THE APPLICABLE LOCAL, STATE, AND FEDERAL STANDARDS.

4. THE REGULATIONS EXPECT THE CONTRACTORS TO BE KNOWLEDGEABLE OF CONSTRUCTION PRACTICES, AND TO USE APPROPRIATE MEANS AND METHODS TO MEET TOLERANCES AND ENSURE CONSTRUCTION COMPLIES WITH REGULATIONS. ALL CONSTRUCTION OR ALTERATIONS OF ACCESSIBILITY ROUTES (WALKS, RAMPS, ENTRANCES, ETC.) SHALL COMPLY WITH STANDARDS, RULES AND REGULATIONS SET FORTH ABOVE, INCLUDING BUT NOT LIMITED TO 5% MAXIMUM LONGITUDINAL GRADE ON WALKS WITHOUT HANDRAILS, 8.33% MAXIMUM LONGITUDINAL GRADE ON WALKS WITH HANDRAILS, AND LANDINGS 2% MAXIMUM COMPOSITE SLOPE. 2% MAXIMUM CROSS SLOPE ON WALKS, AND 2% MAXIMUM COMPOSITE SLOPE IN HANDICAP PARKING/LOADING AREAS. NO TOLERANCE REGARDING MAXIMUM SLOPE WILL BE ALLOWED.

5. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL COORDINATE WITH OWNER/DEVELOPER, ENGINEER, ARCHITECT OR DESIGNATED OFFICIAL IF RULES AND REGULATIONS OF ACCESSIBILITY ROUTES CANNOT BE MET OR A DISCREPANCY OF REQUIREMENTS ARE INDICATED ON DRAWINGS. IN ADDITION, OWNER/DEVELOPER IS ADVISED THAT REGULAR MAINTENANCE PROGRAMS SHOULD BE IMPLEMENTED AFTER CONSTRUCTION TO KEEP EXISTING ROUTES SAFE, USABLE, AND ACCESSIBLE COMPLIANT.

STORM SEWER NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF COLORADO SPRINGS ENGINEERING STANDARDS, MATERIAL SPECIFICATIONS, AND DRAWINGS (LATEST REVISION). ALL STORM SEWER CONSTRUCTION SHALL BE APPROVED AND INSPECTED BY CITY OF COLORADO SPRINGS.

2. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING STORM SEWER POINTS OF CONNECTION PRIOR TO CONSTRUCTION OF ANY PROPOSED STORM SEWER.

3. ALL STORM SEWER LINES SHALL BE RCP, CLASS III UNLESS DISTANCE BETWEEN PIPE CROWN AND BOTTOM OF PAVEMENT IS LESS THAN 18", IN WHICH CASE CLASS IV WILL BE REQUIRED.

4. ALL JOINTS AND JOINTING MATERIAL SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS. (REFER TO MHFD SPECIFICATION 33 41 00 FOR ADDITIONAL INFORMATION):
    A. RUBBER GASKET JOINTS FOR TONGUE AND GROOVE OR BELL AND SPIGOT PIPE USING A CONFINED GASKET JOINT SHALL CONSIST OF AN O–RING RUBBER GASKET OR OTHER APPROVED GASKET CONFIGURATION AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM 361, ASTM C443, ASTM C1619, OR ASTM C1628 FOR THE PIPE DESIGNATED. UNLESS OTHERWISE APPROVED BY ENGINEER, THE STANDARD JOINT CONFIGURATION SHALL BE AS NOTED IN MHFD SUBSECTION 3.04.F.
    B. RUBBER GASKET JOINTS FOR TONGUE AND GROOVE OR BELL AND SPIGOT PIPE USING A SINGLE OFFSET JOINT SHALL CONSIST OF A NON–CIRCULAR RUBBER GASKET OR OTHER APPROVED GASKET CONFIGURATION AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM C76 OR ASTM 361 FOR THE PIPE DESIGNATED. UNLESS OTHERWISE APPROVED BY ENGINEER, THE STANDARD JOINT CONFIGURATION SHALL BE AS NOTED IN SUBSECTION MHFD 3.04.F.
    C. GASKETS MAY BE NATURAL RUBBER, ISOPRENE OR NEOPRENE CONFORMING TO ASTM C1619.

5. DISTANCES FOR STORM SEWER PIPE ARE THE HORIZONTAL DISTANCES FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. THEREFORE, DISTANCES SHOWN ON PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND MANHOLE WIDTHS.

6. MANHOLES, BARRELS AND CONES SHALL BE CONSTRUCTED OF PRECAST CONCRETE. CAST–IN–PLACE MANHOLES SHALL NOT BE ALLOWED.

7. PRECAST MANHOLES AND RISERS SHALL BE MANUFACTURED IN CONFORMITY WITH ASTM DESIGNATION C–478. ALL CONES SHALL BE ECCENTRIC AND SHALL BE ROTATED AWAY FROM ADJACENT CURB AND GUTTER.

8. ALL STORM SEWERS SHALL HAVE CLASS "B" BEDDING UNLESS OTHERWISE SHOWN. BEDDING MATERIAL SHALL CONFORM TO ASTM C–33 OR D–448, GRADATION NO. 67.

9. THE FLEXIBLE PLASTIC JOINT SEALING COMPOUND SHALL BE "RAMNEK," RUBBERNECK OR APPROVED EQUAL.

10. THE CONNECTION OF A NEW STORM SEWER TO AN EXISTING MANHOLE/INLET MAY REQUIRE CHANGES IN ELEVATIONS OR MODIFICATION TO EXISTING STRUCTURES. USE OF A PRE–CAST CONCRETE STRUCTURE OR MANHOLE/INLET RECONSTRUCTION IS AT THE DISCRETION OF CITY OF COLORADO SPRINGS.

11. CONTRACTOR SHALL IMMEDIATELY REMOVE DEBRIS DEPOSITED INTO PUBLIC MANHOLES AND OTHER PUBLIC STRUCTURES TO ELIMINATE THE POSSIBILITY OF PROPERTY DAMAGE DUE TO THE DEBRIS CAUSING BACKUP INTO PRIVATE PROPERTIES. IF IT IS DETERMINED THAT DEBRIS CAUSED A BACKUP, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DAMAGES.

12. NO TREES SHALL BE PLANTED WITHIN ANY SEWER EASEMENT OR WITHIN TEN (10) FEET OF ANY PUBLIC MANHOLES, PIPES OR INLETS.

13. RIM ELEVATIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS TO ADJUST THE MANHOLE FRAME TO THE REQUIRED FINAL GRADE, SUCH THAT THERE IS NO MORE THAN EIGHTEEN [18] INCHES FROM FINISHED GRADE TO THE TOP OF THE CONE SECTION. THE RIM SHALL BE LEFT 1/8–INCH TO 1/4–INCH BELOW FINISHED ASPHALT.

14. MANHOLE COVERS SHALL BE ALIGNED TO PROVIDE A MINIMUM OF THREE (3) FEET CLEARANCE BETWEEN THE MANHOLE RING AND THE LIP OF GUTTER.

15. STATIONING/COORDINATES SHOWN FOR TYPE 'R' INLETS IS ON FLOWLINE AT CENTER OF INLET. STATIONING/COORDINATES FOR AREA INLETS ARE AT CENTER OF INLET. STATIONING/COORDINATES FOR FLARED END SECTIONS ARE AT CENTER OF FLARED END.

16. SLOPE OF INLET FLOW LINE OR GRATE TO MATCH STREET GRADE UNLESS INLET IS AT A SUMP LOCATION.

17. CONTRACTOR TO COORDINATE HORIZONTAL AND VERTICAL LOCATIONS OF ROOF DRAIN SERVICES AND DOWNSPOUTS WITH PLUMBING AND ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.

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CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03

REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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PACKAGE 1

SHEET TITLE:
GENERAL NOTES

SCALE:
SHEET NUMBER
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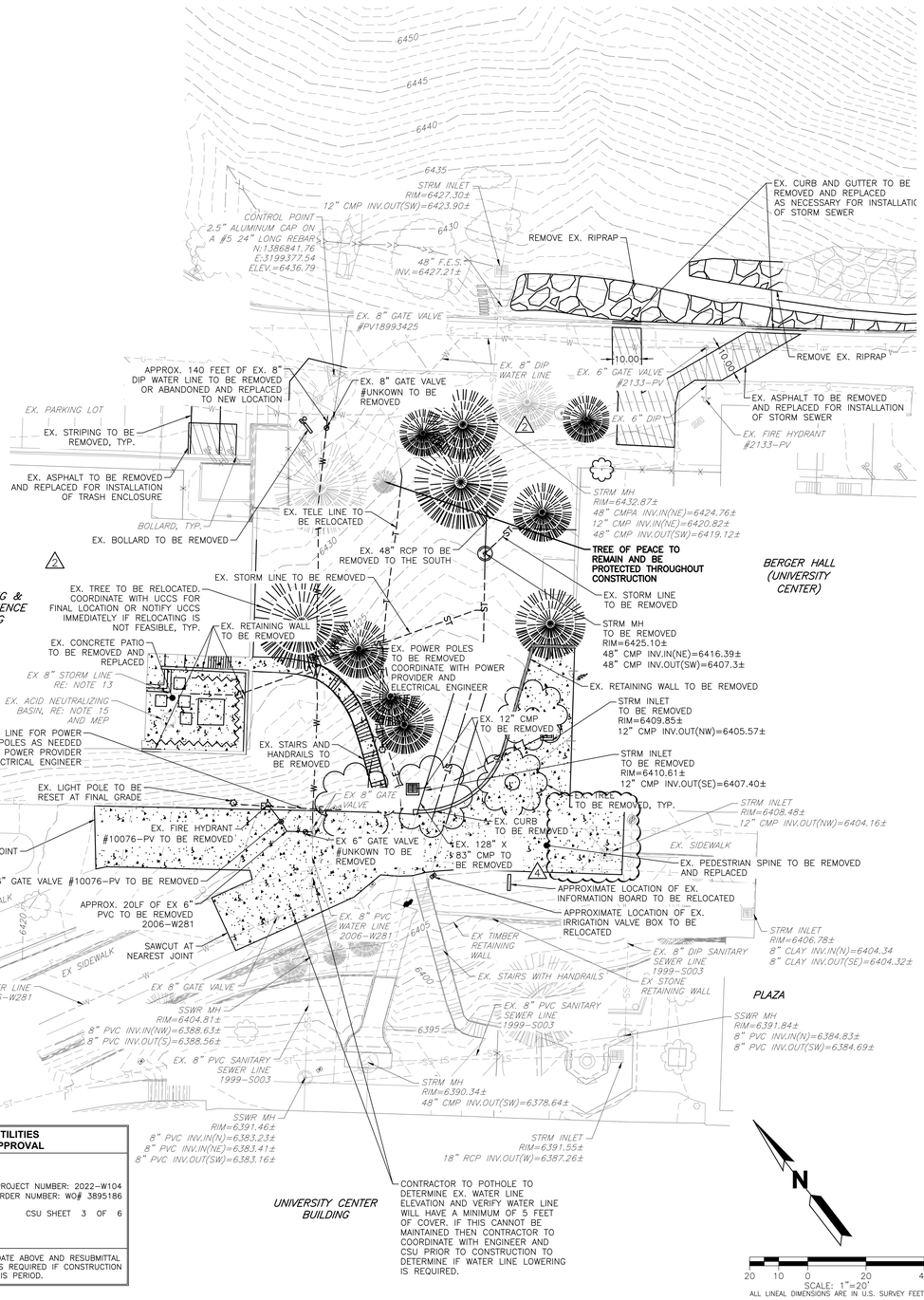

LEGEND

EXISTING		DEMOLITION
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	ASPHALT	
	CONCRETE/ SIDEWALK	
5750	CONTOURS	
ST	STORM SEWER	ST
ST	STORM MANHOLE	ST
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	SS
W	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
WM	WATER METER	WM
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	IRR
OHE	OVERHEAD ELECTRIC	OHE
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	ELEC
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
	SIGN	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
G	GAS LINE	G
DRIVE	DESCRIPTIONS	DRIVE

NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. COORDINATE ADDITIONAL DEMOLITION REQUIREMENTS AS NECESSARY FOR CONSTRUCTION ACCESS AND STAGING.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXIST. CONDITIONS PRIOR TO CONSTRUCTION. LOCATE UTILITIES AS NEEDED PER JURISDICTIONAL REQUIREMENTS. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
4. DEMOLITION WORK ADJACENT TO EXIST. PAVEMENT SHALL BE SAWCUT TO MAINTAIN AN INTACT EDGE. DAMAGE TO THE EXIST. EDGE OF PAVEMENT WILL REQUIRE ADDITIONAL SAWCUTTING, REMOVAL AND REPLACEMENT. CONCRETE SHALL BE REMOVED AT EX. JOINT LOCATIONS OR LIP OF GUTTER.
5. PROTECT ALL TREES, LANDSCAPING, STRUCTURES, UTILITIES AND SURFACE IMPROVEMENTS NOT DESIGNATED FOR REMOVAL.
6. REFER TO LANDSCAPE PLANS FOR TREE PROTECTION PLAN.
7. ALL MANHOLES AND WATER VALVE COVERS SHALL BE PROTECTED AND RAISED OR LOWERED TO FINAL FINISHED GRADE UNLESS NOTED OTHERWISE.
8. CONTRACTOR SHALL PROVIDE FOR DUST CONTROL DURING DEMOLITION TO INCLUDE COVERING OF ALL TRUCKS HAULING DEBRIS OFF-SITE, PERIODICALLY CLEANING AND SWEEPING ADJACENT STREETS, AND APPLYING APPROVED DUST PALLIATIVE AS NECESSARY.
9. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR BURIED UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES PRIOR TO AND DURING CONSTRUCTION.
10. LIMITS OF CONSTRUCTION ARE APPROXIMATE.
11. CONTRACTOR TO REPAIR ANY EXISTING IMPROVEMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
12. SURVEY PROVIDED BY NV5 DATED JUNE 09, 2022.
13. STORM LINE IN EAS PATIO IS AN APPROXIMATE LOCATION BASED ON THE EXISTING EAS DRAWINGS AND COORDINATION WITH UCCS. CONTRACTOR SHALL FIELD LOCATE STORM LINE A MINIMUM OF THREE (3) WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
14. ANY STONE FOUND DURING CONSTRUCTION/DEMOLITION GREATER THAN 4" IN DIAMETER TO BE SET ASIDE AND COORDINATED WITH UCCS FOR FINAL LOCATION.
15. ACID NEUTRALIZATION BASIN IN EAS PATIO IS APPROXIMATE LOCATION. CONTRACTOR SHALL FIELD LOCATE ACID NEUTRALIZATION BASIN A MINIMUM OF THREE (3) WEEKS PRIOR TO CONSTRUCTION AND VERIFY IT DOES NOT CONFLICT WITH ANY PROPOSED CONSTRUCTION. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

COLORADO SPRINGS UTILITIES
WATER PLAN DESIGN APPROVAL

PROJECT NUMBER: 2022-W104
WORK ORDER NUMBER: WO# 3895186

CSU SHEET 3 OF 6

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

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COLORADO 811 — KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.
CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

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COLORADO SPRINGS, CO 80918

EXISTING CONDITIONS AND DEMOLITION PLAN

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03

REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21
4 ADDENDA 4 PKG 1&2 2022/10/26

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PACKAGE 1

SHEET TITLE:
EXISTING CONDITIONS AND DEMOLITION PLAN

SCALE:
SHEET NUMBER
C2.00

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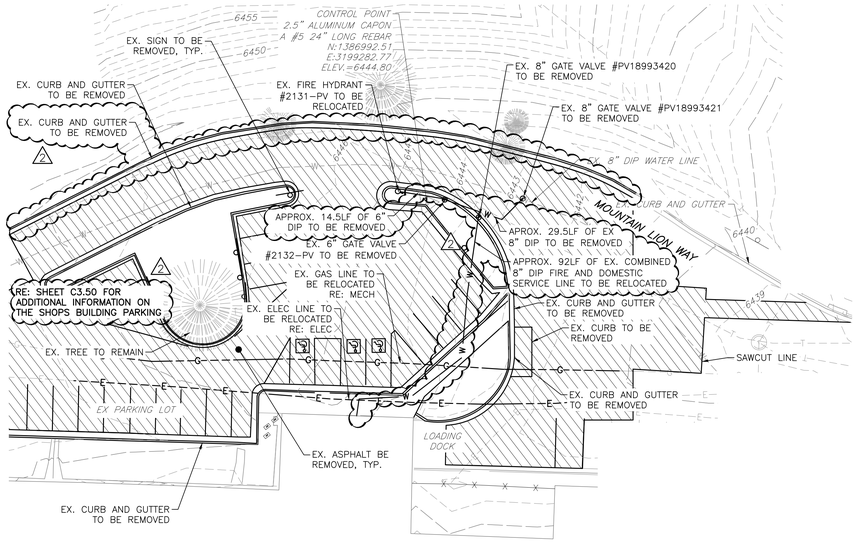

NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. COORDINATE ADDITIONAL DEMOLITION REQUIREMENTS AS NECESSARY FOR CONSTRUCTION ACCESS AND STAGING.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXIST. CONDITIONS PRIOR TO CONSTRUCTION. LOCATE UTILITIES AS NEEDED PER JURISDICTIONAL REQUIREMENTS. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
4. DEMOLITION WORK ADJACENT TO EXIST. PAVEMENT SHALL BE SAWCUT TO MAINTAIN AN INTACT EDGE. DAMAGE TO THE EXIST. EDGE OF PAVEMENT WILL REQUIRE ADDITIONAL SAWCUTTING, REMOVAL AND REPLACEMENT. CONCRETE SHALL BE REMOVED AT EX. JOINT LOCATIONS OR LIP OF GUTTER.
5. PROTECT ALL TREES, LANDSCAPING, STRUCTURES, UTILITIES AND SURFACE IMPROVEMENTS NOT DESIGNATED FOR REMOVAL.
6. REFER TO LANDSCAPE PLANS FOR TREE PROTECTION PLAN.
7. ALL MANHOLES AND WATER VALVE COVERS SHALL BE PROTECTED AND RAISED OR LOWERED TO FINAL FINISHED GRADE UNLESS NOTED OTHERWISE.
8. CONTRACTOR SHALL PROVIDE FOR DUST CONTROL DURING DEMOLITION TO INCLUDE COVERING OF ALL TRUCKS HAULING DEBRIS OFF–SITE, PERIODICALLY CLEANING AND SWEEPING ADJACENT STREETS, AND APPLYING APPROVED DUST PALLIATIVE AS NECESSARY.
9. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR BURIED UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES PRIOR TO AND DURING CONSTRUCTION.
10. LIMITS OF CONSTRUCTION ARE APPROXIMATE.
11. CONTRACTOR TO REPAIR ANY EXISTING IMPROVEMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
12. SURVEY PROVIDED BY NV5 DATED JUNE 09, 2022.
13. STORM LINE IN EAS PATIO IS AN APPROXIMATE LOCATION BASED ON THE EXISTING EAS DRAWINGS AND COORDINATION WITH UCCS. CONTRACTOR SHALL FIELD LOCATE STORM LINE A MINIMUM OF THREE (3) WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES. 2
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COLORADO SPRINGS UTILITIES
WATER PLAN DESIGN APPROVAL

PROJECT NUMBER: 2022–W104
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CSU SHEET 3 OF 6

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

PLANS SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

LEGEND

EXISTING		DEMOLITION
	PROPERTY LINE	
	RIGHT–OF–WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	ASPHALT	
	CONCRETE/ SIDEWALK	
5750	CONTOURS	
ST	STORM SEWER	ST
ST	STORM MANHOLE	ST
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	SS
W	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
W	WATER METER	W
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	IRR
OHE	OVERHEAD ELECTRIC	OHE
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	ELEC
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
	SIGN	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
G	GAS LINE	G
DRIVE	DESCRIPTIONS	DRIVE

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
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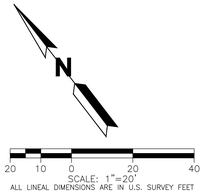

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COLORADO LICENSED
DANIEL S. PALING
37116
09/21/22
PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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SHEET TITLE:
EXISTING CONDITIONS AND DEMOLITION PLAN- SHOPS BUILDING
SCALE:
SHEET NUMBER
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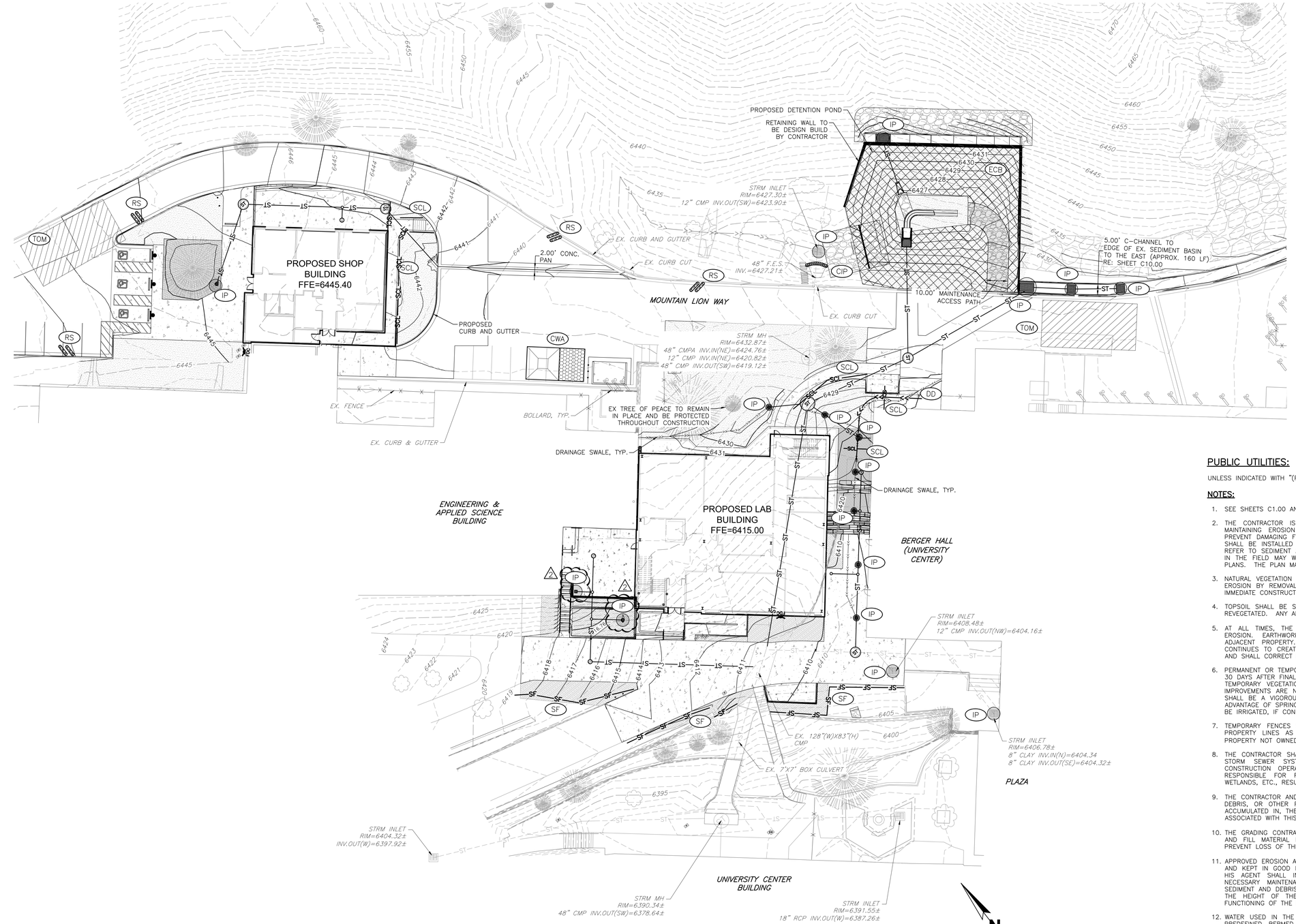

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303.431.6100 MARTINMARTIN.COM

LEGEND

SILT FENCE	SF
TRACK-OFF MAT	TOM
INLET PROTECTION	IP
CULVERT INLET PROTECTION	CIP
STABILIZED STAGING AREA	SSA
CONCRETE WASHOUT AREA	CWA
ROCK SOCK	RS
SEDIMENT CONTROL LOG	SCL
DIVERSION DITCHES/ CHANNEL	DD/DC
EROSION CONTROL BLANKET	ECB
LIMITS OF CONSTRUCTION	LOC
TEMPORARY SLOPE DRAIN	TSD

PUBLIC UTILITIES:

UNLESS INDICATED WITH "(PUBLIC)" ALL PROPOSED UTILITIES SHOWN ON ARE PRIVATE.

NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AND IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING CONSTRUCTION TO PREVENT DAMAGING FLOWS ON THE SITE AND IN THE WATERSHED BELOW THE SITE. CONTROL SYSTEMS SHALL BE INSTALLED PRIOR TO STRIPPING OF NATIVE VEGETATIVE COVER AND AS GRADING PROGRESSES. REFER TO SEDIMENT AND EROSION CONTROL PLANS AND STORM WATER MANAGEMENT PLAN. CONDITIONS IN THE FIELD MAY WARRANT EROSION CONTROL MEASURES IN ADDITION TO WHAT IS SHOWN ON THESE PLANS. THE PLAN MAY BE MODIFIED WITH APPROPRIATE APPROVALS AS FIELD CONDITIONS WARRANT.
3. NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED WHEREVER POSSIBLE. EXPOSURE OF SOIL TO EROSION BY REMOVAL OR DISTURBANCE OF VEGETATION SHALL BE LIMITED TO THE AREA REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATION AND FOR THE SHORTEST PRACTICAL PERIOD OF TIME.
4. TOPSOIL SHALL BE STOCKPILED TO THE EXTENT PRACTICABLE ON THE SITE FOR USE ON AREAS TO BE REVEGETATED. ANY AND ALL STOCKPILES SHALL BE LOCATED AND PROTECTED FROM EROSIVE ELEMENTS.
5. AT ALL TIMES, THE PROPERTY SHALL BE MAINTAINED AND/OR WATERED TO PREVENT WIND-CAUSED EROSION. EARTHWORK OPERATIONS SHALL BE DISCONTINUED WHEN FUGITIVE DUST SIGNIFICANTLY IMPACTS ADJACENT PROPERTY. IF EARTHWORK IS COMPLETE OR DISCONTINUED AND DUST FROM THE SITE CONTINUES TO CREATE PROBLEMS, THE CONTRACTOR SHALL IMMEDIATELY INSTITUTE MITIGATIVE MEASURES AND SHALL CORRECT DAMAGE TO ADJACENT PROPERTY.
6. PERMANENT OR TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED TO DISTURBED AREAS WITHIN 30 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. UNLESS SPECIFIED OTHERWISE, TEMPORARY VEGETATION SHALL BE INSTALLED ON ALL DISTURBED AREAS WHERE PERMANENT SURFACE IMPROVEMENTS ARE NOT SCHEDULED FOR INSTALLATION WITHIN THREE MONTHS. TEMPORARY VEGETATION SHALL BE A VIGOROUS, DROUGHT TOLERANT, NATIVE SPECIES MIX. PROJECT SCHEDULING SHOULD TAKE ADVANTAGE OF SPRING OR FALL PLANTING SEASONS FOR NATURAL GERMINATION, BUT SEEDED AREAS SHALL BE IRRIGATED, IF CONDITIONS MERIT. REFER TO THE LANDSCAPE PLAN FOR FINAL LANDSCAPING.
7. TEMPORARY FENCES SHALL BE INSTALLED ALONG ALL BOUNDARIES OF THE CONSTRUCTION LIMITS OR PROPERTY LINES AS SHOWN ON THE APPROVED EROSION CONTROL PLAN, TO PREVENT GRADING ON PROPERTY NOT OWNED BY THE OWNER/DEVELOPER.
8. THE CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION, EXCAVATION, TRENCHING, GRADING OR OTHER CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, ROADWAYS, WETLANDS, ETC., RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
9. THE CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN INADVERTENTLY DISCHARGED TO, OR ACCUMULATED IN, THE FLOWLINES AND PUBLIC RIGHT-OF-WAY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT.
10. THE GRADING CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL ENSURE THAT ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THIS SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT ON PUBLIC ROADWAYS.
11. APPROVED EROSION AND SEDIMENT CONTROL "BEST MANAGEMENT PRACTICES" [BMP] SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL BMPS WEEKLY AND AFTER SIGNIFICANT PRECIPITATION EVENTS. ALL NECESSARY MAINTENANCE AND REPAIR SHALL BE COMPLETED IN A TIMELY MANNER. ACCUMULATED SEDIMENT AND DEBRIS SHALL BE REMOVED FROM A BMP WHEN THE SEDIMENT LEVEL REACHES ONE HALF THE HEIGHT OF THE BMP OR, AT ANY TIME THAT SEDIMENT OR DEBRIS ADVERSELY IMPACTS THE FUNCTIONING OF THE BMP.
12. WATER USED IN THE CLEANING OF CONCRETE TRUCK DELIVERY CHUTES SHALL BE DISCHARGED INTO A PREDEFINED, BERMED CONTAINMENT AREA ON THE JOB SITE. THE REQUIRED CONTAINMENT AREA IS TO BE BERMED SO THAT WASH WATER IS TOTALLY CONTAINED. WASH WATER DISCHARGED INTO THE CONTAINMENT AREA SHALL BE ALLOWED TO INFILTRATE OR EVAPORATE. DRIED CONCRETE WASTE SHALL BE REMOVED FROM THE CONTAINMENT AREA AND PROPERLY DISPOSED OF. SHOULD A PREDEFINED BERMED CONTAINMENT AREA NOT BE AVAILABLE DUE TO THE PROJECT SIZE, OR LACK OF AN AREA WITH A SUITABLE GROUND SURFACE FOR ESTABLISHING A CONTAINMENT AREA, PROPER DISPOSAL OF READY MIX WASHOUT AND RINSE OFF WATER AT THE JOB SITE SHALL CONFORM TO THE APPROVED TECHNIQUES AND PRACTICES IDENTIFIED IN THE COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT'S TRAINING VIDEO ENTITLED "BUILDING FOR A CLEANER ENVIRONMENT, READY MIX WASHOUT TRAINING", AND ITS ACCOMPANYING MANUAL ENTITLED, "READY MIX WASHOUT GUIDEBOOK, VEHICLE AND EQUIPMENT WASHOUT AT CONSTRUCTION SITES." THE DIRECT OR INDIRECT DISCHARGE OF WATER CONTAINING WASTE CONCRETE TO THE STORM SEWER SYSTEM IS PROHIBITED. INFORMATION ABOUT, OR COPIES OF THE VIDEO AND TRAINING MANUAL ARE AVAILABLE FROM THE WATER QUALITY CONTROL DIVISION, COLORADO DEPARTMENT OF PUBLIC HEALTH & ENVIRONMENT, 4300 CHERRY CREEK DRIVE SOUTH, DENVER, COLORADO 80222-1530, 303-692-3555
13. THE CONTRACTOR SHALL PROTECT ALL STORM SEWER FACILITIES ADJACENT TO ANY LOCATION WHERE PAVEMENT CUTTING OPERATIONS INVOLVING WHEEL CUTTING, SAW CUTTING OR ABRASIVE WATER JET CUTTING ARE TO TAKE PLACE. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL WASTE PRODUCTS GENERATED BY SAID CUTTING OPERATIONS ON A DAILY BASIS. THE DISCHARGE OF ANY WATER CONTAMINATED BY WASTE PRODUCTS FROM CUTTING OPERATIONS TO THE STORM SEWER SYSTEM IS PROHIBITED.
14. PAVED SURFACES WHICH ARE ADJACENT TO CONSTRUCTION SITES SHALL BE SWEPT IN A TIMELY MANNER WHEN SEDIMENT AND OTHER MATERIALS ARE TRACKED OR DISCHARGED ON TO THEM. EITHER SWEEPING BY HAND OR USE OF STREET SWEEPERS IS ACCEPTABLE. STREET SWEEPERS USING WATER WHILE SWEEPING IS PREFERRED IN ORDER TO MINIMIZE DUST. FLUSHING OFF PAVED SURFACES WITH WATER IS PROHIBITED.
15. ULTIMATE LOCATIONS OF STAGING AREA(S), VEHICLE TRACKING CONTROL, CONCRETE WASHOUT AREA(S), AND CONSTRUCTION FENCING TO BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO MOBILIZATION.
16. EROSION CONTROL PLAN TO BE REVIEWED WITH OWNER REPRESENTATIVE PRIOR TO CONSTRUCTION AND ADJUSTED AS NEEDED ACCORDING TO CURRENT SITE CONDITIONS.
17. CONTRACTOR TO ENSURE THE STORM INLETS LOCATED WITHIN THE LIMITS OF DISTURBANCE ARE PROTECTED AND ABLE TO COLLECT STORM RUNOFF FROM THE SITE AT ALL TIMES.
18. CONTRACTOR TO ENSURE RIPRAP IS CLEAN UPON CONSTRUCTION COMPLETION.

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COLORADO REGISTERED PROFESSIONAL ENGINEER
37116
09/21/22

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
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DRAWN: L. JACKSON
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2 PACKAGE 1 REVISIONS 2022/09/21

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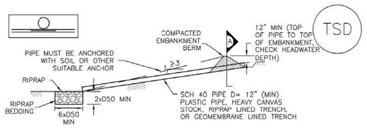
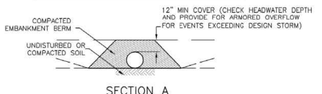
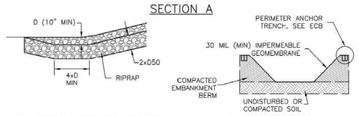


TEMPORARY SLOPE DRAIN PROFILE

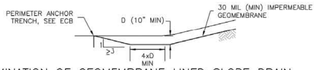


SECTION A



TERMINATION OF RIPRAP LINED SLOPE DRAIN

GEOMEMBRANE LINED SLOPE DRAIN



TERMINATION OF GEOMEMBRANE LINED SLOPE DRAIN

TSD-1. TEMPORARY SLOPE DRAIN PROFILE

SLOPE DRAIN INSTALLATION NOTES

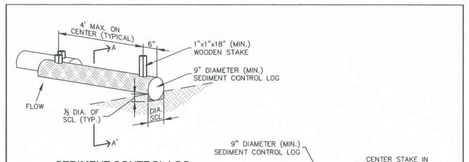
1. SEE PLAN VIEW FOR:
   -LOCATION AND LENGTH OF SLOPE DRAIN
   -PIPE DIAMETER, D, AND RIPRAP SIZE, D50.
2. SLOPE DRAIN SHALL BE DESIGNED TO CONVEY PEAK RUNOFF FOR 2-YEAR 24-HOUR STORM AT A MINIMUM. FOR LONGER DURATION PROJECTS, LARGER MAY BE APPROPRIATE.
3. SLOPE DRAIN DIMENSIONS SHALL BE CONSIDERED MINIMUM DIMENSIONS; CONTRACTOR MAY ELECT TO INSTALL LARGER FACILITIES.
4. SLOPE DRAINS INDICATED SHALL BE INSTALLED PRIOR TO UPGRADIENT LAND-DISTURBING ACTIVITIES.
5. CHECK HEADWATER DEPTHS FOR TEMPORARY AND PERMANENT SLOPE DRAINS. DETAILS SHOW MINIMUM COVER; INCREASE AS NECESSARY FOR DESIGN HEADWATER DEPTH.
6. RIPRAP PAD SHALL BE PLACED AT SLOPE DRAIN OUTFALL.
7. ANCHOR PIPE BY COVERING WITH SOIL OR AN ALTERNATE SUITABLE ANCHOR MATERIAL.

SLOPE DRAIN MAINTENANCE NOTES

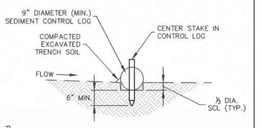
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. INSPECT INLET AND OUTLET POINTS AFTER STORMS FOR CLOGGING OR EVIDENCE OF OVERTOPPING. BREACHES IN PIPE OR OTHER CONVEYANCE SHALL BE REPAIRED AS SOON AS PRACTICABLE IF OBSERVED.
5. INSPECT RIPRAP PAD AT OUTLET FOR SIGNS OF EROSION. IF SIGNS OF EROSION EXIST, ADDITIONAL ARMORING SHALL BE INSTALLED.
6. TEMPORARY SLOPE DRAINS ARE TO REMAIN IN PLACE UNTIL NO LONGER NEEDED, BUT SHALL BE REMOVED PRIOR TO THE END OF CONSTRUCTION. WHEN SLOPE DRAINS ARE REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, SEEDED, MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, COLORADO, NOT AVAILABLE IN AUTOCAD)

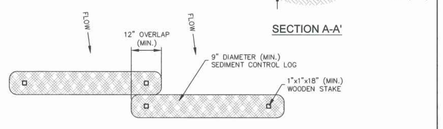
NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.



SEDIMENT CONTROL LOG



SECTION A-A'



SEDIMENT CONTROL LOG JOINTS

INSTALLATION NOTES

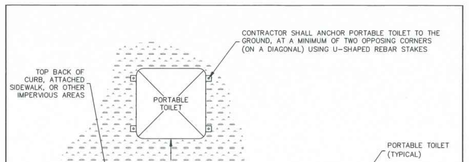
1. ALL SEDIMENT CONTROL LOGS MUST BE EMBEDDED TO ½ OF THE HEIGHT OF THE LOG
2. LARGER DIAMETER SEDIMENT CONTROL LOGS NEED TO BE EMBEDDED DEEPER.
3. PLACE SEDIMENT CONTROL LOG AGAINST SIDEWALK OR BACK OF CURB WHEN ADJACENT TO THESE FEATURES.
4. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR OR COCONUT FIBER, AND SHALL BE FREE FROM ANY NOXIOUS WEED SEEDS OF DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
5. IF USING AS SLOPE PROTECTION, INSTALL SEDIMENT CONTROL LOGS ALONG THE CONTOUR.

MAINTENANCE NOTES

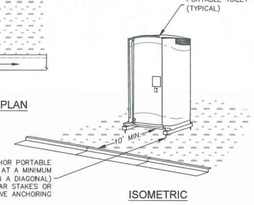
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
3. PERMANENTLY STABILIZE AREA AFTER SEDIMENT CONTROL LOGS HAVE BEEN REMOVED.

SCL

STORMWATER ENTERPRISE | SEDIMENT CONTROL LOGS
APPROVED: SHENT MANAGER
ISSUED: 10/7/19 | REVISED: 8/19/2020 | DRAWING NO. 900-SCL



PORTABLE TOILET PLAN



ISOMETRIC

INSTALLATION NOTES

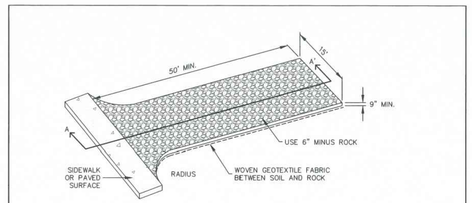
1. PORTABLE TOILETS SHALL BE PLACED A MINIMUM OF 10 FEET BEHIND ALL CURBS, SIDEWALKS, AND OTHER IMPERVIOUS AREAS; 50 FEET FROM STORM INLETS, AND 100 FEET FROM WATERWAYS.
2. PORTABLE TOILETS IN THE RIGHT-OF-WAY ARE REQUIRED TO BE PLACED ON MOBILE TRAILERS AND MUST BE ANCHORED OR WEIGHTED DOWN. PORTABLE TOILETS MAY BE INSTALLED IN ACCORDANCE WITH NOTE #1 IN STAGING AREAS/YARDS.
3. PORTABLE TOILETS SHALL BE SECURELY ANCHORED TO THE GROUND USING U-SHAPED REBAR STAKES, OR OTHER EFFECTIVE ANCHORING.
4. ANCHORING SHALL BE POSITIONED ON AT LEAST TWO OPPOSING (DIAGONAL) CORNERS.
5. TOILET CONTAINMENT PANS MAY BE USED IN PLACE OF A TRAILER AT THE GEC INSPECTOR'S DISCRETION. TOILET CONTAINMENT PANS MUST BE ANCHORED IN PLACE AND MUST NOT BE USED WITHIN THE CITY R.O.W.

MAINTENANCE NOTES

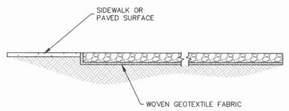
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. PORTABLE TOILETS SHALL BE SERVICED AT THE NECESSARY INTERVALS TO ELIMINATE THE POSSIBILITY OF OVERFLOW.
3. WHEN THE PORTABLE TOILETS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE TOILETS MUST BE PERMANENTLY STABILIZED.

PT

PORTABLE TOILET
APPROVED: SHENT MANAGER
ISSUED: 2/19/19 | REVISED: 8/19/2020 | DRAWING NO. 900-PTM



AGGREGATE VEHICLE TRACKING CONTROL



SECTION A-A'

INSTALLATION NOTES

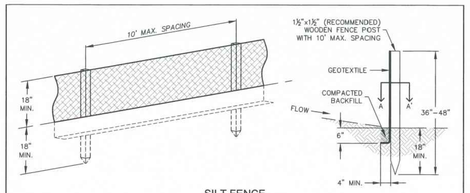
1. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHOULD BE LOCATED AT ALL POINTS WHERE VEHICLES EXIT THE CONSTRUCTION SITE TO ADJACENT ROADWAY.
2. STABILIZED CONSTRUCTION ENTRANCE/EXITS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
3. RADIUS MUST BE ADEQUATE FOR INTENDED CONSTRUCTION VEHICLE TURNING.
4. ROCK SHOULD CONSIST OF 6" MINUS ROCK.
5. INSTALL CONSTRUCTION FENCE ON BOTH SIDES OF VEHICLE TRACKING CONTROL PAD WHEN NEEDED OR REQUIRED BY INSPECTOR.

MAINTENANCE NOTES

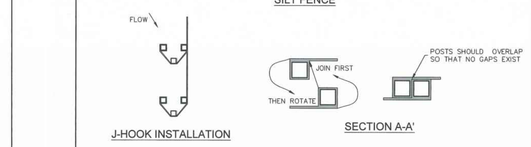
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. SEDIMENT TRACKED ONTO THE ADJACENT ROAD SHALL BE REMOVED DAILY, BY SWEEPING OR SHOVELING, AND NEVER WASHED DOWN STORM DRAINS.
3. ROUGHEN, REPLACE AND/OR ADD ROCK AS NEEDED TO MAINTAIN CONSISTENT DEPTH AND TO PREVENT SEDIMENT TRACKING ONTO ADJACENT STREET.
4. PERMANENTLY STABILIZE AREA AFTER VEHICLE TRACKING CONTROL IS REMOVED.

VTC

STORMWATER ENTERPRISE | VEHICLE TRACKING CONTROL
APPROVED: SHENT MANAGER
ISSUED: 10/7/19 | REVISED: 8/19/2020 | DRAWING NO. 900-VTC



SILT FENCE



J-HOOK INSTALLATION

SECTION A-A'

INSTALLATION NOTES

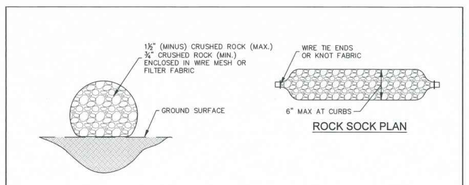
1. SILT FENCE MUST BE PLACED ON A FLAT SURFACE 2'-5' AWAY FROM TOE OF THE SLOPE TO ALLOW FOR PONDING AND DEPOSITION.
2. COMPACT THE TRENCH USING A JUMPING JACK OR WHEEL ROLLING TO THE POINT THAT THE FENCE RESISTS BEING PULLED OUT OF THE GROUND BY HAND.
3. SILT FENCE SHALL BE TAUT WITH NO SAGS AFTER IT HAS BEEN ANCHORED.
4. FABRIC SHALL BE ATTACHED TO POSTS WITH 1" HEAVY DUTY STAPLES OR 1" NAILS. THESE SHOULD BE PLACED VERTICALLY DOWN THE POST, 3" APART.
5. THE PREFERRED INSTALLATION METHOD USES A TRENCHER OR SILT FENCE INSTALLATION DEVICE.
6. INSTALL SILT FENCE ALONG THE CONTOUR OF THE SLOPES OR IN A MANNER TO AVOID CREATING CONCENTRATED FLOW (SUCH AS A "J-HOOK" INSTALLATION).

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN HEIGHT OF THE SILT FENCE.
3. SILT FENCE MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER SILT FENCE IS REMOVED.

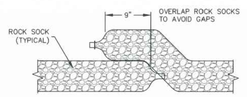
SF

STORMWATER ENTERPRISE | SILT FENCE
APPROVED: SHENT STANMEIER
ISSUED: 10/7/19 | REVISED: 8/19/2020 | DRAWING NO. 900-SF



ROCK SOCK SECTION

ROCK SOCK PLAN



ROCK SOCK OVERLAP

GRADATION TABLE

	MASS PERCENT PASSING SQUARE MESH SIEVES
	No. 4
2"	100
1½"	90-100
1"	20-55
¾"	0-15
⅜"	0-5

MATCHES SPECIFICATIONS FOR No. 4 COARSE AGGREGATE FOR CONCRETE PER AASHTO M-43. ALL ROCK SHALL BE FRACTURED FACE, ALL SIDES

INSTALLATION NOTES

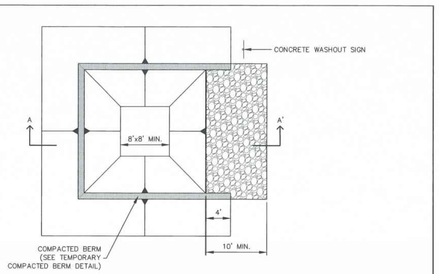
1. CRUSHED ROCK SHALL BE BETWEEN MAX. 1½" (MINUS) IN SIZE WITH A FRACTURED FACE (ALL SIDES) AND SHALL COMPLY WITH GRADATION SHOWN ON THIS SHEET AND MIN. ¾" CRUSHED ROCK.
2. WIRE MESH SHALL HAVE OPENINGS SMALLER THAN THE SMALLEST SIZE ROCK.
3. WIRE MESH SHALL BE SECURED USING 'HOG RINGS' OR WIRE TIES AT 6" CENTERS ALONG ALL JOINTS AND AT 2" CENTERS ON ENDS OF SOCKS.

MAINTENANCE NOTES

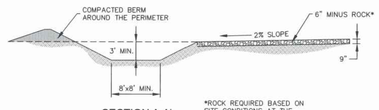
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED BEYOND REPAIR.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE DEPTH REACHES ½ OF THE HEIGHT OF THE ROCK SOCK.
4. ROCK SOCKS ARE TO REMAIN IN PLACE UNTIL DISTURBED AREA IS STABILIZED.
5. PERMANENTLY STABILIZE AREA AFTER ROCK SOCKS HAVE BEEN REMOVED.

RS

STORMWATER ENTERPRISE | ROCK SOCK
APPROVED: SHENT MANAGER
ISSUED: 10/7/19 | REVISED: 8/19/2020 | DRAWING NO. 900-RS



CONCRETE WASHOUT AREA PLAN



SECTION A-A'

*ROCK REQUIRED BASED ON SITE CONDITIONS AT THE DISCRETION OF THE GEC INSPECTOR

CWA

STORMWATER ENTERPRISE | CONCRETE WASHOUT AREA
APPROVED: SHENT MANAGER
ISSUED: 10/7/19 | REVISED: 8/19/2020 | DRAWING NO. 900-CWA-1

OZ ARCHITECTURE
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Denver, Colorado 80205
phone 303.861.5704
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ANSCHUTZ ENGINEERING CENTER
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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/07/27

MARTIN/MARTIN
CONSULTING ENGINEERS
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LAKEWOOD, COLORADO 80215
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MARTINMARTIN.COM

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
EROSION CONTROL DETAILS

SCALE:
SHEET NUMBER

C2.20

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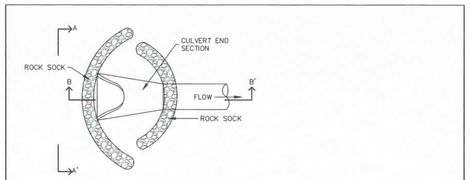
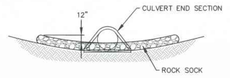
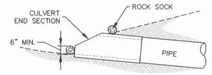


CULVERT INLET PROTECTION PLAN



SECTION A-A'



SECTION B-B'

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL.

MAINTENANCE NOTES

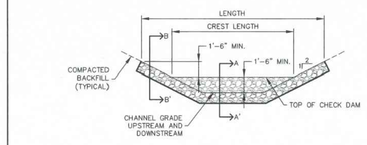
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT UPSTREAM OF THE CULVERT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS ½ HEIGHT OF THE ROCK SOCK.
3. CULVERT INLET PROTECTION SHALL REMAIN UNTIL THE UPSTREAM AREA IS PERMANENTLY STABILIZED.

CIP

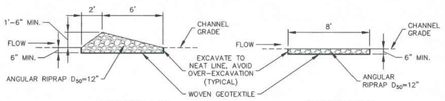
STORMWATER ENTERPRISE — CULVERT INLET PROTECTION

APPROVED: SMENT MANAGER

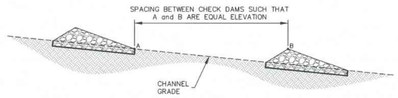
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CIP



CHECK DAM ELEVATION VIEW



SECTION A-A' SECTION B-B'



PROFILE

INSTALLATION NOTES

1. CHECK DAMS SHOULD BE INSTALLED BEFORE UPSTREAM LAND DISTURBING ACTIVITIES.
2. RIPRAP PAD SHOULD BE TRENCHED INTO GROUND BY A MINIMUM OF 6".

MAINTENANCE NOTES

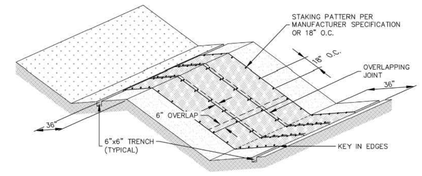
1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ THE HEIGHT OF THE CHECK DAM CREST.
3. CHECK DAMS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AFTER CHECK DAMS ARE REMOVED IF REMOVAL IS REQUIRED.

CD

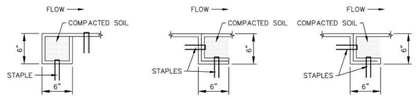
STORMWATER ENTERPRISE — CHECK DAM

APPROVED: SMENT MANAGER

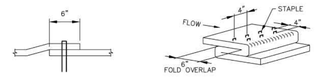
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-CD



EROSION CONTROL BLANKET



PERIMETER ANCHOR TRENCH — JOINT ANCHOR TRENCH — INTERMEDIATE CHECK SLOT



STAPLE CHECK
TO BE USED ON SLOPE EVERY 15 FEET

INSTALLATION NOTES

1. 100% NATURAL AND BIODEGRADABLE MATERIALS ARE REQUIRED FOR EROSION CONTROL BLANKETS. TRM PRODUCTS MAY ME USED WHERE APPROPRIATE AS DESIGNATED BY THE ENGINEER.
2. IN AREAS WHERE EROSION CONTROL BLANKETS ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO EROSION CONTROL BLANKET INSTALLATION, AND THE EROSION CONTROL BLANKET SHALL BE IN FULL CONTACT WITH THE SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
3. PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
4. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL EROSION CONTROL BLANKETS.
5. INTERMEDIATE CHECK SLOT OR STAPLE CHECK SHALL BE INSTALLED EVERY 15' DOWN SLOPES. IN DRAINAGEWAYS, INSTALL CHECK SLOTS EVERY 25' PERPENDICULAR TO FLOW DIRECTION.
6. OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF EROSION CONTROL BLANKETS TOGETHER FOR EROSION CONTROL BLANKETS ON SLOPES.
7. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKETS SHALL CONFORM TO TABLE ECB-1.
8. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKETS SHALL BE RESEEDED AND MULCHED.
9. STRAW EROSION CONTROL BLANKETS SHALL NOT BE USED WITHIN STREAMS AND DRAINAGE CHANNELS.
10. COMPACT ALL TRENCHES.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. EROSION CONTROL BLANKETS SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE. TRM MUST BE REMOVED AT THE DISCRETION OF THE QEC INSPECTOR.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW GEOTEXTILE THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

TABLE ECB-1, EROSION CONTROL BLANKET MATERIAL SPECIFICATIONS

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING
STRAW	–	100%	–	DOUBLE/ NATURAL
STRAW–COCONUT	30% MIN.	70% MAX.	–	DOUBLE/ NATURAL
COCONUT	100%	–	–	DOUBLE/ NATURAL
EXCELSIOR	–	–	100%	DOUBLE/ NATURAL

ECB

STORMWATER ENTERPRISE — EROSION CONTROL BLANKET

APPROVED: SMENT MANAGER

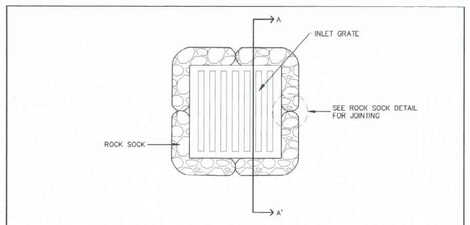
ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-ECB-1

ECB

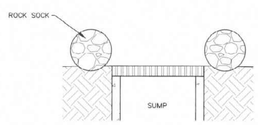
STORMWATER ENTERPRISE — EROSION CONTROL BLANKET

APPROVED: SMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900-ECB-2



ROCK SOCK SUMP INLET PROTECTION PLAN



SECTION A-A'

INSTALLATION NOTES

1. SEE ROCK SOCK DETAIL FOR INSTALLATION REQUIREMENTS.
2. SEDIMENT CONTROL LOGS MAY BE USED IN PLACE OF ROCK SOCKS IN PERVIOUS AREAS. INSTALL PER SEDIMENT CONTROL LOG DETAIL
3. CONTROL MEASURES MUST BE WRAPPED AROUND INLET AS TIGHTLY AS POSSIBLE.

MAINTENANCE NOTES

1. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN CONTROL MEASURES IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
2. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE HEIGHT REACHES ½ OF THE DESIGN DEPTH OF THE INLET BARRIER.
3. ROCK SOCKS MUST REMAIN UNTIL THE UPSTREAM DISTURBANCE AREA IS STABILIZED.
4. PERMANENTLY STABILIZE AREA AROUND INLET AFTER ROCK SOCKS ARE REMOVED WHEN REMOVAL IS APPROPRIATE.

IP-2

STORMWATER ENTERPRISE — SUMP INLET PROTECTION

APPROVED: SMENT MANAGER

ISSUED:	REVISED:	DRAWING NO.
10/7/19	8/19/2020	900 IP- 2

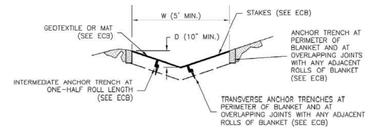
Earth Dikes and Drainage Swales (ED/DS) EC-10

ED/DS

ED-1. COMPACTED UNLINED EARTH DIKE FORMED BY BERM

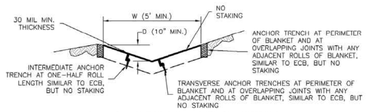
DS-1. COMPACTED UNLINED EXCAVATED SWALE

DS-2. COMPACTED UNLINED SWALE FORMED BY CUT AND FILL

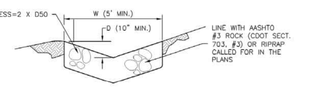


DS-3. ECB LINED SWALE (CUT AND FILL OR BERM)

EC-10 Earth Dikes and Drainage Swales (ED/DS)



DS-4. SYNTHETIC LINED SWALE



DS-5. RIPRAP LINED SWALE

EARTH DIKE AND DRAINAGE SWALE INSTALLATION NOTES

1. SEE SITE PLAN FOR:
   - LOCATION OF DIVERSION SWALE
   - TYPE OF SWALE (UNLINED, COMPACTED AND/OR LINED).
   - LENGTH OF EACH SWALE.
   - DEPTH, D, AND WIDTH, W DIMENSIONS.
   - FOR ECB/TRM LINED DITCH, SEE ECB DETAIL.
   - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, D50.
2. SEE DRAINAGE PLANS FOR DETAILS OF PERMANENT CONVEYANCE FACILITIES AND/OR DIVERSION SWALES EXCEEDING 2-YEAR FLOW RATE OR 10 CFS.
3. EARTH DIKES AND SWALES INDICATED ON SWMP PLAN SHALL BE INSTALLED PRIOR TO LAND-DISTURBING ACTIVITIES IN PROXIMITY.
4. EMBANKMENT IS TO BE COMPACTED TO 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D698.
5. SWALES ARE TO DRAIN TO A SEDIMENT CONTROL BMP.
6. FOR LINED DITCHES, INSTALLATION OF ECB/TRM SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.
7. WHEN CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION SWALE, INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12 INCHES.

Earth Dikes and Drainage Swales (ED/DS) EC-10

EARTH DIKE AND DRAINAGE SWALE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SWALES SHALL REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION; IF APPROVED BY LOCAL JURISDICTION, SWALES MAY BE LEFT IN PLACE.
5. WHEN A SWALE IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM DOUGLAS COUNTY, COLORADO AND THE CITY OF COLORADO SPRINGS, COLORADO, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

OZ ARCHITECTURE
3003 Larimer Street
Denver, Colorado 80205
phone 303.861.5704
www.ozarch.com

ANSCHUTZ ENGINEERING CENTER

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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/07/27

MARTIN/MARTIN
CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE
LAKEWOOD, COLORADO 80215
303.431.6100
MARTINMARTIN.COM

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
EROSION CONTROL DETAILS

SCALE:
SHEET NUMBER
C2.21

2/21/2022 3:31:06 PM BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt

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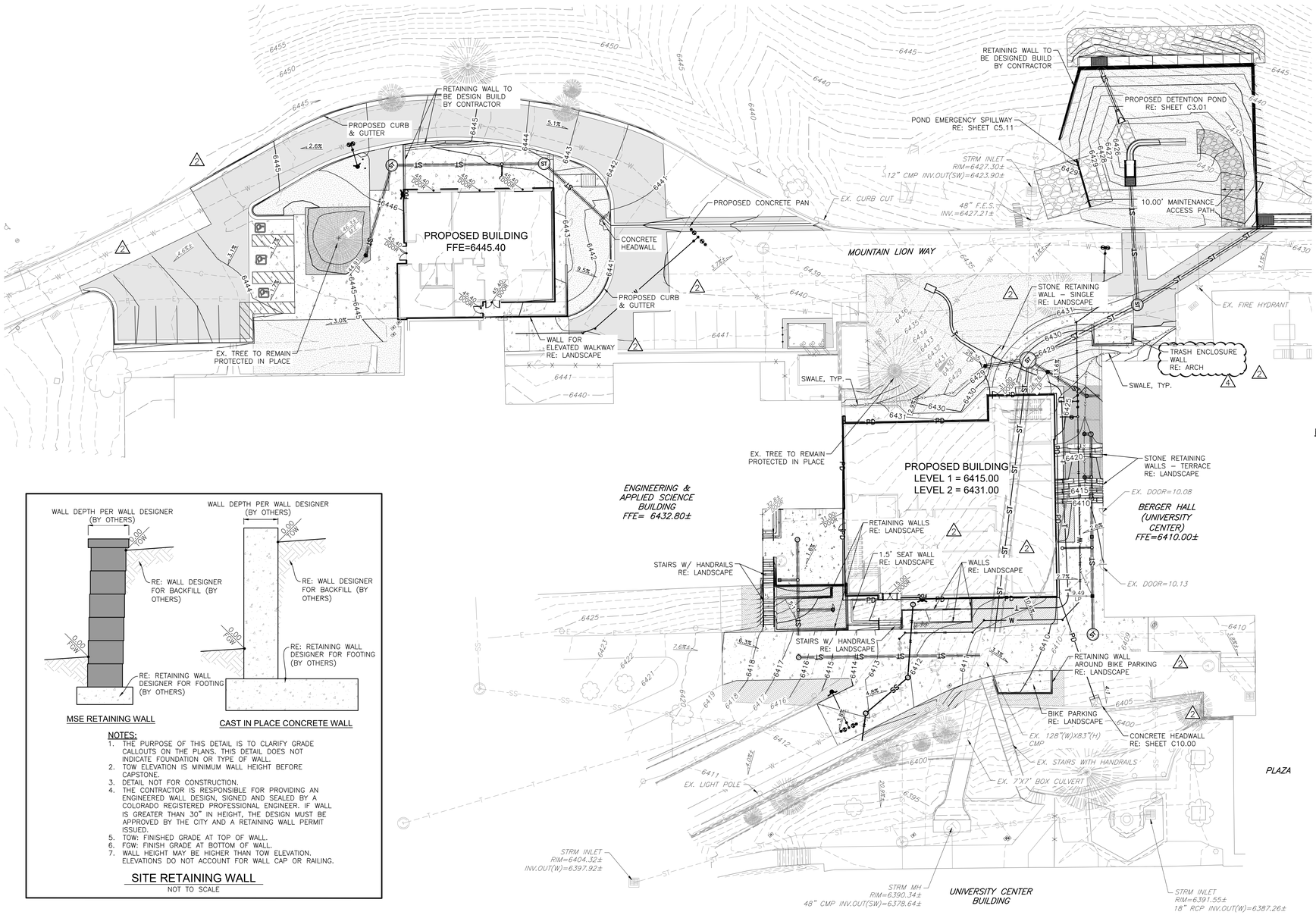
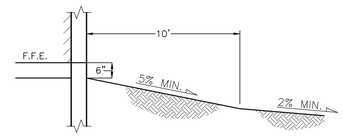


LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT–OF–WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
5750	CONTOURS	5750
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	INLET	
	FLARED END SECTION	
	SIGN	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
DRIVE	DESCRIPTIONS	DRIVE
ELEV	SPOT ELEVATIONS	ELEV

NOTES:

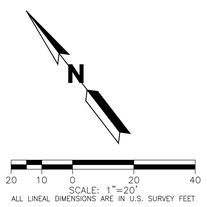
1. SEE SHEET C1.00 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.



NOTES:

1. REFER TO GEOTECHNICAL REPORT FOR FURTHER INFORMATION.
2. GRADE SHALL MEET BUILDING 6" BELOW FFE UNLESS OTHERWISE COORDINATED WITH STRUCTURAL AND ARCHITECTURAL PLANS

TYPICAL GRADING IN LANDSCAPE AREAS AT PERIMETER OF BUILDING
N.T.S.



NOTES:

1. THE PURPOSE OF THIS DETAIL IS TO CLARIFY GRADE CALLOUTS ON THE PLANS. THIS DETAIL DOES NOT INDICATE FOUNDATION OR TYPE OF WALL.
2. TOW ELEVATION IS MINIMUM WALL HEIGHT BEFORE CAPSTONE.
3. DETAIL NOT FOR CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN ENGINEERED WALL DESIGN, SIGNED AND SEALED BY A COLORADO REGISTERED PROFESSIONAL ENGINEER. IF WALL IS GREATER THAN 30" IN HEIGHT, THE DESIGN MUST BE APPROVED BY THE CITY AND A RETAINING WALL PERMIT ISSUED.
5. TOW: FINISHED GRADE AT TOP OF WALL.
6. FGW: FINISH GRADE AT BOTTOM OF WALL.
7. WALL HEIGHT MAY BE HIGHER THAN TOW ELEVATION. ELEVATIONS DO NOT ACCOUNT FOR WALL CAP OR RAILING.

SITE RETAINING WALL
NOT TO SCALE

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

GRADING NOTES:

1. FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS SEE SHEETS C1.00.
2. ALL SITE GRADING EXCAVATION, EMBANKMENT, AND COMPACTION SHALL CONFORM TO THE RECOMMENDATIONS OF THE LATEST GEOTECHNICAL INVESTIGATION FOR THIS PROPERTY AND SHALL FURTHER BE IN CONFORMANCE WITH THE CITY OF COLORADO SPRINGS STANDARDS AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS, LATEST EDITION.
3. THE GRADING DESIGN SHOWN HEREON HAS BEEN PREPARED IN CONFORMANCE WITH THE REQUIREMENTS OF FHA AND HUD CRITERIA AND TO THE GREATEST EXTENT POSSIBLE, IN ACCORDANCE WITH THE GEOTECHNICAL REPORT RECOMMENDATIONS FOR THIS PROJECT. VARIOUS CONFLICTING DESIGN CRITERIA MAKE TOTAL COMPLIANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS DIFFICULT ADA, SITE PLAN LAYOUT, ETC. THUS, THESE PLANS HAVE BEEN PROVIDED TO THE GEOTECHNICAL ENGINEER FOR REVIEW AND COMMENT RELATIVE TO COMPLIANCE WITH THEIR RECOMMENDATIONS. IF THE GEOTECHNICAL ENGINEER DETERMINES THE DESIGN MAY COMPROMISE THE ACCEPTABLE PERFORMANCE OF THE STRUCTURES AND/OR PAVEMENTS, UPON RECEIPT OF THE WRITTEN COMMENTS FROM THE GEOTECHNICAL ENGINEER, COMMENTS WILL BE DISCUSSED AND RESOLVED WITH THE OWNER AND THE GEOTECHNICAL ENGINEER, AND WILL BE ADDRESSED IN A MANNER AS DIRECTED BY THE OWNER.
4. ALL NEWLY CONSTRUCTED OR ALTERATIONS OF ACCESSIBILITY ROUTES (WALKS, RAMPS, ENTRANCES, ETC.) SHALL COMPLY WITH THE RULES AND REGULATIONS SET FORTH BY ADA, ADAAG, CITY, STATE, FEDERAL OR JURISDICTION HAVING AUTHORITY, INCLUDING BUT NOT LIMITED TO: 5% MAXIMUM GRADE ON WALKS WITHOUT HANDRAILS, 8.33% MAXIMUM GRADE ON WALKS WITH HANDRAILS AND LEVEL LANDINGS (MAXIMUM 2% COMPOSITE SLOPE), 2% MAXIMUM CROSS SLOPE ON WALKS AND 2% MAXIMUM COMPOSITE SLOPE IN ACCESSIBLE PARKING/LOADING AREAS. NO TOLERANCE REGARDING MAXIMUM SLOPES WILL BE ALLOWED. DURING CONSTRUCTION, CONTRACTOR SHALL COORDINATE AS NECESSARY WITH OWNER, DEVELOPER, ENGINEER, ARCHITECT, OR DESIGNATED OFFICIAL IF RULES AND REGULATIONS OF ACCESSIBILITY ROUTES CAN NOT BE MET. IN ADDITION, OWNER IS ADVISED THAT REGULAR MAINTENANCE PROGRAMS SHOULD BE IMPLEMENTED AFTER CONSTRUCTION TO KEEP EXISTING ROUTES SAFE, USABLE, AND ADA COMPLIANT.
5. IT IS THE INTENTION OF THE PROJECT GRADING PLANS TO BE IN STRICT COMPLIANCE WITH, AND OR EXCEED, THE PROJECT'S GEOTECHNICAL ENGINEER'S GRADING RECOMMENDATIONS. IF THE CONTRACTOR BELIEVES A DEVIATION EXISTS BETWEEN THE PLANS AND THE GEOTECHNICAL RECOMMENDATION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY AND REQUEST WRITTEN CLARIFICATION PRIOR TO PROCEEDING WITH WORK. THE GENERAL CONSTRUCTION SPECIFICATION IS THAT THE MOST RESTRICTIVE REQUIREMENT/RECOMMENDATION GOVERNS THE CONSTRUCTION OF THE PROJECT.
6. EXISTING ELEVATIONS SHOWN ON THIS DRAWING HAVE BEEN DEPICTED FROM BEST AVAILABLE INFORMATION AND ARE SHOWN TO THE EXTENT KNOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY EXISTING GRADE CONDITIONS AT THE LIMITS OF CONSTRUCTION AND AT LOCATIONS THAT INTERFACE WITH EXISTING OR PROPOSED STRUCTURES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES THAT CONTRADICT THE ENGINEERS INTENT FOR DRAINAGE PATTERNS, MAXIMUM AND MINIMUM SLOPES, AND PROPOSED ELEVATIONS AS SHOWN ON THE PLAN. THE ENGINEER WILL NOT BE LIABLE FOR ANY COSTS ASSOCIATED WITH CHANGES TO THE DESIGN WITHOUT PROPER NOTIFICATION.
7. PROPOSED CONTOURS AND SPOT ELEVATIONS AS SHOWN HEREIN ARE DEFINED AS FINISHED ELEVATION AFTER PAVING, LANDSCAPING, ETC. CONTRACTOR SHALL COORDINATE WITH GEOTECH FOR PAVEMENT THICKNESS AND LANDSCAPE FOR THICKNESS OF TOPSOIL, SOD AND LANDSCAPE MATERIALS.

   ALL SPOTS ARE TO FLOWLINE UNLESS OTHERWISE NOTED. FG = FINISHED GRADE, FF = FINISH FLOOR, TOF = TOP OF FOUNDATION, HP = HIGH POINT, LP = LOW POINT, TOW = TOP OF WALL (FINISHED GRADE AT BACK OF WALL), BOW = BOTTOM OF WALL (FINISHED GRADE AT FACE OF WALL), GB = GRADE BREAK, FL = FLOWLINE, TOC = TOP OF CURB.
8. TEMPORARY CUT/FILL SLOPES SHALL NOT EXCEED A STEEPNESS OF [1:1] (H:V). PERMANENT SLOPES SHALL NOT EXCEED [4:1] (H:V) IN AREAS TO BE SEEDED OR SODDED.
9. CONTRACTOR SHALL ADJUST ALL EXISTING AND PROPOSED MANHOLE RIMS, VALVE BOXES, ETC. TO MATCH FINAL GRADE.
10. REFER TO FINAL DRAINAGE STUDY DATED 06/16/2022 PREPARED BY MARTIN/MARTIN, INC. FOR DRAINAGE BASINS, FLOWS, AND INTENDED DRAINAGE PATTERNS.
11. MARTIN/MARTIN IS PROVIDING LINE AND GRADE FOR THE RETAINING WALLS SHOWN HEREON. THE WALL LAYOUT/GRADING SHOWN IS PROVIDED TO THE WALL DESIGNER/CONTRACTOR AS A COURTESY. THE WALL DESIGNER SHALL TAKE INTO CONSIDERATION ALL JURISDICTIONAL REQUIREMENTS, GEOTECHNICAL INFORMATION AND REQUIREMENTS, AND GRADING/DRAINAGE PATTERNS IN THE DESIGN OF THE WALLS. THE RETAINING WALL DESIGN NEEDS TO ACCOMMODATE THE EFFECTS OF UNCONTROLLED RUNOFF FROM UP–GRADIENT OF THE WALLS, INCLUDING HYDROSTATIC PRESSURE AND EROSION. REFER TO GRADING PLANS DATED 06/16/2022 PREPARED BY MARTIN/MARTIN FOR PROPOSED GRADING AND TO THE FINAL DRAINAGE REPORT DATED 06/16/2022 PREPARED BY MARTIN/MARTIN FOR DRAINAGE BASINS AND PATTERNS.

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2–BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

37116 10/26/22 PROFESSIONAL ENGINEER

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21
4 ADDENDA 4 PKG 1&2 2022/10/26

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
OVERALL GRADING PLAN

SCALE:
SHEET NUMBER
C3.00

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POND INFORMATION		
	VOLUME (AC–FT)	WATER SURFACE ELEVATION
WQCV	0.038	6427.35
EURV	0.058	6427.90
100–YR	0.062	6428.87

MATCHLINE: SEE BELOW THIS SHEET

MATCHLINE: SEE SHEET C3.02

DETENTION POND VOLUME PROVIDED=12,706 CU FT FREEBOARD= 1.5 FT

RETAINING WALL TO BE DESIGN BUILD BY CONTRACTOR AROUND DETENTION POND MAX HEIGHT = 14FT

EMERGENCY SPILLWAY WITH CUTOFF WALL RE: SHEET C5.10

TYPE M RIPRAP RE: SHEET C10.01

15" RCP

15" FES #B2

TYPE M RIPRAP TO EDGE OF CONC. PAN RE: SHEET C10.01

SEE DETAIL ON SHEET C10.01

STRM INLET RIM=6427.30± 12" CMP INV.OUT(SW)=6423.90±

48" F.E.S. INV.=6427.21±

OUTLET STRUCTURE WITH TYPE C INLET AND WING WALLS. RE: DETAIL SHEET C5.10

TYPE D INLET #A3

MOUNTAIN LION WAY

10' POND MAINTENANCE ACCESS PATH RE: SHEET C5.11

MOUNTABLE CURB

18" RCP

4Ø STRM MH #A4

TRASH ENCLOSURE RE: ARCH

TREE OF PEACE (TO REMAIN PROTECTED IN PLACE THROUGHOUT CONSTRUCTION)

TOP= 6439.95

GRADE BREAK

PROVIDE 2' BENCH ADJACENT TO SIDEWALK

5.00' SIDEWALK

15" RCP

STONE RETAINING WALL – SINGLE RE: LANDSCAPE

6Ø STRM MH #A5

GRADE BREAK

SWALE, TYP.

18" NYLOPLAST INLET #C1

TRANSFORMER PAD RE: ELECTRICAL

BOLLARD, TYP.

15" NYLOPLAST INLET

SWALE, TYP.

TRASH ENCLOSURE RE: ARCH

TRASH ENCLOSURE WALL RE: ARCH

18" NYLOPLAST INLET #C2

12" PVC

ROOF DRAIN CONNECTION RE: PLBG FOR CONTINUATION

(2)- 45DEG HORIZONTAL BENDS W/ STORM CLEAN OUT

18" NYLOPLAST INLET #D1

STONE RETAINING WALLS – TERRACE RE: LANDSCAPE

12"x12"x12" STORM WYE CONNECTION

18" NYLOPLAST INLET #D5

TIERED WALLS RE: LANDSCAPE

ENGINEERING & APPLIED SCIENCE BUILDING

PROPOSED LAB BUILDING LEVEL 1 = 6415.00 LEVEL 2 = 6431.00

BERGER HALL (UNIVERSITY CENTER)

BUILDING SOUTH ACCESS DETAIL VIEW RE: C3.02

12" PVC

EX. DOOR = 10.08

8" PVC ROOF DRAIN CONNECTION W/ CLEANOUT RE: PLBG FOR CONTINUATION

MONOLITHICALLY POURED SWALE

15" NYLOPLAST INLET #D7

12" PVC

8" PVC

12"X12"X8" STORM WYE CONNECTION #D6

EX. DOOR = 10.13

15" NYLOPLAST INLET #D8

HEADWALL INTO 128"X83" STORMLINE RE: SHEET C5.05

4'Ø STRM MH #D9 RE: NOTE 4

GRADE BREAK

12" PVC

5.00'

5.51'

20.00'

RETAINING WALL AROUND BIKE PARKING RE: LANDSCAPE

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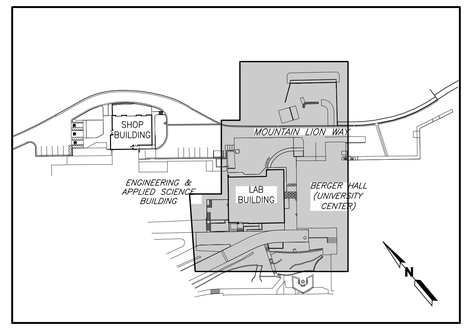
12499 WEST COLFAX AVENUE, LAKEWOOD, COLORADO 80215
303.431.6100 MARTINMARTIN.COM



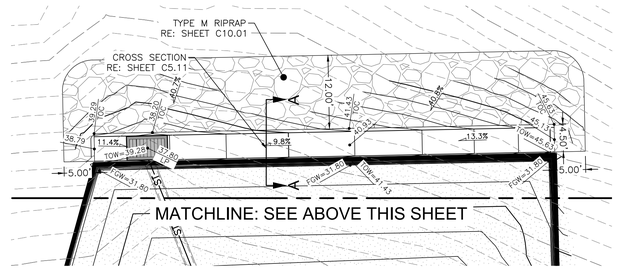
KEYMAP
NOT TO SCALE

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT–OF–WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
5750	CONTOURS	5750
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	INLET	
	FLARED END SECTION	
	SIGN	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
DRIVE	DESCRIPTIONS	DRIVE
ELEV.	SPOT ELEVATIONS	ELEV.

NOTES:

1. SEE SHEET C1.00 AND C3.00 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE SHEET C9.00 FOR ADD ALTERNATE LOCATIONS AND DESCRIPTIONS.
3. CONTRACTOR TO VERIFY EXISTING GRADES WHERE ALL HARDSCAPED IS MATCHED TO EXISTING A MINIMUM OF THREE (3) WEEKS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES GREATER THAN 0.05'.
4. SLOPE MAXIMUM 1.8% AWAY FROM ALL DOORS FOR 5'.



N

10 5 0 10 20
SCALE: 1"=10'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468) VERTICAL DATUM: NAVD 88, GEOID 2018 HORIZONTAL DATUM: NAD 83(2011) – 2010.00

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37116 10/26/22

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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03

REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21
3 RFI 13 REVISIONS 2022/10/05
4 ADDENDA 4 PKG 1&2 2022/10/26

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SHEET TITLE: DETAILED GRADING - LAB BUILDING

SCALE:
SHEET NUMBER
C3.01

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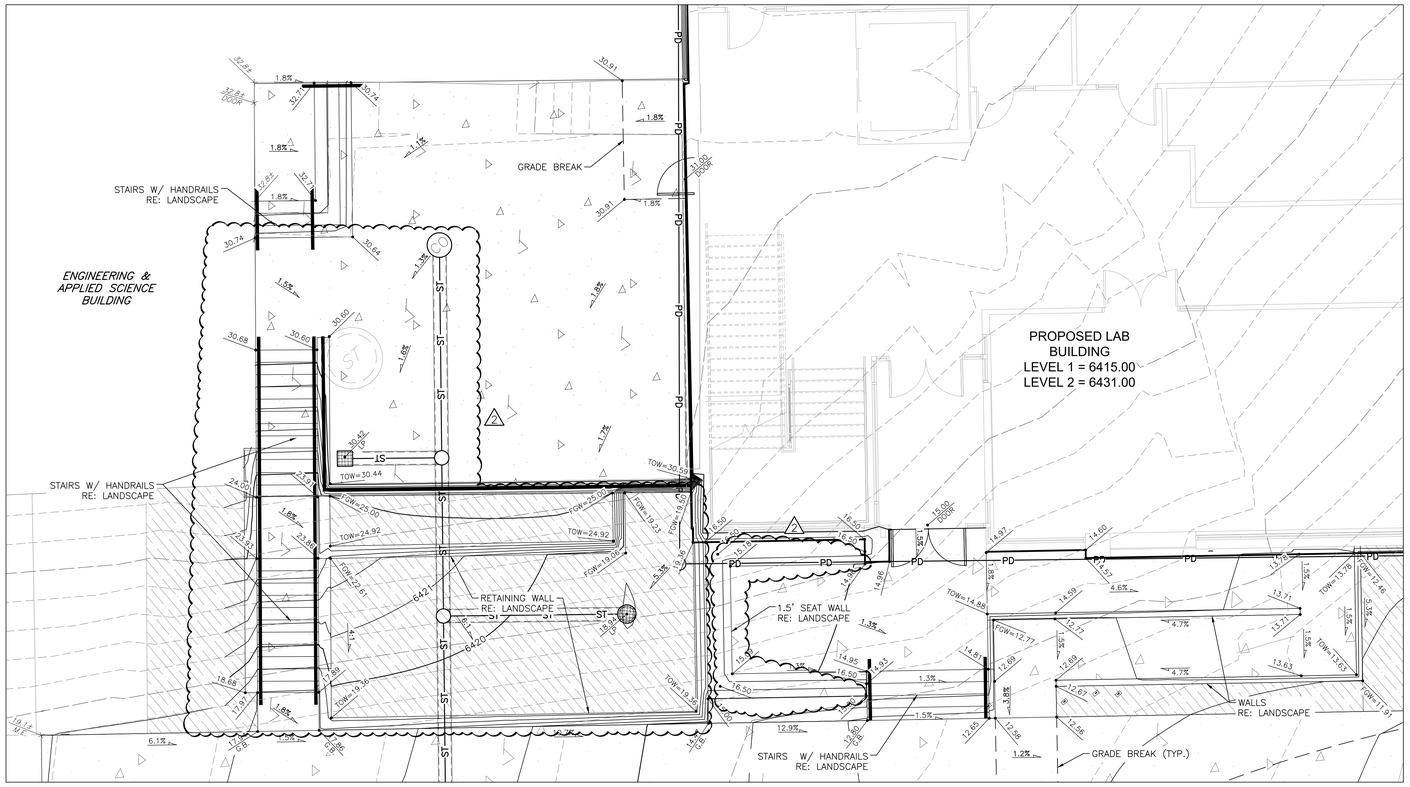
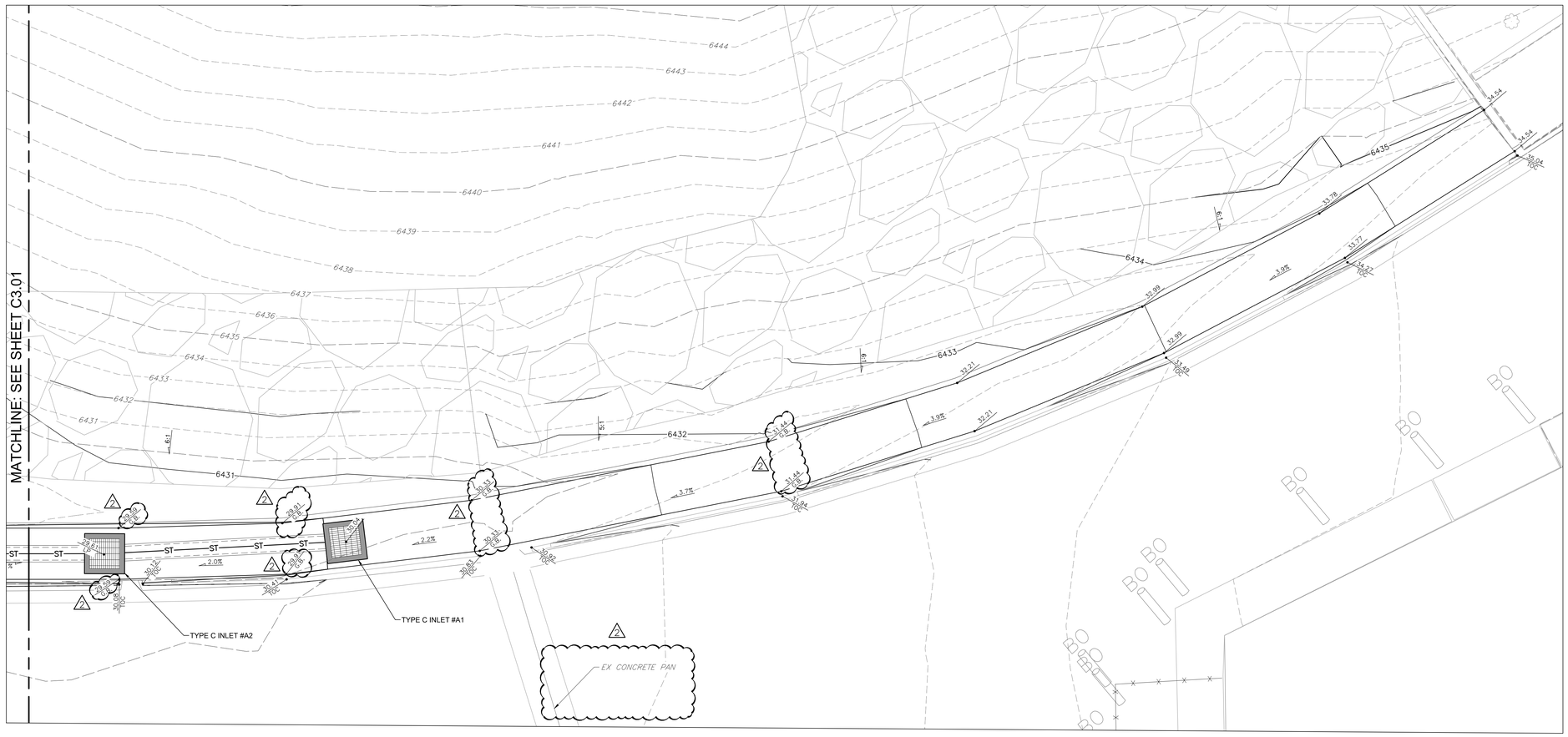


BUILDING SOUTH ACCESS DETAIL VIEW
SCALE: 1"=5'



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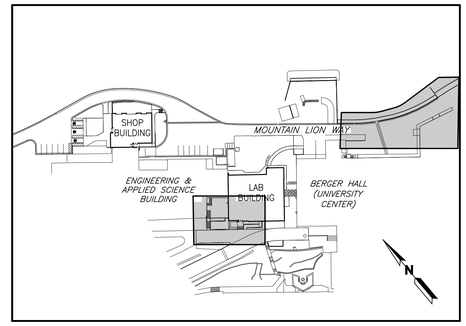

KEYMAP
NOT TO SCALE

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STATE OF COLORADO
SCOTT A. PALING
37116
09/21/22
REGISTERED PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
5750	CONTOURS	5750
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	INLET	
	FLARED END SECTION	
	SIGN	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
DRIVE	DESCRIPTIONS	DRIVE
ELEV.	SPOT ELEVATIONS	ELEV.

NOTES:

1. SEE SHEET C1.00 AND C3.00 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.

N
5 2.5 0 5 10
SCALE: 1"=5'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR
MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
1 PACKAGE 1 REVISIONS 2022/09/21

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SHEET TITLE:
DETAILED GRADING - LAB BUILDING

SCALE:
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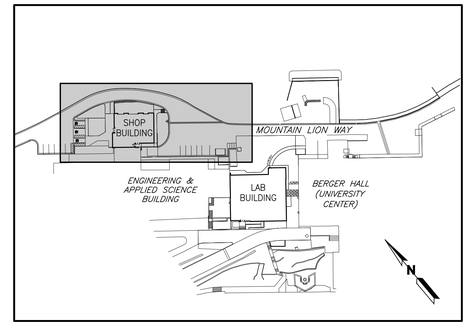

KEYMAP
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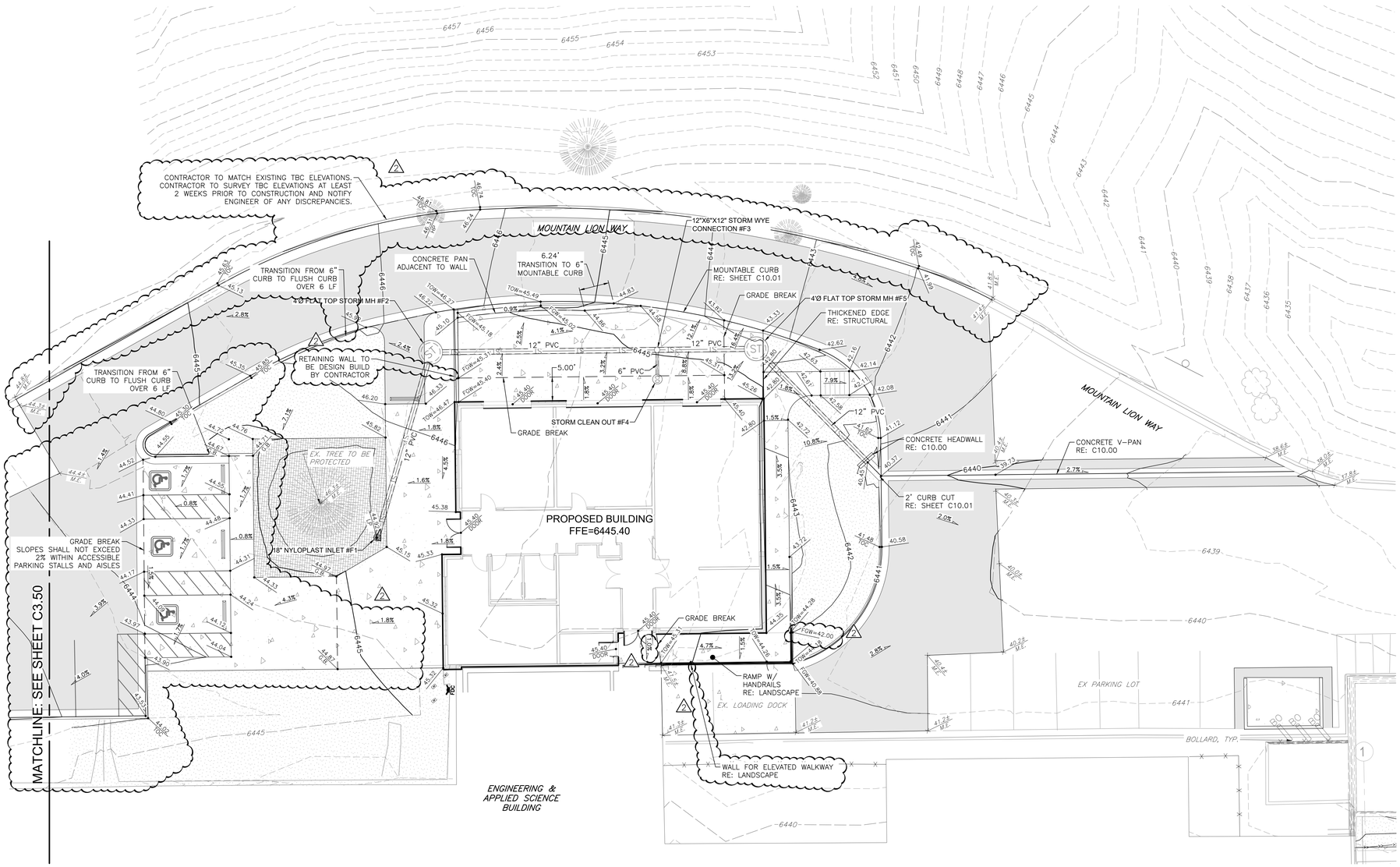

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

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EXISTING		PROPOSED
	PROPERTY LINE	
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	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
5750	CONTOURS	5750
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	INLET	
	FLARED END SECTION	
	SIGN	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
DRIVE	DESCRIPTIONS	DRIVE
ELEV	SPOT ELEVATIONS	ELEV

NOTES:

1. SEE SHEET C1.00 AND C3.00 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.

N

10 5 0 10 20
SCALE: 1"=10'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

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SCOTT A. PALING
37116
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PROFESSIONAL ENGINEER

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COLORADO SPRINGS, CO 80918

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SHEET TITLE:
DETAILED GRADING - SHOPS BUILDING

SCALE:
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C3.03

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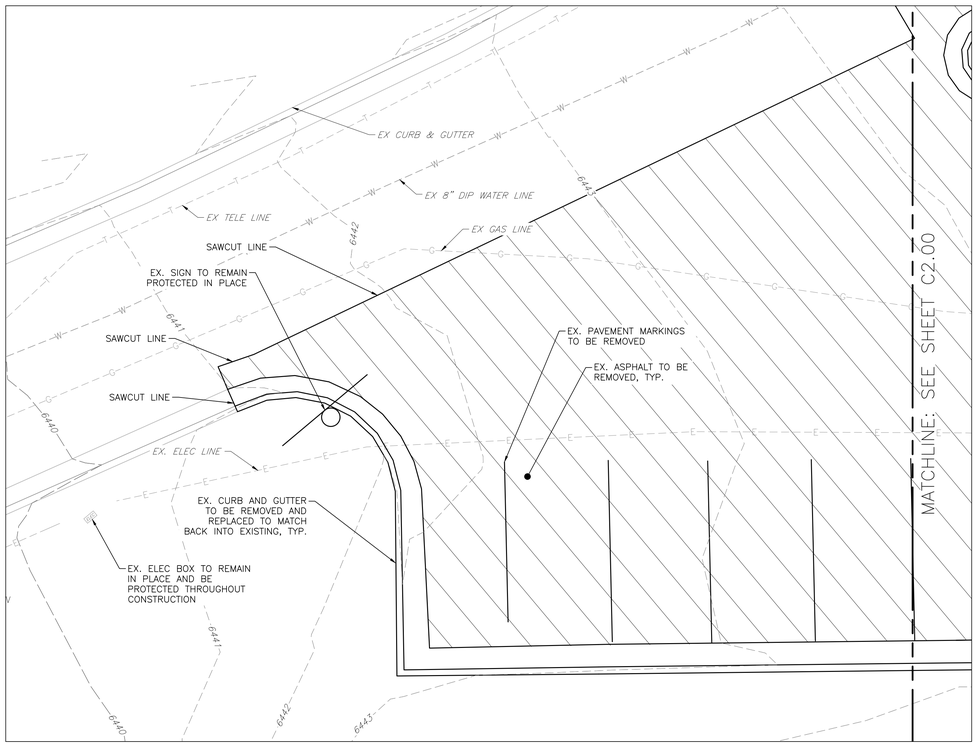


SHOPS BUILDING ADDITIONAL PARKING - EXISTING CONDITIONS & DEMOLITION

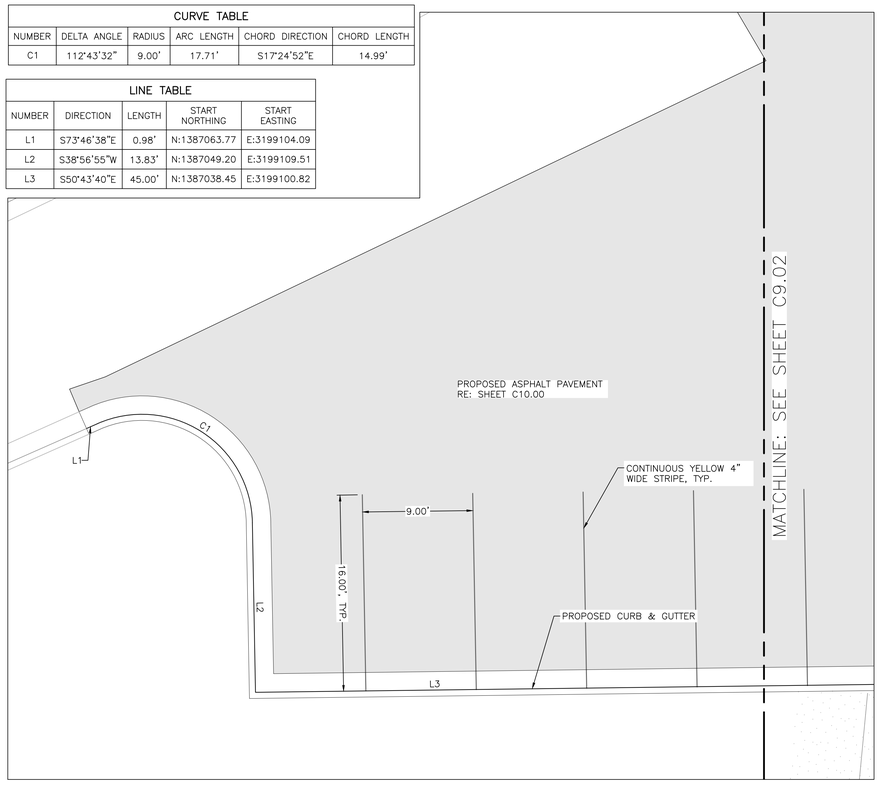
SCALE: 1"=5'

SHOPS BUILDING ADDITIONAL PARKING - DETAILED GRADING

SCALE: 1"=5'

CURVE TABLE					
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	112°43'32"	9.00'	17.71'	S17°24'52"E	14.99'

LINE TABLE				
NUMBER	DIRECTION	LENGTH	START NORTHING	START EASTING
L1	S73°46'38"E	0.98'	N:1387063.77	E:3199104.09
L2	S38°56'55"W	13.83'	N:1387049.20	E:3199109.51
L3	S50°43'40"E	45.00'	N:1387038.45	E:3199100.82



SHOPS BUILDING ADDITIONAL PARKING - HORIZONTAL CONTROL

SCALE: 1"=5'

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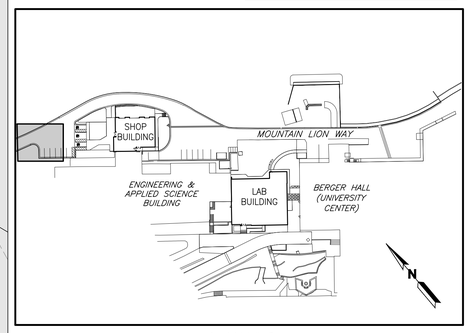


KEYMAP

NOT TO SCALE

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

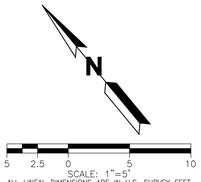
THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
5750	CONTOURS	5750
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	INLET	
	FLARED END SECTION	
	SIGN	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
DRIVE	DESCRIPTIONS	DRIVE
ELEV	SPOT ELEVATIONS	ELEV

NOTES:

1. SEE SHEET C1.00 AND C3.00 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.



SCALE: 1"=5'

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REGISTERED PROFESSIONAL ENGINEER

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SHEET TITLE:
SHOP BUILDING ADDITIONAL PARKING PLAN
SCALE:
SHEET NUMBER

C3.50

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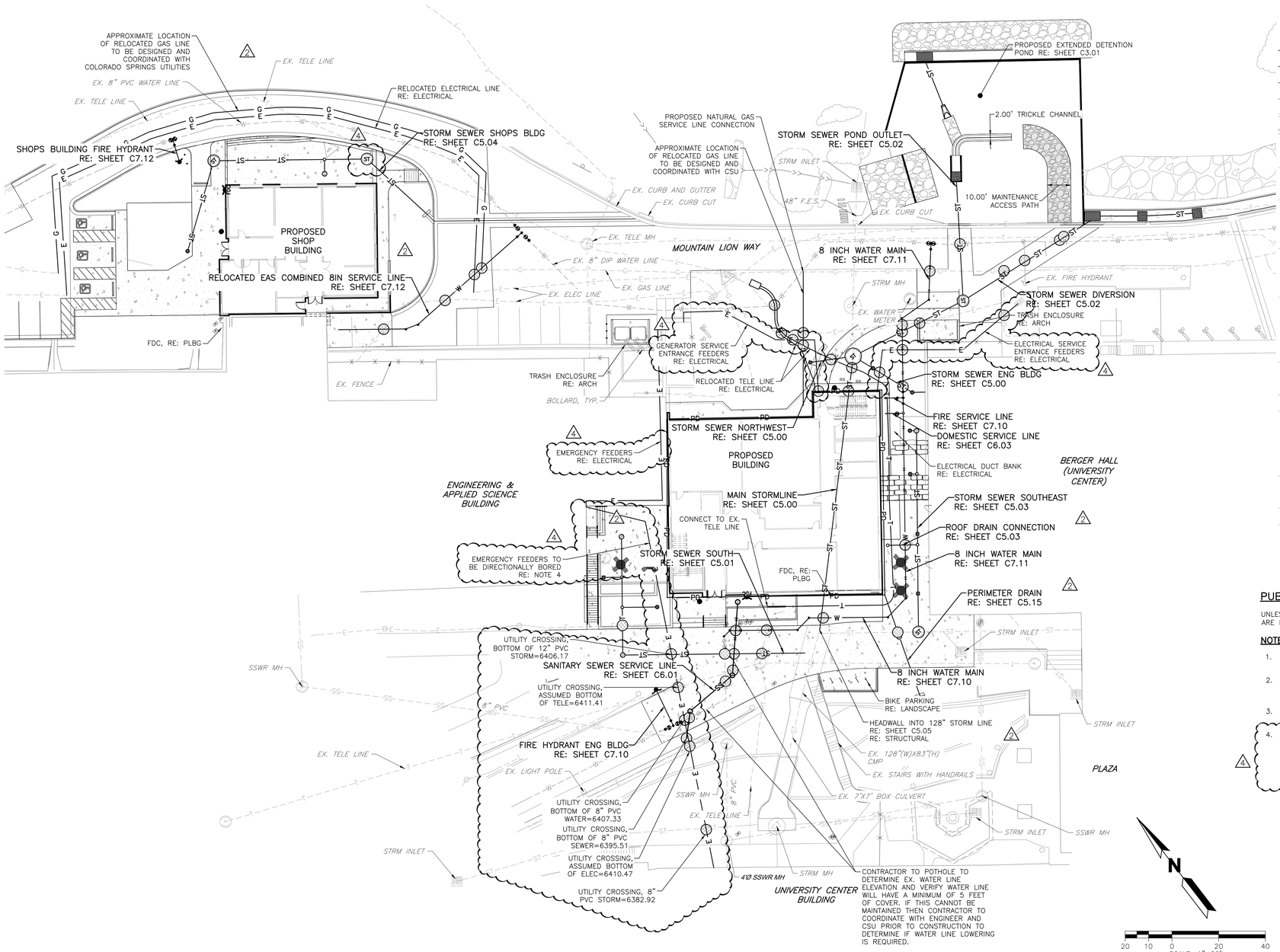

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	UTILITY CROSSING	#
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	
	CLEAN OUT	
W	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
WM	WATER METER	WM
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	IRR
OHE	OVERHEAD ELECTRIC	
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
G	GAS LINE	G
	SIGN	
G.W	MONITOR WELL	
DRIVE	DESCRIPTIONS	DRIVE

PUBLIC UTILITIES:

UNLESS INDICATED WITH "(PUBLIC)" ALL PROPOSED UTILITIES SHOWN ON ARE PRIVATE.

NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITY CONNECTIONS A MINIMUM OF 3 WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
3. SEE SHEET C9.00 FOR ADD ALTERNATE LOCATIONS AND DESCRIPTIONS.
4. CONTRACTOR SHALL POTHOLE ALL UTILITIES WITHIN ALIGNMENT OF DIRECTIONAL BORING PRIOR TO CONSTRUCTION AND PROTECT EXISTING UTILITIES IN PLACE DURING BORING ACTIVITIES. CONTRACTOR SHALL MAKE SURE TO MAINTAIN 18" VERTICAL CLEARANCE FROM BOTH EXISTING AND PROPOSED UTILITIES WITH DUCT BANK ALIGNMENT.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

PLANS SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

CITY FILE NUMBER

APPROVAL BOX

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PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
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4 ADDENDA 4 PKG 1&2 2022/10/26

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SHEET TITLE:
OVERALL UTILITY PLAN

SCALE:
SHEET NUMBER
C4.00

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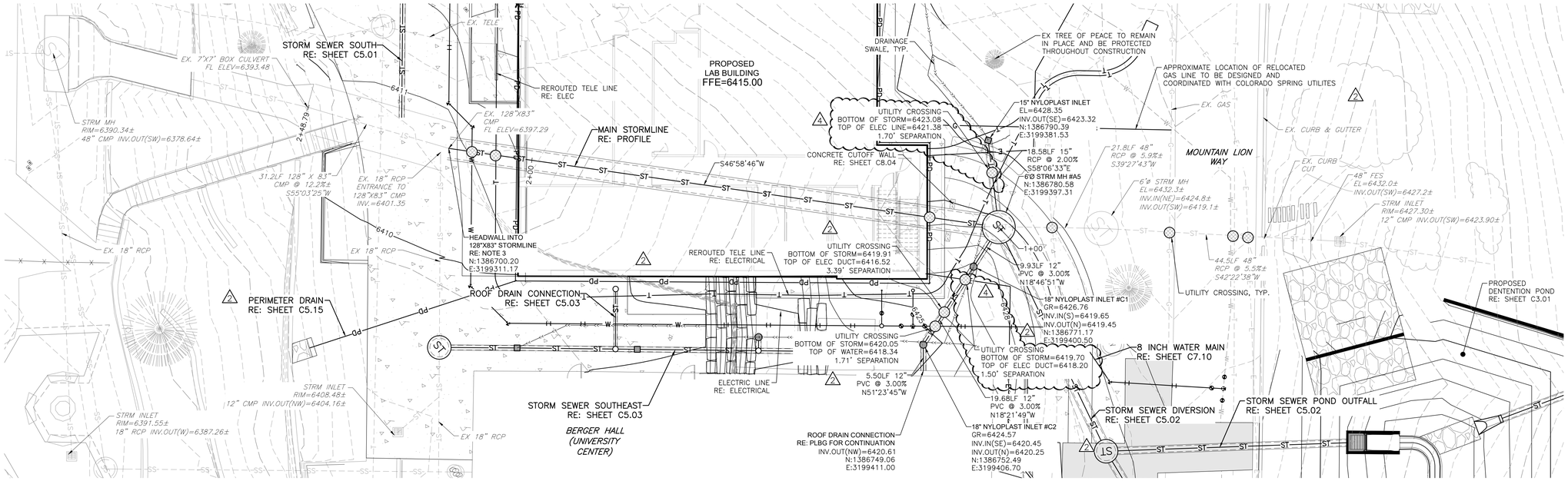

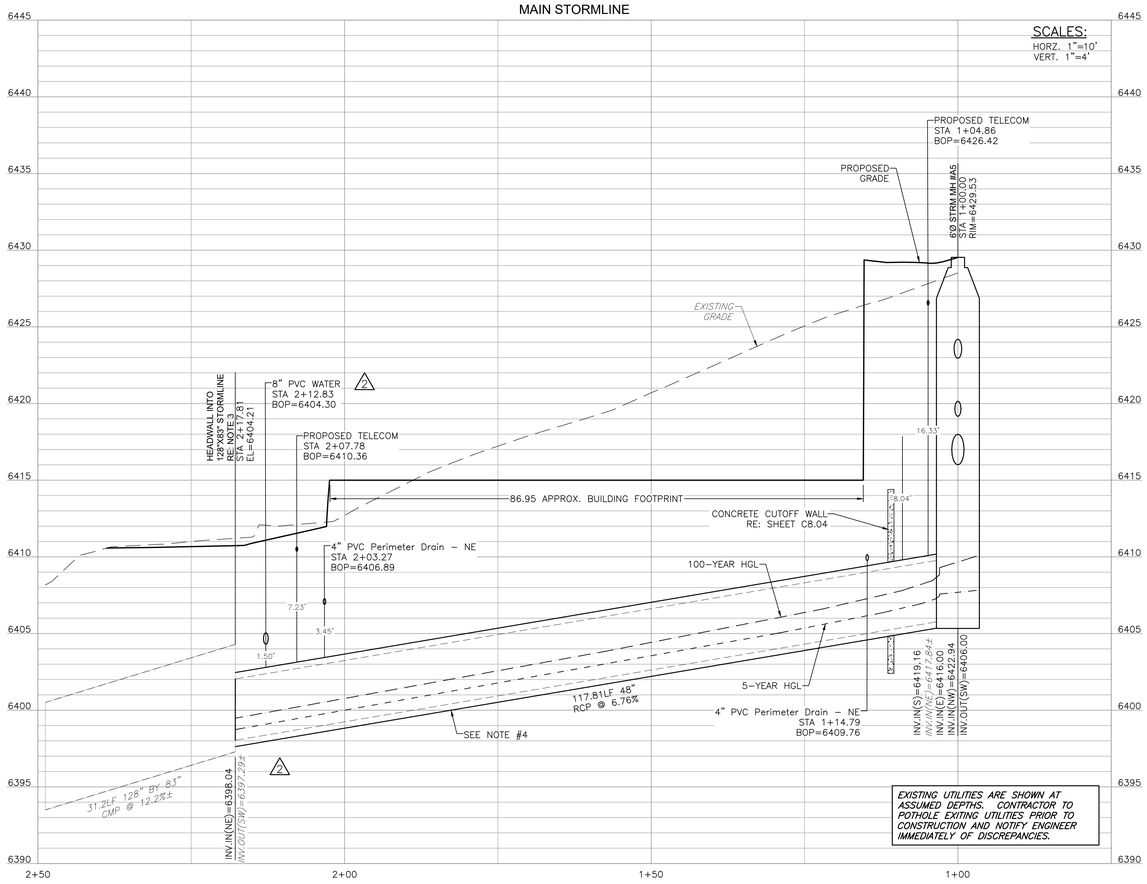

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
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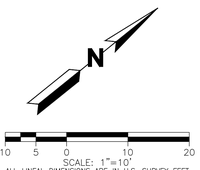

ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

PUBLIC UTILITIES:

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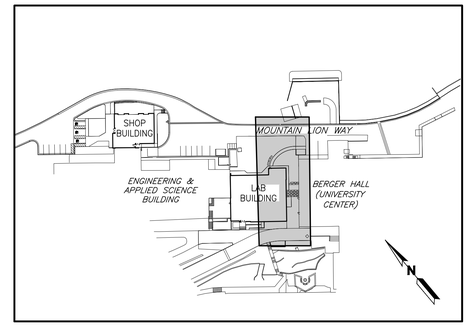
NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. STORM SEWER PIPE TO BE ENCASED IN FLOWFILL SHALL BE PER COLORADO SPRINGS UTILITIES CRITERIA TO PROTECT WATER MAIN.
3. SEE SHEET C5.05 FOR HEADWALL DESIGN. (2)
4. 48" RCP TO BE CLASS V UNDER BUILDING. 48" STORM LINE TO BE TELEVISED AFTER BUILDING CONSTRUCTION COMPLETION AND SUBMITTED TO ENGINEER AND OWNER FOR REVIEW.
5. MAINTAIN MINIMUM 18" VERTICAL SEPARATION AT UTILITY CROSSINGS.



KEYMAP
NOT TO SCALE

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COLORADO SPRINGS, CO 80918

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DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
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4 ADDENDA 4 PKG 1&2 2022/10/26

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SHEET TITLE:
STORM SEWER PLAN AND PROFILE

SCALE:
SHEET NUMBER
C5.00

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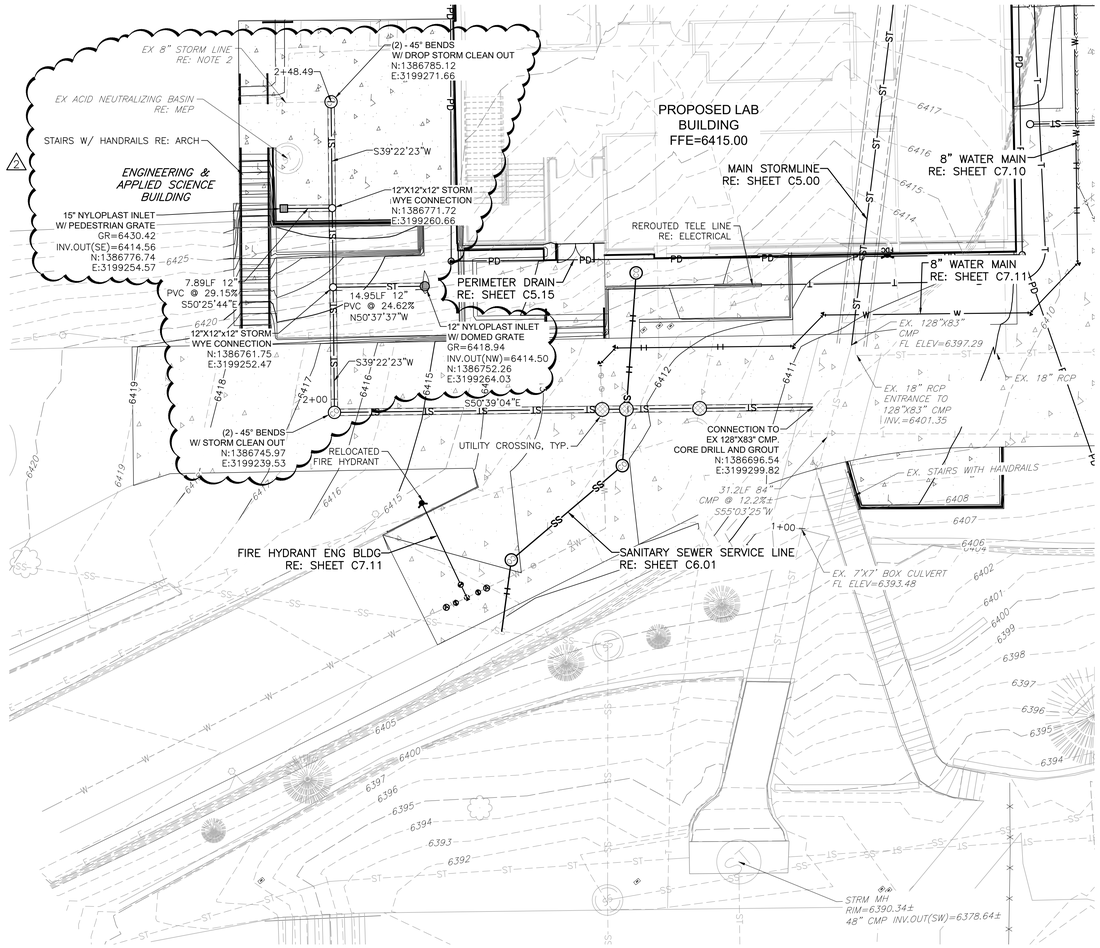

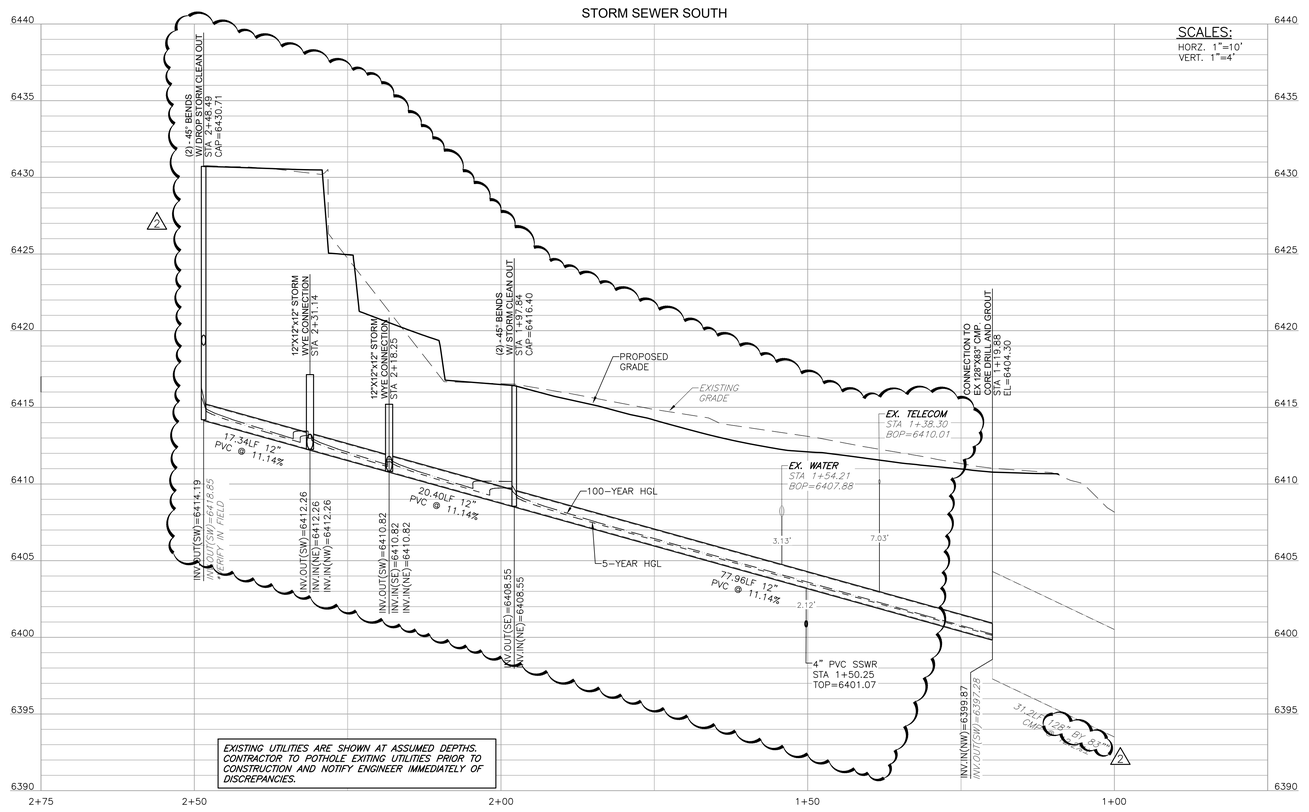

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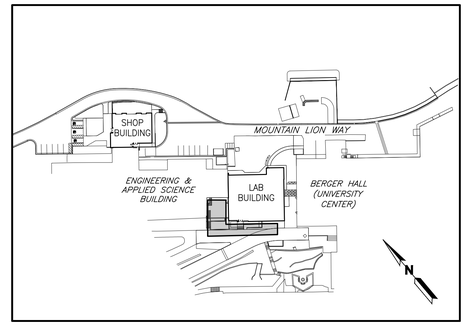

KEYMAP
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COLORADO SPRINGS, CO 80918

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

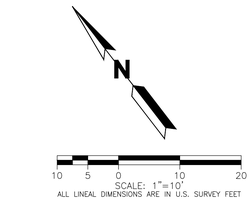
THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

PUBLIC UTILITIES:

UNLESS INDICATED WITH "(PUBLIC)" ALL PROPOSED UTILITIES SHOWN ON ARE PRIVATE.

NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR TO FIELD LOCATE EXISTING STORM LINE A MINIMUM OF 3 WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
3. MAINTAIN MINIMUM 18" VERTICAL SEPARATION AT UTILITY CROSSINGS.



COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR
MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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SHEET TITLE:
STORM SEWER PLAN AND PROFILE

SCALE:
SHEET NUMBER
C5.01

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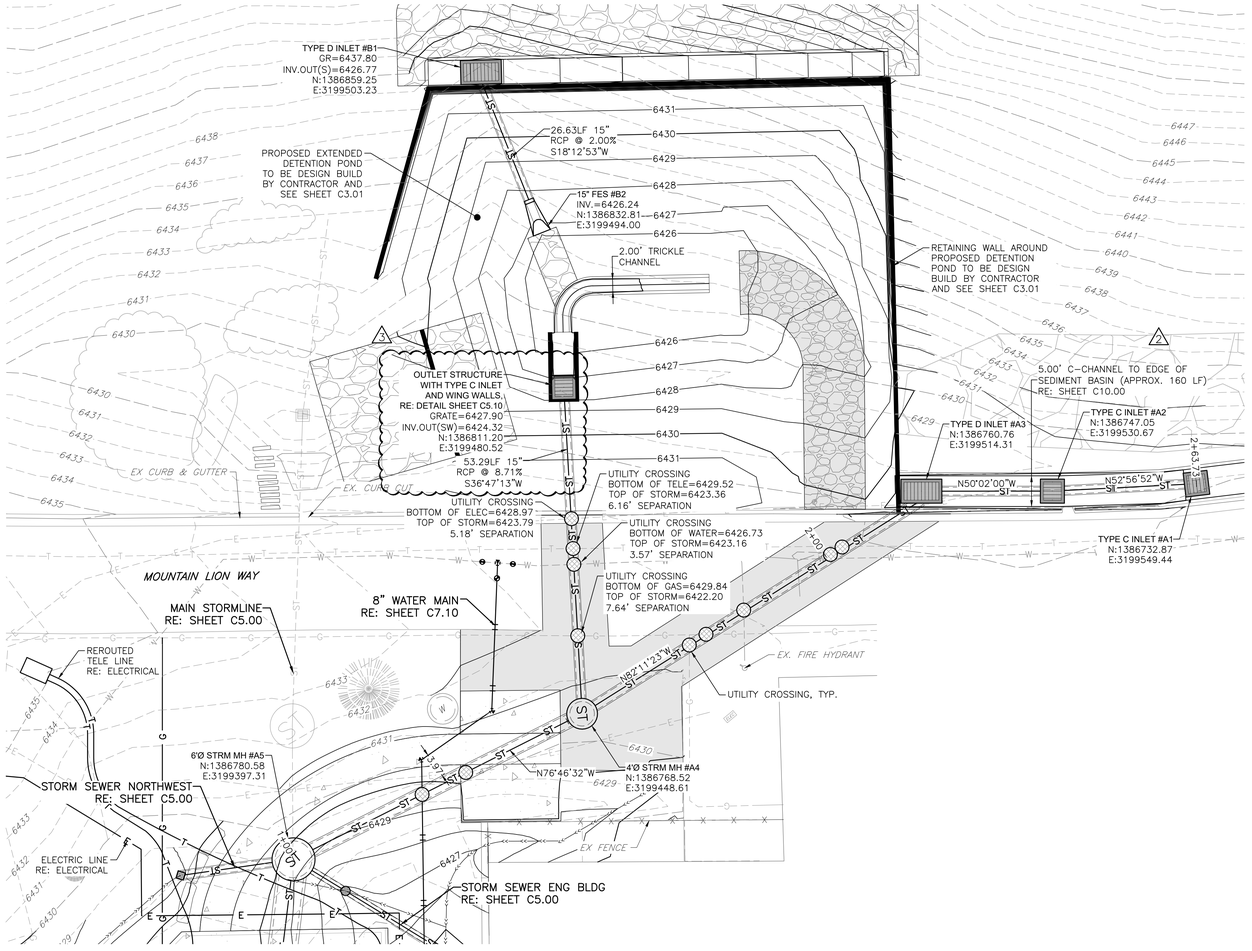

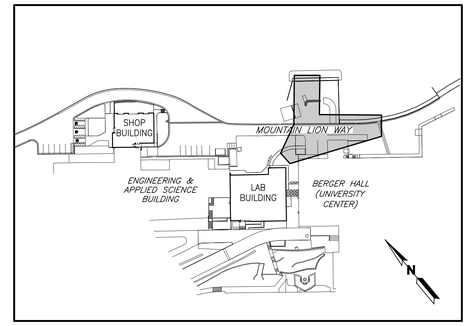

KEYMAP
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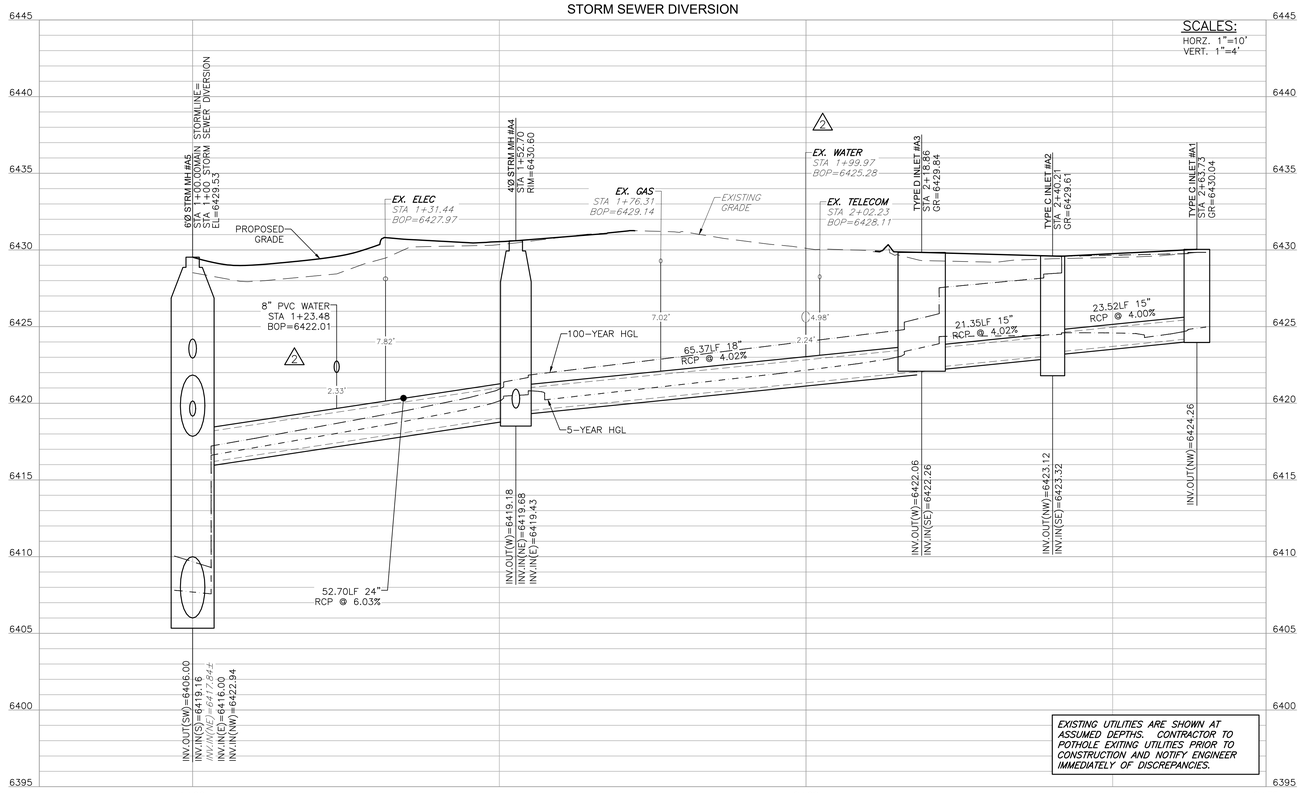
STORM SEWER DIVERSION



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NOTES:

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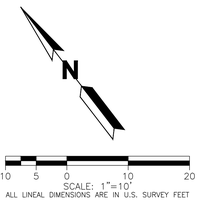
3. CONTRACTOR TO FIELD LOCATE EXISTING STORM LINE A MINIMUM OF 3 WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES. 2

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET



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NOT FOR CONSTRUCTION

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21
3 RFI 13 REVISIONS 2022/10/05

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SHEET TITLE:
STORM SEWER PLAN AND PROFILE

SCALE:
SHEET NUMBER
C5.02

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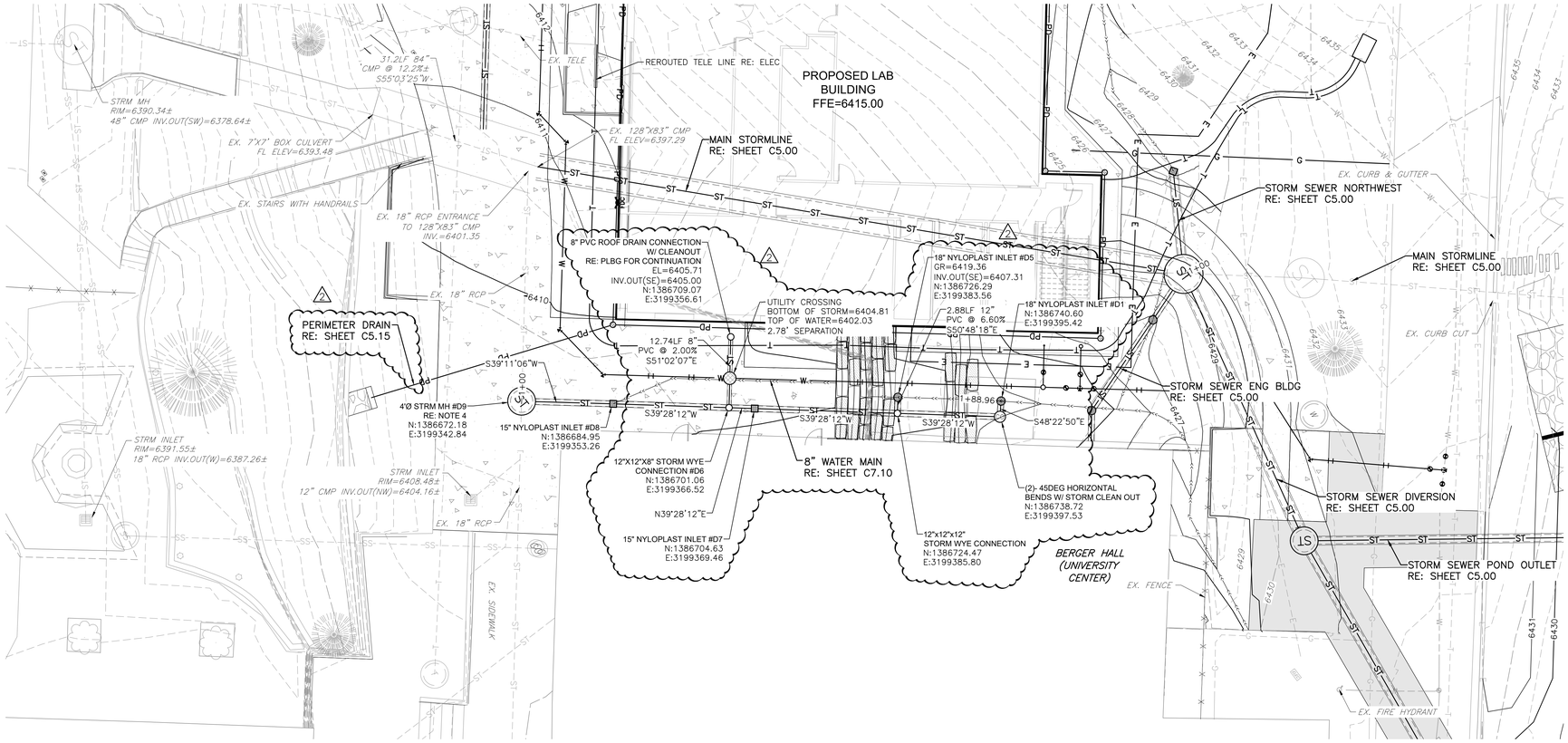

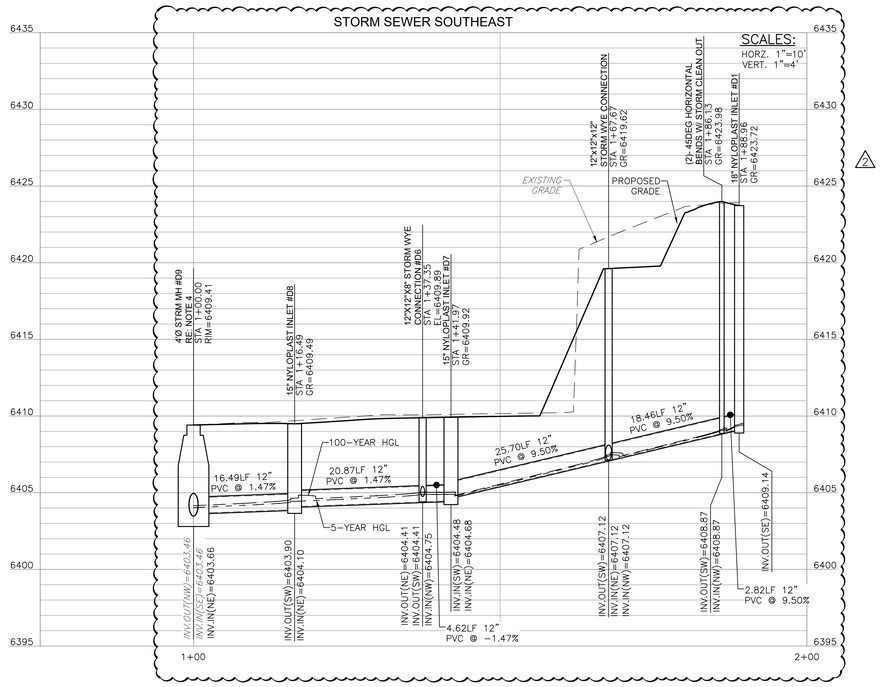

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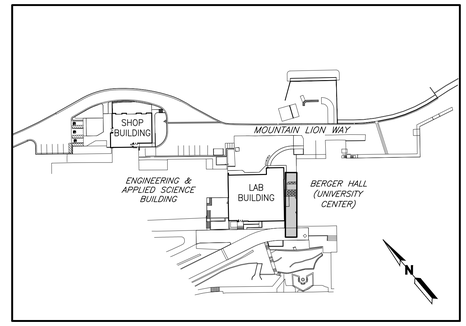

KEYMAP
NOT TO SCALE

PUBLIC UTILITIES:

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NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. PVC PIPE TO BE SDR 35.
3. MAINTAIN MINIMUM 18" VERTICAL SEPARATION AT UTILITY CROSSINGS.
4. CONTRACTOR TO VERIFY DOWNSTREAM INVERT OF EXISTING STORM SEWER MINIMUM OF THREE (3) WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

N

10 5 0 10 20
SCALE: 1"=10'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

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COLORADO REGISTERED PROFESSIONAL ENGINEER 37116 09/21/22

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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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PACKAGE 1

SHEET TITLE:
STORM SEWER PLAN AND PROFILE

SCALE:
SHEET NUMBER
C5.03

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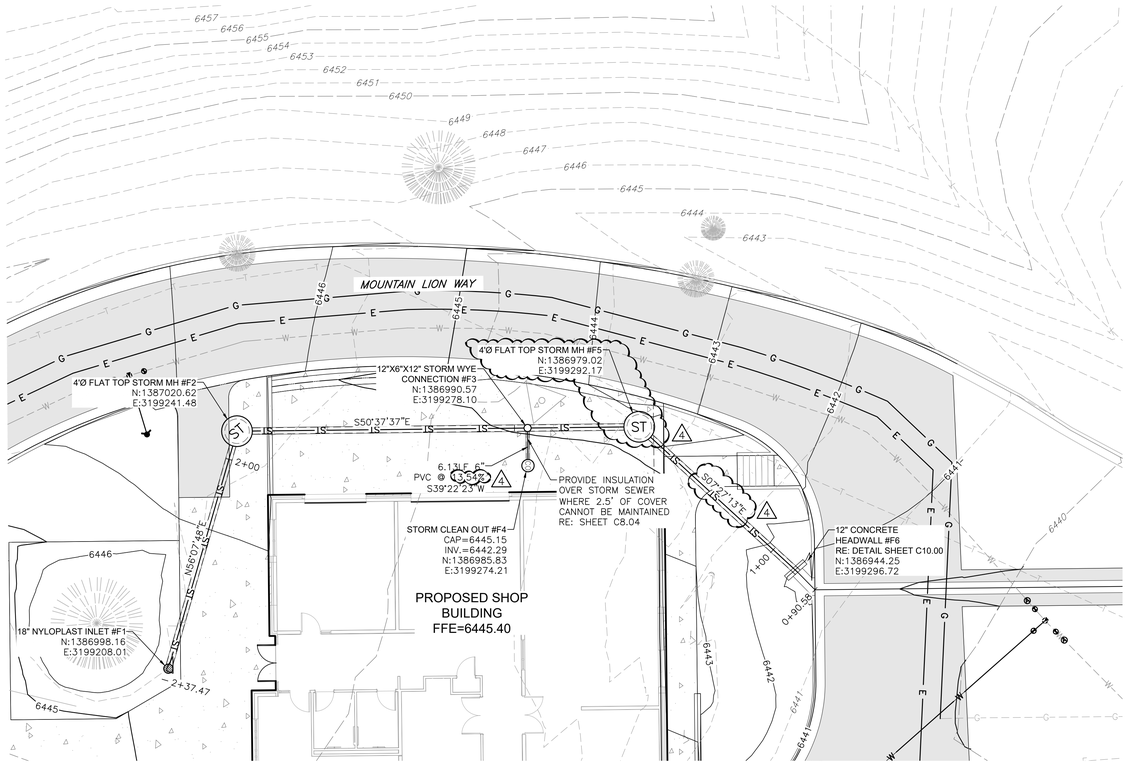

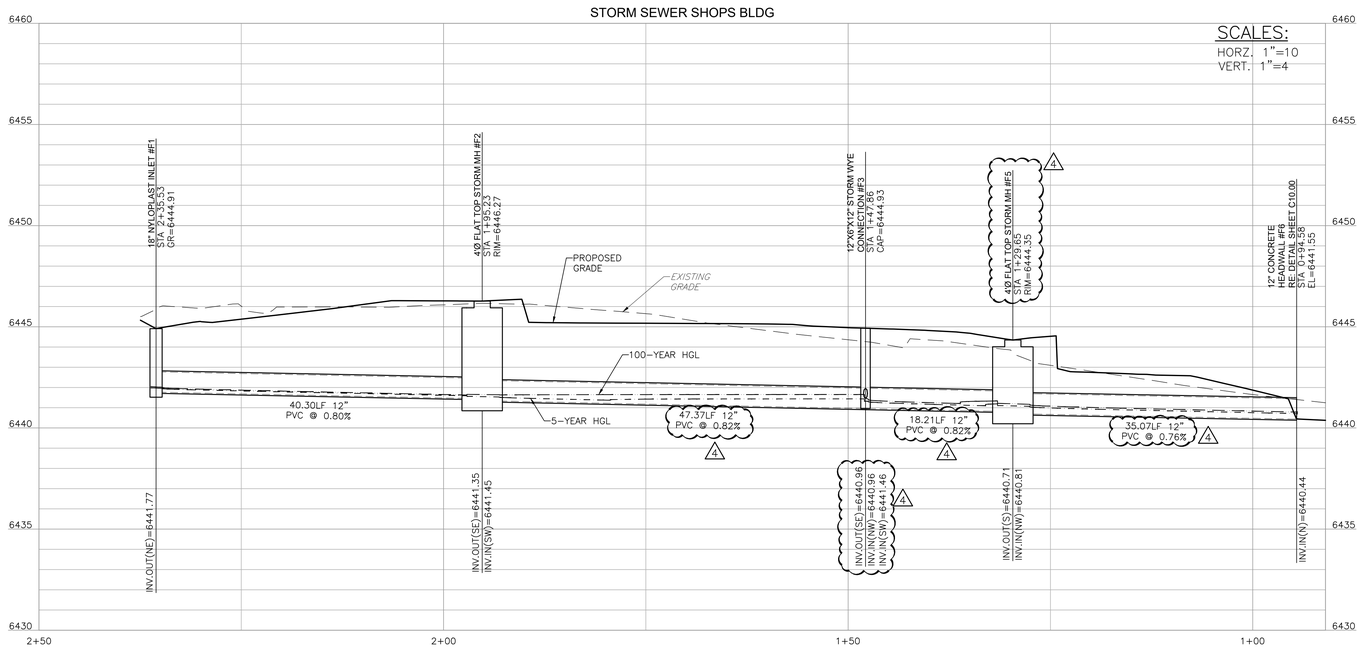

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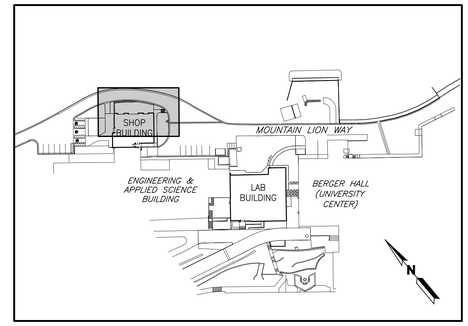

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BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
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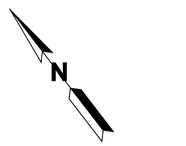

10 5 0 10 20
SCALE: 1"=10'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

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PROJ. NO. 21.1038
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DATE: 2022/08/03
4 ADDENDA 4 PKG 1&2 2022/10/26

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SHEET TITLE:
STORM SEWER PLAN AND PROFILE - SHOPS BUILDING
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C5.04

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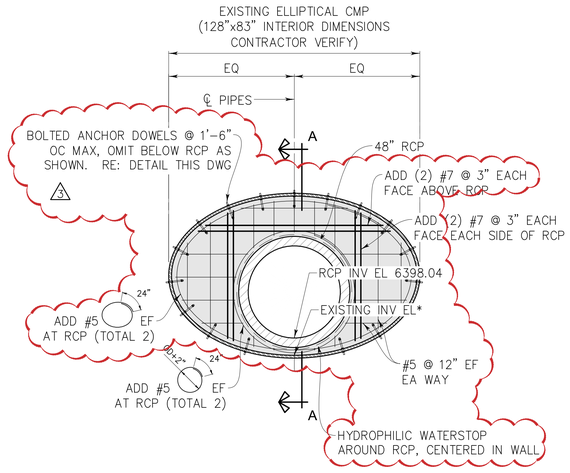
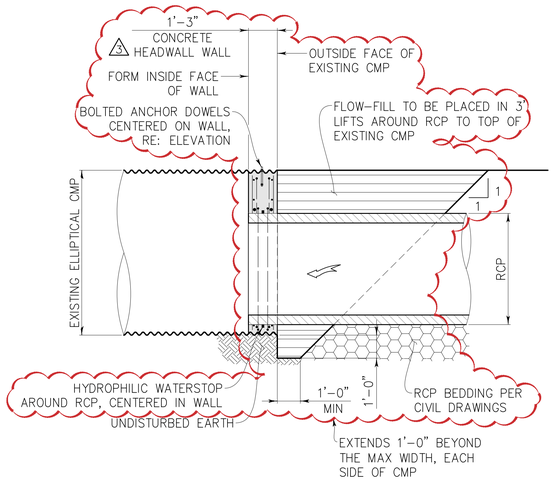


* CONTRACTOR SHALL VERIFY EXISTING CMP INVERT EL 6397.29 IN FIELD.

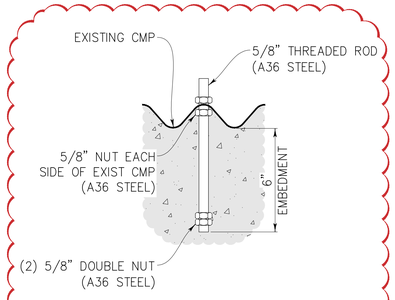
HEADWALL ELEVATION



HEADWALL SECTION A-A

HEADWALL STRUCTURAL NOTES

1. ALL CONSTRUCTION TO BE IN CONFORMANCE WITH COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", 2021 EDITION AS MODIFIED BY PROJECT SPECIAL PROVISIONS, SUPPLEMENTAL SPECIFICATIONS, AND THESE DRAWINGS.
2. CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AS RELATED TO THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS OTHERWISE NOTED.
3. ALL WORK SHALL CONFORM TO THE RECOMMENDATIONS, AS APPLICABLE, DISCUSSED IN THE GEOTECHNICAL REPORT ENTITLED "GEOTECHNICAL INVESTIGATION ANSCHUTZ ENGINEERING CENTER 1420 AUSTIN BLUFFS PARKWAY COLORADO SPRINGS, COLORADO" DATED APRIL 21, 2022 BY CTL THOMPSON INC. (CTL PROJECT NO. CS19531-125) AND THE EMAIL CORRESPONDENCE BETWEEN M/M AND CTL THOMPSON DATED MAY 18, 2022, JUNE 8, 2022 AND AUGUST 22, 2022. GEOTECHNICAL ENGINEER SHALL CONFIRM DESIGN SOIL PARAMETERS BEFORE CONSTRUCTION
4. ELEVATIONS AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE ORDERING OR FABRICATING ANY MATERIAL.
5. ~~BACKFILL FOR THE HEADWALL WALL SHALL BE CDOT CLASS 1 OR ON-SITE MATERIAL MEETING THE APPROVAL OF THE GEOTECHNICAL ENGINEER. LIMITS OF THE STRUCTURE EXCAVATION AND BACKFILL SHALL BE AS SHOWN ON CDOT STANDARD M-206-1 "EXCAVATION AND BACKFILL FOR STRUCTURES" DATED 7/31/2019.~~
6. THE CONTRACTOR SHALL NOT BACKFILL STRUCTURE UNTIL THE WALLS HAVE REACHED 100% OF DESIGN STRENGTH (f'_C).
7. ALL CONCRETE SHALL BE CDOT CLASS D, f'_C = 4500 PSI.
8. MINIMUM CLEARANCE FROM SURFACE OF CONCRETE TO THE FACE OF REINFORCEMENT SHALL BE 2 INCHES UNLESS OTHERWISE NOTED.
9. ALL REINFORCING STEEL SHALL BE GRADE 60 NON-EPOXY COATED.
10. SPLICING OF REINFORCING SHALL BE PERMITTED ONLY WHERE DETAILED IN THE DRAWINGS.
11. WELDING OF REINFORCING SHALL NOT BE PERMITTED.
12. A HYDROPHILIC WATERSTOP SHALL BE PLACED AROUND THE CIRCUMFERENCE OF THE PIPES AT THE CENTERLINE OF THE WALL PRIOR TO POURING CONCRETE. THE WATERSTOP SHALL BE SIKA SWELL STOP OR ENGINEER-APPROVED EQUIVALENT.
13. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
14. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF ALL UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.
15. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN IN PLACE DURING CONSTRUCTION ACTIVITIES AND IS RESPONSIBLE FOR ANY DAMAGES THERETO.
16. MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. THE UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM (PROVIDED) ASCE (38) UTILITY QUALITY LEVEL D (Q/LD) AVAILABLE INFORMATION. IT IS, HOWEVER, THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
17. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST TWO DAYS (NOT INCLUDING THE DAY CONTACTED) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.
18. ALL STRUCTURAL STEEL SHALL BE A36 MATERIAL AND HOT DIPPED GALVANIZED.
19. STRUCTURAL BACKFILL FLOW-FILL SHALL CONFIRM TO SUBSECTION CDOT 206.02(A)2 OF THE CDOT STANDARD SPECIFICATION.



3 BOLTED ANCHOR DOWEL DETAIL

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1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: GEIGER
CHECKED: DEZORT
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3 HEADWALL REVISION 2022/10/19

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SHEET TITLE:
HEADWALL INTO 128X83 STORMLINE DETAILS

1

SCALE:
SHEET NUMBER
C5.05

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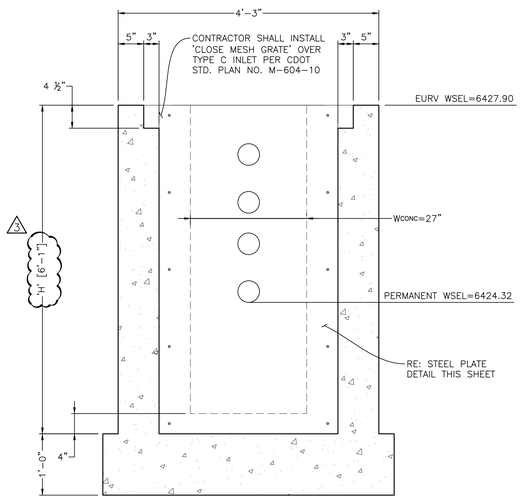
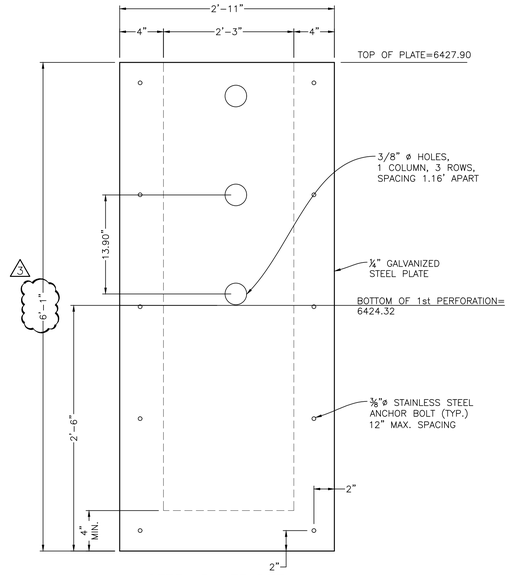
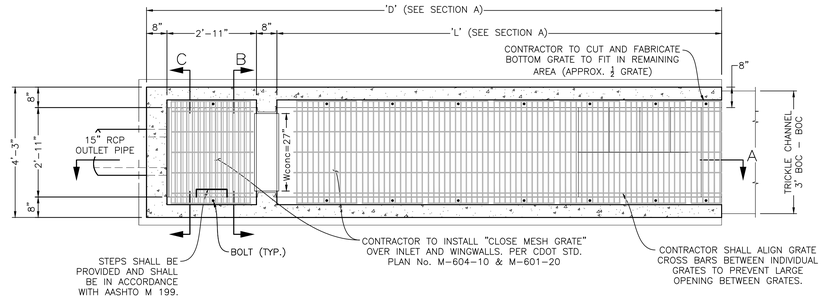


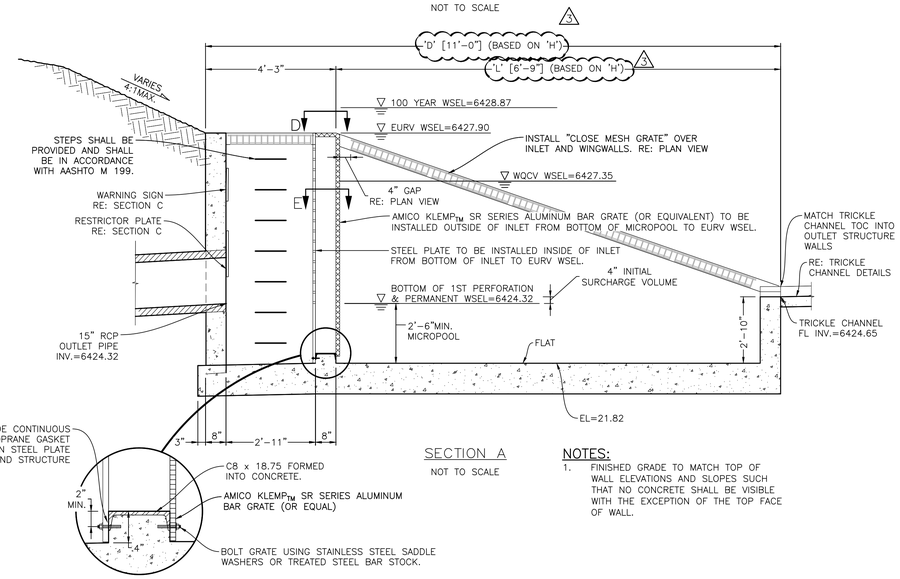
SECTION B
NOT TO SCALE



STEEL PLATE DETAIL
NOT TO SCALE

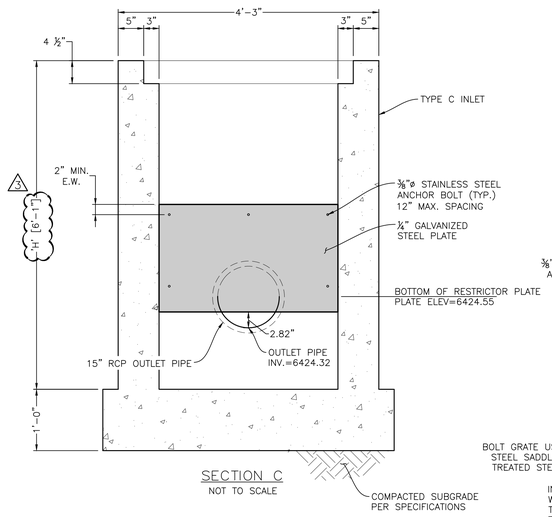


PLAN
NOT TO SCALE



SECTION A
NOT TO SCALE

NOTES:
1. FINISHED GRADE TO MATCH TOP OF WALL ELEVATIONS AND SLOPES SUCH THAT NO CONCRETE SHALL BE VISIBLE WITH THE EXCEPTION OF THE TOP FACE OF WALL.



SECTION C
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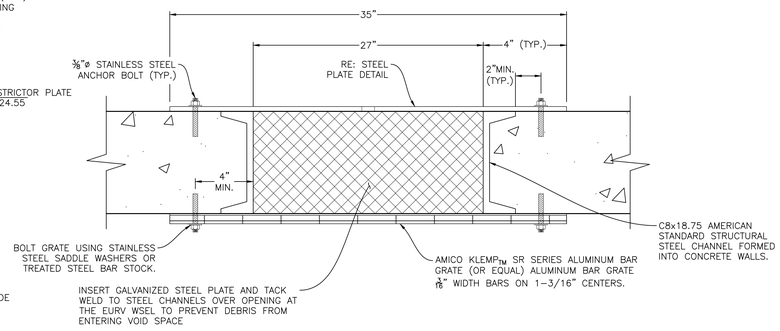
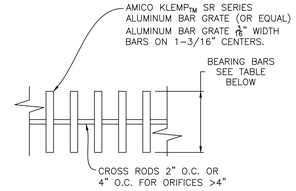


WATER DEPTH ABOVE LOWEST OPENING, H.	MINIMUM BEARING BAR SIZE, BARS ALIGNED VERTICALLY
2.0-FT	1" x ⅛"
3.0-FT	1-1/4" X ⅛"
4.0-FT	1-3/4" X ⅛"
5.0-FT	2" X ⅛"
6.0-FT	2-1/4" X ⅛"

R VALUE = (NET OPEN AREA/GROSS RACK AREA)
=0.71 FOR CROSS RODS ON 2" CENTERS
=0.77 FOR CROSS RODS ON 4" CENTERS



PROJ. NO. 21.1038
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CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
3 RFI 13 REVISIONS 2022/10/05

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PACKAGE 1

SHEET TITLE:
POND DETAILS

SCALE:
SHEET NUMBER
C5.10

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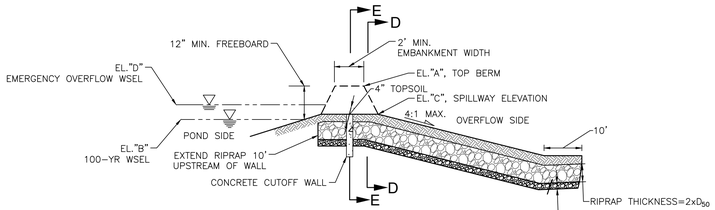
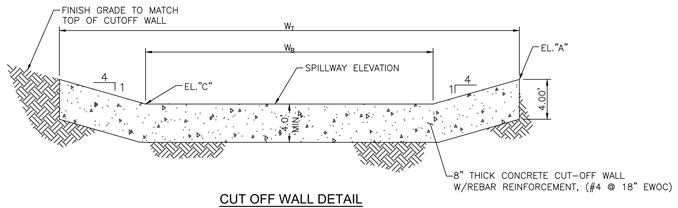


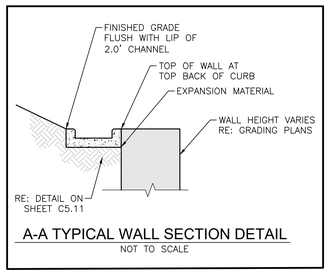
EMERGENCY SPILLWAY
SECTION E-E
NOT TO SCALE



CUT OFF WALL DETAIL
SECTION E-E
NOT TO SCALE

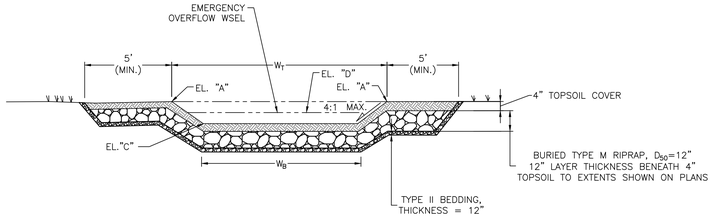
NOTE:
1. CUT OFF WALL LENGTH IS FROM END POINT TO END POINT. ACTUAL LENGTH OF WALL WILL VARY BASED ON WALL CURVATURE & HORIZONTAL LAYOUT.

POND EMERGENCY SPILLWAY
NOT TO SCALE



A-A TYPICAL WALL SECTION DETAIL
NOT TO SCALE

SPILLWAY TABLE							
POND	EL."A"	EL."B"	EL."C"	EL. "D"	WB ft.	WT ft.	FULL DISCHARGE CAPACITY (Q_{100}) (CFS)
A	6430.80	6428.87	6429.02	6430.08	8	21.4	6.68



EMERGENCY SPILLWAY
SECTION D-D
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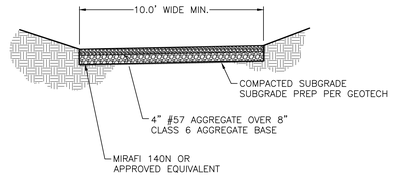
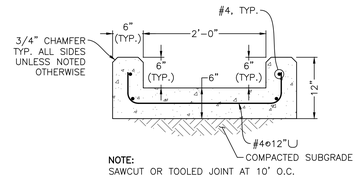


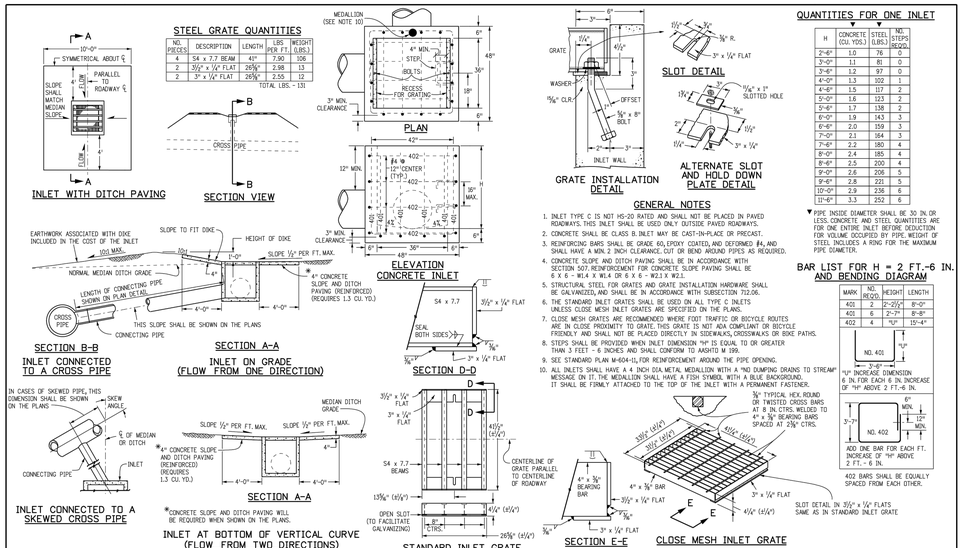
GRAVEL POND MAINTENANCE ACCESS DETAIL
N.T.S.

1. SEE SHEET C9.00 FOR ADD ALTERNATE INFORMATION REGARDING POND MAINTENANCE ACCESS PATH



NOTE:
SAWCUT OR TOOLED JOINT AT 10' O.C.

TRICKLE CHANNEL
CROSS-SECTION
NOT TO SCALE



STEEL GRATE QUANTITIES

NO. PIECES	DESCRIPTION	LENGTH	LBS PER FT.	WEIGHT (LBS.)
4	S4 x 7.7 BEAM	41"	7.90	106
2	3½" x ¼" FLAT	26⅝"	2.98	13
2	3" x ¼" FLAT	26⅝"	2.55	12
			TOTAL LBS. - 131	

QUANTITIES FOR ONE INLET

H	CONCRETE (CU. YDS.)	STEEL (LBS.)	NO. STEPS REQ'D.
2'-6"	1.0	76	0
3'-0"	1.1	81	0
3'-6"	1.2	97	0
4'-0"	1.3	102	1
4'-6"	1.5	117	2
5'-0"	1.6	123	2
5'-6"	1.7	138	2
6'-0"	1.9	143	3
6'-6"	2.0	159	3
7'-0"	2.1	164	3
7'-6"	2.2	180	4
8'-0"	2.4	185	4
8'-6"	2.5	200	4
9'-0"	2.6	206	5
9'-6"	2.8	221	5
10'-0"	2.9	236	6
11'-6"	3.3	252	6

▼ PIPE INSIDE DIAMETER SHALL BE 30 IN OR LESS. CONCRETE AND STEEL QUANTITIES ARE FOR ONE ENTIRE INLET BEFORE DEDUCTION FOR VOLUME OCCUPIED BY PIPE. WEIGHT OF STEEL INCLUDES A RING FOR THE MAXIMUM PIPE DIAMETER.

BAR LIST FOR H = 2 FT.-6 IN. AND BENDING DIAGRAM

MARK	NO. REQ'D.	WEIGHT	LENGTH
401	2	2'-2½"	8'-0"
401	6	2'-7"	8'-8"
402	4	¼"	15'-4"

NO. 401
¼" INCREASE DIMENSION 6 IN. FOR EACH 6 IN. INCREASE OF "H" ABOVE 2 FT.-6 IN.
NO. 402
ADD ONE BAR FOR EACH FT. INCREASE OF "H" ABOVE 2 FT.- 6 IN.
402 BARS SHALL BE EQUALLY SPACED FROM EACH OTHER.

GENERAL NOTES

1. INLET TYPE C IS NOT HS-20 RATED AND SHALL NOT BE PLACED IN PAVED ROADWAYS. THIS INLET SHALL BE USED ONLY OUTSIDE PAVED ROADWAYS.
2. CONCRETE SHALL BE CLASS B. INLET MAY BE CAST-IN-PLACE OR PRECAST.
3. REINFORCING BARS SHALL BE GRADE 60, EPOXY COATED, AND DEFORMED #4, AND SHALL HAVE A MIN. 2 INCH CLEARANCE, CUT OR BEND AROUND PIPES AS REQUIRED.
4. CONCRETE SLOPE AND DITCH PAVING SHALL BE IN ACCORDANCE WITH SECTION 507. REINFORCEMENT FOR CONCRETE SLOPE PAVING SHALL BE 6 X 6 - W1.4 X W1.4 OR 6 X 6 - W2.1 X W2.1.
5. STRUCTURAL STEEL FOR GRATES AND GRATE INSTALLATION HARDWARE SHALL BE GALVANIZED, AND SHALL BE IN ACCORDANCE WITH SUBSECTION 712.06.
6. THE STANDARD INLET GRATES SHALL BE USED ON ALL TYPE C INLETS UNLESS CLOSE MESH INLET GRATES ARE SPECIFIED ON THE PLANS.
7. CLOSE MESH GRATES ARE RECOMMENDED WHERE FOOT TRAFFIC OR BICYCLE ROUTES ARE IN CLOSE PROXIMITY TO GRATE. THIS GRATE IS NOT ADA COMPLIANT OR BICYCLE FRIENDLY AND SHALL NOT BE PLACED DIRECTLY IN SIDEWALKS, CROSSWALKS OR BIKE PATHS.
8. STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" IS EQUAL TO OR GREATER THAN 3 FEET - 6 INCHES AND SHALL CONFORM TO AASHTO M 199.
9. SEE STANDARD PLAN M-604-11,FOR REINFORCEMENT AROUND THE PIPE OPENING.
10. ALL INLETS SHALL HAVE A 4 INCH DIA.METAL MEDALLION WITH A "NO DUMPING DRAINS TO STREAM" MESSAGE ON IT. THE MEDALLION SHALL HAVE A FISH SYMBOL WITH A BLUE BACKGROUND. IT SHALL BE FIRMLY ATTACHED TO THE TOP OF THE INLET WITH A PERMANENT FASTENER.

Computer File Information	
Creation Date: 07/31/19	
Designer Initials: JBK	
Last Modification Date: 07/31/19	
Detailer Initials: LTA	
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	

Sheet Revisions		
	Date:	Comments

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

INLET, TYPE C

Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-604-10
Standard Sheet No. 1 of 1
Project Sheet Number:

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37116 7/26/22

ANSCHUTZ ENGINEERING CENTER
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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/07/27

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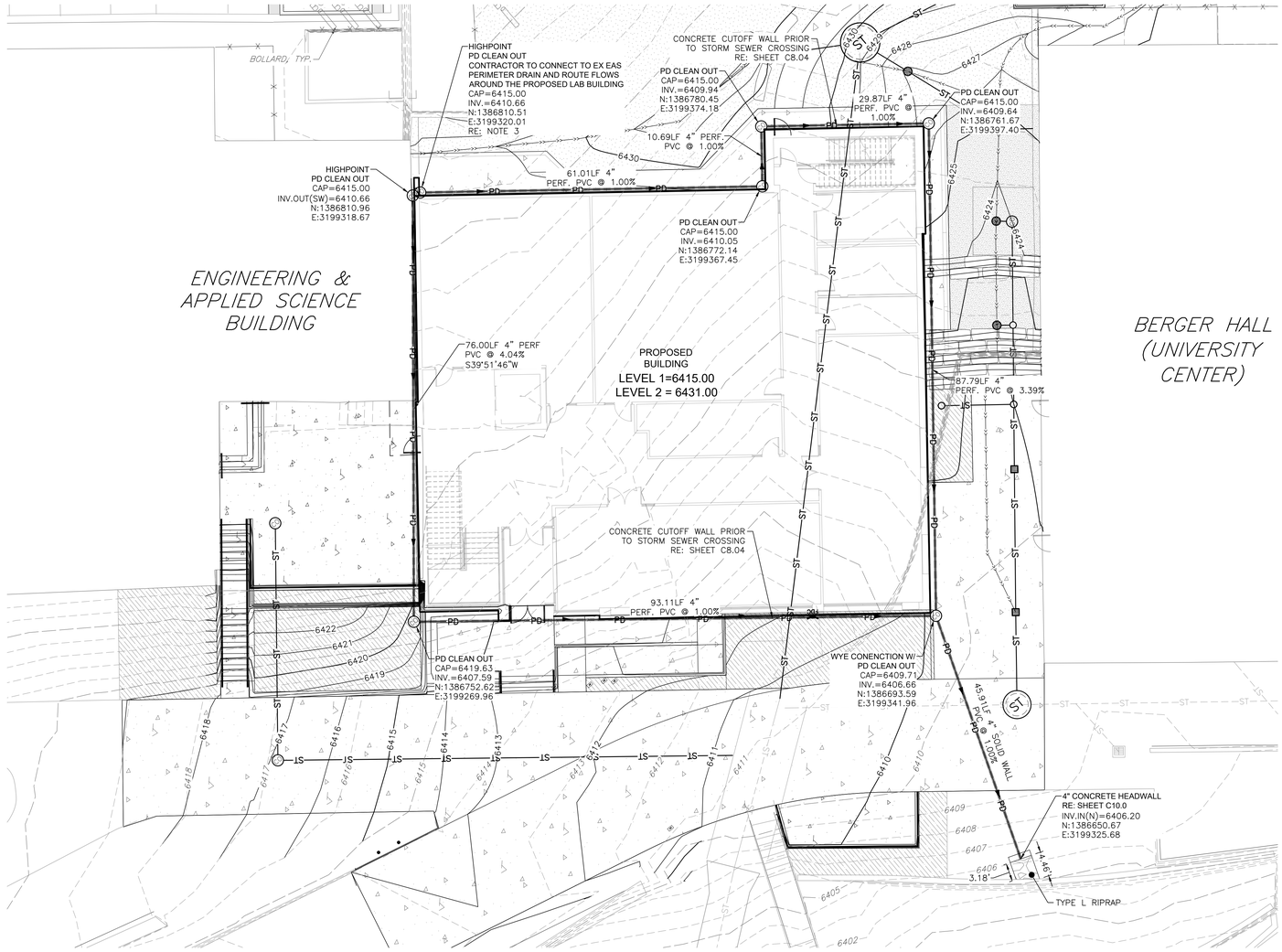
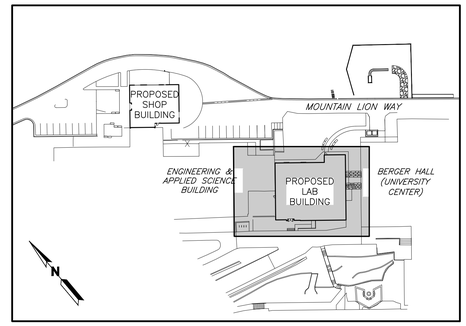
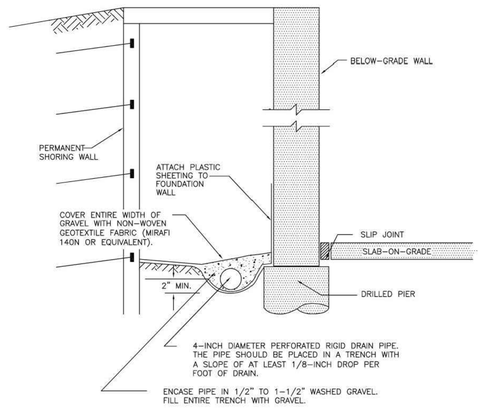




KEYMAP
NOT TO SCALE

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
5750	CONTOURS	5750
ST	STORM SEWER	ST
ST	STORM MANHOLE	
RD	ROOF DRAIN	RD
	INLET	
	FLARED END SECTION	
	SIGN	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
DRIVE	DESCRIPTIONS	DRIVE
ELEV.	SPOT ELEVATIONS	ELEV.



NOTE:
THE BOTTOM OF THE DRAIN SHOULD BE AT LEAST 2 INCHES BELOW BOTTOM OF VOID AT THE HIGHEST POINT AND SLOPE DOWNWARD TO A POSITIVE GRAVITY OUTLET OR TO A SUMP WHERE WATER CAN BE REMOVED BY PUMPING.

Exterior Foundation Wall Drain FIG. 3

UNIVERSITY OF COLORADO, COLORADO SPRINGS
ANSCHUTZ ENGINEERING CENTER
CTLIT PROJECT NO. CS19531-125

PERIMETER DRAIN PLAN NOTES:

1. CONTRACTOR SHALL FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT, "GEOTECHNICAL INVESTIGATION – ANSCHUTZ ENGINEERING CENTER – 1420 AUSTIN BLUFFS PARKWAY COLORADO SPRINGS, COLORADO", PREPARED BY CTL THOMPSON DATED APRIL 21, 2022. PERIMETER DRAIN DESIGN IS BASED UPON THIS GEOTECHNICAL ENGINEERING STUDY.
2. REFER TO DETAIL ON THIS SHEET FOR PERIMETER DRAIN CROSS SECTION PROVIDED BY CTL THOMPSON DATED ON JUNE 13, 2022.
3. WHERE PROPOSED UTILITIES CROSS EXISTING UTILITIES, CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES (POTHOLE) TO VERIFY ADEQUATE CLEARANCE. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
4. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR BURIED UTILITIES. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION.
5. PERIMETER DRAIN SHALL BE PERFORATED SCHEDULE 40 PVC OR PERFORATED SDR 35 PVC WITH GASKETED BELL AND SPIGOT JOINTS. PERFORATIONS SHALL BE ORIENTED AT THE 4 O'CLOCK AND 8 O'CLOCK POSITIONS (120° HOLE ARRAY), 5" ON CENTER.
6. ACTUAL LOCATIONS OF BUILDING PERIMETER DRAIN LINE AND CLEANOUTS MAY VARY FROM THE COORDINATES GIVEN ON THIS PLAN IN ORDER TO MAINTAIN A 1H:1V SLOPE FROM TOP OF FOUNDATION TO THE BOTTOM OF THE PERIMETER DRAIN TRENCH AS SHOWN ON THE PERIMETER DRAIN DETAIL.
7. REFER TO STRUCTURAL PLANS FOR FOUNDATION, PIER/FOOTING LAYOUT, AND BUILDING SLAB ON GRADE.
8. CLEANOUTS ARE REQUIRED WHERE INDICATED ON PLAN AND ALL 90-DEGREE BEND FITTINGS SHALL BE LONG SWEEP 90-DEGREE BENDS OR 2 X 45-DEGREE BENDS.
9. CAP ELEVATIONS SHOWN ON PLAN ARE APPROXIMATE ONLY. CAPS ELEVATIONS WITHIN BUILDING FOOTPRINT SHALL BE COORDINATED WITH ARCHITECTURAL FLOOR PLANS PRIOR TO CONSTRUCTION. ALL CLEANOUT CAPS SHALL BE ADJUSTED TO GRADE DURING FINAL PAVING OR LANDSCAPING.
10. UNDER NO CIRCUMSTANCES SHALL ROOF DRAINS AND PERIMETER DRAINS BE CONNECTED TOGETHER.
11. THE CONTRACTOR SHALL VERIFY AS-CONSTRUCTED GRADE BEAM/PIER/FOOTING ELEVATIONS AGAINST PERIMETER DRAIN ELEVATION SHOWN HEREON AND CONFIRM COMPLIANCE WITH GEOTECHNICAL REQUIREMENTS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
12. SLOPE EXCAVATION AND TRENCH EMBANKMENT SHALL MEET OR EXCEED OSHA STANDARDS.
13. DURING PERIMETER DRAIN INSTALLATION, FULL TIME OBSERVATION IS REQUIRED. THE GEOTECHNICAL ENGINEER SHOULD OBSERVE INSTALLATION AND VERIFY COMPLIANCE WITH THE DESIGN RECOMMENDATIONS AND THE CONSTRUCTION DOCUMENTS.
14. AS-BUILT INFORMATION FOR THE PERIMETER DRAIN SYSTEM WITH HORIZONTAL AND VERTICAL SURVEY INFORMATION SHALL BE PROVIDED UPON COMPLETION OF THE UNDER DRAINS BY THE CONTRACTOR'S SURVEYOR. ENGINEER TO VERIFY GRADES BASED ON THE AS-BUILT SURVEY PRIOR TO COMPLETING BACKFILL. BEFORE BACKFILL IS COMPLETE, THE CONTRACTOR SHALL TELEVISE THE ENTIRE PERIMETER DRAIN SYSTEM TO VERIFY PIPE IS FUNCTIONING AND INSTALLED CORRECTLY. THE CONTRACTOR SHALL PROVIDE THE VIDEO TO THE ENGINEER FOR REVIEW PRIOR TO BACKFILLING.
15. **ALL PERIMETER DRAINS TO BE INSTALLED IN COMPLIANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.**
16. **CONTRACTOR TO CONFIRM ELEVATIONS AT EXISTING FOUNDATIONS INDICATED ON PLANS PRIOR TO CONSTRUCTION AND TO INSTALL A PERIMETER DRAIN IN ACCORDANCE WITH THE GEOTECHNICAL RECOMMENDATIONS.**
17. CONTRACTOR TO UTILIZE ADDITIONAL STANDARD BENDS/FITTINGS AS NECESSARY TO COMPLETE PERIMETER DRAIN PIPE CONNECTIONS.

NOTES:

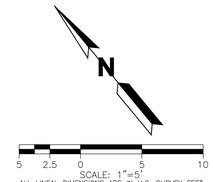
1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR TO LOCATE AND POTHOLE ALL EXISTING UTILITY CROSSINGS TWO (2) WEEKS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER IMMEDIATELY IF ANY DISCREPANCY.
3. CONTRACTOR TO FIELD LOCATE EXISTING PERIMETER DRAIN AT EAS BUILDING AND CONFIRM ELEVATION A MINIMUM OF THREE (3) WEEKS PRIOR TO CONSTRUCTION. ELEVATIONS SHOW ARE ASSUMED ELEVATIONS AS POTHOLE WERE NOT AVAILABLE AT THE TIME OF DESIGN. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET



SCALE: 1"=5'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

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37116
7/26/22

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PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/07/27

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PERIMETER DRAIN PLAN

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UNIVERSITY OF COLORADO - COLORADO SPRINGS
ANSCHUTZ ENGINEERING BUILDING ADDITION
1420 AUSTIN BLUFFS PKWY, COLORADO SPRINGS, 80918
UTILITY SERVICE CONSTRUCTION DRAWINGS

LOCATED IN THE NE1/4 OF SECTION 29, T13S, R66W, 6TH P.M.
COUNTY OF EL PASO, CITY OF COLORADO SPRINGS, STATE OF COLORADO

ABBREVIATIONS:

APPROX	APPROXIMATE
ARCH	ARCHITECT
BLDG	BUILDING
BM	BENCHMARK
BOC	BACK OF CURB
CIP	CAST IRON PIPE
CL	CENTERLINE
CO	CLEANOUT
CONC	CONCRETE
CONT	CONTOUR
COR	CORNER
CU	COPPER
CRA	CONCRETE REVERSE ANCHOR
CTRB	CONCRETE THRUST REACTION BLOCK
DEMO	DEMOLITION
DIA OR ø	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
EL	ELEVATION
ELEC	ELECTRICAL
ESMT	EASEMENT
EX	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FGW	FINISHED GRADE AT WALL
FHY	FIRE HYDRANT
FL	FLOW LINE
FT	FOOT
GB	GRADE BREAK
GR	GRATE (AREA OR VALLEY INLETS)
GV	GATE VALVE
HGL	HYDRAULIC GRADE LINE
HORZ	HORIZONTAL
HP	HIGH POINT
INV	INVERT
LF	LINEAL FEET
LP	LOW POINT
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MH	MANHOLE
MIN	MINIMUM
NTS	NOT TO SCALE
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PIV	PRESSURE INDICATOR VALVE
PL	PROPERTY LINE
PLBG	PLUMBING
PRV	PRESSURE REDUCING VALVE
PVC	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
R.O.W.	RIGHT OF WAY
SSWR	SANITARY SEWER
SF	SQUARE FOOT
STA	STATION
STRM	STORM SEWER
STRC	STRUCTURAL
SWLK	SIDEWALK
SY	SQUARE YARD
TELE	TELEPHONE
TB	THRUST BLOCK
TEMP	TEMPORARY
TOC	TOP OF CURB
TOW	TOP OF WALL (RE: NOTE BELOW)
TYP.	TYPICAL
VERT	VERTICAL

NOTE: TOW SHALL BE TOP OF WATER ON UTILITY SHEETS ONLY AND TOP OF WALL ON ALL OTHER SHEETS.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

PROJECT CONTACTS

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SURVEYOR:
NV5
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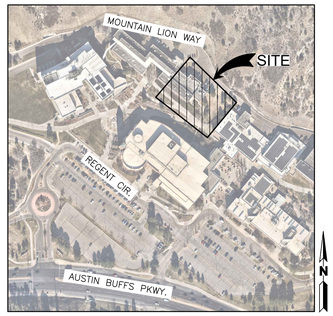

VICINITY MAP
SCALE

2

FIMS MAP NUMBER: I–27
TAX SCHEDULE NO.: 6239100055
PRESSURE ZONE: NORTHFIELD
STATIC PRESSURE AT MDD: 115 PSI
UTILITY DESIGN CAD FILE NO.: CF20222564
UAP FILE NO: N/A
DEVELOPMENT PLAN NO.: N/A
PLAT REC. NO.: UNPLATTED
PUBLIC UTILITY EASEMENT REC. NO: N/A
NOTICE OF PRIVATE WASTEWATER SYSTEM REC. NO.: N/A
NOTICE OF PRIVATE WATER SYSTEM REC. NO.: PENDING

OWNER/DEVELOPER PLAN APPROVAL

THE UNDERSIGNED OWNER/DEVELOPER AGREES THAT THEY SHALL, AT THEIR EXPENSE, BE SOLELY RESPONSIBLE FOR 1) THE INSTALLATION OF THE PROPOSED UTILITY INFRASTRUCTURE IN ACCORDANCE WITH THESE PLANS, AND 2) ALL DAMAGES AND DEFECTS ARISING FROM, OR RELATED TO, THE INSTALLATION, MAINTENANCE OR OPERATION OF THE PUBLIC UTILITY INFRASTRUCTURE FROM THE DATE OF PRELIMINARY ACCEPTANCE FOR A PERIOD OF TWO YEARS, OR UNTIL FINAL ACCEPTANCE, WHICHEVER IS LATER.

THE UNDERSIGNED UNDERSTANDS THAT ALL PRIVATE UTILITY INFRASTRUCTURE, AS INDICATED ON THESE PLANS, SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE MAINTAINED BY THE OWNER, AS REQUIRED BY *COLORADO SPRINGS UTILITIES' LINE EXTENSION AND SERVICE STANDARDS.*

☐ **PUBLIC FACILITIES PROPOSED** ☒ **PRIVATE FACILITIES PROPOSED**

SIGNED: _____ DATE: _____
OWNER/DEVELOPER

_____
OWNER/DEVELOPER (PRINT NAME)

DBA: _____

ADDRESS: _____

_____

PHONE: _____

EMAIL: _____

PLANS SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

COLORADO SPRINGS UTILITIES
COMMERCIAL UTILITY SERVICE DESIGN APPROVAL

PROJECT NUMBER: 2022–C081

CSU SHEET 1 OF 4

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT–OF–WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	HEAVY DUTY DRIVE LANES	
	CONCRETE/ SIDEWALK	
5750	CONTOURS	5750
	UTILITY CROSSING	#
ST	STORM SEWER	ST
ST	STORM MANHOLE	ST
RD	ROOF DRAIN	RD
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	SS
	CLEAN OUT	
W	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
	WATER METER	
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	
OHE	OVERHEAD ELECTRIC	
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
G	GAS LINE	G
FO	FIBER OPTIC	FO
M.W.	MONITOR WELL	
	SIGN	
	DIRECTION OF FLOW	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
ELEV	SPOT ELEVATIONS	ELEV.
DRIVE	DESCRIPTIONS	DRIVE

COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2–BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

MARTIN/MARTIN CONSULTING ENGINEERS
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COLORADO REGISTERED 37116 PROFESSIONAL ENGINEER
09/21/22

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
SANITARY SEWER
COVER SHEET

SCALE:
SHEET NUMBER
C6.00

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WATER:

1. SERVICE STUBS SHALL BE INSTALLED WITH THE CURB STOP AT OR NEAR PROPERTY LINE AND SHALL NOT BE INSTALLED WITHIN DRIVEWAYS OR SIDEWALKS (SEE DETAIL DRAWING B2–3).

2. SERVICE TAPS SHALL BE MADE A MINIMUM OF THREE FEET (3') FROM THE BELL OR APPURTENANCE ON THE WATER MAIN. TAPS SHALL BE A MINIMUM OF THREE FEET (3') APART ON THE SAME SIDE OF THE WATER MAIN AND A MINIMUM OF ONE–AND–A–HALF FEET (1.5') WHEN TAPS ARE MADE ON OPPOSITE SIDES OF THE WATER MAIN.

3. ALL SERVICES FOR COMMERCIAL USE AND SOME RESIDENTIAL USES REQUIRE INSTALLATION OF A BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY AFTER THE METER. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE APPROVED BY THE FOUNDATION FOR CROSS–CONNECTION CONTROL AND HYDRAULIC RESEARCH OF THE UNIVERSITY OF SOUTHERN CALIFORNIA (USC–FCCCHR) AND INSTALLED IN ACCORDANCE WITH THIS LISTING. PLEASE REFERENCE THE WATER LINE EXTENSION STANDARDS FOR ADDITIONAL REQUIREMENTS.

4. ALL TAPS ON COLORADO SPRINGS UTILITIES WATER MAINS SHALL BE PERFORMED BY COLORADO SPRINGS UTILITIES. ALL OTHER TAPS SHALL BE PERFORMED BY THE CONTRACTOR.

5. ANY ABANDONED SERVICES MUST BE PHYSICALLY DISCONNECTED AT THE MAIN. ANY NECESSARY REPAIRS TO THE MAIN AND/OR SHUT DOWN OF THE TAPPING VALVE SHALL BE AS DIRECTED BY COLORADO SPRINGS UTILITIES.

6. ALL WATER SERVICE LINES SHOULD ENTER THE BUILDING WITHIN 3 FEET OF AN EXTERIOR WALL. EXPOSED WATER PLUMBING SHALL BE MINIMIZED INSIDE THE BUILDING PRIOR TO THE WATER METER AND/OR APPROVED BACKFLOW PREVENTION ASSEMBLY OR METHOD.

7. ALL HDPE WATER SERVICE LINES MUST EXTEND A MINIMUM OF 6 INCHES ABOVE THE FLOOR AND BE 90 DEGREES FROM THE FLOOR PLAN TO ALLOW FOR BRACING AND TRANSITION TO THE METER LOOP ASSEMBLY.

SANITARY SEWER NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE COLORADO SPRINGS UTILITIES STANDARDS, MATERIAL SPECIFICATIONS, AND DRAWINGS LATEST REVISION. ALL SANITARY SEWER CONSTRUCTION SHALL BE APPROVED AND INSPECTED BY COLORADO SPRINGS UTILITIES .

2. ALL SANITARY SEWER LINES SHALL BE PVC PIPE, ASTM D–3034 SDR 35.

3. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING SEWER POINTS OF CONNECTION PRIOR TO CONSTRUCTION OF ANY PROPOSED SEWER.

4. ALL SANITARY SEWER MAIN TESTING SHALL BE DONE IN ACCORDANCE WITH THE COLORADO SPRINGS UTILITIES STANDARDS AND SPECIFICATIONS LATEST REVISION.

5. ALL SANITARY SEWER MAIN CONSTRUCTION SHALL BE DONE BY A CONTRACTOR LICENSED BY THE CITY OF COLORADO SPRINGS. THE ENGINEER, OWNER AND COLORADO SPRINGS UTILITIES SHALL BE NOTIFIED [48] HOURS IN ADVANCE OF ANY PLANNED CONSTRUCTION.

6. MAINTAIN A MINIMUM OF TEN FEET (10') HORIZONTAL SEPARATION BETWEEN ALL SANITARY SEWER AND WATER MAINS AND SERVICES.

7. DISTANCES FOR SANITARY SEWER ARE THE HORIZONTAL DISTANCES FROM CENTER OF MANHOLE TO CENTER OF MANHOLE. THEREFORE, DISTANCES SHOWN ON PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND MANHOLE WIDTHS.

8. MANHOLES, BARRELS AND CONES SHALL BE CONSTRUCTED OF PRECAST CONCRETE, CAST– IN–PLACE MANHOLES SHALL NOT BE ALLOWED.

9. PRECAST MANHOLES AND RISERS SHALL BE MANUFACTURED IN CONFORMITY WITH ASTM DESIGNATION C–478. ALL CONES SHALL BE [ECCENTRIC], EXCEPT FOR MANHOLE DEPTHS SIX FEET (6') OR LESS WHEN A FLAT TOP SECTION SHALL BE USED.

10. THE FLEXIBLE PLASTIC JOINT SEALING COMPOUND SHALL BE "RAMNEK" RUBBERNECK OR APPROVED EQUAL.

11. RIM ELEVATIONS SHOWN ARE APPROXIMATE ONLY AND ARE NOT TO BE TAKEN AS FINAL ELEVATIONS. PIPELINE CONTRACTOR SHALL USE PRECAST CONCRETE ADJUSTMENT RINGS TO ADJUST THE MANHOLE FRAME TO THE REQUIRED FINAL GRADE, SUCH THAT THERE IS NO MORE THAN EIGHTEEN INCHES (18") FROM FINISHED GRADE TO THE TOP OF THE CONE SECTION. THE RIM SHALL BE LEFT 1/8–INCH TO 1/4–INCH BELOW FINISHED ASPHALT.

12. MANHOLE CONES SHALL BE ALIGNED TO PROVIDE A MINIMUM OF THREE FEET [3'] CLEARANCE BETWEEN THE MANHOLE RING AND THE LIP OF GUTTER.

13. CONTRACTOR TO COORDINATE HORIZONTAL AND VERTICAL LOCATIONS OF UTILITY SERVICE CONNECTIONS TO BUILDING WITH MECHANICAL/PLUMBING PLANS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.

14. ALL SEWER PIPES SHALL BE INSTALLED WITH CLASS "B" BEDDING AS A MINIMUM.

15. ALL JOINTS BETWEEN BARREL SECTIONS SHALL BE GROUTED INSIDE AND OUTSIDE WITH A NON–SHRINK GROUT PRIOR TO BACKFILLING.

16. BACKFILL IN PUBLIC RIGHT OF WAY MUST MEET THE REQUIREMENTS OF CITY OF COLORADO SPRINGS. CONTRACTOR MUST OBTAIN A STREET CUT PERMIT AND NOTIFY THE COLORADO SPRINGS UTILITIES, 48–HOURS PRIOR TO START OF JOB.

17. NO BACKFILL MATERIAL SHALL BE PLACED ABOVE THE SPRINGLINE OF THE PIPE UNTIL A COLORADO SPRINGS UTILITIES REPRESENTATIVE HAS AUTHORIZED BACKFILLING. IT SHALL BE THE DUTY OF THE CONTRACTOR TO NOTIFY THE COLORADO SPRINGS UTILITIES FORTY EIGHT [48] HOURS IN ADVANCE OF PROPOSED BACKFILL OPERATIONS SO A COLORADO SPRINGS UTILITIES REPRESENTATIVE MAY INSPECT THE PIPE AND THE BEDDING PRIOR TO BACKFILLING.

18. THE CONNECTION OF A NEW SANITARY SEWER LINE TO AN EXISTING MANHOLE MAY REQUIRE CHANGES IN ELEVATIONS OR MODIFICATION TO EXISTING STRUCTURE. USE OF A PRE–CAST CONCRETE STRUCTURE OR MANHOLE RECONSTRUCTION IS AT THE DISCRETION OF COLORADO SPRINGS UTILITIES .

19. CONTRACTOR SHALL IMMEDIATELY REMOVE DEBRIS DEPOSITED INTO PUBLIC MANHOLES AND OTHER PUBLIC STRUCTURES TO ELIMINATE THE POSSIBILITY OF PROPERTY DAMAGE DUE TO THE DEBRIS CAUSING BACKUP INTO PRIVATE PROPERTIES. IF IT IS DETERMINED THAT DEBRIS CAUSED A BACKUP, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR DAMAGES.

20. NO TREES SHALL BE PLANTED WITHIN ANY SEWER EASEMENT OR WITHIN FIFTEEN [15] FEET OF ANY PUBLIC MANHOLES, OR PIPES.

UTILITY SERVICE PLAN NOTES

THE CONTRACTOR SHALL NOTIFY COLORADO SPRINGS UTILITIES' INSPECTIONS OFFICE 719–668–4658 A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. (2)

GENERAL:

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL MEET *COLORADO SPRINGS UTILITIES' WASTEWATER AND WATER LINE EXTENSION AND SERVICE STANDARDS (WATER/WASTEWATER LESS).*
2. COLORADO SPRINGS UTILITIES DOES NOT GUARANTEE THE ACCURACY OF LOCATIONS OF EXISTING PIPELINES, MANHOLES, HYDRANTS, VALVES AND SERVICE LINES. IF FIELD CONDITIONS ARE FOUND TO BE DIFFERENT THAN SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE INSPECTOR AND THE DESIGN ENGINEER IMMEDIATELY.
3. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY FACILITIES AS A RESULT OF HIS ACTIONS. THE CONTRACTOR SHALL MAKE ALL THE REQUIRED REPAIRS IMMEDIATELY TO THE SATISFACTION OF COLORADO SPRINGS UTILITIES.
4. ALL FIELD STAKING SHALL COMPLY WITH THE *WATER/WASTEWATER LESS.*
5. CORROSION PROTECTION MEASURES SHALL COMPLY WITH THE *WATER/WASTEWATER LESS.*
6. FINAL LOCATION OF ALL WASTEWATER AND WATER SERVICES SHALL BE APPROVED IN THE FIELD BY THE COLORADO SPRINGS UTILITIES INSPECTOR.
7. ALL TRENCH BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE *CITY OF COLORADO SPRINGS STANDARD SPECIFICATIONS MANUAL AND SECTION 5.18 OF THE WATER LESS.*

WASTEWATER:

1. SERVICE STUBS SHALL BE INSTALLED A MINIMUM OF SEVEN FEET (7') INTO THE PROPERTY, UNLESS OTHERWISE SHOWN, AND THE END OF THE STUB SHALL BE MARKED WITH A 2"X4"X12" STEEL OR WOODEN POST.
2. SERVICES SHALL BE CONNECTED A MINIMUM OF FIVE FEET (5') FROM THE OUTSIDE EDGE OF ANY MANHOLE ON THE MAIN LINE AND SHALL MAINTAIN TWO FEET (2') OF SEPARATION BETWEEN TAPS CENTER TO CENTER.
3. ALL CLEANOUTS SHALL BE THE SAME SIZE AS THE SERVICE LINE.
4. THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY DEPARTMENT OF HEALTH AND ENVIRONMENT WHEN ANY SEPTIC TANK IS TO BE ABANDONED AND PAY ALL FEES NECESSARY TO OBTAIN A PERMIT.

WATER:

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2. SERVICE TAPS SHALL BE MADE A MINIMUM OF THREE FEET (3') FROM THE BELL OR APPURTENANCE ON THE WATER MAIN. TAPS SHALL BE A MINIMUM OF THREE FEET (3') APART ON THE SAME SIDE OF THE WATER MAIN AND A MINIMUM OF ONE–AND–A–HALF FEET (1.5') WHEN TAPS ARE MADE ON OPPOSITE SIDES OF THE WATER MAIN.
3. ALL SERVICES FOR COMMERCIAL USE AND SOME RESIDENTIAL USES REQUIRE INSTALLATION OF A BACKFLOW PREVENTION ASSEMBLY IMMEDIATELY AFTER THE METER. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE APPROVED BY THE FOUNDATION FOR CROSS–CONNECTION CONTROL AND HYDRAULIC RESEARCH OF THE UNIVERSITY OF SOUTHERN CALIFORNIA (USC–FCCCHR) AND INSTALLED IN ACCORDANCE WITH THIS LISTING. PLEASE REFERENCE THE WATER LINE EXTENSION STANDARDS FOR ADDITIONAL REQUIREMENTS.
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PLANS SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

COLORADO SPRINGS UTILITIES
COMMERCIAL UTILITY SERVICE DESIGN APPROVAL

PROJECT NUMBER: 2022–C081

CSU SHEET 2 OF 4

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

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Denver, Colorado 80205
phone 303.861.5704
www.ozarch.com

STATE OF COLORADO — SCOTT E. PALING — 37116 — 09/21/22 — REGISTERED PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
(2) PACKAGE 1 REVISIONS 2022/09/21

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ANSCHUTZ ENGINEERING CENTER
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PACKAGE 1

SHEET TITLE:
UTILITY NOTES

SCALE:
SHEET NUMBER
C6.01

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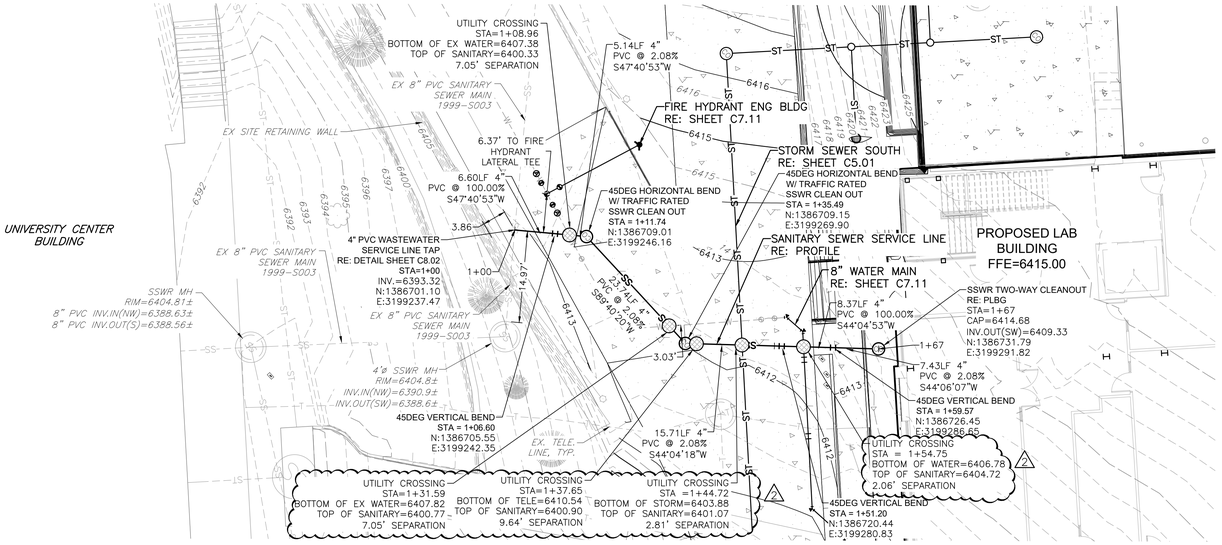

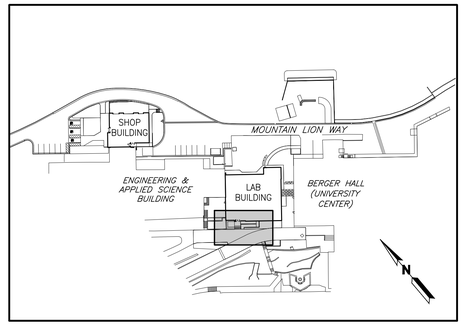

KEYMAP
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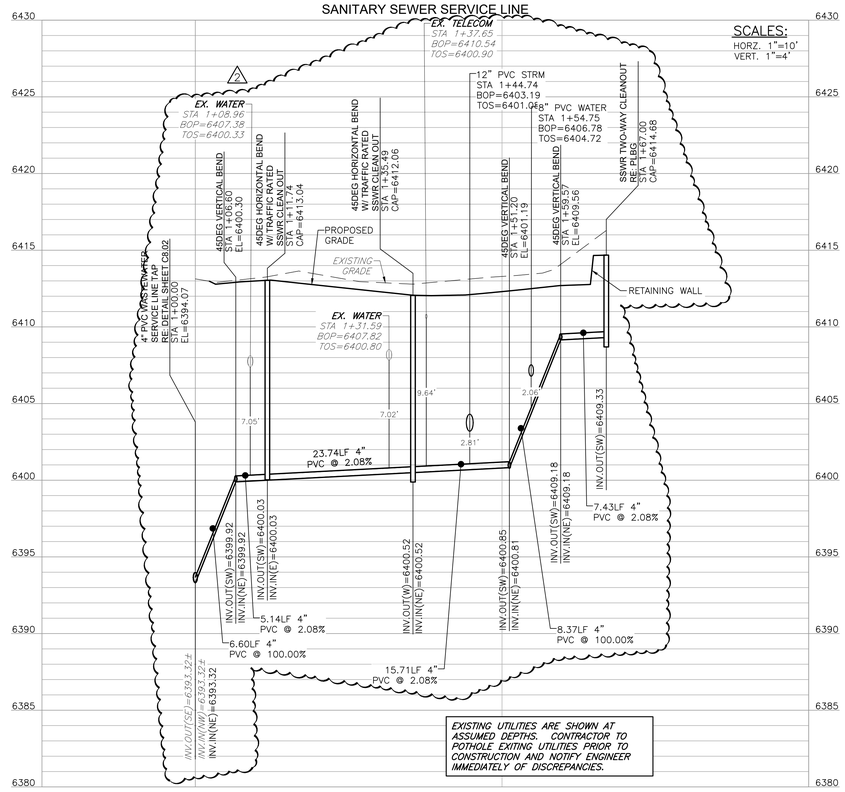


EXISTING UTILITIES ARE SHOWN AT ASSUMED DEPTHS. CONTRACTOR TO POTHOLE EXITING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF DISCREPANCIES.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

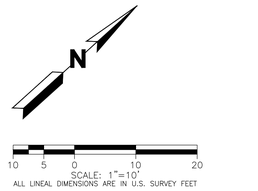
THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

PUBLIC UTILITIES:

UNLESS INDICATED WITH "(PUBLIC)" ALL PROPOSED UTILITIES SHOWN ON ARE PRIVATE.

NOTES:

1. SEE SHEETS C6.00, C1.00, AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITY CONNECTIONS A MINIMUM OF 3 WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
3. ALL UTILITY CROSSINGS MUST MAINTAIN A MINIMUM OF 18" SEPARATION.



PLANS SUBJECT TO CHANGE PENDING JURISDICTIONAL APPROVAL

COLORADO SPRINGS UTILITIES
COMMERCIAL UTILITY SERVICE DESIGN APPROVAL

PROJECT NUMBER: 2022-C081

CSU SHEET 3 OF 4

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

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ANSCHUTZ ENGINEERING CENTER
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APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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PACKAGE 1

SHEET TITLE:
SANITARY SEWER PLAN AND PROFILE

SCALE:
SHEET NUMBER
C6.02

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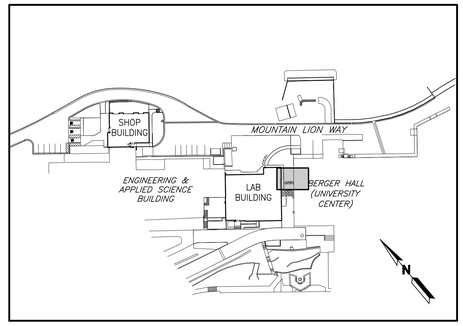

KEYMAP
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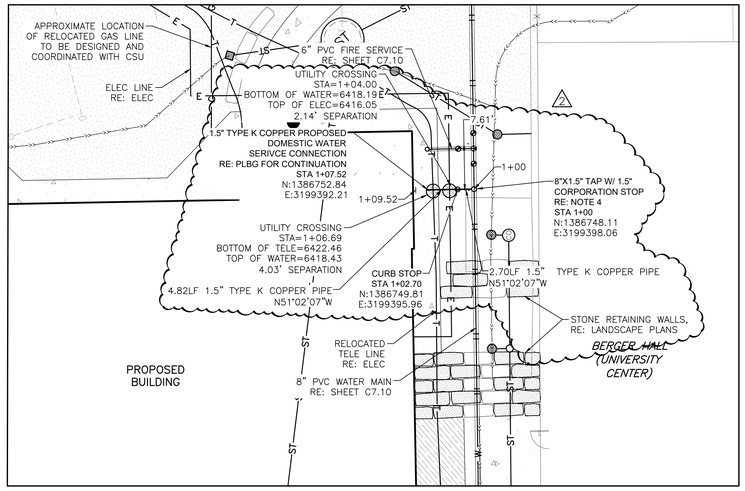

LAB BUILDING WATER SERVICE
SCALE: 1"=10'

PUBLIC UTILITIES:

UNLESS INDICATED WITH "(PUBLIC)" ALL PROPOSED UTILITIES SHOWN ON ARE PRIVATE.

NOTES:

1. SEE SHEETS C7.00 AND C7.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITY CONNECTIONS A MINIMUM OF 3 WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
3. ALL WATERLINE CONSTRUCTION TO BE IN COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS AND SPECIFICATIONS. CONTRACTOR TO CONFIRM DEFLECTION AMOUNTS PRIOR TO SHOP DRAWINGS SUBMITTAL TO ENGINEER. 2
4. INSTALL THRUST BLOCKS AND MECHANICAL JOINT RESTRAINTS AT ALL VALVES, FITTINGS, AND BENDS. INSTALL THRUST BLOCKS AT STUBS AND TEES IN WATER LINES. ALL BLOW-OFFS, VALVES, AND BENDS SHALL BE RODDED OR MECHANICALLY RESTRAINED PER CITY OF COLORADO SPRINGS UTILITIES WATERLINE DESIGN AND CONSTRUCTION STANDARDS DETAILS.
5. MAINTAIN MINIMUM 18" VERTICAL SEPARATION AT UTILITY CROSSINGS.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
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COLORADO SPRINGS UTILITIES
COMMERCIAL UTILITY SERVICE DESIGN APPROVAL

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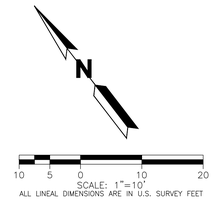
CSU SHEET 4 OF 4

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.



COLORADO 811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.
CALL 811 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

COLORADO LICENSED
JEFF S. PALING
37116
09/21/22
PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
WATER SERVICE PLAN

SCALE:
SHEET NUMBER
C6.03

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MARTIN/MARTIN
CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE, LAKEWOOD, COLORADO 80215
303.431.6100 MARTINMARTIN.COM

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3003 Larimer Street
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phone 303.861.5704
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ABBREVIATIONS:

APPROX	APPROXIMATE
ARCH	ARCHITECT
BLDG	BUILDING
BM	BENCHMARK
BOC	BACK OF CURB
CIP	CAST IRON PIPE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONT	CONTOUR
COR	CORNER
CU	COPPER
CRA	CONCRETE REVERSE ANCHOR
CTRB	CONCRETE THRUST REACTION BLOCKS
DEMO	DEMOLITION
DIA OR ø	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DTL.	DETAIL
EL	ELEVATION
ELEC	ELECTRICAL
ESMT	EASEMENT
EX	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FGW	FINISHED GRADE AT WALL
FHY	FIRE HYDRANT
FL	FLOW LINE
FT	FOOT
GB	GRADE BREAK
GR	GRATE (AREA OR VALLEY INLETS)
GV	GATE VALVE
HERCP	HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HGL	HYDRAULIC GRADE LINE
HORZ	HORIZONTAL
HP	HIGH POINT
INV	INVERT
LF	LINEAL FEET
LP	LOW POINT
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MH	MANHOLE
MIN	MINIMUM
N.I.C.	NOT IN CONTRACT
NTS	NOT TO SCALE
PT	POINT OF HORIZONTAL TANGENCY
PCC	POINT OF COMPOUND CURVE
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PI	POINT OF HORIZONTAL INTERSECTION
PIV	PRESSURE INDICATOR VALVE
PL	PROPERTY LINE
PLBG	PLUMBING
POC	POINT OF CURVE
POT	POINT OF TANGENT
PRC	POINT OF REVERSE CURVE
PRKG	PARKING
PRV	PRESSURE REDUCING VALVE
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
R.O.W.	RIGHT OF WAY
SSWR	SANITARY SEWER
SF	SQUARE FOOT
STA	STATION
STRM	STORM SEWER
STRC	STRUCTURAL
SWLK	SIDEWALK
SY	SQUARE YARD
TELE	TELEPHONE
TB	THRUST BLOCK
TEMP	TEMPORARY
TOC	TOP OF CURB
TOW	TOP OF WALL (RE: NOTE BELOW)
TYP.	TYPICAL
UD	UNDER DRAIN
UG	UNDERGROUND
VERT	VERTICAL
VC	VERTICAL CURVE

NOTE: TOW SHALL BE TOP OF WATER ON UTILITY SHEETS ONLY AND TOP OF WALL ON ALL OTHER SHEETS.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

UNIVERSITY OF COLORADO - COLORADO SPRINGS
ANSCHUTZ ENGINEERING BUILDING ADDITION
1420 AUSTIN BLUFFS PKWY, COLORADO SPRINGS, 80918
WATER CONSTRUCTION DRAWINGS

LOCATED IN THE NE1/4 OF SECTION 29, T13S, R66W, 6TH P.M.
COUNTY OF EL PASO, CITY OF COLORADO SPRINGS, STATE OF COLORADO

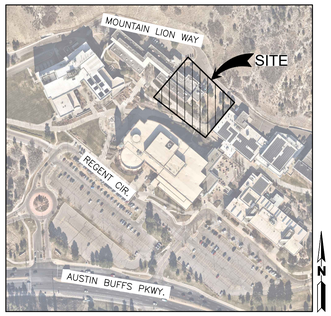
PROJECT CONTACTS

CIVIL ENGINEER:
MARTIN/MARTIN
12499 WEST COLFAX AVENUE
LAKEWOOD, COLORADO 80215

ARCHITECT:
OZ ARCHITECTURE
3003 LARIMER STREET
DENVER, CO 80205

LANDSCAPE ARCHITECT:
WENK ASSOCIATES
1130 31ST STREET, SUITE 101
DENVER, COLORADO 80205

SURVEYOR:
NV5
5445 MARK DABLING BLVD, SUITE 100
COLORADO SPRINGS, COLORADO 80918



VICINITY MAP
SCALE

SHOP BUILDING DATA:

1. BUILDING SIZE (GROSS SQUARE FOOTAGE): 3,200 SF
2. TYPE OF CONSTRUCTION: TYPE IIB
3. LARGEST BUILDING SQUARE FOOTAGE: 3,200 SF
4. REQ GPM FIRE FLOW: 1500 GPM
5. REQ. MIN NUMBER HYDRANTS: 1
6. AVG. DIST. BETWEEN HYD: 500 FT
7. MAX. HOSE LAY DIST: 250 FT
8. BUILDING SPRINKLED: YES

LAB BUILDING DATA:

1. BUILDING SIZE (GROSS SQUARE FOOTAGE): 20,000 SF
2. TYPE OF CONSTRUCTION: TYPE IIB
3. LARGEST BUILDING SQUARE FOOTAGE: 20,000 SF
4. REQ GPM FIRE FLOW: 1500 GPM
5. REQ. MIN NUMBER HYDRANTS: 1
6. AVG. DIST. BETWEEN HYD: 500 FT
7. MAX. HOSE LAY DIST: 250 FT
8. BUILDING SPRINKLED: YES

FIMS MAP NUMBER: I–27
TAX SCHEDULE NO.: 6239100055
PRESSURE ZONE: NORTHFIELD
STATIC PRESSURE AT MDD: 114 PSI
UTILITY DESIGN CAD FILE NO.: CF20222564
UAP FILE NO: N/A
DEVELOPMENT PLAN NO.: N/A
PLAT REC. NO.: UNPLATTED
PUBLIC UTILITY EASEMENT REC. NO: N/A
NOTICE OF PRIVATE WASTEWATER SYSTEM REC. NO.: N/A
NOTICE OF PRIVATE WATER SYSTEM REC. NO.: PENDING

OWNER/DEVELOPER PLAN APPROVAL

THE UNDERSIGNED OWNER/DEVELOPER AGREES THAT THEY SHALL, AT THEIR EXPENSE, BE SOLELY RESPONSIBLE FOR 1) THE INSTALLATION OF THE PROPOSED UTILITY INFRASTRUCTURE IN ACCORDANCE WITH THESE PLANS, AND 2) ALL DAMAGES AND DEFECTS ARISING FROM, OR RELATED TO, THE INSTALLATION, MAINTENANCE OR OPERATION OF THE PUBLIC UTILITY INFRASTRUCTURE FROM THE DATE OF PRELIMINARY ACCEPTANCE FOR A PERIOD OF TWO YEARS, OR UNTIL FINAL ACCEPTANCE, WHICHEVER IS LATER.

THE UNDERSIGNED UNDERSTANDS THAT ALL PRIVATE UTILITY INFRASTRUCTURE, AS INDICATED ON THESE PLANS, SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE MAINTAINED BY THE OWNER, AS REQUIRED BY *COLORADO SPRINGS UTILITIES' LINE EXTENSION AND SERVICE STANDARDS.*

☐ **PUBLIC FACILITIES PROPOSED** ☒ **PRIVATE FACILITIES PROPOSED**

SIGNED: _____ DATE: _____
OWNER/DEVELOPER

_____
OWNER/DEVELOPER (PRINT NAME)

DBA: _____

ADDRESS: _____

_____

PHONE: _____

EMAIL: _____

2

FIRE FLOW:

ACCORDING TO CALCULATIONS REVIEWED BY COLORADO SPRINGS UTILITIES, THE THEORETICAL AVAILABLE FIRE FLOW AT EACH FIRE HYDRANT NODE UNDER MAXIMUM DAY DEMAND CONDITIONS WITH A 20PSI RESIDUAL IS AS FOLLOWS (ACTUAL FIRE FLOW MAY VARY DUE TO VARIOUS PARAMETERS):

NODE	FIRE FLOW (GPM)	PSI @ MDD
10077–PV	3300	102
10078–PV	3300	108
2133–PV	3400	105
FH–ENG	3600	114

PLANS SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

CSFD ACCEPTANCE

ALL FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO COLORADO SPRINGS UTILITIES' WATER LINE EXTENSION AND SERVICE STANDARDS.

THE NUMBER OF HYDRANTS AND HYDRANT LOCATIONS AS SHOWN ON THIS WATER PLAN ARE CORRECT AND ADEQUATE TO SATISFY THE FIRE PROTECTION REQUIREMENTS AS SPECIFIED BY THE CITY OF COLORADO SPRINGS FIRE DEPARTMENT.

SIGNED: _____
CSFD, DIVISION OF THE FIRE MARSHAL

CSFD PLAN REVIEW NO.: _____

COLORADO SPRINGS UTILITIES
WATER PLAN DESIGN APPROVAL

PROJECT NUMBER: 2022–W104
WORK ORDER NUMBER: WO# 3895186

CSU SHEET 1 OF 6

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT–OF–WAY LINE	
	SECTION LINE	
	EASEMENT	
	RETAINING WALL	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	HEAVY DUTY DRIVE LANES	
	CONCRETE/ SIDEWALK	
5750	CONTOURS	5750
	UTILITY CROSSING	#
ST	STORM SEWER	ST
ST	STORM MANHOLE	ST
RD	ROOF DRAIN	RD
	STORM INLET	
	FLARED END SECTION	
SS	SANITARY SEWER	SS
SS	SANITARY MANHOLE	SS
	CLEAN OUT	
W	WATER LINE	W
	WATER VALVE	
	FIRE HYDRANT	
	WATER METER	
IR	IRRIGATION LINE	IR
IRR	IRRIGATION CONTROL	
OHE	OVERHEAD ELECTRIC	
E	ELECTRIC LINE	E
	LIGHT POLE	
	POWER POLE	
ELEC	ELECTRIC METER	
T	TELEPHONE LINE	T
TEL	TELEPHONE PEDESTAL	T
CT	CABLE TV	CT
G	GAS LINE	G
FO	FIBER OPTIC	FO
M.W.	MONITOR WELL	
	SIGN	
	DIRECTION OF FLOW	
	GRADING ARROW	
	DECIDUOUS TREE	
	EVERGREEN TREE	
	BUSH/SHRUB	
ELEV	SPOT ELEVATIONS	ELEV.
DRIVE	DESCRIPTIONS	DRIVE

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BEFORE YOU DIG, GRADE OR EXCAVATE FOR
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COLORADO REGISTERED PROFESSIONAL ENGINEER
37116
09/21/22
PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

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REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
WATER MAIN COVER SHEET

SCALE:
SHEET NUMBER
C7.00

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WATER NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE COLORADO SPRINGS UTILITIES STANDARDS, MATERIALS SPECIFICATIONS AND DRAWINGS. ALL MAIN INSTALLATIONS/SYSTEM MODIFICATIONS SHALL BE APPROVED AND INSPECTED BY CITY OF COLORADO SPRINGS.

2. ALL WATER MAIN CONSTRUCTION SHALL BE PERFORMED BY A CONTRACTOR LICENSED IN THE COLORADO SPRINGS UTILITIES. THE ENGINEER, OWNER AND COLORADO SPRINGS UTILITIES SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF ANY PLANNED CONSTRUCTION.

3. ALL WATER MAINS SHALL BE POLYVINYL CHLORIDE (PVC), MANUFACTURED IN ACCORDANCE WITH AWWA STANDARD C-900, CLASS 200 [DR14], OR C905, CLASS 235 (DR18) ALL FITTINGS SHALL BE MADE FROM GRAY-IRON OR DUCTILE IRON AND FURNISHED WITH MECHANICAL JOINT ENDS. ALL FITTINGS SHALL BE AT A PRESSURE RATING OF 350 PSI AND SHALL BE WRAPPED WITH EIGHT MILLIMETER MINIMUM THICKNESS POLYETHYLENE MATERIAL IN ACCORDANCE WITH AWWA STANDARD C105.

4. ALL PVC WATER MAINS SHALL BE INSTALLED WITH INSULATED NO. 12 TYPE UF TAPED ON TOP OF PIPE AS A TRACER WIRE. TRACER WIRE IS TO BE LOOPED UP TO EACH HYDRANT. A CATHODIC PROTECTION BOX IS TO BE SET ON THE RIGHT HAND SIDE OF EACH HYDRANT. THE BOX SHALL HAVE A CAST IRON LOCKING LID WITH A THREE AND ONE-HALF INCH 3-1/2" DIAMETER, EIGHTEEN INCH (18") LONG PVC BODY. THE CAP WILL NEED A TWO-WIRE CONNECTION POST AS A MINIMUM.

5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADJUST ALL WATER VALVE BOXES TO THE REQUIRED FINAL GRADE. IN ADDITION, VALVE EXTENSIONS SHALL BE INSTALLED SUCH THAT A SIX FOOT VALVE KEY CAN OPERATE THE VALVE.

6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADJUST ALL WATER VALVE BOXES TO THE REQUIRED FINAL GRADE. IN ADDITION, VALVE EXTENSIONS SHALL BE INSTALLED SUCH THAT A SIX FOOT VALVE KEY CAN OPERATE THE VALVE.

7. NO PIPE SHALL BE BACKFILLED UNTIL IT HAS BEEN INSPECTED BY THE COLORADO SPRINGS UTILITIES.

8. THE MANUFACTURER SHALL FURNISH A CERTIFIED STATEMENT THAT ALL OF THE SPECIFIED TESTS AND INSPECTIONS HAVE BEEN MADE AND THE RESULTS THEREOF COMPLY WITH THE REQUIREMENT OF THE APPLICABLE STANDARDS HEREIN SPECIFIED. A COPY OF THE CERTIFICATION WILL BE SENT TO THE [LOCAL JURISDICTION] UPON REQUEST.

9. DISTANCES FOR WATER ARE THE HORIZONTAL DISTANCE BETWEEN CENTER OF FITTING TO CENTER OF VALVE, METER, ETC. THEREFORE, DISTANCES SHOWN ON THE PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND FITTING DIMENSIONS.

10. ALL WATER PIPING ANNOTATED AS "TYPE-K COPPER" SHALL BE SOFT ANNEALED, MANUFACTURED IN ACCORDANCE WITH ASTM B-88 AND NSF-61.

11. THE MANUFACTURER SHALL FURNISH A CERTIFIED STATEMENT THAT ALL OF THE SPECIFIED TESTS AND INSPECTIONS HAVE BEEN MADE AND THE RESULTS THEREOF COMPLY WITH THE REQUIREMENT OF THE APPLICABLE STANDARDS HEREIN SPECIFIED. A COPY OF THE CERTIFICATION WILL BE SENT TO THE COLORADO SPRINGS UTILITIES UPON REQUEST.

12. DISTANCES FOR WATER ARE THE HORIZONTAL DISTANCE BETWEEN CENTER OF FITTING TO CENTER OF VALVE, METER, ETC. THEREFORE, DISTANCES SHOWN ON THE PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND FITTING DIMENSIONS.

13. MAINTAIN A MINIMUM OF TEN FEET (10') HORIZONTAL SEPARATION BETWEEN ALL SANITARY SEWER AND WATER MAINS AND SERVICES UNLESS OTHERWISE SPECIFIED ON PLANS.

5. FIRE HYDRANTS SHALL CONFORM TO COLORADO SPRINGS UTILITIES MATERIALS AND SPECIFICATIONS. FIRE HYDRANT ASSEMBLIES SHALL INCLUDE ALL PIPE, FITTINGS, VALVES, THRUST BLOCKS, RESTRAINTS, AND MATERIALS NECESSARY TO INSTALL THE HYDRANT.

6. FOR ALL PIPE INSTALLATIONS, THE DEPTH OF COVER OVER THE PIPE MEASURED FROM OFFICIAL STREET GRADE TO THE TOP OF THE PIPE SHALL BE A MINIMUM OF 5 FEET AND SHALL BE KNOWN AS THE COVER OVER THE PIPE. IF DIFFICULTIES ARISE WHEN CROSSING INTERFERENCE AND WHERE SPECIFICALLY APPROVED BY COLORADO SPRINGS UTILITIES, DEVIATIONS FROM 5 FEET OF COVER WILL BE PERMITTED. COVER OVER THE PIPE SHALL BE A MINIMUM OF 5 FEET AND A MAXIMUM OF 6 FEET.

7. INSTALL THRUST BLOCKS AT ALL BENDS, STUBS AND TEES IN WATER LINES. ALL BLOW-OFFS, VALVES AND BENDS SHALL BE RODDED OR MECHANICALLY RESTRAINED PER COLORADO SPRINGS UTILITIES DETAILS AS NOTED OR IF SOIL CONDITIONS ARE UNSTABLE OR AS DIRECTED BY THE COLORADO SPRINGS UTILITIES.

8. CHLORINATION AND FLUSHING: ALL WATER MAINS SHALL BE INSTALLED AND CHLORINATED PER CITY OF COLORADO SPRINGS'S ENGINEERING STANDARDS. THE LINES SHALL BE CHLORINATED IN ACCORDANCE WITH AWWA C-651, "DISINFECTING WATER MAINS." THE PREFERRED METHOD IS TO USE SUFFICIENT CHLORINE TABLETS TO PRODUCE A 25 MG/L SOLUTION. THESE TABLETS SHOULD BE ADHERED TO THE TOP OF THE PIPE WITH AN ADHESIVE COMPLIANT WITH AWWA C-651. CHLORINATION OF 16 INCH AND LARGER PIPE REQUIRES A CHLORINE SLURRY. THE CHLORINATION OF ANY FINISHED PIPELINE SHALL BE COMPLETED PRIOR TO HYDROSTATIC TESTING.

9. ALL VALVES ARE TO BE LOCATED ON THE PROPERTY LINE EXTENSIONS EXCEPT FOR TAPPING TEES WHERE AN ADDITIONAL VALVE SHALL BE PLACED ON THE TAPPING TEE. OTHER VALVE LOCATIONS MAY BE REQUIRED AS SHOWN ON THE PLANS.

10. WHEN IT IS NECESSARY TO LOWER OR RAISE WATER LINES AT STORM DRAINS AND OTHER UTILITY CROSSINGS, A MINIMUM CLEARANCE OF ONE AND ONE-HALF (1.5) FOOT SHALL BE MAINTAINED BETWEEN THE OUTSIDE OF PIPES.

11. PRIOR TO INSTALLATION OF WATER MAINS, ROAD CONSTRUCTION MUST HAVE PROGRESSED TO AT LEAST THE "SUB-GRADE" STATE.

12. BEFORE ANY TAPS ARE MADE FROM MAINS, APPLICATION(S) FOR THE TAPS MUST BE RECEIVED AND APPROVED BY THE COLORADO SPRINGS UTILITIES.

13. STATIC PRESSURES MAY EXCEED 80 PSI AND LINE PRV'S ARE REQUIRED.

14. ALL COMBINATION FIRE LINE AND DOMESTIC TAPS MUST BE INSPECTED AND APPROVED BY COLORADO SPRINGS UTILITIES PRIOR TO THE RELEASE OF THE WATER MAINS.

15. THE WATER QUALITY CONTROL DIVISION OF THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT [CDPHE] REQUIRES ALL WATER LINE CONTRACTORS TO POSSESS A CURRENT DISCHARGE PERMIT FOR DISCHARGES OF CHLORINATED AND PROCESS WATERS ASSOCIATED WITH THE INSTALLATION OF NEW MAINS OR CONDUITS. CONTACT CDPHE WATER QUALITY CONTROL DIVISION AT 303-692-3517 FOR INFORMATION ON OBTAINING THE REQUIRED PERMIT.

16. CONTRACTOR TO COORDINATE HORIZONTAL AND VERTICAL LOCATIONS OF UTILITY SERVICE CONNECTIONS TO BUILDING WITH MECHANICAL/PLUMBING PLANS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.

17. CONTRACTOR TO INSTALL WATER MAINS AS SHOWN ON PLANS IN ACCORDANCE WITH MANUFACTURES RECOMMENDATION FOR JOINT INSERTION, VERTICAL AND HORIZONTAL DEFLECTIONS. IF DESIGN ALIGNMENT REQUIRES A HORIZONTAL OR VERTICAL DEFLECTION IN EXCESS OF PIPE MANUFACTURES ALLOWANCES, CONTRACTOR TO SUBMIT TO ENGINEER OF RECORD (EOR) AND AUTHORITIES HAVING JURISDICTION (AHJ) PROPOSED ALTERNATIVE SOLUTIONS TO ACHIEVE THE INTENT OF THE DESIGN ALIGNMENT.

WATER PLAN NOTES

THE CONTRACTOR SHALL NOTIFY COLORADO SPRINGS UTILITIES' INSPECTIONS OFFICE 719-668-4658 A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

GENERAL:

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL MEET *COLORADO SPRINGS UTILITIES' WATER LINE EXTENSION AND SERVICE STANDARDS* (*WATER LESS*).
2. THE CONTRACTOR SHALL OBTAIN LOCATES PRIOR TO ANY EXCAVATION.
3. COLORADO SPRINGS UTILITIES DOES NOT GUARANTEE THE ACCURACY OF LOCATIONS OF EXISTING PIPELINES, HYDRANTS, VALVES AND SERVICE LINES. IF FIELD CONDITIONS ARE FOUND TO BE DIFFERENT THAN SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE INSPECTOR AND THE ENGINEER OF RECORD IMMEDIATELY.
4. NO TREES OR STRUCTURES ARE PERMITTED WITHIN FIFTEEN FEET (15') OF A WATER MAIN.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY FACILITIES AS A RESULT OF HIS ACTIONS. THE CONTRACTOR SHALL MAKE ALL THE REQUIRED REPAIRS IMMEDIATELY TO THE SATISFACTION OF COLORADO SPRINGS UTILITIES.
6. ALL FIELD STAKING SHALL COMPLY WITH THE *WATER LESS*.
7. THE CONTRACTOR SHALL MAKE THEIR BEST EFFORT TO ENSURE THAT WATER SERVICE TO ADJACENT PROPERTIES IS MAINTAINED DURING CONSTRUCTION.
8. CORROSION PROTECTION MEASURES SHALL COMPLY WITH THE *WATER LESS*.
9. NO SERVICE TAPS WILL BE ALLOWED UNTIL THE MAIN IS EXTENDED TO THE NEXT MAIN-LINE VALVE.
10. NO SERVICE TAPS SHALL BE MADE UNTIL AUTHORIZATION HAS BEEN GRANTED BY THE COLORADO SPRINGS UTILITIES' INSPECTOR.
11. ALL BENDS SHALL BE FIELD STAKED PRIOR TO CONSTRUCTION AND THE STATIONING ON THE FIELD STAKES SHALL MATCH THE STATIONING ON THE PLANS.
12. FIELD MODIFICATIONS TO A FIRE SERVICE LINE OR FIRE HYDRANT DESIGN OR LOCATION MAY NEED TO BE APPROVED BY THE DESIGN ENGINEER, COLORADO SPRINGS FIRE DEPARTMENT AND COLORADO SPRINGS UTILITIES, AS REQUIRED BY THE INSPECTOR.
13. REUSE OR SALVAGE OF ANY MATERIAL IS LEFT TO THE DISCRETION OF THE COLORADO SPRINGS UTILITIES INSPECTOR.
14. ALL TRENCH BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE *CITY OF COLORADO SPRINGS STANDARD SPECIFICATIONS MANUAL*.
15. ALL WATER SERVICE LINES SHOULD ENTER THE BUILDING WITHIN 3 FEET OF AN EXTERIOR WALL. EXPOSED WATER PLUMBING SHALL BE MINIMIZED INSIDE THE BUILDING PRIOR TO THE WATER METER AND/OR APPROVED BACKFLOW PREVENTION ASSEMBLY OR METHOD.

WATER PROJECT - SPECIFIC NOTES

APPLICABLE	NOT APPLICABLE	
☐	☒	ANY EXISTING STUBS AND APPURTENANCES THAT WILL NOT BE USED SHALL BE REMOVED AND REPLACED WITH AN ACCEPTABLE SECTION OF MAIN AT THE EXPENSE OF THE CONTRACTOR.
☐	☒	A CONNECTION TO AN EXISTING STUB IS PROPOSED. COLORADO SPRINGS UTILITIES DOES NOT GUARANTEE THE ACCURACY OF THE DEPTHS OR LOCATIONS OF EXISTING STUBS SHOWN ON ANY "AS-BUILT" DRAWINGS.
☐	☒	A WATER STUB-OUT(S) IS/ARE PROPOSED. COLORADO SPRINGS UTILITIES DOES NOT GUARANTEE THAT THE DESIGN OR INSTALLATION OF THE PROPOSED WATER STUB-OUT WILL MEET FUTURE DEVELOPMENT NEEDS.
☐	☒	A WATER QUALITY PLAN HAS BEEN APPROVED FOR THIS PROJECT

PLANS SUBJECT TO CHANGE
PENDING JURISDICTIONAL APPROVAL

COLORADO SPRINGS UTILITIES
WATER MAIN DESIGN APPROVAL

PROJECT NUMBER: 2022-W104
WORK ORDER NUMBER: WO# 3895186

CSU SHEET 2 OF 5

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

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CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/07/27

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CONSULTING ENGINEERS
12499 WEST COLFAX AVENUE
LAKEWOOD, COLORADO 80215
303.431.6100
MARTINMARTIN.COM

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
WATER NOTES

SCALE:
SHEET NUMBER
C7.01

BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt
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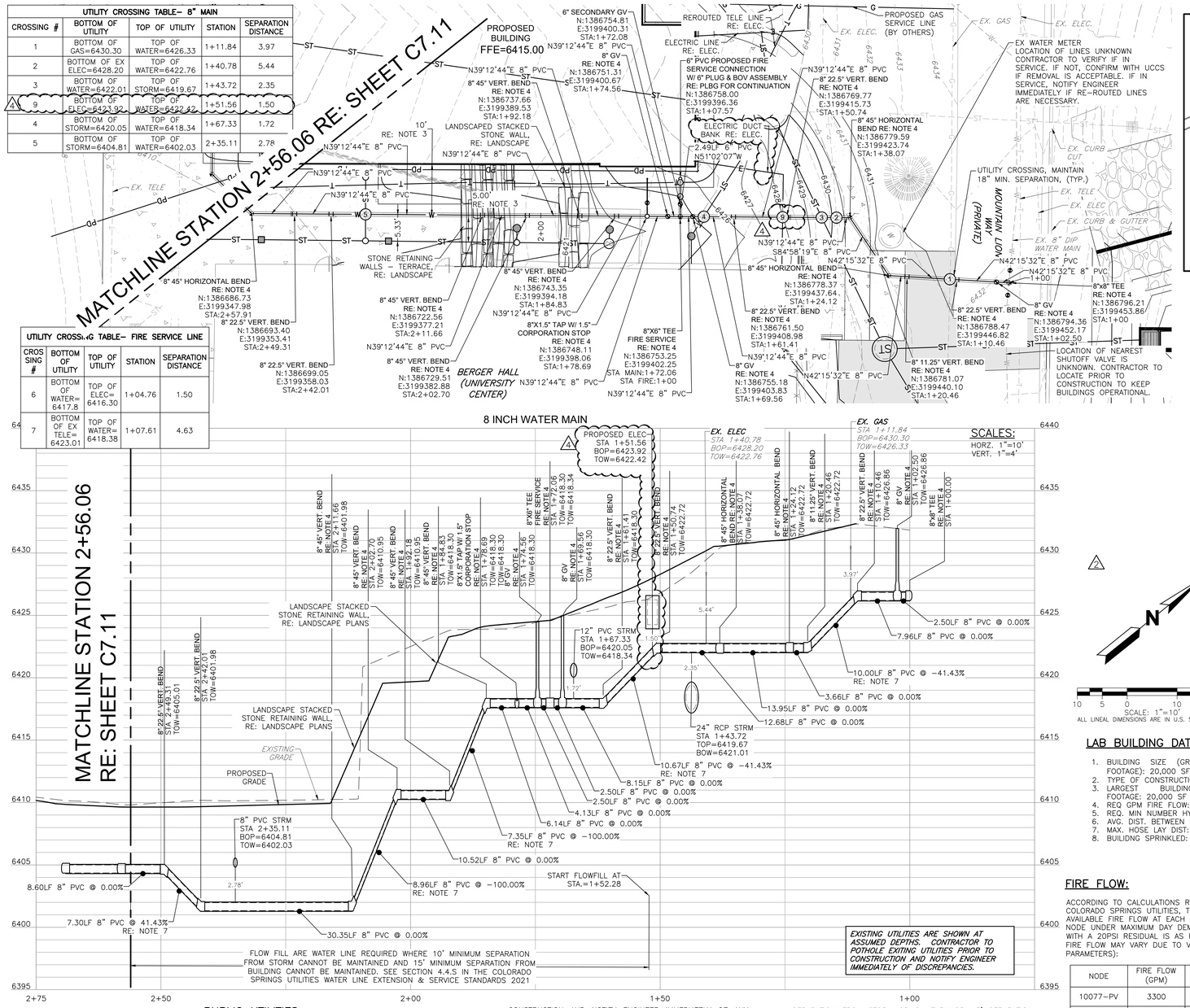
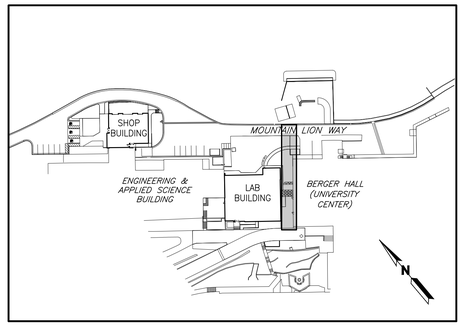
303.431.6100 MARTINMARTIN.COM

OZ ARCHITECTURE
3003 Larimer Street
Denver, Colorado 80205
phone 303.861.5704
www.ozarch.com

UTILITY CROSSING TABLE– 8" MAIN				
CROSSING #	BOTTOM OF UTILITY	TOP OF UTILITY	STATION	SEPARATION DISTANCE
1	BOTTOM OF GAS=6430.30	TOP OF WATER=6426.33	1+11.84	3.97
2	BOTTOM OF EX ELEC=6428.20	TOP OF WATER=6422.76	1+40.78	5.44
3	BOTTOM OF WATER=6422.01	TOP OF STORM=6419.67	1+43.72	2.35
4 9	BOTTOM OF ELEC=6423.92	TOP OF WATER=6422.42	1+51.56	1.50
4	BOTTOM OF STORM=6420.05	TOP OF WATER=6418.34	1+67.33	1.72
5	BOTTOM OF STORM=6404.81	TOP OF WATER=6402.03	2+35.11	2.78

UTILITY CROSSING TABLE– FIRE SERVICE LINE				
CROSSING #	BOTTOM OF UTILITY	TOP OF UTILITY	STATION	SEPARATION DISTANCE
6	BOTTOM OF WATER=6417.8	TOP OF ELEC=6416.30	1+04.76	1.50
7	BOTTOM OF EX TELE=6423.01	TOP OF WATER=6418.38	1+07.61	4.63





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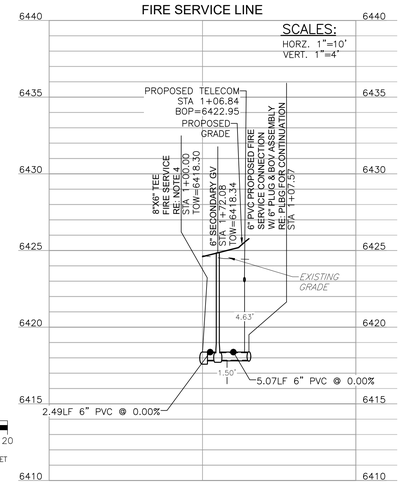

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

PUBLIC UTILITIES:

UNLESS INDICATED WITH "(PUBLIC)" ALL PROPOSED UTILITIES SHOWN ON ARE PRIVATE.

NOTES:

1. SEE SHEETS C7.00 AND C7.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITY CONNECTIONS A MINIMUM OF 3 WEEKS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
3. VARIANCE FOR WATER LINE SEPARATION LESS THAN 15FT FROM BUILDING AND LESS 10 FEET SEPARATION FROM STORM SEWER REFERENCE VARIANCE NUMBER 2128.
4. INSTALL THRUST BLOCKS AND MECHANICAL JOINT RESTRAINTS AT ALL VALVES, FITTINGS, AND BENDS. INSTALL THRUST BLOCKS AT STUBS AND TEES IN WATER LINES. ALL BLOW–OFFS, VALVES AND BENDS SHALL BE RODDED OR MECHANICALLY RESTRAINED PER CITY OF COLORADO SPRINGS UTILITIES WATERLINE DESIGN AND CONSTRUCTION STANDARDS DETAILS.
5. PROVIDE FLOW FILL AROUND WATER LINE WHERE 10' SEPARATION FROM STORM OR SANITARY OR 15' SEPARATION FROM BUILDING CANNOT BE MAINTAINED.
6. MAINTAIN MINIMUM 18" VERTICAL SEPARATION AT UTILITY CROSSINGS.
7. CONTRACTOR TO INSTALL RESTRAINED JOINTS AT PIPES GREATER THAN 10% PER CITY OF COLORADO SPRINGS UTILITIES WATERLINE DESIGN AND CONSTRUCTION STANDARD DETAILS PER DETAIL A4–6 ON SHEET C8.01 – UTILITY DETAILS.
8. ALL WATER MAIN CONSTRUCTION TO BE IN COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS AND SPECIFICATIONS. CONTRACTOR TO CONFIRM DEFLECTION AMOUNTS PRIOR TO SHOP DRAWINGS SUBMITTAL TO ENGINEER.

LAB BUILDING DATA:

1. BUILDING SIZE (GROSS SQUARE FOOTAGE): 20,000 SF
2. TYPE OF CONSTRUCTION: TYPE IIB
3. LARGEST BUILDING SQUARE FOOTAGE: 20,000 SF
4. REQ GPM FIRE FLOW: 1500 GPM
5. REQ. MIN NUMBER HYDRANTS: 1
6. AVG. DIST. BETWEEN HYD: 500 FT
7. MAX. HOSE LAY DIST: 250 FT
8. BUILDING SPRINKLED: YES

FIRE FLOW:

ACCORDING TO CALCULATIONS REVIEWED BY COLORADO SPRINGS UTILITIES, THE THEORETICAL AVAILABLE FIRE FLOW AT EACH FIRE HYDRANT NODE UNDER MAXIMUM DAY DEMAND CONDITIONS WITH A 20PSI RESIDUAL IS AS FOLLOWS (ACTUAL FIRE FLOW MAY VARY DUE TO VARIOUS PARAMETERS):

NODE	FIRE FLOW (GPM)	PSI @ MDD
10077–PV	3300	102
10078–PV	3300	108
2133–PV	3400	105
FH–ENG	3600	114

PLANS SUBJECT TO CHANGE PENDING JURISDICTIONAL APPROVAL

COLORADO SPRINGS UTILITIES
WATER PLAN DESIGN APPROVAL

PROJECT NUMBER: 2022–W104
WORK ORDER NUMBER: WO# 3895186

CSU SHEET 3 OF 5

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2–BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

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37116 10/26/22 PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21
4 ADDENDA 4 PKG 1&2 2022/10/26

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
ENG BUILDING ADDITION WATER PLAN AND PROFILE
SCALE:
SHEET NUMBER
C7.10

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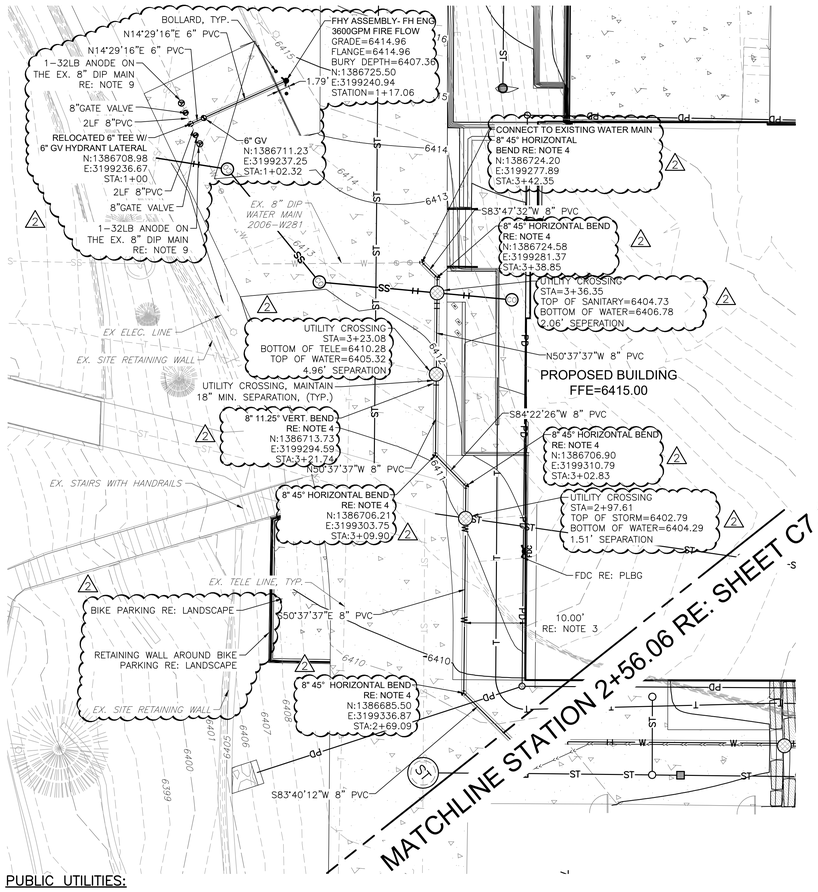

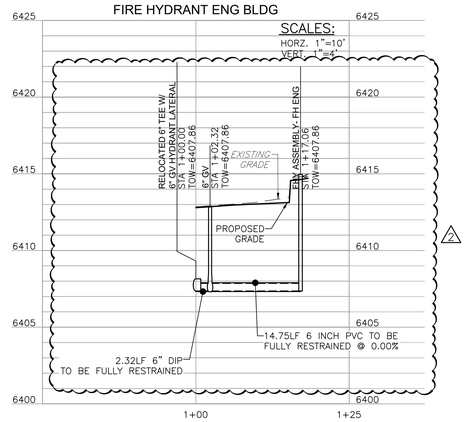

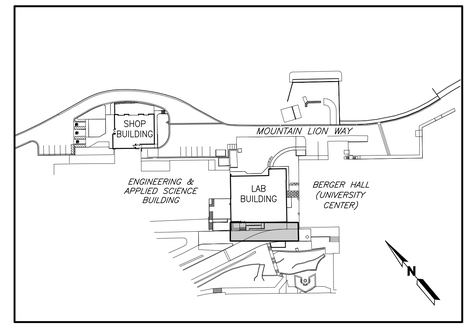

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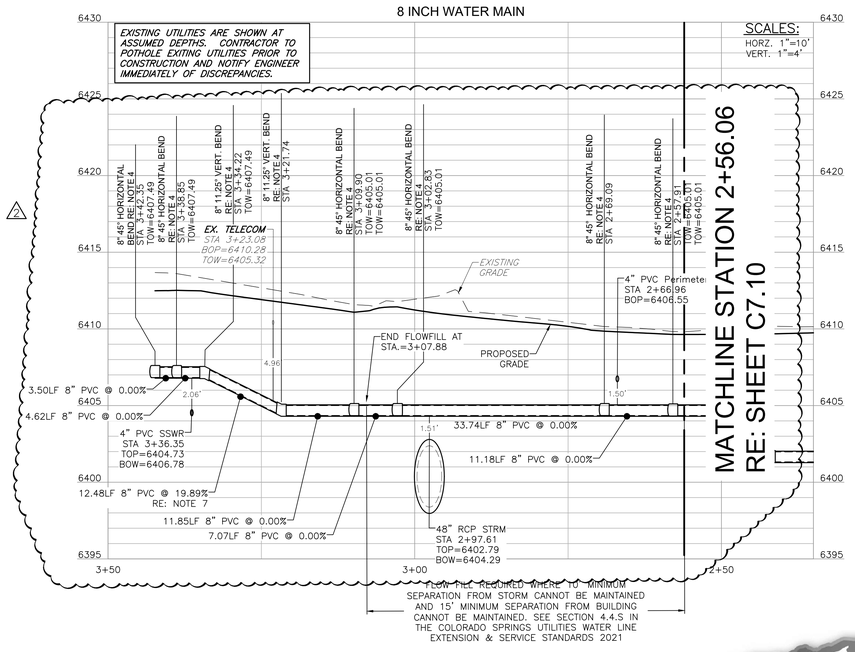

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BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
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3. LARGEST BUILDING SQUARE FOOTAGE: 20,000 SF
4. REQ GPM FIRE FLOW: 1500 GPM
5. REQ. MIN NUMBER HYDRANTS: 1
6. AVG. DIST. BETWEEN HYD: 500 FT
7. MAX. HOSE LAY DIST: 250 FT
8. BUILIDNG SPRINKLED: YES

10 5 0 10 20
SCALE: 1"=10'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

COLORADO SPRINGS UTILITIES
WATER PLAN DESIGN APPROVAL

PROJECT NUMBER: 2022-W104
WORK ORDER NUMBER: WO# 3895186

CSU SHEET 5 OF 6

APPROVAL EXPIRES ONE (1) YEAR FROM THE DATE ABOVE AND RESUBMITTAL OF THESE PLANS FOR REVIEW AND APPROVAL IS REQUIRED IF CONSTRUCTION DOES NOT BEGIN DURING THIS PERIOD.

PLANS SUBJECT TO CHANGE PENDING JURISDICTIONAL APPROVAL

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OZ ARCHITECTURE
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Denver, Colorado 80205
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www.ozarch.com

STATE OF COLORADO — JEFFREY S. PALING — 37116 — 09/21/22 — REGISTERED PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
ENG BUILDING ADDITION WATER PLAN AND PROFILE
SCALE:
SHEET NUMBER
C7.11

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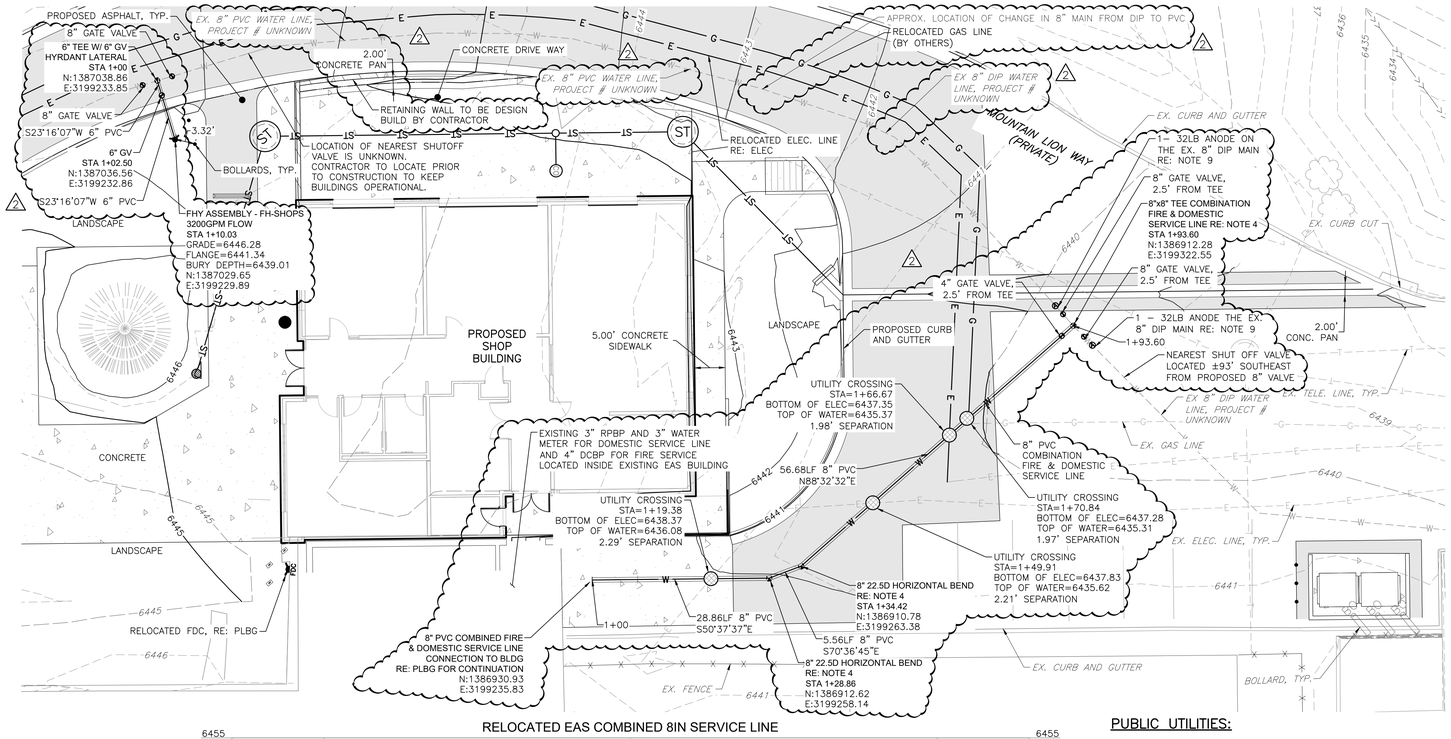

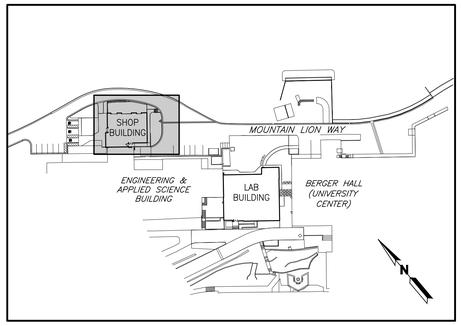

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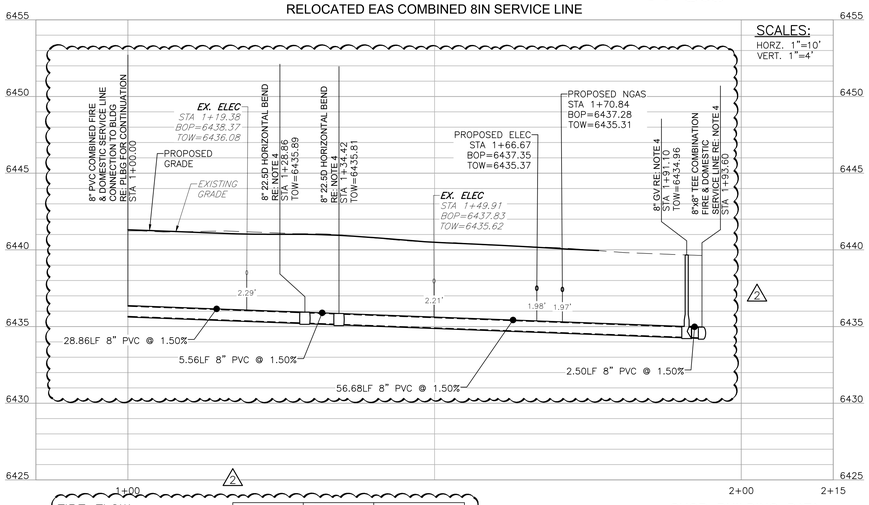
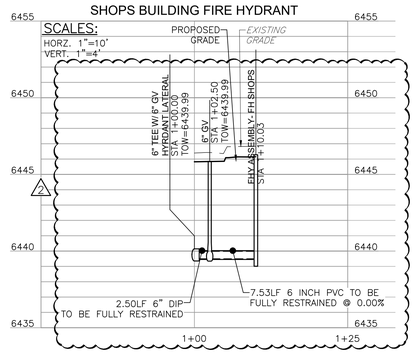
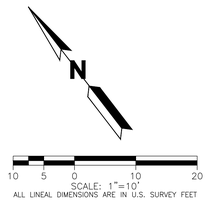
RELOCATED EAS COMBINED 8IN SERVICE LINE



SHOPS BUILDING FIRE HYDRANT





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10077-PV	3300	102
10078-PV	3300	108
2133-PV	3400	105
FH-ENG	3600	114
FH-SHOPS	3200	100

SHOP BUILDING DATA:

1. BUILDING SIZE (GROSS SQUARE FOOTAGE): 3,200 SF
2. TYPE OF CONSTRUCTION: TYPE IIB
3. LARGEST BUILDING SQUARE FOOTAGE: 3,200 SF
4. REQ GPM FIRE FLOW: 1500 GPM
5. REQ. MIN NUMBER HYDRANTS: 1
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7. MAX. HOSE LAY DIST: 250 FT
8. BUILIDNG SPRINKLED: YES

PLANS SUBJECT TO CHANGE PENDING JURISDICTIONAL APPROVAL

COLORADO SPRINGS UTILITIES
WATER PLAN DESIGN APPROVAL

PROJECT NUMBER: 2022-W104
WORK ORDER NUMBER: WO# 3895186

CSU SHEET 6 OF 6

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REGISTERED PROFESSIONAL ENGINEER
37116
09/21/22

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2 PACKAGE 1 REVISIONS 2022/09/21

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 1

SHEET TITLE:
SHOPS BUILDING WATER PLAN

SCALE:
SHEET NUMBER
C7.12

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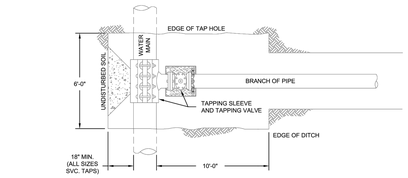
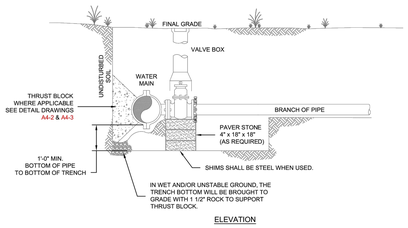


PLAN VIEW



ELEVATION

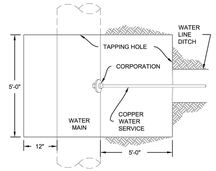
NOTES:

1. 4" WATER SERVICE LINES TYPICALLY REQUIRE A TEE AND VALVE PER SECTION 2.6.D. THIS DRAWING MAY ONLY BE USED AT THE DISCRETION OF COLORADO SPRINGS UTILITIES.
2. TRENCH WALLS AND SHORING SHALL COMPLY WITH OSHA STANDARDS.
3. WHERE COMPACTION CANNOT BE ACHIEVED UNDER THE WATER MAIN FLOWFILL SHALL BE USED.
4. ATTACH ANODES FOR CATHODIC PROTECTION.

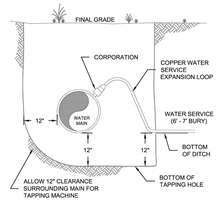
Colorado Springs Utilities	DETAILS FOR TAPS 4" AND OVER FOR DUCTILE OR PVC PIPE	B1-2
		DATED 03/2014

TAPPING DETAIL FOR 3/4" AND 1" CONNECTION

SERVICE TAPS 3/4" & 1" CORPORATION ONLY (DIRECT TAPPING).



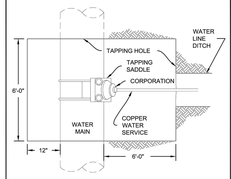
PLAN VIEW



ELEVATION

TAPPING DETAIL FOR 1 1/2" AND 2" CONNECTION

SERVICE TAPS 1 1/2" & 2" TAPPING SADDLE.



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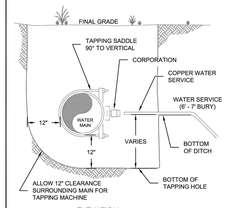
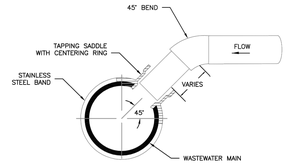


ELEVATION

NOTES:

1. TRENCH WALLS AND SHORING SHALL COMPLY WITH OSHA STANDARDS.
2. FOR HDPE TAPS USE A SIDEWALL FUSION TAPPING SADDLE CONFIGURATION AT 90° SEE SECTION 6.7.B.
3. TO BE READ IN CONJUNCTION WITH SECTION 2.7.C AND SECTION 5.21.E.
4. WHERE COMPACTION CANNOT BE ACHIEVED UNDER THE WATER MAIN FLOWFILL SHALL BE USED.
5. SEE DETAIL DRAWING A8-10 FOR CATHODIC PROTECTION.

Colorado Springs Utilities	TAPPING DETAILS 3/4" THRU 2" FOR TYPE "K" COPPER	B1-1
		DATED 03/2014

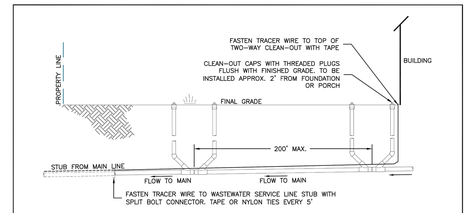


TYPICAL WASTEWATER SERVICE TAPPING SADDLE

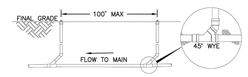
NOTES:

1. WHEN THE WASTEWATER MAIN IS VCP, USE THE SDR 35 PVC SADDLE WITH A LARGER SKIRT. SADDLE SHALL BE ONE NOMINAL SIZE LARGER THAN THE WASTEWATER MAIN.
2. PIPE WILL BE CUT WITH AN O.D. HOLE SAW OR TAPPING MACHINE. A 4-1/2" O.D. HOLE SAW SHALL BE USED FOR 4" TAPS AND A 6-1/2" O.D. HOLE SAW SHALL BE USED FOR 6" TAPS.
3. ONLY 4" AND 6" TAP SIZES ARE ALLOWED.
4. WASTEWATER TAPPING SADDLES SHALL HAVE A CENTERING RING.
5. A GASKET SHALL BE USED TO ENSURE AN AIRTIGHT SEAL BETWEEN THE SADDLE AND THE PIPE.

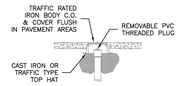
Colorado Springs Utilities	TYPICAL WASTEWATER SERVICE LINE TAPPING METHOD	D1-6
		DATED: 5/2015



TWO-WAY CLEAN-OUT INSTALLATION



SINGLE CLEAN-OUT INSTALLATION

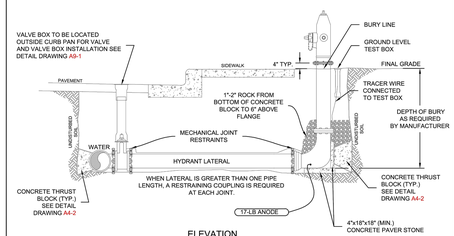


CLEAN-OUT INSTALLATION IN PAVEMENT

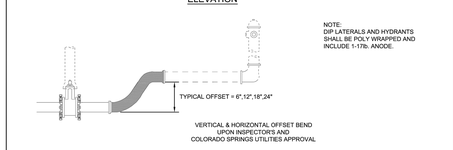
NOTES:

1. SINGLE CLEAN-OUT TO BE PLACED AT 100' INTERVALS, TWO-WAY CLEAN-OUTS AT 200' INTERVALS (100' EACH WAY CLEANING).
2. TRACER WIRE TO BE CONTINUOUSLY CONNECTED FROM THE MAIN LINE TO THE CLEAN-OUT LOCATED AT THE BUILDING.

Colorado Springs Utilities	TYPICAL WASTEWATER SERVICE LINE WITH TRACER WIRE AND CLEAN-OUTS	D1-4
		DATED: 5/2015



ELEVATION

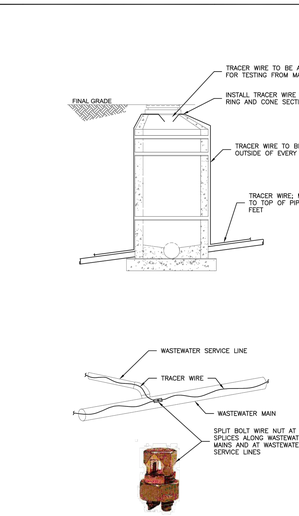


ELEVATION

NOTES:

1. MECHANICAL JOINT RESTRAINTS SHALL BE INSTALLED PER DETAIL DRAWINGS A4-4, A4-5, & CHAPTER 5.
2. TRACER WIRE AND GROUND LEVEL TEST BOX TO BE INSTALLED WITH EACH FIRE HYDRANT. PLACE TEST BOX WITHIN 6" FROM THE HYDRANT.
3. REFERENCE DETAIL DRAWINGS A5-1 & A5-2 FOR FIRE HYDRANT LOCATION.
4. INSTALLATION OF A PRIVATE FIRE HYDRANT WILL REQUIRE A SECONDARY VALVE INSTALLED AT THE PROPERTY LINE.
5. HYDRANT BASE BLOCK SHALL BE PLACED ON UNDISTURBED EARTH.
6. DO NOT BLOCK WEEP HOLE WITH POLYWRAP.
7. COVER DRAIN ROCK WITH POLYWRAP PRIOR TO BACKFILL.
8. FOR HDPE HYDRANT CONNECTION SEE DETAIL DRAWING A10-9.
9. FOR PRIVATE FIRE HYDRANTS A SECONDARY VALVE SHALL BE INSTALLED ON THE PROPERTY LINE OR RIGHT-OF WAY LINE.

Colorado Springs Utilities	FIRE HYDRANT INSTALLATION	A5-3
		DATED 03/2014



Colorado Springs Utilities	TRACER WIRE ON PVC OR HDPE PIPE	C2-3
		DATED: 5/2015

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NOTES:

1. SEE CHAPTER 2 FOR MINIMUM SLOPES OF WASTEWATER SERVICE LINES.
2. TO BE READ IN CONJUNCTION WITH DETAIL DRAWINGS D1-1 AND D1-2.
3. A BEND MAY BE USED TO EXTEND THE SERVICE LINE UPWARD, DEPENDING ON BUILDING FINISHED FLOOR OR BASEMENT ELEVATION AND PER PROPERTY OWNER/DEVELOPERS' DISCRETION.
4. FOR BASEMENT, THE SERVICE LINE SHALL BE EXTENDED TO DRAIN THE FINISHED FLOOR ELEVATION, A BEND MAY BE UTILIZED, SEE DETAIL DRAWING D1-2.
5. SLOPING, BENCHING AND SHORING SHALL BE PERFORMED FOR ALL EXCAVATIONS IN COMPLIANCE WITH OSHA REGULATIONS.
6. WHERE UNDERDRAIN SERVICE LINES ARE INSTALLED WITH THE WASTEWATER SERVICE LINE, BOTH SHALL BE BROUGHT TO THE SAME ELEVATION ONCE ENTERING THE PROPERTY.

Colorado Springs Utilities — It's how we're all connected | SCHEMATIC OF A DEEP SERVICE CONNECTION | D1-3 | DATED 5/2015

NOTE:
AN ADDITIONAL CASING SPACER SHALL BE CENTERED ON THE PIPE WHEN 18' TO 20' LONG PIPE JOINTS ARE USED. (TYP.)

* "W" SHALL BE ADDED WHEN A SLEEVE IS REQUIRED TO CROSS A ROADWAY IMPROVEMENT SUCH AS A ROUNDABOUT OR MEDIAN. "W" IS NOT REQUIRED WHEN CROSSING AN UNDERGROUND UTILITY.

NOTES:

1. ALL FITTINGS AND BELLS SHALL BE RESTRAINED IN THE CASING PIPE.
2. LOCATE CASING SPACERS AT "HOMING" LOCATION FOR SLEEVES GREATER THAN 50 FEET IN LENGTH TO PREVENT DAMAGE TO BELL DURING INSTALLATION AND EXTRACTION OF PIPE, IF REMOVED.
3. CASING SHALL BE STEEL PIPE WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI. CASING THICKNESS SHALL BE SPECIFIED BY THE DESIGN ENGINEER ON THE PLANS BASED ON THE ANTICIPATED LOADS. SEE DETAIL DRAWING A7-4.
4. THE DIAMETER OF THE CASING SHALL BE SPECIFIED BY THE DESIGN ENGINEER. THE DIAMETER SHALL TAKE INTO ACCOUNT THE MAXIMUM O.D. WITH THE USE OF RESTRAINED JOINT PIPE.
5. SEE DETAIL DRAWING A7-4 FOR CASING SPACER DETAILS.
6. LOCATE SPACERS ON BOTH SIDES OF JOINTS TO ELIMINATE DEFLECTION OF THE JOINT IN THE SLEEVE.
7. WHERE WATER MAIN CROSSES UNDER STORM SEWER, WASTEWATER OR NON-POTABLE WATER INFRASTRUCTURE, REFERENCE SECTION 2.6-H.2.
8. WHEN CROSSING A ROADWAY IMPROVEMENT, THE WIDTH OF THE IMPROVEMENT SHALL BE ADDED TO THE LENGTH OF THE SLEEVE.

Colorado Springs Utilities — It's how we're all connected | TYPICAL STEEL CASING INSTALLATION | A7-3 | DATED 06/2015

NOTES:

1. MECHANICAL JOINT RESTRAINTS SHALL BE APPROVED ACCORDING TO CHAPTER 4 FOR DIP AND PVC PIPE.
2. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE.

Colorado Springs Utilities — It's how we're all connected | VALVE AND FITTINGS W/ MECHANICAL JOINT RESTRAINTS | A4-5 | DATED 06/2015

2

PLAN
DEAD END OR REVERSE ANCHOR

ELEVATION
DEAD END OR REVERSE ANCHOR

DIAMETER (in)	PRESSURE (psi)	x (in)	Ax (in)	y (in)	Ay (in)	Ab (sf)	h (in)	Vol (cy)
4	250	12	72	12	28.80	6.80	18	1.0
6	250	18	84	12	30.90	9.73	18	1.0
8	250	36	120	12	33.05	18.53	18	1.5
12	170	36	120	15	43.20	24.60	18	2.0
12	250	48	144	18	49.20	36.80	24	3.75
16	170	54	156	18	53.40	44.05	24	4.25
16	250	60	168	24	65.40	60.50	36	8.5

NOTES:

1. THE MINIMUM BEARING SURFACE AREAS SHOWN ARE BASED ON A MAX STATIC PIPE PRESSURE OF 170/250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5, AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1500 POUNDS PER SQUARE FOOT. FOR HDPE ADDITIONAL ASSUMPTIONS INCLUDE A MAX 50°-F TEMPERATURE CHANGE AND A POISSON RATIO OF 0.45. REFERENCE AWWA M-23, M-41 AND M-55.
2. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTION BASED ON ACTUAL SITE CONDITIONS. IF SITE VARY FROM THE ASSUMPTIONS THE DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DESIGN THAT SHALL BE IN ACCORDANCE WITH AWWA M-23, PVC PIPE - DESIGN AND INSTALLATION AND AWWA M-41, DUCTILE-IRON PIPE AND FITTINGS. SITE SPECIFIC DESIGNS USING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO COLORADO SPRINGS UTILITIES FOR APPROVAL.
3. THE MINIMUM LATERAL BEARING SURFACE AREA (Ab) AND APPROXIMATE VOLUME OF CONCRETE (Vol) SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE REVERSE ANCHORS.
4. THE APPROXIMATE VOLUMES SHOWN ARE BASED ON THE MINIMUM DIMENSIONS IN THE TABLE. THE APPROXIMATE VOLUME IS ROUNDED UP TO THE NEAREST 0.25 CUBIC YARDS.
5. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 16 INCHES OR MAX STATIC PIPE PRESSURES GREATER THAN 250 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE SPECIFIC DESIGN FOR PIPES SMALLER THAN 16 INCHES OR MAX STATIC PRESSURES LESS THAN THE PRESSURE LISTED IN THE TABLE.
6. FOR CORROSION PROTECTION OF THE RODS SEE DETAIL DRAWING A8-11.
7. A TRENCH WIDTH OF 4 FEET AND 6" BEDDING UNDER THE PIPE ARE ASSUMED FOR BEARING CALCULATIONS, (Ax, Ay, x AND y).
8. THE DESIGN ENGINEER SHALL ENSURE THE CONSTRUCTION OF THE CONCRETE REVERSE ANCHOR SHALL NOT CONFLICT WITH OTHER UTILITIES.
9. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE.

Colorado Springs Utilities — It's how we're all connected | CONCRETE REVERSE ANCHOR FOR MECHANICAL JOINT RESTRAINTS | A4-8 | DATED 06/2015

NOTES:

1. MECHANICAL JOINT RESTRAINTS SHALL BE APPROVED ACCORDING TO CHAPTER 4 FOR DIP AND PVC PIPE.
2. LENGTH OF PIPE REQUIRING JOINT RESTRAINT SHALL BE DETERMINED FROM CHART ON DETAIL DRAWING A4-4.
3. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE.

Colorado Springs Utilities — It's how we're all connected | BEND CONFIGURATIONS AND RESTRAINTS | A4-6 | DATED 06/2015

CASING PIPE MINIMUM SIZES AND THICKNESSES (TO BE VERIFIED BY THE DESIGN ENGINEER) BASED ON ACTUAL LOADING AND SITE CONDITIONS

CASING PIPE NOMINAL SIZE (IN)	MIN. THICKNESS (IN)
12	0.250
14	0.312
16	0.312
18	0.312
20	0.375
24	0.500
32	0.500
36	0.625

CASING PIPE MINIMUM SIZES AND THICKNESSES ARE BASED ON E80 LOADING. VARIANCES TO THESE MINIMUMS MAY BE ALLOWED WITH SUPPORTING CALCULATIONS FROM THE DESIGN ENGINEER

CARRIER PIPE:

1. CARRIER PIPE SHALL BE CENTERED WITHIN CASING BY USE OF APPROVED STAINLESS STEEL CASING SPACERS AS MANUFACTURED BY APPROVED MANUFACTURER BY COLORADO SPRINGS UTILITIES. (REFERENCE CHAPTER 2)

PLACEMENT OF SPACERS ON CARRIER PIPE:

1. GENERAL - ONE SPACER SHALL BE PLACED MAX. 2' FROM EACH END OF CASING AND ON EITHER SIDE OF EACH BELL OR MECHANICAL JOINT. SUBSEQUENT SPACERS SHALL BE PLACED AT 8' INTERVALS WITHIN THE CASING, OR IN ACCORDANCE WITH PIPE MANUFACTURERS RECOMMENDATIONS.

END SEALS:

1. END SEALS SHALL BE USED TO ENSURE A WATER TIGHT SEAL ON EITHER END OF THE CASING.

CATHODIC PROTECTION:

1. CASING SHALL BE CATHODICALLY PROTECTED PER SECTION 2.6.I.

Colorado Springs Utilities — It's how we're all connected | TYPICAL STEEL CASING INSTALLATION | A7-4 | DATED 06/2015

NOTE:

1. TRENCH BACKFILL SHALL CONFORM TO THE SPECIFICATIONS OF THE AUTHORITY HAVING JURISDICTION AND ASTM D2321.

Colorado Springs Utilities — It's how we're all connected | TYPICAL TRENCH SECTION | C2-1 | DATED 5/2015

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L = MINIMUM RESTRAINED PIPE LENGTH (FEET)

PIPE DIAMETER		45° BEND			22-1/2° BEND			11-1/4° BEND			DEAD END VALVE OR PLUG, TO INCLUDE IN-LINE VALVES (SEE NOTE 9)		
MAX. STATIC PRESSURE (PSI)		<100	100-150	150-200	<100	100-150	150-200	<100	100-150	150-200	<100	100-150	150-200
6 INCH	DUCTILE IRON AND PVC	6	9	12	3	5	6	2	3	3	49	73	97
8 INCH	DUCTILE IRON AND PVC	8	12	16	4	6	8	2	3	4	63	94	125
12 INCH	DUCTILE IRON AND PVC	12	17	23	6	8	11	3	4	6	89	133	177
16 INCH	DUCTILE IRON AND PVC	15	22	29	7	11	14	4	5	7	USE CONCRETE REVERSE ANCHOR	USE CONCRETE REVERSE ANCHOR	USE CONCRETE REVERSE ANCHOR
20 INCH	DUCTILE IRON AND PVC	18	26	35	9	13	17	4	6	8			
24 INCH	DUCTILE IRON AND PVC	20	30	40	10	15	20	5	7	10			
30 INCH	DUCTILE IRON AND PVC	24	36	48	12	18	24	6	9	12			
36 INCH	DUCTILE IRON AND PVC	28	42	56	14	20	27	7	10	14			

NOTES:

1. PRESSURE GREATER THAN 200 PSI REQUIRE SPECIAL DESIGN APPROVED BY SPRINGS UTILITIES. APPROVED BY COLORADO SPRINGS UTILITIES.
2. LENGTH IS BASED ON MINIMUM 5 FEET OF GROUND COVER AND SOIL COMPACTED ACCORDING TO CHAPTER 5 OF THESE WATER LESS. IF THE DEPTH IS LESS THAN 5 FEET RESTRAINED LENGTH MUST BE DESIGNED BY THE DESIGN ENGINEER.
3. APPROVED METHODS OF RESTRAINED PIPE BEYOND INITIAL FITTING SHALL BE IN ACCORDANCE WITH CHAPTER 4.
4. RESTRAINED PIPE LENGTH APPLIES TO CONDITIONS WHERE NO CONCRETE THRUST REACTION BLOCK IS PRESENT.
5. CALCULATIONS ARE BASED ON A POORLY GRADED SANDS, GRAVEL AND GRAVEL-SAND MIXTURE, LITTLE OR NO FINES, TYPE 4 BEDDING CONDITIONS - "PIPE BEDDED IN SAND, GRAVEL OR CRUSHED STONE TO A DEPTH OF 1/8 PIPE DIAMETER (4" MIN.)." FACTOR OF SAFETY 2:1.
6. FIGURES ARE BASED ON DIP WRAPPED IN POLYETHYLENE MATERIAL.
7. MEASUREMENTS ARE IN FEET.
8. USE CRA FOR DOWN TURNING BENDS.
9. RESTRAINED LENGTH FOR DEAD END MAY BE USED AT THE DISCRETION OF COLORADO SPRINGS UTILITIES.

Colorado Springs Utilities — It's how we're all connected | RESTRAINED PIPE LENGTH (FEET) W/MECHANICAL JOINT RESTRAINTS | A4-4 | DATED 03/2014

THRUST BLOCK DIMENSIONS and VOLUMES - PVC & DIP 250 psi

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft²)	MINIMUM A_x(ft)	MINIMUM A_y(ft)	MINIMUM C_x(ft)	MINIMUM C_y(ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (yd³)
4	11.25° BEND	1.00	1.00	1.00	0.25	0.33	2.00	0.25
4	22.5° BEND	2.00	1.41	1.41	0.21	0.33	2.00	0.25
4	45° BEND	3.50	1.87	1.87	0.42	0.33	2.00	0.25
4	TEE & DEAD END	4.75	2.18	2.18	0.67	0.33	2.00	0.25
6	11.25° BEND	2.00	1.41	1.41	0.25	0.50	2.00	0.25
6	22.5° BEND	3.75	1.94	1.94	0.38	0.50	2.00	0.25
6	45° BEND	7.25	2.69	2.69	0.58	0.50	2.00	0.25
6	TEE & DEAD END	9.50	3.08	3.08	0.83	0.50	2.00	0.50
8	11.25° BEND	3.25	1.80	1.80	0.34	0.67	2.00	0.25
8	22.5° BEND	6.50	2.55	2.55	0.48	0.67	2.00	0.25
8	45° BEND	12.50	3.57	3.50	0.67	0.67	2.00	0.50
8	TEE & DEAD END	16.25	4.64	3.50	1.08	0.67	2.00	0.75

THRUST BLOCK DIMENSIONS and VOLUMES - PVC (Maximum Static Pressure = 170 psi)

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft²)	MINIMUM A_x(ft)	MINIMUM A_y(ft)	MINIMUM C_x(ft)	MINIMUM C_y(ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (yd³)
12	11.25° BEND	4.75	2.18	2.18	0.43	1.00	2.00	0.25
12	22.5° BEND	9.25	3.04	3.04	0.64	1.00	2.00	0.50
12	45° BEND	18.00	4.92	3.66	1.00	1.00	2.00	0.75
12	TEE & DEAD END	23.50	6.42	3.66	1.46	1.00	2.48	1.00
16	11.25° BEND	8.00	2.83	2.83	0.44	1.33	2.00	0.50
16	22.5° BEND	16.00	4.27	3.75	0.66	1.33	2.00	0.75
16	45° BEND	31.00	8.27	3.75	1.00	1.33	3.64	1.75
16	TEE & DEAD END	40.50	10.80	3.75	1.92	1.33	4.44	3.00

THRUST BLOCK DIMENSIONS and VOLUMES - DIP (Maximum Static Pressure = 250 psi)

MAIN SIZE (in.)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (ft²)	MINIMUM A_x(ft)	MINIMUM A_y(ft)	MINIMUM C_x(ft)	MINIMUM C_y(ft)	MINIMUM B (ft)	APPROXIMATE VOLUME (yd³)
12	11.25° BEND	6.75	2.60	2.60	0.43	1.00	2.00	0.50
12	22.5° BEND	13.50	3.69	3.66	0.64	1.00	2.00	0.50
12	45° BEND	26.25	7.17	3.66	1.00	1.00	3.09	1.50
12	TEE & DEAD END	34.25	9.36	3.66	1.46	1.00	3.95	2.25
16	11.25° BEND	11.75	3.43	3.43	0.44	1.33	2.00	0.50
16	22.5° BEND	23.25	6.20	3.75	0.66	1.33	2.77	1.00
16	45° BEND	45.50	12.13	3.75	1.00	1.33	5.57	4.00
16	TEE & DEAD END	59.50	15.87	3.75	1.92	1.33	6.98	6.50

NOTES:
1. THE MINIMUM BEARING SURFACE AREAS SHOWN ARE BASED ON A MAX STATIC PIPE PRESSURE OF 170/250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5 AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1500 POUNDS PER SQUARE FOOT. BEARING SURFACE AREA IS ROUNDED UP TO THE NEAREST 0.25 SQUARE FEET. REFERENCE AWWA M-23 AND M-41.
2. THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTIONS BASED ON ACTUAL SITE CONDITIONS. IF SITE CONDITIONS VARY FROM THE ASSUMPTIONS THE DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DESIGN IN ACCORDANCE WITH AWWA M-23, PVC PIPE - DESIGN AND INSTALLATION AND AWWA M-41, DUCTILE-IRON PIPE AND FITTINGS. SITE SPECIFIC DESIGNS INCLUDING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO COLORADO SPRINGS UTILITIES FOR REVIEW.
3. THE MINIMUM BEARING SURFACE AREA AND APPROXIMATE VOLUME OF CONCRETE SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE THRUST BLOCKS. CONCRETE MIX SHALL BE PER MATERIAL CHAPTER 4.
4. THE APPROXIMATE VOLUMES SHOWN ARE BASED ON THE MINIMUM BEARING SURFACE AREA AND THE MINIMUM TRENCH DIMENSIONS. THE APPROXIMATE VOLUME IS ROUNDED UP TO THE NEAREST 0.25 CUBIC YARDS.
5. THESE CHARTS MAY ONLY BE USED IF THE BLOCK HEIGHT (Ay) IS EQUAL TO OR LESS THAN ONE HALF THE TOTAL DEPTH (Ht) FROM THE FINISHED GRADE TO THE BOTTOM OF THE BLOCK. THE MINIMUM DIMENSIONS SHOWN ARE BASED ON A PIPE DEPTH OF 5 FEET. SEE DETAIL DRAWING A4-3.
6. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 16 INCHES OR MAX STATIC PIPE PRESSURES GREATER THAN 250 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE SPECIFIC DESIGN FOR PIPES SMALLER THAN 16 INCHES OR MAX STATIC PRESSURES LESS THAN 250 POUNDS PER SQUARE INCH.
7. ALL CALCULATIONS SHALL BE PROVIDED TO COLORADO SPRINGS UTILITIES FOR REVIEW.

Colorado Springs Utilities — It's how we're all connected | CONCRETE THRUST REACTION BLOCKS | A4-2 | DATED 03/2014

PER SLIP JOINT OF DIP PIPE

PIPE DATA	MFRS. DEFL.	DESIGN DEFLECTION (80% MAX.)		APPROX. RADIUS FOR DEFLECTING CURVES WITHOUT BENDS	
PIPE SIZE		(HORZ. DEFL.)	(VERT. DEFL.)	20'L	18'L
4", 6", 8", 10", 12"	5°00'	4°00'	6.99%	286'	258'
14", 16"	4°00'	3°12'	5.59%	358'	322'
18", 20", 24", 30", 36"	3°00'	2°24'	4.19%	477'	430'
42"	2°00'	1°36'	2.79%	716'	645'

DATA FOR DIP PIPE

SHADED COLUMN IS MANUFACTURERS REFERENCE ONLY

PER SLIP JOINT OF PVC PIPE W/HIGH DEFLECTION COUPLINGS

	PIPE DATA	MFRS. TOTAL JOINT DEFL.W/ COUPL.	DESIGN DEFLECTION (80% MAX.)		MIN. RADIUS FOR DEFLECTING CURVES WITH HIGH DEFL. COUPLINGS
	PIPE SIZE		(HORZ. DEFL.)	(VERT. DEFL.)	20'L
CLASS 305 (DR-14)	4"	5°00'	4°00'	6.99%	286'
	6"	5°00'	4°00'	6.99%	286'
	8"	5°00'	4°00'	6.99%	286'
	12"	5°00'	4°00'	6.99%	286'
CLASS 235 (DR-18)	16"	NO DEFLECTION COUPLINGS FOR 16" OR GREATER			

DATA FOR PVC PIPE

SHADED COLUMN IS MANUFACTURERS REFERENCE ONLY

NOTES:
1. COLORADO SPRINGS UTILITIES USES A 1.25 SAFETY FACTOR TO AVOID OVER DEFLECTION OF THE PIPE.
2. SLIP JOINT PVC PIPE SHALL NOT BE DEFLECTED WITHOUT THE USE OF HIGH DEFLECTION COUPLINGS (HDC).

Colorado Springs Utilities — It's how we're all connected | MAXIMUM PIPELINE DEFLECTION DATA FOR DIP AND PVC PIPE | A4-1 | DATED 03/2014

CONCRETE THRUST REACTION BLOCK REQUIREMENTS FOR TEES OR TAPS

INDICATES THAT A CONCRETE THRUST REACTION BLOCK IS REQUIRED

S_b= SOIL BEARING CAPACITY
A_x= CONCRETE THRUST REACTION BLOCK WIDTH
A_y= CONCRETE THRUST REACTION BLOCK HEIGHT
T = THRUST
H_t= DEPTH TO BOTTOM OF THE CONCRETE THRUST REACTION BLOCK
$A_y \leq$ 1/2 H_t

NOTES:
1. A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR CONNECTIONS OR FITTING SIZE COMBINATIONS NOT SHOWN ABOVE.
2. THE CONCRETE THRUST REACTION BLOCK SHALL BEAR AGAINST UNDISTURBED SOIL.
3. THE CONCRETE THRUST REACTION BLOCK SHALL BE INSTALLED WITH A 45° ANGLE FROM THE FITTING TO THE UNDISTURBED SOIL AS SHOWN IN THE DRAWING ABOVE.
4. REFER TO DETAIL DRAWING A4-2 FOR STANDARD CONCRETE THRUST REACTION BLOCK DIMENSIONS AND VOLUMES.
5. DUCTILE IRON FITTINGS AND PIPE SHALL BE WRAPPED IN POLYETHYLENE TUBING WHERE ADJACENT TO CONCRETE.

Colorado Springs Utilities — It's how we're all connected | CONCRETE THRUST REACTION BLOCKS | A4-3 | DATED 03/2014

TYPICAL GATE VALVE BOX

MJ OR FLANGED BUTTERFLY VALVE
WITH ROTATED ACTUATOR VALVE BOX

NOTES:
1. MAIN AND FIRE HYDRANT VALVES AND VALVE BOXES SHALL NOT BE IN THE CURB PAN, CURB OR SIDEWALK.
2. VALVE BOXES SHALL BE SLIP TYPE, PER CHAPTER 4.
3. DEBRIS CAPS SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATIONS.
4. DEBRIS CAPS WITH FLEXIBLE SKIRTS SHALL BE TRIMMED TO PROVIDE A SMOOTH CONTACT WITH THE INTERIOR OF THE VALVE BOX.
5. FOR SERVICE LINES 4" AND GREATER, TRACER WIRE WILL BE BROUGHT UP IN THE SECONDARY VALVE BOX.

Colorado Springs Utilities — It's how we're all connected | VALVE BOX INSTALLATION | A9-1 | DATED 03/2014

NOTES:
1. REFERENCE SECTION 2.7 WATER SERVICE LINE DESIGN.
2. FOR AREAS WITH DEEPER FROST DEPTHS SEE SECTION 2.6.H.1 FOR DEPTH OF BURY REQUIREMENTS.
3. SEE DETAIL DRAWING B1-16 FOR NON-SINGLE-FAMILY-RESIDENTIAL CONNECTION OUTSIDE METER DETAIL.

Colorado Springs Utilities — It's how we're all connected | TYPICAL INSTALLATION FOR TYPE "K" COPPER SERVICE LINE, STOP BOX AND METER INSTALLATION 3/4" - 2" | B1-3 | DATED 01/2017

CITY FILE NUMBER

APPROVAL BOX

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/08/03
REVISIONS:
2 PACKAGE 1 REVISIONS 2022/09/21

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ANSCHUTZ ENGINEERING CENTER
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PACKAGE 1

SHEET TITLE:
UTILITY DETAILS

SCALE:
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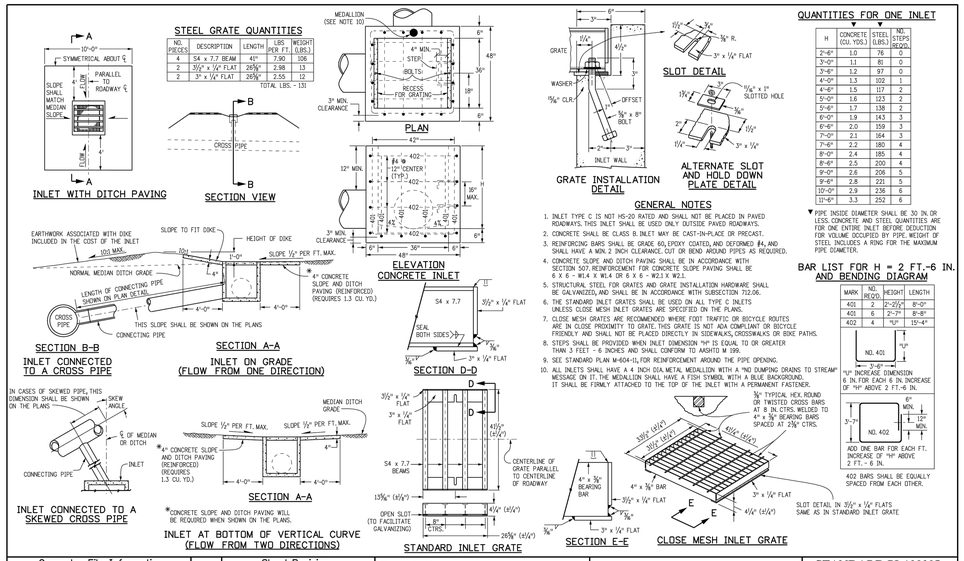
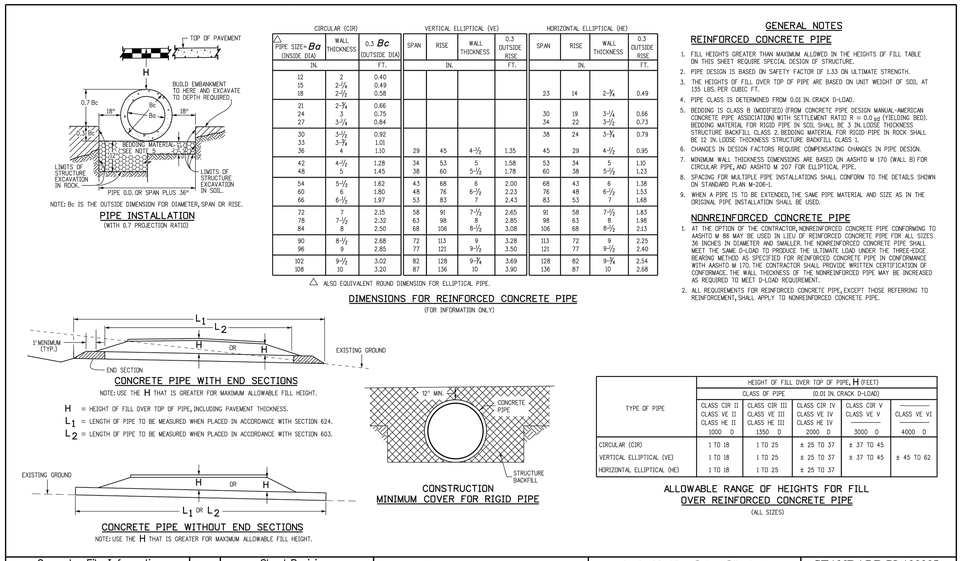
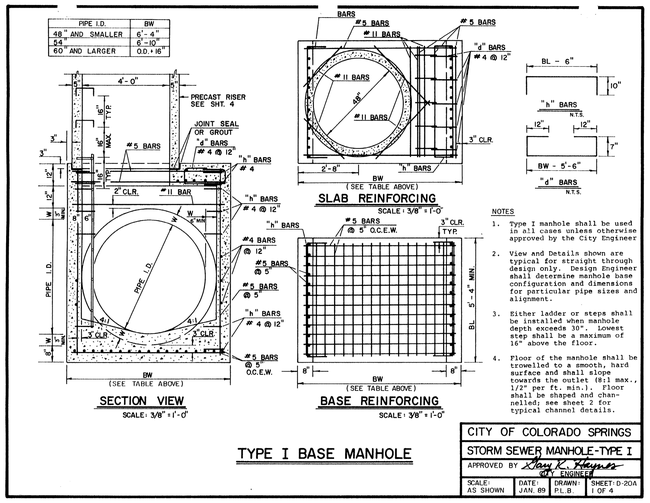
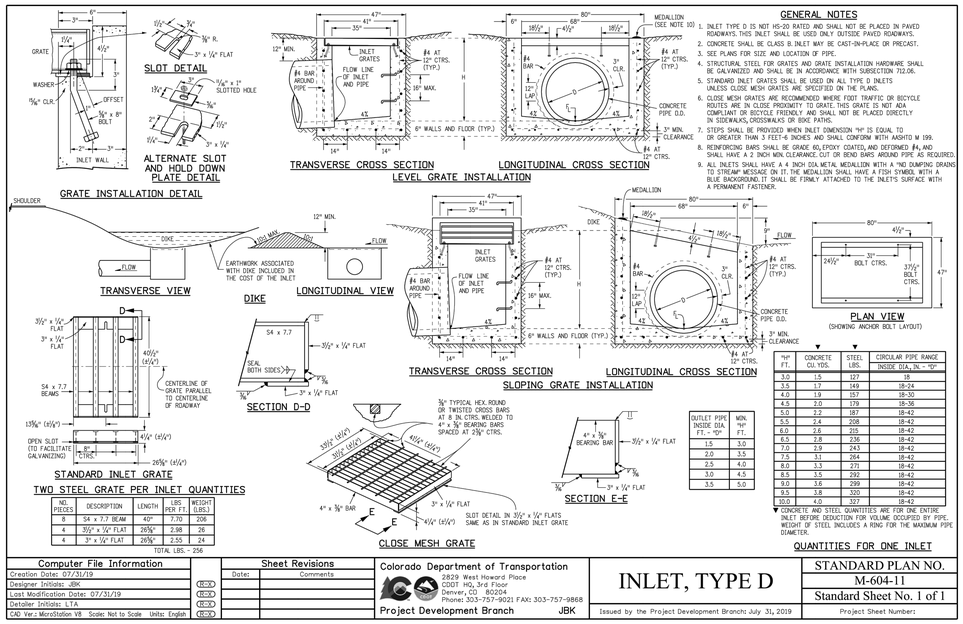


Computer File Information		Sheet Revisions		Colorado Department of Transportation	INLET, TYPE C	STANDARD PLAN NO.
Creation Date: 07/31/19		Date:	Comments	2829 West Howard Place		M-604-10
Designer Initials: JBK				CDOT HQ, 3rd Floor		Standard Sheet No. 1 of 1
Last Modification Date: 07/31/19				Denver, CO 80204		
Detailer Initials: LTA				Phone: 303-757-9021 FAX: 303-757-9868		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English				Project Development Branch JBK	Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:



Computer File Information		Sheet Revisions		Colorado Department of Transportation	REINFORCED CONCRETE PIPE	STANDARD PLAN NO.
Creation Date: 07/31/19		Date:	Comments	2829 West Howard Place		M-603-2
Designer Initials: JBK				CDOT HQ, 3rd Floor		Standard Sheet No. 1 of 1
Last Modification Date: 07/31/19				Denver, CO 80204		
Detailer Initials: LTA				Phone: 303-757-9021 FAX: 303-757-9868		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English				Project Development Branch JBK	Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:





Computer File Information		Sheet Revisions		Colorado Department of Transportation	INLET, TYPE D	STANDARD PLAN NO.
Creation Date: 07/31/19		Date:	Comments	2829 West Howard Place		M-604-11
Designer Initials: JBK				CDOT HQ, 3rd Floor		Standard Sheet No. 1 of 1
Last Modification Date: 07/31/19				Denver, CO 80204		
Detailer Initials: LTA				Phone: 303-757-9021 FAX: 303-757-9868		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English				Project Development Branch JBK	Issued by the Project Development Branch: July 31, 2019	Project Sheet Number:

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www.ozarch.com

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/07/27

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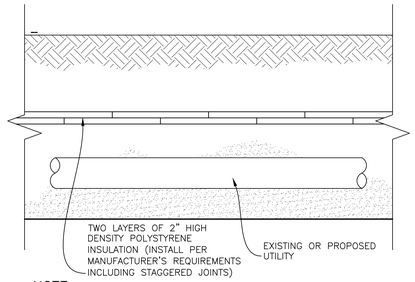
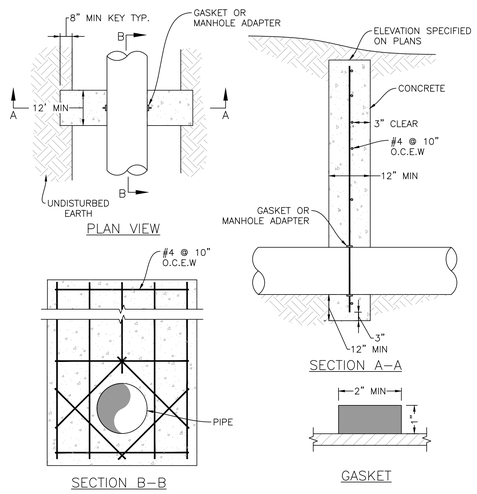


NOTE:
WHERE INDICATED ON PLANS, PROVIDE MINIMUM OF 8–FT WIDE EXTERIOR GRADE RIGID INSULATION BOARD (CENTERED ON PIPE) IN 2 LAYERS AT 2 INCHES THICK PER LAYER. STAGGER JOINTS OF UPPER AND LOWER LAYER AND INSTALL 6–INCHES ABOVE TOP OF PIPE (COMPACT PIPE BEDDING AND BACKFILL ABOVE AND BENEATH WITH FLOW FILL PER CDOT STANDARD SPECIFICATION SECTION 206). THE INSULATION SHALL COMPLY WITH ASTM C578 TYPE IX.

UTILITY INSULATION DETAIL
NOT TO SCALE

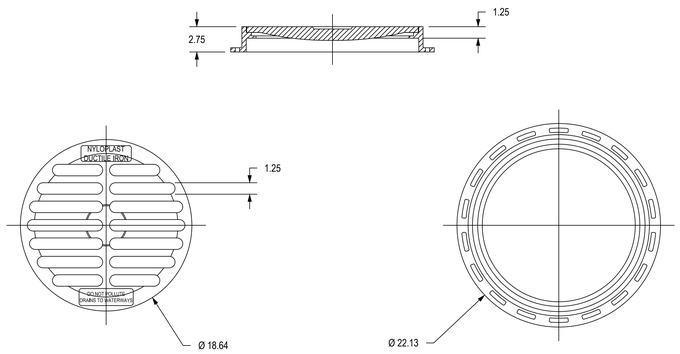


NOTES:
1. CONCRETE TO BE 4500PSI AND FIBER REINFORCED
2. CUTOFF WALL SHALL BE "KEYED" INTO EXISTING EARTH NO LESS THAN 8" ON EITHER SIDE AND MINIMUM OF 12" BELOW BOTTOM OF TRENCH
3. CUTOFF WIDTH DEPENDED ON ACTUAL TRENCHING WIDTH
4. ALL REBAR TO HAVE MINIMUM 3" CLEAR COVER TO ALL EDGES

CONCRETE CUTOFF WALL
NOT TO SCALE
09–0011

18" STANDARD GRATE

APPROX. DRAIN AREA = 116.72 SQ IN
APPROX. WEIGHT WITH FRAME = 68.50 LBS



DIMENSIONS ARE FOR REFERENCE ONLY
ACTUAL DIMENSIONS MAY VARY
DIMENSIONS ARE IN INCHES
GRATE MEETS H-20 LOAD RATING
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
LOCKING DEVICE AVAILABLE UPON REQUEST SEE DRAWING NO. 7001-110-029

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DRAWN BY	EBC
DATE	3-8-06
REVISED BY	EBC
DATE	3-13-10
DWG SIZE	A

MATERIAL	DUCTILE IRON
PROJECT NO./NAME	
SCALE	1:10
SHEET	1 OF 1

Nyloplast
3130 VERONA AVE
BUFORD, GA 30518
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FAX (770) 932-2490
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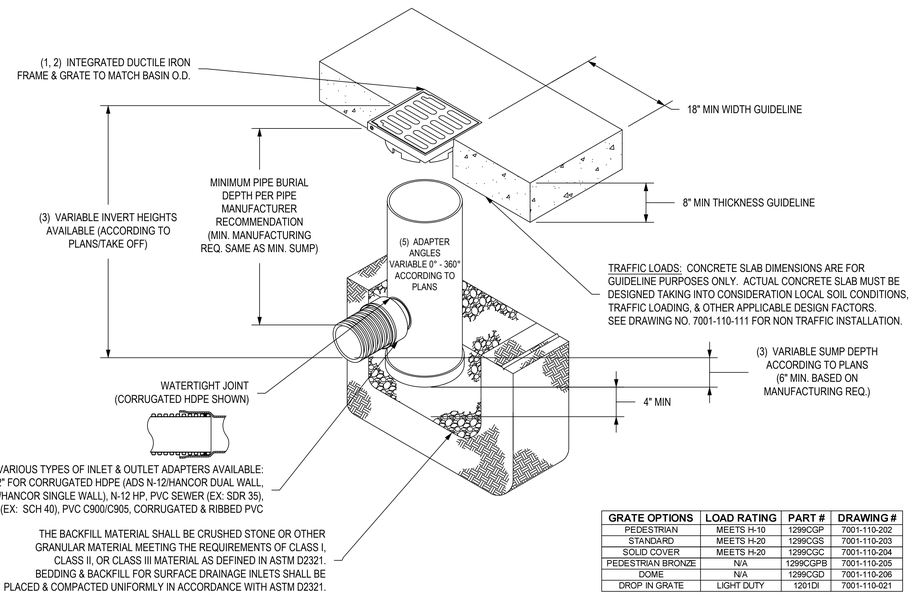
TITLE: 18 IN STANDARD GRATE ASSEMBLY - TYPE C

DWG NO. 7001-110-213 REV C

NYLOPLAST 12" DRAIN BASIN:



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1299CGP	7001-110-202
STANDARD	MEETS H-20	1299CGS	7001-110-203
SOLID COVER	MEETS H-20	1299CGC	7001-110-204
PEDESTRIAN BRONZE	N/A	1299CGPB	7001-110-205
DOME	N/A	1299CGD	7001-110-206
DROP IN GRATE	LIGHT DUTY	1201DI	7001-110-021

1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE BRONZE GRATE.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

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DATE	03-29-06
REVISED BY	NMH
DATE	03-11-16
DWG SIZE	A

MATERIAL	
PROJECT NO./NAME	
SCALE	1:20
SHEET	1 OF 1

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TITLE: 12 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL

DWG NO. 7001-110-189 REV E

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CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/07/27

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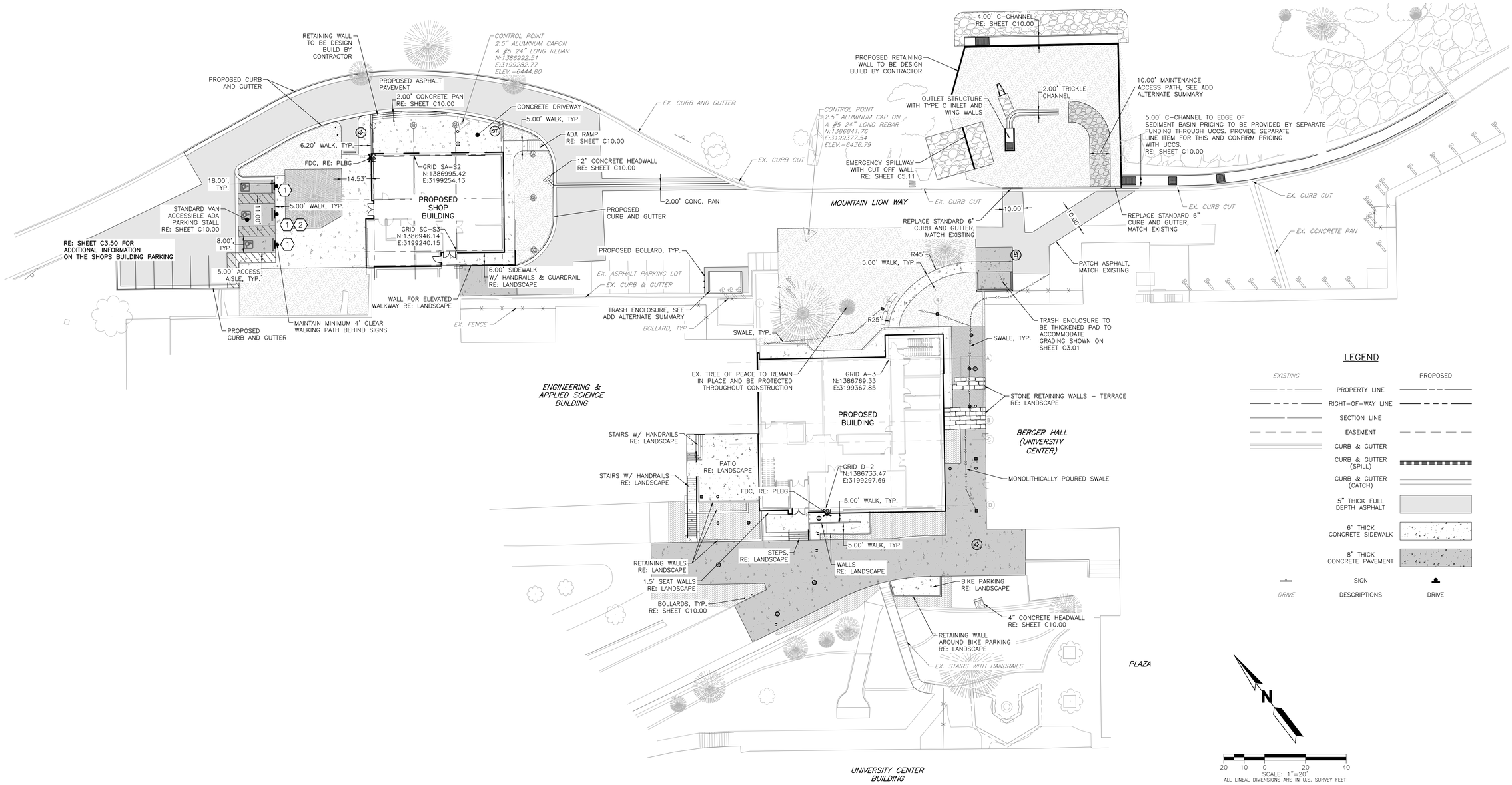
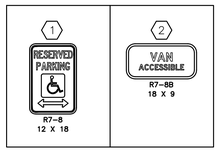


LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	5" THICK FULL DEPTH ASPHALT	
	6" THICK CONCRETE SIDEWALK	
	8" THICK CONCRETE PAVEMENT	
	SIGN	
DRIVE	DESCRIPTIONS	DRIVE



BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) - 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. LAB BUILDING LAYOUT PROVIDED BY OZ ARCHITECTURE ON 6/9/2022, SHOPS BUILDING LAYOUT PROVIDED BY OZ ARCHITECTURE ON 8/26/2022 AND SITE LAYOUT PROVIDED BY WENK ON 9/07/2022.
3. PAVEMENT DESIGN PROVIDED BY THE GEOTECHNICAL ENGINEER. REFER TO THE GEOTECH REPORT BY CTL THOMPSON, LATEST EDITION FOR ALL PAVEMENT DESIGN, THICKNESS, AND REQUIREMENTS.
4. REFER TO LANDSCAPED PLANS FOR DETAILED LAYOUT OF JOINTING, PLANTINGS, AND LANDSCAPE SITE FEATURES.
5. CONSTRUCTION JOINTS ARE REQUIRED IF INDICATED ON PLANS AND AT ALL POUR BREAKS.
6. JOINTING SHALL EXTEND THROUGH CURB AND GUTTER.

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. UNLESS OTHERWISE NOTED, THE UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED BY OTHERS AND DEPICTED AS ASCE (38) QUALITY LEVEL D. IN ACCORDANCE WITH THE PROVISIONS OF COLORADO REVISED STATUTE, TITLE 9, IT IS THE CONTRACTORS RESPONSIBILITY TO CALL COLORADO 811 UTILITY LOCATE SERVICE FOR UTILITY LOCATES BEFORE DIGGING, AND FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES (DEPICTED OR NOT DEPICTED) PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

COLORADO REGISTERED PROFESSIONAL ENGINEER
37116
10/26/22
Scott Paling
Digitally signed by Scott Paling
Date: 2022.10.26 15:01:20 -06'00'

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/10/26

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SHEET TITLE:
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SCALE:
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C9.00

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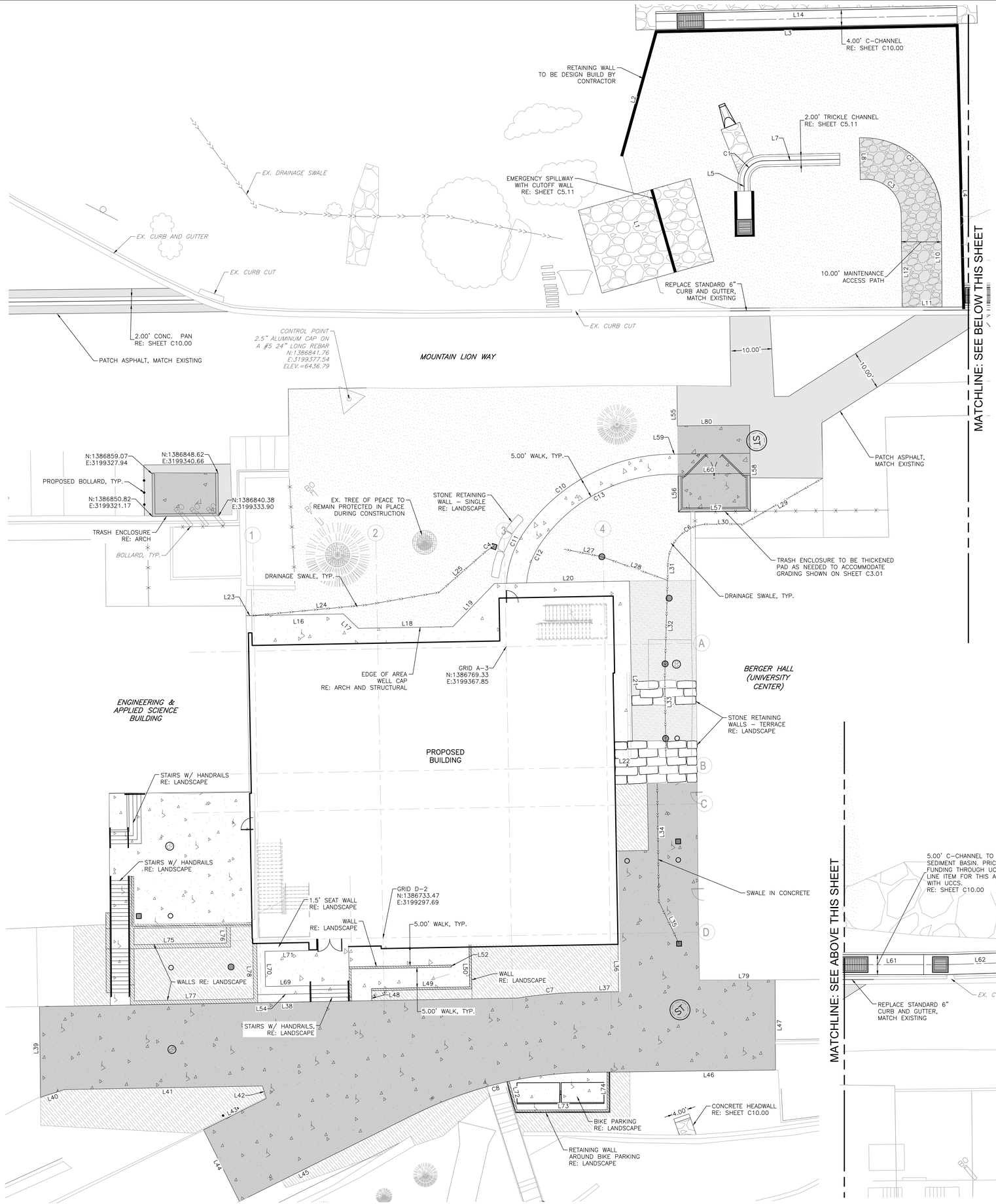


LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	5" THICK FULL DEPTH ASPHALT	
	6" THICK CONCRETE SIDEWALK	
	8" THICK CONCRETE PAVEMENT	
	LANDSCAPE RE: LANDSCAPE	
	LANDSCAPE RE: LANDSCAPE	
	LANDSCAPE RE: LANDSCAPE	
	SIGN	
DRIVE	DESCRIPTIONS	DRIVE

NOTES:

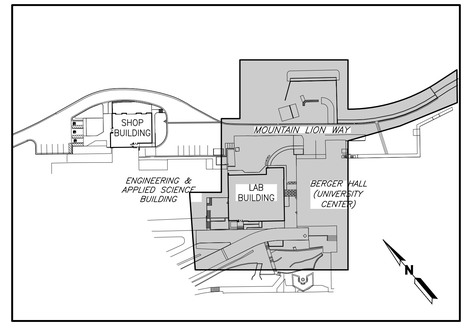
1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.
2. SEE SHEET C9.03 FOR LINE AND CURVE TABLES.

BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET



KEYMAP
NOT TO SCALE

N

10 5 0 10 20
SCALE: 1"=10'
ALL LINEAL DIMENSIONS ARE IN U.S. SURVEY FEET

COLORADO 811
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CALL 811 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE FOR
MARKING OF UNDERGROUND MEMBER UTILITIES

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DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/10/26

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SHEET TITLE:
DETAILED HORIZONTAL CONTROL PLAN - LAB BUILDING
SCALE:
SHEET NUMBER

C9.01

2/21/2022 3:31:06 PM BIM 360://121091.00 Anschutz Engineering Center/121091_00_UCCS Anschutz Engineering Center_A21_Central.rvt

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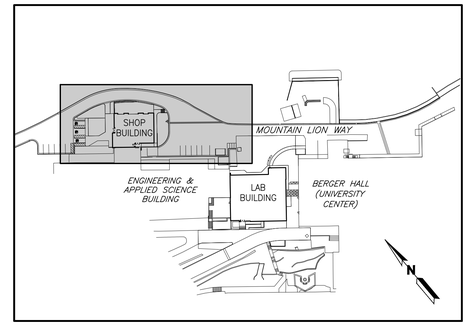

KEYMAP
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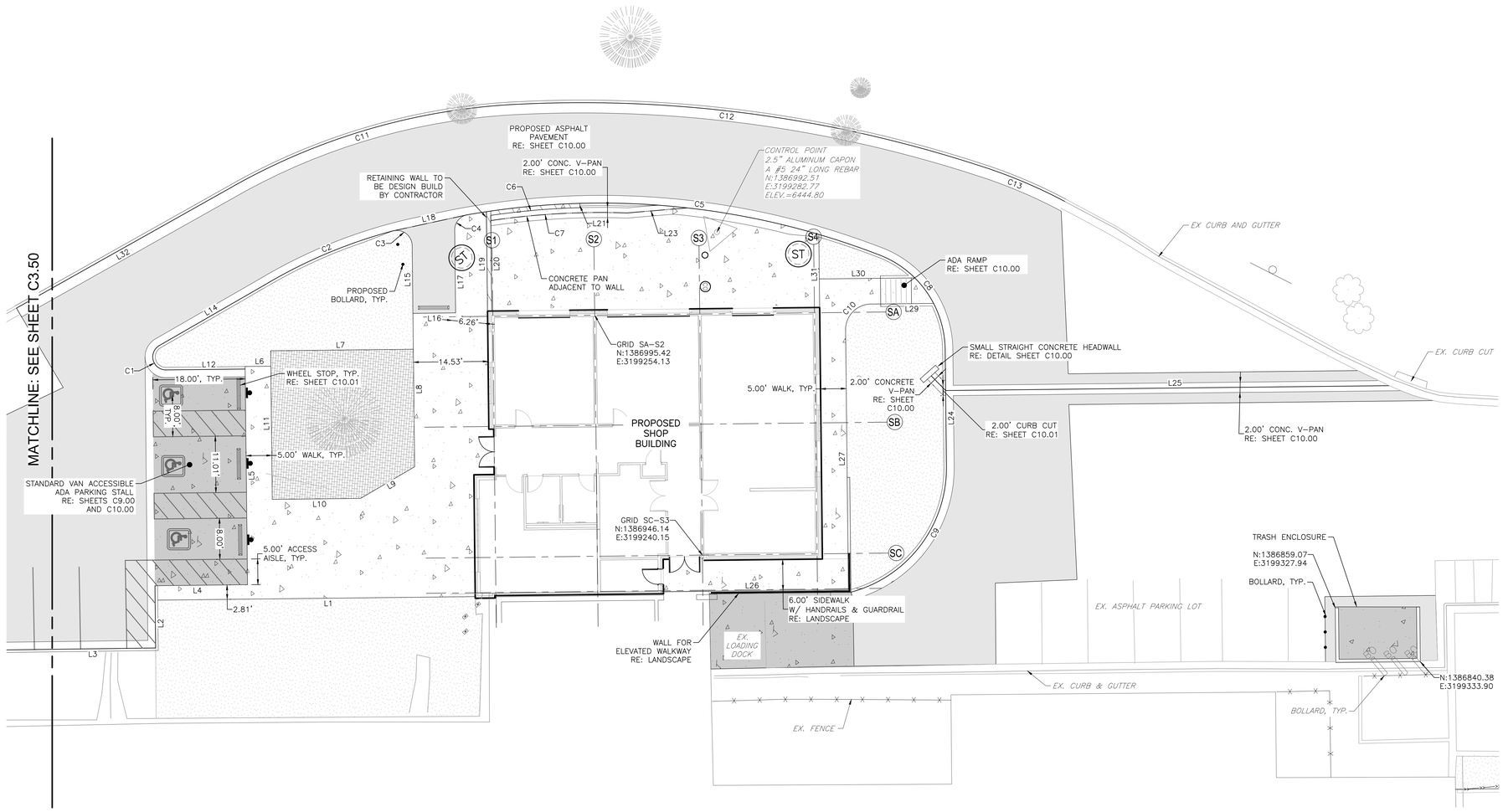


LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	RIGHT-OF-WAY LINE	
	SECTION LINE	
	EASEMENT	
	CURB & GUTTER	
	CURB & GUTTER (SPILL)	
	CURB & GUTTER (CATCH)	
	5" THICK FULL DEPTH ASPHALT	
	6" THICK CONCRETE SIDEWALK	
	8" THICK CONCRETE PAVEMENT	
	LANDSCAPE RE: LANDSCAPE	
	LANDSCAPE RE: LANDSCAPE	
	SIGN	
DRIVE	DESCRIPTIONS	DRIVE

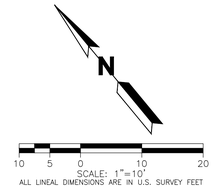
LINE TABLE				
NUMBER	DIRECTION	LENGTH	START NORTHING	START EASTING
L1	S50°38'29"E	61.84'	N:1387007.59	E:3199153.27
L2	S39°27'03"W	17.27'	N:1387013.94	E:3199157.86
L3	N50°41'37"W	23.61'	N:1387000.68	E:3199146.95
L4	S50°37'37"E	18.02'	N:1387010.09	E:3199154.67
L5	S39°21'40"W	42.50'	N:1387031.51	E:3199195.55
L6	S50°37'37"E	5.01'	N:1387031.51	E:3199195.55
L7	S50°37'37"E	27.78'	N:1387030.66	E:3199201.33
L8	S39°22'23"W	29.87'	N:1387018.44	E:3199227.24
L9	S80°23'32"E	12.20'	N:1386997.38	E:3199196.26
L10	S50°37'37"E	17.19'	N:1387008.29	E:3199182.97
L11	S39°22'23"W	28.94'	N:1387030.66	E:3199201.33
L12	S50°37'37"E	15.42'	N:1387040.90	E:3199183.32
L14	N79°55'50"W	24.43'	N:1387041.11	E:3199209.43
L15	S39°22'23"W	13.18'	N:1387028.63	E:3199235.60
L16	N50°37'37"W	8.31'	N:1387013.17	E:3199233.66
L17	S39°22'23"W	16.12'	N:1387025.63	E:3199243.89

LINE TABLE				
NUMBER	DIRECTION	LENGTH	START NORTHING	START EASTING
L18	S62°13'40"E	14.94'	N:1387033.29	E:3199234.48
L19	N39°16'52"E	19.36'	N:1387009.43	E:3199238.65
L20	N39°22'23"E	18.64'	N:1387008.91	E:3199239.30
L21	N38°24'08"E	0.83'	N:1387013.30	E:3199265.39
L23	S54°47'34"E	11.74'	N:1387006.59	E:3199271.79
L24	N39°22'23"E	22.78'	N:1386928.79	E:3199287.63
L25	S50°37'37"E	90.21'	N:1386940.25	E:3199297.03
L26	S50°37'37"E	36.39'	N:1386945.80	E:3199229.49
L27	N39°22'23"E	50.56'	N:1386922.72	E:3199257.61
L29	S50°37'51"E	12.19'	N:1386962.50	E:3199296.72
L30	S50°37'37"E	18.59'	N:1386972.70	E:3199292.16
L31	N39°22'25"E	14.23'	N:1386968.41	E:3199288.64
L32	S79°20'23"E	48.60'	N:1387068.85	E:3199168.76

CURVE TABLE					
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	151°14'56"	2.54'	6.71'	S24°43'07"W	4.93'
C2	15°23'17"	98.00'	26.32'	N72°39'58"W	26.24'
C3	101°36'04"	3.00'	5.32'	N11°25'38"W	4.65'
C4	80°36'53"	3.00'	4.22'	S79°40'50"W	3.88'
C5	31°11'01"	150.00'	81.64'	N44°25'13"W	80.63'
C6	6°41'59"	149.17'	17.44'	S54°56'51"E	17.43'
C7	10°19'00"	148.17'	26.68'	S53°12'12"E	26.64'
C8	68°12'06"	20.00'	23.81'	N05°16'20"E	22.43'
C9	75°45'41"	25.00'	33.06'	N77°15'14"E	30.70'
C10	89°59'46"	5.00'	7.85'	N84°22'16"E	7.07'
C11	26°20'09"	125.00'	57.46'	N66°10'18"W	56.95'
C12	21°18'27"	250.00'	92.97'	N42°21'00"W	92.44'
C13	9°38'21"	100.00'	16.82'	N26°52'36"W	16.80'

NOTES:

1. SEE SHEETS C1.00 AND C1.01 FOR ADDITIONAL NOTES, LEGEND, AND ABBREVIATIONS.



BENCHMARK

NATIONAL GEODETIC SURVEY CONTROL POINTS CS 105 (PID LDL2020) AND CS 203 (PID DM8468)
VERTICAL DATUM: NAVD 88, GEOID 2018
HORIZONTAL DATUM: NAD 83(2011) – 2010.00

BASIS OF BEARINGS

THE BASIS OF BEARINGS BETWEEN CS 105 AND CS 203 N85°02'21.46"E A DISTANCE OF 30,273.43 FEET

COLORADO 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

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DRAWN: L. JACKSON
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DATE: 2022/10/26

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SHEET TITLE:
DETAILED HORIZONTAL CONTROL PLAN - SHOP BUILDING

SCALE:

SHEET NUMBER
C9.02

2/21/2022 3:31:06 PM
BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt

LINE TABLE				
NUMBER	DIRECTION	LENGTH	START NORTHING	START EASTING
L1	S24°12'06"W	35.30'	N:1386844.47	E:3199468.44
L2	S55°29'04"W	32.18'	N:1386862.70	E:3199494.95
L3	N51°09'52"W	75.02'	N:1386815.66	E:3199553.39
L4	N38°41'17"E	70.66'	N:1386760.51	E:3199509.22
L5	S38°50'08"W	2.45'	N:1386820.08	E:3199487.76
L7	N51°09'52"W	18.97'	N:1386808.94	E:3199509.56
L8	S38°42'21"W	10.44'	N:1386809.89	E:3199516.73
L10	N39°35'00"E	23.21'	N:1386764.38	E:3199505.43
L11	S50°10'21"E	9.93'	N:1386770.74	E:3199497.81
L12	S39°23'12"W	22.93'	N:1386788.46	E:3199512.36
L14	S51°09'52"E	75.02'	N:1386864.65	E:3199496.52
L16	S51°02'07"E	23.64'	N:1386816.18	E:3199323.00
L17	S06°02'07"E	4.24'	N:1386801.32	E:3199341.38
L18	S51°02'07"E	24.51'	N:1386797.10	E:3199341.82
L19	N83°57'53"E	14.94'	N:1386781.69	E:3199360.88
L20	S51°02'07"E	33.62'	N:1386783.26	E:3199375.74
L21	S38°57'53"W	43.81'	N:1386762.12	E:3199401.88
L22	N50°47'12"W	3.80'	N:1386728.06	E:3199374.33
L23	S51°02'07"E	1.92'	N:1386816.91	E:3199323.16
L24	S55°22'28"E	28.15'	N:1386815.70	E:3199324.65
L25	N88°47'10"E	14.76'	N:1386790.46	E:3199363.69
L27	S38°42'13"E	9.61'	N:1386778.67	E:3199394.49
L28	N30°13'05"W	17.37'	N:1386756.16	E:3199409.25
L29	N78°10'47"W	20.91'	N:1386750.79	E:3199455.25
L30	N50°16'36"W	10.14'	N:1386755.08	E:3199434.77
L31	S41°37'10"W	7.10'	N:1386760.51	E:3199413.11

LINE TABLE				
NUMBER	DIRECTION	LENGTH	START NORTHING	START EASTING
L32	S41°37'10"W	23.04'	N:1386755.20	E:3199408.40
L33	S39°11'42"W	20.05'	N:1386737.98	E:3199393.10
L34	S39°12'16"W	34.77'	N:1386723.20	E:3199378.13
L35	S14°20'43"W	11.66'	N:1386696.25	E:3199356.15
L36	N38°57'53"E	12.39'	N:1386685.12	E:3199334.46
L37	S50°45'58"E	8.53'	N:1386690.52	E:3199327.85
L38	N51°02'07"W	119.20'	N:1386700.41	E:3199313.79
L39	S39°22'23"W	22.60'	N:1386775.37	E:3199221.11
L40	S67°58'41"E	6.27'	N:1386757.90	E:3199206.77
L41	S51°02'12"E	49.35'	N:1386755.54	E:3199212.59
L42	S23°00'38"W	3.25'	N:1386724.51	E:3199250.96
L43	N76°30'05"W	17.46'	N:1386721.52	E:3199249.69
L44	S13°29'55"W	20.00'	N:1386725.60	E:3199232.71
L45	S76°30'05"E	48.60'	N:1386706.15	E:3199228.04
L46	S50°42'53"E	46.78'	N:1386675.02	E:3199315.20
L47	S39°49'11"W	20.00'	N:1386660.77	E:3199364.22
L48	N38°57'53"E	3.00'	N:1386723.31	E:3199285.47
L49	N51°02'07"W	24.50'	N:1386710.24	E:3199306.41
L50	N38°57'53"E	10.50'	N:1386710.24	E:3199306.41
L52	N38°57'53"E	0.50'	N:1386716.95	E:3199306.05
L54	N51°02'07"W	12.95'	N:1386734.57	E:3199274.73
L55	N39°22'23"E	17.07'	N:1386778.62	E:3199431.41
L56	N39°22'23"E	9.45'	N:1386767.45	E:3199422.25
L57	N50°37'37"W	18.00'	N:1386756.03	E:3199436.16
L58	S39°22'23"W	21.46'	N:1386772.62	E:3199449.78
L59	S50°40'30"E	1.77'	N:1386779.74	E:3199430.04

LINE TABLE				
NUMBER	DIRECTION	LENGTH	START NORTHING	START EASTING
L60	S50°40'30"E	17.91'	N:1386775.88	E:3199426.87
L61	S50°02'00"E	26.49'	N:1386763.17	E:3199511.44
L62	S51°44'10"E	16.16'	N:1386746.15	E:3199531.74
L63	S56°53'27"E	18.82'	N:1386736.14	E:3199544.42
L64	S61°10'33"E	29.78'	N:1386725.86	E:3199560.19
L65	S67°17'58"E	19.53'	N:1386711.50	E:3199586.28
L66	S72°24'37"E	19.77'	N:1386703.97	E:3199604.30
L67	S77°44'48"E	19.75'	N:1386697.99	E:3199623.15
L68	S82°09'15"E	19.10'	N:1386693.80	E:3199642.44
L69	N51°02'07"W	10.95'	N:1386736.13	E:3199275.99
L70	N38°57'53"E	8.77'	N:1386743.01	E:3199267.48
L71	S51°02'07"E	10.95'	N:1386749.83	E:3199272.99
L72	S24°30'05"W	7.44'	N:1386685.90	E:3199298.80
L73	S50°11'51"E	22.45'	N:1386679.12	E:3199295.71
L74	N39°48'09"E	9.39'	N:1386664.75	E:3199312.96
L75	S51°02'07"E	23.07'	N:1386772.04	E:3199249.07
L76	N38°57'53"E	3.90'	N:1386757.54	E:3199267.01
L77	S51°02'07"E	29.74'	N:1386761.27	E:3199240.13
L78	N38°57'53"E	13.77'	N:1386742.56	E:3199263.26
L79	N50°15'56"W	18.85'	N:1386662.68	E:3199365.81
L80	N50°37'43"W	16.15'	N:1386773.79	E:3199448.35

CURVE TABLE					
NUMBER	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	90°00'00"	5.00'	7.85'	S83°50'08"W	7.07'
C2	91°57'05"	19.36'	31.08'	N07°12'09"W	27.85'
C3	98°56'38"	8.85'	15.29'	S09°13'09"E	13.46'
C4	17°52'04"	10.00'	3.12'	S83°01'57"E	3.11'
C6	88°06'13"	10.00'	15.38'	S85°40'17"W	13.91'
C7	8°12'59"	120.00'	17.21'	N54°52'27"W	17.19'
C8	25°44'08"	100.00'	44.92'	N63°38'01"W	44.54'
C10	54°42'31"	45.00'	42.97'	S78°01'46"E	41.35'
C11	31°13'47"	25.00'	13.63'	N59°00'05"E	13.46'
C12	30°07'16"	20.00'	10.51'	N59°33'20"E	10.39'
C13	54°42'31"	40.00'	38.19'	S78°01'46"E	36.76'

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PROJ. NO. 21.1038
DRAWN: L. JACKSON
CHECKED: K. PROULX
APPROVED: S. PALING
DATE: 2022/10/26

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SHEET TITLE:
LINE AND CURVE TABLE - LAB BUILDING

SCALE:
SHEET NUMBER
C9.03

2/21/2022 3:31:06 PM BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt

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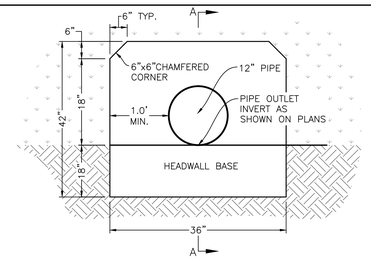
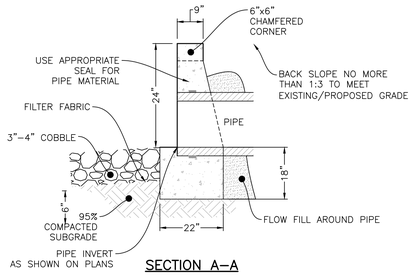


PLAN VIEW

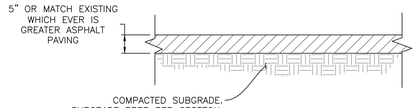


SECTION A–A

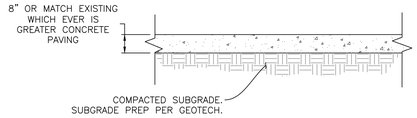
NOTES:

1. CONCRETE TO BE 4500 PSI.
2. WALL CAN BE PRECAST OR CAST IN PLACE. FOR PRECAST UNITS, USE MORTAR TO SET PIPE.
3. ALL EDGES SHALL HAVE ¾" CHAMFER.
4. TYPICAL REINFORCING SHALL BE #4 REBAR AT 12" O.C.E.W.

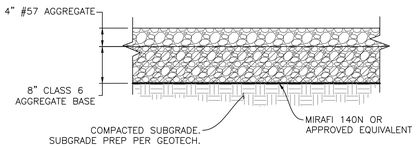
SMALL STRAIGHT HEADWALL
NOT TO SCALE



5" ASPHALT PAVING SECTION
NOT TO SCALE

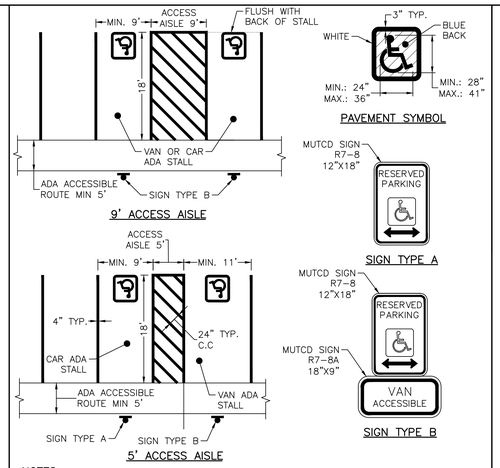


8" CONCRETE PAVING SECTION
NOT TO SCALE



POND MAINTENANCE ACCESS SECTION
N.T.S.

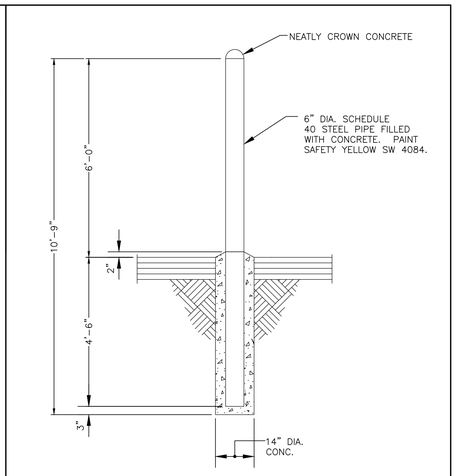
ALL PAVING SECTIONS ARE PRELIMINARY. FINAL DESIGN TO BE DETERMINED BY GEOTECH FOLLOWING THE INSTALLATION OF UTILITIES AND PRIOR TO PLACEMENT OF SUBGRADE.



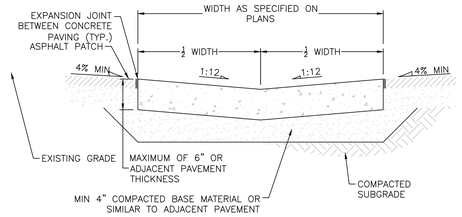
NOTES:

1. ADA CAR PARKING SHALL BE MINIMUM OF 9' (108") WIDE.
2. ADA VAN PARKING SPACES ARE TO BE 11' (132") WIDE.
   2.1. VAN PARKING SPACES CAN BE REDUCED TO 9' (108") WIDE WHERE ADJACENT ACCESS AISLE IS 9' (108") WIDE.
3. ALL ADA ACCESSIBLE PARKING STALLS MUST BE ADJACENT TO ACCESS AISLE.
4. ACCESS AISLES MUST HAVE MINIMUM WIDTH OF 5' (60").
5. NO OBSTACLES, SIGNS, CURBS, OR PARKING BLOCKS CAN BE IN ACCESS AISLE.
6. THE MAXIMUM SLOPE ACROSS ALL ADA PARKING AREAS SHALL NOT EXCEED 2% IN ANY DIRECTION.
6. ALL PARKING STALL STRIPING SHALL BE MIN 4".
7. ADA PAVEMENT MARKING SYMBOL SHALL BE COMPLIANT WITH THE "INTERNATIONAL SYMBOL OF ACCESSIBILITY".
8. ALL PARKING STALLS SHALL BE IN COMPLIANCE WITH THE MOST RECENT VERSION OF THE ADA STANDARDS.

ADA PARKING STALLS
NOT TO SCALE



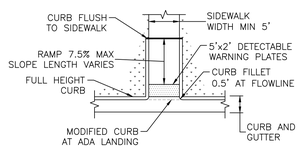
PIPE BOLLARD DETAIL
NOT TO SCALE



NOTES:

1. CONTRACTION JOINT TO BE SPACED MAXIMUM OF 10' AND EXPANSION JOINTS ARE TO BE EVERY 100'
2. PAN THICKNESS TO BE MAXIMUM OF EITHER 8" OR ADJACENT PAVEMENT THICKNESS

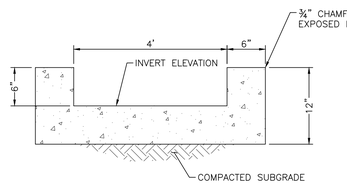
CONCRETE VALLEY GUTTER
NOT TO SCALE



NOTES:

1. LANDSCAPING PER LANDSCAPE ARCHITECT.
2. LANDSCAPING SLOPES SHALL NOT EXCEED 10%.
3. SIDEWALK CURBING RADII SHALL MATCH STREET CURB RADII.
4. CONCRETE GRINDING FOR NEW PAVEMENTS IS NOT A ACCEPTABLE METHOD TO CREATE TAPER OR SLOPE.
5. FIELD ADJUST RAMP LENGTH SUCH THAT SLOPE DOES NOT EXCEED 7.5%.

ADA RAMP
NOT TO SCALE



C-CHANNEL CROSS-SECTION
NOT TO SCALE

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COLORADO SPRINGS, CO 80918

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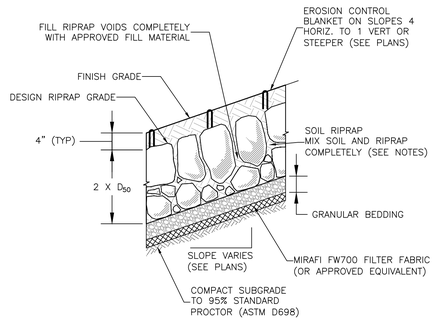


TYPICAL SECTION – SOIL RIPRAP WITH EROSION CONTROL FABRIC

SOIL RIPRAP NOTES:

1. ELEVATION TOLERANCES FOR THE SOIL RIPRAP SHALL BE 0.10 FEET. THICKNESS OF SOIL RIPRAP SHALL BE NO LESS THAN THICKNESS SHOWN AND NO MORE THAN 2–INCHES GREATER THAN THE THICKNESS SHOWN.

2. WHERE "SOIL RIPRAP" IS DESIGNATED ON THE CONTRACT DRAWINGS, RIPRAP VOIDS ARE TO BE FILLED WITH NATIVE SOIL. THE RIPRAP SHALL BE PRE–MIXED WITH THE NATIVE SOIL AT THE FOLLOWING PROPORTIONS BY VOLUME: 65 PERCENT RIPRAP AND 35 PERCENT SOIL. THE SOIL USED FOR MIXING SHALL BE NATIVE TOPSOIL AND SHALL HAVE A MINIMUM FINES CONTENT OF 15 PERCENT. THE SOIL RIPRAP SHALL BE INSTALLED IN A MANNER THAT RESULTS IN A DENSE, INTERLOCKED LAYER OF RIPRAP WITH RIPRAP VOIDS FILLED COMPLETELY WITH SOIL. SEGREGATION OF MATERIALS SHALL BE AVOIDED AND IN NO CASE SHALL THE COMBINED MATERIAL CONSIST PRIMARILY OF SOIL; THE DENSITY AND INTERLOCKING NATURE OF RIPRAP IN THE MIXED MATERIAL SHALL ESSENTIALLY BE THE SAME AS IF THE RIPRAP WAS PLACED WITHOUT SOIL.

3. WHERE SPECIFIED (TYPICALLY AS "BURIED SOIL RIPRAP"), A SURFACE LAYER OF TOPSOIL SHALL BE PLACED OVER THE SOIL RIPRAP ACCORDING TO THE THICKNESS SPECIFIED ON THE CONTRACT DRAWINGS. THE TOPSOIL SURFACE LAYER SHALL BE COMPACTED TO APPROXIMATELY 85% OF MAXIMUM DENSITY AND WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698. TOPSOIL SHALL BE ADDED TO ANY AREAS THAT SETTLE.

4. ALL SOIL RIPRAP THAT IS BURIED WITH TOPSOIL SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY TOPSOIL PLACEMENT.

5. COMPACT AND LEVEL ALL SOIL TO ELIMINATE VOIDS AND PREVENT ROCKS FROM PROJECTING ABOVE DESIGN RIPRAP TOP GRADE.

6. TOP SOIL SHALL BE AMENDED PER NREL CONSTRUCTION SPECIFICATIONS.

7. RIPRAP IS NOT TO BE DUMPED DIRECTLY ON FILTER FABRIC OR BEDDING MATERIAL.

8. ALWAYS PLACE FILTER FABRIC STARTING DOWNSTREAM AND WORK UPSTREAM.

9. FILTER FABRIC TO BE LAPPED AND STAPLED A MINIMUM OF 12–INCHES AT ROLL EDGES, WITH UPSTREAM FABRIC BEING PLACED ON TOP OF DOWNSTREAM FABRIC AT THE LAP. THE UPSTREAM END OF EACH FILTER FABRIC ROLL IS TO BE TURNED VERTICALLY DOWNWARD 2–FEET.

10. LONGITUDINAL SEAMS TO BE LAPPED AND STAPLED A MINIMUM OF 12–INCHES.

11. ADHERE TO SEED TYPE, SEED APPLICATION, AND SEED PROTECTION METHODS IDENTIFIED IN THE NREL CONSTRUCTION SPECIFICATIONS.

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D_{50}* (INCHES)
TYPE VL	70 – 100 50 – 70 35 – 50 2 – 10	12 9 6 2	6
TYPE L	70 – 100 50 – 70 35 – 50 2 – 10	15 12 9 3	9
TYPE M	70 – 100 50 – 70 35 – 50 2 – 10	21 18 12 4	12
TYPE H	70 – 100 50 – 70 35 – 50 2 – 10	30 24 18 6	18
*D_{50} = MEAN ROCK SIZE			

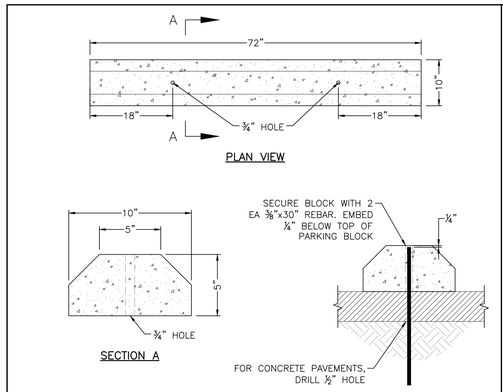
RIPRAP AND SOIL RIPRAP PLACEMENT AND GRADATION

GRADATION FOR GRANULAR BEDDING		
U.S. STANDARD SIEVE SIZE	PERCENT PASSING BY WEIGHT	
	TYPE I CDOT SECT. 703.01	TYPE II CDOT SECT. 703.09 CLASS A
3 INCHES	–	90 – 100
1½ INCHES	–	–
¾ INCHES	–	20 – 90
⅜ INCHES	100	–
#4	95 – 100	0 – 20
#16	45 – 80	–
#50	10 – 30	–
#100	2 – 10	–
#200	0 – 2	0 – 3

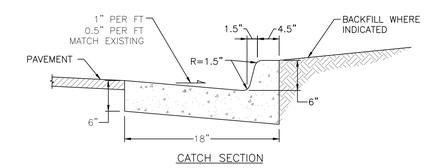
RIPRAP BEDDING

THICKNESS REQUIREMENTS FOR GRANULAR BEDDING			
RIPRAP DESIGNATION	MINIMUM BEDDING THICKNESS (INCHES)		
	FINE–GRAINED SOILS [1]		COARSE–GRAINED SOILS [2]
	TYPE I (LOWER LAYER)	TYPE II (UPPER LAYER)	TYPE II
VL (D_{50} = 6 IN)	4	4	6
L (D_{50} = 9 IN)	4	4	6
M (D_{50} = 12 IN)	4	4	6
H (D_{50} = 18 IN)	4	6	8
VH (D_{50} = 24 IN)	4	6	8

NOTES:
1. MAY SUBSTITUTE ONE 12–INCH LAYER OF TYPE II BEDDING. THE SUBSTITUTION OF ONE LAYER OF TYPE II BEDDING SHALL NOT BE PERMITTED AT DROP STRUCTURES. THE USE OF A COMBINATION OF FILTER FABRIC AND TYPE II BEDDING AT DROP STRUCTURES IS ACCEPTABLE.
2. FIFTY PERCENT OR MORE BY WEIGHT RETAINED ON THE #40 SIEVE.

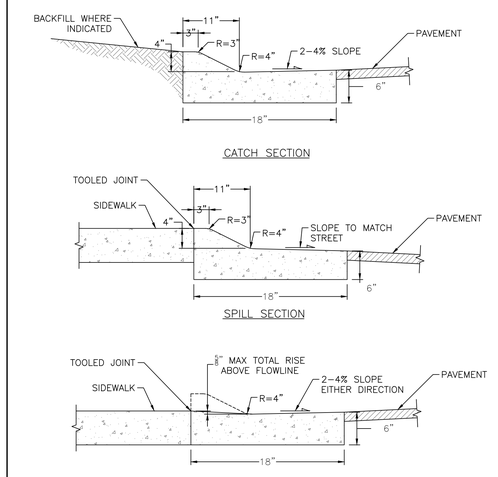


PRECAST PARKING BLOCK
NOT TO SCALE



NOTES:
1. PROVIDE LONGITUDINAL AND TRANSVERSE CONTRACTION AND EXPANSION JOINTS AT SPACING AND FREQUENCY PER LANDSCAPE PLANS AND AS INDICATED ON PLANS
2. CURB BASE AND SUBGRADE REQUIREMENTS TO BE SIMILAR TO ADJACENT PAVEMENT
3. ENSURE ALL EDGES, CORNERS, AND SURFACES ARE SMOOTH TO FACILITATE WHEELCHAIR MOVEMENTS
4. REFER TO SIDEWALK RAMP DETAILS C10.00 FOR ADDITIONAL DETAILS
5. CURB MODIFICATION FOR ADA PURPOSES APPLIES TO BOTH CATCH AND SPILL TYPES
6. CURB TEXTURE TO BE MEDIUM–TO–COARSE

6" CURB AND GUTTER
NOT TO SCALE



NOTES:
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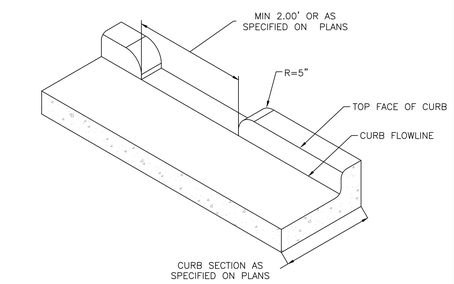
2. CURB BASE AND SUBGRADE REQUIREMENTS TO BE SIMILAR TO ADJACENT PAVEMENT
3. ENSURE ALL EDGES, CORNERS, AND SURFACES ARE SMOOTH TO FACILITATE WHEELCHAIR MOVEMENTS
4. REFER TO SIDEWALK RAMP DETAILS C10.00 FOR ADDITIONAL DETAILS
5. CURB MODIFICATION FOR ADA PURPOSES APPLIES TO BOTH CATCH AND SPILL TYPES
6. CURB TEXTURE TO BE MEDIUM–TO–COARSE

MOUNTABLE CURB AND GUTTER
NOT TO SCALE



NOTES:
1. FORM CURB CUT INTO SECTION OF STANDARD CURB & GUTTER AT LOCATION DRAWN ON PLANS
2. SLOPE FOR DRAINAGE.

CURB CUT
NOT TO SCALE

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PLANT SCHEDULE		
SHRUBS	QTY	BOTANICAL / COMMON NAME
AND	25	AMORPHA NANA / DWARF FALSE INDIGO
CMB	13	CHAMAEBATIARIA MILLEFOLIUM / FERNBUSH
EIN	65	ERICAMERIA NAUSEOSA VAR. NAUREOSUS / BABY BLUE RABBITBRUSH
PBC	47	PRUNUS PUMILA BESSEYI PAWNEE BUTTES / CREEPING WESTERN SAND CHERRY
RGS	11	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC
SMS	18	SYMPHORICARPOS OREOPHILUS / MOUNTAIN SNOWBERRY
ORNAMENTAL GRASSES	QTY	BOTANICAL / COMMON NAME
BBG	141	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLONDE AMBITION BLUE GRAMA
SSG	60	SCHIZACHYRIUM SCOPARIUM 'STANDING OVATION' / STANDING OVATION LITTLE BLUESTEM
PERENNIALS	QTY	BOTANICAL / COMMON NAME
ACP	38	AGASTACHE AURANTIACA 'CORONADO' / CORONADO GIANT HYSSOP
ARP	19	ARTEMISIA VERSICOLOR 'SEA FOAM' / SEA FOAM SAGEBRUSH

LAYOUT AND MATERIALS NOTES

1. DO NOT SCALE THE PLANS. DIMENSIONS SUPERSEDE DRAWING SCALES. VERIFY LAYOUT PRIOR TO EXCAVATION.
2. DIMENSIONS ARE DRAWN TO FACE OF CURB, WALL, AND EDGE UNLESS OTHERWISE SPECIFIED.
3. IF THERE IS A DISCREPANCY BETWEEN THE PLANS AND SPECIFICATIONS, THE SPECIFICATIONS WILL SUPERSEDE PLANS.
4. CONTRACTOR TO CLEARLY STAKE ALL CORNERS OF PAVED AREAS FOR OWNER'S REPRESENTATIVE'S APPROVAL PRIOR TO SETTING EDGES OR FORMS.
5. OBTAIN APPROVAL OF OWNER'S REPRESENTATIVE FOR ALL FORM WORK AT LEAST 24 HOURS PRIOR TO PLACING CURBS, FOUNDATIONS, OR PAVEMENTS.
6. CONTRACTOR TO PROVIDE EXPANSION JOINT AND SCORE JOINT LAYOUT PLAN FOR APPROVAL BY LANDSCAPE ARHICTECT/PROJECT MANAGER PRIOR TO CONSTRUCTION.

GRADING & DRAINAGE NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND PLANS FOR BACK OF CURB ELEVATIONS, BUILDING FIRST FLOOR ELEVATIONS, ETC.
2. PAVED AREAS SHALL HAVE A MAXIMUM SLOPE OF 4.9% ON THE SURFACE IN DIRECTION OF TRAVEL AND 1.9% CROSS SLOPE UNLESS OTHERWISE SPECIFIED.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING POSITIVE DRAINAGE AT ALL TIMES DURING CONSTRUCTION.
4. ALL FINISHED HARDSCAPE AND LANDSCAPE AREAS SHALL BE SLOPED TO MAINTAIN POSITIVE DRAINAGE AWAY FROM BUILDINGS AND TOWARD DRAINAGE INLETS AND FACILITIES.
5. GRADES IN LANDSCAPE AREAS SHALL SLOPE A MINIMUM OF 2% AND A MAXIMUM OF 3:1 UNLESS OTHERWISE NOTED OR APPROVED.
6. FEATHER ALL FINISH GRADES TO MEET EXISTING GRADES WITHOUT ABRUPT CHANGES IN SLOPE.
7. CONTRACTOR SHALL STABILIZE AND MAINTAIN EXISTING SLOPES AND GRADES AS REQUIRED AND/OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY EROSION OR SLOPE FAILURE AT NO ADDITIONAL COST TO THE OWNER.

GENERAL NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL ITEMS REQUIRING REMOVAL AND PROTECTION WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING TREES AND SHRUBS TO BE REMOVED OR RELOCATED WITH OWNER'S REPRESENTATIVE PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL MARK/FLAG INDIVIDUAL TREES TO BE REMOVED AND TO REMAIN FOR THE APPROVAL OF OWNER'S REPRESENTATIVE.
3. PRIOR TO COMMENCING DEMOLITION OPERATIONS, CONTRACTOR SHALL CONTACT ALL UTILITY LOCATOR SERVICES AND CONFIRM ALL SERVICE LINES AND UTILITY LOCATIONS WITHIN THE LIMITS OF WORK.
4. PRIOR TO DEMOLITION OPERATIONS, CONTRACTOR SHALL PLACE TREE PROTECTION FENCING, BARRICADES, SIGNAGE, AND EROSION CONTROL MEASURES AS DESCRIBED IN THE PLAN AND SPECIFICATIONS AND APPROVED CASMP.
5. CONTRACTOR SHALL THOROUGHLY REMOVE AND DISPOSE OF ALL PLANT MATERIALS, INCLUDING ROOTS, WITHIN AREAS SHOWN FOR DEMOLITION.
6. CONTRACTOR SHALL COORDINATE SITE DEMOLITION OPERATIONS WITH ALL OTHER TRADES PERFORMING WORK ON THE PROJECT.
7. CONTRACTOR SHALL REPLACE, REPAIR AND RESTORE TO ORIGINAL CONDITION, ALL STRUCTURES, LANDSCAPE AND SITE IMPROVEMENTS, NOT DESIGNATED FOR REMOVAL, THAT ARE DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS, AT NO ADDITIONAL COST TO OWNER. IF UTILITIES ARE DAMAGED, CONTRACTOR SHALL VERIFY REPLACEMENT REQUIREMENTS WITH UTILITY PROVIDERS AND ARRANGE FOR IMMEDIATE REPAIR.
8. CONTRACTOR SHALL REMOVE, SALVAGE, STOCKPILE, REUSE, AND RESET ALL ITEMS DESIGNATED FOR RE-USE AS DIRECTED BY OWNER'S REPRESENTATIVE, UNLESS OTHERWISE NOTED. STOCKPILE MATERIALS AT APPROVED LOCATION.
9. ALL DEMOLITION ITEMS NOT DESIGNATED FOR SALVAGE, STOCKPILE, AND REUSE SHALL BE TRANSPORTED AND LEGALLY DISPOSED OF OFF-SITE AT CONTRACTOR'S EXPENSE.
10. THE CONTRACTOR SHALL BE AWARE THAT UNDERGROUND IMPROVEMENTS MAY EXIST THAT ARE NOT SHOWN IN THE CONSTRUCTION PLANS INCLUDING, BUT NOT LIMITED TO, FOUNDATIONS, DEBRIS, ELECTRIC AND COMMUNICATION CONDUITS, PIPES, AND STORM DRAIN AND SEWER CONNECTIONS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE IF THESE UNKNOWN IMPROVEMENTS ARE LOCATED, EXPOSED, OR DAMAGED.
11. EXISTING PAVEMENT SHALL BE NEATLY SAW CUT ALONG THE LINES SHOWN ON THE DRAWINGS OR AS APPROVED IN THE FIELD BY THE OWNER'S REPRESENTATIVE. EXCAVATED PAVEMENT SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE.
12. REFER TO CIVIL ENGINEER'S DRAWINGS FOR ADDITIONAL INFORMATION ABOUT DEMOLITION AND REMOVALS.
13. CONTRACTOR SHALL NOT PROCEED WITH CONSTRUCTION WHEN IT IS APPARENT THAT PREVIOUSLY UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE FOR DIRECTION. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL NECESSARY REVISIONS AND REPAIR COSTS THAT ARE THE RESULT OF FAILURE TO GIVE SUCH NOTIFICATION.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING THEMSELVES FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL TAKE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE TO UTILITIES. CONTACT UNDERGROUND LOCATES PRIOR TO ANY CONSTRUCTION ACTIVITY.
15. CONTRACTOR IS RESPONSIBLE FOR SECURING AND PROPERLY DISPLAYING ALL GOVERNING PERMITS, ALL REQUIRED CITY OF COLORADO SPRINGS / COUNTY PERMITS, AND STATE PERMITS.
16. CONTRACTOR TO INSTALL ALL HARDSCAPE IN ACCORDANCE WITH THE STATE OF COLORADO AND THE AMERICAN DISABILITY ACTS STANDARDS.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF THE SUBCONTRACTORS ACCOMPLISHMENT OF SCOPE OF WORK. CONTRACTOR SHALL COORDINATE CONSTRUCTION WITH OTHER TRADES WORKING ON THE SITE SIMULTANEOUSLY.
18. REFER TO CIVIL DOCUMENTS FOR GRADING AND ADDITIONAL SITE INFORMATION.
19. CONTRACTOR SHALL PROVIDE MOCKUPS AND SHOP DRAWINGS FOR APPROVAL PER SPECIFICATIONS PRIOR TO CONSTRUCTION. ALL IMPROVEMENTS SHALL BE CONSTRUCTED TO MEET THE APPROVED MOCKUP OR SHOP DRAWING.
20. CONTRACTOR SHALL REPLACE OR REPAIR TO ORIGINAL CONDITION ALL UTILITIES, PAVING, CURBING, ETC., DAMAGED AS A RESULT OF HIS OPERATIONS AT NO ADDITIONAL COST TO OWNER.
21. LANDSCAPE CONSTRUCTION TO BE CONCURRENT WITH ALL BUILDINGS.
22. ARBORIST SHALL BE ON SITE TO APPROVE AND SUPERVISE ANY CUTTING OR TRIMMING OF TREE ROOTS.
23. ALL CONSTRUCTION ACTIVITY WITHIN THE CRITICAL ROOT ZONE OF THE EXISTING TREE SHALL BE DONE BY HAND WITH APPROVED HAND TOOLS. CONTRACTOR TO USE ALL POSSIBLE CARE TO AVOID INJURY TO TREE AND TREE ROOTS.

LIST OF ABBREVIATIONS

ABC	AGGREGATE BASE COURSE	MISC	MISCELLANEOUS
APPROX	APPROXIMATE	MTD	MOUNTED
ARCH	ARCHITECT	MTL	METAL
AVG	AVERAGE	N	NORTH
@	AT	N/A	NOT APPLICABLE
ALT	ALTERNATE	NIC	NOT IN CONTRACT
B&B	BALLED AND BURLAPPED	NO	NUMBER
BC	BOTTOM OF CURB	NOM	NOMINAL
BM	BENCH MARK	NTS	NOT TO SCALE
BC	BACK OF CURB	OC	ON CENTER
BR	BOTTOM OF RAMP	OD	OUTSIDE DIAMETER
BW	BOTTOM OF WALL	OPP	OPPOSITE
CAL	CALIPER	PA	PLANTING AREA
CAP	CAPACITY	PAR	PARALLEL
CF	CRUSHER FINES	PC	POINT OF CURVATURE
CJ	CONTROL JOINT	PE	POLYURETHANE
CL	CENTERLINE	PED	PEDESTRIAN
COMP	COMPACTED	PERF	PERFORATED
CONC	CONCRETE	PI	POINT OF INTERSECTION
CONT	CONTINUOUS	PL	PROPERTY LINE
CONST	CONSTRUCTION	PR	PROPOSED
CONTR	CONTRACTOR	PT	POINT
CU	CUBIC	PVC	POLY VINYL CHLORIDE
CY	CUBIC YARD	PVMT	PAVEMENT
DBL	DOUBLE	PVR	PAVER
DEG	DEGREE	QTY	QUANTITY
DEMO	DEMOLISH, DEMOLITION	R	RADIUS
DF	DIRECTION OF FLOW	RCP	REINFORCED CONCRETE PIPE
DG	DECOMPOSED GRANTIE	RE/REF	REFERENCE
DI	DUCTILE IRON PIPE	REINF	REINFORCED
DIA	DIAMETER	REM	REMOVE
DIM	DIMENSION	REQ'D	REQUIRED
DTL	DETAIL	REV	REVISION, REVISED
DWG	DRAWINGS	RIM	RIM ELEVATION
E	EAST	ROW	RIGHT-OF-WAY
EA	EACH	RT	RIGHT
EJ	EXPANSION JOINT	S	SOUTH
EL	ELEVATION	SAN	SANITARY
ELEC	ELECTRICAL	SCH	SCHEDULE
ENG	ENGINEER	SD	STORM DRAIN
EQ	EQUAL	SEC	SECTION
EQUIP	EQUIPMENT	SF	SQUARE FOOT (FEET)
EST	ESTIMATE	SHT	SHEET
EW	EACH WAY	SI	STORM INLET
EX	EXISTING	SIM	SIMILAR
EX FL	EXISTING FLOWLINE	SNT	SEALANT
EXP	EXPANSION	SPECS	SPECIFICATION
FFE	FINISH FLOOR ELEVATION	SQ	SQUARE
FG	FINISHED GRADE	SS	STAINLESS STEEL
FIN	FINISH	ST	STORM SEWER
FL	FLOWLINE	STA	STATION
FOC	FACE OF CURB	STD	STANDARD
FT	FOOT (FEET)	STRUCT	STRUCTURAL
FTG	FOOTING	SY	SQUARE YARD
GA	GUAGE	SYM	SYMMETRICAL
GAL	GALLON	TBD	TO BE DETERMINED
GALV	GALVANIZED	TC	TOP OF CURB
GB	GRADE BREAK	TF	TOP OF FOOTING
GEN	GENERAL	THK	THICK
HDPE	HIGH DENSITY POLYETHYLENE	TM	TOP OF MONUMENT
HORIZ	HORIZONTAL	TOPO	TOPOGRAPHY
HP	HIGH POINT	TR	TOP OF RAMP
HT	HEIGHT	TRANS	TRANSFORMER
ID	INSIDE DIAMETER	TS	TOP OF STEP
IN	INCHES	TSL	TOP OF SLAB
INCL	INCLUDED	TW	TOP OF WALL
INL	INLET	TYP	TYPICAL
INV	INVERT ELEVATION	VAR	VARIES
IRR	IRRIGATION	VEH	VEHICLE
JT	JOINT	VERT	VERTICAL
LIN	LINEAR	VIF	VERIFY IN FIELD
LF	LINEAR FEET	VOL	VOLUME
LP	LOW POINT	W	WEST
LT	LIGHT	W/	WITH
MATL	MATERIAL	W/O	WITHOUT
MAX	MAXIMUM	WT	WEIGHT
ME	MEET EX. GRADE	WL	WATER LEVEL
MEMB	MEMBRANE	WWF	WELDED WIRE FABRIC
MH	MANHOLE	WWM	WELDED WIRE MESH
MIN	MINIMUM	YD	YARD

LANDSCAPE SHEET INDEX

L-100	LANDSCAPE SHEET INDEX AND NOTES
L-101	LANDSCAPE PLAN - SHOPS BUILDING
L-101A	SHOPS BUILDING JOINTING PLAN
L-102	LANDSCAPE PLAN - LAB BUILDING
L-102A	LAB BUILDING JOINTING PLAN
L-201	PLANTING PLAN - SHOPS BUILDING
L-202	PLANTING PLAN - LAB BUILDING
L-300	LANDSCAPE DETAILS
L-301	LANDSCAPE DETAILS
L-302	LANDSCAPE DETAILS
L-303	LANDSCAPE DETAILS
L-304	LANDSCAPE DETAILS
L-305	LANDSCAPE DETAILS
L-306	LANDSCAPE DETAILS
L-307	LANDSCAPE DETAILS
L-400	PLANTING DETAILS

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LANDSCAPE SHEET INDEX AND NOTES

SCALE:
SHEET NUMBER
L-100

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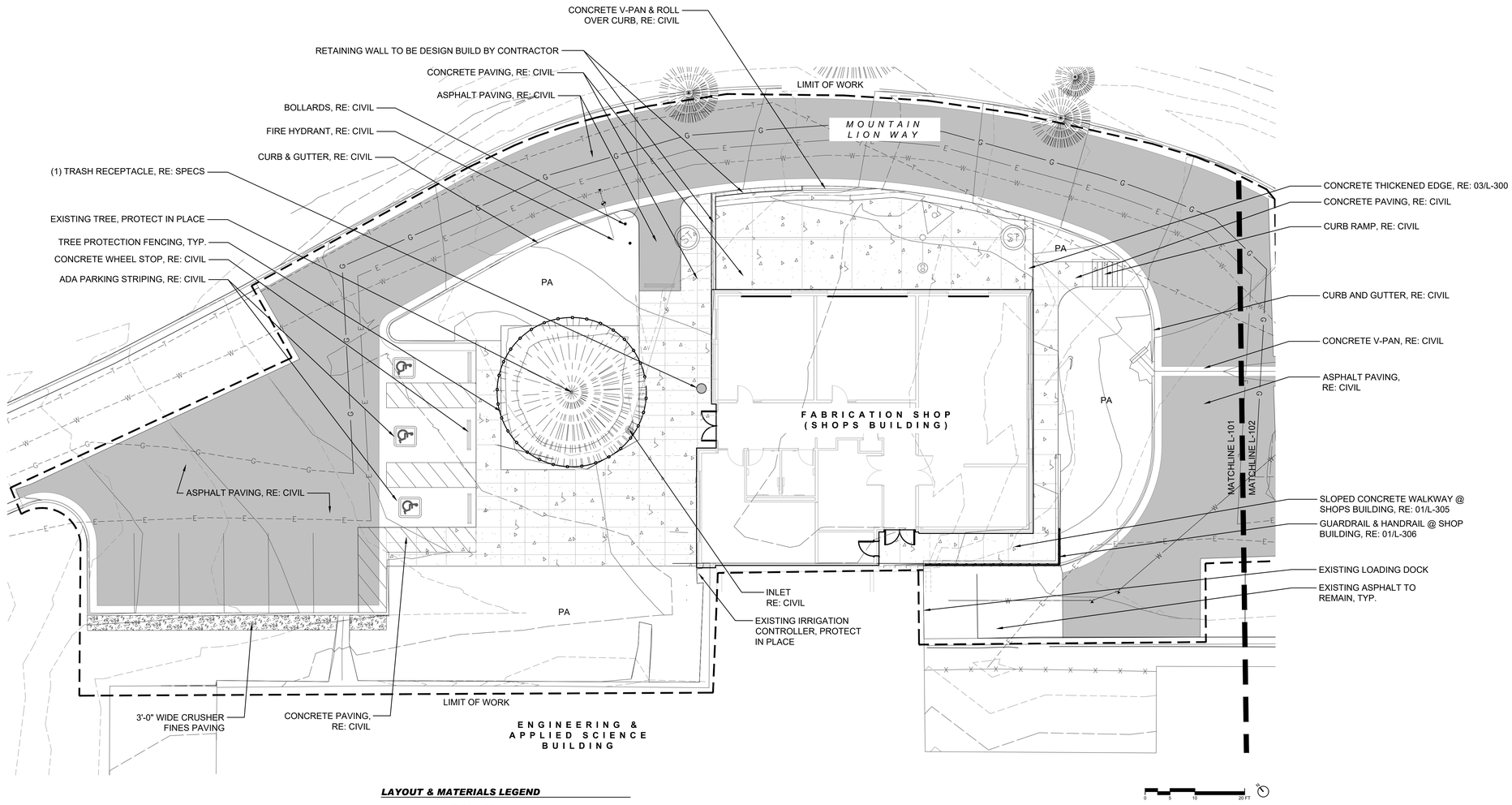

LAYOUT & MATERIALS LEGEND

- LIMIT OF WORK
- ASPHALT PAVING, RE CIVIL
- CONCRETE PAVING, RE: CIVIL
- PA — PLANTING AREA, RE: L-201, L-202
- CRUSHER FINES PAVING, RE: 01/L-300
- CONCRETE SEATWALL
- CONCRETE RETAINING WALL
- STONE RETAINING WALL
- HANDRAIL
- GUARDRAIL, RE: ARCH
- CONCRETE STAIRS
- BICYCLE RACK
- TRASH RECEPTACLE
- EXISTING TREE TO REMAIN, PROTECT IN PLACE
- TREE PROTECTION FENCING, RE: 04/L-400
- TW — TOP OF WALL
- TS — TOP OF STAIR
- BS — BOTTOM OF STAIR

NOTES:
1. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION
2. REFERENCE CIVIL PLANS FOR UTILITY INFORMATION
3. REFERENCE CIVIL PLANS FOR HORIZONTAL CONTROL

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SHEET TITLE:
LANDSCAPE PLAN
SHOPS BUILDING

SCALE:
SHEET NUMBER

L-101

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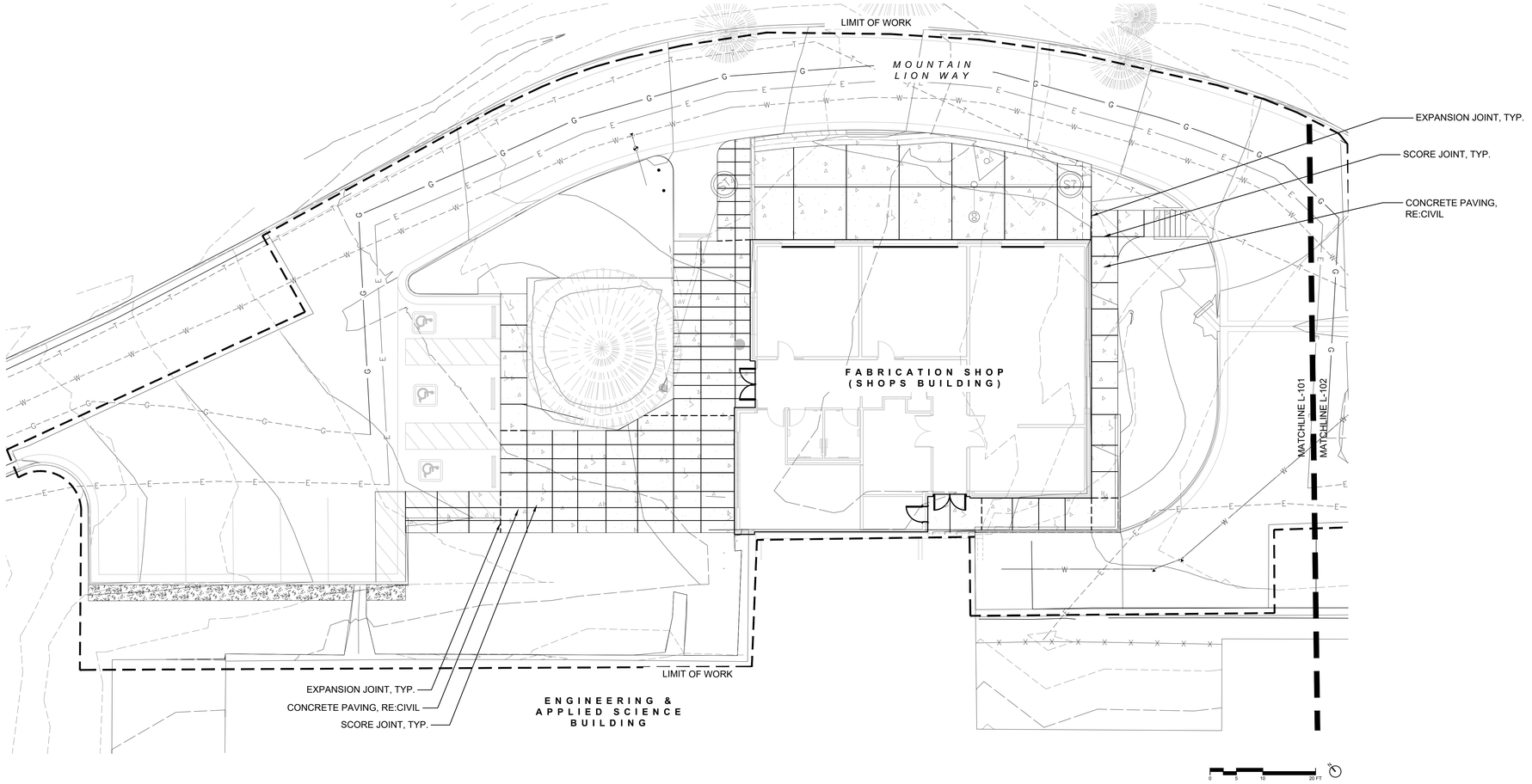

JOINTING LEGEND

- LIMIT OF WORK
- SCORE JOINT
- EXPANSION JOINT
- CONCRETE PAVING, RE: CIVIL

NOTES:

1. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION
2. REFERENCE CIVIL PLANS FOR UTILITY INFORMATION
3. REFERENCE CIVIL PLANS FOR HORIZONTAL CONTROL

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SHEET TITLE:
SHOPS BUILDING
JOINTING PLAN

SCALE:
SHEET NUMBER

L-101A

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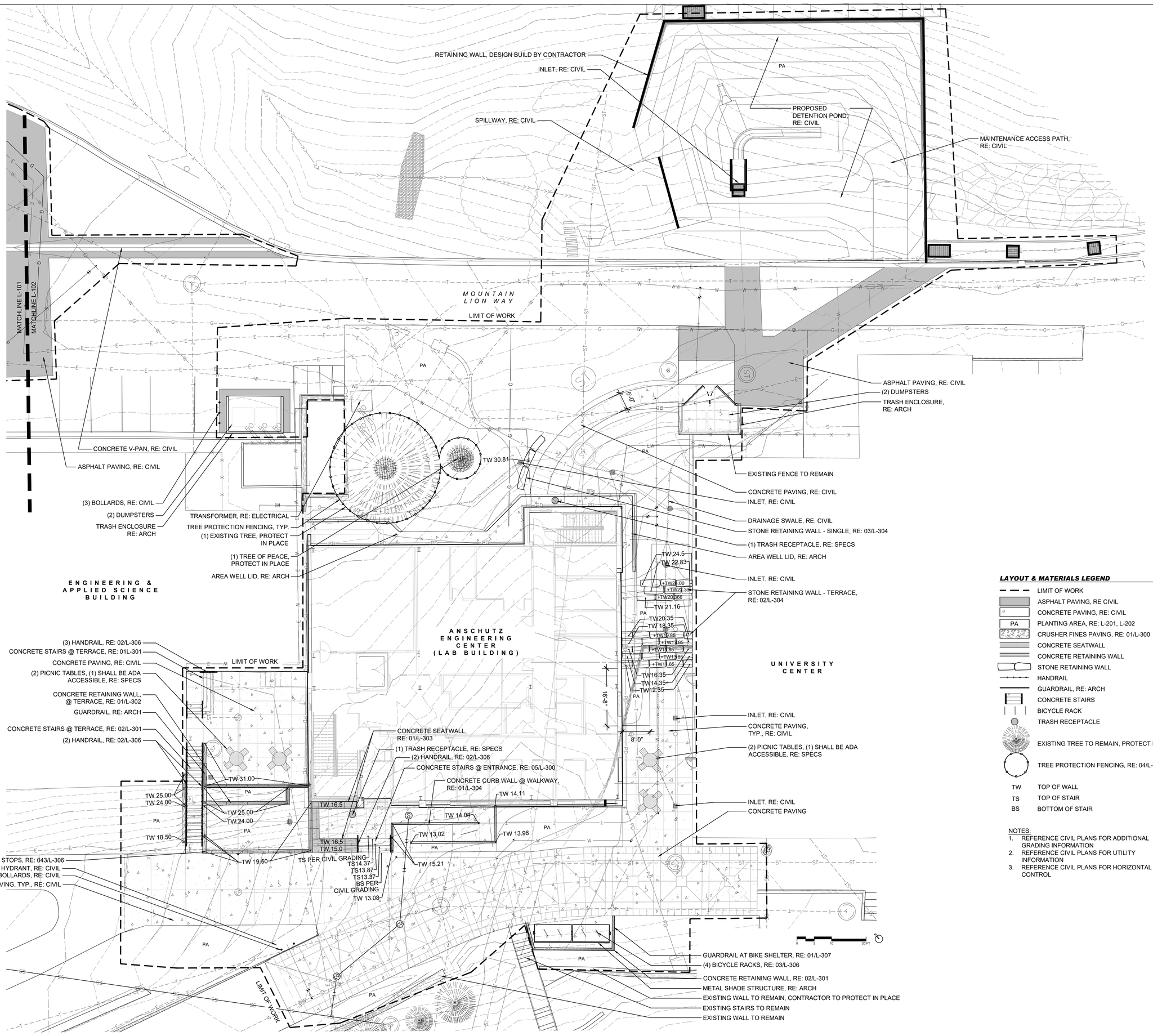

LAYOUT & MATERIALS LEGEND

- LIMIT OF WORK
- ASPHALT PAVING, RE CIVIL
- CONCRETE PAVING, RE: CIVIL
- PA — PLANTING AREA, RE: L-201, L-202
- CRUSHER FINES PAVING, RE: 01/L-300
- CONCRETE SEATWALL
- CONCRETE RETAINING WALL
- STONE RETAINING WALL
- HANDRAIL
- GUARDRAIL, RE: ARCH
- CONCRETE STAIRS
- BICYCLE RACK
- TRASH RECEPTACLE
- EXISTING TREE TO REMAIN, PROTECT IN PLACE
- TREE PROTECTION FENCING, RE: 04/L-400
- TW — TOP OF WALL
- TS — TOP OF STAIR
- BS — BOTTOM OF STAIR

NOTES:
1. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION
2. REFERENCE CIVIL PLANS FOR UTILITY INFORMATION
3. REFERENCE CIVIL PLANS FOR HORIZONTAL CONTROL

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SHEET TITLE:
LANDSCAPE PLAN
LAB BUILDING

SCALE:

SHEET NUMBER
L-102

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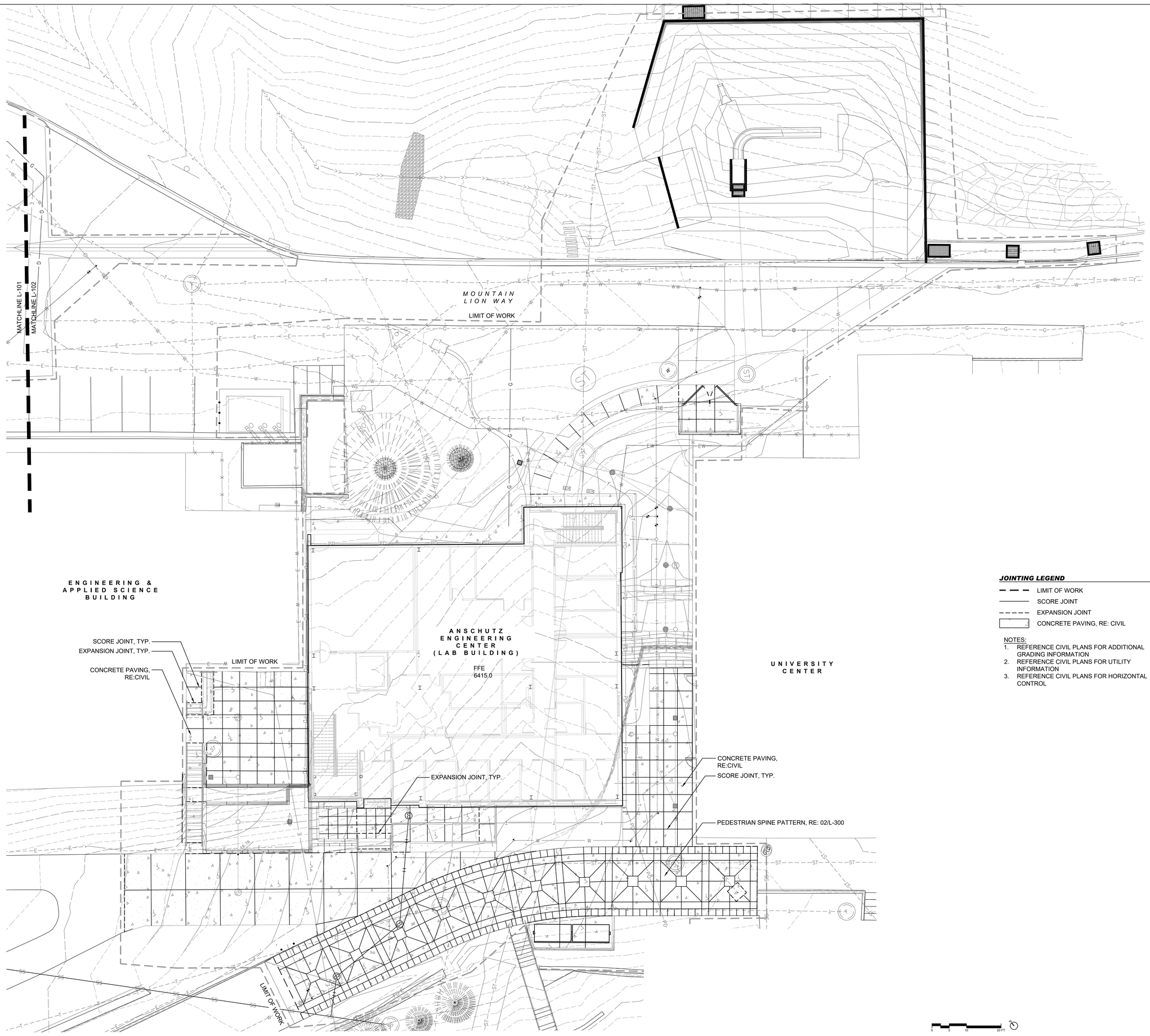

JOINTING LEGEND

- LIMIT OF WORK
- SCORE JOINT
- EXPANSION JOINT
- CONCRETE PAVING, RE: CIVIL

NOTES:
1. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION
2. REFERENCE CIVIL PLANS FOR UTILITY INFORMATION
3. REFERENCE CIVIL PLANS FOR HORIZONTAL CONTROL

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SHEET TITLE:
LAB BUILDING
JOINTING PLAN

SCALE:

SHEET NUMBER
L-102A

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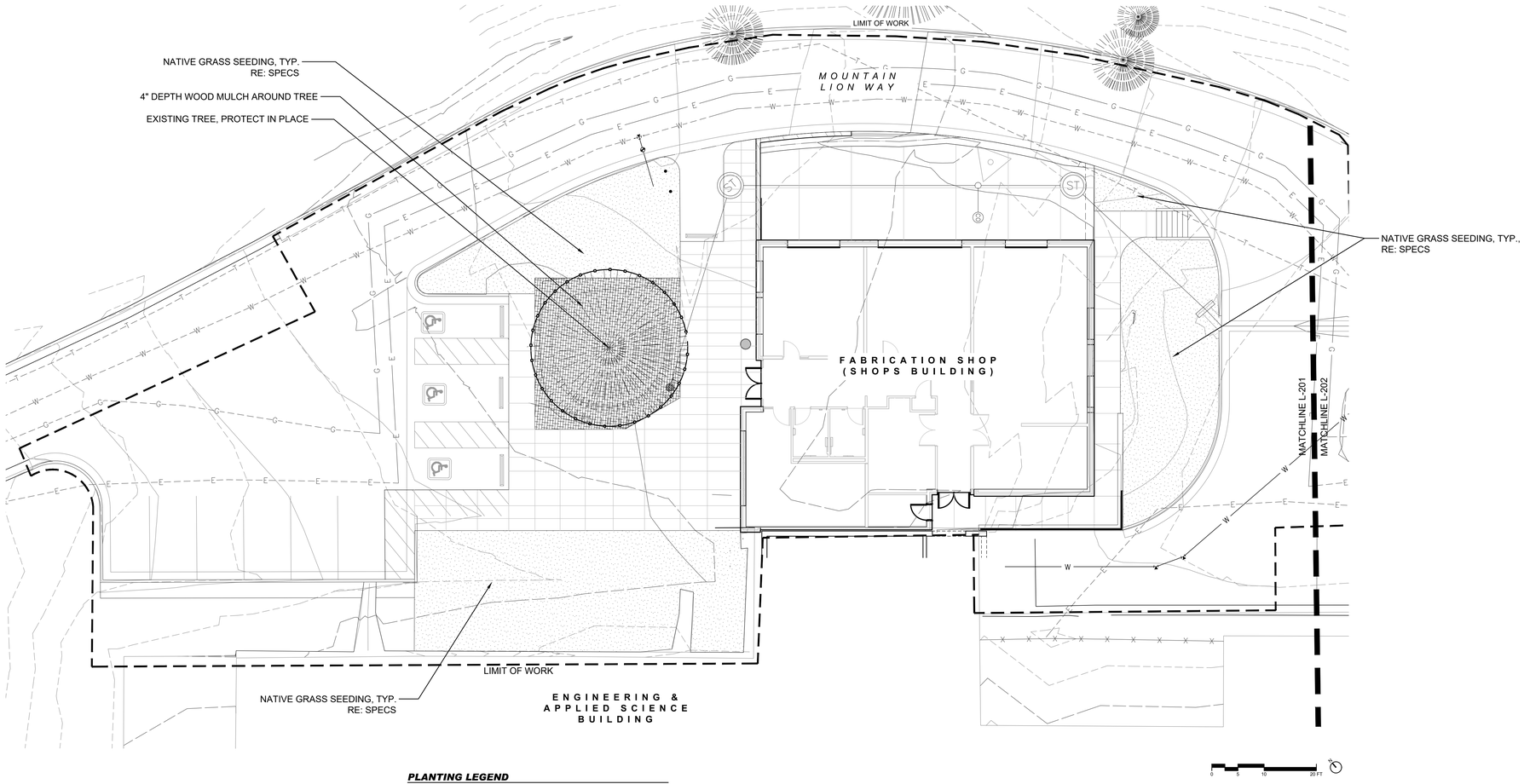

PLANTING LEGEND

- LIMIT OF WORK
- PLANTING AREA
- NATIVE GRASS SEEDING, RE: SPECS
- POLLINATOR SEEDING, RE: SPECS
- WOOD MULCH, RE: SPECS
- EXISTING TREE TO REMAIN, PROTECT IN PLACE
- TREE PROTECTION FENCING

NOTES:

1. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION
2. REFERENCE CIVIL PLANS FOR UTILITY INFORMATION
3. REFERENCE CIVIL PLANS FOR HORIZONTAL CONTROL
4. ALL CONTAINER PLANTING AREAS SHALL RECEIVE DRIP IRRIGATION.
5. EXISTING AND PROPOSED TREES SHALL RECEIVE DRIP IRRIGATION
6. NATIVE GRASS SEEDING AREAS SHALL RECEIVE SPRAY IRRIGATION.
7. ARBORIST SHALL BE ON SITE TO APPROVE AND SUPERVISE ANY CUTTING OR TRIMMING OF TREE ROOTS.
8. ALL CONSTRUCTION ACTIVITY WITHIN THE CRITICAL ROOT ZONE OF THE EXISTING TREE SHALL BE DONE BY HAND WITH APPROVED HAND TOOLS. CONTRACTOR TO USE ALL POSSIBLE CARE TO AVOID INJURY TO TREE AND TREE ROOTS.

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SHOPS BUILDING

SCALE:
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L-201

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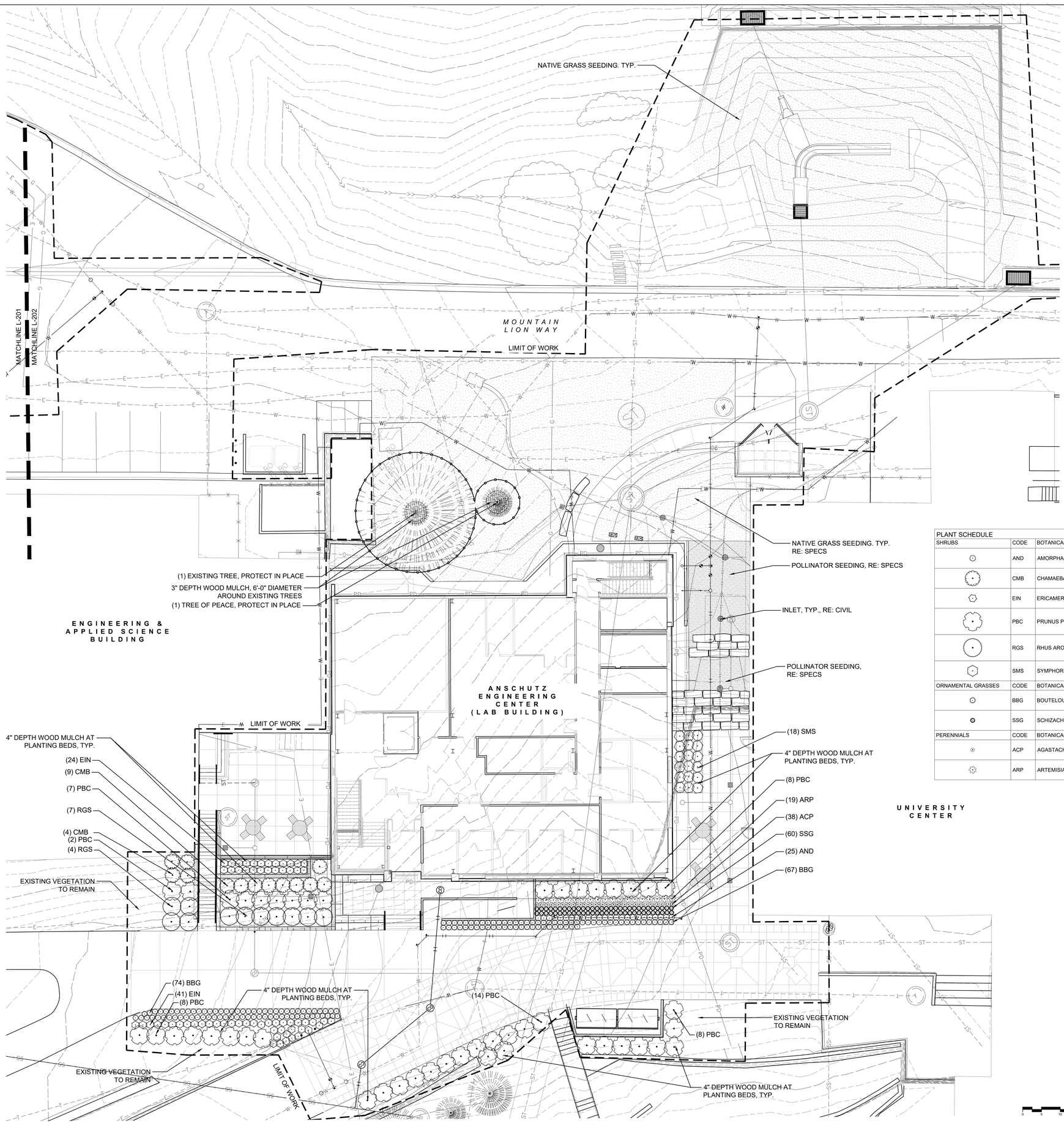

PLANTING LEGEND

- LIMIT OF WORK
- PLANTING AREA
- NATIVE GRASS SEEDING, RE: SPECS
- POLLINATOR SEEDING, RE: SPECS
- WOOD MULCH, RE: SPECS
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NOTES:

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8. ALL CONSTRUCTION ACTIVITY WITHIN THE CRITICAL ROOT ZONE OF THE EXISTING TREE SHALL BE DONE BY HAND WITH APPROVED HAND TOOLS. CONTRACTOR TO USE ALL POSSIBLE CARE TO AVOID INJURY TO TREE AND TREE ROOTS.

PLANT SCHEDULE

SHRUBS	CODE	BOTANICAL / COMMON NAME
	AND	AMORPHA NANA / DWARF FALSE INDIGO
	CMB	CHAMAEBATIARIA MILLEFOLIUM / FERNBUSH
	EIN	ERICAMERIA NAUSEOSA VAR. NAUREOSUS / BABY BLUE RABBITBRUSH
	PBC	PRUNUS PUMILA BESSEYI PAWNEE BUTTES / CREEPING WESTERN SAND CHERRY
	RGS	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC
	SMS	SYMPHORICARPOS OREOPHILUS / MOUNTAIN SNOWBERRY
ORNAMENTAL GRASSES	CODE	BOTANICAL / COMMON NAME
	BBG	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLONDE AMBITION BLUE GRAMA
	SSG	SCHIZACHYRIUM SCOPARIUM 'STANDING OVATION' / STANDING OVATION LITTLE BLUESTEM
PERENNIALS	CODE	BOTANICAL / COMMON NAME
	ACP	AGASTACHE AURANTIACA 'CORONADO' / CORONADO GIANT HYSSOP
	ARP	ARTEMISIA VERSICOLOR 'SEA FOAM' / SEA FOAM SAGEBRUSH

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LAB BUILDING

SCALE:

SHEET NUMBER
L-202

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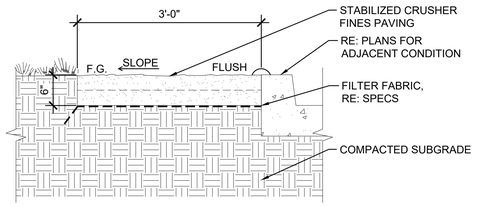
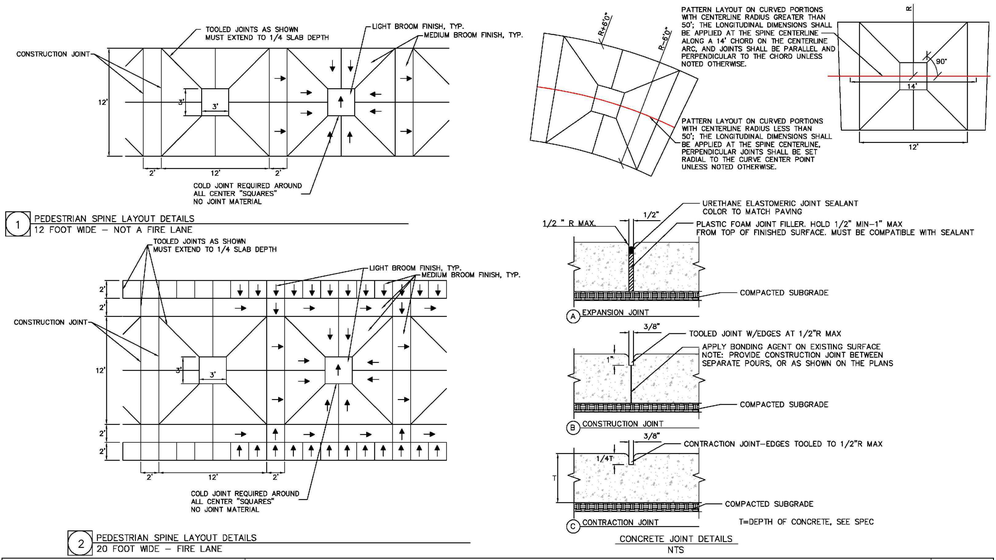


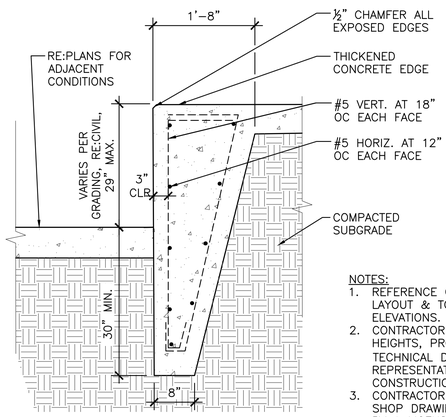
NOTES:
1. CRUSHER FINES PAVING SHALL BE PLACED IN (2) 3" LIFTS MIN.
2. COLOR: RE: SPECS
3. INSTALL CRUSHER FINES PAVING FLUSH WITH ADJACENT HARDSCAPE.
4. IN AREAS ADJACENT TO TURF, INSTALL CRUSHER FINES PAVING 1/2" HIGHER THAN FINISH GRADE. WITH SHARP, STRAIGHT EDGE.
5. ALL CRUSHER FINES AREAS SHALL INCLUDE A STABILIZED 3" TOP LIFT. REFERENCE SPECIFICATIONS FOR MORE INFORMATION

01 CRUSHER FINES PAVING
1" = 1'-0"



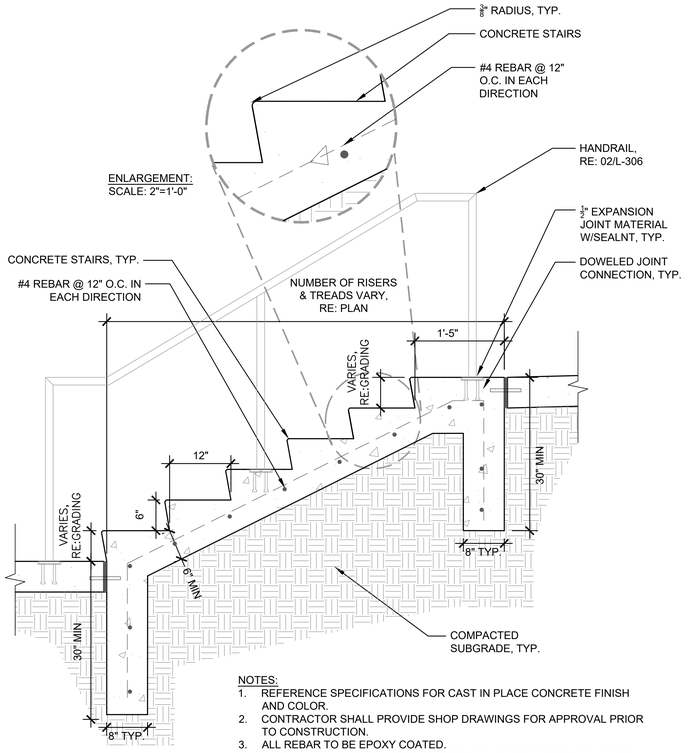
UCCS University of Colorado Colorado Springs Facilities Services	APPENDIX 07 PEDESTRIAN SPINE DETAILS	Scale: NOT TO SCALE Date: 10-17-2017 Drawn by: SLR

02 PEDESTRIAN SPINE PAVING PATTERN
NTS



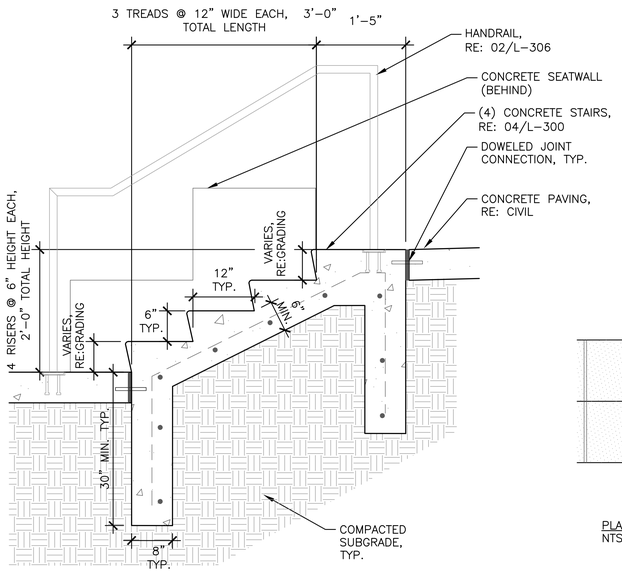
NOTES:
1. REFERENCE CIVIL PLANS FOR LAYOUT & TOP OF WALL ELEVATIONS.
2. CONTRACTOR SHALL VERIFY WALL HEIGHTS, PRODUCTS, AND TECHNICAL DATA WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR APPROVAL BY A LICENSED STRUCTURAL ENGINEER PRIOR TO INSTALLATION.

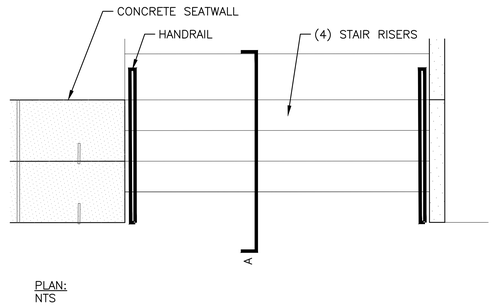
03 CONCRETE THICKENED EDGE
1" = 1'-0"



NOTES:
1. REFERENCE SPECIFICATIONS FOR CAST IN PLACE CONCRETE FINISH AND COLOR.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION.
3. ALL REBAR TO BE EPOXY COATED.
4. TYPICAL RISE AND RUN PROVIDED. CONTRACTOR RESPONSIBLE FOR VERIFYING STAIR TOLERANCES PER CURRENT IBC CODE.
5. 6" WIDE CONCRETE CHEEKWALL ON ALL STAIRS UNLESS SHOWN OTHERWISE ON PLANS AND DETAILS.
6. DOWELED JOINT CONNECTION AT TOP AND BOTTOM OF STAIRS TO ADJACENT PAVING.

04 CONCRETE STAIRS - TYPICAL
AS SHOWN





NOTES:
1. REFERENCE 04/L-300 FOR ADDITIONAL STAIR INFORMATION.
2. REFERENCE 02/L-306 FOR ADDITIONAL HANDRAIL INFORMATION.

05 CONCRETE STAIRS @ ENTRANCE
AS SHOWN

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LANDSCAPE DETAILS

SCALE:
SHEET NUMBER
L-300

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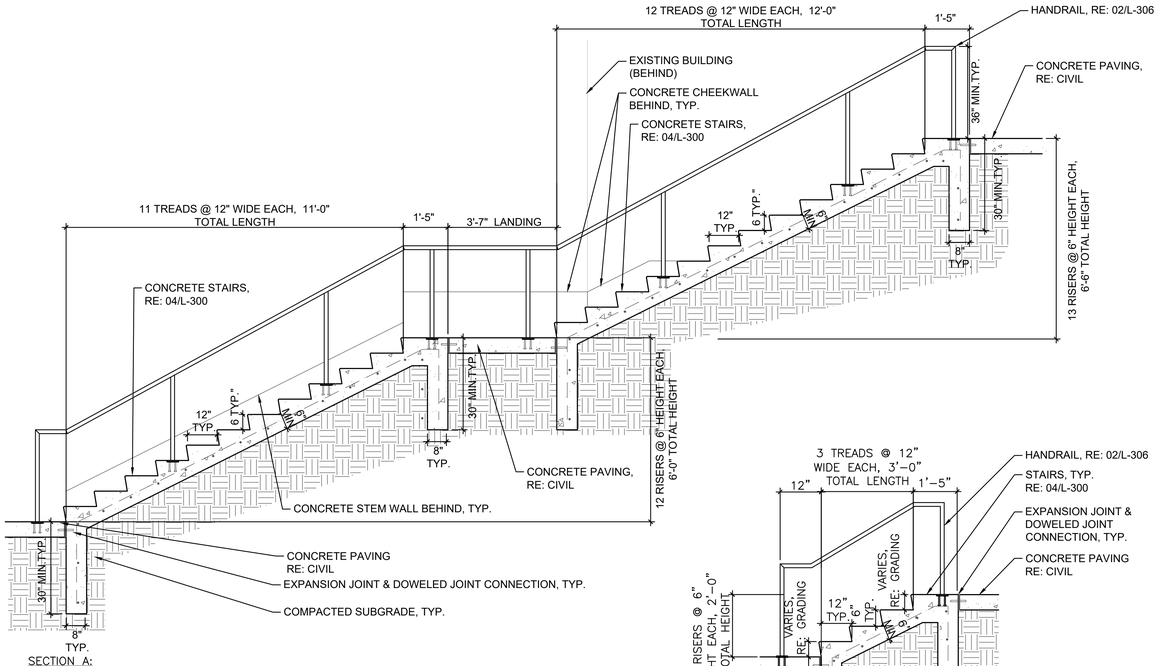
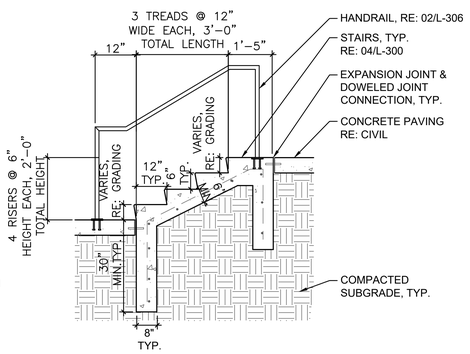
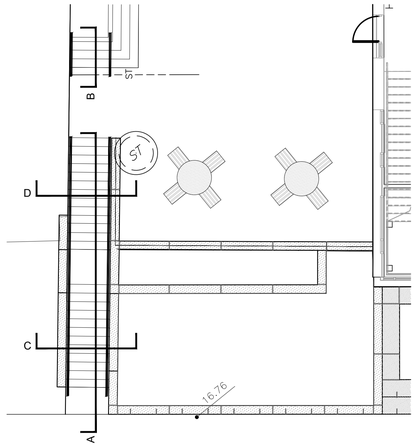


SECTION A:
SCALE: $\frac{1}{2}$"=1'–0"

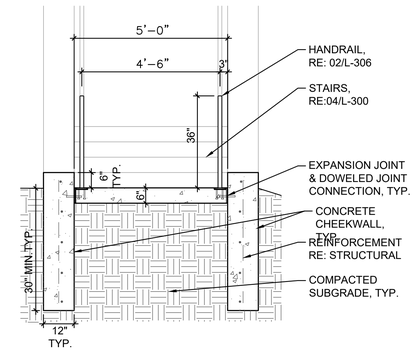
NOTES:
1. REFERENCE LANDSCAPE PLANS FOR TOP OF WALL ELEVATIONS. CONTRACTOR SHALL VERIFY WALL ELEVATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION.
3. SUBMIT SHOP DRAWINGS DEMONSTRATING PREFERRED CONSTRUCTION METHOD, REINFORCING, AND JOINTING FOR APPROVAL PRIOR TO BEGINNING WORK.
4. REBAR DIMENSIONS PER STRUCTURAL ENGINEER RECOMMENDATIONS.
5. STANDARD GRAY CONCRETE. LIGHT BROOM FINISH.
6. ALL VERTICAL AND HORIZONTAL EDGES OF CONCRETE TO INCLUDE 1/2" CHAMFER.



SECTION B:
SCALE: $\frac{1}{2}$"=1'–0"



KEY PLAN
NTS



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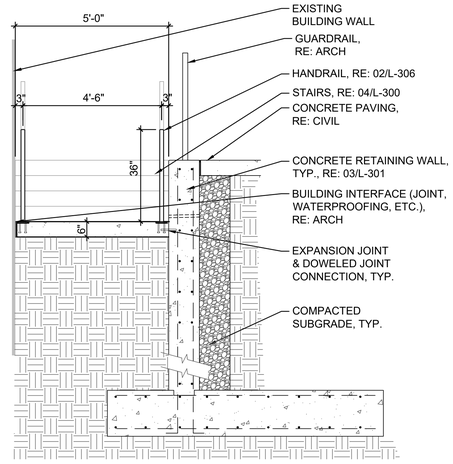
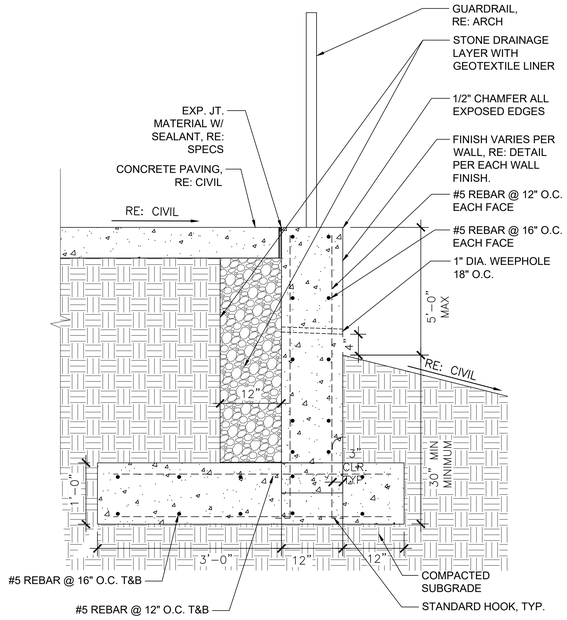
SCALE: $\frac{1}{2}$"=1'–0"



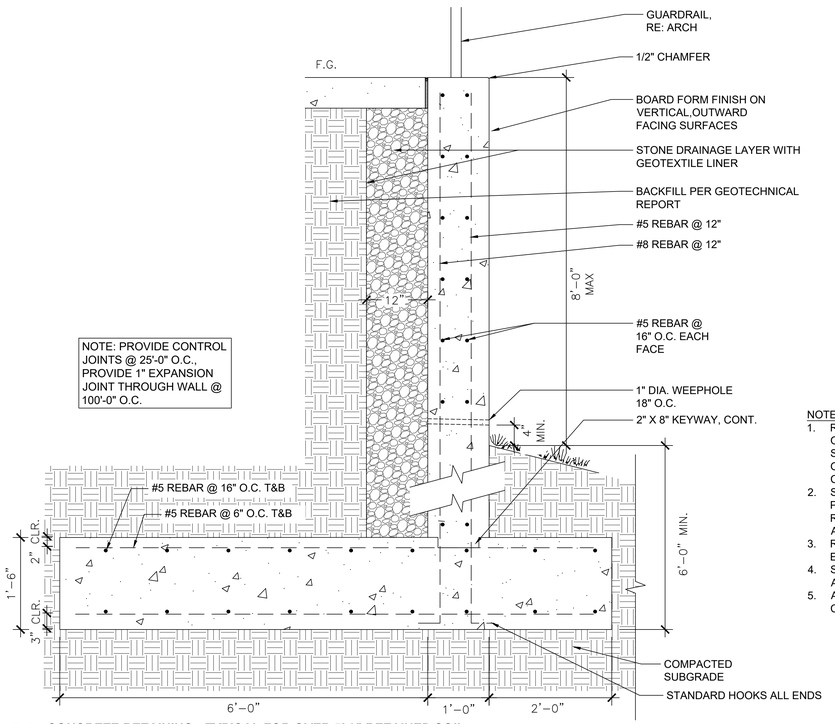
SECTION D:
SCALE: $\frac{1}{2}$"=1'–0"

01 CONCRETE STAIRS @ TERRACE
AS SHOWN



NOTES:
1. REFERENCE LANDSCAPE PLANS FOR TOP OF WALL ELEVATIONS. CONTRACTOR SHALL VERIFY WALL ELEVATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. SUBMIT SHOP DRAWINGS DEMONSTRATING PREFERRED CONSTRUCTION METHOD, REINFORCING, AND JOINTING FOR APPROVAL PRIOR TO BEGINNING WORK.
3. REBAR DIMENSIONS PER STRUCTURAL ENGINEER RECOMMENDATIONS.
4. STANDARD GRAY CONCRETE.
5. BOARD FORM FINISH ON VERTICAL,OUTWARD FACING SURFACES. SMOOTH RUB FINISH ON HORIZONTAL FACES.
6. ALL VERTICAL AND HORIZONTAL EDGES OF CONCRETE TO INCLUDE 1/2" CHAMFER.

02 CONCRETE RETAINING WALL - TYPICAL FOR LESS THAN 5'-0" RETAINED SOIL
1" = 1'-0"



NOTES:
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2. SUBMIT SHOP DRAWINGS DEMONSTRATING PREFERRED CONSTRUCTION METHOD, REINFORCING, AND JOINTING FOR APPROVAL PRIOR TO BEGINNING WORK.
3. REBAR DIMENSIONS PER STRUCTURAL ENGINEER RECOMMENDATIONS.
4. STANDARD GRAY CONCRETE. REFER TO ADDITIONAL WALL DETAILS FOR FINISHES.
5. ALL VERTICAL AND HORIZONTAL EDGES OF CONCRETE TO INCLUDE 1/2" CHAMFER.

03 CONCRETE RETAINING - TYPICAL FOR OVER 5'-0" RETAINED SOIL
1" = 1'-0"

wenk ASSOCIATES PLANNERS & LANDSCAPE ARCHITECTS

OZ ARCHITECTURE
3003 Larimer Street
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phone 303.861.5704
www.ozarch.com

NICOLE K. HORST, 6/26
09/07/2008 Original Date of Licensure
10/26/2022
STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
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APPROVED: GD
DATE: 10/26/2022

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SCALE:
SHEET NUMBER
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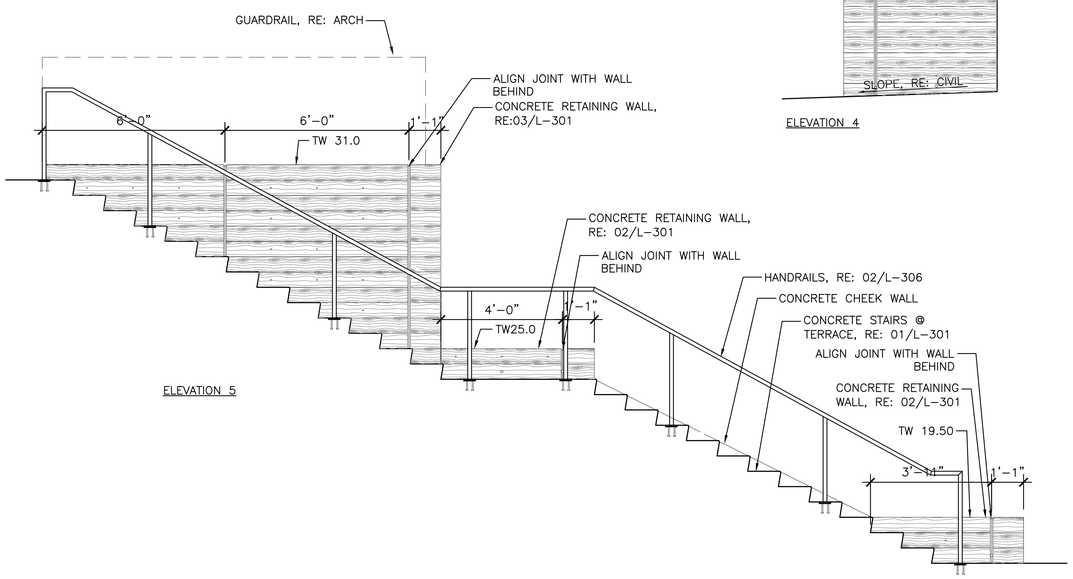
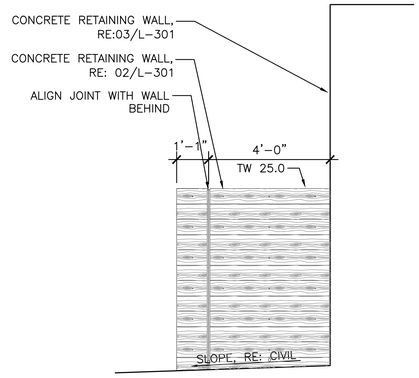


ELEVATION 5



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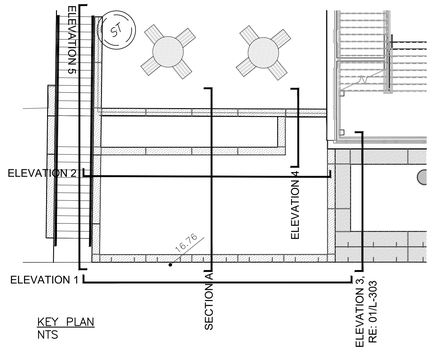
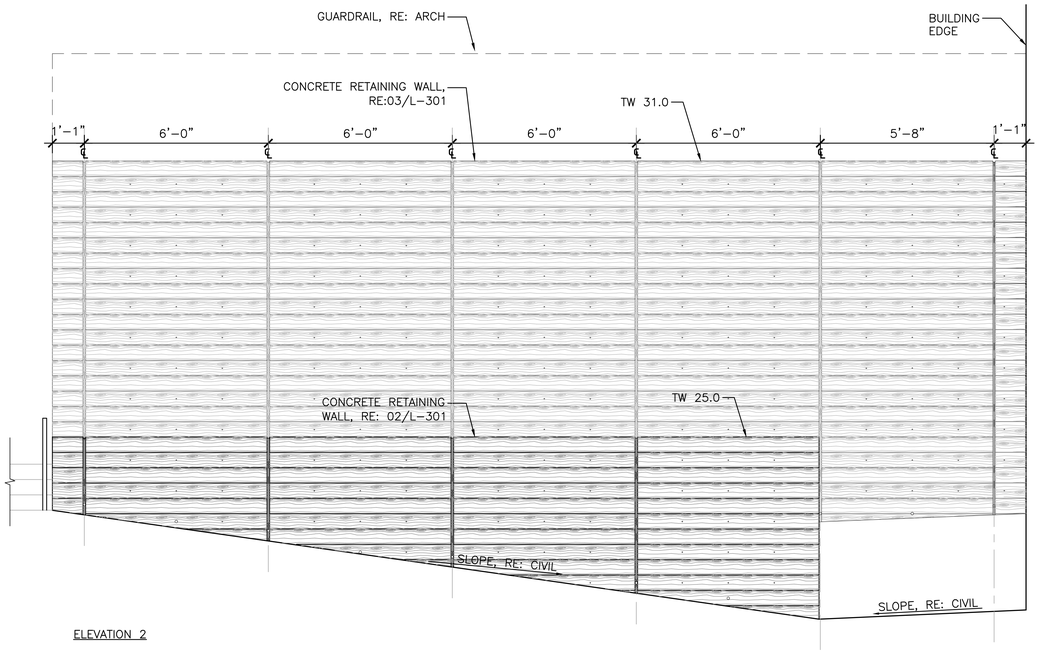
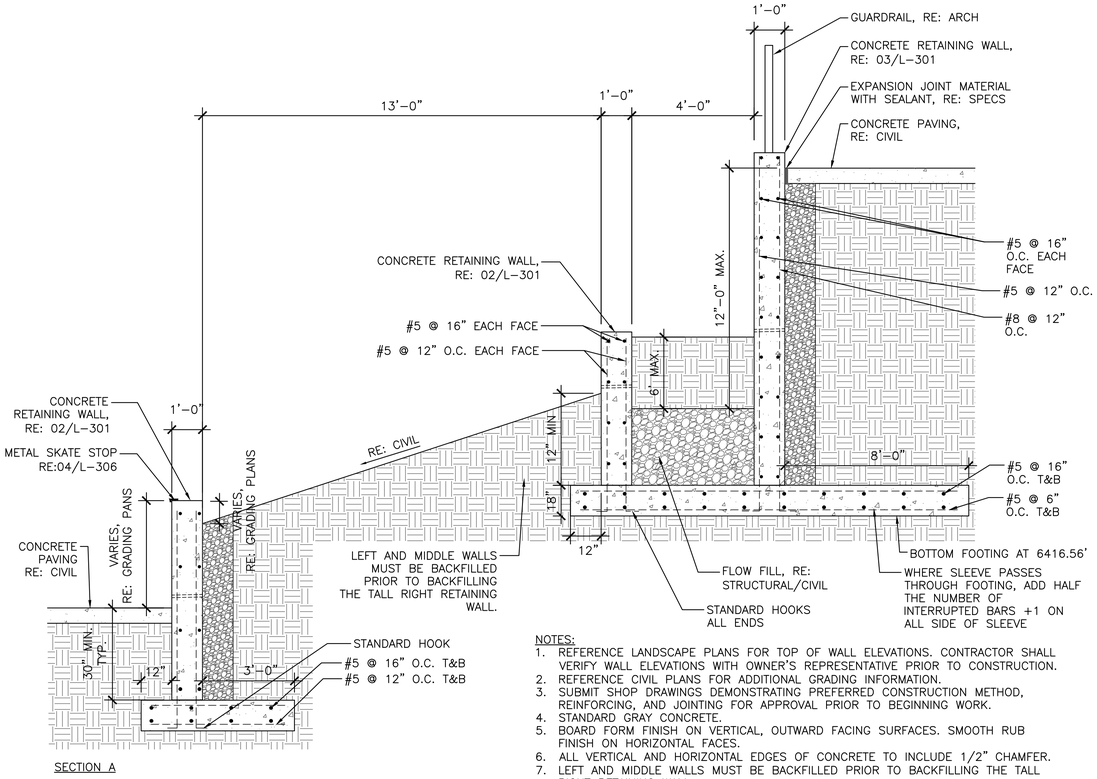


KEY PLAN
NTS



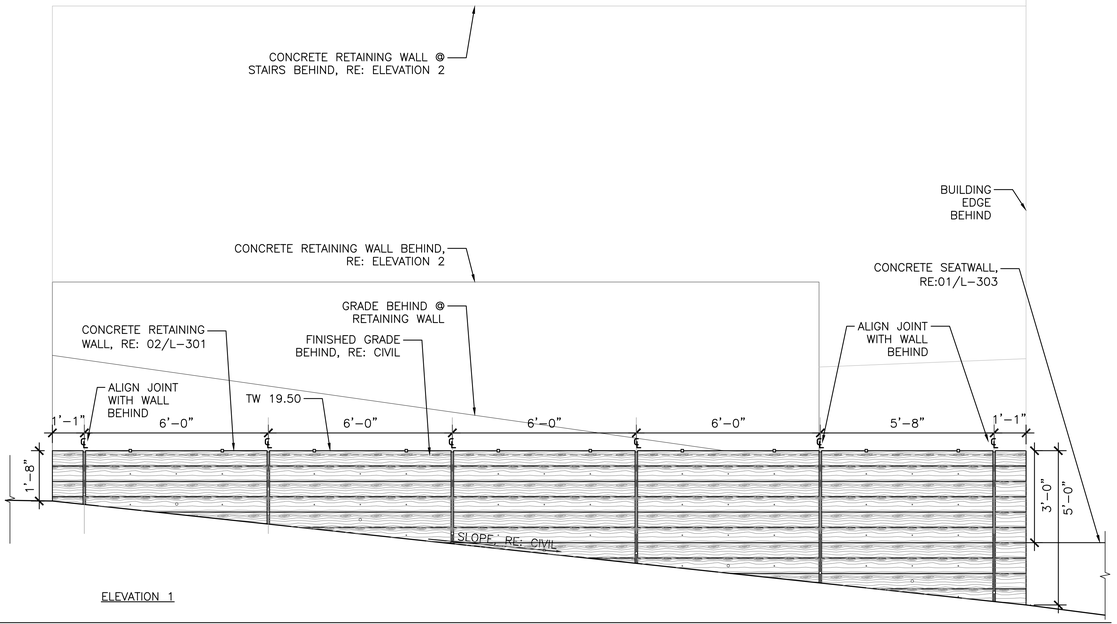
ELEVATION 2



SECTION A

NOTES:
1. REFERENCE LANDSCAPE PLANS FOR TOP OF WALL ELEVATIONS. CONTRACTOR SHALL VERIFY WALL ELEVATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION.
3. SUBMIT SHOP DRAWINGS DEMONSTRATING PREFERRED CONSTRUCTION METHOD, REINFORCING, AND JOINTING FOR APPROVAL PRIOR TO BEGINNING WORK.
4. STANDARD GRAY CONCRETE.
5. BOARD FORM FINISH ON VERTICAL, OUTWARD FACING SURFACES. SMOOTH RUB FINISH ON HORIZONTAL FACES.
6. ALL VERTICAL AND HORIZONTAL EDGES OF CONCRETE TO INCLUDE 1/2" CHAMFER.
7. LEFT AND MIDDLE WALLS MUST BE BACKFILLED PRIOR TO BACKFILLING THE TALL RIGHT RETAINING WALL.

01 ***CONCRETE RETAINING WALL @ TERRACE***
1/2" = 1'-0"



ELEVATION 1

wenk ASSOCIATES PLANNERS & LANDSCAPE ARCHITECTS

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NICOLE K. HORST 626 — 09/07/2008 Original Date of Licensure — 10/26/2022 — STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

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1420 AUSTIN BLUFFS PKWY
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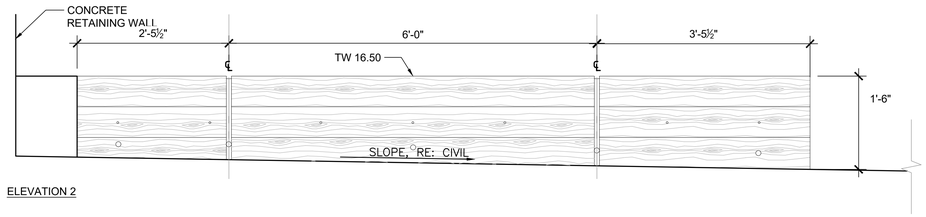

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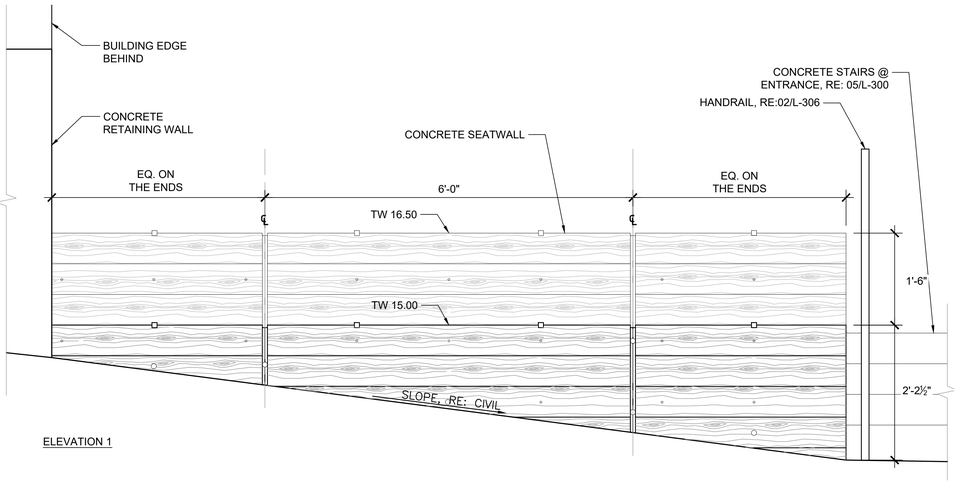
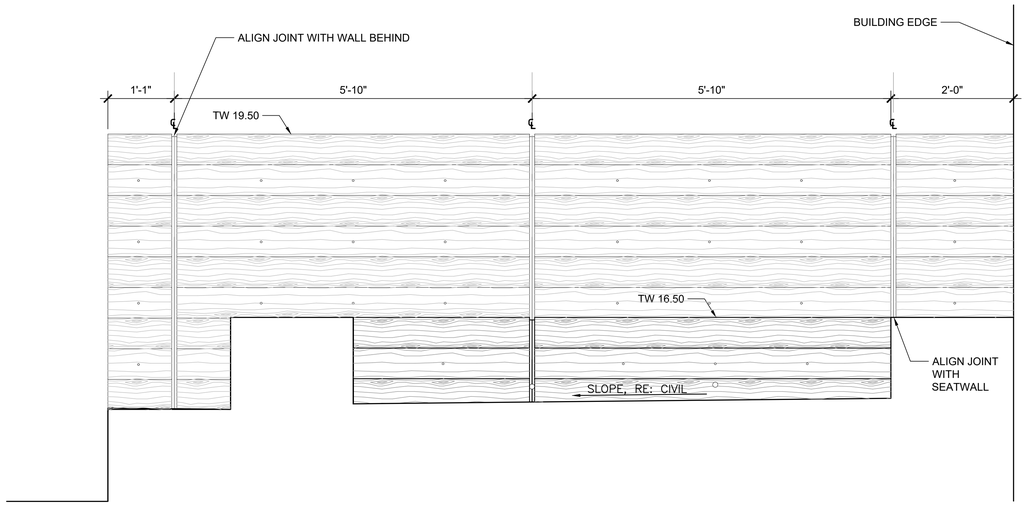
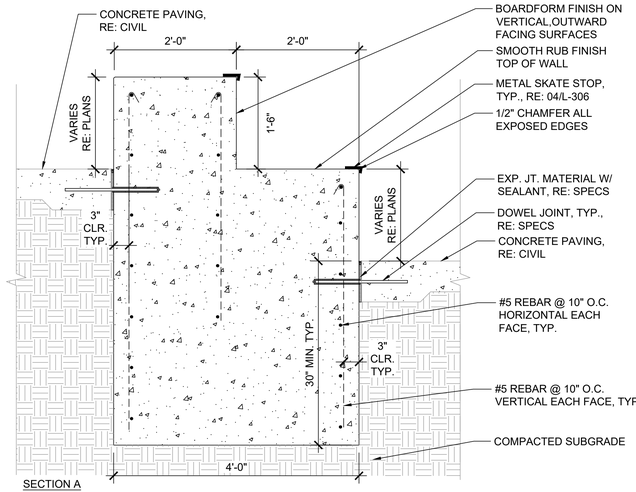


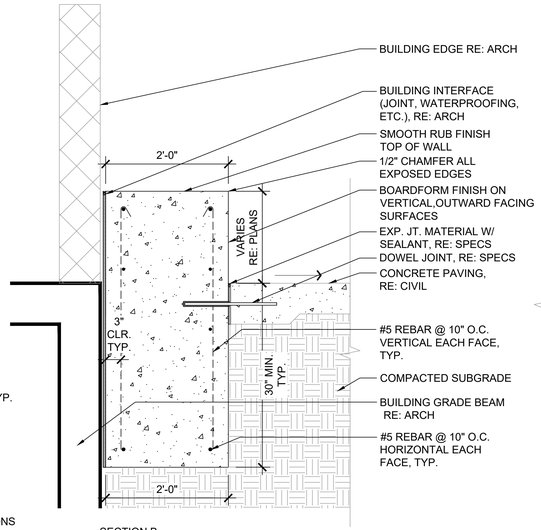
ELEVATION 1



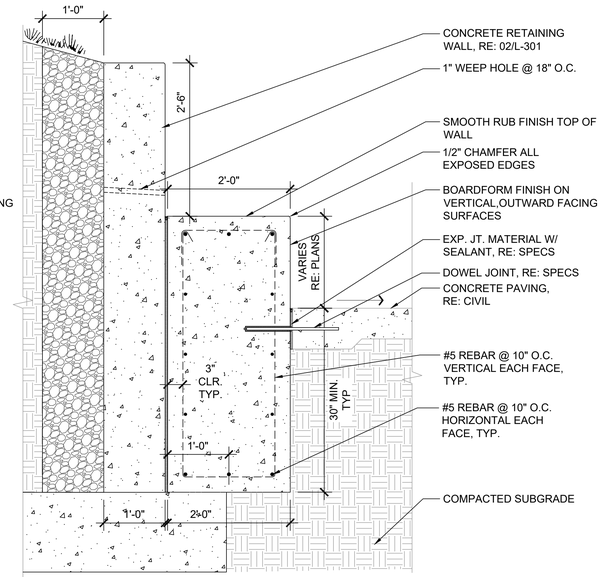
ELEVATION 3



SECTION A



SECTION B



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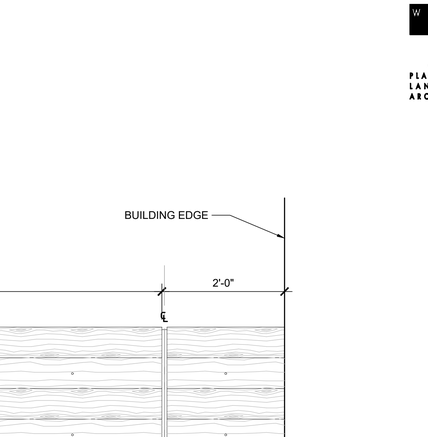

KEY PLAN
NTS

NOTES:
1. REFERENCE LANDSCAPE PLANS FOR TOP OF WALL ELEVATIONS. CONTRACTOR SHALL VERIFY WALL ELEVATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
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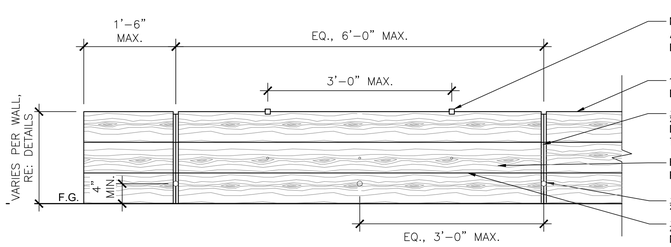
3. REBAR DIMENSIONS PER STRUCTURAL ENGINEER RECOMMENDATIONS.
4. STANDARD GRAY CONCRETE.
5. BOARDFORM FINISH ON VERTICAL, OUTWARD FACING SURFACES. SMOOTH RUB FINISH ON HORIZONTAL FACES.
6. ALL VERTICAL AND HORIZONTAL EDGES OF CONCRETE TO INCLUDE 1/2" CHAMFER.

01 *CONCRETE SEATWALL*
1" = 1'-0"



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3. REBAR DIMENSIONS PER STRUCTURAL ENGINEER RECOMMENDATIONS.
4. STANDARD GRAY CONCRETE, RE: SPECS. ALL EXPOSED VERTICAL SURFACES TO BE BOARD FORM FINISH, AS-CAST CONCRETE TEXTURE IMPARTED BY FORM-FACING MATERIALS. ARRANGE IN ORDERLY AND SYMMETRICAL MANNER WITH MINIMUM OF SEAMS.
5. BOARDFORM FINISH ON VERTICAL FACES. SMOOTH RUB FINISH ON HORIZONTAL FACES.
6. ALL VERTICAL AND HORIZONTAL EDGES OF CONCRETE TO INCLUDE ¾" CHAMFER.
7. USE SNAP OFF TIES THAT REMAIN AT LEAST 1 ½" BEHIND CONCRETE SURFACE, RE: SPECS. SPACE UNIFORMLY ALONG LEVEL HORIZONTAL LINES AND PLUMB VERTICAL LINES IN A GRID PATTERN.

02 *CONCRETE BOARDFORM FINISH - TYPICAL ELEVATION*
1" = 1'-0"

ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS

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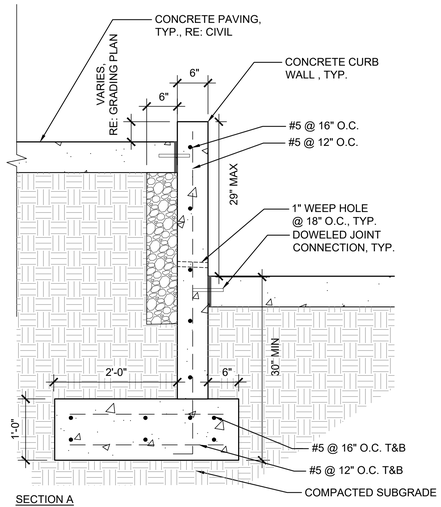
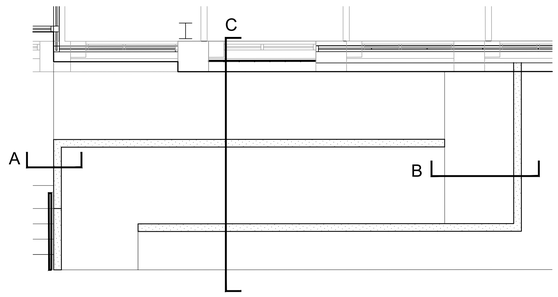
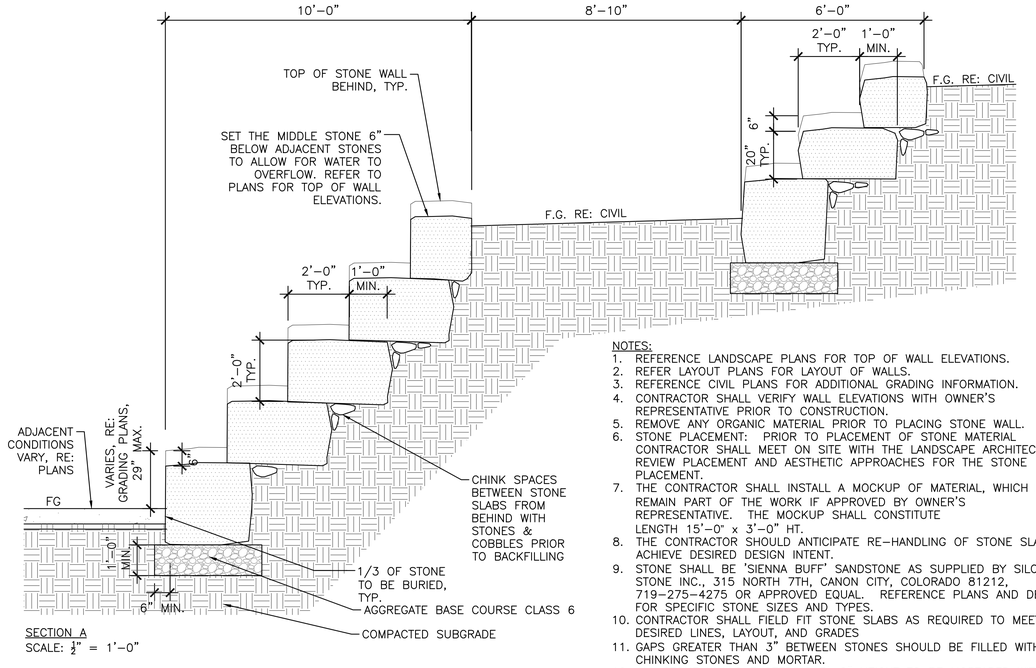


SECTION A

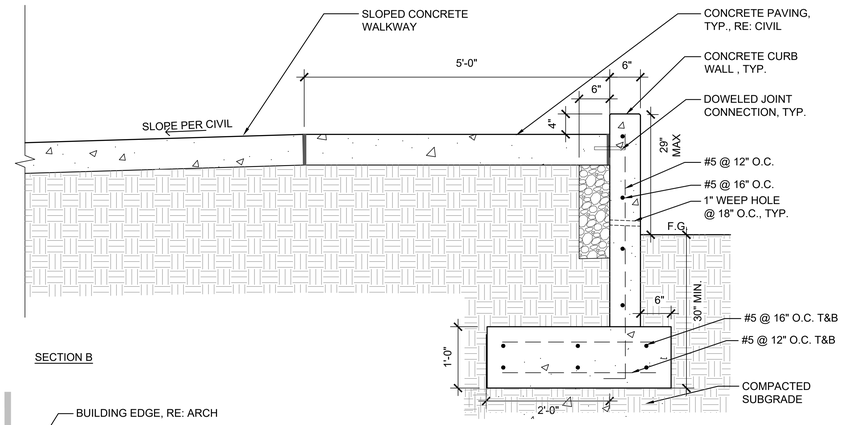


KEY PLAN
NTS

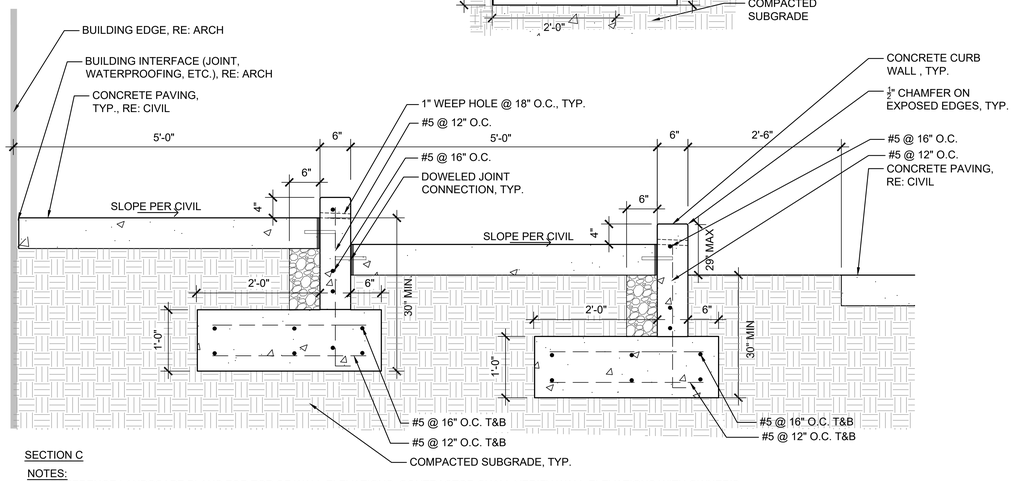


SECTION A
SCALE: $\frac{1}{2}$" = 1'–0"

NOTES:
1. REFERENCE LANDSCAPE PLANS FOR TOP OF WALL ELEVATIONS.
2. REFER LAYOUT PLANS FOR LAYOUT OF WALLS.
3. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION.
4. CONTRACTOR SHALL VERIFY WALL ELEVATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
5. REMOVE ANY ORGANIC MATERIAL PRIOR TO PLACING STONE WALL.
6. STONE PLACEMENT: PRIOR TO PLACEMENT OF STONE MATERIAL CONTRACTOR SHALL MEET ON SITE WITH THE LANDSCAPE ARCHITECT TO REVIEW PLACEMENT AND AESTHETIC APPROACHES FOR THE STONE PLACEMENT.
7. THE CONTRACTOR SHALL INSTALL A MOCKUP OF MATERIAL, WHICH MAY REMAIN PART OF THE WORK IF APPROVED BY OWNER'S REPRESENTATIVE. THE MOCKUP SHALL CONSTITUTE LENGTH 15'–0" x 3'–0" HT.
8. THE CONTRACTOR SHOULD ANTICIPATE RE–HANDLING OF STONE SLABS TO ACHIEVE DESIRED DESIGN INTENT.
9. STONE SHALL BE 'SIENNA BUFF' SANDSTONE AS SUPPLIED BY SILOAM STONE INC., 315 NORTH 7TH, CANON CITY, COLORADO 81212, 719–275–4275 OR APPROVED EQUAL. REFERENCE PLANS AND DETAILS FOR SPECIFIC STONE SIZES AND TYPES.
10. CONTRACTOR SHALL FIELD FIT STONE SLABS AS REQUIRED TO MEET DESIRED LINES, LAYOUT, AND GRADES
11. GAPS GREATER THAN 3" BETWEEN STONES SHOULD BE FILLED WITH CHINKING STONES AND MORTAR.
12. ALL STONE WALLS EXCEEDING 3'–0" HEIGHT TO BE MORTARED WITH JOINT DUGOUT FOR DRY LOOK ON FACE.
13. MORTAR COLOR TO MATCH STONE COLOR.
14. STRUCTURAL DESIGN OF THIS WALL SHALL BE PROVIDED BY THE CONTRACTOR. PROVIDE STAMPED AND SIGNED ENGINEERING DRAWINGS AND CALCULATIONS BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF



SECTION B



SECTION C

NOTES:
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2. SUBMIT SHOP DRAWINGS DEMONSTRATING PREFERRED CONSTRUCTION METHOD, REINFORCING, AND JOINTING FOR APPROVAL PRIOR TO BEGINNING WORK.
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4. STANDARD GRAY CONCRETE.
5. BOARDFORM FINISH ON VERTICAL,OUTWARD FACING SURFACES. SMOOTH RUB FINISH ON HORIZONTAL FACES.
6. ALL VERTICAL AND HORIZONTAL EDGES OF CONCRETE TO INCLUDE $\frac{3}{4}$" CHAMFER.

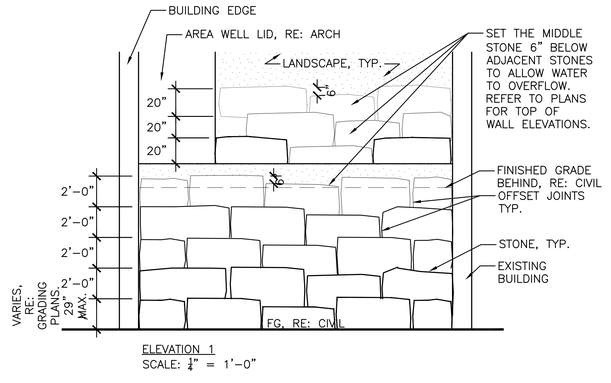
01 CONCRETE CURB WALL @ WALKWAY
1" = 1'-0"

STONE SIZES SCHEDULE :

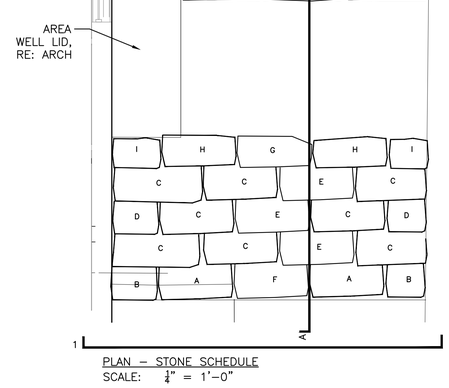
(2) 60"L x 36"W x 40"HT	K: (2) 60"L x 36"W x 32"HT
(2) 30"L x 36"W x 45"HT	L: (1) 60"L x 36"W x 20"HT
(8) 60"L x 36"W x 30"HT	M: (1) 30"L x 36"W x 26"HT
(2) 30"L x 36"W x 30"HT	N: (1) 60"L X 24"W x 20"HT
(3) 60"L x 36"W x 24"HT	O: (2) 60"L x 24"W x 26"HT
(1) 60"L x 36"W x 45"HT	
(1) 60"L x 24"W x 24"HT	
(2) 60"L x 24"W x 30"HT	
(2) 30"L x 24"W x 30"HT	
(2) 60"L x 36"W x 26"HT	

SIZES ARE APPROXIMATE AND MAY VARY BY +/–2". STONES SHALL SPAN THE ENTIRE DISTANCE BETWEEN THE BUILDINGS FOR THE LOWER TERRACE AND AS DRAWN FOR THE UPPER TERRACE. DEPTHS ARE PER SECTION A.

IF STONE SIZES ARE NOT AVAILABLE, CONTRACTOR TO NOTIFY OWNER'S REPRESENTATIVE PRIOR TO SUBMITTING SHOP DRAWINGS. ALTERNATIVE STONE SIZING MAY BE ACCEPTABLE PENDING APPROVAL BY OWNER AND DESIGN TEAM.

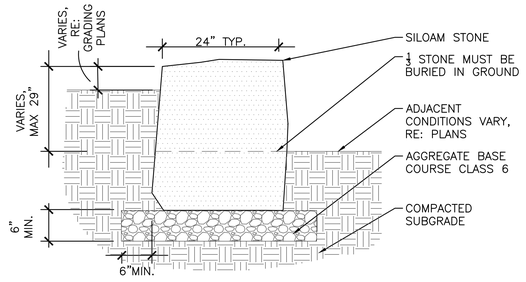


ELEVATION 1
SCALE: $\frac{1}{4}$" = 1'–0"



PLAN – STONE SCHEDULE
SCALE: $\frac{1}{4}$" = 1'–0"

02 STONE RETAINING WALL - TERRACE
AS SHOWN



STONE SIZES (LxWxH):
(3) STONES APPROXIMATELY 60"x24"x45"

NOTES:
1. REFERENCE LANDSCAPE PLANS FOR TOP OF STONE SLAB.
2. REFER LAYOUT PLANS FOR LAYOUT OF STONE.
3. REFERENCE CIVIL PLANS FOR ADDITIONAL GRADING INFORMATION.
4. CONTRACTOR SHALL VERIFY WALL ELEVATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
5. REMOVE ANY ORGANIC MATERIAL PRIOR TO PLACING STONE.
6. THE CONTRACTOR SHOULD ANTICIPATE RE–HANDLING OF STONE SLABS TO ACHIEVE DESIRED DESIGN INTENT.
7. STONE SLABS SHALL BE 'SIENNA BUFF' SANDSTONE AS SUPPLIED BY SILOAM STONE INC., 315 NORTH 7TH, CANON CITY, COLORADO 81212, 719–275–4275 OR APPROVED EQUAL. REFERENCE PLANS AND DETAILS FOR SPECIFIC STONE SIZES AND TYPES.
8. CONTRACTOR SHALL FIELD FIT STONE SLABS AS REQUIRED TO MEET DESIRED LINES, LAYOUT, AND GRADES

03 STONE RETAINING WALL - SINGLE
1" = 1'-0"

WENK ASSOCIATES PLANNERS & LANDSCAPE ARCHITECTS

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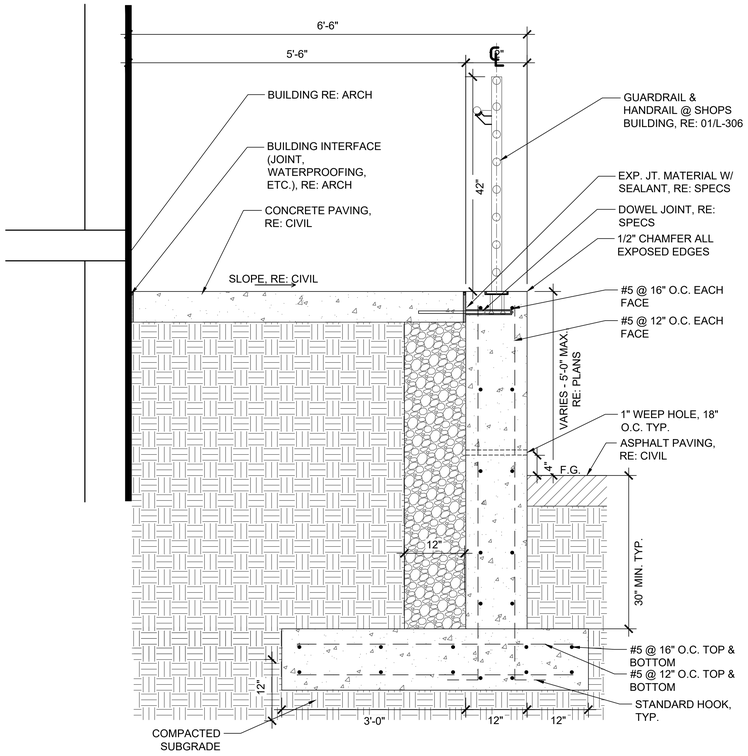
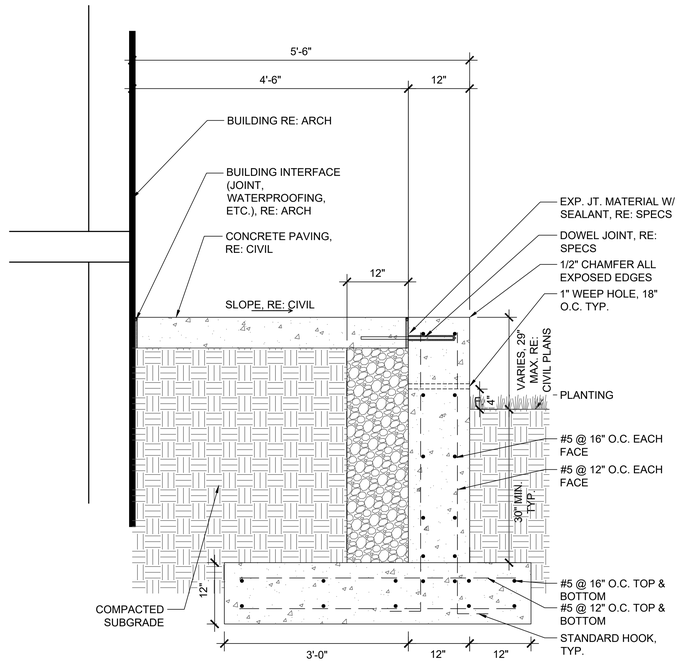
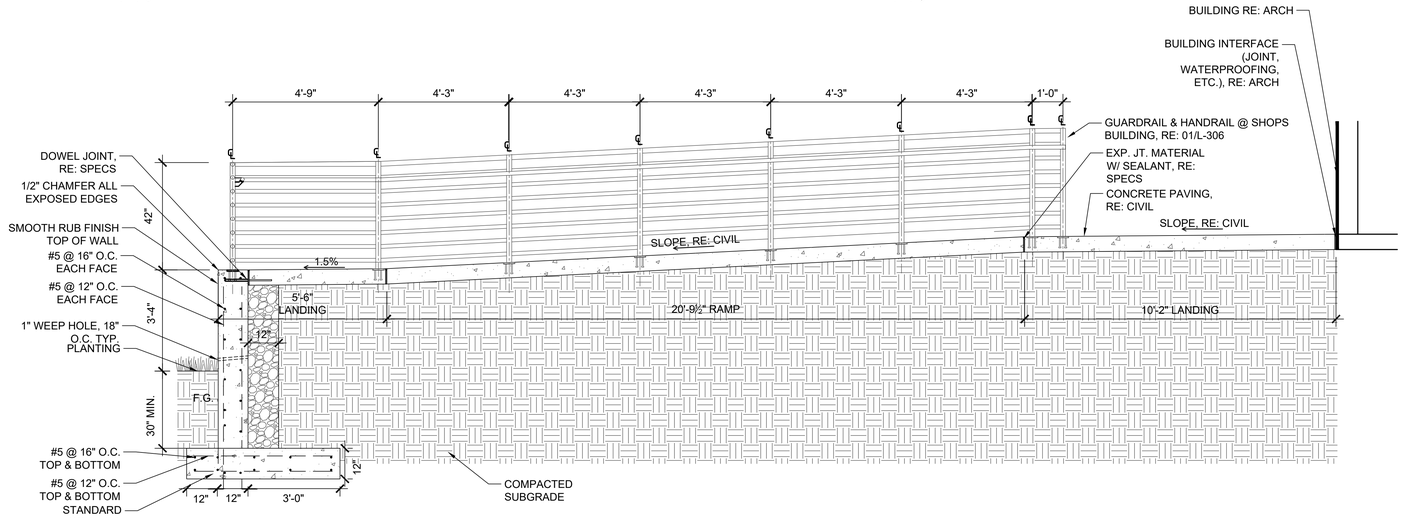


SECTION A
1"=1'-0"

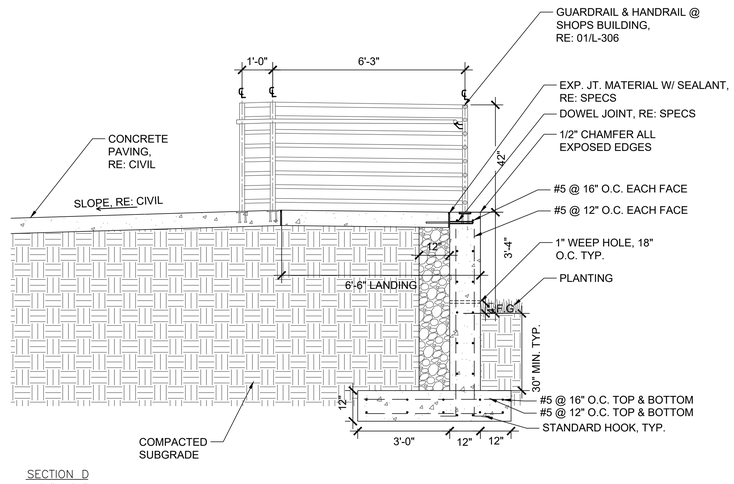


SECTION B
1"=1'-0"

KEY PLAN
1/8" = 1'-0"



SECTION C
1/2"=1'0"



SECTION D
1/2"=1'0"

NOTES:
1. REFERENCE CIVIL PLANS FOR GRADING INFORMATION. CONTRACTOR SHALL VERIFY WALL ELEVATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
2. SUBMIT SHOP DRAWINGS DEMONSTRATING PREFERRED CONSTRUCTION METHOD, REINFORCING, AND JOINTING FOR APPROVAL PRIOR TO BEGINNING WORK.
3. REBAR DIMENSIONS PER STRUCTURAL ENGINEER RECOMMENDATIONS.
4. STANDARD GRAY CONCRETE.
5. BOARD FORM FINISH ON VERTICAL,OUTWARD FACING SURFACES. SMOOTH RUB FINISH ON HORIZONTAL FACES.
6. ALL VERTICAL AND HORIZONTAL EDGES OF CONCRETE TO INCLUDE 1/2" CHAMFER.

01 SLOPED CONCRETE WALKWAY @ SHOP BUILDING
AS SHOWN

wenk ASSOCIATES PLANNERS & LANDSCAPE ARCHITECTS

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NICOLE K. HORST 6/26
09/07/2008 Original Date of Licensure 10/26/2022
STATE OF COLORADO LICENSED LANDSCAPE ARCHITECT

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
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SCALE:

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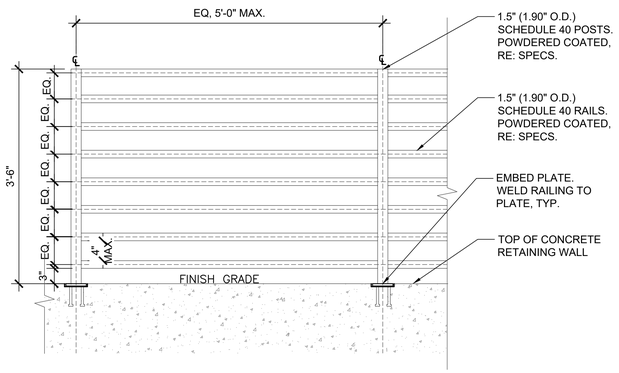
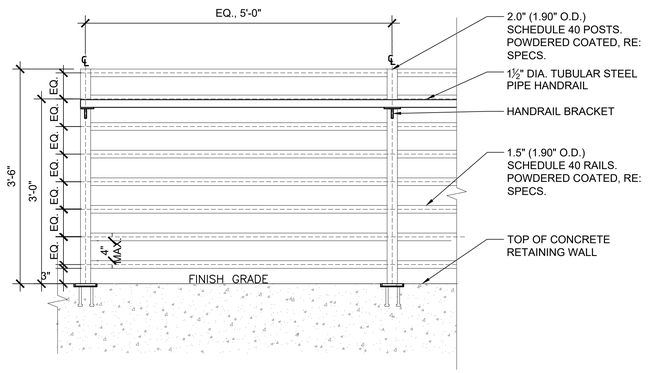
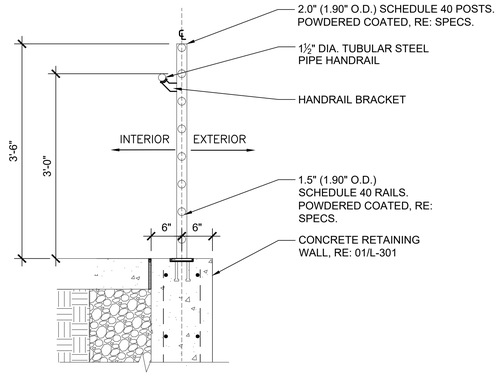


ELEVATION – EXTERIOR
SCALE: 1"=1'–0"



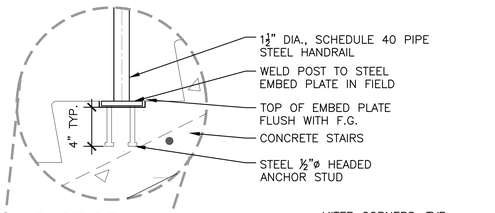
ELEVATION – INTERIOR
SCALE: 1"=1'–0"



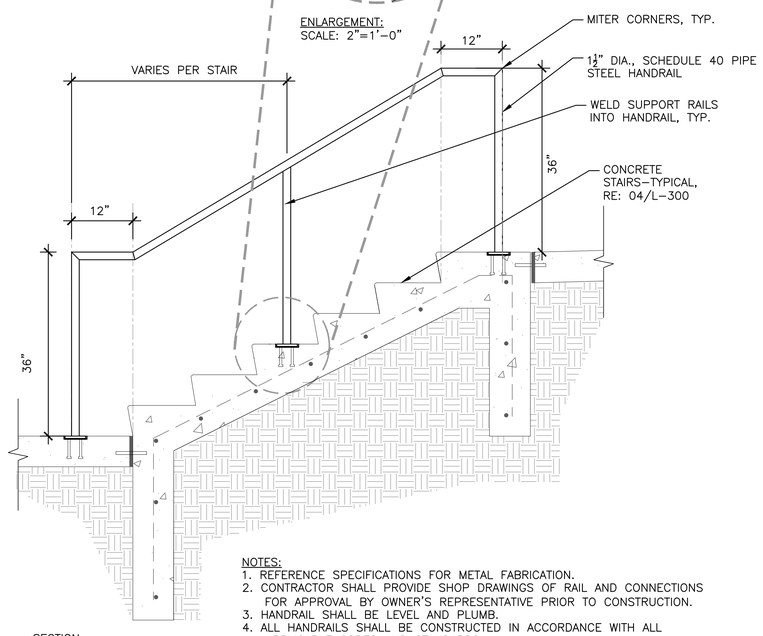
SECTION

NOTES:
1. REFERENCE SPECIFICATIONS FOR METAL TYPE & FINISH.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF RAILINGS & WELDS FOR APPROVAL BY OWNER'S REP. PRIOR TO CONSTRUCTION. DESIGN OF CONNECTIONS & WELDS BY FABRICATOR, UNLESS OTHERWISE NOTED.
3. DRAWINGS TO REFLECT DESIGN INTENT. CONTRACTOR SHALL DEVELOP PROPOSED FABRICATION UNIT SECTIONS AND INTERFACING CONNECTION, AND PROVIDE ALL NECESSARY ACCESSORIES, ATTACHMENTS, & WELDS.
4. ALL GUARDRAILS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS.
5. CONTRACTOR SHALL GRIND AND SMOOTH EDGES TO MINIMIZE BURRS AND POINTS.
6. CONTRACTOR TO COORDINATE WITH OWNERS REPRESENTATIVE STEEL EMBEDMENT LOCATIONS PRIOR TO ANY CONCRETE POURING RELEVANT TO GUARDRAIL/HANDRAIL LOCATIONS.
7. GUARDRAIL SHALL BE LEVEL AND PLUMB.
8. COLOR: POWDER COATING. CUSTOM COLOR: RAL #6009
9. STRUCTURAL DESIGN OF THIS RAILING SHALL BE PROVIDED BY THE CONTRACTOR. PROVIDE STAMPED AND SIGNED ENGINEERING DRAWINGS AND CALCULATIONS BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF COLORADO.

01 GUARDRAIL & HANDRAIL @ SHOPS BUILDING
AS SHOWN



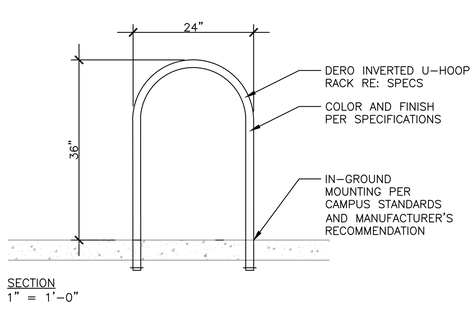
ENLARGEMENT:
SCALE: 2"=1'–0"



NOTES:
1. REFERENCE SPECIFICATIONS FOR METAL FABRICATION.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF RAIL AND CONNECTIONS FOR APPROVAL BY OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
3. HANDRAIL SHALL BE LEVEL AND PLUMB.
4. ALL HANDRAILS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS.
5. COLOR: POWDERCOATED, BRONZE TO MATCH THE GUARDRAILS. RE: ARCH.

SECTION:
SCALE: 1"=1'–0"

02 HANDRAIL - TYPICAL
AS SHOWN

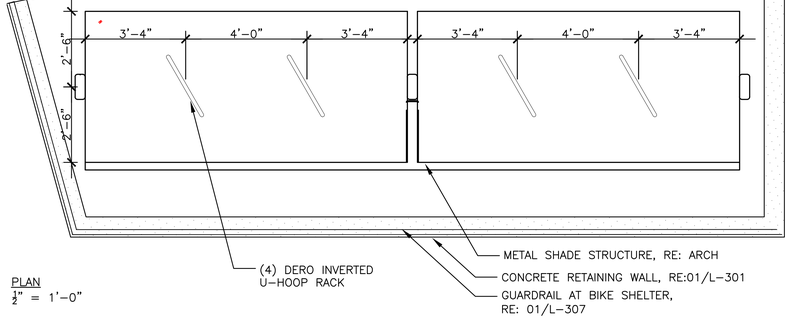


SECTION
1" = 1'–0"

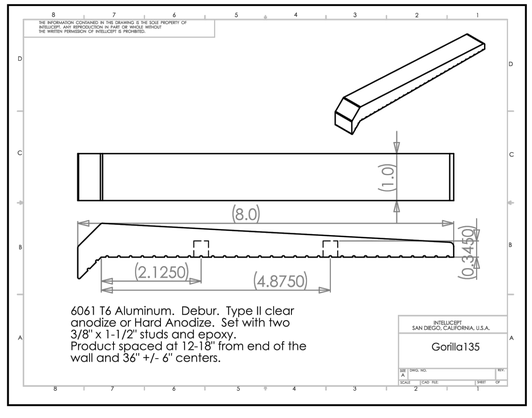
NOTES:
1. INSTALL PER MANUFACTURER RECOMMENDATIONS.
2. REFERENCE SPECIFICATIONS FOR MORE INFORMATION.

BIKE RACKS: INVERTED U– HOOP RACKS OR ULTRA SPACE SAVER BY DERO, MINNEAPLIS, MN. IN–GROUND MOUNTING OR SURFACE BOLTED PREFERRED. 30" O.C. MINIMUM SPACING. POWDER COATING. CUSTOM COLOR: RAL #6009

03 BIKE RACK - U HOOP
NTS



PLAN
½" = 1'–0"



NOTES:
1. INSTALL PER MANUFACTURER RECOMMENDATIONS.
2. REFERENCE PLANS FOR LOCATIONS.

04 METAL SKATE STOPS
N.T.S.

WENK ASSOCIATES PLANNERS & LANDSCAPE ARCHITECTS

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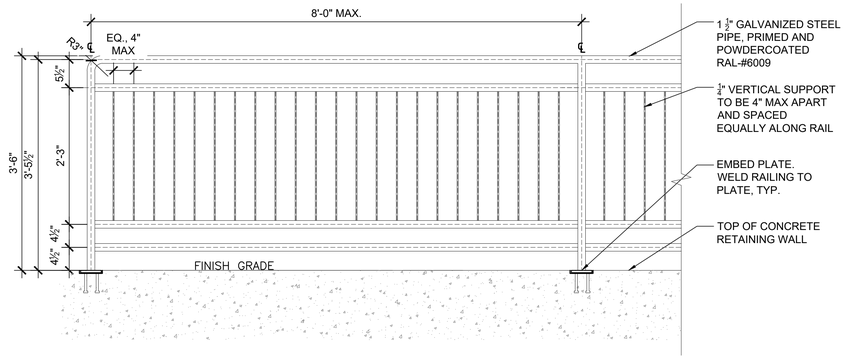
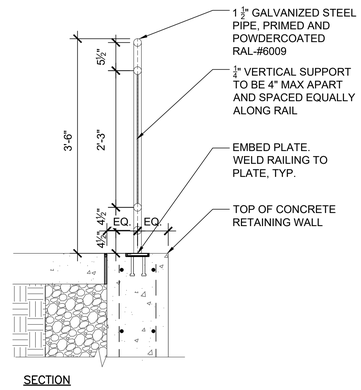


ELEVATION
SCALE: 1"=1'-0"



SECTION

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9. STRUCTURAL DESIGN OF THIS RAILING SHALL BE PROVIDED BY THE CONTRACTOR. PROVIDE STAMPED AND SIGNED ENGINEERING DRAWINGS AND CALCULATIONS BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF COLORADO.

01 *GUARDRAIL @ BIKE SHELTER*
AS SHOWN

ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS

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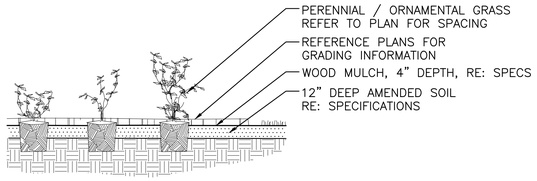
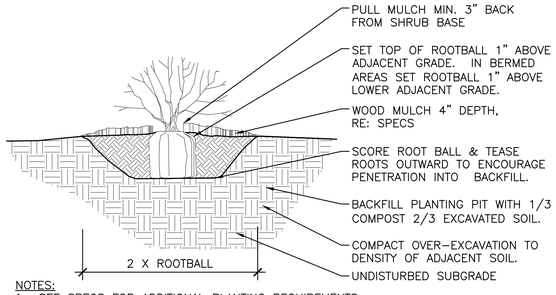


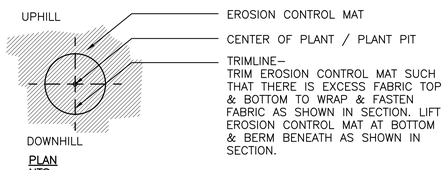
NOTES:
1. SEE SPECS FOR ADDITIONAL PLANTING REQUIREMENTS.
2. PLUMB AND ORIENT PLANTS FOR BEST APPEARANCE.
3. REMOVE ALL TWINE FROM ROOT BALL, AND FOLD BURLAP BACK 2/3.
4. REMOVE PLASTIC BURLAP ENTIRELY. FOR CONTAINER SHRUBS, CAREFULLY REMOVE CONTAINER AND SCORE ROOT BALL.
5. SEE PLANTING PLAN FOR MORE INFORMATION.

01 GROUNDCOVER / ORNAMENTAL GRASS PLANTING
NTS



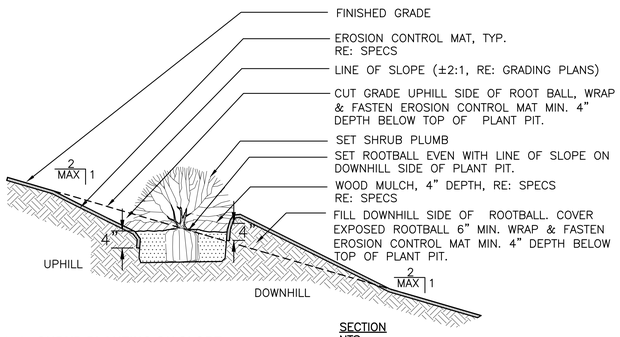
NOTES:
1. SEE SPECS FOR ADDITIONAL PLANTING REQUIREMENTS.
2. PLUMB AND ORIENT PLANTS FOR BEST APPEARANCE.
3. REMOVE ALL TWINE FROM ROOT BALL, AND FOLD BURLAP BACK 2/3.
4. REMOVE PLASTIC BURLAP ENTIRELY. FOR CONTAINER SHRUBS, CAREFULLY REMOVE CONTAINER AND SCORE ROOT BALL.
5. SEE PLANTING PLAN FOR MORE INFORMATION.

02 SHRUB PLANTING
NTS



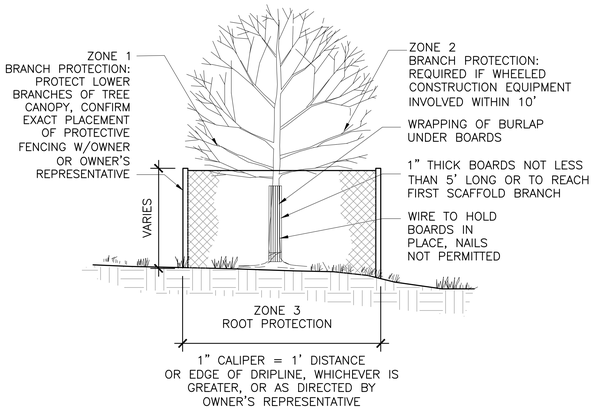
PLAN
NTS

NOTES:
1. REFER TO SHRUB PLANTING DETAIL 02/L-400 FOR ADDITIONAL INFORMATION.
2. THIS INSTALLATION SHALL APPLY TO ALL SHRUBS, PERENNIALS & GROUNDCOVERS PLANTED ON SLOPES GREATER THAN 5:1.
3. REFERENCE CIVIL PLANS FOR GRADING INFORMATION.



SECTION
NTS

03 SHRUB PLANTING ON SLOPE
NTS



NOTES:
1. IN AREAS WHERE GRADING EXTEND INTO EXISTING TREE DRIPLINES, CONTRACTOR SHALL HAND GRADE.
2. REFERENCE TREE PROTECTION SPECIFICATIONS.
3. FIELD VERIFY LOCATION OF TREE PROTECTION FENCE WITH OWNER'S REP. PRIOR TO CONSTRUCTION
4. CONTRACTOR SHALL BE RESPONSIBLE WATERING AND MAINTENANCE, FOR ALL TREES WITHIN PROJECT LIMITS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING TREES, BUILDINGS, AND SITE IMPROVEMENTS CAUSED BY CONSTRUCTION.

04 TREE PROTECTION FENCING
NTS

w e n k
ASSOCIATES
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SYMBOLS LEGEND

SYMBOL	DESCRIPTION
-	GRID LINES
X / XX	SECTION OR DETAIL CUT
	SHEET NUMBER
X / XX	ELEVATION CUT
	SHEET NUMBER
XXX'-XX"	ELEVATION CALLOUT
X	DRAWING REVISION NUMBER
	CURRENT REVISION CLOUD
	WELDED-WIRE REINFORCEMENT
	ROUGHENED SURFACE, INTENTIONALLY ROUGHEN TO 1/4" AMPLITUDE, UNO
	SERVICE LOAD PROVIDED FOR SPECIALTY DESIGNER
	STEP
	SLOPE

SYMBOL	DESCRIPTION
1	KEY NOTE
	SUBGRADE
	FORM SAVER
XX.Xk	MECH UNIT (XX.Xk = MECH UNIT OPERATING WEIGHT IN KIPS INCLUDING INERTIA BASE)
	EXTENT OF CONCRETE PAD
X"	PAD THICKNESS, SEE MEP DRAWINGS
	STRUCTURAL MAS WALL CONTROL JOINT
	CAST-IN-PLACE CONCRETE
SOGXXA / XXX'-XX"	SLAB TYPE; SLAB THICKNESS; TYPE; T/SLAB
F1 / XX'-X"	**F**TG MARK (SF = **S**TRIP **F**TG); T/FTG EL
DPXXA-XX / XX'-X"	**D**RILLED **P**IER DIAMETER IN INCHES; PENETRATION INTO BEDROCK IN FEET; TYPE; T/DRILLED PIER ELEVATION

SYMBOL	DESCRIPTION
XXk — BEAM SIZE [XX] c=X" — XXk (XXX'-XX")	STEEL BEAM; SHEAR STUD QUANTITY; ULTIMATE BM REACTION USING LRFD LOAD COMBINATIONS (KIPS); CAMBER (INCHES); EL OF T/STEEL
	FULL HEIGHT SHEAR CONNECTION, SEE 14/S-500
	MOMENT CONNECTION, SEE 7/S-500
XXk	DESIGN AXIAL DRAG FORCE OR DETAIL
	AXIAL DRAG CONNECTION, PER DETAILS
	BOTTOM FLANGE BRACING CONN, SEE 5/S-500
	BRACING ABOVE LEVEL; BRACING BELOW LEVEL
2VLIX.XXA / XXX'-XX"	DECK TYPE; ABOVE DECK CONCRETE THICKNESS; TYPE; DECK SPAN DIRECTION; T/SLAB AT SLAB-ON-DECK B/DECK AT METAL DECKS
	VOID FORM, SEE FOUNDATION NOTES FOR SIZE
CXX	**C**OLUMN SIZE OR MARK
YW1	WALLS, Y = (**C**)IP CONC, (**M**)AS

SYMBOL	DESCRIPTION
	EXISTING WIDE LINE
	EXISTING MEDIUM LINE
	EXISTING THIN LINE
	EXISTING HIDDEN LINE
(E) TEXT	EXISTING TEXT - OPAQUE
(E) TEXT	EXISTING TEXT - OPAQUE W/ DOT
X	EXISTING GRID LINES
	EXISTING FRAMING (HALFTONE)
	NEW FRAMING
X'-XX"	DIMENSIONS TO EXISTING STRUCTURE, FIELD VERIFY (ITALICS)
X'-XX"	DIMENSIONS TO NEW STRUCTURE

NOTES:
1. ITEMS NOT DESIGNED BY M/M ARE SHOWN HALFTONED, ITEMS INCLUDE:
   - EXISTING CONSTRUCTION
   - PERFORMANCE SPECIFIED ITEMS (STAIRS, RAILINGS, ETC.)

ABBREVIATIONS

(E) or EXIST	Existing
/	Per
@	At
AB	Anchor Bolt
ACI	American Concrete Institute
ADDNL	Additional
AFF	Above Finish Floor
ALT	Alternate
APPROX	Approximate
ARCH	Architect or Architectural
B/ or BO	Bottom of
BAL	Balance
BF	Braced Frame
BG	Backgouge
BL	Brick Ledge
BLDG	Building
BM	Beam
BOS	Bottom of Steel
BOT or B	Bottom
BRG	Bearing
BTWN	Between
CC	Center to Center
CF	Cold Formed
CG	Center of Gravity
CIP	Cast-In-Place
CJ	Control Joint
CJP	Complete Joint Penetration
CL	Centerline
CLMS	Ceiling/Light/Mechanical / Superimposed Load
CLR	Clear
CMU	Concrete Masonry Unit
COL	Column
CONC	Concrete
CONN	Connection
CONST	Construction
CONT	Continue or Continuous
CONTR	Contractor
COORD	Coordinate
CSJ	Construction Joint
CTR(D)	Center(ed)
D or DL	Dead Load
DAS	Deformed Anchor Stud
DFS	Deferred Submittal
DIA OR Ø	Diameter
DIAG	Diagonal
DIM	Dimension
DP	Drilled Pier or Deep
DTL(s)	Detail(s)
DWG(s)	Drawing(s)
DWL(s)	Dowels(s)
E	Earthquake Load
E-W	East-West
EA	Each
EC	Epoxy Coated
EE	Each End
EF	Each Face
EJ	Expansion Joint
EL	Elevation
ELEV	Elevator
EMBED	Embedded
ENGR	Engineer
EOR	Engineer-of-Record
EQ	Equal
EQUIP	Equipment
ES	Each Side
EW	Each Way
EXP	Expansion
EXP ANCH	Expansion Anchor
EXT	Exterior
FAB	Fabricate
FF	Finished Floor
FIN	Finish(ed)
FLG	Flange
FLR	Floor
FND	Foundation
FO	Face of
FRAM	Framing
FS	Far Side
FT	Foot or Feet
FTG	Footing
GA	Gage or Gauge
GALV	Galvanized
GB	Grade Beam
GC	General Contractor
GR	Grade or Grind
H	Soil Lateral Load
HAS or HDAS	Headed Anchor Stud
HD	Headed or Holddown
HDAR	Headed Anchor Rod
HDG	Hot Dipped Galvanized
HORIZ	Horizontal
HT	Height
HVAC	Heating-Ventilating and A/C
I.F.	Inside Face
IN	Inch
INT	Interior
JT	Joint
k	Kip
L	Length or Live Load
LB(S)	Pound(s)
LCE	Compression Embedment
LCS	Compression Lap Splice
LDH	Hook Development Length
LL	Live Load
LLH	Long Leg Horizontal
LLV	Long Leg Vertical
LOC(s)	Location(s) or Locate
LONG	Longitudinal
Lr	Roof Live Load
LSH	Long Side Horizontal
LSV	Long Side Vertical
LT	Light
LTE	Tension Embedment
LTS	Tension Lap Splice Length
LVL	Level
MAS	Masonry
MATL	Material
MAX	Maximum
MCJ	Masonry Control Joint
MECH	Mechanical
MEP	Mech/Elect/Plumb
MIN	Minimum
MISC	Miscellaneous
MLS	Masonry Lap Splice
MNFR	Manufacturer
MO	Masonry Opening
MTL	Metal
N	North
N-S	North-South
NO OR #	Number
NOM	Nominal
NS	Non-Shrink or Near Side
NTS	Not to Scale
NWC	Normal Weight Concrete
O.F.	Outside Face
OAE	Or Approved Equivalent
OC	On Center
OD	Outside Diameter
OH	Opposite Hand
OPNG	Opening
OPP	Opposite
OVS	Oversized
PAF	Powder Actuated Fastener
PCA	Portland Cement Association
PD	Pier Dowel
PEN	Penetration
PERP	Perpendicular
PL	Plate (Steel)
PLF	Pounds Per Lineal Foot
PRELIM	Preliminary
PS	Prestressed
PSF	Pounds Per Square Foot
PSI	Pounds Per Square Inch
PT	Point or Post-Tension or Pretensioned
QTY	Quantity
R	Radius or Rain Load
RAD	Radius
RC	Reinforced Concrete
REINF	Reinforce(ing)(d)(ment)
REQD	Required
REQT(s)	Requirement(s)
RET	Return
RO	Rough Opening
S	South
SCHED	Schedule
SECT	Section
SIM	Similar
SL	Snow Load
SLH	Short Leg Horizontal
SLV	Short Leg Vertical
SOG	Slab on Grade
SP	Space(s)
SP @	Space at
SPECS	Specifications
SPRT	Support
SS	Stainless Steel
SSL	Short-Slotted
STD	Standard
STIFF	Stiffener
STL	Steel
STR	Structural
SW	Shear Wall
SYM	Symmetrical
T	Top or Thermal Load
T&B	Top and Bottom
T/ or T.O.	Top of
THK	Thick or Thickness
TL	Total Load
TOC	Top of Concrete
TOF	Top of Footing
TOM	Top of Masonry
TOP	Topping
TOS	Top of Steel
TOW	Top of Wall
TRANS	Transverse
TYP	Typical
ULT	Ultimate
UNO	Unless Noted Otherwise
Vasd	Service Level/Nominal Design Wind Speed
VERT	Vertical
VIF	Verify in Field
Vult	Ultimate Design Wind Speed
W	Wind Load
W/	With
W/O	Without
WF	Wide Flange
WP	Working Point
WPS	Welding Procedure Specification
WT	Weight
WWR	Welded Wire Reinforcing
WxH	Width x Height

FOUNDATION NOTES

1) DESIGN CRITERIA:
THE GEOTECHNICAL REPORT PREPARED BY CTL THOMPSON, NUMBER CS19531-125, DATED APRIL 21, 2022 AND EMAIL CORRESPONDENCE BETWEEN M/M AND CTL THOMPSON DATED MAY 18, 2022, JUNE 8, 2022 AND AUGUST 22, 2022 PROVIDED CRITERIA FOR THE FOUNDATION DESIGN FOR THE PROJECT.

2) FOOTINGS/ STIFFENED SLAB-ON-GRADE (SHOP BUILDING):
2A) FOOTING DESIGN CRITERIA:
- MAXIMUM TOTAL LOAD BEARING PRESSURE = 3000 PSF
- MINIMUM CONTINUOUS FOOTING WIDTH = 1.33 FT
- MINIMUM SPREAD FOOTING WIDTH = 2.0 FT
- ULTIMATE COEFFICIENT OF FRICTION TO RESIST LATERAL LOADS = 0.35
- FROST DEPTH TO BOTTOM OF FOUNDATION = 30 IN

3) DRILLED PIERS (LAB BUILDING):
- PIER DESIGN CRITERIA:
- MAXIMUM END BEARING PRESSURE = 35 KSF
- MAXIMUM SIDE SHEAR FOR LENGTH OF PENETRATION INTO BEDROCK FOR GRAVITY LOADS = 3.5 KSF
- MAXIMUM SIDE SHEAR FOR LENGTH OF PENETRATION INTO BEDROCK FOR UPLIFT LOADS = 3.5 KSF
- FROST DEPTH TO BOTTOM OF FOUNDATION = 30 IN
- MINIMUM PENETRATION INTO BEDROCK = 7 FT
- MINIMUM PIER LENGTH = 27 FT
- MINIMUM PIER DIAMETER = 18 IN
- DRILLING SLURRY IS NOT ANTICIPATED FOR PIER INSTALLATION. HOWEVER, IF SLURRY IS REQUIRED FOR INSTALLATION, PROVIDE SHEAR RINGS IN BEDROCK. SHEAR RINGS TO BE 2FT ON CENTER, TO BE 3 INCHES TALL AND EXTEND 4" BEYOND THE DRILLED PIER SHAFT. IF DRILLING SLURRY IS USED, SUBMIT INFORMATION ON SLURRY COMPOSITION AND MEANS/METHODS OF INSTALLATION PER SPECIFICATIONS.

4) FOUNDATION WALLS:
4A) EQUIVALENT FLUID PRESSURES USED FOR WALL DESIGN SEE FIGURES FROM GEOTECH REPORT BELOW:

4B) WALL DESIGN BASED ON IN-SITU SOILS ADJACENT TO FOUNDATION WALLS. SEE GEOTECHNICAL REPORT FOR REQUIREMENTS.
4C) EQUIVALENT LATERAL FLUID PRESSURE FOR PEA GRAVEL BACKFILL AT FOUNDATION WALL BETWEEN GRIDS B AND D ALONG GRID 1 = 43 PCF, SEE DETAIL 4/S-205 FOR PEA GRAVEL REQUIREMENTS EXCEPT AT FOUNDATION WALL BETWEEN GRIDS B AND D ALONG GRID 1, WHERE IMPORTED PEA GRAVEL BACKFILL SHALL BE USED.
4D) 100PSF LIVE LOAD SURCHARGE ASSUMED, UNLESS NOTED OTHERWISE.
4E) PASSIVE PRESSURE = 300 PCF

5) VOID FORM:
5A) ALL GRADE BEAMS, TIE BEAMS, AND PIER CAPS SHALL BE CONSTRUCTED OVER A 4 IN. HIGH VOID

ISOMETRIC

SHOP BUILDING

LAB BUILDING

GENERAL NOTES

1) GENERAL:
1A) ENGINEER: REFERENCES ON THE STRUCTURAL DRAWINGS TO 'ENGINEER' MEAN THE STRUCTURAL ENGINEER OF RECORD. OTHER ENTITIES ARE SPECIFICALLY NOTED AS "CONTRACTOR'S ENGINEER", "MECHANICAL ENGINEER", ETC.
1B) THESE NOTES SUPPLEMENT THE SPECIFICATIONS, WHICH SHALL BE REFERENCED FOR ADDITIONAL REQUIREMENTS.
1C) UNDERGROUND UTILITIES: LOCATE EXISTING UTILITIES AND NOTIFY ARCHITECT OF EXISTING UTILITIES OR SUBGRADE CONDITIONS WHICH INTERFERE WITH WORK.
1D) STRUCTURAL ELEMENTS ARE CENTERED ON GRID LINES AND GRID LINE INTERSECTIONS UNLESS DIMENSIONED OTHERWISE.

2) USE OF DRAWINGS:
2A) DO NOT SCALE DRAWINGS.
2B) DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
2C) DETAILS NOTED TYPICAL APPLY TO ALL SIMILAR CONDITIONS. WHERE NO SPECIFIC DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ELSEWHERE ON THE PROJECT.
2D) WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES AND SPECIFICATIONS:
- CONTACT THE ARCHITECT PRIOR TO PROCEEDING WITH CONSTRUCTION
- THE MORE STRINGENT REQUIREMENTS SHALL GOVERN FOR BIDDING / PRICING

3) EXISTING STRUCTURES:
3A) CONTRACT DOCUMENTS HAVE BEEN PREPARED USING AVAILABLE DRAWINGS AND SITE OBSERVATION AS PERMITTED BY ACCESS RESTRICTIONS DURING DESIGN.
3B) DURING CONSTRUCTION, THE CONTRACTOR MAY ENCOUNTER EXISTING CONDITIONS WHICH ARE NOT KNOWN OR ARE AT VARIANCE WITH PROJECT DOCUMENTATION. CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ALL CONDITIONS NOT PER THE CONTRACT DOCUMENTS. EXAMPLES INCLUDE:
- SIZES OR DIMENSIONS OTHER THAN THOSE SHOWN
- DAMAGE OR DETERIORATION TO MATERIALS AND COMPONENTS
- CONDITIONS OF INSTABILITY OR LACK OF SUPPORT
- ITEMS NOTED AS EXISTING ON THE DRAWINGS BUT NOT FOUND IN THE FIELD

3C) PREPARE DIMENSIONAL DRAWINGS OF ALL DISCOVERED ITEMS.
3D) CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURAL CONDITIONS PRIOR TO SUBMITTING SHOP DRAWINGS.
3E) CONTRACTOR SHALL MAKE ALLOWANCE FOR THE RESOLUTION OF SUCH DISCOVERIES IN THE CONSTRUCTION SCHEDULE.
3F) SUBMIT A DIMENSIONED DRAWING OF ALL NEW OPENINGS THROUGH EXISTING STRUCTURE AND SECURE APPROVAL PRIOR TO CUTTING. NEW OPENING MAY BE EITHER SHOWN ON THE CONTRACT DOCUMENTS OR PROPOSED BY THE CONTRACTOR. DRAWING SHALL SHOW:
- VERTICAL & HORIZONTAL LOCATION AND SIZE OF NEW OPENING(S)
- ALL EXISTING OPENINGS IN THE VICINITY OF THE NEW OPENING(S)
- ALL EXISTING STRUCTURE (BEAMS, COLUMNS, SLABS, WALLS, ETC) IN THE VICINITY OF THE NEW OPENING(S)
- ALL REINFORCING BAR SIZES AND POSITIONS (LAYOUT LOCATION AND DEPTH) CONFLICTING WITH OR IN THE VICINITY OF THE NEW OPENING(S).

4) COORDINATION:
4A) STRUCTURAL DRAWINGS ARE NOT STAND-ALONE DOCUMENTS AND ARE INTENDED TO BE USED IN CONJUNCTION WITH CIVIL, ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND DRAWINGS FROM OTHER DISCIPLINES. THE CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS INTO SHOP DRAWINGS AND WORK.
4B) COORDINATE DIMENSIONS OF ALL OPENINGS, BLOCKOUTS, DEPRESSIONS, ETC., WITH ARCHITECTURAL DRAWINGS, DRAWINGS FROM OTHER DISCIPLINES, AND FIELD CONDITIONS PRIOR TO SHOP DRAWING SUBMITTAL.
4C) SEE ARCHITECTURAL PLANS FOR INTERIOR PARTITIONS. PARTITION FRAMING SHALL BE CONNECTED TO THE PRIMARY STRUCTURE IN SUCH A WAY SO AS TO ALLOW FOR VERTICAL LIVE LOAD DEFLECTIONS OF SPAN/360 OF THE FLOOR OR ROOF FRAMING. DO NOT MAKE RIGID VERTICAL AND HORIZONTAL CONNECTIONS TO THE PRIMARY STRUCTURE IN THE PLANE OF THE PARTITION.

5) SUBMITTALS AND SUBSTITUTIONS:
5A) SUBMITTALS: REFER TO SPECIFICATIONS FOR DETAILED REQUIREMENTS.
- IF THE CONTRACTOR REQUESTS A CHANGE FROM THE STRUCTURAL DRAWINGS, IT SHALL BE APPROVED BY THE ARCHITECT AND DESIGNED BY MARTIN/MARTIN, INC. PRIOR TO SUBMITTING SHOP DRAWINGS. VARIATION SHALL BE INDICATED ON THE SHOP DRAWINGS. CONTRACTOR SHALL COMPENSATE MARTIN/MARTIN, INC. FOR MAKING THE CHANGE.
- CONSTRUCTION DOCUMENTS SHALL NOT BE REPRODUCED FOR USE IN SUBMITTALS
- ALL SHOP DRAWINGS SHALL REFERENCE THE STRUCTURAL DRAWING NUMBER AND DETAIL USED TO PREPARE THE SUBMITTAL
- SUBMIT A STATEMENT OF RESPONSIBILITY FOR CONSTRUCTION OF THE LATERAL LOAD RESISTING SYSTEM IDENTIFIED IN THE DESIGN CRITERIA IN ACCORDANCE WITH IBC 2018 SECTION 1704

5B) SUBSTITUTIONS: ARCHITECT'S APPROVAL SHALL BE SECURED FOR ALL SUBSTITUTIONS
5C) NONCONFORMANCE: NOTIFY ARCHITECT OF CONDITIONS NOT CONSTRUCTED PER THE CONTRACT DOCUMENTS PRIOR TO PROCEEDING WITH CORRECTIVE WORK. SUBMIT PROPOSED REPAIR TO THE ARCHITECT FOR ACCEPTANCE. CONTRACTOR SHALL COMPENSATE MARTIN/MARTIN, INC. FOR DESIGNING THE REPAIR.

6) TEMPORARY CONDITIONS, CONSTRUCTION ENGINEERING, AND OSHA STANDARDS:
6A) THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION AND ONLY FOR LOADS ANTICIPATED DURING THE STRUCTURE'S SERVICE LIFE.
6B) THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES. REFER TO "LATERAL LOAD RESISTING SYSTEM DESCRIPTION" IN DESIGN CRITERIA FOR ADDITIONAL INFORMATION. CONTRACTOR SHALL PROVIDE ALL REQUIRED ENGINEERING AND OTHER MEASURES TO ACHIEVE THE MEANS, METHODS, AND SEQUENCES OF WORK WHICH MAY INCLUDE, BUT IS NOT LIMITED TO:
- LAYOUT
- DESIGN FOR FORMWORK, SHORING, AND RESHORING
- DESIGN OF CONCRETE MIXES
- ERECTION PROCEDURES WHICH ADDRESS STABILITY OF THE FRAME DURING CONSTRUCTION
- WELD PROCEDURES
- DESIGN OF TEMPORARY BRACING OF WALLS FOR WIND, SEISMIC, OR SOIL LOADS
- SURVEYING TO VERIFY CONSTRUCTION TOLERANCES
- EVALUATION OF TEMPORARY CONSTRUCTION LOADS ON STRUCTURE DUE TO EQUIPMENT AND MATERIALS
- STRUCTURAL ENGINEERING TO RESIST ANY OTHER LOADS NOT IDENTIFIED ON DESIGN DRAWINGS

6C) CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.
6D) FOUNDATION WALLS AND GRADE BEAMS SHALL NOT BE BACKFILLED UNTIL THE SLABS-ON-GRADE AND UPPER SLABS ARE IN-PLACE AND REACH FULL STRENGTH UNLESS ADEQUATE BRACING IS PROVIDED. USE ONLY HAND OPERATED TOOLS FOR COMPACTION ADJACENT TO FOUNDATION WALLS AND GRADE BEAMS. GRADE BEAMS SHALL BE BACKFILLED EVENLY ON BOTH SIDES.
6E) NOTHING SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE CONSTRUED AS ELIMINATING THE NEED FOR THE CONTRACTOR TO COMPLY WITH ALL OSHA REQUIREMENTS. WHERE THE STRUCTURAL DRAWINGS APPEAR TO CONFLICT WITH OSHA REQUIREMENTS, THE STRUCTURAL DRAWINGS REPRESENT FINAL CONDITIONS ONLY.
- THE CONTRACTOR SHALL ADD ALL ERECTION FRAMING NECESSARY TO COMPLY WITH OSHA.
- THE CONTRACTOR SHALL ADD ALL NECESSARY BOLTS, ANCHOR BOLTS, PLATES, STIFFENER PLATES, STABILIZER PLATES, BRIDGING, BRACING, BEARING SEATS, COLUMN SPLICES, ETC., AS WELL AS CLOSURES FOR OPENINGS. IN ADDITION, FIELD WELD ANYTHING THAT MAY BE CONSIDERED A TRIP HAZARD, SUCH AS SHEAR STUDS, AFTER PROTECTIVE DECKING IS INSTALLED.
- WASHERS OR RINGS MAY BE WELDED TO COLUMNS TO PROVIDE FOR SAFETY CABLES. HOLES IN COLUMNS FOR SAFETY CABLES SHALL BE SHOP INSTALLED AND SHALL BE INDICATED ON SHOP DRAWINGS. ADJUST COLUMN SPLICE LOCATIONS OR ADD COLUMN SPLICES AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS. SUBMIT PROPOSED LOCATIONS.

DEFERRED SUBMITTALS

1) GENERAL:
1A) THE FOLLOWING PORTIONS OF THE STRUCTURAL DESIGN WILL NOT BE SUBMITTED AT THE TIME OF PERMIT APPLICATION. WHEN RECEIVED AND REVIEWED, THESE DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL BY THE CONTRACTOR:
- EXCAVATION SHORING
- METAL STAIRS
- CURTAIN WALL/STOREFRONT SYSTEMS
- ARCHITECTURAL/METAL CLADDING PANEL
- LIGHT GAGE METAL STUDS, EXTERIOR STUDS AT THE LAB BUILDING AND INCLUDING ATYPICAL INTERIOR FRAMING THAT DOES NOT MEET PRESCRIPTIVE DESIGN LIMITATIONS PER DIVISION 9 SPECIFICATIONS AT BOTH THE LAB AND SHOP BUILDING
- SKYLIGHT SYSTEMS
- METAL RAILINGS
- ANCHORAGE, BRACING AND ATTACHMENT OF REQUIRED ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE SPRINKLER, AND OTHER EQUIPMENT AND SYSTEMS.
- PERMANENT EARTH SHORING SYSTEMS
- BLAST RESISTANT INTERIOR PARTITION WALLS

1B) CONNECTION OF DEFERRED SUBMITTAL ITEMS TO PRIMARY STRUCTURE BY DEFERRED SUBMITTAL SUPPLIER. DEFERRED SUBMITTAL SUPPLIER TO PROVIDE CONNECTIONS AND FRAMING ARRANGEMENT TO AVOID LOADING WHICH EXCEEDS THE CAPACITY OF THE ELEMENT BEING ATTACHED TO. REFERENCE LOAD MAPS FOR MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SPRINKLER LOAD ALLOWANCES.
1C) ALL DEFERRED SUBMITTALS TO BE ATTACHED TO PRIMARY STRUCTURE WITH A PINNED CONNECTION. MOMENT CONNECTIONS TO PRIMARY STRUCTURE NOT PERMITTED UNLESS NOTED ON DRAWINGS OR APPROVED BY ENGINEER IN WRITING PRIOR TO SUBMITTAL OF DRAWINGS OR CALCULATIONS.
1D) LOADING AND LOCATION FOR ATTACHMENT OF DEFERRED SUBMITTAL ITEMS ARE NOTED ON DRAWINGS AND ARE NOT TO BE RE-LOCATED OR INCREASED WITHOUT WRITTEN APPROVAL.
1E) GC / METAL STUD FRAMING DESIGNER / CLADDING DESIGNER COORDINATION:
- METAL STUD FRAMING AND FRAMING ATTACHMENT IS DESIGNED FOR THE TRIBUTARY WIND AND GRAVITY LOAD OF THE STUD SPACING. CLADDING SUPPLIER TO DESIGN CLADDING TO ATTACH AT EACH STUD. CLADDING ATTACHMENT SPACING WHICH EXCEEDS THE STUD SPACING IS NOT ACCEPTABLE WITHOUT APPROVAL FROM THE METAL STUD SUPPLIER/DESIGNER AND THE PROJECT EOR.
- IF THE CLADDING SUPPLIER DOES NOT WANT OR CANNOT ATTACH TO EACH STUD THE LOADS FROM THE CLADDING SUPPLIER MUST BE PROVIDED TO THE METAL STUD FRAMING SUPPLIER. THE METAL STUD FRAMING SUPPLIER WILL NEED TO INCORPORATE THESE LOADS INTO THE METAL STUD FRAMING DESIGN.
- GC TO COORDINATE BETWEEN METAL STUD FRAMING SUPPLIER AND CLADDING SUPPLIER AS REQUIRED.

1F) WALLS, GRADE BEAMS AND THE UNDERSIDE OF CONCRETE ON METAL DECK SHALL BE CONSIDERED CRACKED FOR THE PURPOSE OF DESIGNING ANCHORS FOR ATTACHMENT OF DEFERRED SUBMITTAL ITEMS.
1G) SUBMIT STAMPED STRUCTURAL CALCULATIONS FOR ALL DEFERRED SUBMITTAL ITEMS PRIOR TO OR CONCURRENTLY WITH DRAWINGS OR PRODUCT DATA. INCLUDE ANALYSIS OF ATTACHMENT TO PRIMARY STRUCTURE. INCLUDE CURRENT ICC REPORT WITH ALL PROPRIETARY STRUCTURAL ELEMENTS AND ANCHORS/FASTENERS.
1H) POWDER ACTUATED FASTENERS (PAF) INTO CONCRETE OR CMU SHALL NOT BE USED TO RESIST TENSION LOADS. POWDER ACTUATED FASTENERS SHALL NOT BE USED TO RESIST GRAVITY LOADS WHICH INCLUDE BRICK VENEER.
1I) REFERENCE COLD-FORMED STEEL FRAMING NOTES FOR ADDITIONAL DEFERRED SUBMITTAL DESIGN CRITERIA, SEE 4/S-540
1J) REFERENCE SOIL ANCHOR NOTES AND CRITERIA SHEET S-050 FOR ADDITIONAL INFORMATION AND REQUIREMENTS OF PERMANENT SHORING.

STRUCTURAL DRAWING LIST

SHEET NUMBER	SHEET TITLE	PACKAGE 1 7/27/2022	PACKAGE 2 9/07/2022	75% CD/GMP 9/21/2022	100% CD 10/26/2022
S-001	GENERAL NOTES		P	R	X
S-002	GENERAL NOTES		P	R	X
S-003	GENERAL NOTES & QUALITY ASSURANCE		P	R	X
S-004	QUALITY ASSURANCE		P	R	X
S-005	SNOW LOAD PLAN		R	R	X
S-050	PERMANENT SHORING WALL PLAN	X	R	R	
S-051	PERMANENT SHORING WALL SECTIONS	X	R	R	
S-101	FOUNDATION PLAN		X/P	X/R	X
S-102	LEVEL 2 FRAMING PLAN		R	R	X
S-103A	LEVEL 3 FRAMING PLAN - LAB BUILDING		R	R	X
S-103B	FOUNDATION PLAN - SHOP BUILDING		P	R	X
S-104	ROOF FRAMING PLANS		R	R	X
S-201	LAB BUILDING ELEVATIONS		R	R	X
S-202	SHOP BUILDING ELEVATIONS		R	R	X
S-205	EXTERIOR BUILDING SECTIONS		R/P	R	X
S-206	EXTERIOR BUILDING SECTIONS AND DETAILS		R/P	R	X
S-210	MAIN STAIR PARTIAL PLANS		R/P/X	X/R	X
S-211	STAIR PARTIAL PLANS		R/P/X	X/R	X
S-250	CORE WALL ELEVATIONS		R/P	R	X
S-251	CORE WALL ELEVATIONS		R/P	R	X
S-300	TYPICAL SLAB-ON-GRADE DETAILS		P	R	X
S-301	SLAB ON GRADE DETAILS		P	R	X
S-305	TYPICAL DRILLED PIER DETAILS		X/P	X/R	X
S-306	DRILLED PIER DETAILS		X/P	X/R	X
S-307	TYPICAL GRADE BEAM DETAILS		P	R	X
S-308	GRADE BEAM DETAILS		P	R	X
S-310	TYPICAL CONCRETE DETAILS		P	R	X
S-400	MASONRY WALL DETAILS		R	R	X
S-401	MASONRY WALL DETAILS		R	R	X
S-402	MASONRY WALL DETAILS				X
S-500	TYPICAL STEEL DETAILS		R	R	X
S-501	TYPICAL STEEL DETAILS		R	R	X
S-510	PERFORMANCE STAIRS AND CURTAIN WALL DETAILS		R	R	X
S-515	BRACED FRAME ELEVATIONS AND DETAILS		R	R	X
S-516	STEEL DETAILS		R	R	X
S-530	TYPICAL SLAB ON METAL DECK DETAILS		R	R	X
S-531	TYPICAL ROOF DECK DETAILS		R	R	X
S-532	STEEL DETAILS				X
S-540	PERFORMANCE SPECIFIED FRAMING		R	R	X
S-545	TYP CF LOAD BEARING DETAILS		R	R	X
S-546	TYP CF LOAD BRG FLR & METAL STUD SHEAR WALL DETAILS		R	R	X
S-547	TYP CF LOAD BRG FLR & METAL STUD SHEAR WALL DETAILS				X
S-548	TYP CF SHEAR WALL ELEVATIONS			R	X

DRAWING PACKAGE LEGEND:
"X" = ISSUED FOR CONSTRUCTION (SEE SHEETS FOR FURTHER CLARIFICATIONS)
"P" = ISSUED FOR PERMIT
"R" = ISSUED FOR REFERENCE
WHERE MORE THAN ONE DESIGNATION IS PROVIDED FOR A SHEET, REFER TO PRICING PACKAGE 2 NOTES BELOW TO IDENTIFY WHICH ELEMENTS ARE COVERED BY EACH DESIGNATION.

PACKAGE NOTES

1) PACKAGE 2:
1A) ISSUED FOR CONSTRUCTION ELEMENTS = THE DRILLED PIERS AT THE LABORATORY BUILDING, INCLUDING ALL REINFORCING DOWELS EXTENDING OUT OF THE PIERS INTO ADJOINING CONSTRUCTION.

1B) ISSUED FOR PERMIT = THE FOUNDATION ELEMENTS AT THE LABORATORY BUILDING AND THE SHOP BUILDING.
- THIS INCLUDES PIER CAPS, GRADE BEAMS, RETAINING WALLS SUPPORTED BY THE BUILDING FOUNDATIONS, MAT SLABS, ELEVATOR PIT WALLS, AND TIE BEAMS AT THE LABORATORY BUILDING.
- THIS INCLUDES THE SLAB-ON-GRADE MAT FOUNDATION AT THE SHOP BUILDING.

2) PACKAGE 3: ISSUED FOR CONSTRUCTION THE REMAINING STRUCTURAL COMPONENTS NOT INCLUDED IN PACKAGE 2.

OZ ARCHITECTURE®
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COLORADO LICENSED PROFESSIONAL ENGINEER BENJAMIN WESTON DOWNEY 42134 10/26/2022

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
GENERAL NOTES

SCALE: 12" = 1'-0"
SHEET NUMBER
S-001

10/25/2022 8:59:45 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB #:21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH:LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED:10/25/2022 8:59:45 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

CONCRETE NOTES

1) GENERAL:
1A) ALL WORK SHALL CONFORM WITH ACI 301-16, UNLESS NOTED OTHERWISE IN DRAWINGS OR PROJECT SPECIFICATIONS.

1B) DETAIL BARS IN ACCORDANCE WITH THE DRAWINGS, PROJECT SPECIFICATIONS, AND ACI PUBLICATION SP-66 (2004): "ACI DETAILING MANUAL"

2) REINFORCING MATERIALS:
2A) SEE 'REINFORCING MATERIAL TABLE'

3) REINFORCING FABRICATION:
3A) SPLICES:
- NO SPLICING OF REINFORCEMENT PERMITTED EXCEPT AS NOTED ON DRAWINGS. MAKE BARS CONTINUOUS AROUND CORNERS WHERE DETAIL NOT PROVIDED. WHERE PERMITTED, SPLICES MAY BE MADE BY CONTACT LAPS OR MECHANICAL CONNECTORS.
- SEE 'LAP SPLICE SCHEDULE' FOR LAP LENGTHS.
- SPLICE CONTINUOUS TOP AND BOTTOM BARS IN WALLS, BEAMS, AND GRADE BEAMS 'LTS' UNLESS NOTED OTHERWISE.
- SPLICE TOP BARS AT MIDSPAN AND BOTTOM BARS OVER SUPPORT UNLESS NOTED OTHERWISE.

3B) MISCELLANEOUS REINFORCING REQUIREMENTS:
- PROVIDE ADDITIONAL BARS OR STIRRUPS REQUIRED TO SECURE REINFORCING IN PLACE DURING CONCRETE PLACEMENT.
- MAKE ALL REINFORCING BAR BENDS IN THE FABRICATOR'S SHOP UNLESS NOTED.
- NO WELDING OF REINFORCING PERMITTED UNLESS NOTED ON DRAWINGS. WHERE PERMITTED, PERFORM WELDING IN ACCORDANCE WITH AWS D1.4-2011.
- PROVIDE ADDED REINFORCING TO TRIM ALL OPENINGS, NOTCHES, AND REENTRANT CORNERS AS NOTED IN TYPICAL DETAILS.

4) STRUCTURAL CONCRETE MIX REQUIREMENTS:
4A) SEE 'CONCRETE MIX TABLE'

5) SLAB-ON-GRADE:
5A) VERIFY ALKALINITY OF CONCRETE SURFACE, SLAB VAPOR TRANSMISSION, AND SLAB FLATNESS/LEVELNESS ARE COMPATIBLE WITH FLOORING SYSTEM AND ADHESIVES PRIOR TO INSTALLING FLOORING.

5B) TAKE PRECAUTIONS TO MINIMIZE SLAB CURLING. GRIND SLAB OR USE LEVELING COMPOUND IF FLOOR FLATNESS AND LEVELNESS VALUES ARE NOT ACCEPTABLE TO THE ARCHITECT.

6) NON-SHRINK GROUT:
6A) CONFORM TO ASTM C1107

6B) ACHIEVE 6000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

7) PLACING REINFORCEMENT:
7A) REINFORCEMENT PROTECTION:
- SEE 'REBAR COVER TABLE'
- SEE ACI 117-10 FOR REINFORCEMENT PLACING TOLERANCES

7B) PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AND WELDED WIRE REINFORCEMENT AT POSITIONS SHOWN ON PLANS. ALL REINFORCING, DOWELS, BOLTS, AND EMBEDDED PLATES SHALL BE SET AND TIED IN PLACE BEFORE THE CONCRETE IS POURED. "STABBING" INTO PREVIOUSLY PLACED CONCRETE IS NOT PERMITTED.

8) CONSTRUCTION/CONTROL JOINTS:
8A) SUBMIT DRAWINGS SHOWING CONSTRUCTION AND CONTROL JOINT LOCATIONS ALONG WITH THE SEQUENCE OF POURS. CONSTRUCTION JOINT LOCATIONS AND CASTING SEQUENCE SHALL BE ARRANGED TO MINIMIZE THE EFFECTS OF ELASTIC AND LONG-TERM SHORTENING/SHRINKAGE.

8B) CONSTRUCTION JOINTS IN SLABS-ON-DECK, SLABS-ON-GRADE, AND STRUCTURAL SLABS SHALL BE LOCATED TO ACCOMMODATE THE MAXIMUM LENGTH AND AREA THE CONTRACTOR CAN REASONABLY POUR, FINISH, AND JOINT IN THE SAME DAY, BUT SHALL NOT EXCEED 150 FEET WITH A MAXIMUM AREA OF 15,000 SQUARE FEET UNLESS APPROVED BY THE ENGINEER.

8C) CONCRETE CONSTRUCTION JOINT SURFACE SHALL BE CLEANED AND ALL LAITANCE AND LOOSE MATERIAL REMOVED PRIOR TO SECOND CONCRETE PLACEMENT.

8D) INTENTIONALLY ROUGHENED CONSTRUCTION JOINTS: WHERE CONSTRUCTION JOINTS ARE LABELED AS "ROUGHENED" ON THE DRAWINGS, THE ENTIRE JOINT SURFACE SHALL BE MECHANICALLY ROUGHENED TO A 1/4" AMPLITUDE AND THOROUGHLY CLEANED. EXPOSE THE COARSE AGGREGATE IN THE HARDENED CONCRETE AND REMOVE ALL LAITANCE AND LOOSE MATERIAL.

9) MODIFICATIONS TO HARDENED OR EXISTING CONCRETE
9A) UNLESS NOTED ON THE STRUCTURAL DOCUMENTS MODIFICATIONS AS LISTED BELOW SHALL NOT BE MADE TO HARDENED OR EXISTING CONCRETE WITHOUT APPROVAL OF THE ARCHITECT:
- SAW CUTTING
- CORING
- CHIPPING

9B) DO NOT CUT OR DAMAGE ANY REINFORCING WITHOUT APPROVAL OF THE ARCHITECT

10) SLEEVES, OPENINGS, AND EMBEDDED PIPE/CONDUITS:
10A) GENERAL
- REFER TO TYPICAL DETAILS FOR REQUIREMENTS FOR CONDUIT AND PIPE EMBEDDED IN WALLS AND SLABS
- REFER TO TYPICAL DETAILS FOR SPACING AND LAYOUT LIMITATIONS FOR SLEEVES AND OPENINGS
- FORM OPENINGS AND PROVIDE SLEEVES BEFORE PLACING CONCRETE, CORING OF CONCRETE IS NOT PERMITTED
- AT COMPOSITE SLABS DO NOT CUT DECK FOR AT LEAST 7 DAYS AFTER CONCRETE PLACEMENT

10B) REINFORCING
- REFER TO TYPICAL DETAILS FOR REINFORCEMENT REQUIREMENTS AT SLEEVES, OPENINGS OR CONDUIT
- DO NOT CUT REINFORCING WHICH MAY CONFLICT.

REINFORCING MATERIAL TABLE

REINF ELEMENT	ASTM	Fy (KSI)	Fu (KSI)	COMMENTS
TYP REINFORCING	A615	60	90	-
WELDED & FIELD BENT REINF	A706	60	80	-
WELDED WIRE REINFORCING, SMOOTH	A1064	65	75	-
EPOXY COATING OF REINFORCING	A775 OR A934	-	-	-

POST INSTALLED ANCHOR NOTES

1) PERSONNEL REQUIREMENTS:
1A) THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. SUBMIT DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS HAVE PASSED THE TRAINING COURSE PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.

1B) PERSONNEL WHO WILL INSTALL HORIZONTAL OR UPWARDLY INCLINED ADHESIVE ANCHORS IN CONCRETE THAT SUPPORT SUSTAINED TENSION LOADS SHALL BE CERTIFIED BY THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM. THESE ANCHORS ARE DESIGNATED WITH A (CERT) AFTER THE ANCHOR CALL OUT. SUBMIT DOCUMENTED CONFIRMATION THAT PERSONNEL HAVE PASSED THE TRAINING COURSE PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.

2) INSTALLATION REQUIREMENTS:
2A) ALL POST-INSTALLED ANCHORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND PER MANUFACTURER'S ON-SITE TRAINING.

2B) ALL ADHESIVE ANCHORS AND ADHESIVE ANCHORED REINFORCEMENT DESIGNS ARE FOR INSTALLATION IN THE FOLLOWING CONDITIONS, UNLESS NOTED OTHERWISE. WRITTEN APPROVAL MUST BE RECEIVED FROM ENGINEER PRIOR TO INSTALLATION IN ALTERNATE CONDITIONS.
- DRY CONCRETE, UNLESS NOTED OTHERWISE.
- CONCRETE TEMPERATURE AT TIME OF INSTALLATION THROUGH CURE TIME MUST BE WITHIN THE TEMPERATURE RANGE SPECIFIED IN MANUFACTURER'S PRINTED INSTALLATION INSTRUCTION FOR ADHESIVE GEL AND CURE TIMES.
- ANCHOR HOLES TO BE HAMMER DRILLED AND CLEANED.
- CONCRETE MUST BE AT LEAST 21 DAYS OLD BEFORE INSTALLATION OF ANCHORS.
- HOLES TO BE CLEANED AND PREPARED IN STRICT ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND EVALUATION REPORT PRIOR TO ADHESIVE INJECTION.

2C) THE POSITION OF EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE SHALL BE LOCATED PRIOR TO INSTALLING POST INSTALLED ANCHORS OR REINFORCEMENT. EXISTING REINFORCEMENT SHALL BE LOCATED USING A SCANNER, GPR, X-RAY, CHIPPING OR OTHER MEANS. DO NOT DAMAGE OR CUT EXISTING REINFORCEMENT.

3) SUBSTITUTION REQUESTS:
3A) SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS AND PRODUCT DATA DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS IN COMPLIANCE WITH THE RELEVANT BUILDING CODES, LOAD RESISTANCE, INSTALLATION CATEGORY, CREEP APPROVAL, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE OF THE SPECIFIED PRODUCT.

CONCRETE MIX TABLE

CONC MIX TYPE	INTENDED USE	EXPOSURE CATEGORIES AND CLASSES	COMPRES-SIVE STRENGTH f'c (KSI)	TEST AVG (DAYS)	CONC WEIGHT	MAX W/C RATIO, INCLUDING SCM, NOTE 7	MAX AGGRE-GATE SIZE (IN), NOTE 3	TOTAL AIR CONTENT (%), NOTE 4	OTHER REQTS	MAXIMUM EMBODIED CARBON GOAL (kg CO_2e/YD^3) NOTE 6
1	DRILLED PIERS	F0, S0, W1, C1	4	56	NWC	-	1	-	DP	254
2	FOOTINGS (SHOP BUILDING)	F0, S0, W1, C1	4	28	NWC	-	1	-	-	254
3	PIER CAPS, FOUNDATION WALLS, GRADE AND TIE BEAMS (LAB BUILDING)	F1, S0, W1, C1	4.5	56	NWC	0.45	3/4	6	MSS	310
4	INTERIOR SLABS-ON-GRADE WITH MOISTURE SENSITIVE FLOORING	F0, S0, W0, C0	3.5	56	NWC	-	1	NP	SVT, MSS, MVRA	254
5	SLABS-ON-METAL-DECK	F0, S0, W0, C0	3.5	28	NWC	-	3/4	NP	SVT	254
6	ALL CONC EXPOSED TO WEATHER OR DEICERS: SITE WALLS, SLABS	F3, S0, W0, C2	5	28	NWC	0.40	3/4	6	MSS	310
7	FLOW FILL	F0, S0, W0, C0	0.1	28	-	-	-	-	FF	--
8	ALL CONCRETE OTHERWISE NOT SPECIFIED	F3, S0, W0, C2	5	28	NWC	0.40	3/4	6	-	310

CONCRETE MIX TABLE NOTES:
1. CONCRETE MIX DESIGNS ARE A PERFORMANCE SPECIFIED ITEM DESIGNED BY THE CONTRACTOR. THE CONTRACTOR MAY PROVIDE A CONCRETE MIX MEETING THE PERFORMANCE REQUIREMENTS SPECIFIED IN THE "CONCRETE MIX TABLE" IN ADDITION TO THE REQUIREMENTS BELOW

2. PROPORTIONS OF MATERIALS IN CONCRETE MIXES SHALL BE ESTABLISHED TO:
   A. PROVIDE THE MINIMUM COMPRESSIVE STRENGTH AS INDICATED IN THE MIX TABLE. DO NOT EXCEED THE MAXIMUM WATER-CEMENT RATIO
   B. PROVIDE WORKABILITY AND CONSISTENCY FOR SLAB FINISHING AND TO PERMIT CONCRETE TO BE WORKED READILY INTO FORMS AND AROUND REINFORCEMENT UNDER CONDITIONS OF PLACEMENT TO BE EMPLOYED WITHOUT SEGREGATION OR EXCESSIVE BLEEDING. CONTRACTOR SHALL SELECT APPROPRIATE SLUMP. USE ADMIXTURES AS REQUIRED TO OBTAIN DESIRED RESULTS
   C. FOR CONCRETE PLACED BY PUMPING, PROVIDE CONCRETE MIX FLOWABILITY TO FACILITATE PUMPING. ENTRAINED AIR MAY BE USED TO FACILITATE PUMPING SUBJECT TO THE PROVISIONS OF NOTE 4 BELOW

3. FOR THE MAXIMUM COARSE AGGREGATE SIZE INDICATED, USE THE FOLLOWING AGGREGATE SIZE NUMBERS PER ASTM C33:
   - 3/4": #67 AGGREGATE
   - 1": #57 AGGREGATE

4. WHERE AIR CONTENT IS INDICATED IN THE MIX TABLE, PROVIDE AIR ENTRAINING ADMIXTURE TO MEET THE SPECIFIED AIR PERCENTAGE. TOTAL AIR CONTENT LIMITS INCLUDE BOTH ENTRAINED AND ENTRAPPED AIR ±1 1/2%. "NP" IN COLUMN INDICATES ADDITION OF ENTRAINED AIR IS NOT PERMITTED EXCEPT WHERE CONTRACTOR CAN DEMONSTRATE SLABS WITH ENTRAINED AIR WILL HAVE A FINISH ACCEPTABLE TO THE ARCHITECT WITHOUT BLISTERS. AIR CONTENT NOTED IS BASED ON 3/4" AGGREGATE. IF 3/8" AGGREGATE IS USED, INCREASE AIR CONTENT BY 1 1/2"

5. FOR EXPOSED CONCRETE FLOORS, THE CONTRACTOR SHALL ENSURE THE FLOOR FINISH IS ACCEPTABLE TO THE ARCHITECT AND OWNER WITH THE SELECTED CEMENT TYPE, CEMENT CONTENT, AND FINISHING PROCEDURE

6. MAXIMUM EMBODIED CARBON GOALS (CO_2e/YD^3) MAY BE ACHIEVED BY ANY MATERIAL CARBON REDUCTION METHOD CHOSEN BY THE CONTRACTOR INCLUDING, BUT NOT LIMITED TO, SUPPLEMENTARY CEMENTITIOUS MATERIALS, RECYCLED AGGREGATES WHERE ALLOWED BY SPECIFICATIONS, OR CARBON SEQUESTERING TECHNOLOGIES. SEE SPECIFICATIONS FOR SUBMITTAL REQUIREMENTS.

7. SEE SPECIFICATIONS FOR SUPPLEMENTARY CEMENTITIOUS MATERIAL (SCM) REQUIREMENTS

8. FOR CONCRETE MIXTURES ASSIGNED TO EXPOSURE CLASS F3, THE MAXIMUM PERCENTAGE OF CEMENTITIOUS MATERIAL WHICH IS CLASSIFIED AS SCM (INCLUDING FLY ASH, NATURAL POZZOLANS, SILICA FUME, AND SLAG CEMENT) SHALL BE AS FOLLOWS. THE INDIVIDUAL LIMITS SHOWN BELOW SHALL APPLY REGARDLESS OF THE NUMBER OF CEMENTITIOUS MATERIALS IN THE CONCRETE MIXTURE.
   - FLY ASH OR NATURAL POZZOLANS CONFORMING TO ASTM C618 = 25%
   - SLAG CEMENT CONFORMING TO ASTM C989 = 50%
   - SILICA FUME CONFORMING TO ASTM C1240 = 10%
   - TOTAL OF FLY ASH OR OTHER POZZOLANS AND SILICA FUME = 35%
   - TOTAL OF FLY ASH OR OTHER POZZOLANS, SLAG CEMENT, AND SILICA FUME = 50%

9. BASED ON THE SULFATE CLASSIFICATIONS LISTED IN THE "CONCRETE MIX TABLE" THE FOLLOWING CEMENTS SHALL BE USED. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS:
   A. S0 SULFATE CLASSIFICATION: ASTM C150 TYPE I/II OR ASTM C595 TYPES
   B. S1 SULFATE CLASSIFICATION: ASTM C150 TYPE II OR ASTM C595 TYPES WITH "MS" DESIGNATION. MINERAL FILLERS DERIVED FROM CARBONATE AGGREGATE ARE PROHIBITED
   C. S2 AND S3 SULFATE CLASSIFICATIONS: ASTM C150 TYPE V OR ASTM C595 TYPES WITH "HS" DESIGNATION, CALCIUM CHLORIDE ADMIXTURES NOT PERMITTED. MINERAL FILLERS DERIVED FROM CARBONATE AGGREGATE ARE PROHIBITED

10. FOR CONCRETE MIXTURES ASSIGNED TO W1 OR W2 CLASSES, EVIDENCE SHALL BE SUBMITTED THAT THE CONCRETE MIXTURE COMPLIES WITH THE FOLLOWING
   A. AGGREGATES ARE NOT ALKALI-SILICA REACTIVE OR MEASURES TO MITIGATE ALKALI-SILICA REACTIVITY HAVE BEEN ESTABLISHED
   B. AGGREGATES ARE NOT ALKALI-CARBONATE REACTIVE

11. MAXIMUM CHLORIDE ION LIMITS (PERCENTAGE BY MASS OF CEMENTITIOUS MATERIALS INCLUDING SCM) ASSOCIATED WITH EXPOSURE CLASS IN "CONCRETE MIX TABLE" ARE AS FOLLOWS:
   - C0 = 1.00
   - C1 = 0.30
   - C2 = 0.15

CONCRETE MIX TABLE ABBREVIATIONS:
- FX = FREEZING AND THAWING CLASS
- SX = SULFATE CLASS
- WX = IN CONTACT WITH WATER CLASS
- CX = CORROSION PROTECTION OF REINFORCEMENT CLASS
- DP = PROVIDE 5 1/2" MINIMUM SLUMP, FOR DRILLED PIERS CASED DURING CONSTRUCTION PROVIDE CONCRETE MIX WITH FLOWABILITY TO PREVENT ARCHING WHEN CASING IS PULLED. ENTRAINED AIR MAY BE USED TO FACILITATE CASING REMOVAL
- FF = FLOW FILL SHALL BE PROPORTIONED TO PROVIDE INDICATED STRENGTH, AND SHALL BE SELF-COMPACTING. MAXIMUM STRENGTH SHALL BE 150 PSI. COMPLY WITH NRMCA "GUIDE SPECIFICATION FOR CONTROLLED LOW STRENGTH MATERIALS (CLSM)" AND ACI 229R
- MSS = MAXIMUM SHRINKAGE STRAIN LIMITED, SEE SPECIFICATIONS
- MVRA = MOISTURE VAPOR REDUCTION ADMIXTURE, SEE SPEC. REQUIRED AT LABORATORY BUILDING ONLY.
- NWC = NORMAL WEIGHT CONCRETE
- SCM = SUPPLEMENTARY CEMENTITIOUS MATERIAL
- SVT = SLAB VAPOR TRANSMISSION, CONTRACTOR SHALL PROVIDE CONCRETE WITH REDUCED WATER IN ORDER TO ACHIEVE SLAB VAPOR TRANSMISSION REQUIRED FOR THE SPECIFIED FLOORING MATERIALS, COORDINATE REQUIREMENTS WITH ARCHITECTURAL DRAWINGS AND SPECIFICATIONS

POST-INSTALLED ANCHOR TABLE

ANCHOR TYPE	PRODUCT	Fy (KSI)	Fu (KSI)	COMMENT
ADHESIVE (IN CONCRETE)	HILTI HIT-HY 200 V3	-	-	SUBMIT CALCULATIONS FOR SUBSTITUTIONS
ADHESIVE (IN CONCRETE W/>12" EMBEDMENT)	HILTI HIT-RE 500 V3	-	-	SUBMIT CALCULATIONS FOR SUBSTITUTIONS
ADHESIVE (IN GROUTED OR HOLLOW MASONRY)	HILTI HIT-HY 270	-	-	SUBMIT CALCULATIONS FOR SUBSTITUTIONS
ADHESIVE ANCHOR RODS	-	36 MIN	58 MIN	THREADED ROD, UNGREASED
EXPANSION ANCHORS (IN CONCRETE)	HILTI KWIK BOLT TZ2	-	-	SUBMIT CALCULATIONS FOR SUBSTITUTIONS
EXPANSION ANCHORS (IN GROUTED MASONRY)	HILTI KWIK BOLT TZ2	-	-	SUBMIT CALCULATIONS FOR SUBSTITUTIONS
SCREW ANCHORS	HILTI KWIK HUS-EZ	-	-	SUBMIT CALCULATIONS FOR SUBSTITUTIONS

DESIGN CRITERIA

9) WIND LOADS SHOP BUILDING
- RISK CATEGORY = II
- BASIC ULTIMATE WIND SPEED, Vult = 110 mph
- BASIC NOMINAL WIND SPEED, Vasd = 85.2 mph
- EXPOSURE CATEGORY = C
- INTERNAL PRESSURE COEFFICIENT, Gcpi = +/-0.18
- TOPOGRAPHIC FACTOR, Kzt = 1.00
- GROUND ELEVATION FACTOR, Ke = 0.85

10) DESIGN WIND PRESSURE FOR COMPONENTS AND CLADDING AND ELEMENTS DESIGNED BY THE CONTRACTOR SHOP BUILDING
10A) LISTED COMPONENT AND CLADDING WIND PRESSURES ARE INCLUDED FOR REFERENCE ONLY. FINAL CALCULATIONS SHALL BE COMPLETED BY CONTRACTOR
10B) PRESSURES LISTED BELOW ARE ULTIMATE
10C) SEE 'WALL CORNER AND SPECIAL ROOF ZONES DIAGRAM'
10D) COMPONENT AND CLADDING SURFACE PRESSURES (PSF)

- **WALLS PRESSURES**

WALLS AREA	10 SF	100 SF	200 SF	500 SF
WALLS INTERIOR NEG (ZONE 4)	-22.2	-19.2	-18.3	-17.1
WALLS CORNER NEG (ZONE 5)	-27.4	-21.3	-19.5	-17.1
WALLS POSITIVE ZONE 4 & 5	20.5	17.5	16.6	16.0

- **ROOF PRESSURES**

ROOF AREA	10 SF	100 SF	500 SF
ROOF INTERIOR NEG (ZONE 1)	-35.7	-27.9	-22.4
ROOF INTERIOR NEG (ZONE 1')	-20.5	-20.5	-16.0
ROOF NEGATIVE (ZONE 2) - EAVES, RAKES, RIDGES	-47.1	-37.1	-30.0
ROOF CORNERS NEG (ZONE 3)	-47.1	-37.1	-30.0
ROOF POSITIVE ZONES 1 & 1'	16.0	16.0	16.0
ROOF POSITIVE ZONES 2 & 3	20.5	17.5	16.0
ROOF NEGATIVE OVERHANG ZONE 1 & 1'	-32.3	-30.4	-19.0
ROOF NEGATIVE OVERHANG ZONE 2	-43.7	-30.3	-20.9
ROOF NEGATIVE OVERHANG ZONE 3'	-43.7	-30.3	-20.9

- **PARAPET PRESSURES**

PARAPET QP = 19.7 psf

SOLID PARAPET PRESSURE		10 SF	100 SF	500 SF
PARAPET CASE A:	ZONE 2:	63.2	49.6	40.1
	ZONE 3:	63.2	49.6	40.1
PARAPET CASE B:	INTERIOR ZONE:	-37.3	-31.0	-26.7
	CORNER ZONE:	-42.6	-33.2	-26.7

PARAPET CASE A = PRESSURE TOWARDS BUILDING (POS)
PARAPET CASE B = PRESSURE AWAY FROM BLDG (NEG)
PARAPET CAP UPLIFT PRESSURES
ZONE 2: -49.4 PSF
ZONE 3: -49.4 PSF

11) LATERAL LOAD RESISTING SYSTEM DESCRIPTION SHOP BUILDING:
- METAL DECK DIAPHRAGMS DISTRIBUTE LATERAL LOADS TO LIGHT-FRAME SHEAR WALLS WHICH DELIVER THE FORCE TO SHALLOW FOUNDATIONS.

NOTES:
1. BUILDING POSITION NOT TO SCALE, DO NOT SCALE DIAGRAM

WALL CORNER AND SPECIAL ROOF ZONES DIAGRAM

NO SCALE

1) CODES AND STANDARDS:
1A) GENERAL DESIGN
- INTERNATIONAL BUILDING CODE 2018

1B) CONCRETE
- ACI 301-16 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"
- ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

1C) MASONRY
- TMS 402-16 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"
- TMS 602-16 "SPECIFICATION FOR MASONRY STRUCTURES"

1D) STEEL
- ANSI/AISC 360-16 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" LOAD AND RESISTANCE FACTOR DESIGN

2) GRAVITY LOADS
2A) SEE GRAVITY LOADS TABLE FOR SUPERIMPOSED DEAD AND LIVE LOADS USED IN DESIGN

GRAVITY LOADS LABORATORY AND SHOP BUILDING

LOCATION	SUPERIMPOSED DEAD LOAD (PSF)	LIVE LOAD (PSF)	LIVE LOAD REDUCTION	PARTITION LOAD (PSF)	POINT LOAD (LB)
ROOF (LABORATORY AND SHOP BUILDING)	30 (INCLUDES 5 ROOFING LOAD AND 10 PSF PV LOAD)	20 PSF, SEE NOTE 2B FOR SNOW CRITERIA	NO	--	300
TYPICAL FLOORS	15	100	NO	--	2000
MECHANICAL PENTHOUSE FLOOR	25	75 + EQUIP BUT NOT LESS THAN 150	NO	--	2000
MECHANICAL PENTHOUSE ROOF (LABORATORY AND SHOP BUILDING)	35 (INCLUDES 5 ROOFING LOAD AND 10 PSF PV LOAD)	20 PSF, SEE NOTE 2B FOR SNOW CRITERIA	NO	--	300

2B) DRIFTING, SLIDING AND UNBALANCED SNOW
- GROUND SNOW LOAD = 45.0 psf
- SNOW EXPOSURE FACTOR, Ce = 1.0
- SNOW LOAD IMPORTANCE FACTOR, Is = 1.0
- THERMAL FACTOR, Ct = 1.0
- THERMAL FACTOR (CANOPIES), Ct = 1.2
- UNIFORM ROOF SNOW LOAD = 31.5 psf
- FLAT ROOF SNOW LOAD = 31.5 psf
- UNIFORM SNOW LOAD (CANOPIES) = 38 psf

3) RAIN LOADS:
3A) DESIGN RAIN INTENSITY = 2.5 INCHES PER HOUR (1 HOUR DURATION/ 100 YEAR RETURN INTERVAL)
3B) DESIGN RAIN ROOF PRESSURE = 20.8 psf

4) SEISMIC LOADS LABORATORY BUILDING
- SEISMIC DESIGN CATEGORY = B
- RISK CATEGORY = II
- EARTHQUAKE IMPORTANCE FACTOR, Ie = 1.00
- MAPPED SPECTRAL RESPONSE ACCELERATION, Ss = 20.50 %g
- MAPPED SPECTRAL RESPONSE ACCELERATION, S1 = 5.80 %g
- DESIGN SPECTRAL RESPONSE COEFFICIENT, SDs = 0.219
- DESIGN SPECTRAL RESPONSE COEFFICIENT, SD1 = 0.093
- SOIL SITE CLASS = D
- BASIC STRUCTURAL SYSTEM: BUILDING FRAME SYSTEMS
- STRUCTURAL SEISMIC LATERAL SYSTEM: INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
- RESPONSE MODIFICATION FACTOR, R = 4
- SYSTEM OVERSTRENGTH FACTOR, OMEGA = 2.5
- DEFLECTION AMPLIFICATION FACTOR, Cd = 4
- SEISMIC RESPONSE COEFFICIENT, Cs = 0.055
- DESIGN BASE SHEAR (BOTH DIRECTIONS) = 186 K
- SEISMIC ANALYSIS PROCEDURE: EQUIVALENT LATERAL-FORCE ANALYSIS

5) WIND LOADS LABORATORY BUILDING
- RISK CATEGORY = II
- BASIC ULTIMATE WIND SPEED, Vult = 110 mph
- BASIC NOMINAL WIND SPEED, Vasd = 85.2 mph
- EXPOSURE CATEGORY = C
- INTERNAL PRESSURE COEFFICIENT, Gcpi = +/-0.18
- TOPOGRAPHIC FACTOR, Kzt = 1.00
- GROUND ELEVATION FACTOR, Ke = 0.85

6) DESIGN WIND PRESSURE FOR COMPONENTS AND CLADDING AND ELEMENTS DESIGNED BY THE CONTRACTOR LABORATORY BUILDING
6A) LISTED COMPONENT AND CLADDING WIND PRESSURES ARE INCLUDED FOR REFERENCE ONLY. FINAL CALCULATIONS SHALL BE COMPLETED BY CONTRACTOR
6B) PRESSURES LISTED BELOW ARE ULTIMATE
6C) SEE 'WALL CORNER AND SPECIAL ROOF ZONES DIAGRAM'
6D) COMPONENT AND CLADDING SURFACE PRESSURES (PSF)

- **WALLS PRESSURES**

WALLS AREA	10 SF	100 SF	200 SF	500 SF
WALLS INTERIOR NEG (ZONE 4)	-28.6	-24.8	-23.6	-22.0
WALLS CORNER NEG (ZONE 5)	-35.3	-27.5	-25.1	-22.0
WALLS POSITIVE ZONE 4 & 5	26.4	22.5	21.4	19.8

- **ROOF PRESSURES**

ROOF AREA	10 SF	100 SF	500 SF
ROOF INTERIOR NEG (ZONE 1)	-46.0	-35.9	-28.9
ROOF INTERIOR NEG (ZONE 1')	-26.4	-26.4	-17.9
ROOF NEGATIVE (ZONE 2) - EAVES, RAKES, RIDGES	-60.7	-47.7	-38.7
ROOF CORNERS NEG (ZONE 3)	-82.7	-56.8	-38.7
ROOF POSITIVE ALL ZONES	16.0	16.0	16.0
ROOF NEGATIVE OVERHANG ZONE 1 & 1'	-41.6	-39.2	-24.5
ROOF NEGATIVE OVERHANG ZONE 2	-56.3	-39.0	-26.9
ROOF NEGATIVE OVERHANG ZONE 3'	-78.3	-48.1	-26.9

- **PARAPET PRESSURES**

PARAPET QP = 25.0 psf

SOLID PARAPET PRESSURE		10 SF	100 SF	500 SF
PARAPET CASE A:	ZONE 2:	79.9	62.7	50.7
	ZONE 3:	102.4	72.0	50.7
PARAPET CASE B:	INTERIOR ZONE:	-47.2	-39.3	-33.7
	CORNER ZONE:	-53.9	-42.0	-33.7

PARAPET CASE A = PRESSURE TOWARDS BUILDING (POS)
PARAPET CASE B = PRESSURE AWAY FROM BLDG (NEG)
PARAPET CAP UPLIFT PRESSURES
ZONE 2: -62.4 PSF
ZONE 3: -62.4 PSF

7) LATERAL LOAD RESISTING SYSTEM DESCRIPTION LABORATORY BUILDING:
- METAL DECK AND CONCRETE SLAB-ON-METAL DECK DIAPHRAGMS DISTRIBUTE LATERAL LOADS TO MASONRY SHEAR WALLS WHICH DELIVER THE FORCE TO DRILLED PIERS.

8) SEISMIC LOADS SHOP BUILDING
- SEISMIC DESIGN CATEGORY = B
- RISK CATEGORY = II
- EARTHQUAKE IMPORTANCE FACTOR, Ie = 1.00
- MAPPED SPECTRAL RESPONSE ACCELERATION, Ss = 20.50 %g
- MAPPED SPECTRAL RESPONSE ACCELERATION, S1 = 5.80 %g
- DESIGN SPECTRAL RESPONSE COEFFICIENT, SDs = 0.219
- DESIGN SPECTRAL RESPONSE COEFFICIENT, SD1 = 0.093
- SOIL SITE CLASS = D
- BASIC STRUCTURAL SYSTEM: BEARING WALL SYSTEMS
- STRUCTURAL SEISMIC LATERAL SYSTEM: LIGHT-FRAME WALLS WITH SHEAR PANELS OF ALL OTHER MATERIALS
- RESPONSE MODIFICATION FACTOR, R = 2.0
- SYSTEM OVERSTRENGTH FACTOR, OMEGA = 2.5
- DEFLECTION AMPLIFICATION FACTOR, Cd = 2
- SEISMIC RESPONSE COEFFICIENT, Cs = 0.109
- DESIGN BASE SHEAR (BOTH DIRECTIONS) = 30.9K
- SEISMIC ANALYSIS PROCEDURE: EQUIVALENT LATERAL-FORCE ANALYSIS

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COLORADO LICENSED PROFESSIONAL ENGINEER BENJAMIN WESTON DOWNEY 42134 10/26/2022

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

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DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
GENERAL NOTES

SCALE: As indicated
SHEET NUMBER
S-002

10/25/2022 8:59:48 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
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STRUCTURAL STEEL INSPECTIONS

ITEM	INSPECTION TASK	STANDARD	CRITERIA/REMARKS
- PRIOR TO FABRICATION OR ERECTION	PERFORM	AISC 360, CHAPTER N	REVIEW MATERIAL TEST REPORTS AND CERTIFICATIONS FOR STRUCTURAL STEEL, FASTENERS, ANCHOR RODS, HEADED STUD ANCHORS
PRIOR TO WELDING			
- REVIEW MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AND WELDING PROCEDURE SPECIFICATIONS	PERFORM	AISC 360, CHAPTER N	-
- FIT UP OF WELDS, INCLUDING JOINT GEOMETRY, AND CONFIGURATIONS AND FINISH OF ACCESS HOLES	OBSERVE	AISC 360, CHAPTER N	-
- MATERIAL IDENTIFICATION	OBSERVE	AISC 360, CHAPTER N	-
- WELDER IDENTIFICATION SYSTEM	OBSERVE	AISC 360, CHAPTER N	-
DURING WELDING			
- USE OF QUALIFIED WELDERS	OBSERVE	AISC 360, CHAPTER N	-
- CONTROL AND HANDLING OF WELDING CONSUMABLES	OBSERVE	AISC 360, CHAPTER N	-
- NO WELDING OVER CRACKED TACK WELDS	OBSERVE	AISC 360, CHAPTER N	-
- ENVIRONMENTAL CONDITIONS, AND WPS FOLLOWED	OBSERVE	AISC 360, CHAPTER N	-
- WELDING TECHNIQUES - SINGLE PASS WELDS	OBSERVE	AISC 360, CHAPTER N	-
- WELDING TECHNIQUES - MULTI-PASS WELDS	OBSERVE	AISC 360, CHAPTER N	-
AFTER WELDING			
- WELDS CLEANED	OBSERVE	AISC 360, CHAPTER N	-
- SIZE, LENGTH, AND LOCATION OF WELDS	PERFORM	AISC 360, CHAPTER N	-
- WELDS MEET VISUAL ACCEPTANCE CRITERIA	PERFORM	AISC 360, CHAPTER N, AWS D1.1	WHERE INSPECTOR OBSERVES QUESTIONABLE WELDS, NON-DESTRUCTIVE TESTING SHALL BE PERFORMED
- ARC STRIKES	PERFORM	AISC 360, CHAPTER N	-
- REPAIR ACTIVITIES	PERFORM	AISC 360, CHAPTER N	-
- PLACEMENT AND INSTALLATION OF HEADED STUD ANCHORS	PERFORM	AISC 360, CHAPTER N	-
- DOCUMENT ACCEPTANCE OR REJECTION OF WELDED MEMBER OR JOINT	PERFORM	AISC 360, CHAPTER N	-
PRIOR TO BOLTING			
- REVIEW MANUFACTURER CERTIFICATIONS FOR FASTENER MATERIALS	PERFORM	AISC 360, CHAPTER N	-
- FASTENERS MARKS IN ACCORDANCE WITH ASTM REQUIREMENTS	OBSERVE	AISC 360, CHAPTER N	-
- PROPER FASTENERS AND BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	OBSERVE	AISC 360, CHAPTER N	-
- CONNECTING ELEMENTS MEET REQUIREMENTS, INCLUDING HOLE REPAIR AND FAYING SURFACE	OBSERVE	AISC 360, CHAPTER N	-
- PRE-INSTALLATION VERIFICATION TESTING	OBSERVE	AISC 360, CHAPTER N	NOT APPLICABLE FOR SNUG TIGHT JOINTS
- PROPER STORAGE FOR FASTENER COMPONENTS	OBSERVE	AISC 360, CHAPTER N	-
DURING BOLTING			
- FASTENERS PLACED IN ALL HOLES AND POSITIONED AS REQUIRED	OBSERVE	AISC 360, CHAPTER N	-
- PRETENSIONED AND SLIP-CRITICAL JOINTS	OBSERVE	AISC 360, CHAPTER N AND RCSC SPECIFICATION	JOINT BROUGHT IN SNUG-TIGHT CONDITION PRIOR TO PRETENSIONING, FASTENER PREVENTED FROM ROTATING, PRETENSIONED IN PROPER SEQUENCE
- PRETENSIONED AND SLIP-CRITICAL JOINTS USING CALIBRATED WRENCH OR TURN-OF-NUT METHOD WITHOUT MATCHMARKING	PERFORM	AISC 360, CHAPTER N AND RCSC SPECIFICATION	JOINT BROUGHT IN SNUG-TIGHT CONDITION PRIOR TO PRETENSIONING, FASTENER PREVENTED FROM ROTATING, PRETENSIONED IN PROPER SEQUENCE. INSPECTOR SHALL BE RESENT DURING INSTALLATION OF FASTENERS
AFTER BOLTING			
- DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	PERFORM	DOCUMENT ACCEPTANCE OR REJECTION MEMBER OR JOINT	-

OBSERVE - OBSERVE THESE ITEMS ON A RANDOM BASIS
PERFORM - THESE INSPECTIONS SHALL BE PERFORMED FOR EACH WELDED CONNECTION, EACH BOLTED CONNECTION, AND EACH ITEM, PRIOR TO ACCEPTANCE

STRUCTURAL STEEL TESTING

ITEM	FREQUENCY	STANDARD	CRITERIA/REMARKS
WELDING			
- COMPLETE JOINT PENETRATION GROOVE WELDS FOR MATERIAL 5/16" THICK AND GREATER	10%	UT	FREQUENCY SHALL BE INCREASED SHOULD THE REJECT RATE EXCEED 5% FOR AN INDIVIDUAL WELDER, IN ACCORDANCE WITH AISC 360, CHAPTER N.
- THERMALLY CUT SURFACES OF BEAM COPES AND ACCESS HOLES WHEN MATERIAL THICKNESS EXCEEDS 2 INCHES	100%	MT OR PT	-
- SHEAR CONNECTOR, HEADED ANCHOR STUDS, DEFORMED ANCHOR STUDS, THREADED STUDS	2 BEND TESTS AT START OF EACH SHIFT, 1% BEND TEST, 100% RING TEST	AWS D1.1 SECTION 7	BEND TEST: PER AWS D1.1 BENT STUD (TORQUE TEST FOR THREADED STUDS) ACCEPTANCE CRITERIA. RING TEST: STRIKE WITH HAMMER. IF THE STUD RINGS, STUD IS ACCEPTABLE. IF STUD DOES NOT RING, PERFORM BEND TEST
FRAMING			
- SHAPES EXCEEDING 1 1/2 INCHES THICK, LOADED IN TENSION IN THE THROUGH- THICKNESS	100%	ASTM A898 (LEVEL 1 CRITERIA)	NOT REQUIRED FOR STEEL PRODUCED IN USA. CRITERIA TO BE MET 6 INCHES ABOVE AND BELOW EACH WELD. REQUIRED WHERE NOTED AS 'TTT' IN DRAWINGS
- PLATES EXCEEDING 3/4 INCH, LOADED IN TENSION IN THE THROUGH-THICKNESS DIRECTION IN TEE AND CORNER JOINTS	100%	ASTM A435	NOT REQUIRED FOR STEEL PRODUCED IN USA. ANY DISCONTINUITY CAUSING A TOTAL LOSS OF BACK REFLECTION THAT CANNOT BE CONTAINED WITHIN A CIRCLE 3 INCHES IN DIAMETER SHALL BE REJECTED. REQUIRED WHERE NOTED AS 'TTT' IN DRAWINGS
EMBEDDED PLATE ASSEMBLIES WITH PLATES EXCEEDING 3/4 INCH	100%	UT	NOT REQUIRED FOR STEEL PRODUCED IN USA. TEST ALONG CENTERLINE OF PLATE WIDTH AFTER WELDING

UT - ULTRASONIC TESTING
MT - MAGNETIC PARTICLE TESTING
PT - PENETRANT TESTING
TTT - TENSION THRU THICKNESS, SEE STR STEEL TESTING

QUALITY ASSURANCE GENERAL NOTES
STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS AND TESTING

1. **GENERAL:**
   A. SCOPE OF WORK
   - THE OWNER WILL ENGAGE A QUALIFIED INSPECTION AND TESTING AGENCY(S) TO PERFORM SPECIAL INSPECTIONS AND TESTING FOR ALL STRUCTURAL MEMBERS AND ASSEMBLIES AS NOTED HEREIN.
   - SUBMIT DOCUMENTATION OF QUALIFICATIONS, INCLUDING COMPETENCE AND RELEVANT WORK EXPERIENCE OR TRAINING OF SPECIAL INSPECTORS TO THE AUTHORITY HAVING JURISDICTION PRIOR TO THE START OF WORK.
   - SPECIAL INSPECTIONS ARE IN ADDITION TO INSPECTIONS BY THE AUTHORITY HAVING JURISDICTION REQUIRED BY IBC 2018 SECTION 110.
   - REFER TO THE SPECIFICATIONS FOR REPORTING AND PROCEDURAL REQUIREMENTS FOR QUALITY ASSURANCE AND QUALITY CONTROL.
   - REFER TO ARCH/MECH/ELEC/CIVIL SPECIFICATIONS AND DRAWINGS FOR ADDITIONAL SPECIAL INSPECTION AND TESTING THAT MAY BE REQUIRED.

   B. SPECIAL INSPECTIONS AND TESTING ARE APPLICABLE TO ALL REVISIONS AND/OR FUTURE WORK ADDED BY AMENDMENTS TO THESE DOCUMENTS.

   C. DEFINITIONS
   - SPECIAL INSPECTOR: THE AGENCY ENGAGED BY THE OWNER AND APPROVED BY THE AUTHORITY HAVING JURISDICTION TO ACT AS THE DESIGNATED REPRESENTATIVE TO PERFORM INSPECTIONS.
   - SPECIAL INSPECTION: INSPECTION PERFORMED BY THE SPECIAL INSPECTOR ACCORDING TO IBC 2018 SECTION 1704 TO ENSURE COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS.
   - (P) PERIODIC INSPECTION: THE PART-TIME OR INTERMITTENT OBSERVATION BY THE SPECIAL INSPECTOR OF WORK BEING PERFORMED. SPECIAL INSPECTOR SHALL BE PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED. OBSERVATION OF ALL WORK (100% VISUAL) SHALL BE MADE AT THE COMPLETION OF THE WORK.
   - (C) CONTINUOUS INSPECTION: THE FULL-TIME OBSERVATION BY THE SPECIAL INSPECTOR OF WORK BEING PERFORMED. SPECIAL INSPECTOR SHALL BE PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED. OBSERVATION OF ALL WORK (100% VISUAL) SHALL BE MADE AT THE COMPLETION OF THE WORK.

   D. DEFICIENCIES IN WORK
   - CORRECT DEFICIENCIES IN WORK THAT TESTS AND INSPECTIONS INDICATE DO NOT COMPLY WITH THE CONTRACT DOCUMENTS AND REFERENCED STANDARDS.
   - ALL COST OF ADDITIONAL TESTING AND/OR INSPECTIONS FOR CORRECTIVE WORK SHALL BE BORNE BY THE CONTRACTOR.

2. **SHOP FABRICATIONS:**
   A. GENERAL
   - PERFORM INSPECTIONS AND TESTING FOR ALL SHOP FABRICATED STRUCTURAL MEMBERS AND ASSEMBLIES AS NOTED HEREIN. SPECIAL INSPECTOR SHALL PERFORM SPECIAL INSPECTIONS AND TESTING UNLESS THE FABRICATOR IS REGISTERED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION OR FABRICATION HAS A CURRENT ICC-ES EVALUATION REPORT.
   - SPECIAL INSPECTOR SHALL VERIFY THE FABRICATOR MAINTAINS AND FOLLOWS DETAILED SHOP FABRICATION AND QUALITY CONTROL PROCEDURES, UNLESS FABRICATOR IS REGISTERED AND APPROVED.
   - AT THE COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE AUTHORITY HAVING JURISDICTION ACCORDING TO IBC 2018 SECTION 1704.2.5.1.
   - APPROVED FABRICATORS MAY PERFORM TESTING NOTED HEREIN EXCEPT THAT NONDESTRUCTIVE TESTING (NDT) SHALL ONLY BE PERFORMED BY PERSONNEL WITH QUALIFICATIONS THAT MEET OR EXCEED THE CRITERIA OF AWS D1.1 SUBCLAUSE 6.14.6 AND AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (ASNT) SNT-TC-1A OR ASNT CP-189.

   B. SHOP FABRICATIONS INCLUDED
   - SHOP FABRICATED STRUCTURAL STEEL INCLUDING STAIRS AND RAILING ELEMENTS
   - SHOP FABRICATED COLD FORMED STEEL ELEMENTS

POST-INSTALLED ANCHORS/REINFORCING STEEL SPECIAL INSPECTIONS

ITEM	FREQUENCY	STANDARD	CRITERIA
EXPANSION ANCHORS, SLEEVE ANCHORS, SCREW ANCHORS			
- PRIOR TO START OF WORK	-	ICC-ES REPORT	REVIEW CONTRACTOR'S INSTALLATION PROCEDURE
- PRIOR TO INSTALLATION OF ANCHOR	EACH ANCHOR	ICC-ES REPORT	VERIFY TYPE, DIAMETER, LENGTH, FINISH, AND BASE MATERIAL. VERIFY SOLID GROUTED AREA AROUND ANCHORS IN GROUTED MASONRY. VERIFY MAXIMUM IMPACT WRENCH TORQUE RATING FOR SCREW ANCHORS
- DURING INSTALLATION OF ANCHOR	C	ICC-ES REPORT	CONTINUOUS INSPECTION REQUIRED REGARDLESS IF PERIODIC INSPECTION IS PERMITTED BY ICC-ES REPORT. VERIFY HOLE DIMENSIONS, HOLE CLEANING, ANCHOR EMBEDMENT, EDGE DISTANCES AND SPACING
- AFTER INSTALLATION OF ATTACHED ASSEMBLY	100% VISUAL	-	VERIFY NUMBER, EDGE DISTANCES, AND ANCHOR FLUSH WITH AND PERPENDICULAR TO THE RECEIVING SURFACE
ADHESIVE ANCHORS, REINFORCING STEEL ANCHORED INTO HARDENED CONCRETE			
- PRIOR TO START OF WORK	-	ICC-ES REPORT	REVIEW CONTRACTOR'S INSTALLATION PROCEDURE
- PRIOR TO INSTALLATION OF ANCHOR	EACH ANCHOR	ICC-ES REPORT	VERIFY TYPE, DIAMETER, LENGTH, FINISH, AND BASE MATERIAL. VERIFY SOLID GROUTED AREA AROUND ANCHORS IN GROUTED MASONRY
- DURING INSTALLATION OF ANCHOR	C	ICC-ES REPORT	CONTINUOUS INSPECTION REQUIRED REGARDLESS IF PERIODIC INSPECTION IS PERMITTED BY ICC-ES REPORT. VERIFY HOLE DIMENSIONS, HOLE CLEANING, ANCHOR EMBEDMENT, EDGE DISTANCES AND SPACING
- AFTER INSTALLATION OF ATTACHED ASSEMBLY	100% VISUAL	-	VERIFY NUMBER, EDGE DISTANCES, AND ANCHOR FLUSH WITH AND PERPENDICULAR TO THE RECEIVING SURFACE
- CURE TIME	100% VISUAL	-	VERIFY FULL CURE TIME HAS ELAPSED PRIOR TO APPLICATION OF TORQUE OR LOAD TO ANCHOR

POST-INSTALLED ANCHOR/REINFORCING STEEL TESTING

ITEM	FREQUENCY	STANDARD	CRITERIA
EXPANSION ANCHORS, SLEEVE ANCHORS, SCREW ANCHORS			
- TORQUE TEST	100%	-	EXPANSION/SLEEVE ANCHORS: TEST ANCHOR WITH CALIBRATED TORQUE WRENCH TO 100% OF THE INSTALLATION TORQUE NOTED IN ICC-ES REPORT. ATTAIN SPECIFIED TORQUE WITHIN 1/2 TURN OF THE NUT SCREW ANCHORS: TEST ANCHOR WITH CALIBRATED TORQUE WRENCH TO 75% OF THE MAXIMUM INSTALLATION TORQUE NOTED IN ICC-ES REPORT. ATTAIN SPECIFIED TORQUE WITHIN 1/2 TURN OF THE NUT
ADHESIVE ANCHORS, REINFORCING STEEL ANCHORED INTO HARDENED CONCRETE			
- TENSION TEST	FIRST 3 AND 1% OF REMAINING	ASTM E488 STATIC TENSION	TEST THE INSTALLATION OF THE FIRST 3 OF EACH TYPE, BASE MATERIAL, AND POSITION (DOWN, HORIZONTAL, OVERHEAD). OBSERVE ASTM E488 MINIMUM EDGE DISTANCES FOR DETERMINING TEST LOCATIONS. SUBMIT PROPOSED TEST LOCATIONS AND REQUESTS FOR REQUIRED TENSION TEST LOAD VALUES TO ENGINEER

MASONRY NOTES

1) DEFINITIONS:
1A) STRUCTURAL MASONRY IS DEFINED AS BEING EITHER LOAD BEARING AND/OR SERVING AS PART OF THE LATERAL LOAD RESISTING SYSTEM. STRUCTURAL MASONRY IS SHOWN ON THE STRUCTURAL PLANS AND DEFINED IN SCHEDULES AND DETAILS ON THE STRUCTURAL DRAWINGS.

1B) SEE ARCHITECTURAL DRAWINGS FOR LOCATION, THICKNESS AND EXTENT OF MASONRY PARTITIONS. SEE DETAILS ON THE STRUCTURAL DRAWINGS FOR GENERAL MASONRY PARTITION REQUIREMENTS.

1C) SEE ARCHITECTURAL DRAWINGS FOR ALL MASONRY VENEER REQUIREMENTS. SEE DETAILS ON THE STRUCTURAL DRAWINGS FOR MASONRY VENEER LOOSE LINTELS.

2) DESIGN STRENGTH:
2A) DEVELOP 2000 PSI COMPRESSIVE STRENGTH (f'm) IN 28 DAYS.

2B) STEEL REINFORCING:
- PRIMARY REINFORCING: ASTM A615, 60 KSI
- HORIZONTAL JOINT REINFORCING: ASTM A951, PREFABRICATED, LADDER TYPE

3) SPLICES:
3A) SEE MASONRY LAP SPLICE SCHEDULE FOR LAP LENGTHS.

4) INSTALLATION REQUIREMENTS:
4A) GROUT SOLID ALL CELLS CONTAINING REINFORCING, EMBEDDED ITEMS, AND ALL OTHER CELLS NOTED ON THE CONTRACT DOCUMENTS.

NON-COMBUSTIBLE SHEATHING NOTES

1) SHEATHING:
1) SURE-BOARD TYPE 200 STRUCTURAL PANELS:
- CONFORM TO IBC 2018.

2) SCREWS:
2A) UNLESS NOTED OTHERWISE ON THE DRAWINGS, PROVIDE TEK SCREWS WITH SIZES SHOWN IN THE DRAWINGS.

3) METAL CONNECTORS:
3A) FRAMING CONNECTORS SHALL CONFORM TO IBC 2018 SECTION 2505. FRAMING CONNECTOR DESIGNATIONS ARE THOSE MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, SAN LEANDRO, CALIFORNIA. OTHER MANUFACTURER'S PRODUCTS MAY BE USED IF APPROVED BY THE ENGINEER. FURNISH NAILS AND/OR BOLTS OF DIAMETER, LENGTH, AND NUMBER SPECIFIED BY THE MANUFACTURER FOR EACH CONNECTOR.

3B) ALL CONNECTOR HOLES SHALL BE FILLED WITH PROPER SCREWS/BOLTS INCLUDING OPTIONAL SCREW LOCATIONS FOR UPLIFT. ALL BOLT HOLES SHALL BE DRILLED INTO FRAMING MEMBERS. MAXIMUM HOLE DIAMETER IS 1/16" LARGER THAN THE BOLT DIAMETER.

4) OPENINGS:
4A) OPENING, POCKETS, ETC., SHALL NOT BE PLACED IN BEAMS, JOISTS, RAFTERS, STUDS, POSTS, COLUMNS, TIMBER AND OTHER STRUCTURAL MEMBERS UNLESS DETAILED ON THE STRUCTURAL DRAWINGS.

NON-COMBUSTIBLE SHEATHING SPECIAL INSPECTIONS

ITEM	FREQUENCY	STANDARD	CRITERIA
SHEATHED SHEAR WALL			
- PANEL SHEATHING	P	-	VERIFY TYPE AND THICKNESS
- ATTACHMENT	P	-	VERIFY PANEL SHEATHING BOUNDARY, PANEL EDGE, AND FIELD FASTENERS AND ATTACHMENT AT ALL EDGES OF SHEAR WALL
CONNECTIONS			
- FASTENER	P	-	VERIFY TYPE, DIAMETER, LENGTH, SPACING, EDGE DISTANCES, AND USE OF WASHERS. VERIFY HOLE DIAMETER FOR BOLTS

SOILS SPECIAL INSPECTIONS

ITEM	FREQUENCY	STANDARD	CRITERIA
SUBGRADE			
- EXCAVATION	P	-	VERIFY EXCAVATIONS ARE EXTENDED TO THE PROPER DEPTH AND HAVE REACHED THE PROPER BEARING MATERIAL
- BEARING MATERIAL	P	SOILS REPORT	VERIFY BEARING MATERIAL IS ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY
CONTROLLED FILL			
- PRIOR TO PLACEMENT	P	-	VERIFY SUBGRADE HAS BEEN PROPERLY PREPARED
- PLACEMENT	C	-	VERIFY USE OF PROPER MATERIALS, DENSITIES, COMPACTION, AND LIFT THICKNESSES

SOILS SPECIAL INSPECTION NOTES:
1. SEE CIVIL DRAWINGS AND/OR SPECIFICATIONS FOR ADDITIONAL EARTHWORK AND UTILITY INSPECTION REQUIREMENTS.
2. SEE CIVIL DRAWINGS AND/OR SPECIFICATIONS FOR CLASSIFICATION AND TESTING REQUIREMENTS FOR COMPACTED FILL AND/OR CONTROLLED LOW-STRENGTH MATERIAL.

DRILLED PIER FOUNDATION SPECIAL INSPECTIONS

ITEM	FREQUENCY	STANDARD	CRITERIA
DURING DRILLING			
- DRILLING OPERATIONS	C	-	PROVIDE REPORT FOR EACH DRILLED PIER
- SHAFT PLACEMENT	C	-	VERIFY LOCATION, PLUMBNESS, AND DIAMETER
- BEARING MATERIAL	C	SOILS REPORT	VERIFY BEARING MATERIAL IS ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY
- DEPTH OF PENETRATION	C	-	VERIFY DEPTH OF PENETRATION INTO BEARING MATERIAL AND OVERALL LENGTH
- CONCRETE AND REINFORCING STEEL	-	-	INSPECT PER THE STRUCTURAL CONCRETE SPECIAL INSPECTIONS AND TESTING TABLES. RECORD CONCRETE VOLUMES

METAL GAUGE CONVERSION

GAUGE	MINIMUM THICKNESS (MILS*)
22	27
20	33
18	43
16	54
14	68
12	97

NOTES:
* 1 MIL = 1/1000"

STEEL NOTES

1) CONNECTIONS:
1A) PROVIDE CONNECTIONS AS SHOWN IN THE 'STEEL BEAM CONNECTION SCHEDULES' AND DETAILS HEREIN. REFER TO SPECIFICATION FOR ALTERNATIVES AND CONNECTIONS NOT SHOWN.

2) WELDING REQUIREMENTS:
2A) WELDERS: HAVE IN POSSESSION CURRENT EVIDENCE OF PASSING THE APPROPRIATE AWS. QUALIFICATION TESTS.

2B) MINIMUM WELDS: AISC SPECIFICATION, NOT LESS THAN 3/16" FILLET, CONTINUOUS UNLESS OTHERWISE NOTED.

2C) WELD SIZES AND LENGTHS CALLED FOR ON THE DRAWINGS ARE THE NET EFFECTIVE REQUIRED. INCREASE WELD SIZE IF GAPS EXIST AT THE FAYING SURFACE.

2D) WELD SIZES SHALL BE AS SHOWN UNLESS A GREATER SIZE IS REQUIRED BY ANSI/AISC 360-16 TABLES J2.3 AND J2.4.

2E) ALL GROOVE WELDS SHALL BE COMPLETE PENETRATION UNLESS NOTED.

2F) FIELD WELDING SYMBOLS INDICATE SEQUENCE CONSIDERED DURING DESIGN. THE CONTRACTOR SHALL REQUEST APPROVAL FROM THE ENGINEER TO MODIFY WELD INSTALLATION LOCATION INDICATED ON THE DOCUMENTS:
- FROM SHOP TO FIELD
- FROM FIELD TO SHOP

2G) DEFORMED ANCHOR STUDS (DAS) AND HEADED ANCHOR STUDS (HAS / HDAS) SHALL BE SHOP OR FIELD WELDED AT CONTRACTOR'S OPTION UNLESS NOTED OTHERWISE

3) COMPOSITE GRAVITY FRAMING:
3A) COMPOSITE BEAMS ARE DESIGNED ASSUMING STUDS ARE INSTALLED IN THE WEAK POSITION (Rp = 0.6). SEE TYPICAL METAL DECK DETAILS FOR PLACEMENT REQUIREMENTS.

3B) COMPOSITE GIRDERS ARE DESIGNED ASSUMING STUDS ARE WELDED THROUGH THE METAL DECK AND/OR METAL DECKING/SHEET STEEL COVERS MORE THAN HALF OF THE TOP FLANGE (Rp = 0.75). SEE TYPICAL METAL DECK DETAILS FOR PLACEMENT REQUIREMENTS.

4) CAMBER:
4A) FABRICATE BEAMS SUCH THAT ROLLING OR FABRICATION INDUCED CAMBER IS UP AFTER ERECTION.

4B) CAMBER SHOWN IS BASED ON THE COMPUTED DEFLECTION OF THE BEAM DUE TO SELF WEIGHT OF CONCRETE PLACED. DESIGN IS BASED ON THE THEORETICAL CONCRETE THICKNESS PLUS 1/2" THICKNESS FOR DECK LEVELING AND 1/2" THICKNESS FOR BEAM LEVELING. INCLUDE QUANTITY OF ADDED CONCRETE DUE TO DECK AND BEAM DEFLECTION IN BID.

5) STRUCTURAL STEEL INSTALLATION:
5A) UNLESS INDICATED OTHERWISE, SNUG TIGHTEN ALL JOINTS AS DEFINED BY AISC
CONNECTIONS AS INDICATED BELOW SHALL BE PRETENSIONED PER TABLE J3.1 OF AISC 360-16
- WHERE NOTED ON THE DRAWINGS AS "PT" OR "SC"

5B) CONNECTIONS NOTED ON THE DRAWINGS AS "SC" SHALL MEET THE FOLLOWING REQUIREMENTS:
- FAYING SURFACES SHALL BE: CLASS B PER AISC UNLESS NOTED OTHERWISE
BOLTS SHALL BE PRETENSIONED PER TABLE J3.1 OF ANSI/AISC 360-16

6) METAL DECK:
6A) SEE 'METAL DECK SCHEDULE' FOR MATERIALS, PROFILE, AND CONNECTIONS TO STRUCTURE.

6B) QUALITY CONTROL AND QUALITY ASSURANCE FOR STEEL DECK INSTALLATION SHALL BE IN ACCORDANCE WITH SDI QA/QC-2017, "STANDARD FOR QUALITY CONTROL AND QUALITY ASSURANCE FOR THE INSTALLATION OF STEEL DECK" AS MODIFIED BY TABLE C-1 CONTAINED IN THE COMMENTARY TO THAT STANDARD.

6C) DECK DESIGN IS IN ACCORDANCE WITH STEEL DECK INSTITUTE (SDI) FLOOR DECK DESIGN MANUAL (2014), SDI ROOF DECK DESIGN MANUAL (2013), AND SDI DIAPHRAGM DESIGN MANUAL, 4TH EDITION (2015)

6D) PLACE CONCRETE ON METAL DECK IN ACCORDANCE WITH SDI FLOOR DECK DESIGN MANUAL (2014) TO LIMIT CONSTRUCTION LOADS TO ALLOWABLE MAGNITUDES.

6E) INSTALL DECK OVER 4 SUPPORTS (3 SPAN CONTINUOUS) UNLESS NOTED OTHERWISE. DO NOT INSTALL DECK AS SINGLE SPAN UNLESS SPECIFICALLY SHOWN ON DRAWINGS.

6F) PROVIDE DECK ATTACHMENTS AS NOTED ON DRAWINGS.

6G) HANGERS: SEE TYPICAL METAL DECK DETAILS FOR ALLOWABLE HANGER LOADS, SPACING AND ATTACHMENT.

7) STRUCTURAL COLD FORMED METAL FRAMING:
7A) AT SHOP BUILDING - REFER TO SCHEDULE FOR REQUIRED STUD AND JOIST MATERIAL GRADES AND SECTION PROPERTIES. REFER TO DETAILS FOR CONNECTIONS AND OTHER REQUIREMENTS.

7B) AT LABORATORY BUILDING - COLD FORMED METAL FRAMING IS A PERFORMANCE SPECIFIED ITEM DESIGNED BY THE CONTRACTOR. PROVIDE STUD DEPTH INDICATED ON THE DRAWINGS. DO NOT EXCEED MAXIMUM SPACING INDICATED. VARY FLANGE WIDTH, GAGE, YIELD STRENGTH, BRACING, STUD SPACING, ETC. AS REQUIRED TO SATISFY PERFORMANCE CRITERIA IN THE CONTRACT DOCUMENTS. MINIMUM STUD GAGE SPECIFIED IS REQUIRED FOR ATTACHMENT OF OTHER MATERIALS TO STUDS. DO NOT BASE BIDS ON MINIMUM GAGE OR MAXIMUM SPACING SPECIFIED.

7C) REFER TO DETAILS FOR MINIMUM CONNECTIONS AND OTHER REQUIREMENTS. DEVELOP FORCES NOTED. DO NOT IMPOSE FORCES ON THE BUILDING STRUCTURE IN DIRECTIONS OR AT LOCATIONS OTHER THAN THAT SHOWN ON THE STRUCTURAL DRAWINGS. DO NOT IMPOSE FORCES LARGER THAN SPECIFIED. CONNECTIONS TO CONCRETE SHALL NOT USE PAFs TO RESIST TENSION LOADS.

7D) SEE DETAIL 4/S-540 FOR ADDITIONAL INFORMATION.

7E) LOAD BEARING METAL FRAMING:
- MAXIMUM GAP BETWEEN WALL STUDS AND TRACK SHALL BE 1/8". SHIM AS REQUIRED TO ACHIEVE THIS CRITERIA.
- ALL BRACING, BRIDGING, AND CONNECTIONS SHALL BE COMPLETE PRIOR TO PLACING CONCRETE SLABS OR INSTALLING ROOF FRAMING ABOVE.

STEEL MATERIAL TABLE

STEEL ELEMENT	ASTM/TYPE	Fy (KSI)	Fu (KSI)	COMMENTS
ANCHOR RODS	F1554 GR 55	55	75	WELDABLE, HEAVY HEX HEADED
ANCHOR RODS IN MASONRY	F1554 GR 55	55	75	WELDABLE, STD HEX HEAD
BOLTS	F3125 - TYPE A325 OR F1852	-	120	BOLTS ARE 3/4"Ø UNO, USE TENSION-CONTROLLED WHERE POSSIBLE
COLD-FORMED STUDS/PLATE, 33 AND 43 MIL	A1003	33	-	-
COLD-FORMED STUDS/PLATE, 54 MIL AND HEAVIER	A1003	50	-	-
COLD-FORMED TRACK, ALL THICKNESSES	A1003	33	-	-
DAS	A1064	70	80	-
HAS	A108	51	65	STUDS ARE 3/4"Ø UNO
OTHER SHAPES	A572 GR 50	50	65	-
PIPES	A500 GR B	42	58	-
PLATES	A572 GR 50	50	65	-
RECT HSS	A500 GR C	50	62	-
ROUND HSS	A500 GR C	46	62	-
THREADED RODS	A36			-
WELDING ELECTRODES, THICKNESS OF THINNER PART > 0.1 INCHES (12 GA)	E70	-	-	PER AWS
WELDING ELECTRODES, THICKNESS OF THINNER PART ≤ 0.1 INCHES (12 GA)	E60 OR E70	-	-	PER AWS
WELDING ELECTRODES, WELDING REBAR	E80	-	-	PER AWS
WF, WT	A992	50	65	-

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SHEET TITLE:
GENERAL NOTES & QUALITY ASSURANCE

SCALE: 12" = 1'-0"
SHEET NUMBER
S-003

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BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
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STRUCTURAL CONCRETE SPECIAL INSPECTIONS

ITEM	FREQUENCY	STANDARD	CRITERIA
REINFORCING STEEL			
- DURING PLACEMENT	P	ACI 301-16 3.2-3.3	VERIFY GRADE, FINISH, SIZE, BAR QUANTITY, LOCATION, SPACING, COVER, HOOK LENGTHS, SPLICE LENGTH, SPLICE LOCATIONS, BEND DIAMETERS, COATING, SURFACE CONDITION, AND SUPPORT
- PRIOR TO PLACEMENT OF CONCRETE	100%		
- WELDING	C	AWS D1.4	VERIFY ASTM A706 REINFORCING STEEL
- FIELD BENDING	P	ACI 301-16 3.3.2.8	-
- COATED REINFORCING	P	ACI 301-16 3.2.1.2	-
- MECHANICAL CONNECTORS	C	ICC-ES REPORT	-
BOLTS AND EMBEDMENTS			
- PRIOR TO PLACEMENT OF CONCRETE	100%	-	VERIFY TYPE, FINISH, DIAMETER, LENGTH, QUANTITY, EMBEDMENT LENGTH, SPACING AND EDGE DISTANCES. VERIFY USE OF PLACING TEMPLATE WHERE SPECIFIED
- WELDING	-	-	INSPECT PER THE STRUCTURAL STEEL TABLE
CONCRETE			
- MIX DESIGN	EACH TRUCK	-	VERIFY USE OF APPROVED DESIGN MIXTURE FOR EACH TRUCK LOAD
- FORMWORK PRIOR TO PLACEMENT OF CONCRETE	P	ACI 301-16 2.2-2.3	INSPECT FIRST POUR OF EACH TYPE (GRADE BEAM, COLUMN, STRUCTURAL SLAB, SLAB-ON-DECK, ETC.)
- PLACEMENT OF CONCRETE	C	ACI 301-16 5.3.2	-
- CURING	P	ACI 301-16 5.3.6	-
SHOTCRETE (ADDITIONAL REQUIREMENTS)			
- REINFORCING PLACEMENT	P	IBC 2018 - 1908.4	VERIFY CLEARANCE AND SPLICE LENGTHS
- PRIOR TO APPLICATION OF SHOTCRETE	100%		
- DURING APPLICATION OF SHOTCRETE	C	IBC 2018 - 1908.6, 1908.7, 1908.8	-
- CURING	P		-

STRUCTURAL CONCRETE TESTING

ITEM	FREQUENCY	STANDARD	CRITERIA
REINFORCING STEEL, BOLTS AND EMBEDMENTS			
- WELDING	-	-	PER STRUCTURAL STEEL TESTING
CONCRETE			
- COMPOSITE SAMPLE		ASTM C172	OBTAIN AT POINT OF PLACEMENT. FOR DRILLED PIERS OBTAIN NEAR BEGINNING OF LOAD PRIOR TO PLACEMENT IN SHAFT. ADJUST FREQUENCY AS REQUIRED TO PROVIDE MINIMUM 5 TOTAL TESTS PER MIX BUT NOT MORE THAN ONE SAMPLE PER TRUCK LOAD
1. TYPICAL	100 CY/MIX/DAY		
2. DRILLED PIERS	EACH SHAFT		
- SLUMP/SLUMP FLOW	EACH COMPOSITE SAMPLE	ASTM C143 (SLUMP) OR ASTM C1611 (SLUMP FLOW)	SPECIFIED SLUMP SHALL BE AS SUBMITTED IN THE MIX DESIGN ± 1 1/2". PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE
- AIR CONTENT WHEN AIR ENTRAINMENT IS SPECIFIED	EACH COMPOSITE SAMPLE	ASTM C231 PRESSURE METHOD (NWC)	-
- TEMPERATURE	EACH COMPOSITE SAMPLE AND 60 MINUTE INTERVALS	ASTM C1064	REQUIRED WHEN AIR TEMPERATURE IS 40 °F AND BELOW OR 80°F AND ABOVE
- COLD WEATHER CURING	-	ASTM C1074	RECORD MAXIMUM AND MINIMUM CONCRETE TEMPERATURE DURING CURING PERIOD, WHEN DAILY AVERAGE AIR TEMPERATURE OF 40 °F OR BELOW IS EXPECTED FOR 3 SUCCESSIVE DAYS DURING CURING PERIOD
- COMPRESSIVE STRENGTH	EACH COMPOSITE SAMPLE	ASTM C31 ASTM C39 EITHER: (4)6x12 OR (6)4x8 CYLINDERS	TEST PER SCHEDULE BELOW: - 7 DAYS: (1) 6x12 OR (1) 4x8 - 28 DAYS: (2) 6x12 OR (3) 4x8 - 56 DAYS: (2) 6x12 OR (3) 4x8 - 84 DAYS: (1) 6x12 OR (2) 4x8 (IF 28 DAY TESTS DO NOT ACHIEVE SPECIFIED 28 DAY STRENGTH) ACCEPTANCE CRITERIA PER ACI 318
FLOOR FLATNESS REQUIREMENTS			
- MEASURE CONCRETE FLOOR FLATNESS (FF) AND FLOOR LEVELNESS (FL)	-	ASTM E1155	PERFORM MEASUREMENTS WITHIN 48 HOURS OF FINISHING OPERATIONS AND PRIOR TO REMOVAL OF SHORES OR FORMS. MEASURE AREAS INDICATED IN THE SPECIFICATIONS

STRUCTURAL CONCRETE TESTING NOTES:

1. NONDESTRUCTIVE TESTING MAY BE PERMITTED BY THE ARCHITECT, BUT WILL NOT BE USED AS SOLE BASIS FOR APPROVAL OR REJECTION OF DEFICIENT CONCRETE.
2. REPORTS OF COMPRESSIVE STRENGTH TESTS SHALL CONTAIN THE FOLLOWING INFORMATION: DATE OF CONCRETE PLACEMENT, LOCATION OF CONCRETE BATCH IN WORK, DESIGN 28-DAY COMPRESSIVE STRENGTH, SLUMP, CONCRETE SUPPLIER AND MIXTURE ID NUMBER, TIME OF BATCH AND PLACEMENT, AMBIENT AIR TEMPERATURE, SITE ADDED WATER AND ADMIXTURES, UNIT WEIGHT, AND AS REQUIRED BY ASTM C39.

STRUCTURAL MASONRY SPECIAL INSPECTIONS (LEVEL 2)

ITEM	FREQUENCY	STANDARD	CRITERIA
- VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS	P	TMS 602, Art 1.5	-
AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE			
- PROPORTIONS OF SITE-PREPARED MORTAR	P	TMS 602, Art. 2.1 AND 2.6A	-
- CONSTRUCTION OF MORTAR JOINTS	P	TMS 602, Art. 3.3B	-
- LOCATION OF REINFORCEMENT AND CONNECTORS	P	TMS 602, Art.3.4	-
PRIOR TO GROUTING, VERFIY THAT THE FOLLOWING ARE IN COMPLIANCE			
- GROUT SPACE	P	TMS 602, Art. 3.2D AND 3.2F	VERIFY GROUT SPACE IS FREE OF MORTAR DROPPINGS AND DEBRIS, AND CLEANOUTS PROVIDED AS REQUIRED
- GRADE, TYPE, SIZE OF REINFORCEMENT AND ANCHOR BOLTS	P	TMS 602 Art. 2.4 AND 3.4	VERIFY TYPE, FINISH, DIAMETER, LENGTH, QUANTITY, EMBEDMENT LENGTH, SPACING AND EDGE DISTANCE. VERIFY GROUT SPACE AROUND ANCHORS IN FACE SHELL
- PLACEMENT OF REINFORCEMENT AND CONNECTORS (REBAR, JOINT REINFORCEMENT, AND TIES)	P	TMS 602, Art. 3.2E AND 3.4	VERIFY TYPE, SIZE, QUANTITY, LOCATION, SPACING, COVER, SPLICE LENGTH, SPLICE LOCATION, SURFACE CONDITION, SUPPORT, AND SECURING. SEE STRUCTURAL CONCRETE TABLE FOR FIELD BENDING, COATED REINFORCEMENT, AND MECHANICAL CONNECTORS
- PROPORTIONS OF SITE -PREPARED GROUT	P	TMS 602, Art. 2.6B	ASTM C476
- MIX DESIGN FOR OFF-SITE PREPARED GROUT	EACH TRUCK	-	-
- CONSTRUCTION OF MORTAR JOINTS	P	TMS 602, Art. 3.3B	-
VERIFY DURING CONSTRUCTION			
- -PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	P	TMS 602, Art. 3.3B	-
- SIZE AND LOCATION OF STRUCTURAL ELEMENTS	P	TMS 602, Art. 3.3F	-
- TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTIONS	P	-	-
- WELDING OF REINFORCEMENT	C	PER STRUCTURAL STEEL TABLE	-
- PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING HOT AND COLD WEATHER	P	TMS 602, Art. 1.8C AND 1.8D	REQUIRED WHEN AIR TEMPERATURE IS BELOW 40°F OR ABOVE 90°F
- PLACEMENT OF GROUT	C	TMS 602, Art. 3.5	-
- OBSERVE PREPARATION OF GROUT SPECIMENS AND/OR PRISMS	P	TMS 602, Art. 1.4B	ASTM C1019, ASTM C1314

STRUCTURAL MASONRY TESTING (LEVEL 2)

ITEM	FREQUENCY	STANDARD	CRITERIA
- SELF-CONSOLIDATING GROUT SLUMP FLOW	EACH TRUCK	ASTM C1611	VERIFY SLUMP FLOW AND VISUAL STABILTY INDEX
- WELDING REINFORCEMENT, BOLTS, AND EMBEDMENTS	-	-	PER STRUCTURAL STEEL TESTING

STRUCTURAL COLD FORMED STEEL SPECIAL INSPECTIONS - LOAD BEARING

ITEM	FREQUENCY	STANDARD	CRITERIA
FRAMING			
- MEMBERS AND CONNECTIONS	P	-	VERIFY TYPE, SIZE, LOCATION, SPACING
- BRIDGING AND BLOCKING	P	-	VERIFY TYPE, LOCATION, AND ATTACHMENT
- FIELD CUTS AND NOTCHES	P	-	NO CUTS OR NOTCHES THROUGH SECTION FLANGES PERMITTED
- SPLICING	P	-	NO SPLICING OF STRUCTURAL MEMBERS PERMITTED UNLESS SPECIFIED ON THE CONSTRUCTION DOCUMENTS
- PUNCHOUTS	P	-	VERIFY SPACING REQUIREMENTS FROM BEARINGS AND CONNECTIONS AND REINFORCING IS USED WHERE REQUIRED
- LOAD-BEARING WALL FRAMING	P	-	VERIFY STUD SEATED TIGHTLY WITHIN THE TOP AND BOTTOM TRACK WITH GAP NOT EXCEEDING PERMITTED DIMENSION, WHERE GAP IS EXCEEDED VERIFY SHIMS ARE PROVIDED
- FLOOR/ROOF FRAMING	P	-	VERIFY FRAMING IS ALIGNED OVER A BEARING STUD WITHIN PERMITTED DIMENSION
SHEATHED SHEAR WALL			
- PANEL SHEATHING	P	-	VERIFY TYPE AND THICKNESS
- ATTACHMENT	P	-	VERIFY PANEL SHEATHING BOUNDARY AND FIELD FASTENERS AND ATTACHMENT AT ALL EDGES OF SHEAR WALL
- HOLD-DOWN	P	-	VERIFY TYPE, SIZE, LOCATION AND ATTACHMENT
WELDED ATTACHMENTS			
- PRIOR TO WELDING	-	AWS D1.1/D1.3	VERIFY FILLER MATERIALS, WELDING PROCEDURES, WELDER QUALIFICATIONS, AND MANUFACTURER'S CERTIFICATE OF COMPLIANCE
- DURING WELDING	P	AWS D1.3	-
- AFTER WELDING	100% VISUAL	AWS D1.3	-
- CORROSION RESISTANCE TREATMENT	P	-	WELDED AREAS ARE TO BE TREATED WITH APPROVED TREATMENT TO MATCH CORROSION RESISTANCE OF EFFECTED AREA
SCREWED ATTACHMENTS			
- FASTENER	P	-	VERIFY TYPE, DIAMETER, LENGTH, SPACING AND EDGE DISTANCES
- SCREW PENETRATION	P	-	VERIFY MATERIALS HAVE BEEN DRAWN TOGETHER AND SCREWS ARE FULLY DRIVEN WITH A MINIMUM PENETRATION OF 3 THREADS THROUGH THE LAST MATERIAL JOINED
- DAMAGED SCREWS	P	-	NO POPPED SCREW HEADS OR STRIPPED SCREWS ARE PERMITTED. ALL DAMAGED SCREWS SHALL BE REPLACED
- COLD FORMED STEEL ASSEMBLIES	P	ICC-ES REPORT	VERIFY TYPE, NUMBER OF FASTENERS, AND INSTALLATION IN CONFORMANCE WITH ICC-ES REPORT
POWER-ACTUATED FASTENERS			
- PRIOR TO INSTALLATION	FIRST OF EACH FASTENER TYPE AND BASE MATERIAL	ICC-ES REPORT	VERIFY TYPE, DIAMETER, LENGTH, FINISH, AND BASE MATERIAL
- DURING INSTALLATION	P	ICC-ES REPORT	-
- AFTER INSTALLATION	100% VISUAL	-	VERIFY MATERIALS HAVE BEEN DRAWN TOGETHER AND FASTENER HEAD STAND-OFF IS ACCEPTABLE (FULLY DRIVEN).

STRUCTURAL COLD FORMED STEEL SPECIAL INSPECTIONS - NON-LOAD BEARING

ITEM	FREQUENCY	STANDARD	CRITERIA
FRAMING			
- MEMBERS AND CONNECTIONS	P	-	VERIFY TYPE, SIZE, LOCATION, SPACING
- BRIDGING AND BLOCKING	P	-	VERIFY TYPE, LOCATION, AND ATTACHMENT
- FIELD CUTS AND NOTCHES	P	-	NO CUTS OR NOTCHES THROUGH SECTION FLANGES PERMITTED
- SPLICING	P	-	NO SPLICING OF STRUCTURAL MEMBERS PERMITTED UNLESS SPECIFIED ON THE CONSTRUCTION DOCUMENTS
- PUNCHOUTS	P	-	VERIFY SPACING REQUIREMENTS FROM BEARINGS AND CONNECTIONS AND REINFORCING IS USED WHERE REQUIRED
WELDED ATTACHMENTS			
- PRIOR TO WELDING	-	AWS D1.1/D1.3	VERIFY FILLER MATERIALS, WELDING PROCEDURES, WELDER QUALIFICATIONS, AND MANUFACTURER'S CERTIFICATE OF COMPLIANCE
- DURING WELDING	P	AWS D1.3	-
- AFTER WELDING	100% VISUAL	AWS D1.3	-
- CORROSION RESISTANCE TREATMENT	P	-	WELDED AREAS ARE TO BE TREATED WITH APPROVED TREATMENT TO MATCH CORROSION RESISTANCE OF AFFECTED AREA
SCREWED ATTACHMENTS			
- FASTENER	P	-	VERIFY TYPE, DIAMETER, LENGTH, SPACING AND EDGE DISTANCES
- SCREW PENETRATION	P	-	VERIFY MATERIALS HAVE BEEN DRAWN TOGETHER AND SCREWS ARE FULLY DRIVEN WITH A MINIMUM PENETRATION OF 3 THREADS THROUGH THE LAST MATERIAL JOINED
- DAMAGED SCREWS	P	-	NO POPPED SCREW HEADS OR STRIPPED SCREWS ARE PERMITTED. ALL DAMAGED SCREWS SHALL BE REPLACED
- COLD FORMED STEEL ASSEMBLIES	P	ICC-ES REPORT	VERIFY TYPE, NUMBER OF FASTENERS, AND INSTALLATION IN CONFORMANCE WITH ICC-ES REPORT
POWER-ACTUATED FASTENERS			
- PRIOR TO INSTALLATION	FIRST OF EACH FASTENER TYPE AND BASE MATERIAL	ICC-ES REPORT	VERIFY TYPE, DIAMETER, LENGTH, FINISH, AND BASE MATERIAL
- DURING INSTALLATION	P	ICC-ES REPORT	-
- AFTER INSTALLATION	100% VISUAL	-	VERIFY MATERIALS HAVE BEEN DRAWN TOGETHER AND FASTENER HEAD STAND-OFF IS ACCEPTABLE (FULLY DRIVEN)

STRUCTURAL COLD FORMED STEEL DECK SPECIAL INSPECTIONS

ITEM	FREQUENCY	STANDARD	CRITERIA
PRIOR TO DECK PLACEMENT			
- VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL DECK ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS	PERFORM	SDI QA/QC-2011	.
- DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES	PERFORM	SDI QA/QC-2011	-
PRIOR TO WELDING			
- WELDING PROCEDURE SPECIFICATION (WPS) AVAILABLE	OBSERVE	SDI QA/QC-2011	-
- MANUFACTURER CERTIFICATIONS OF WELDING CONSUMABLES AVAILABLE	OBSERVE	SDI QA/QC-2011	-
- MATERIAL IDENTIFICATION (TYPE/GRADE)	OBSERVE	SDI QA/QC-2011	-
- CHECKING WELDING EQUIPMENT	OBSERVE	SDI QA/QC-2011	-
PRIOR TO MECHANICAL FASTENING (SCREWS AND PAFs)			
- MANUFACTURER INSTALLATION INSTRUCTIONS ARE AVAILABLE FOR MECHANICAL FASTENERS	OBSERVE	SDI QA/QC-2011	-
- PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATIONS	OBSERVE	SDI QA/QC-2011	-
- PROPER STORAGE FOR MECHANICAL FASTENERS	OBSERVE	SDI QA/QC-2011	-
DURING DECK INSTALLATION			
DURING WELDING DECK CONNECTION INSTALLATION			
- USE OF QUALIFIED WELDERS		SDI QA/QC-2011	-
- CONTROL AND HANDLING OF WELDING CONSUMABLES	OBSERVE	SDI QA/QC-2011	-
- ENVIRONMENTAL CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE)	OBSERVE	SDI QA/QC-2011	-
- WPS FOLLOWED	OBSERVE	SDI QA/QC-2011	-
DURING MECHANICAL DECK CONNECTION INSTALLATION			
- FASTENING (SCREWS AND PAFs)	OBSERVE	SDI QA/QC-2011	-
- FASTENERS ARE POSITIONED AS REQUIRED	OBSERVE	SDI QA/QC-2011	-
- FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS	OBSERVE	SDI QA/QC-2011	-
AFTER DECK PLACEMENT			
- VERIFY COMPLIANCE OF DECK AND ALL DECK ACCESSORIES INSTALLATION COMPLY WITH CONSTRUCTION DOCUMENTS	PERFORM	SDI QA/QC-2011	-
- VERIFY DECK MATERIALS ARE REPRESENTED BY THE MILL CERTIFICATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS	PERFORM	SDI QA/QC-2011	-
- DOCUMENT ACCEPTANCE OR REJECTION OF THE INSTALLATION OF DECK AND DECK ACCESSORIES	PERFORM	SDI QA/QC-2011	VERIFY CUTS OR NOTCHES THROUGH DECK ARE REPAIRED
AFTER WELDING			
- VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND PERIMETER WELDS	PERFORM	AWS D1.3, SDI C, SDI NC, SDI RD	-
- WELDS MEET VISUAL ACCEPTANCE CRITERIA	PERFORM	AWS D1.3, SDI C, SDI NC, SDI RD	-
- VERIFY REPAIR ACTIVITIES	PERFORM	AWS D1.3, SDI C, SDI NC, SDI RD	VERIFY WELDED AREAS ARE TREATED WITH APPROVED TREATMENT TO MATCH CORROSION RESISTANCE OF AFFECTED AREA
- DOCUMENT ACCEPTANCE OR REJECTION OF WELDS	PERFORM	AWS D1.3, SDI C, SDI NC, SDI RD	-
AFTER MECHANICAL FASTENING (SCREWS AND PAFs)			
- CHECK SPACING, TYPE, DIAMETER, AND INSTALLATION OF SUPPORT, SIDELAP, AND PERFORM PERIMETER FASTENERS	PERFORM	SDI C, SDI NC, SDI RD, ICC-ES REPORTS	VERIFY SCREWS ADEQUATELY PENETRATE BASE MATERIAL (3 THREADS MIN). NO POPPED SCREW HEADS OR STRIPPED SCREWS ARE PERMITTED. ALL DAMAGE SCREWS SHALL BE REPLACED. VERIFY PAFs ARE FULLY DRIVEN
- VERIFY REPAIR ACTIVITIES	PERFORM	SDI C, SDI NC, SDI RD	-
- DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICAL FASTENERS	PERFORM	SDI C, SDI NC, SDI RD	VERIFY MATERIALS HAVE BEEN DRAWN TOGETHER

SOIL NAIL RETAINING WALLS QAQC

1) GENERAL

1A) REFER TO THE SPECIFICATION FOR QUALITY ASSURANCE AND QUALITY CONTROL REQUIREMENTS FOR SOIL NAILED RETAINING WALLS

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COLORADO LICENSED BENJAMIN WESTON DOWNEY 42134 10/26/2022 PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
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SHEET TITLE:
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SCALE: 3/4" = 1'-0"
SHEET NUMBER

S-004

10/25/2022 8:59:57 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

MM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT

DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH:LINDSEY WHITTINGTON, JON DALTON
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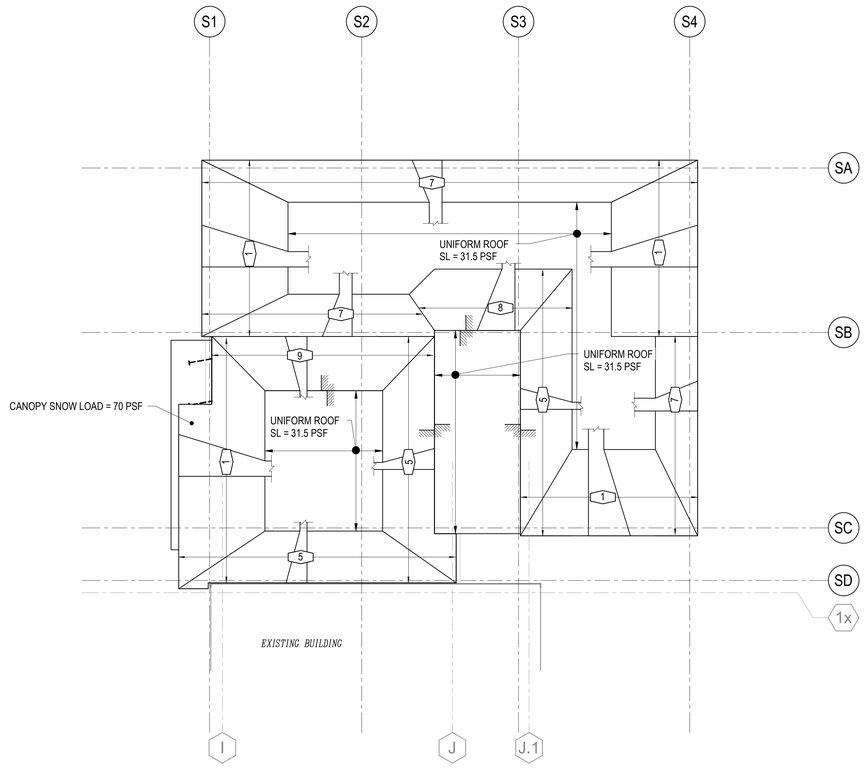
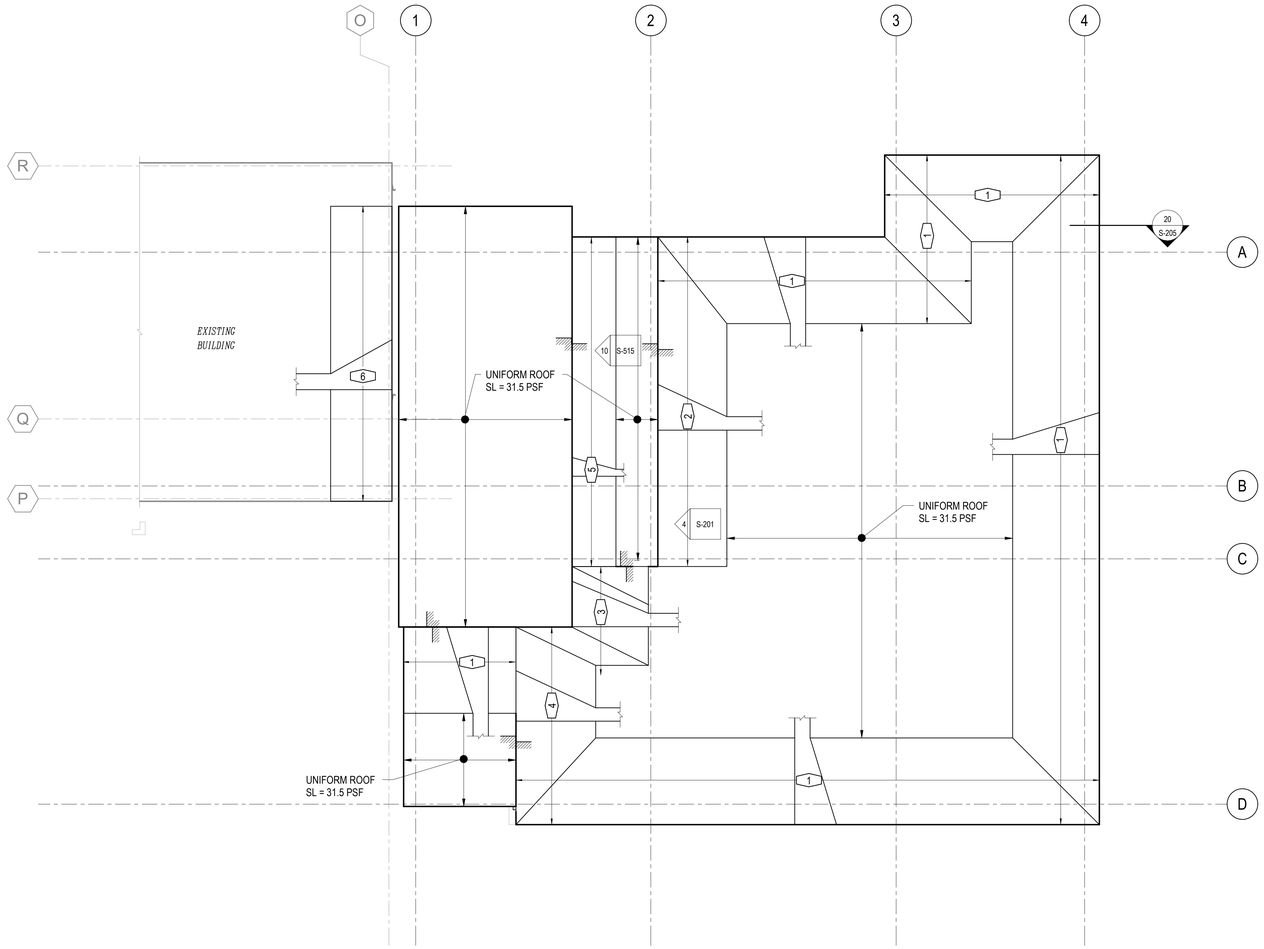


2 SHOP BUILDING - SNOW LOAD PLAN

1/8" = 1'-0"



1 LAB BUILDING SNOW LOAD PLAN

1/8" = 1'-0"

SNOW DRIFT LEGEND

KEYNOTE	DRIFT	KEYNOTE	DRIFT
1	60.0 PSF, 31.5 PSF, 11'-3"	6	72.0 PSF, 31.5 PSF, 7'-6"
2	76.5 PSF, 31.5 PSF, 9'-0"	7	59.9 PSF, 31.5 PSF, 5'-6"
3	80.8 PSF, 31.5 PSF, 10'-0"	8	71.0 PSF, 31.5 PSF, 8'-0"
4	83.2 PSF, 31.5 PSF, 10'-4"	9	67.0 PSF, 31.5 PSF, 8'-0"
5	65.0 PSF, 31.5 PSF, 6'-9"		

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SHEET TITLE:
SNOW LOAD PLAN

SCALE: As indicated
SHEET NUMBER
S-005

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PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
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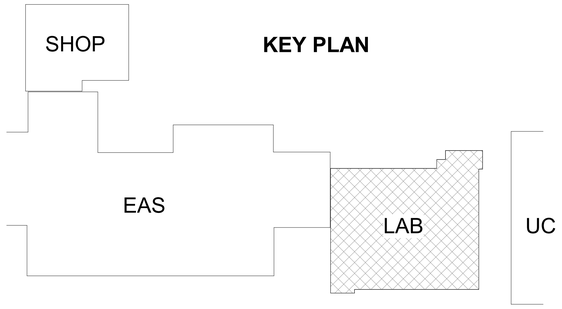
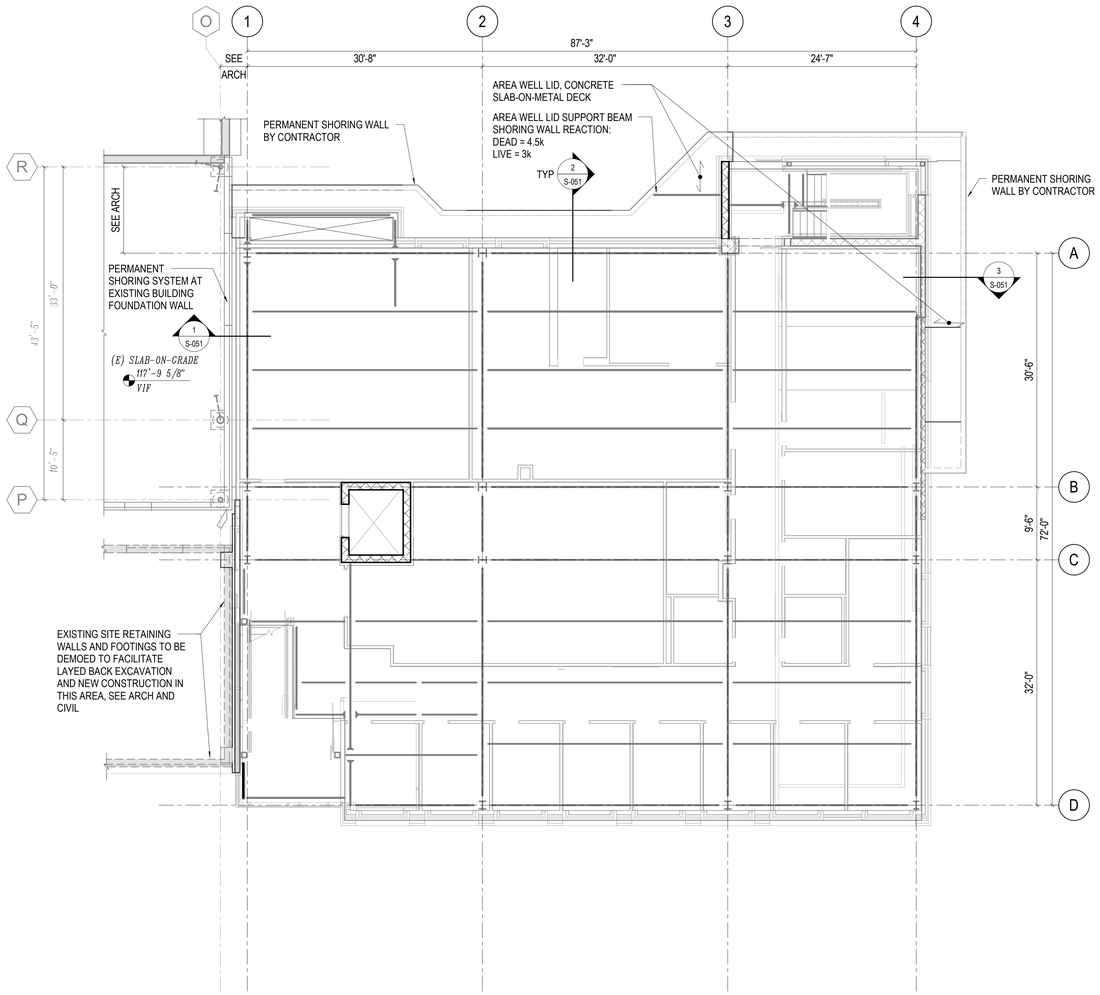


KEY PLAN

PERMANENT SHORING WALL PLAN NOTES - LAB BUILDING

1) GENERAL:
1A) SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
1B) USGS ELEVATION 6415.00' = PROJECT ELEVATION 100'-0". VERIFY IN FIELD AND WITH CIVIL AND ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
1C) CONTRACTOR TO FIELD LOCATE ALL UTILITIES BELOW GRADE. CONTRACTOR SHALL NOTIFY ARCHITECT BY DIMENSIONED DRAWINGS OF LOCATIONS WHERE UTILITIES CONFLICT WITH FOUNDATION INSTALLATION (INCLUDING PERMANENT SHORING WALL SYSTEM). CONTRACTOR SHALL MAKE ALLOWANCE FOR THE RESOLUTION OF SUCH DISCOVERIES PRIOR TO PROCEEDING WITH EFFECTED FOUNDATIONS.

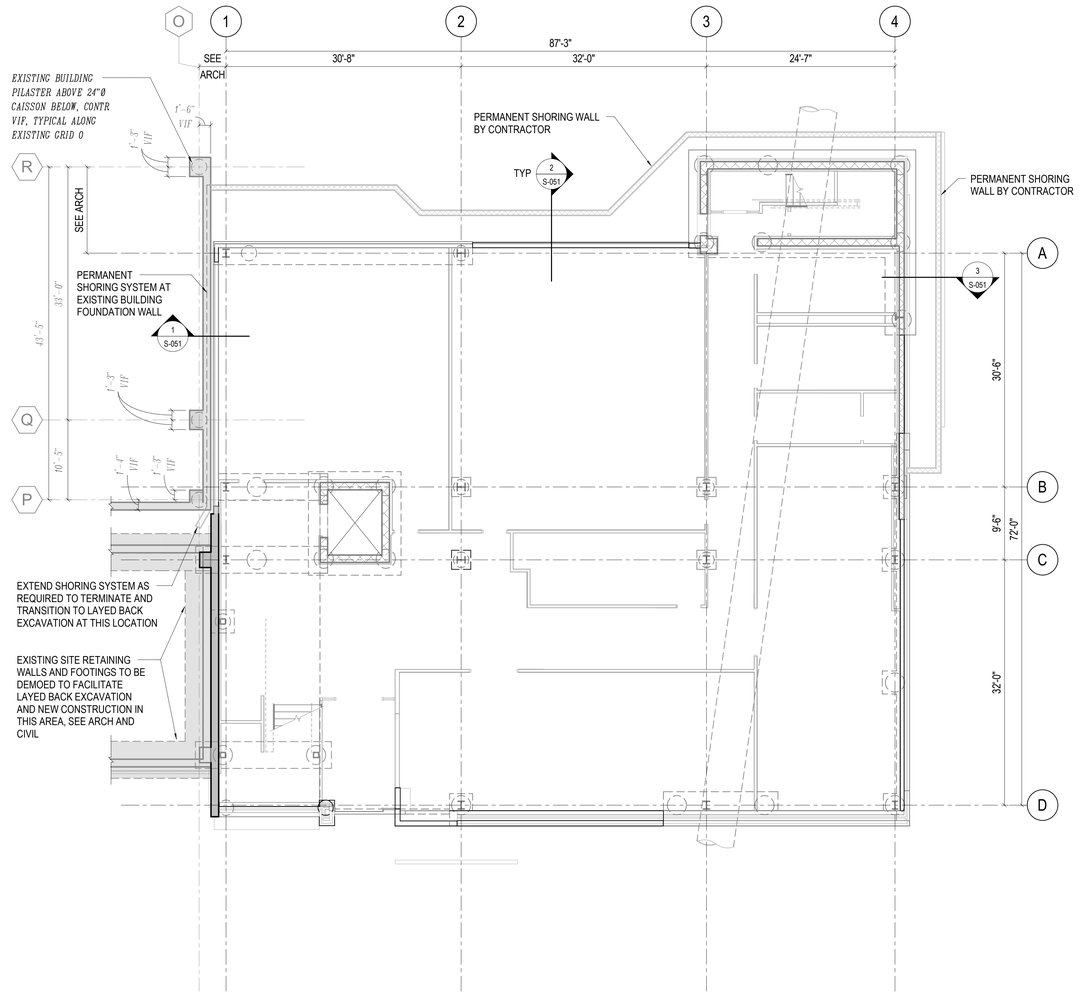
2) PERMANENT SHORING WALL SYSTEM:
2A) ALL PERMANENT EARTH SHORING SYSTEMS ARE A DEFERRED SUBMITTAL DESIGNED BY THE CONTRACTOR. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2B) REFER TO THE SPECIFICATION FOR QUALITY ASSURANCE AND QUALITY CONTROL REQUIREMENTS FOR PERMANENT SHORING SYSTEMS.
2C) ALL EXISTING CONCRETE FOUNDATION ELEMENTS ALONG GRID O HAVE A DESIGN CONCRETE COMPRESSIVE STRENGTH, f'c = 3,000 PSI. SEE ELEVATIONS ON S-051 FOR SPECIFIC REINFORCING IN EXISTING FOUNDATION ELEMENTS.
2D) CONTRACTOR SHALL LOCATE ALL EXISTING REINFORCING PRIOR TO INSTALLING PERMANENT SHORING SYSTEM. DO NOT DAMAGE EXISTING REINFORCING DURING INSTALLATION.
2E) REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING GEOMETRY AND PERMANENT SHORING SYSTEM PLACEMENT REQUIREMENTS.



2 PERMANENT SHORING WALL - LEVEL 2 PLAN

1/8" = 1'-0"

NORTH



1 PERMANENT SHORING WALL - FOUNDATION PLAN

1/8" = 1'-0"

NORTH

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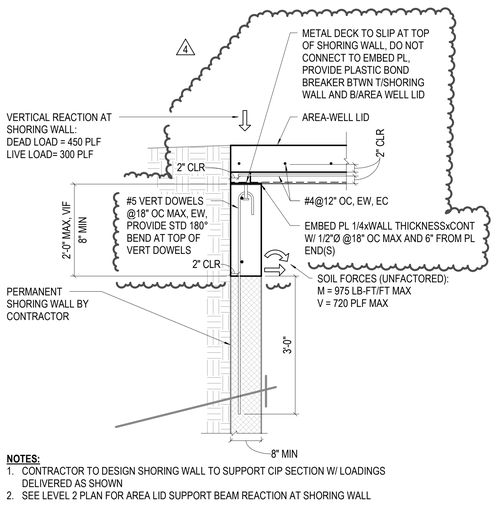
PACKAGE 1

SHEET TITLE:
PERMANENT SHORING WALL PLAN

SCALE: As indicated
SHEET NUMBER

S-050

9/7/2022 9:39:08 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
BIM_DB_F:21.1038.S.01 DESIGNERS: GREG DAEMMICHEN, LINDSEY WHITTINGTON
PRINCIPAL: BEN DOWNEY LEAD AREA: TECH, LINDSEY WHITTINGTON, ASHLAND, VA
EOR: BEN DOWNEY DATE PRINTED: 9/7/2022 9:39:08 PM
PROJECT MANAGER: J MATT DEZORT FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

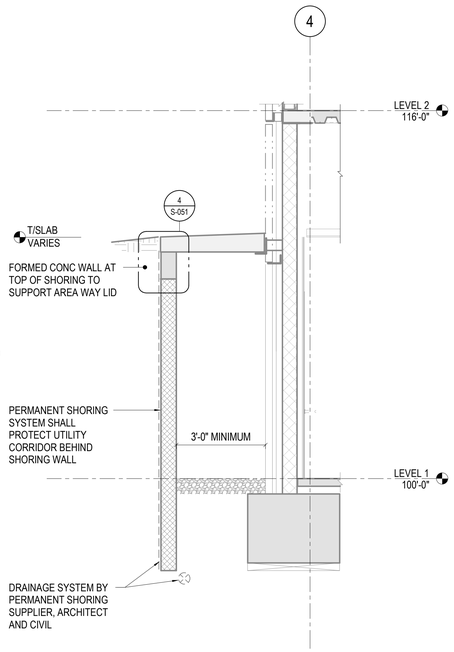


NOTES:

1. CONTRACTOR TO DESIGN SHORING WALL TO SUPPORT CIP SECTION W/ LOADINGS DELIVERED AS SHOWN
2. SEE LEVEL 2 PLAN FOR AREA LID SUPPORT BEAM REACTION AT SHORING WALL

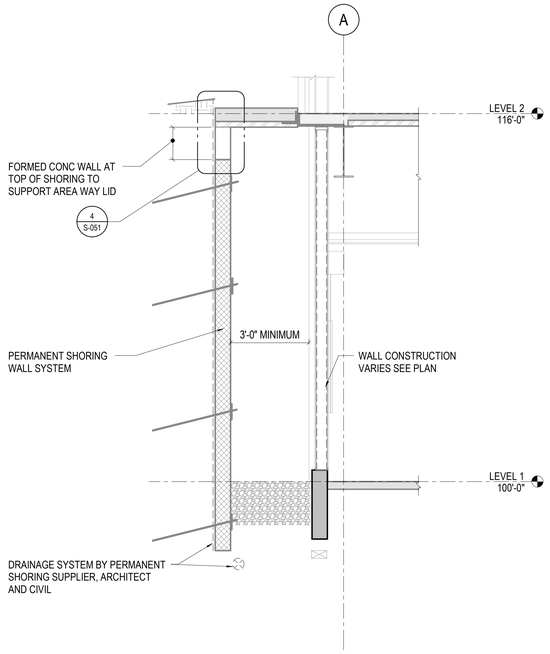
4 SHORING WALL CAP

3/4" = 1'-0"



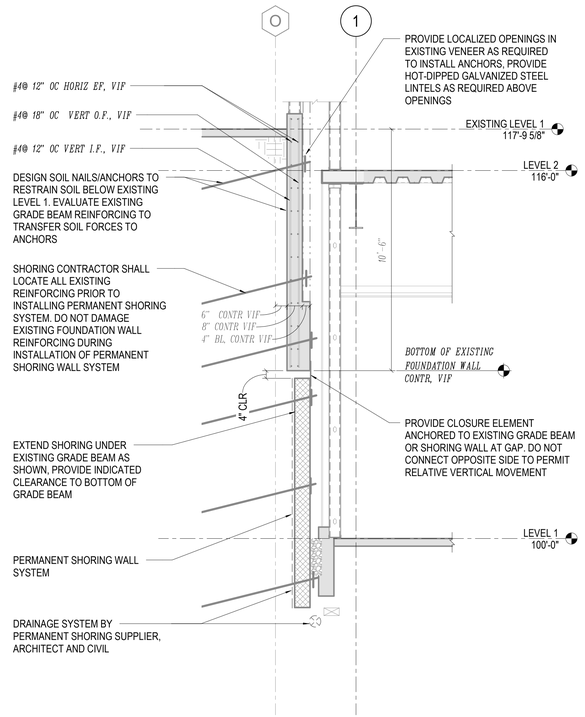
3 EAST SHORING WALL

3/8" = 1'-0"



2 NORTH SHORING WALL

3/8" = 1'-0"



1 SHORING WALL AT EXISTING BUILDING

3/8" = 1'-0"

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PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
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APPROVED: BD
DATE: 07/27/2022
REVISIONS:

4	10/26/2022	ADDENDA 4 – Pkg 1 & 2

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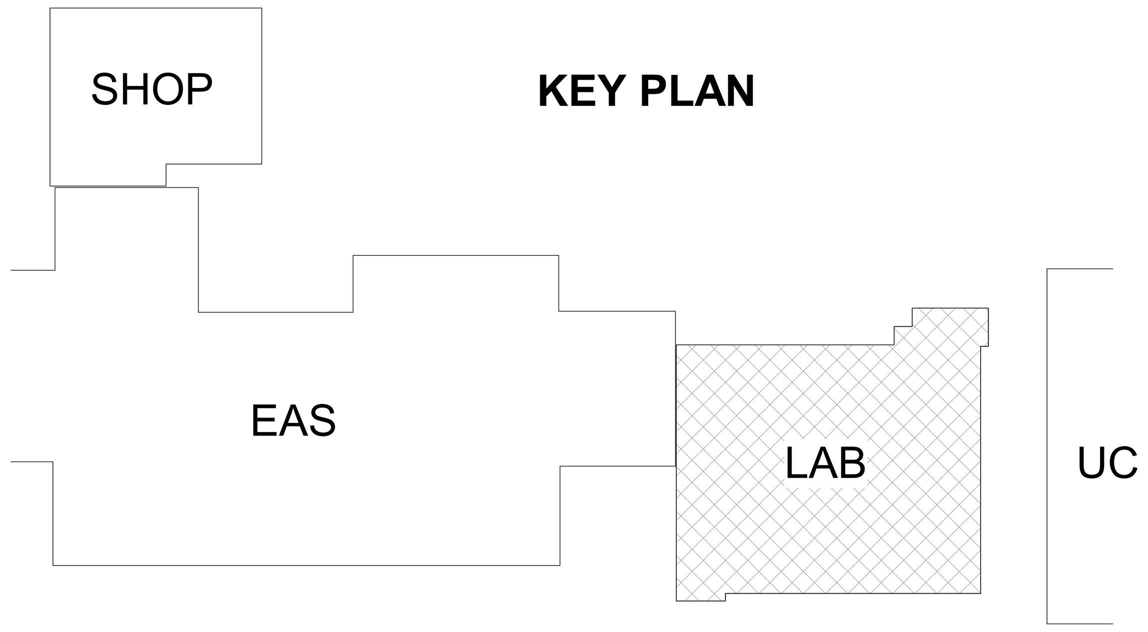
SHEET TITLE:
PERMANENT SHORING WALL SECTIONS

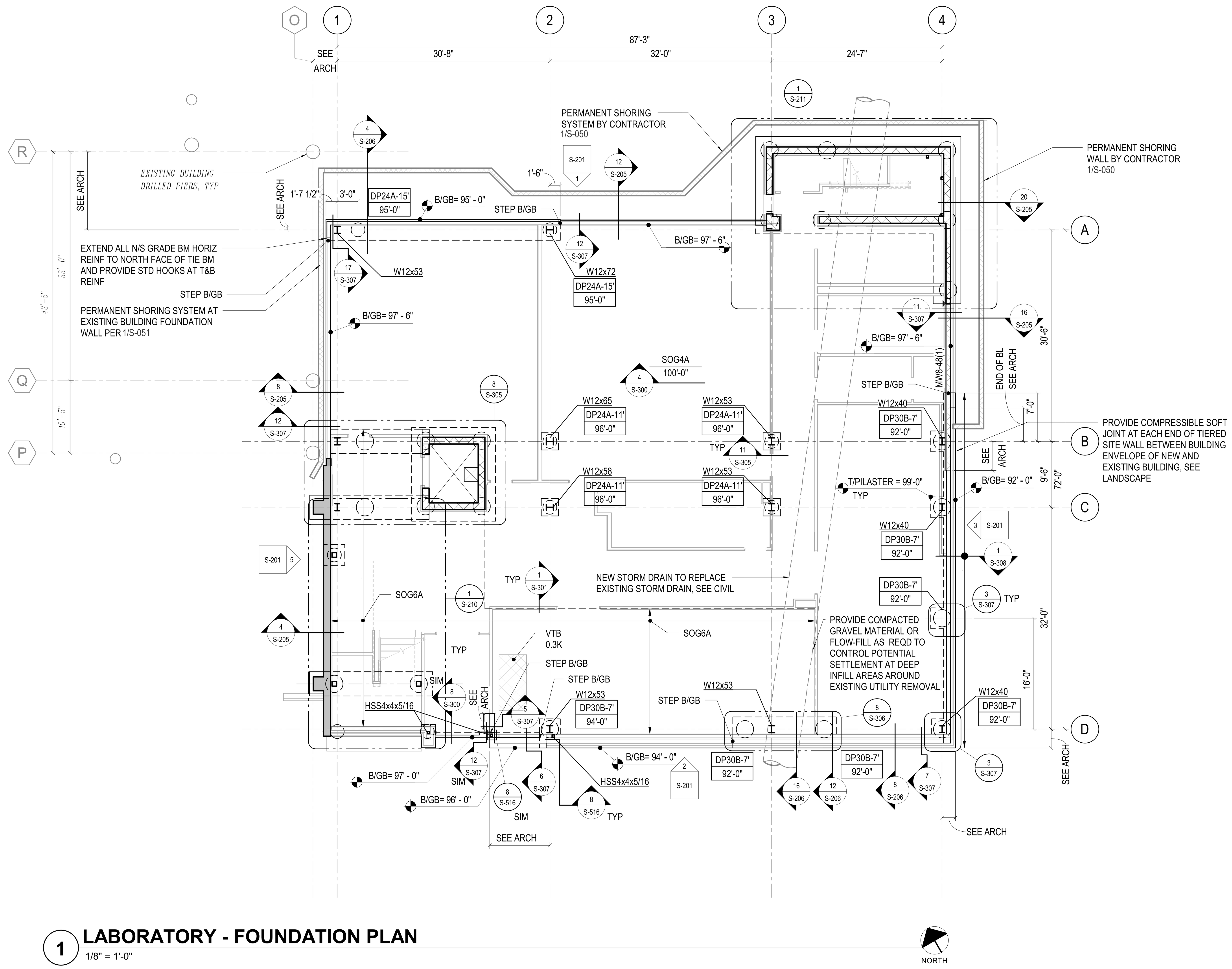
SCALE: As indicated
SHEET NUMBER

S-051

10/25/2022 8:50:11 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
BIM_VDA # 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J. MATT DEZORT
DESIGNERS: JORGE RADEMACHER, LINDSEY WHITTINGTON
LEAD SHEET DESIGNER: LINDSEY WHITTINGTON, AIA NCARB
DATE PRINTED:10/25/2022 8:50:11 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

KEY PLAN





1 LABORATORY - FOUNDATION PLAN

1/8" = 1'-0"

FIRST FLOOR AND FOUNDATION PLAN NOTES - LAB BUILDING

1) GENERAL:

1A) SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
1B) USGS ELEVATION 6415.00' = PROJECT ELEVATION 100'-0". VERIFY IN FIELD AND WITH CIVIL AND ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
1C) SEE S3 SERIES SHEETS FOR TYPICAL CONCRETE DETAILS.

2) DRILLED PIERS:

2A) SEE DETAIL 6/S-305 FOR TYPICAL DRILLED PIER SCHEDULE
2B) ALL DRILLED PIERS ARE CENTERED ON THE INTERSECTION OF GRIDS BELOW THE SUPPORTED COLUMN UNLESS DIMENSIONED OTHERWISE ON PLAN.

3) GRADE BEAMS / STEM WALLS:

3A) SEE PLAN FOR DIMENSIONED LOCATIONS OF GRADE BEAMS.
3B) SEE 20/S-307 FOR LIMITS OF GRADE BEAM/WALL POUR LENGTHS.
3C) SEE 16/S-307 FOR TYPICAL PENETRATIONS THROUGH GRADE BEAMS. SUBMIT PENETRATION LOCATIONS FOR REVIEW PRIOR TO CONSTRUCTION
3D) REINFORCING
- SEE 8/S-307 FOR GRADE BEAM HORIZONTAL CORNER AND INTERSECTION REINFORCING
- SEE 3/S-307 FOR TYPICAL PILASTER REINFORCING

3E) SEE DETAILS 14/S-307 AND 15/S-307 FOR GRADE BEAM STEP DETAILS

4) SLAB-ON-GRADE:

4A) SEE DETAIL 4/S-300 FOR TYPICAL SLAB-ON-GRADE DETAIL.
4B) SEE DETAIL 5/S-300 FOR TYPICAL SLAB-ON-GRADE LAYOUT/INFORMATION.
4C) SEE ARCH AND MECH DRAWINGS FOR SLAB SLOPES, DEPRESSIONS, FILL, PADS, AND CURBS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- SEE 2/S-301 FOR CURB AND MECHANICAL EQUIPMENT PAD DETAILS

4D) SEE ARCH DRAWINGS FOR VAPOR RETARDER LOCATIONS. INSTALL VAPOR RETARDER DIRECTLY UNDER SLAB PER RECOMMENDATIONS OF PCA AND ACI 302.1R-04. TAKE PRECAUTIONS TO MINIMIZE SLAB CURLING. GRIND SLAB TO ACHIEVE SPECIFIED FLOOR FLATNESS AND LEVELNESS VALUES.
4E) SLABS-ON-GRADE WITH EXTERIOR EXPOSURE, SHALL BE REINFORCED WITH EPOXY COATED (EC) REINFORCING.
4F) SEE "CONCRETE NOTES " FOR MAXIMUM POUR SIZE AND CONSTRUCTION JOINT REQUIREMENTS AT SLAB-ON-GRADE.

5) COLUMNS/PILASTERS:

5A) ALL COLUMNS/PILASTERS ARE CENTERED ON THE INTERSECTION OF GRIDS BELOW THE SUPPORTED COLUMN UNLESS DIMENSIONED OTHERWISE ON PLAN.
5B) SEE 18/S-501 FOR COLUMN BASE PLATE DETAILS

6) MASONRY WALLS:

6A) STRUCTURAL MASONRY WALLS:
- SEE 16/S-400 FOR TYPICAL STRUCTURAL MASONRY WALL DETAILS.
- SEE 4/S-400 FOR MASONRY WALL SCHEDULE
- SEE 11/S-400 FOR MASONRY WALL OPENINGS

7) MISCELLANEOUS NOTES:

7A) SEE SHEET S-310 FOR MISCELLANEOUS CONCRETE DETAILS AND INFORMATION INCLUDING CONCRETE LAP SPLICE SCHEDULE, TYPICAL HOOK DETAILS, AND CLEAR COVER REQUIREMENTS.
7B) SEE DETAIL 11/S-310 FOR TYPICAL REINFORCING AT PENETRATIONS. NOT ALL PENETRATIONS SHOWN. GC TO COORDINATE WITH ALL OTHER DISCIPLINES FOR SIZE AND LOCATION OF ALL REQUIRED PENETRATIONS.
7C) SEE DETAIL 12/S-310 FOR TYPICAL WELD BETWEEN REINFORCING BARS AND STEEL. DETAIL APPLIES AT ALL LOCATIONS WHERE "DAS" IS INDICATED ON DRAWINGS.
7D) CONTRACTOR TO FIELD LOCATE ALL UTILITIES BELOW GRADE. CONTRACTOR SHALL NOTIFY ARCHITECT BY DIMENSIONED DRAWING OF LOCATIONS WHERE UTILITIES CONFLICT WITH FOUNDATION INSTALLATION. CONTRACTOR SHALL MAKE ALLOWANCE FOR THE RESOLUTION OF SUCH DISCOVERIES PRIOR TO PROCEEDING WITH EFFECTED FOUNDATIONS.

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CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
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SHEET TITLE:
FOUNDATION PLAN

SCALE: As indicated
SHEET NUMBER

S-101

10/25/2022 9:00:03 PM
MM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:00:03 PM
FILE PATH: BIM 360://21091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
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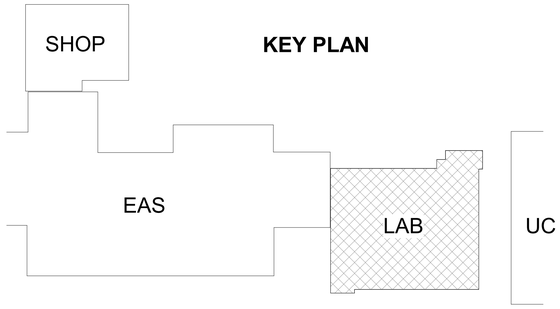
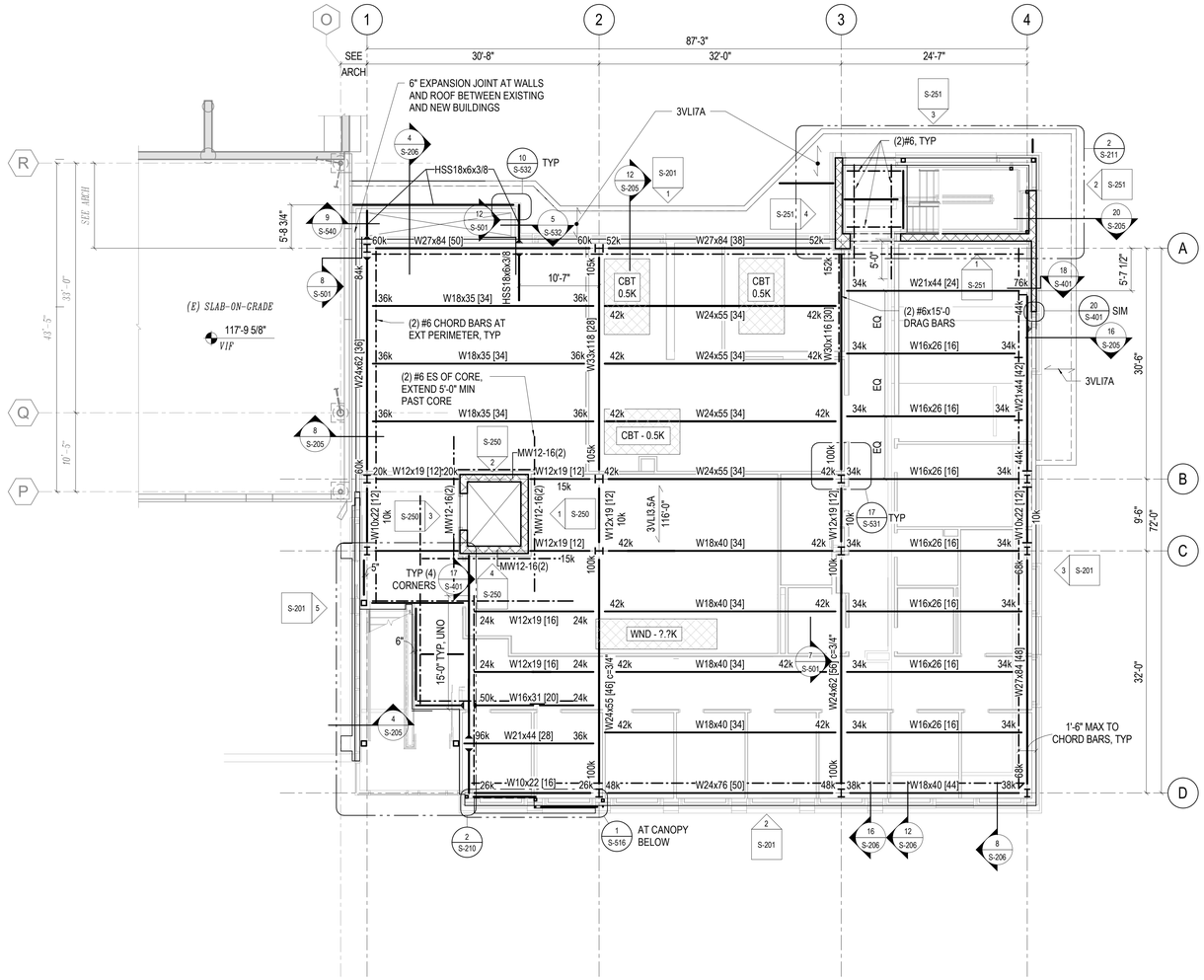


KEY PLAN



1 LEVEL 2 FRAMING PLAN

1/8" = 1'-0"

NORTH

STEEL (COMPOSITE) FRAMING PLAN NOTES:

1) GENERAL:
1A) SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
1B) SEE S5 SERIES SHEETS FOR TYPICAL STEEL DETAILS.
2) COLUMNS:
2A) ALL COLUMNS ARE CENTERED ON THE INTERSECTION OF GRIDS UNLESS DIMENSIONED OTHERWISE ON PLAN.
3) STEEL BEAMS:
3A) STEEL BEAMS SHALL BE EQUALLY SPACED BETWEEN GRIDLINES/COLUMNS/GIRDERS UNLESS DIMENSIONED OTHERWISE.
3B) TOP OF STEEL BEAMS SHALL EQUAL BOTTOM OF METAL DECK ELEVATION. SEE PLAN FOR TOP OF CONCRETE ELEVATION AND SLAB THICKNESS TO DETERMINE BOTTOM OF METAL DECK ELEVATION.
3C) REQUIRED BEAM END CONNECTION CAPACITY IN KIPS NOTED ON PLAN THUS: XXk. IF TWO SYMBOLS ARE SHOWN THEY DENOTE THE REQUIRED CONNECTION CAPACITY AT THE CORRESPONDING BEAM END. IF ONLY ONE SYMBOL IS SHOWN IT DENOTES THE REQUIRED CONNECTION CAPACITY AT EACH END OF THE BEAM. DETAIL CONNECTIONS FOR REQUIRED CONNECTION CAPACITY PER SHEET S-500. ALL BEAM END DRAG CONNECTIONS NOTED ON PLAN HAVE BEEN FACTORED PER THE ASCE 7 STRENGTH DESIGN LOAD COMBINATIONS.
3D) PLACE NUMBER OF SHEAR STUDS INDICATED ON PLAN THUS: [XX] PER DETAIL 11/S-530. ALL SHEAR STUDS ARE 3/4"Ø. SEE DETAIL 11/S-530 FOR NET IN-PLACE LENGTH OF SHEAR STUDS.
4) STRUCTURAL SLAB-ON-DECK:
4A) TOP OF CONCRETE SLAB NOTED ON PLAN THUS:
4B) COMPOSITE SLAB-ON-METAL-DECK SCHEDULE, SEE 11/S-530
4C) LOCATE SLAB CONSTRUCTION JOINTS PER DETAIL 4/S-530. SUBMIT LOCATIONS OF SLAB CONSTRUCTION JOINTS FOR REVIEW 3 WEEKS (MINIMUM) PRIOR TO PLACEMENT OF CONCRETE. SPACE JOINTS AND POUR SEQUENCES TO MINIMIZE SHRINKAGE CRACKS. SEE "GENERAL NOTES- CONCRETE" FOR JOINTING REQUIREMENTS AT SLAB-ON-DECK.
4D) REINFORCING DETAILS
- SEE DETAIL 19/S-530 FOR ADDITIONAL REINFORCING REQUIRED AT SLAB PENETRATIONS/OPENINGS.
- SEE DETAIL 19/S-530 FOR ADDITIONAL REINFORCING REQUIRED AT RE-ENTRANT CORNERS OF SLABS.
- NOT ALL PENETRATIONS SHOWN. GC TO COORDINATE WITH DRAWINGS FOR OTHER DISCIPLINES TO DETERMINE THE SIZE AND LOCATION OF ALL PENETRATIONS.

SEE PLAN FOR ADDITIONAL CHORD AND DRAG REINFORCING REQUIRED IN COMPOSITE SLABS.
4E) SEE THE ARCHITECTURAL SLAB EDGE CONTROL PLANS ON SHEET A-001 THROUGH A-002B

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ISSUED FOR:
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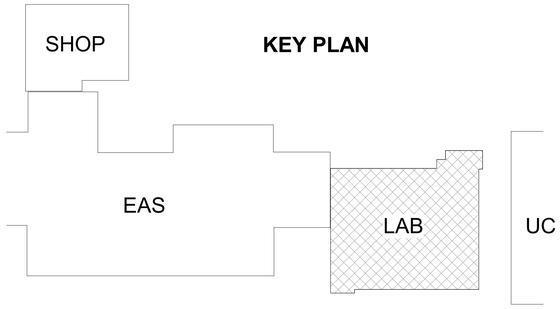
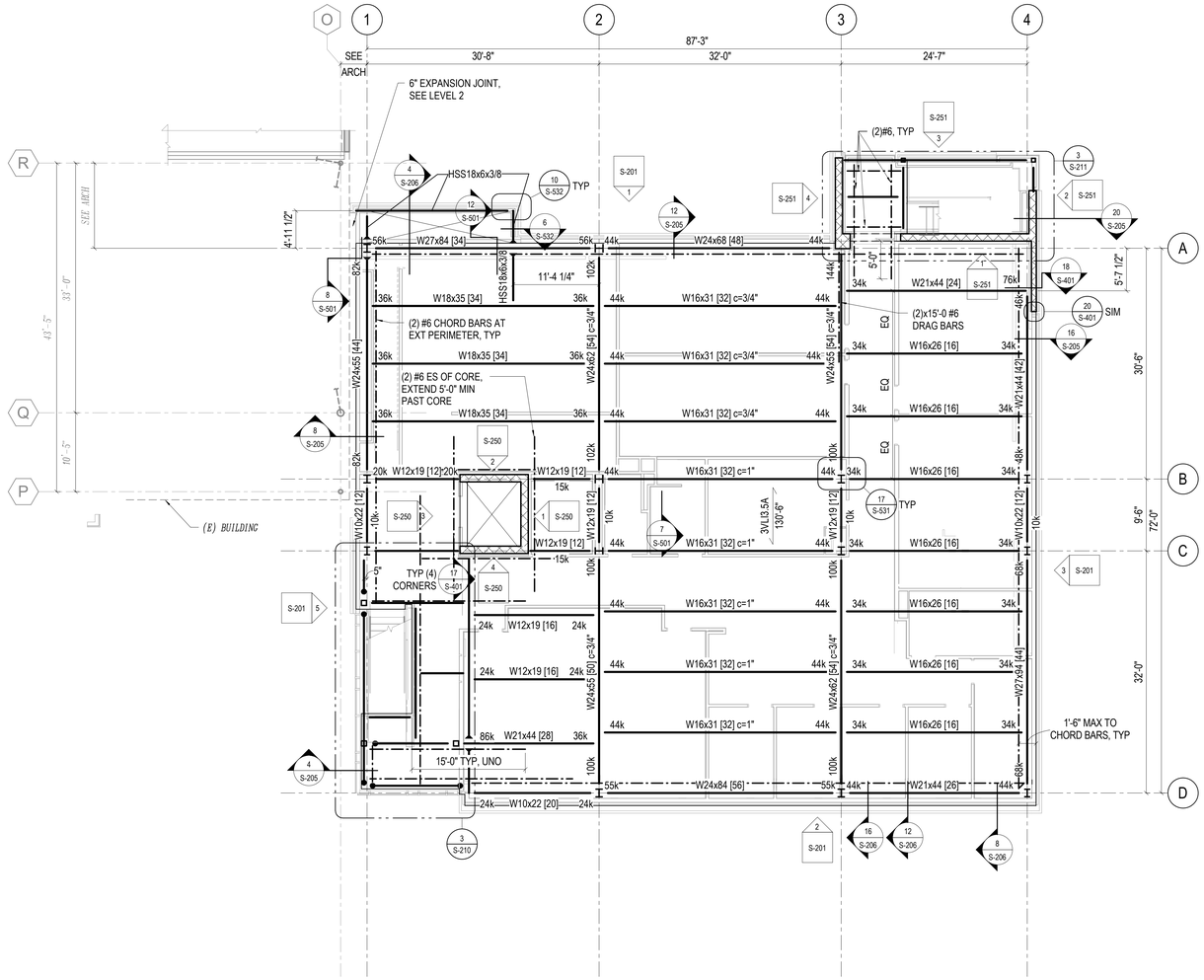
SHEET TITLE:
LEVEL 2 FRAMING PLAN

SCALE: As indicated
SHEET NUMBER
S-102

10/25/2022 9:00:06 PM BIM: 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
IM_VDB_# 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNED: GREG RAESAUCHEL, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, KAYLA NOVA
DATE PRINTED: 10/25/2022 9:00:06 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt





1 LEVEL 3 FRAMING PLAN - LAB BUILDING

1/8" = 1'-0"

NORTH

STEEL (COMPOSITE) FRAMING PLAN NOTES:

1. SEE PLAN NOTES AT LEVEL 2.

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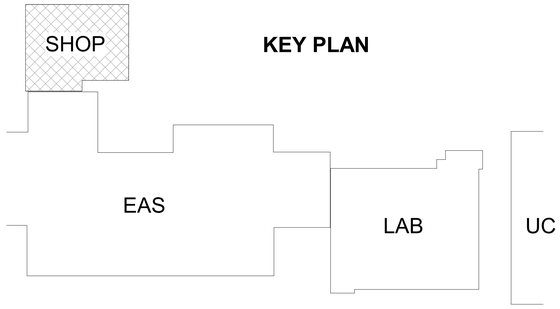
SHEET TITLE:
LEVEL 3 FRAMING PLAN - LAB BUILDING

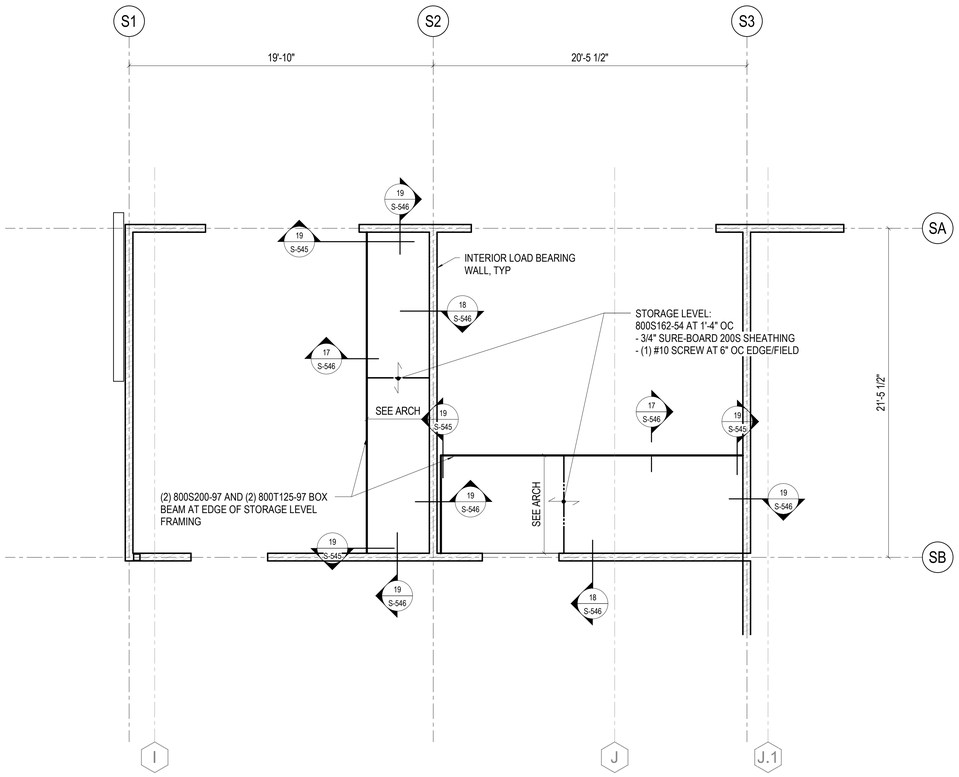
SCALE: As indicated
SHEET NUMBER

S-103A

10/25/2022 9:00:09 PM
BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
IMM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:00:09 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



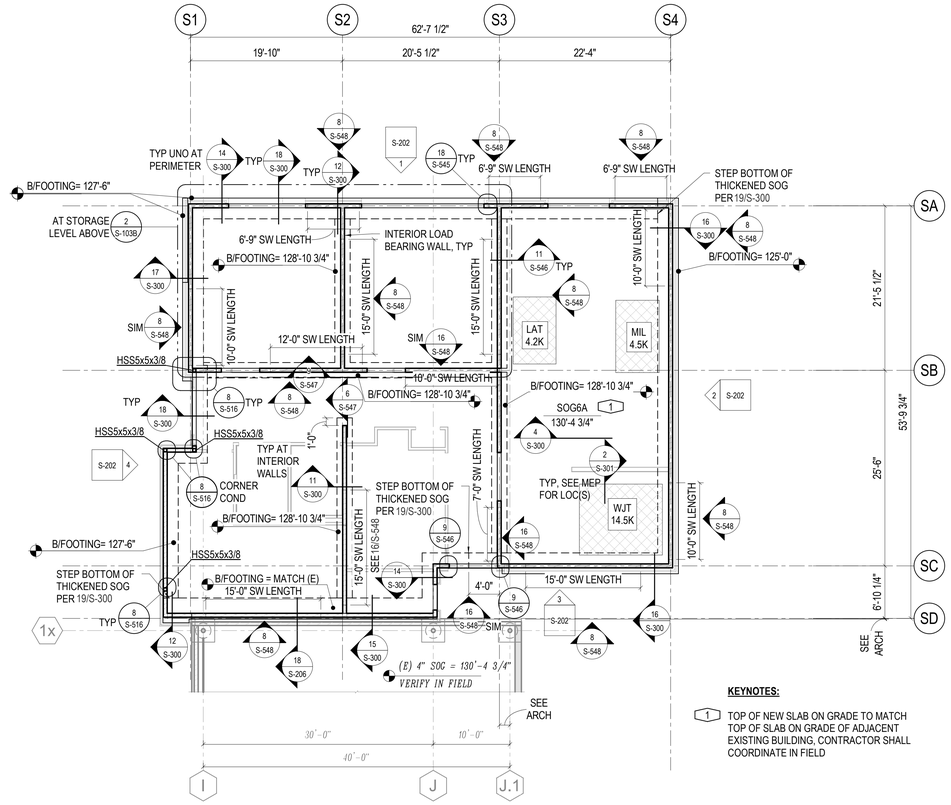
KEY PLAN



2 STORAGE LEVEL FRAMING PLAN - SHOP BUILDING

1/4" = 1'-0"

NORTH



KEYNOTES:

1 TOP OF NEW SLAB ON GRADE TO MATCH TOP OF SLAB ON GRADE OF ADJACENT EXISTING BUILDING, CONTRACTOR SHALL COORDINATE IN FIELD

1 LEVEL 3 FRAMING PLAN - SHOP BUILDING

1/8" = 1'-0"

NORTH

FIRST FLOOR AND FOUNDATION PLAN NOTES (SHOP BUILDING):

1) GENERAL:
1A) SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
1B) SEE LAB BUILDING FOUNDATION NOTES FOR USGS ELEVATION AND PROJECT ELEVATION INFORMATION.
1C) SEE S3 SERIES SHEETS FOR TYPICAL CONCRETE DETAILS.

2) SLAB-ON-GRADE:
2A) SEE DETAIL 4/S-300 FOR TYPICAL SLAB-ON-GRADE DETAIL.
2B) SEE DETAIL 5/S-300 FOR TYPICAL SLAB-ON-GRADE LAYOUT/INFORMATION.
2C) SEE ARCH AND MECH DRAWINGS FOR SLAB SLOPES, DEPRESSIONS, FILL, PADS, AND CURBS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- SEE 2/S-301 FOR CURB AND MECHANICAL EQUIPMENT PAD DETAILS
2D) SEE ARCH DRAWINGS FOR VAPOR RETARDER LOCATIONS. INSTALL VAPOR RETARDER DIRECTLY UNDER SLAB PER RECOMMENDATIONS OF PCA AND ACI 302.1R-04. TAKE PRECAUTIONS TO MINIMIZE SLAB CURLING. GRIND SLAB TO ACHIEVE SPECIFIED FLOOR FLATNESS AND LEVELNESS VALUES.
2E) SLABS-ON-GRADE WITH EXTERIOR EXPOSURE, SHALL BE REINFORCED WITH EPOXY COATED (EC) REINFORCING.
2F) SEE "CONCRETE NOTES " FOR MAXIMUM POUR SIZE AND CONSTRUCTION JOINT REQUIREMENTS AT SLAB-ON-GRADE.

3) COLD FORMED NOTES: SEE ROOF FRAMING PLAN S-104

4) MISCELLANEOUS NOTES:
4A) SEE SHEET 10/S-310 FOR MISCELLANEOUS CONCRETE DETAILS AND INFORMATION INCLUDING CONCRETE LAP SPLICE SCHEDULE, TYPICAL HOOK DETAILS, AND CLEAR COVER REQUIREMENTS.
4B) SEE DETAIL 11/S-310 FOR TYPICAL REINFORCING AT PENETRATIONS. NOT ALL PENETRATIONS SHOWN, CONTRACTOR TO COORDINATE ALL OTHER DISCIPLINES FOR SIZE AND LOCATION OF ALL REQUIRED PENETRATIONS.
4C) SEE DETAIL 12/S-310 FOR TYPICAL WELD BETWEEN REINFORCING BARS AND EMBED PLATES. DETAIL APPLIES AT ALL LOCATIONS WHERE "DAS" IS INDICATED ON DRAWINGS.
4D) CONTRACTOR TO FIELD LOCATE ALL UTILITIES BELOW GRADE. CONTRACTOR SHALL NOTIFY ARCHITECT BY DIMENSIONED DRAWING OF LOCATIONS WHERE UTILITIES CONFLICT WITH FOUNDATION INSTALLATION. CONTRACTOR SHALL MAKE ALLOWANCE FOR THE RESOLUTION OF SUCH DISCOVERIES PRIOR TO PROCEEDING WITH EFFECTED FOUNDATIONS.

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BENJAMIN W. DOWNEY
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10/26/2022
PROFESSIONAL ENGINEER

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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
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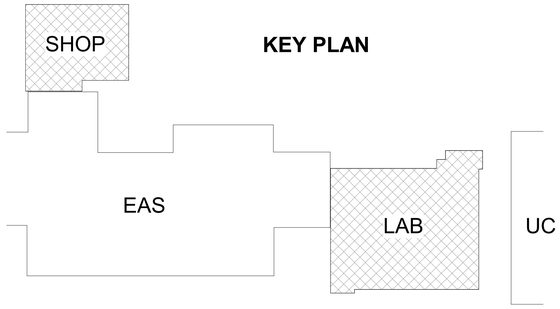
SHEET TITLE:
FOUNDATION PLAN - SHOP BUILDING

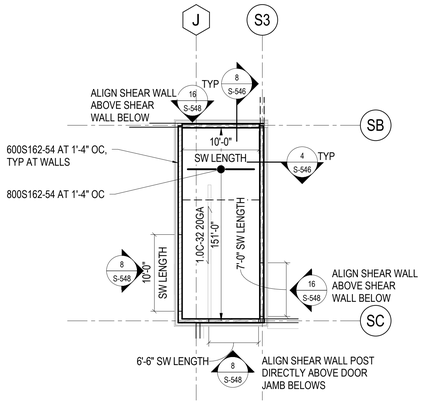
SCALE: As indicated
SHEET NUMBER

S-103B

10/25/2022 9:00:12 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
BIM_ID: # 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADAUHSER, LINDSEY WHITTINGTON
LEAD SHEET TECH: LINDSEY WHITTINGTON, AIA NCIDQ
DATE PRINTED:10/25/2022 9:00:12 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



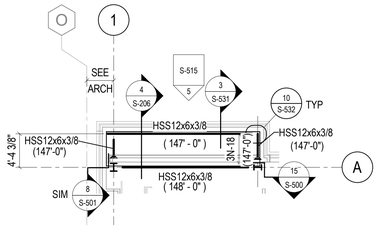
KEY PLAN



5 PENTHOUSE ROOF - SHOP BUILDING

1/8" = 1'-0"

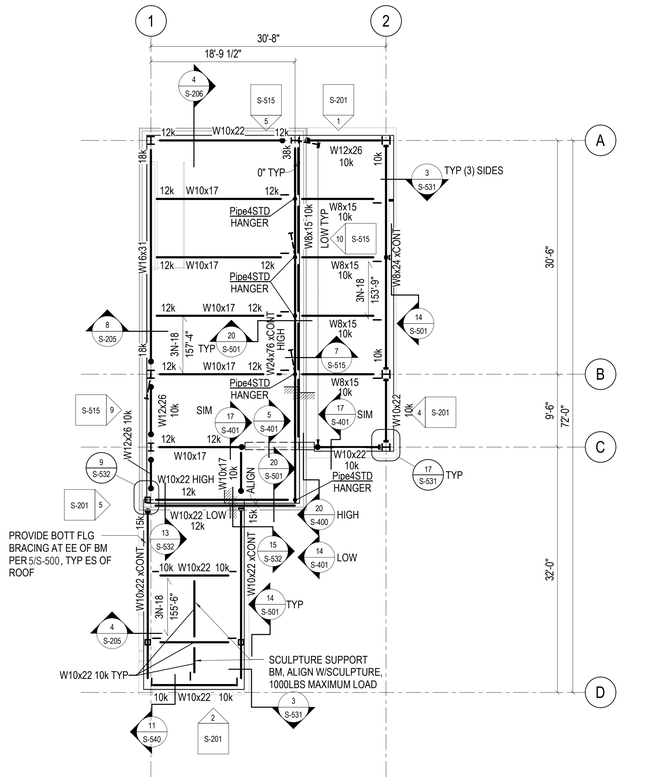
NORTH



3 MECH SHAFT ROOF

1/8" = 1'-0"

NORTH



2 UPPER ROOF FRAMING PLAN

1/8" = 1'-0"

NORTH

STEEL ROOF FRAMING PLAN NOTES (LAB BUILDING):

1) GENERAL:
1A) SEE S0 SERIES SHEETS FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
1B) SEE S5 SERIES SHEETS FOR TYPICAL STEEL DETAILS.

2) COLUMNS:
2A) ALL COLUMNS ARE CENTERED ON THE INTERSECTION OF GRIDS UNLESS DIMENSIONED OTHERWISE ON PLAN.

3) STEEL BEAMS:
3A) STEEL BEAMS SHALL BE EQUALLY SPACED BETWEEN GRIDLINES/COLUMNS/GIRDERS UNLESS DIMENSIONED OTHERWISE.
3B) TOP OF STEEL BEAMS SHALL EQUAL BOTTOM OF METAL DECK ELEVATION, SEE PLANS AND DETAILS FOR ADDITIONAL INFORMATION.
- SEE PLAN FOR BOTTOM OF DECK ELEVATION

4) METAL DECK:
4A) SEE SHEETS S-530 AND S-531 FOR TYPICAL METAL DECK DETAILS.
4B) METAL DECK SCHEDULE, SEE 2/S-531
4C) SEE DETAIL 20/S-531 FOR DECK SUPPORT FRAMING REQUIRED AT DECK PENETRATIONS WITH ONE SIDE EXCEEDING 10".
4D) NOT ALL PENETRATIONS SHOWN. GC TO COORDINATE WITH DRAWINGS FOR OTHER DISCIPLINES TO DETERMINE THE SIZE AND LOCATION OF ALL PENETRATIONS.

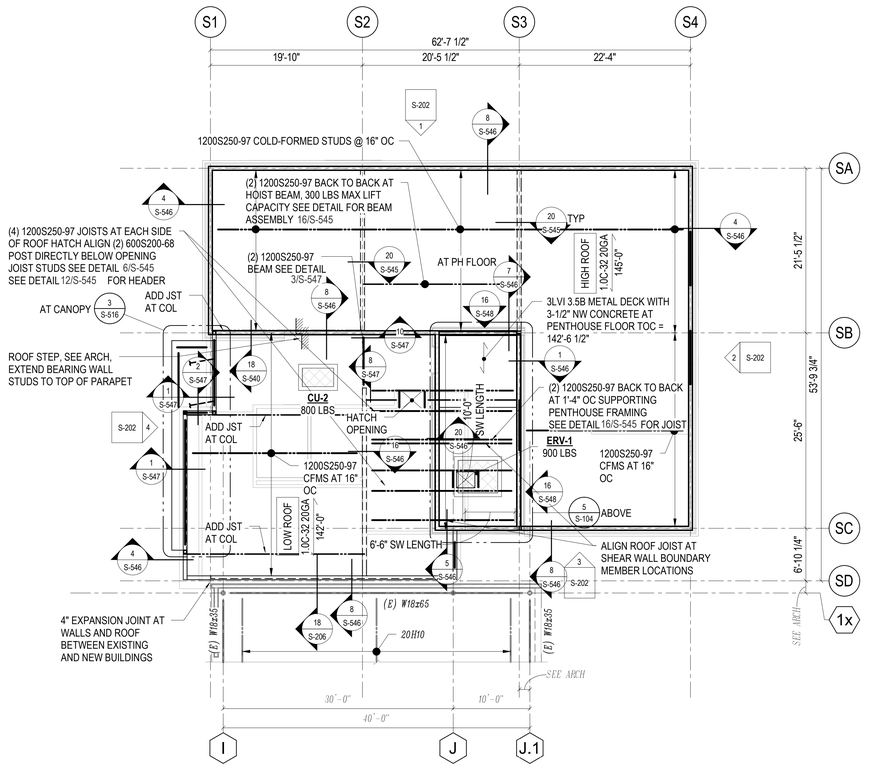
5) MECHANICAL AND ELECTRICAL EQUIPMENT
5A) SEE 20/S-530 FOR REQUIREMENTS AT MECHANICAL AND ELECTRICAL EQUIPMENT AT SLAB-ON-METAL DECK INSIDE PENTHOUSE. SEE 4/S-531 FOR EQUIPMENT AT SLAB-ON-METAL DECK OUTSIDE PENTHOUSE. SEE 12/S-531 FOR REQUIREMENTS AT MECHANICAL AND ELECTRICAL EQUIPMENT AT ROOF DECK.
5B) CONTRACTOR TO VERIFY ALL EQUIPMENT WEIGHTS, SIZES, LOCATIONS, AND OPENINGS REQUIRED WITH MECHANICAL CONTRACTOR. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY CHANGES IN THE WEIGHTS OR LOCATIONS SHOWN ON THE DRAWINGS. SUCH CHANGES IN CONDITIONS SHALL BE SUBJECT TO STRUCTURAL ENGINEER REVIEW. RE: MECHANICAL AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL OPENINGS NOT SHOWN.
5C) MECHANICAL EQUIPMENT WEIGHTS, IN KIPS, NOTED ON PLAN THUS: XXk.
- MECHANICAL EQUIPMENT WEIGHT SHALL BE EVENLY DISTRIBUTED TO ALL SUPPORTING BEAMS.
- EQUIPMENT TO BE PLACED TO BEAR ON TWO BEAMS MINIMUM.

ALL OPENINGS IN METAL DECK GREATER THAN 10 INCHES IN ANY DIRECTION SHALL BE SUPPORTED ON ALL FOUR SIDES BY A STEEL FRAME SPANNING BETWEEN DECK SUPPORTS. SEE 20/S-531 FOR TYPICAL FRAMING AT ROOF DECK OPENINGS.

COLD FORMED BEARING WALL FLOOR FRAMING NOTES (SHOP BUILDING):

1) WALLS:
1A) COLD FORMED WALLS SHOWN ON THE STRUCTURAL DRAWINGS ARE LOAD BEARING. TYPICAL DETAILS RELATED TO THE CONSTRUCTION OF LOAD BEARING WALLS ARE SHOWN ON SHEETS S-545 THROUGH S-548.
1B) WALLS HALF-TONED ON STRUCTURAL DRAWINGS ARE NON-LOADING BEARING INTERIOR PARTITION WALLS. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
1C) STRUCTURAL LOAD BEARING COLD FORMED WALLS NOTED ON PLAN THUS: 600S200-68 INTERIOR AT 1'-4" OC AND 600S162-54 EXTERIOR AT 1'-4" OC. SEE 2/S-545 AND 5/S-545 FOR ADDITIONAL INFORMATION
1D) SEE DETAIL 20/S-540 FOR ADDITIONAL BEARING WALL STUD BRACING AND BRIDGING REQUIREMENTS.
1E) SEE SHEET 5/S-545 FOR BEARING WALL CONSTRUCTION AT WALL OPENINGS
1F) SEE PLANS FOR APPROXIMATE LOCATIONS OF COLD FORMED BEARING WALLS. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS.
1G) SEE DETAIL 3/S-546 FOR THIRD-POINT BRIDGING AT ROOF JOIST LOCATIONS AND MID-POINT BRIDGING AT PENTHOUSE ROOF.

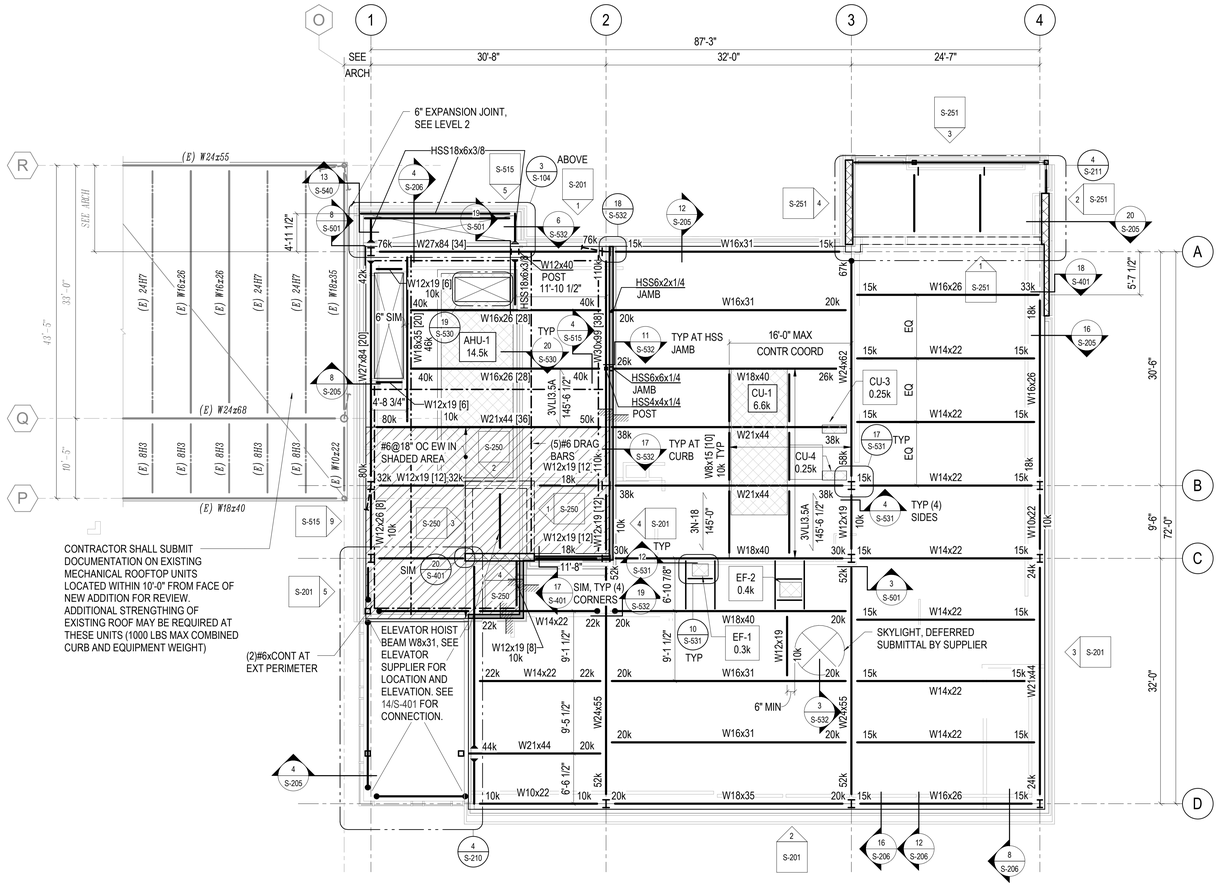
2) METAL DECK:
2A) SEE SHEETS S-530 AND S-531 FOR TYPICAL METAL DECK DETAILS.
2B) SEE DETAIL 20/S-531 FOR DECK SUPPORT FRAMING REQUIRED AT DECK PENETRATIONS WITH ONE SIDE EXCEEDING 10". CONTRACTOR TO VERIFY ALL EQUIPMENT WEIGHTS, SIZES, LOCATIONS, AND OPENINGS REQUIRED WITH MECHANICAL CONTRACTOR. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY CHANGES IN THE WEIGHTS OR LOCATIONS SHOWN ON THE DRAWINGS. SUCH CHANGES IN CONDITIONS SHALL BE SUBJECT TO STRUCTURAL ENGINEER REVIEW. RE: MECHANICAL AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL OPENINGS NOT SHOWN.
2C) NOT ALL PENETRATIONS SHOWN. GC TO COORDINATE WITH DRAWINGS FOR OTHER DISCIPLINES TO DETERMINE THE SIZE AND LOCATION OF ALL PENETRATIONS.



6 LOWER ROOF FRAMING PLAN - SHOP BUILDING

1/8" = 1'-0"

NORTH



1 LOWER ROOF FRAMING PLAN

1/8" = 1'-0"

NORTH

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DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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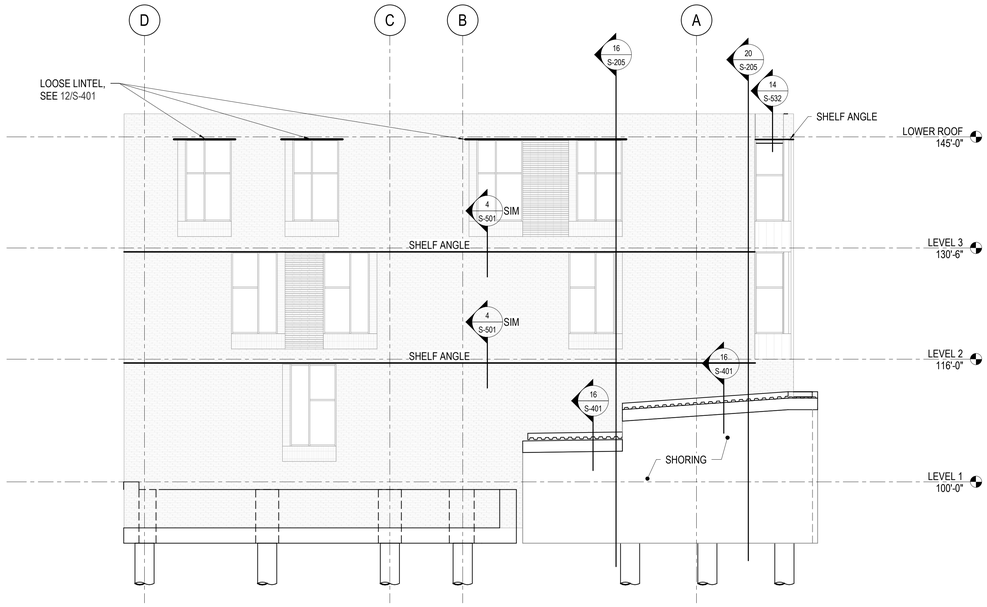
100% CD/PACKAGE 3

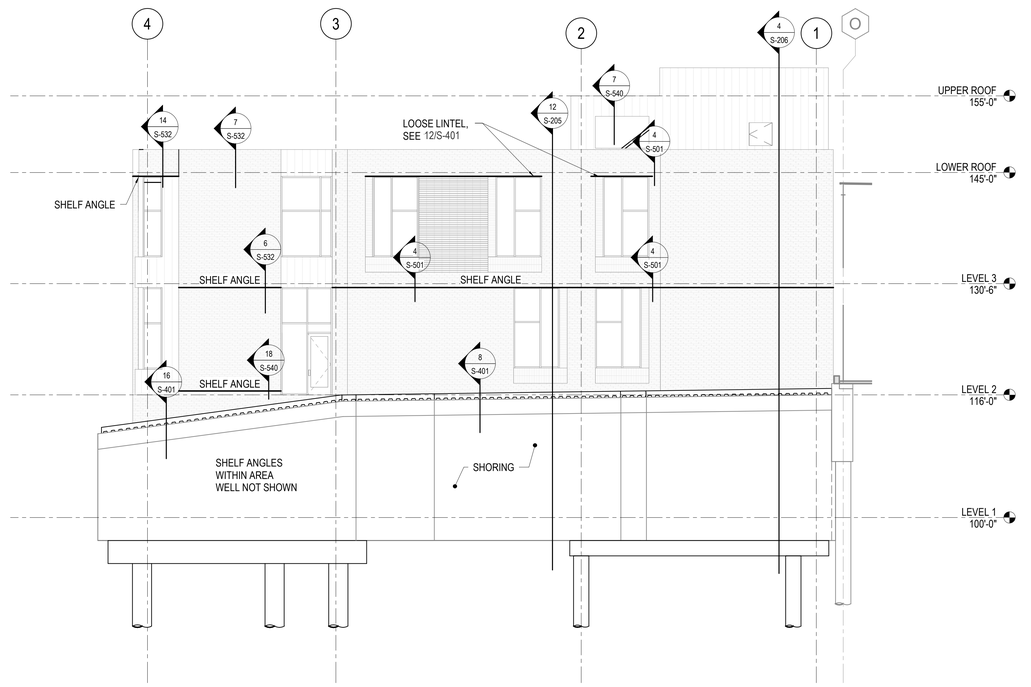
SHEET TITLE:
ROOF FRAMING PLANS

SCALE: As indicated
SHEET NUMBER
S-104

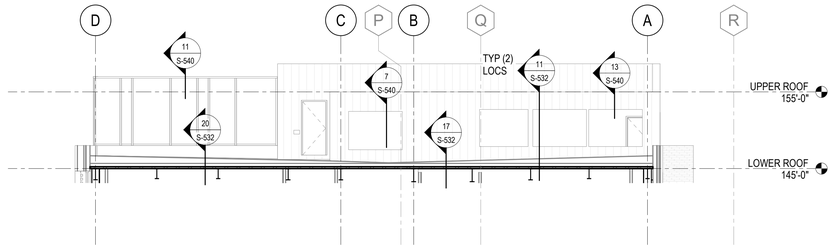
10/25/2022 9:00:19 PM
BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MK_VCB_21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J. MATT DEZORT
DESIGNERS: DSEE,RADMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JOHN LAUX
DATE PRINTED: 10/25/2022 9:00:19 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



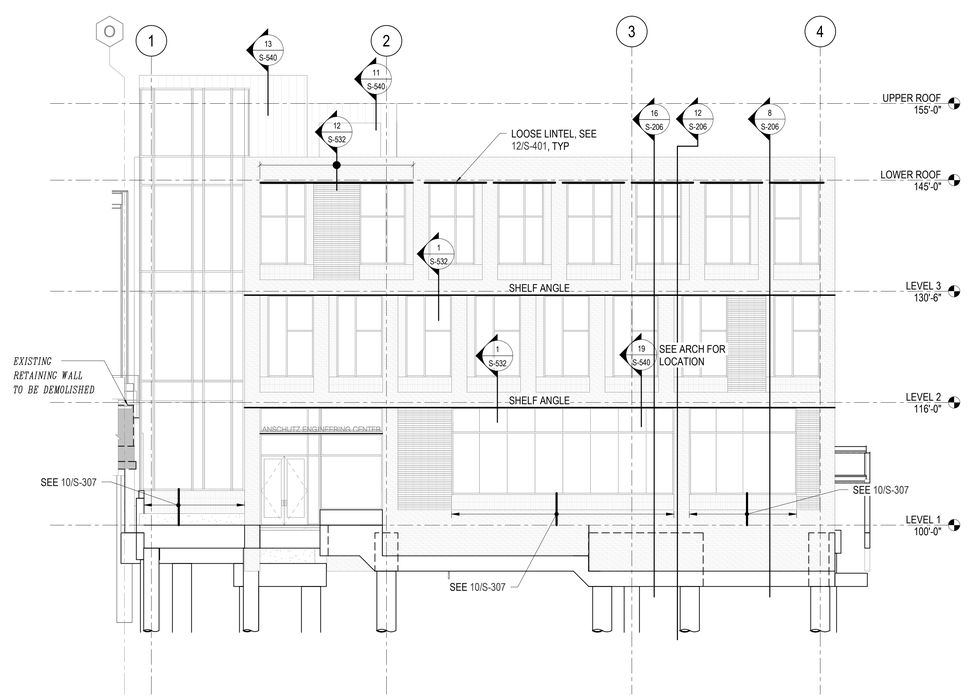
3 **EAST EXTERIOR ELEVATION**
1/8" = 1'-0"



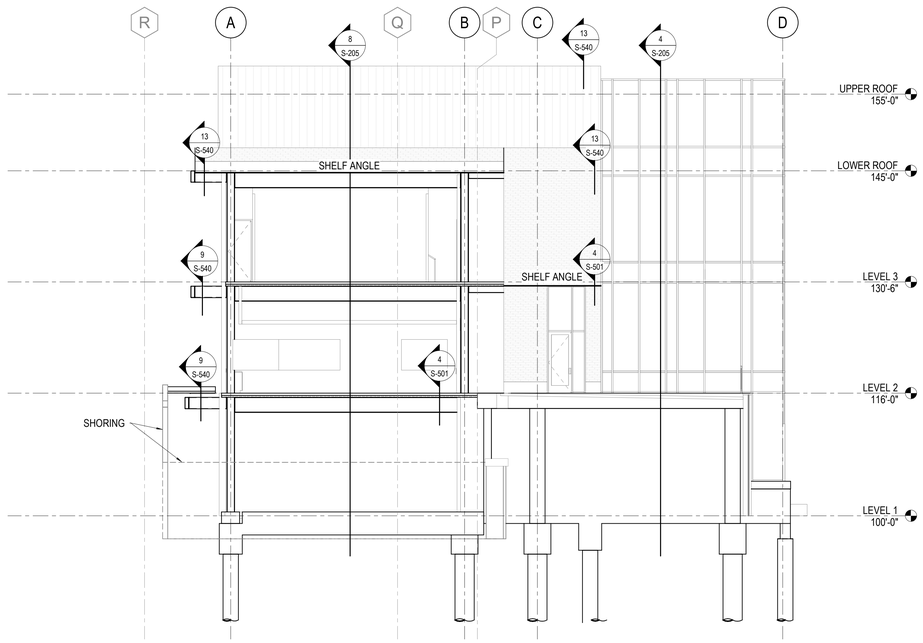
1 **NORTH EXTERIOR ELEVATION**
1/8" = 1'-0"



4 **EAST EXTERIOR ELEVATION - HIGH ROOF**
1/8" = 1'-0"



2 **SOUTH EXTERIOR ELEVATION**
1/8" = 1'-0"



5 **WEST EXTERIOR ELEVATION**
1/8" = 1'-0"

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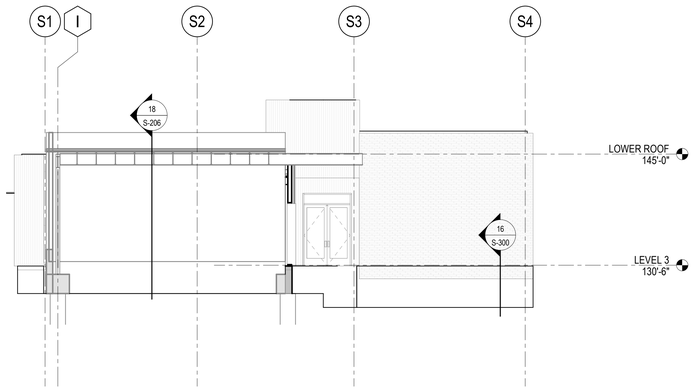
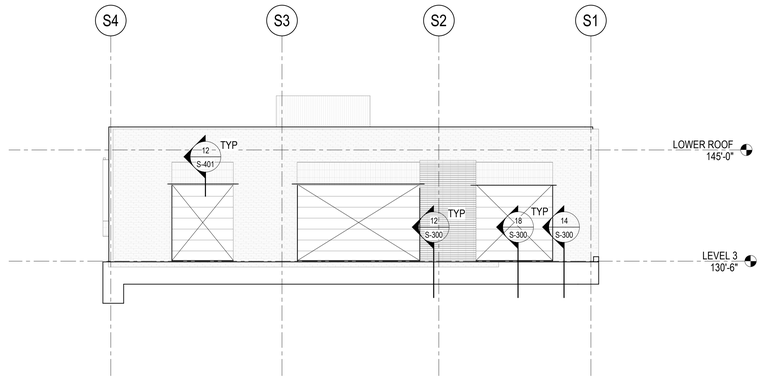
SHEET TITLE:
LAB BUILDING ELEVATIONS

SCALE: 1/8" = 1'-0"
SHEET NUMBER
S-201

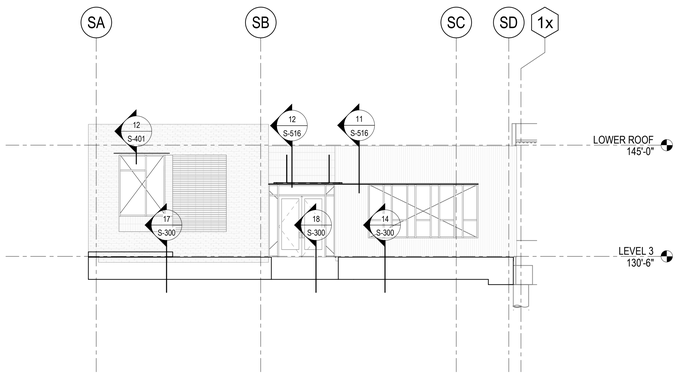
10/25/2022 9:00:26 PM
BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:00:26 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



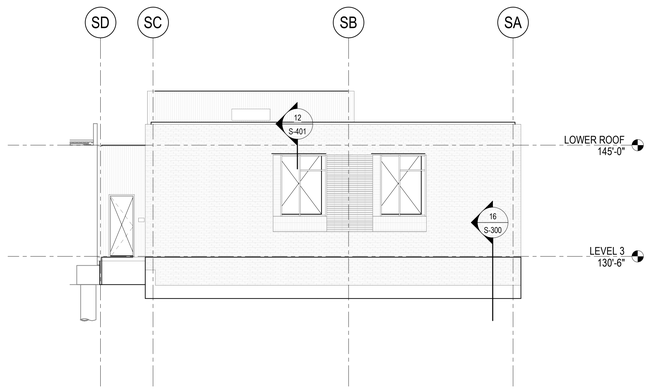
3 **SHOPS BUILDING - SOUTH**
1/8" = 1'-0"



1 **SHOPS BUILDING - NORTH**
1/8" = 1'-0"



4 **SHOPS BUILDING - WEST**
1/8" = 1'-0"



2 **SHOPS BUILDING - EAST**
1/8" = 1'-0"

10/25/2022 9:00:29 PM
BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
IMM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:00:29 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

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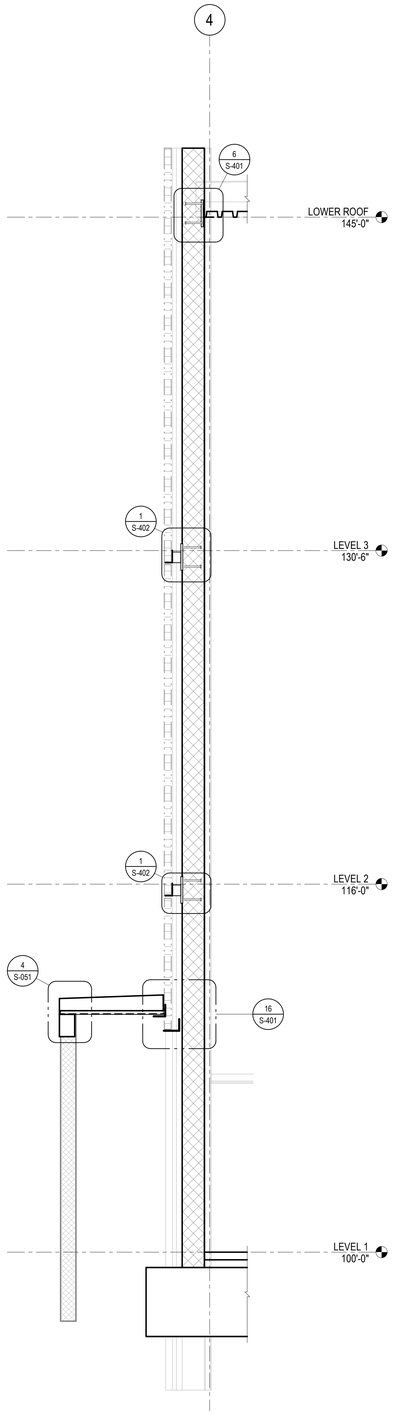
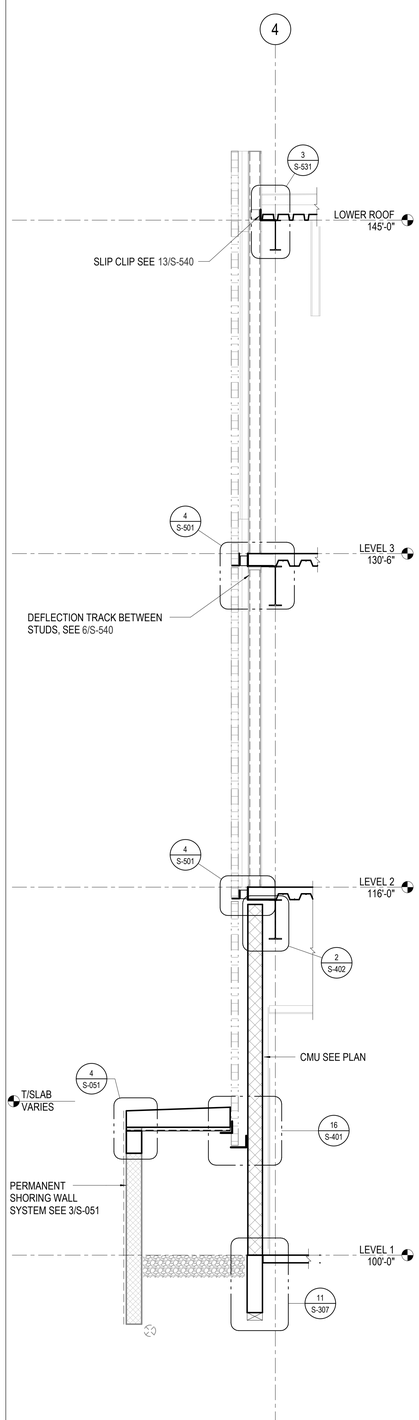
SHEET TITLE:
SHOP BUILDING ELEVATIONS

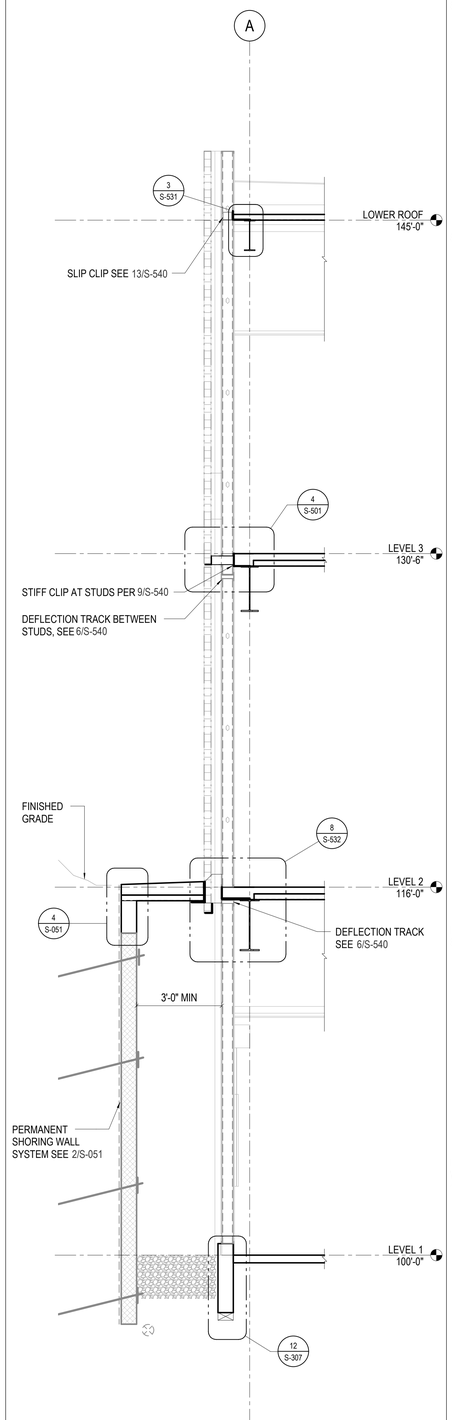
SCALE: 1/8" = 1'-0"
SHEET NUMBER
S-202



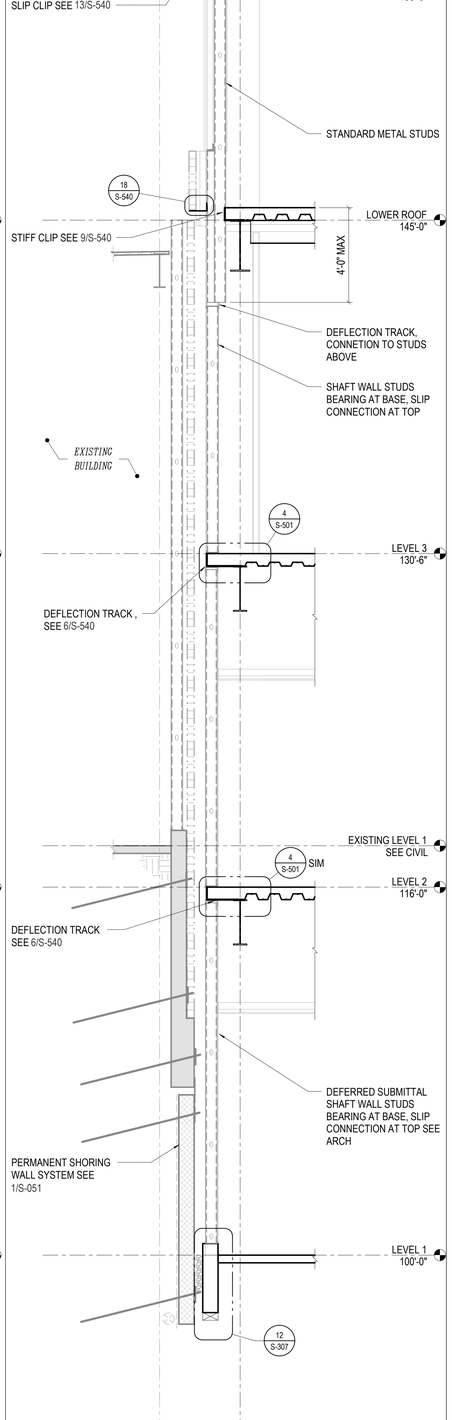
20 3/8" = 1'-0" EXTERIOR WALL - EAST AREA WELL AT CORE



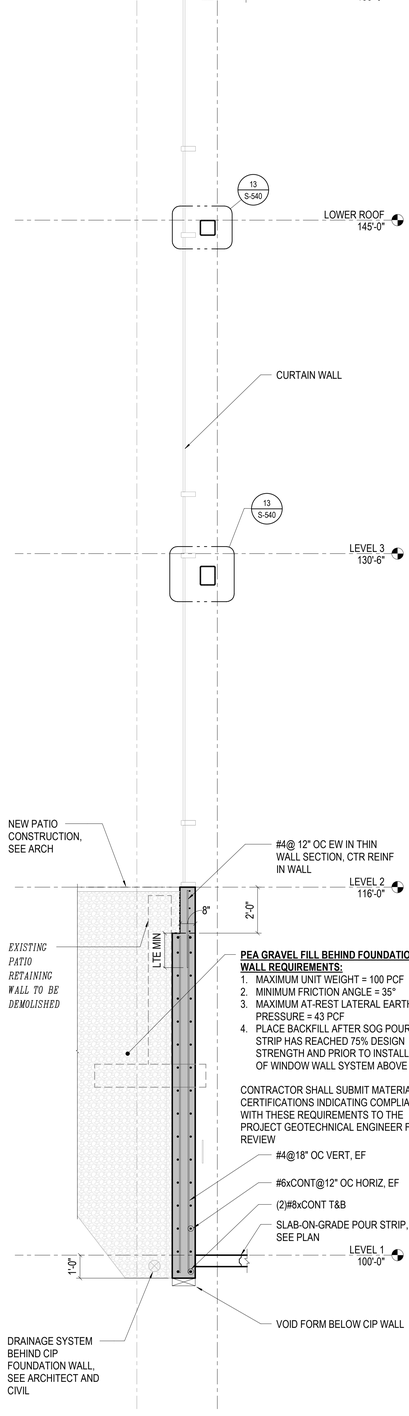
16 3/8" = 1'-0" EXTERIOR WALL - EAST AREA WELL



12 3/8" = 1'-0" EXTERIOR WALL - NORTH AREA WELL



8 3/8" = 1'-0" NEW ADDITION AT EXISTING BUILDING



4 3/8" = 1'-0" NEW ADDITION AT EXISTING EXTERIOR TERRACE

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DATE: 10/26/2022
REVISIONS:

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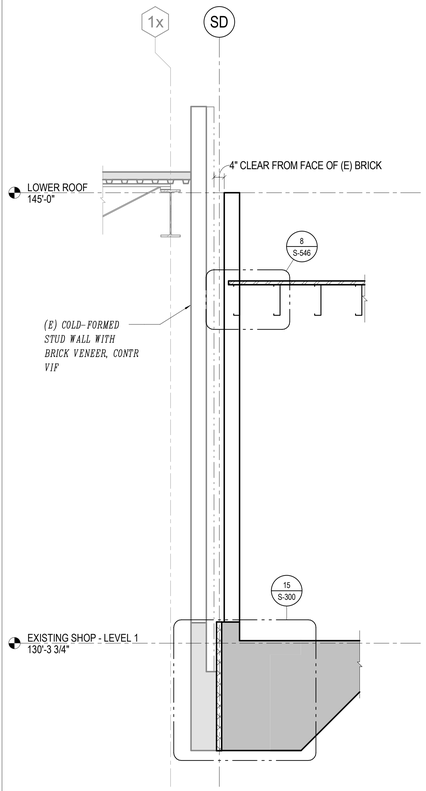
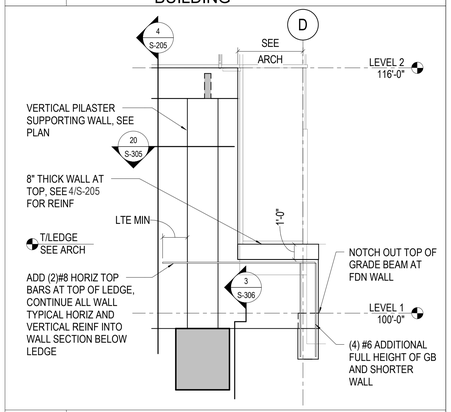
SHEET TITLE:
EXTERIOR BUILDING SECTIONS

SCALE: 3/8" = 1'-0"
SHEET NUMBER
S-205

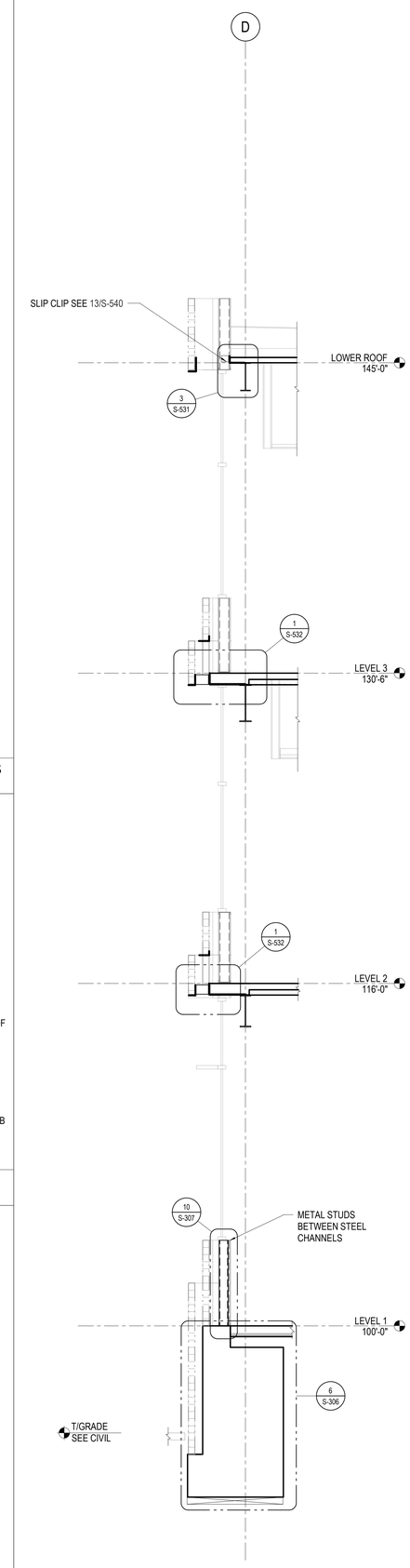
10/25/2022 9:00:33 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
IM_VDB_# 21.1038.S.01
PRINCIPAL: JOHN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J.MATT DEZORT
DESIGNED: GREG BAESHUHSEN, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, KAYLA TATOM
DATE PRINTED: 10/25/2022 9:00:33 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



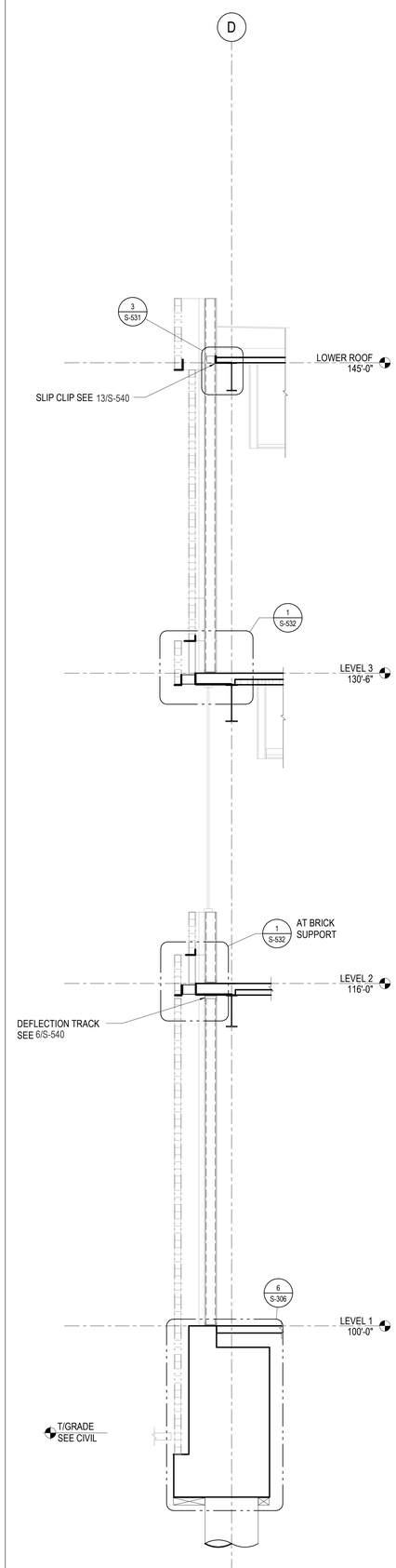
18 1/2" = 1'-0" SHOPS BUILDING AT EXISTING EAS BUILDING



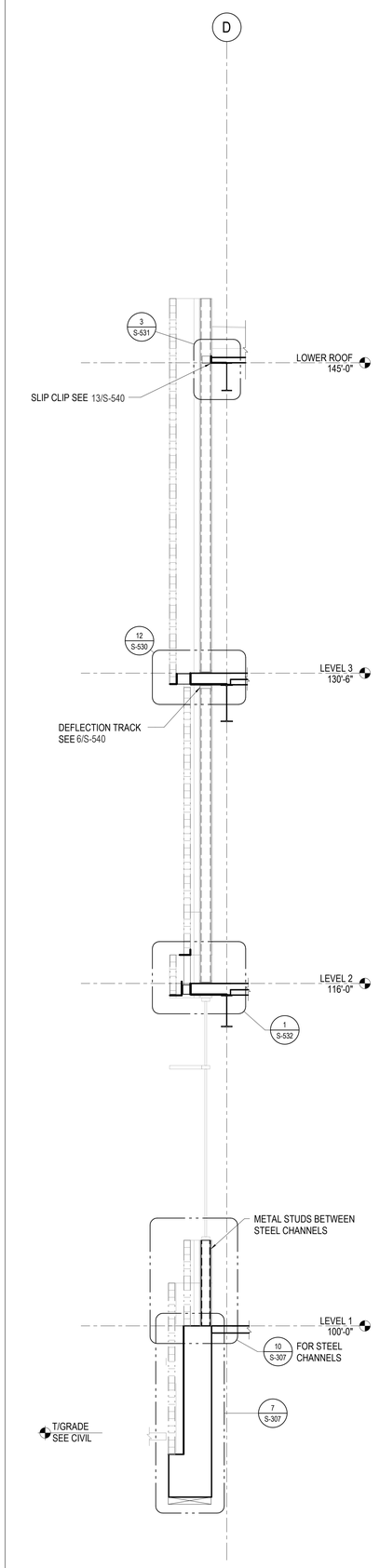
19 1/4" = 1'-0" WINDOW BLOCKOUT AT END OF CONCRETE WALL



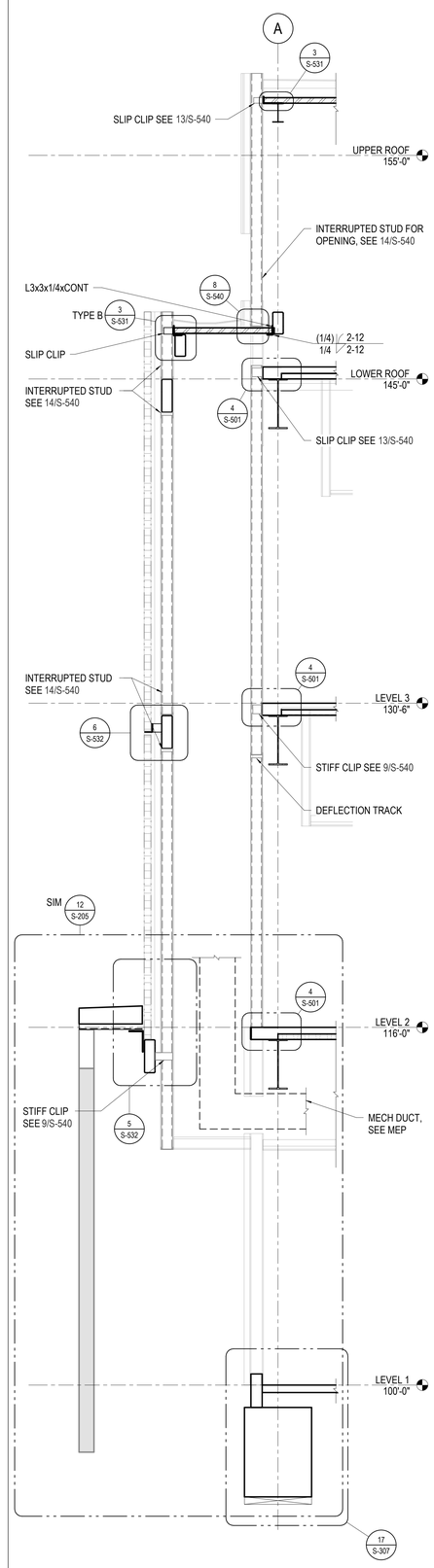
16 3/8" = 1'-0" SOUTH WALL SECTION AT PUNCHED WINDOWS



12 3/8" = 1'-0" SOUTH WALL SECTION AT TIE BEAM



8 3/8" = 1'-0" TYPICAL SOUTH WALL SECTION



4 3/8" = 1'-0" SECTION AT MECH DUCT SHAFT

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PROFESSIONAL ENGINEER

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COLORADO SPRINGS, CO 80918

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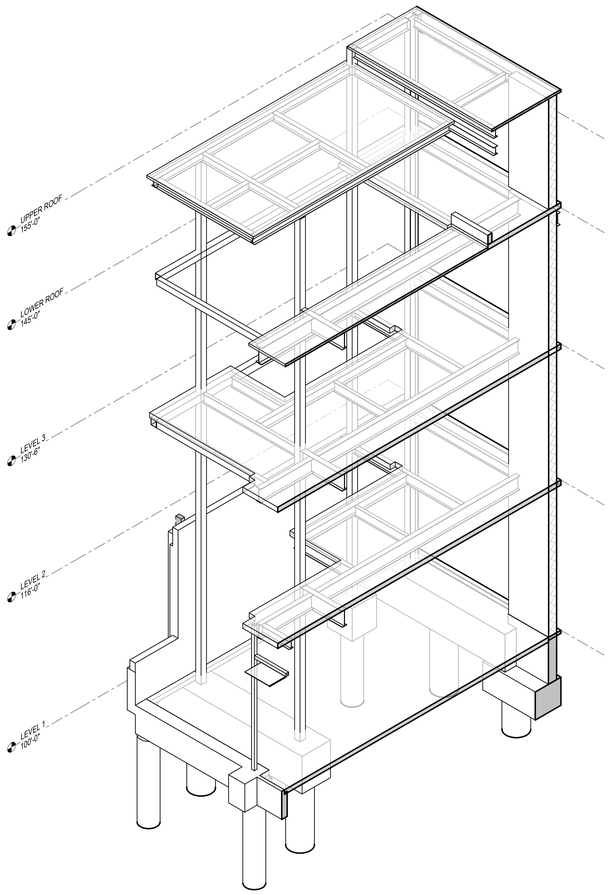
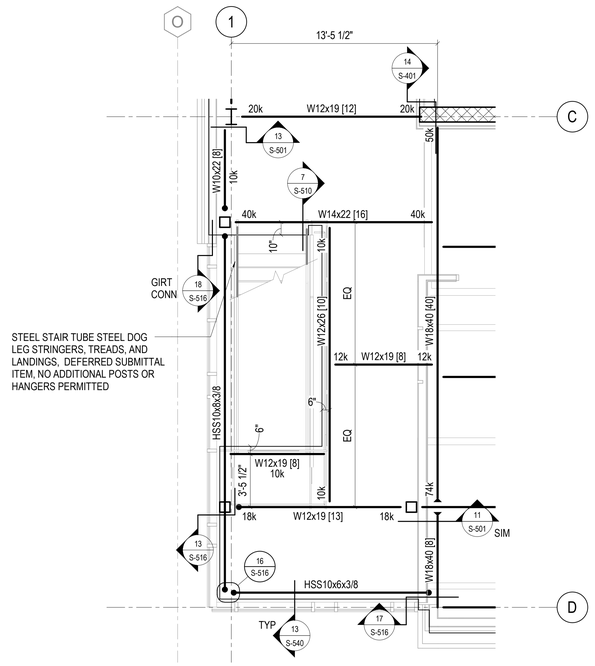
SHEET TITLE:
EXTERIOR BUILDING SECTIONS AND DETAILS

SCALE: As indicated
SHEET NUMBER
S-206

10/25/2022 9:00:37 PM BIM 360://21091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MK / DR # 21.1038.S.01 DESIGNERS: GREG BADGWORTH, LINDSEY WHITTINGTON
PRINCIPAL: BEN DOWNEY LEAD ARCHITECT: LINDSEY WHITTINGTON, JOHN HAUTH
EOR: BEN DOWNEY DATE PRINTED: 10/25/2022 9:00:37 PM
PROJECT MANAGER: J MATT DEZORT FILE PATH: BIM 360://21091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



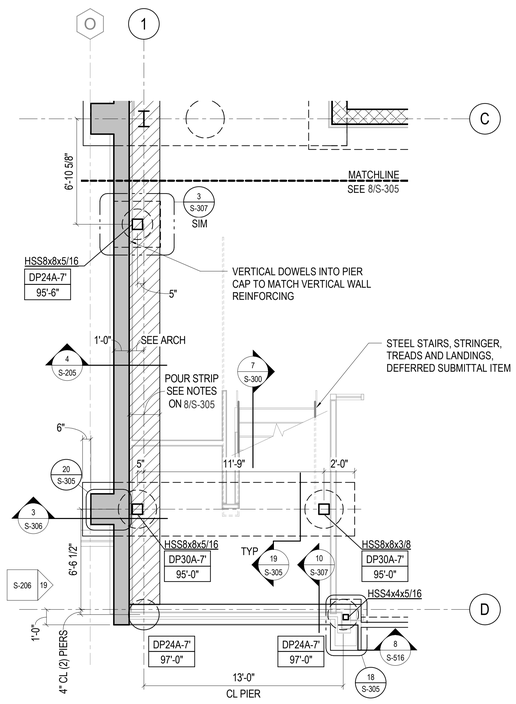
7 MAIN STAIR ISOMETRIC



3 MAIN STAIR - LEVEL 3 FRAMING PLAN

1/4" = 1'-0"

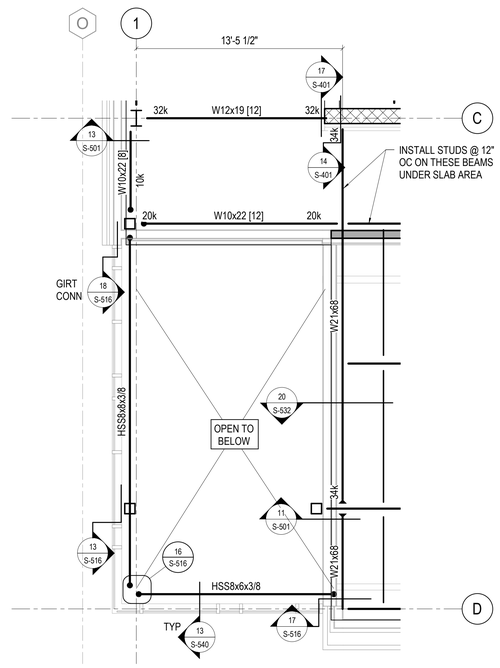
NOTE:
1. FOR MORE INFORMATION SEE PLAN NOTES ON S-102



1 MAIN STAIR - FOUNDATION PLAN

1/4" = 1'-0"

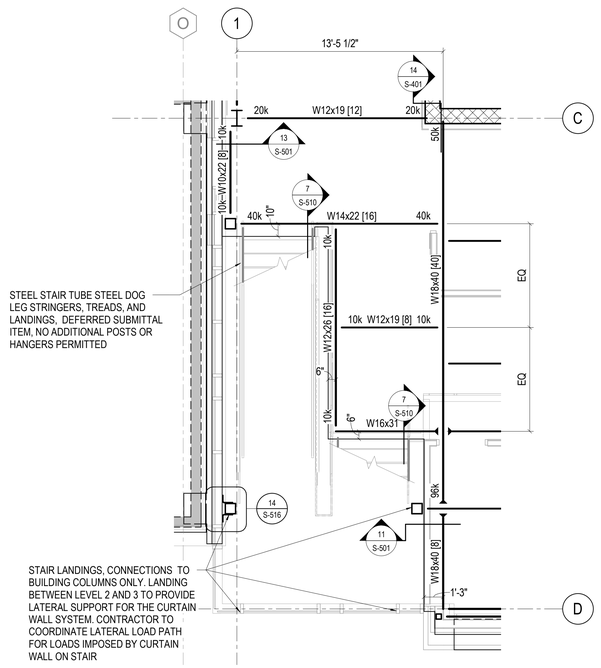
NOTE:
1. FOR MORE INFORMATION SEE PLAN NOTES ON S-101



4 MAIN STAIR - LOWER ROOF FRAMING PLAN

1/4" = 1'-0"

NOTE:
1. FOR MORE INFORMATION SEE PLAN NOTES ON S-104



2 MAIN STAIR - LEVEL 2 FRAMING PLAN

1/4" = 1'-0"

NOTE:
1. FOR MORE INFORMATION SEE PLAN NOTES ON S-102

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REGISTERED PROFESSIONAL ENGINEER
STATE OF COLORADO
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10/26/2022

ANSCHUTZ ENGINEERING CENTER

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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
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REVISIONS:

3	10/4/2022	ADDENDA 3 – Pkg 1 & 2

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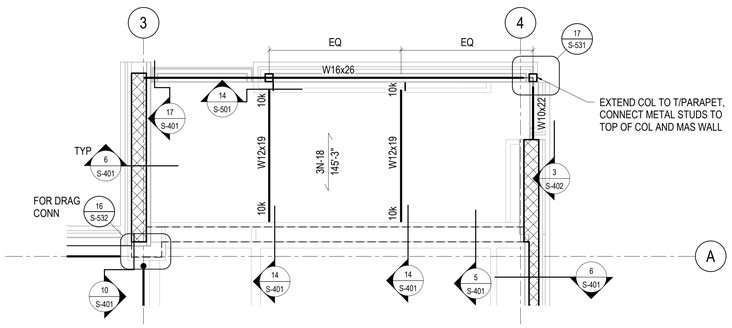
SHEET TITLE:
MAIN STAIR PARTIAL PLANS

SCALE: As indicated
SHEET NUMBER

S-210

10/25/2022 9:00:42 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MK / DE # 21.1038.S.01 DESIGNERS: GBC/ BAB/MA/MB/, LMDES/ WHITTINGTON
PRINCIPAL: BEN DOWNEY LEAD ARCH'T: DESIGNERS/ WHITTINGTON, JOHNATHON
EOR:BEN DOWNEY DATE PRINTED:10/25/2022 9:00:42 PM
PROJECT MANAGER: J MATT DEZORT FILE PATH:BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

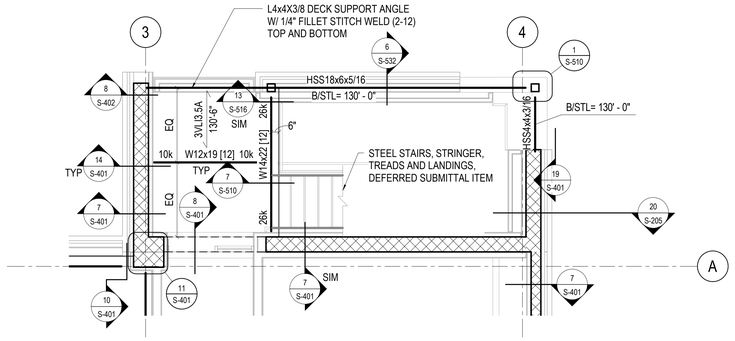


4 STAIR - LOWER ROOF FRAMING PLAN

1/4" = 1'-0"

NOTE:

1. FOR MORE INFORMATION SEE PLAN NOTES ON S-104

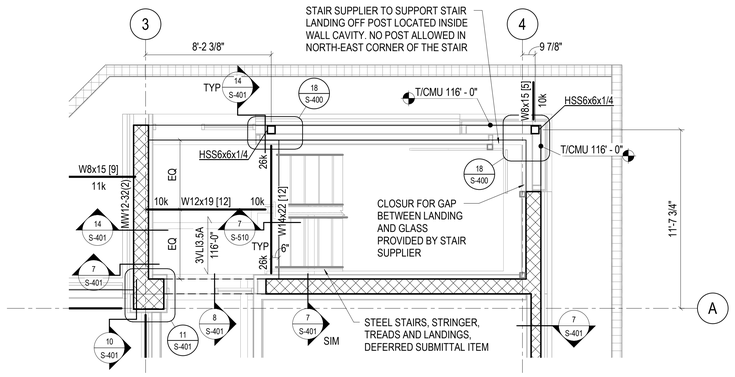


3 STAIR - LEVEL 3 FRAMING PLAN

1/4" = 1'-0"

NOTE:

1. FOR MORE INFORMATION SEE PLAN NOTES ON S-102

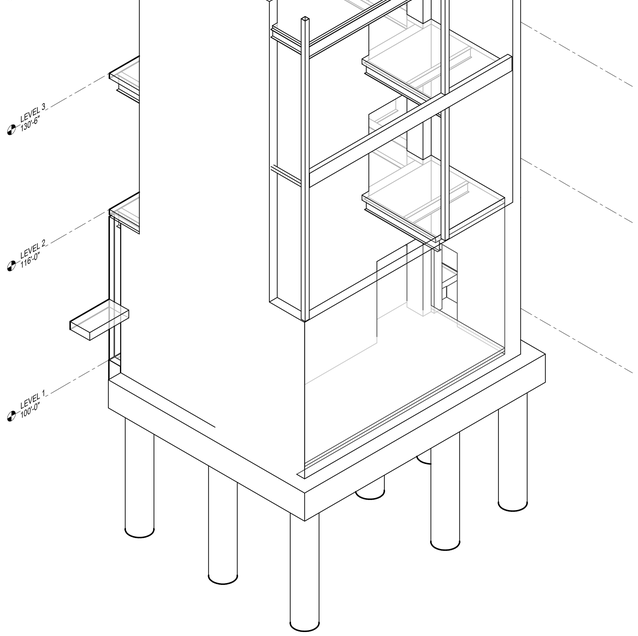


2 STAIR - LEVEL 2 FRAMING PLAN

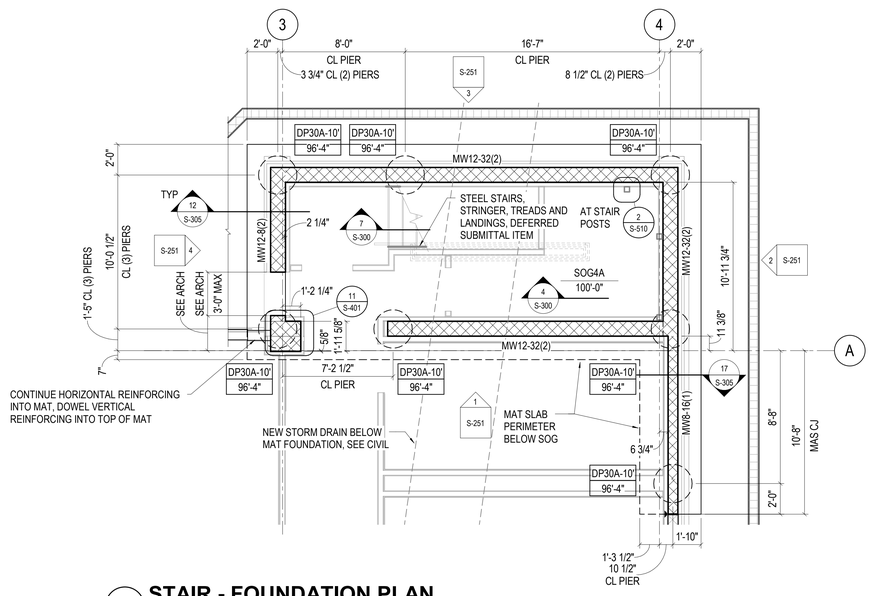
1/4" = 1'-0"

NOTE:

1. FOR MORE INFORMATION SEE PLAN NOTES ON S-102



5 STAIR ISOMETRIC



1 STAIR - FOUNDATION PLAN

1/4" = 1'-0"

NOTE:

1. FOR MORE INFORMATION SEE PLAN NOTES ON S-101

OZ ARCHITECTURE
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COLORADO LICENSED 42134 10/26/2022 PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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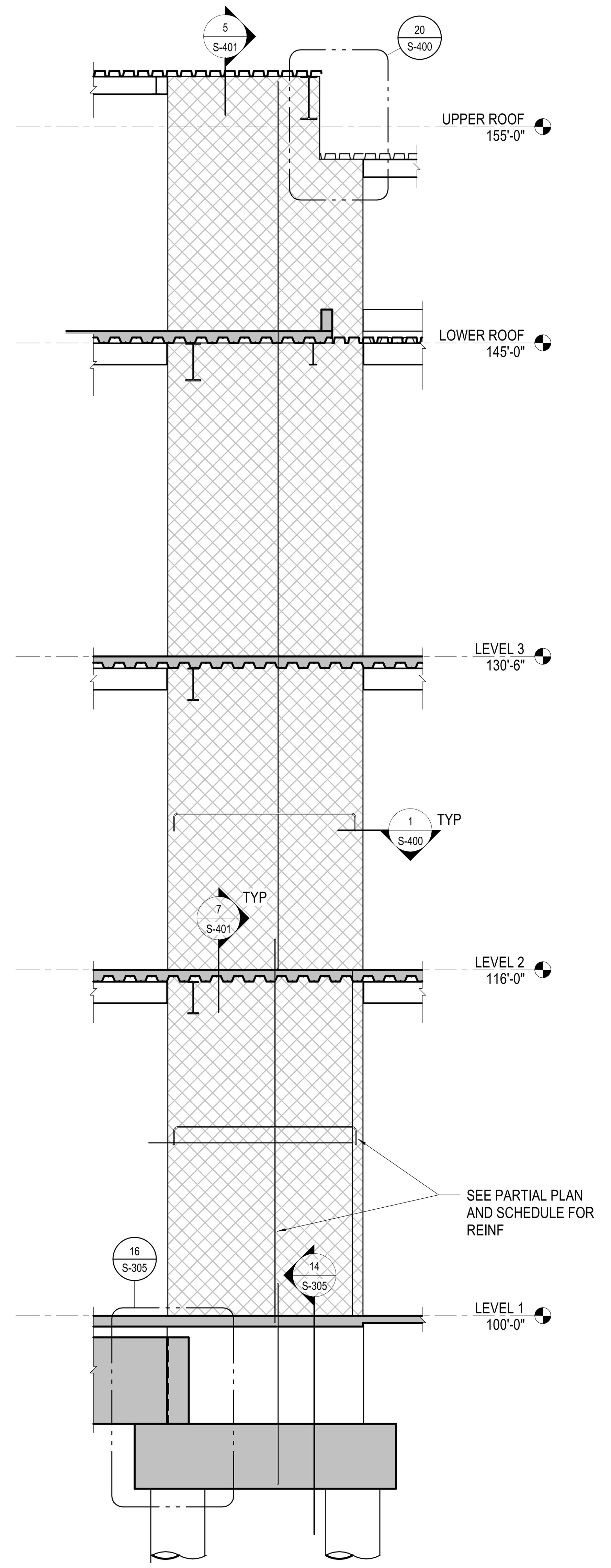
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
STAIR PARTIAL PLANS

SCALE: As indicated
SHEET NUMBER

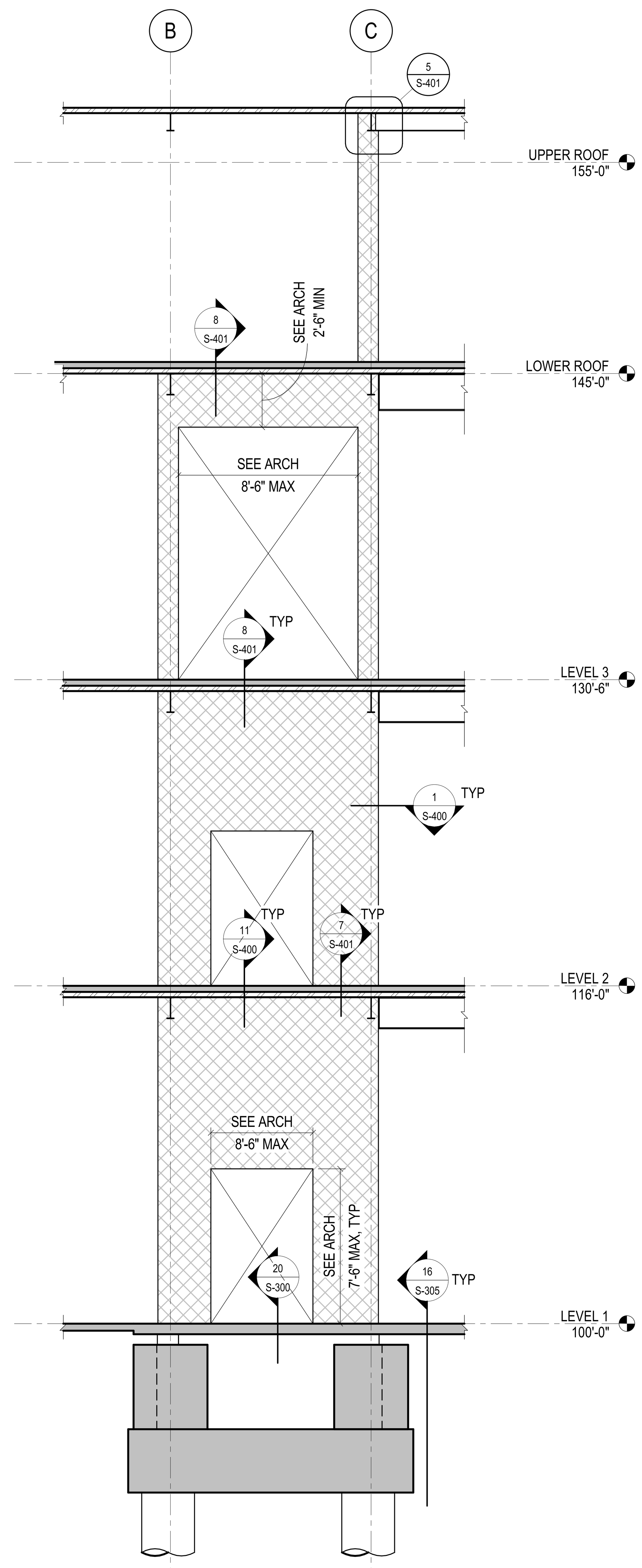
S-211

10/25/2022 9:00:46 PM BIM 360://12-1091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MV, DR: F 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J. MATT DEZORT
DESIGNERS: GREG DAEMMRICH, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JOHN DUTTON
DATE PRINTED: 10/25/2022 9:00:46 PM
FILE PATH: BIM 360://12-1091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



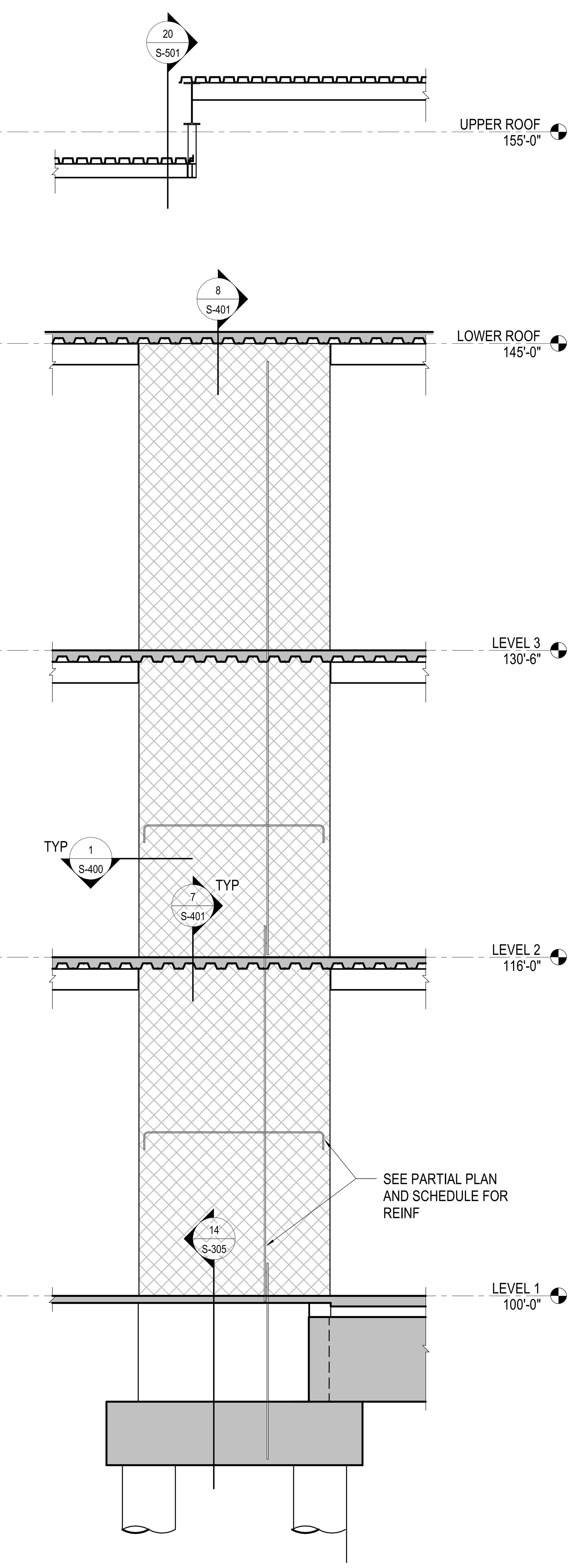
4 **ELEVATOR CORE - SOUTH**

1/4" = 1'-0"



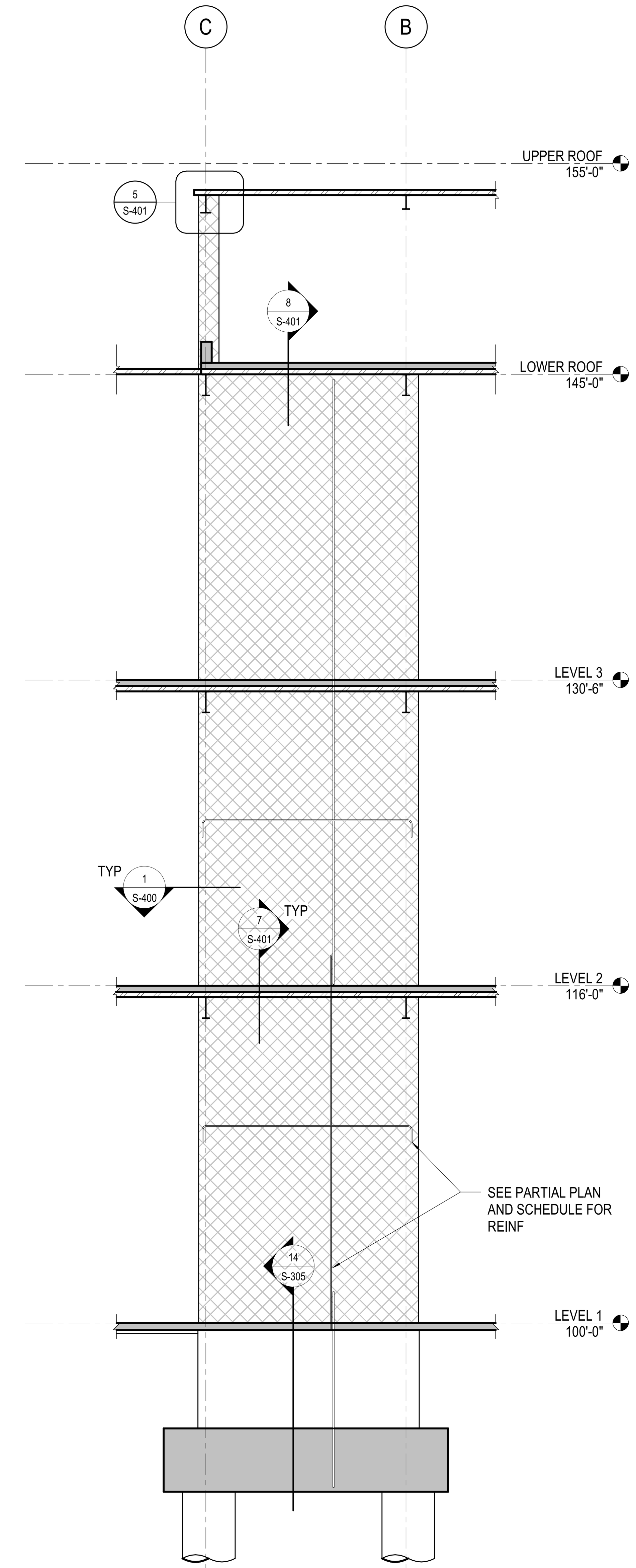
3 **ELEVATOR CORE - WEST**

1/4" = 1'-0"



2 **ELEVATOR CORE - NORTH**

1/4" = 1'-0"



1 **ELEVATOR CORE - EAST**

1/4" = 1'-0"

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1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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ISSUED FOR:
100% CD/PACKAGE 3

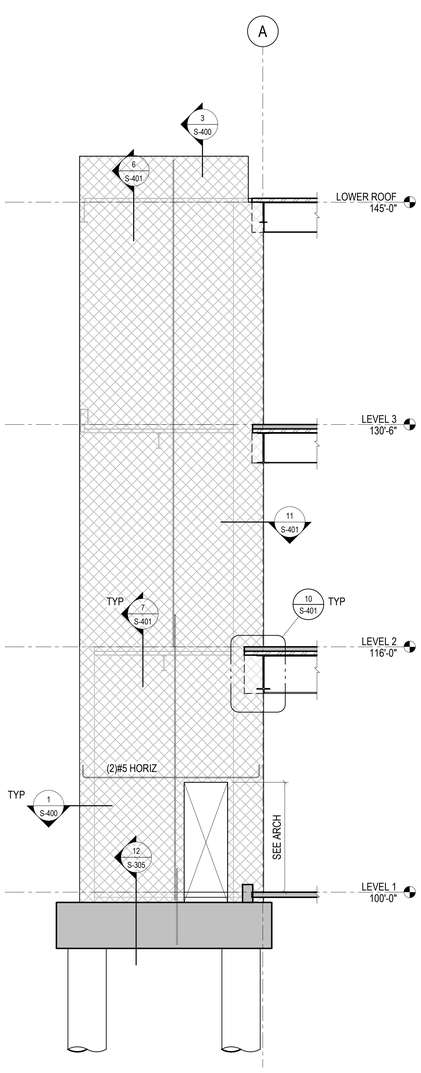
SHEET TITLE:
CORE WALL ELEVATIONS

SCALE: 1/4" = 1'-0"
SHEET NUMBER

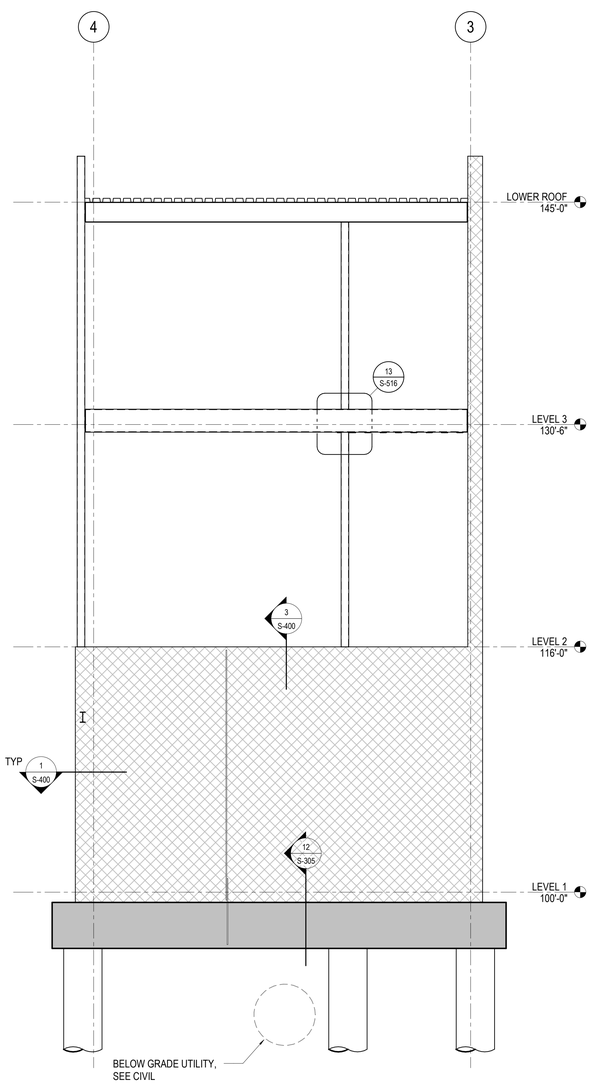
S-250

10/25/2022 9:00:49 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

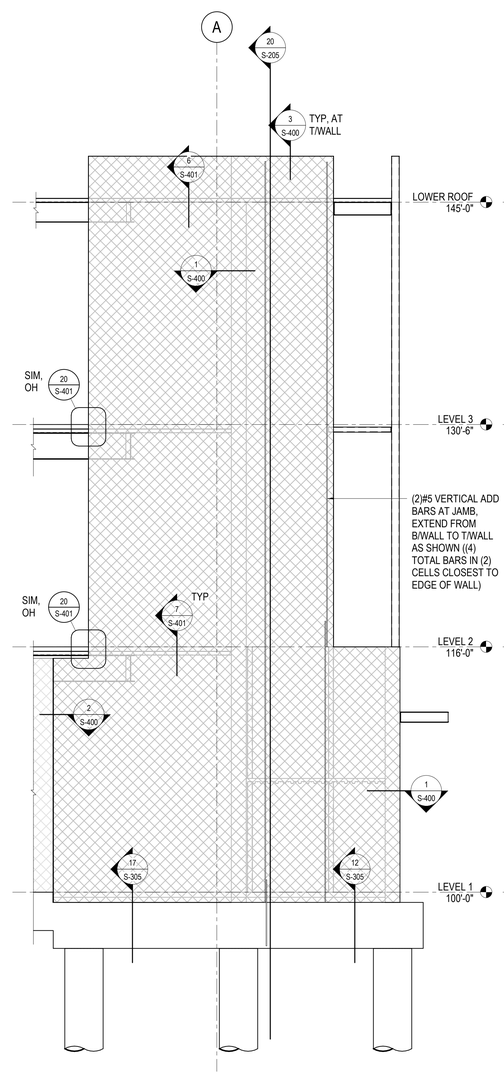
MM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:00:49 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



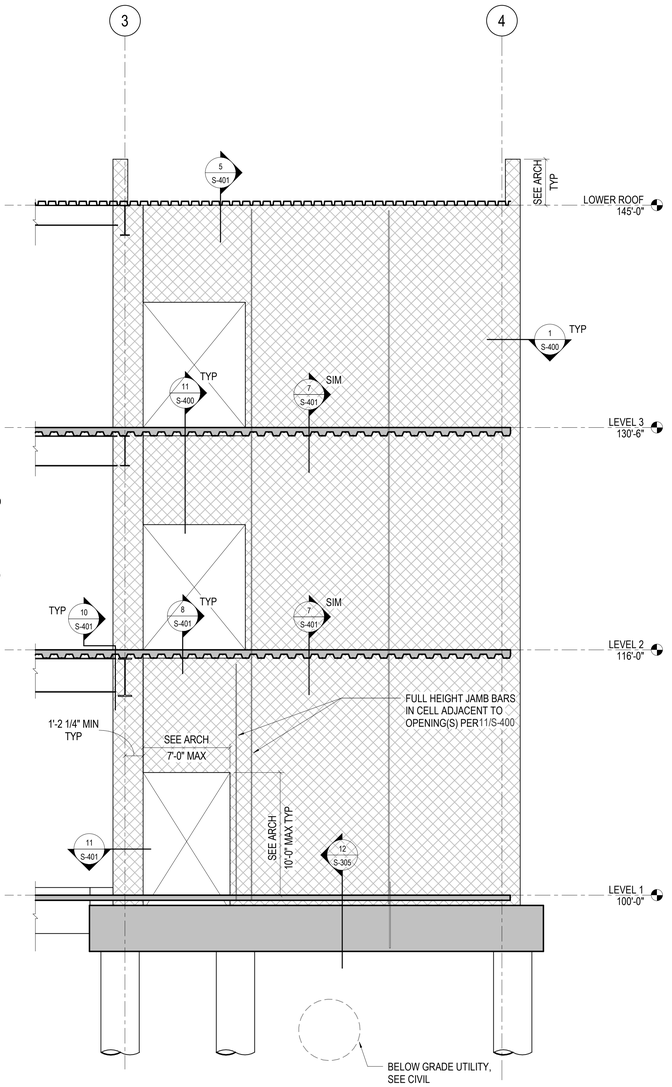
4 **STAIR CORE - WEST**
1/4" = 1'-0"



3 **STAIR CORE - NORTH**
1/4" = 1'-0"



2 **STAIR CORE - EAST**
1/4" = 1'-0"



1 **STAIR CORE - SOUTH**
1/4" = 1'-0"

NOTE:
1. SEE PLAN FOR MASONRY WALL TYPES, TYP

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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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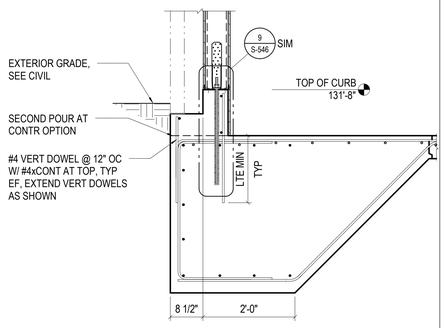
SHEET TITLE:
CORE WALL ELEVATIONS

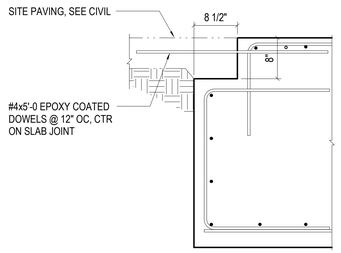
SCALE: As indicated
SHEET NUMBER
S-251

10/25/2022 9:00:52 PM
BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:00:52 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

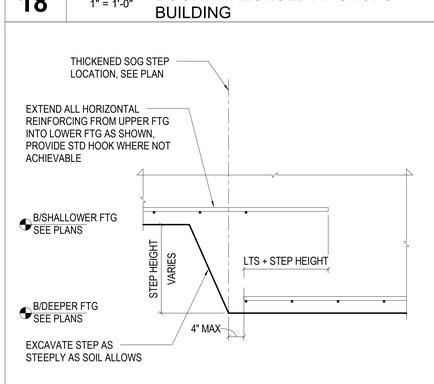


NOTES:
1. SEE 14/S-300 FOR ADDITIONAL INFORMATION SHOWN BUT NOT NOTED

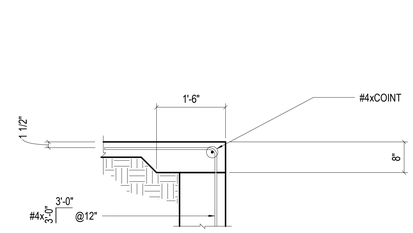
17 3/4" = 1'-0" CURB AT SOG DOWN-TURNED EDGE



18 1" = 1'-0" DOOR THRESHOLD AT SHOPS BUILDING

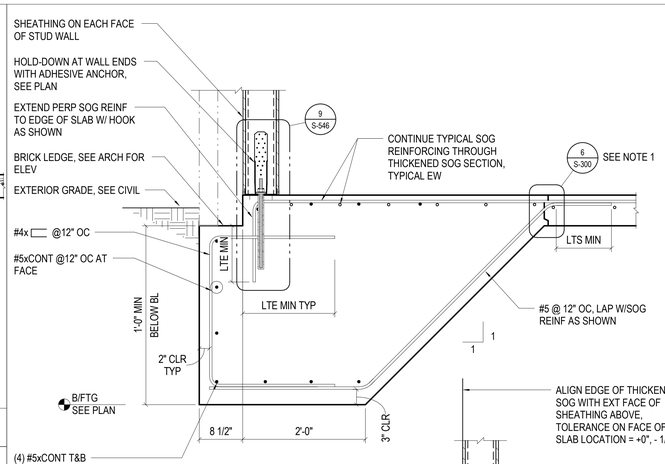


19 3/4" = 1'-0" STEP IN SOG DOWN-TURNED EDGE

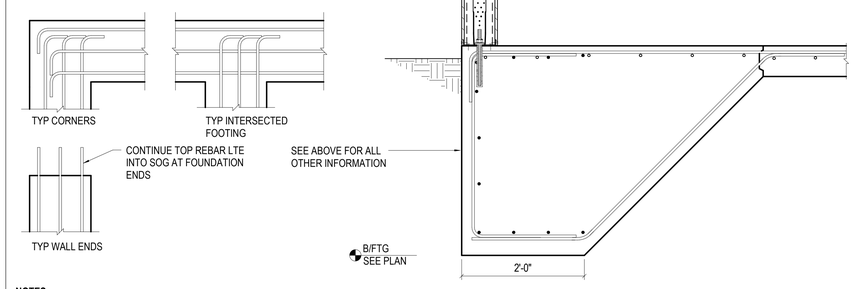


NOTE: PIT WALL REINFORCING NOT SHOWN FOR CLARITY

20 3/4" = 1'-0" SLAB ON GRADE THRESHOLD AT ELEVATOR PIT



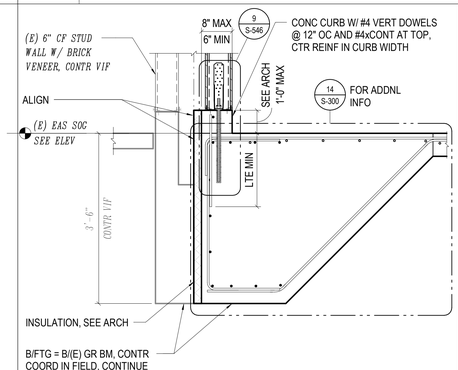
AT BRICK VENEER



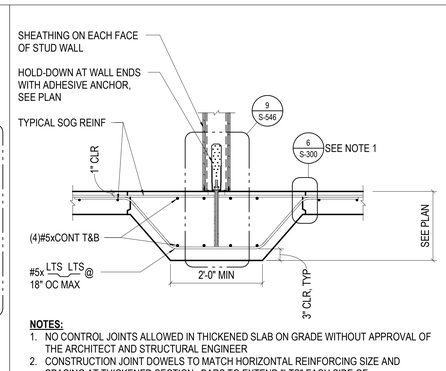
AT ALL OTHER FINISHES

NOTES:
1. NO CONSTRUCTION/CONTROL JOINTS ALLOWED IN THICKENED SLAB ON GRADE WITHOUT APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER
2. CONSTRUCTION JOINT DOWELS TO MATCH HORIZONTAL REINFORCING SIZE AND SPACING AT THICKENED SECTION. BARS TO EXTEND "LTS" EACH SIDE OF CONSTRUCTION JOINT.

14 NO SCALE SOG DOWN-TURNED EDGE

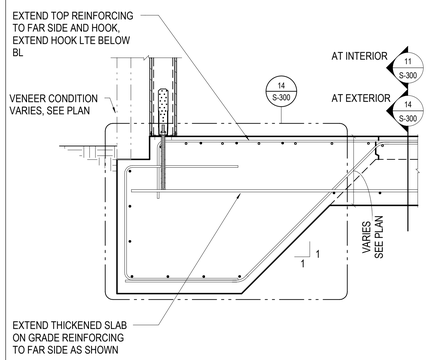


15 3/4" = 1'-0" SHOP BUILDING FOUNDATION NEAR EXISTING EAS BUILDING

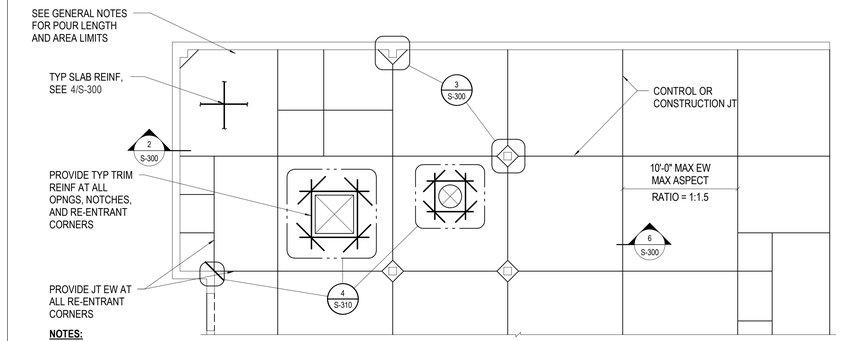


NOTES:
1. NO CONTROL JOINTS ALLOWED IN THICKENED SLAB ON GRADE WITHOUT APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER
2. CONSTRUCTION JOINT DOWELS TO MATCH HORIZONTAL REINFORCING SIZE AND SPACING AT THICKENED SECTION. BARS TO EXTEND "LTS" EACH SIDE OF CONSTRUCTION JOINT.
3. SEE 14/S-300 FOR ADDITIONAL INFO

11 NO SCALE INTERIOR BEARING WALL THICKENED SLAB

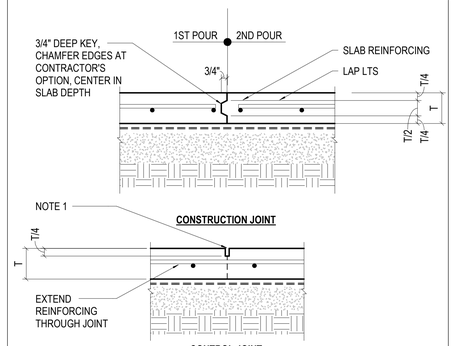


12 3/4" = 1'-0" THICKENED SOG INTERSECTIONS AT SHOPS BUILDING



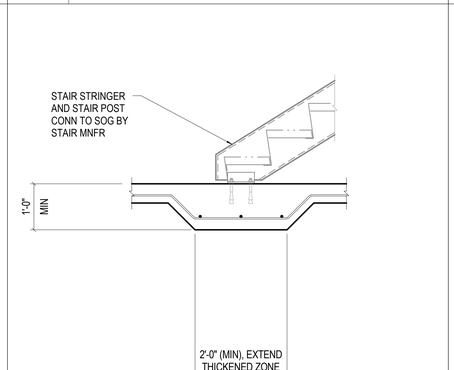
NOTES:
1. KEY PLAN ILLUSTRATES CONSTRUCTION CONCEPTS ONLY. SEE PLAN FOR ACTUAL DIMENSIONS AND ARRANGEMENT
2. PROVIDE ADDITIONAL CONTROL JOINTS AT ABRUPT CHANGES IN THICKNESS AND LOCATIONS PRONE TO CRACKING, COORD LOCS WITH FLOOR FINISHES AND INTERIOR WALLS

5 NO SCALE TYP SOG KEY PLAN

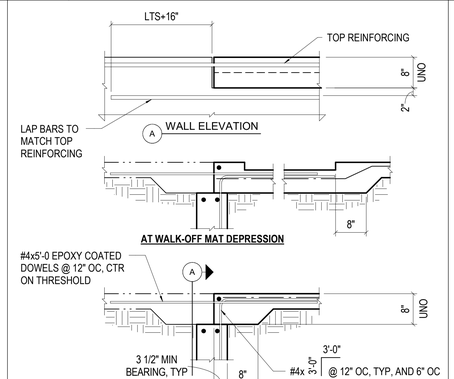


NOTES:
1. PROVIDE TOOLED JOINT OR SAW CUT AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO PERMIT CUTTING WITHOUT CHIPPING, SPALLING, OR TEARING (BUT NOT MORE THAN 12 HOURS AFTER CASTING)

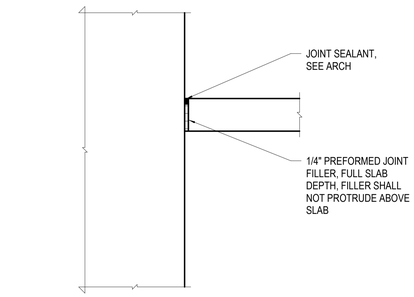
6 NO SCALE SLAB-ON-GRADE JOINTS



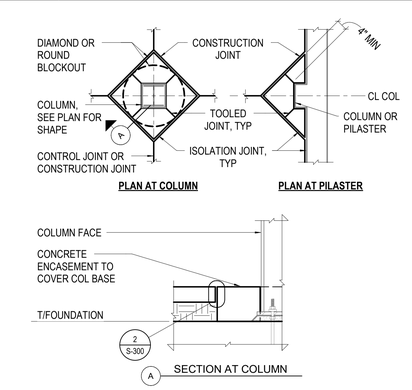
7 NO SCALE SLAB-ON-GRADE SUPPORTING METAL PAN STAIR



8 NO SCALE TYP SOG EXT THRESHOLD



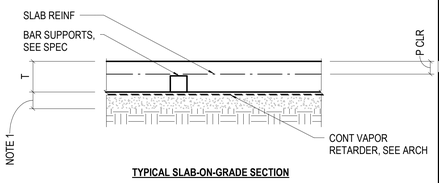
2 NO SCALE TYP SOG ISOLATION JOINT



3 NO SCALE SOG BLOCKOUT AT COLUMN/PILASTER

SLAB ON GRADE SCHEDULE

TYPE	THICKNESS T	REINF	BAR POSITION, P	REMARKS
SOG4A	4"	#4@10" OC EW	1 1/2"	
SOG6A	6"	#5@10" OC EW	2 1/2"	



TYPICAL SLAB-ON-GRADE SECTION

NOTES:
1. NATURAL SAND SOILS OR DENSE GRANULAR FILL, SEE GEOTECHNICAL REPORT
2. SEE DETAIL 5/S-300 FOR ADDITIONAL INFORMATION.

4 NO SCALE TYP SOG SCHEDULE

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ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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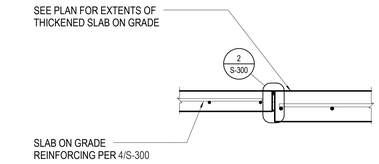
ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
TYPICAL SLAB-ON-GRADE DETAILS

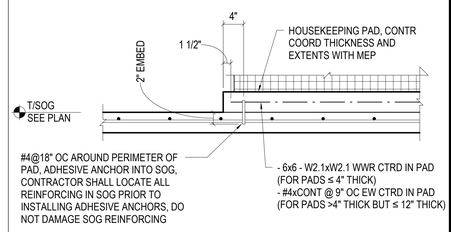
SCALE: As indicated
SHEET NUMBER

S-300

10/25/2022 9:00:55 PM BIM: 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM_VOB_#1_1038.S.01 DES.ENGRS: GREG BADEAUX-DEL UNDEY WHITTINGTON
PRINCIPAL IN CHARGE: BEN DOWNEY LEAD REVIT TECH: UNDSEY WHITTINGTON, JOHN DALTON
EOR: BEN DOWNEY DATE PRINTED: 10/25/2022 9:00:55 PM
PROJECT MANAGER: J MATT DEZORT FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



1	1" = 1'-0"	ISOLATED THICKENED SLAB ON GRADE



2	1" = 1'-0"	HOUSEKEEPING PAD AT SOG

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BENJAMIN WESTLAKE
42134
10/26/2022

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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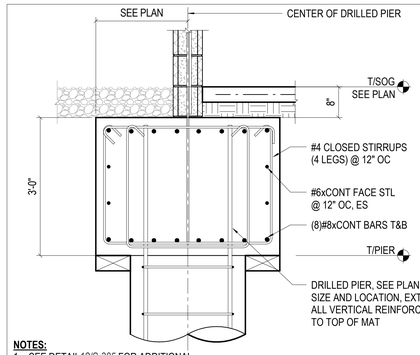
ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
SLAB ON GRADE DETAILS

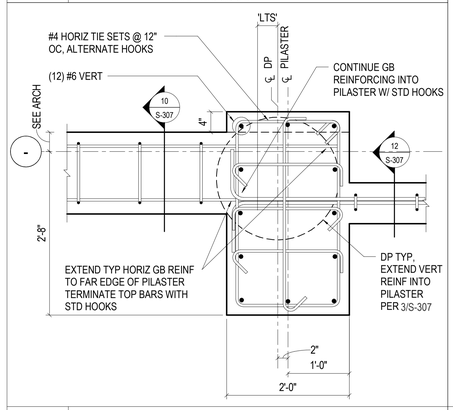
SCALE: 1" = 1'-0"
SHEET NUMBER
S-301

10/25/2022 9:00:56 PM
BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
IMM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:00:56 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

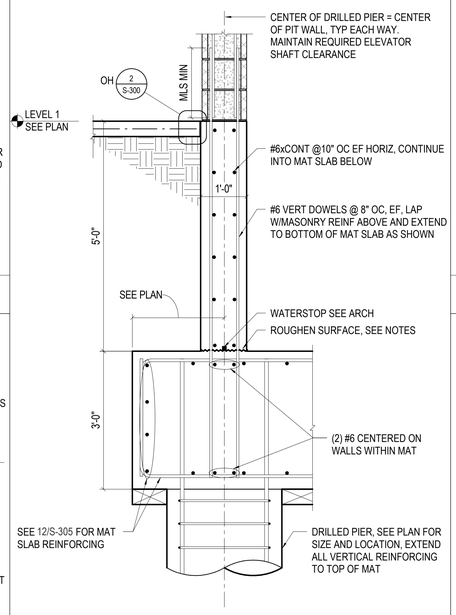


NOTES:
1. SEE DETAIL 12/S-305 FOR ADDITIONAL INFORMATION SHOWN BUT NOT NOTED
2. EXTEND ALL HORIZ REINF LTS INTO MAT FOUNDATION AT NORTH END

17 3/4" = 1'-0" STAIR MAT FOUNDATION EXTENSION

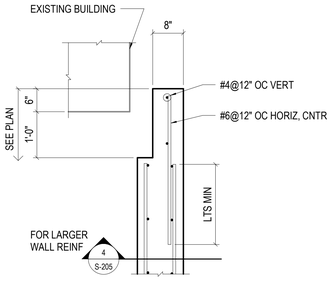


18 NO SCALE PILASTER AT FRONT ENTRY

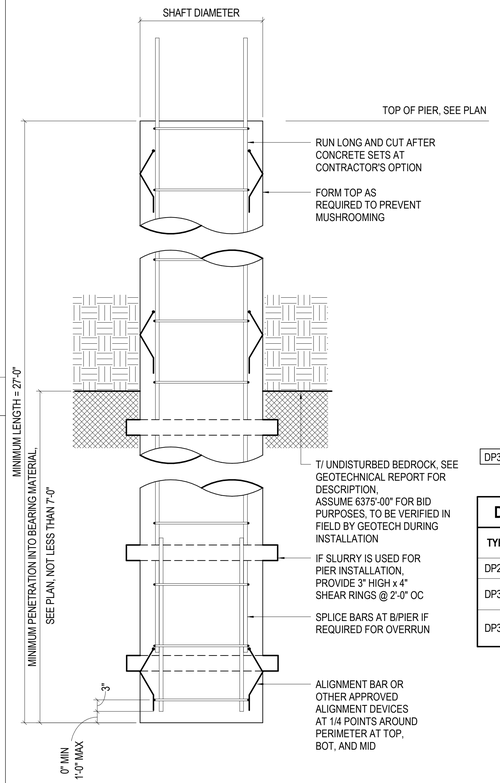


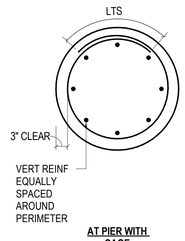
NOTES:
1. ROUGHEN SURFACE PER CONCRETE NOTES ON S-002

14 3/4" = 1'-0" ELEVATOR CORE MAT FOUNDATION

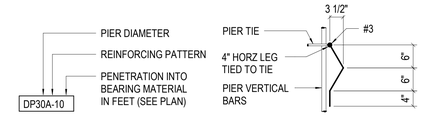


9 3/4" = 1'-0" GRID 1 FOUNDATION WALL TRANSITION





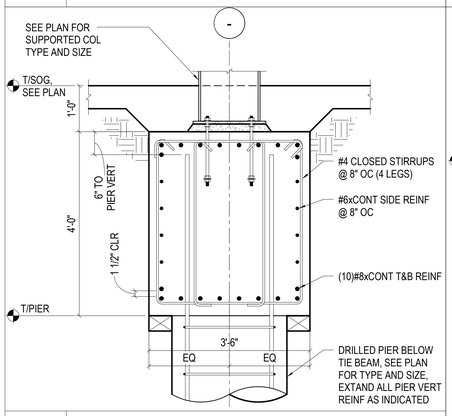
AT PIER WITH CAGE



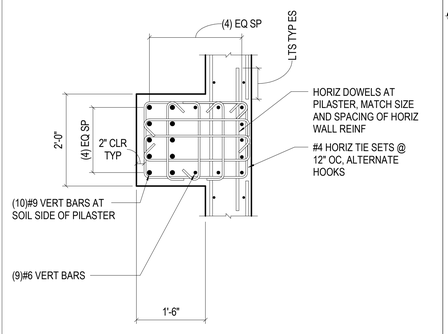
DRILLED PIER SCHEDULE SEISMIC CATEGORY A&B

TYPE	SHAFT DIA	REINFORCEMENT			REMARKS
		VERTICAL	TIES AT TOP	TIES	
DP24A	24"	(7)#6	NA	#4@36"	
DP30A	30"	(12)#8	#4@12"	#4@36"	TOP TIES FOR UPPER 10'-0" OF PIER
DP30B	30"	(12)#8	#4@12"	#4@36"	TOP TIES FOR UPPER 20'-0" OF PIER

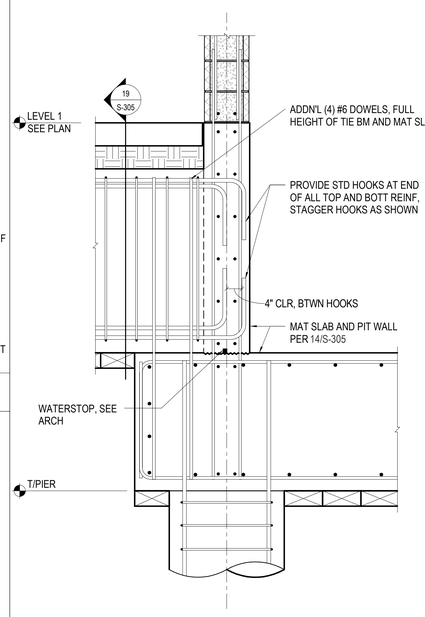
6 NO SCALE DRILLED PIER SCHEDULE



19 3/4" = 1'-0" TIE BEAM AT OFFSET COLUMNS

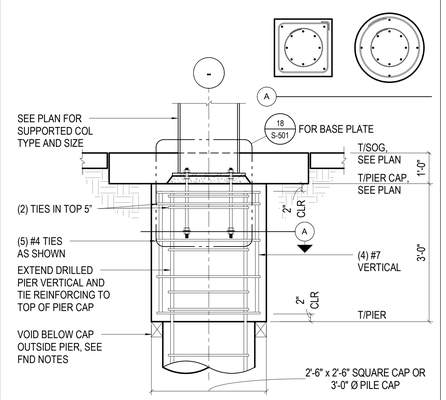


20 3/4" = 1'-0" GRID 1 FOUNDATION PILASTERS

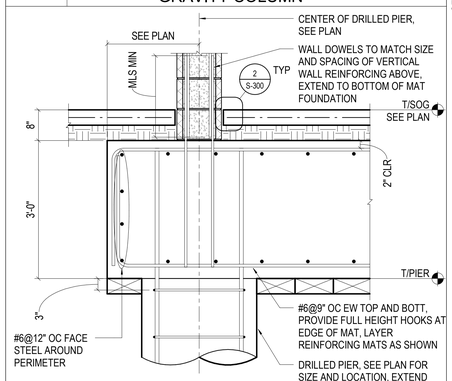


NOTE:
1. FOR ADDITIONAL INFORMATION SEE 14/S-305

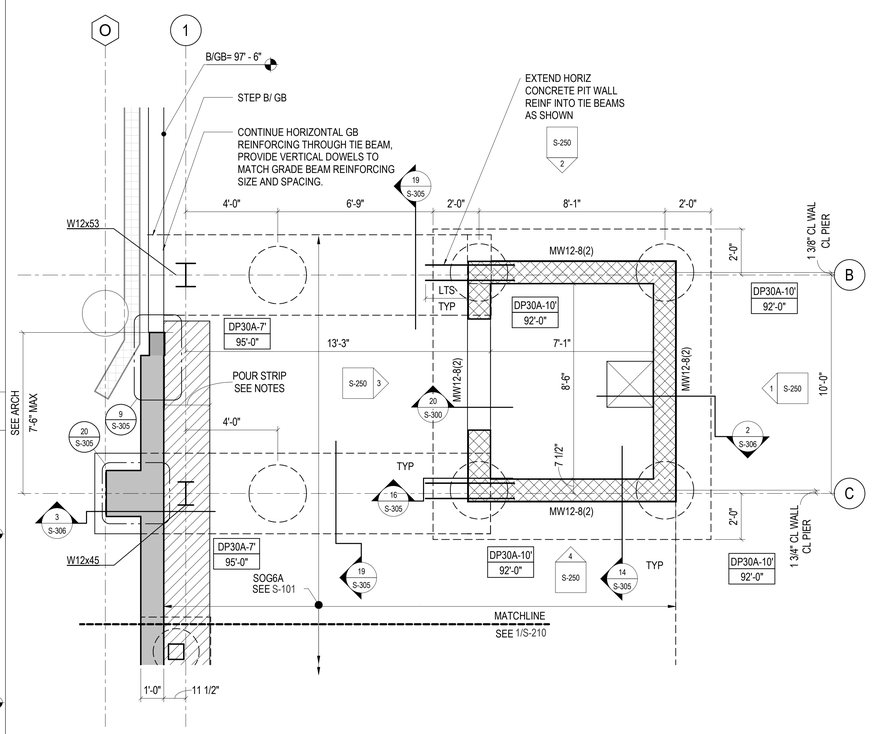
16 3/4" = 1'-0" TIE BEAM AT ELEVATOR CORE



11 NO SCALE TYPICAL DRILLED PIER AT INT GRAVITY COLUMN



12 3/4" = 1'-0" STAIR CORE MAT FOUNDATION



NOTES:
1. BLOCKOUT 2'-0" OF SLAB ON GRADE ADJACENT TO CONCRETE FOUNDATION WALL TO BE POURED AFTER SURROUNDING SOG HAS ACHIEVED 75% OF DESIGN STRENGTH. DO NOT BACKFILL BEHIND CONCRETE WALL UNTIL POUR STRIP CONCRETE HAS REACHED 75% OF DESIGN STRENGTH. EXTEND ALL REINFORCING FROM SURROUNDING SLAB ON GRADE INTO POUR STRIP AND POUR CONCRETE IN POUR STRIP TIGHT TO FACE OF CONCRETE FOUNDATION WALL, NO ISOLATION MATERIALS AT THIS LOCATION.
2. JOINTING OF 6" SOG IS NOT PERMITTED

8 3/8" = 1'-0" ELEVATOR - FOUNDATION PLAN

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COLORADO LICENSED 42134 10/26/2022 PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

5	10/26/2022	100%CD / Package 3

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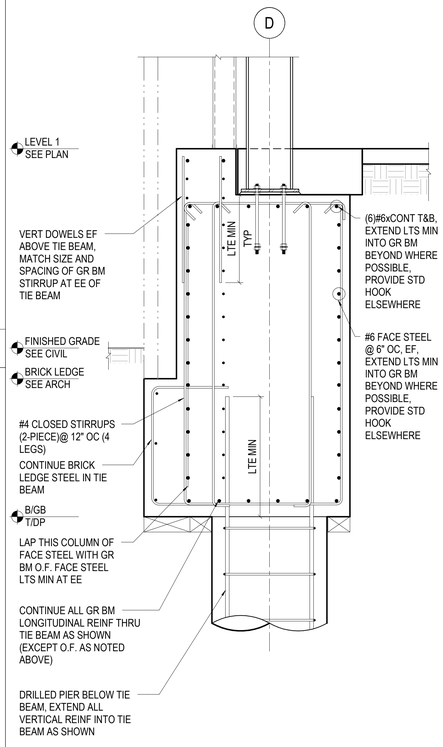
ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

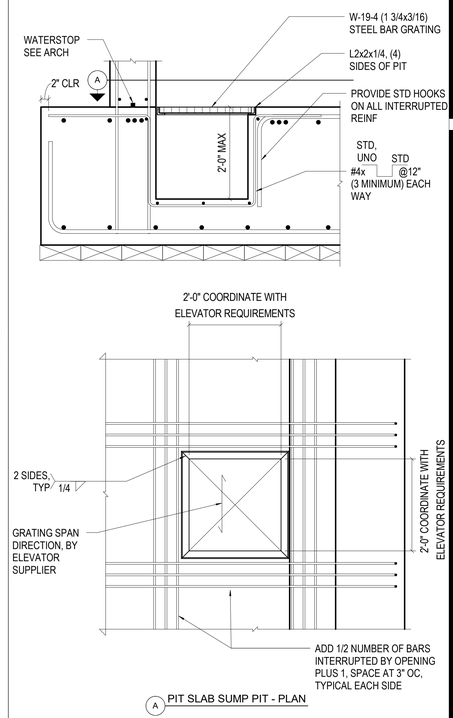
SHEET TITLE:
TYPICAL DRILLED PIER DETAILS

SCALE: As indicated
SHEET NUMBER
S-305

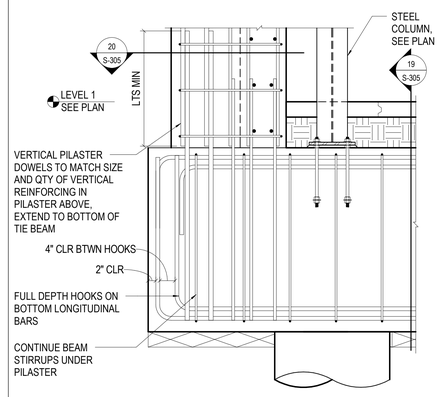
10/25/2022 9:00:59 PM BIM: 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MI, STE # 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J. MATT DEZORT
DESIGNERS: GREG RADMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:00:59 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



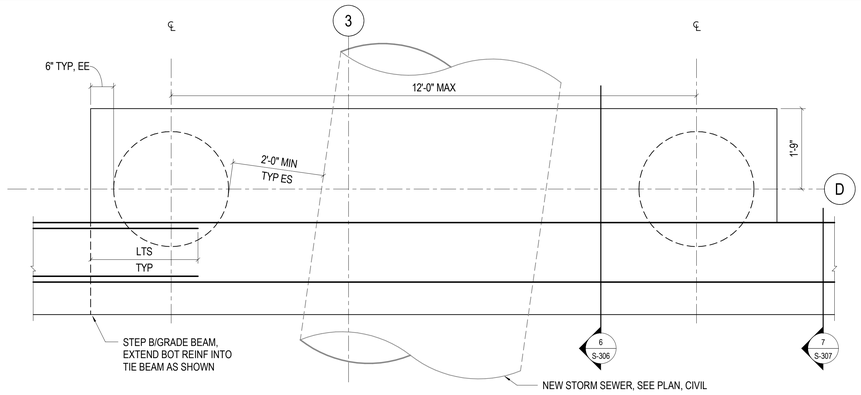
6 3/4" = 1'-0" TIE BEAM SECTION



2 3/4" = 1'-0" ELEVATOR SUMP PIT



3 3/4" = 1'-0" PILASTER CONN AT TIE BEAM



8 3/4" = 1'-0" TIE BEAM OVER STORM SEWER

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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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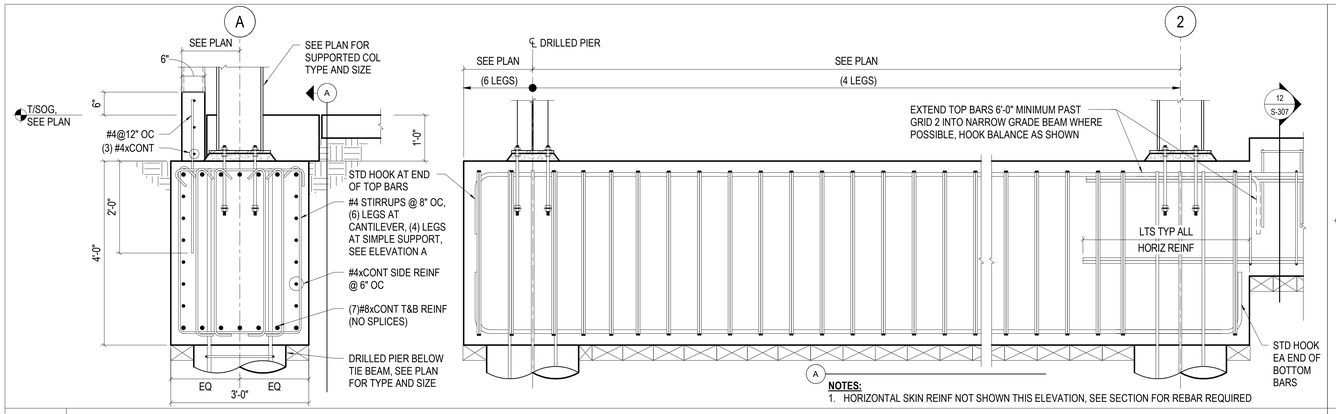
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
DRILLED PIER DETAILS

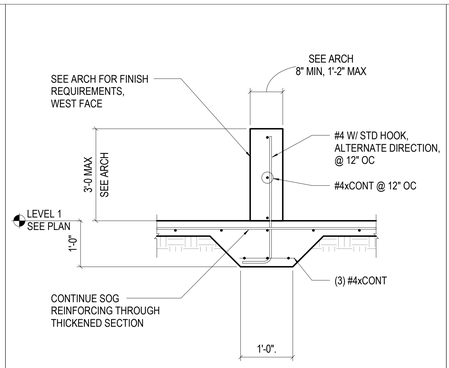
SCALE: 3/4" = 1'-0"
SHEET NUMBER
S-306

10/25/2022 9:01:00 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB #: 21.1038.S.01 DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
PRINCIPAL: BEN DOWNEY LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
EOR: BEN DOWNEY DATE PRINTED: 10/25/2022 9:01:00 PM
PROJECT MANAGER: J. MATT DEZORT FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



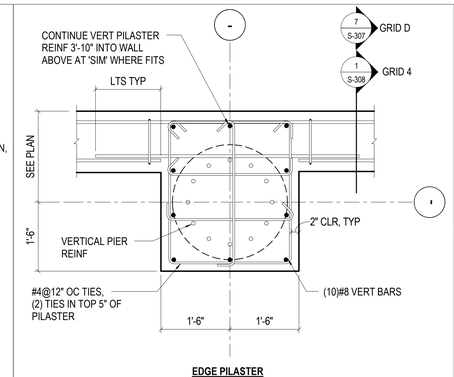
NOTES:
1. HORIZONTAL SKIN REINF NOT SHOWN THIS ELEVATION, SEE SECTION FOR REBAR REQUIRED

17 3/4" = 1'-0" TIE BEAM AT GRID A

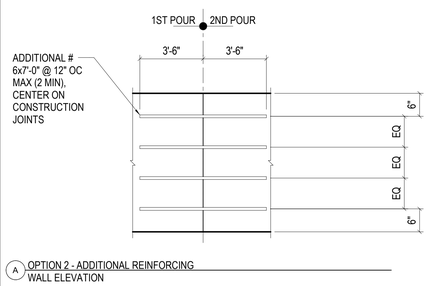


NOTES:
1. SEE ARCH FOR CHAMFERED CORNERS.

5 3/4" = 1'-0" INTERIOR CONC BOARDFORM BM

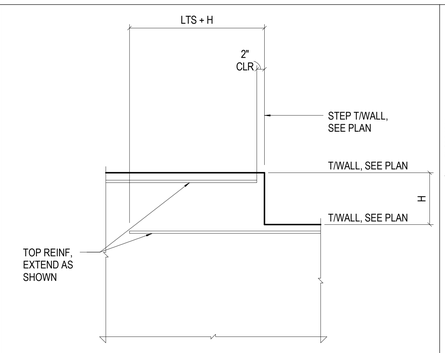


EDGE PILASTER



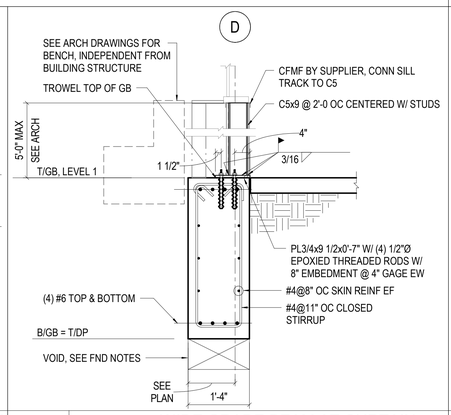
A OPTION 2 - ADDITIONAL REINFORCING WALL ELEVATION

NOTES:
1. REINFORCING SHOWN IS IN ADDITIONAL TO TYPICAL WALL/GRADE BEAM REINFORCING
2. GRADE BEAM REINFORCING IS NOT SHOWN
3. GRADE BEAM REINFORING SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINT

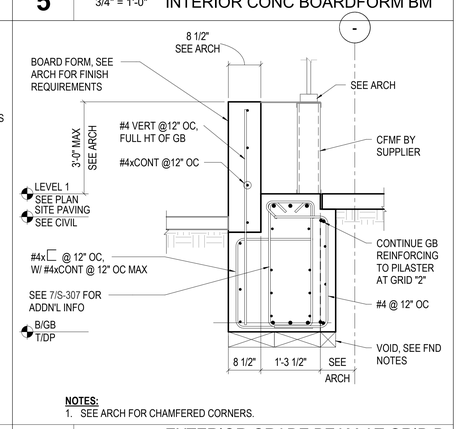


NOTES:
1. WALL HORIZONTAL & VERTICAL MAT REINFORCING NOT SHOWN TO BE CONTINUOUS THROUGH STEP

14 3/4" = 1'-0" TYPICAL T/WALL OR T/GRADE BEAM STEP

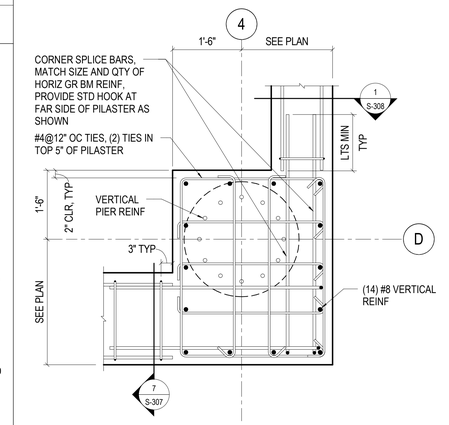


10 3/4" = 1'-0" WIDE GRADE BEAM AT CURTAIN WALL

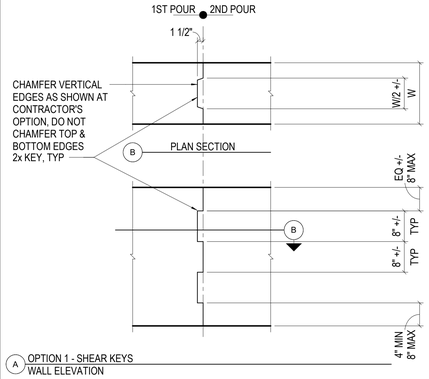


NOTES:
1. SEE ARCH FOR CHAMFERED CORNERS.

6 3/4" = 1'-0" EXTERIOR GRADE BEAM AT GRID D W/CONC BOARDFORM

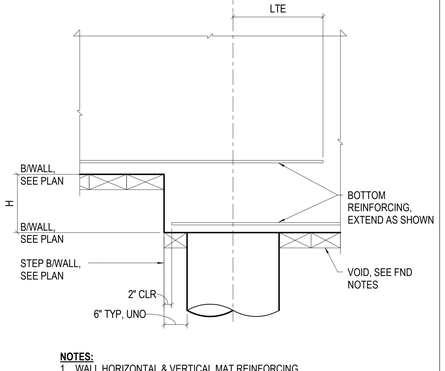


CORNER PILASTER



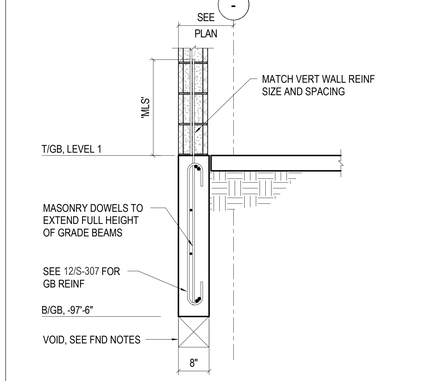
A OPTION 1 - SHEAR KEYS WALL ELEVATION

NOTES:
1. GRADE BEAM REINFORCING IS NOT SHOWN
2. GRADE BEAM REINFORING SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINT
3. CLEAN SURFACES AND REMOVE LAITANCE
4. WET SURFACE AND REMOVE STANDING WATER PRIOR TO PLACING CONCRETE

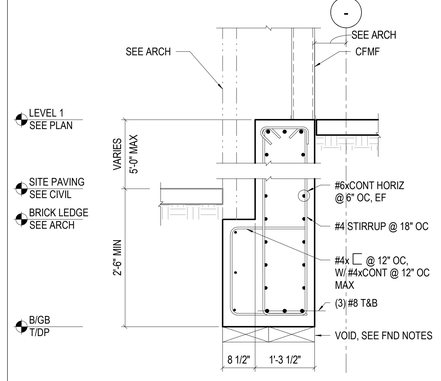


NOTES:
1. WALL HORIZONTAL & VERTICAL MAT REINFORCING NOT SHOWN TO BE CONTINUOUS THROUGH STEP

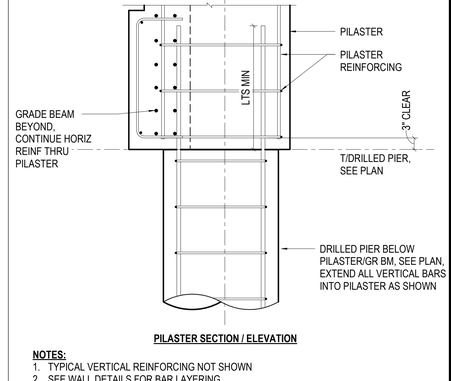
15 3/4" = 1'-0" TYPICAL B/WALL OR B/GRADE BEAM STEP



11 NO SCALE GRADE BEAM W/CMU



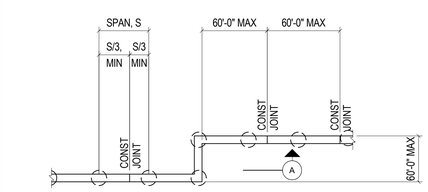
7 3/4" = 1'-0" EXTERIOR GRADE BEAM AT GRID D



PILASTER SECTION / ELEVATION

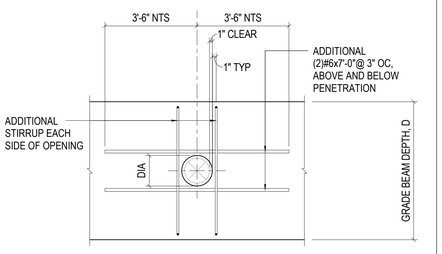
NOTES:
1. TYPICAL VERTICAL REINFORCING NOT SHOWN
2. SEE WALL DETAILS FOR BAR LAYERING

3 NO SCALE GRADE BEAM PILASTERS



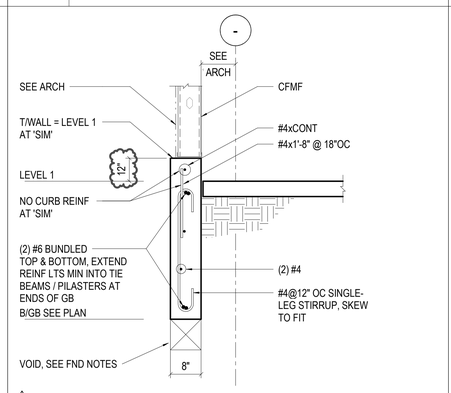
NOTES:
1. SUBMIT LOCATIONS OF CONSTRUCTION JOINTS FOR REVIEW PRIOR TO CONSTRUCTION
2. LOCATE CONSTRUCTION JOINTS IN MIDDLE THIRD OF SPAN
3. PLACE A MAXIMUM OF 60 FEET OF CONCRETE IN A STRAIGHT LENGTH OF WALL IN A SINGLE POUR

20 3/4" = 1'-0" CONSTRUCTION JOINT IN GB



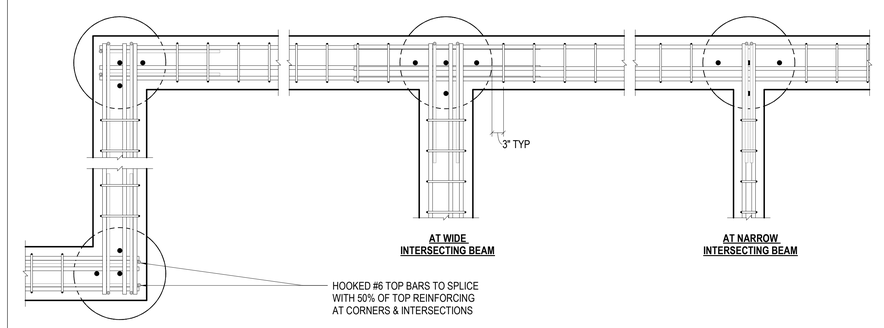
NOTES:
1. LOCATE OPENING WITHIN MIDDLE THIRD OF BEAM DEPTH
2. DO NOT LOCATE PENETRATIONS WITHIN 6'-0" OF DRILLED PIER
3. PENETRATION SIZE SHALL NOT EXCEED D/6
4. SPACE MULTIPLE PENETRATIONS AT 3xDIA OC MIN
5. REINFORCING SHOWN IN THIS DETAIL IS IN ADDITION TO TYPICAL HORIZONTAL AND VERTICAL GRADE BEAM REINFORCING
6. GRADE BEAM HORIZONTAL AND VERTICAL REINFORCING NOT SHOWN
7. DO NOT CORE PENETRATIONS

16 NO SCALE GRADE BEAM PENETRATION



4

12 NO SCALE PERIMETER NARROW GRADE BEAM



8 NO SCALE GRADE BEAM INTERSECTIONS/CORNERS - WITHOUT PILASTERS

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ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

4	10/26/2022	ADDENDA 4 – Pkg 1 & 2

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
TYPICAL GRADE BEAM DETAILS

SCALE: 3/4" = 1'-0"
SHEET NUMBER
S-307

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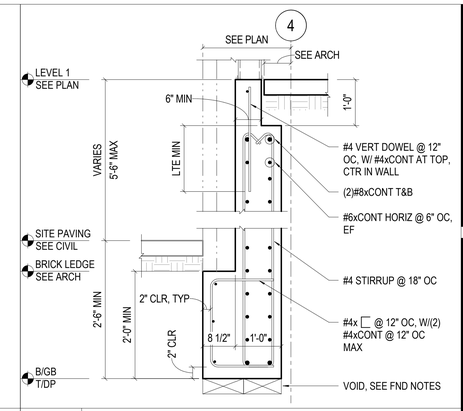
DESIGNED: GSC-DAS/MAH/EL LINDSEY WHITTINGTON
LEAD INTERN: TEGAN LINDSEY WHITTINGTON, JOHN DAYTON
DATE PRINTED: 10/25/2022 9:01:03 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM_USE: 1" = 1'-0" 1:1
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J. MATT DEZORT



1 3/4" = 1'-0" EXTERIOR GRADE BEAM AT GRID 4

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BENJAMIN WESTON DOWNEY
42134
10/26/2022

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
GRADE BEAM DETAILS

SCALE: 3/4" = 1'-0"
SHEET NUMBER

S-308

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PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:01:03 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

REBAR COVER TABLE

CASE	COVER (IN)
CONCRETE PLACED AGAINST EARTH	3
CONCRETE PLACED IN FORMS, EXPOSED TO WEATHER OR EARTH	2
CONCRETE PLACED ON VOID FORMS WITH MASONITE OR PLYWOOD COVERING	2
SLABS OR WALLS NOT EXPOSED TO EARTH OR WEATHER	1

LAP SPLICE & DEVELOPMENT LENGTHS (INCHES) F'c=3,500 PSI, Fy=60,000 PSI

CLEAR COVER				1"	1.5"	2"+	1"	1.5"	2"+	1"	1.5"	2"+
BAR SIZE	LDH	LCE	LCS	LTE			LTE TOP & LTS			LTS TOP		
#3	8	8	12	12			12			16		
#4	11	11	15	13			16			21		
#5	16	13	19	19	16		24	20		31	26	
#6	20	16	23	25	19		33	24		43	31	
#7	26	18	27	41	31	27	53	40	35	69	51	45
#8	31	21	30	51	39	31	66	50	40	86	65	52
#9	37	23	34	62	47	38	81	61	49	105	79	64
#10	43	26	38	74	56	46	96	73	59	124	95	77
#11	50	28	42	86	66	54	111	86	70	145	112	91

LAP SPLICE & DEVELOPMENT LENGTHS (INCHES) F'c=4,000 PSI, Fy=60,000 PSI

CLEAR COVER				1"	1.5"	2"+	1"	1.5"	2"+	1"	1.5"	2"+
BAR SIZE	LDH	LCE	LCS	LTE			LTE TOP & LTS			LTS TOP		
#3	7	8	12	12			12			15		
#4	11	10	15	12			15			20		
#5	15	12	19	17	15		23	19		29	25	
#6	20	15	23	24	18		31	23		40	29	
#7	25	17	27	38	29	25	50	37	33	65	48	43
#8	30	19	30	48	36	29	62	47	37	81	61	49
#9	36	22	34	58	44	36	75	57	46	98	74	60
#10	42	24	38	69	53	43	89	69	56	116	89	72
#11	49	27	42	80	62	51	104	80	66	135	104	85

LAP SPLICE & DEVELOPMENT LENGTHS (INCHES) F'c=4,500 PSI, Fy=60,000 PSI

CLEAR COVER				1"	1.5"	2"+	1"	1.5"	2"+	1"	1.5"	2"+
BAR SIZE	LDH	LCE	LCS	LTE			LTE TOP & LTS			LTS TOP		
#3	7	8	12	12			12			14		
#4	11	9	15	12			14			19		
#5	15	12	19	16	14		21	18		27	23	
#6	20	14	23	22	17		29	21		38	28	
#7	24	16	27	36	27	24	47	35	31	61	45	40
#8	30	18	30	45	34	27	59	44	35	76	57	46
#9	35	21	34	55	42	34	71	54	44	92	70	56
#10	41	23	38	65	50	40	84	65	52	110	84	68
#11	48	25	42	76	58	48	98	76	62	128	98	80

LAP SPLICE & DEVELOPMENT LENGTHS (INCHES) F'c=5,000 PSI, Fy=60,000 PSI

CLEAR COVER				1"	1.5"	2"+	1"	1.5"	2"+	1"	1.5"	2"+
BAR SIZE	LDH	LCE	LCS	LTE			LTE TOP & LTS			LTS TOP		
#3	6	8	12	12			12			13		
#4	6	9	15	12			14			18		
#5	8	12	19	16	13		20	17		26	22	
#6	9	14	23	21	16		28	20		36	26	
#7	11	16	27	34	26	23	45	33	29	58	43	38
#8	12	18	30	43	32	26	56	42	34	72	54	44
#9	14	21	34	52	40	32	68	51	41	88	66	54
#10	15	23	38	62	47	38	80	61	50	104	80	65
#11	17	25	42	72	56	45	93	72	59	121	93	76

GENERAL NOTES:
1. LENGTHS SPECIFICALLY DETAILED ON DRAWINGS SHALL GOVERN IN LIEU OF LAP LENGTHS SCHEDULED
2. ABBREVIATIONS:
   A. 'LCE' = COMPRESSION EMBEDMENT LENGTH
   B. 'LCS' = COMPRESSION LAP SPLICE LENGTH
   C. 'LDH' = HOOK DEVELOPMENT LENGTH
   D. 'LTE' = TENSION EMBEDMENT LENGTH
   E. 'LTS' = TENSION LAP SPLICE LENGTH
3. 'TOP' BARS ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 IN OF FRESH CONCRETE IS CAST BELOW THE BAR
4. CLEAR COVER IS DEFINED FROM THE NEAREST FACE OF CONCRETE TO THE BAR BEING DEVELOPED OR SPLICED
5. UNLESS NOTED OTHERWISE, ALL HOOK BARS SHALL EXTEND TO THE FAR FACE LESS 2" COVER
6. IF A NOTE OR DETAIL CALLS FOR A BAR TO BE EMBEDDED L.d (DEVELOPMENT LENGTH) INTO CONCRETE, THIS SHALL CORRESPOND TO A 'LTE' LENGTH
7. IF A NOTE OR DETAIL REQUIRES A BAR TO HAVE A DEVELOPMENT OR LAP LENGTH BUT INSUFFICIENT DIMENSION IS AVAILABLE FOR THE LENGTH SCHEDULED, EXTEND BAR TO FAR FACE OF CONCRETE LESS 2" COVER AND HOOK

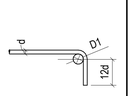
ADJUSTMENTS TO GIVEN LENGTHS:
1. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE SCHEDULED LENGTHS BY 50%
2. IF LIGHTWEIGHT AGGREGATE IS SPECIFIED, INCREASE SCHEDULED LAP BY LENGTHS 30%
3. SCHEDULED LENGTHS ASSUME:
   A. CLEAR COVER IS AS INDICATED IN SCHEDULE
   B. CLEAR SPACING BETWEEN BARS IS GREATER THAN 2xCLEAR COVER
   C. IF EITHER CONDITION A OR B IS NOT MET FOR A GIVEN BAR, INCREASE LENGTHS BY 50%
4. LENGTHS NOTED BASED ON Fy = 60,000 PSI.
   A. FOR OTHER YIELD STRENGTHS, MULTIPLY LENGTHS NOTED BY Fy/60,000

LAP SPLICE NOTES:
1. ALL SPLICES SHALL BE WIRED IN CONTACT
2. ALL SPLICES ARE 'LTS' UNLESS NOTED OTHERWISE
3. SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZED BARS
   A. COMPRESSION LAP LENGTH SHALL NOT BE LESS THAN 'LCE' OF THE LARGER BAR
   B. TENSION LAP LENGTH SHALL NOT BE LESS THAN 'LTE' OF THE LARGER BAR
4. BUNDLED BAR SPLICES:
   A. INDIVIDUAL BAR SPLICES WITHIN THE BUNDLE SHALL BE STAGGERED
   B. INCREASE LAP LENGTH 20% FOR A 3 BAR BUNDLE
   C. INCREASE LAP LENGTH 33% FOR A 4 BAR BUNDLE
5. TOP AND BOTTOM BEAM SPLICES SHALL BE STACKED VERTICALLY

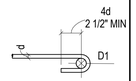
HOOK EMBEDMENT NOTES:
1. SCHEDULED HOOK EMBEDMENT LENGTHS ASSUME:
   A. SIDE COVER IS 2 1/2 INCHES OR GREATER
   B. COVER BEYOND IS 2 INCHES OR GREATER
2. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE SCHEDULED LENGTHS BY 20%
3. IF LIGHTWEIGHT AGGREGATE IS SPECIFIED, INCREASE SCHEDULED LENGTHS BY 30%
4. IF SIDE COVER IS LESS THAN 2 1/2 INCHES, INCREASE LENGTHS BY 40%

STANDARD BENDS

D1	
#3 - #8	6d
#9 - #11	8d



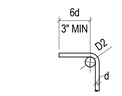
90° HOOK



180° HOOK

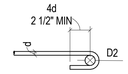
STIRRUP/TIE BENDS

D2	
#3 - #5	4d
#6 - #8	6d

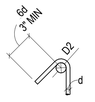


90° HOOK (#3-#5)

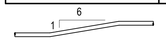
90° HOOK (#6-#8)



180° HOOK (#3-#8)



135° HOOK (#3-#8)

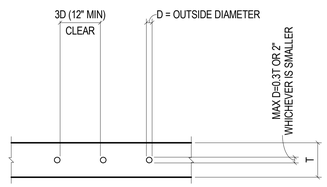


MAX OFFSET BEND

NOTES:
1. ALL BENDS SHALL BE MADE COLD
2. #14 & #18 BARS SHALL BE BEND TESTED & LAB APPROVED PRIOR TO BENDING

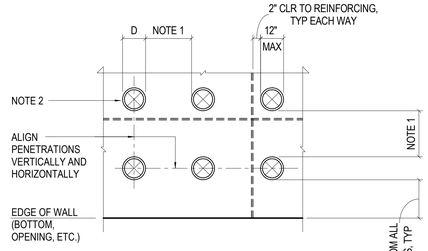
TYPICAL REINFORCING BENDS

10 NO SCALE REINFORCING DEVELOPMENT, PLACEMENT, AND BEND INFO



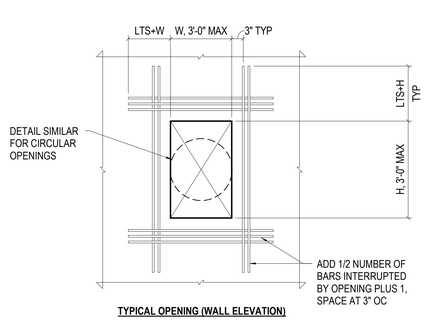
AT PIPING OR CONDUIT (WALL SECTION)

NOTES:
1. WHERE CLEAR DISTANCE BETWEEN PIPING/CONDUIT CAN NOT BE ACHIEVED AS SHOWN, STRUCTURAL ENGINEER OF RECORD SHALL BE NOTIFIED FOR REVIEW
2. IN WALL PIPING/CONDUITS GREATER THAN 0.3T SHALL BE SUBMITTED FOR REVIEW
3. LOCATE PIPING/CONDUITS WITHIN MIDDLE THIRD (T/3) OF WALL



AT OPENINGS 12" OR LESS (WALL ELEVATION)

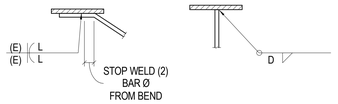
NOTES:
1. GREATER OF 2xD AND 12", WHERE CLEAR DISTANCE IS NOT ACHIEVABLE, TREAT AREA AS SINGLE OPENING REINFORCED PER "TYPICAL OPENING" DETAIL
2. DO NOT CORE OPENINGS, SLEEVE OPENINGS PRIOR TO PLACING CONCRETE
3. DO NOT CUT REBAR AT PENETRATION LOCATIONS. REBAR MAY BE MOVED 8" MAX TO ACCOMMODATE PENETRATIONS
4. SCHEDULE 40 STEEL SLEEVES SHALL BE USED IN CRITICAL AREAS OF THE WALL AND SLABS AS DETERMINED BY STRUCTURAL ENGINEER OF RECORD



TYPICAL OPENING (WALL ELEVATION)

NOTES:
1. DETAIL APPLIES UNLESS REINFORCING IS SPECIFICALLY DETAILED ON THE DRAWINGS
2. HOOK BARS WITH STANDARD HOOK WHERE LTS CANNOT BE ACHIEVED

11 3/4" = 1'-0" CAST IN PLACE PENETRATIONS

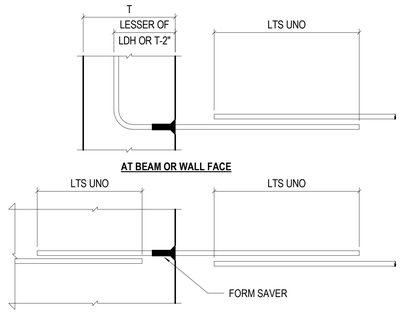


BAR SIZE	E	L
#3	3/16	2
#4	1/4	2 1/2
#5	5/16	3
#6	3/8	3 1/2
#7	7/16	4
#8	1/2	4 1/2

BAR SIZE	D
#3	1/4
#4	5/16
#5	3/8
#6	7/16
#7	1/2
#8	9/16

NOTES:
1. ALL WELDED REBAR SHALL BE A706.
2. USE E80 ELECTRODES.

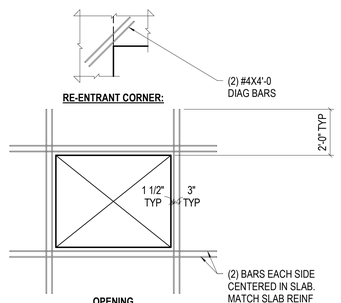
12 NO SCALE TYPICAL REBAR WELD SCHEDULE



AT BEAM OR WALL END

NOTES:
1. FORM SAVERS SHOWN ON DRAWINGS ARE SUGGESTED BASED ON ANTICIPATED CONSTRUCTION SEQUENCE AND FORMING SYSTEM. GENERAL CONTRACTORS AND SUB-CONTRACTORS MAY COORDINATE AND INSTALL CONTINUOUS BARS OR BREAK-OUT BARS TO PROVIDE EQUIVALENT CONTINUITY.

8 NO SCALE TYP FORMSAVER



OPENING

NOTES:
1. DETAIL APPLIES FOR ALL OPNGS IN SOG'S AND TOPPING SLABS
2. REINF NOT REQUIRED AT OPNGS SMALLER THAN 10"x10"
3. SEE OTHER DTLS FOR REINF AT OPNGS IN CONC WALLS, CONC STR SLABS, AND METAL DECK SLABS

4 NO SCALE TYP TRIM REINF

OZ ARCHITECTURE
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COLORADO LICENSED PROFESSIONAL ENGINEER — 42134 — 10/26/2022

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
TYPICAL CONCRETE DETAILS

SCALE: As indicated
SHEET NUMBER
S-310

10/25/2022 9:01:07 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MK / DR # 21.1038.S.01 DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
PRINCIPAL: BEN DOWNEY LEAD DETAILERS: GREG RADEMACHER, LINDSEY WHITTINGTON, JOHN HATTON
EOR: BEN DOWNEY DATE PRINTED: 10/25/2022 9:01:07 PM
PROJECT MANAGER: J. MATT DEZORT FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

MASONRY LAP SPLICE SCHEDULE f'm = 2000 psi

BAR SIZE		REINF CENTERED 8", 10", 12" MAS	REINF AT FACE AND AT BOND BEAMS (2" CLR)
ENGLISH	METRIC		
#3	#10	15	15
#4	#13	20	22
#5	#16	25	35
#6	#19	38	54
#7	#22	52	63

NOTES:
1. SMALLER BAR LAP LENGTH SHALL BE USED WHEN SPLICING DIFFERENT SIZED BARS
2. LAP LENGTHS SPECIFICALLY DETAILED ON DRAWINGS SHALL GOVERN INSTEAD OF SCHEDULED LAP LENGTHS
3. IF REINFORCING IS SPECIFIED AS EPOXY COATED, INCREASE LENGTHS BY 50%
4. MECHANICAL COUPLERS MAY BE USED IN LIEU OF ANY LAP LENGTH SHOWN
5. WHEN LOW LIFT GROUTING IS USED, AND THE LAP LENGTH EXCEEDS THE GROUT LIFT HEIGHT (NOTED BY *), A MECHANICAL COUPLER IS REQUIRED IN LIEU OF LAPPED REINF.
6. VERTICAL REINF IN PILASTERS WITH AT LEAST 3 1/2" CLEAR SHALL BE SPLICED PER THE "REINF CENTERED" COLUMN
7. HORIZONTAL BOND BEAM RENF SHALL BE SPLICED PER THE "REINF AT FACE" COLUMN

17 NO SCALE — MASONRY STRENGTH DESIGN LAP SPLICE SCHEDULE - 2000

NOTES:
1. SOLID GROUT ALL CELLS TO RECEIVE ANCHOR

18 NO SCALE — COL BASE AT TOP OF MAS WALL

NOTE:
1. FOR ADDITIONAL INFORMATION SEE 15/S-532

20 1" = 1'-0" — MASONRY BEAM BEARING OVERTOP OF WALL

NOTES:
1. JUNCTION BOXES, PIPING, VERTICAL / HORIZONTAL CONDUIT, FIXTURES, ETC. SHALL NOT:
   - BE LOCATED IN REINFORCED CELLS
   - BE LOCATED IN LINTELS (NEITHER IN REINFORCED NOR UNREINFORCED CELLS)
   - BE LOCATED IN JAMBS
   - BE LOCATED IN STRUCTURAL PILASTERS, UNLESS NOTED OTHERWISE
2. JUNCTION BOXES, PIPING, VERTICAL / HORIZONTAL CONDUIT, FIXTURES, ETC. MAY:
   - BE LOCATED IN GROUTED UNREINFORCED CELLS (EXCLUDING LINTELS)
   - BE LOCATED IN UNREINFORCED, UNGROUTED CELLS
3. HORIZONTAL PIPING / CONDUIT SHALL NOT CROSS VERTICALLY REINFORCED CELLS
4. VERTICAL PIPING / CONDUIT MAY CROSS REINFORCED BOND BEAMS LIMITED BY DETAIL A
5. WALL PENETRATIONS SHALL MEET THE REQUIREMENTS OF DETAIL B
6. INDICATES REINFORCED AND GROUTED CELLS
7. INDICATES GROUTED CELLS WITHOUT REINFORCING
8. ALUMINUM SHALL NOT BE EMBEDDED IN MASONRY

A — VERTICAL CONDUIT

B — WALL PENETRATIONS

15 1/2" = 1'-0" — MASONRY CONDUIT/PIPING PENETRATIONS

A — LINTEL DETAILS

NOTES:
1. TYPICAL WALL VERTICAL & HORIZONTAL REINFORCEMENT NOT SHOWN.
2. PROVIDE STANDARD HOOK AT LOCATIONS WHERE TYPICAL EXTENSION IS NOT ACHIEVEABLE
3. CONTROL JOINTS ARE NOT STRUCTURALLY ACCEPTABLE IN LINTELS

B — JAMB DETAILS

NOTES:
1. INDICATES REINFORCED AND GROUTED CELLS
2. INDICATES GROUTED CELLS WITHOUT REINFORCING
3. LINTEL ABOVE A SERIES OF OPENINGS SHALL SPAN FULL WIDTH OF ALL OPENINGS WHERE SPACE BETWEEN OPENINGS DOES NOT ALLOW SUFFICIENT WIDTH FOR EACH JAMB EACH SIDE OF EACH OPENING
   - A. WHERE POSSIBLE ALIGN TOP OF OPENINGS TO ALLOW FOR CONTINUOUS LINTELS
   - B. WHERE TOP OF OPENINGS CAN NOT ALIGN, LINTEL ABOVE HIGHEST OPENING SHALL SPAN FULL WIDTH OF ALL OPENINGS
4. AT LOCATIONS WHERE BOXES / CONDUITS MUST BE LOCATED DIRECTLY ADJACENT A ROUGH OPENING, PROVIDE GROUTED UNREINFORCED CELL(S) FOR BOXES / CONDUITS, INCREASE CLEAR SPAN FOR SELECTION OF LINTELS / JAMBS BY WIDTH OF ADDITIONAL CELL(S)

11 NO SCALE — MASONRY - LARGE WALL OPENING

NOTES:
1. SEE 17/S-400 FOR MASONRY LAP SPLICE & DEVELOPMENT LENGTH
2. INDICATES GROUTED CELLS
3. GROUT SHOWN IS MINIMUM REQUIRED, SEE MASONRY WALL SCHEDULE 4/S-400 FOR ADDITIONAL GROUTING REQUIREMENTS
4. SEE PLAN FOR CONTROL JOINT LOCATIONS
5. IF CONTROL JOINTS ARE NOT SHOWN, REQUEST LOCATIONS FROM ARCHITECT AND BASE BIDS ON THE FOLLOWING MINIMUM CONTROL JOINT LOCATIONS:
   - A. SPACED AT A MAXIMUM OF 1.5xH
   - B. SPACED AT A MAXIMUM OF 24'-0" OC
   - C. ONE CONTROL JOINT AT EACH WALL CORNER / INTERSECTION
   - D. NOT CLOSER THAN 5'-0" FROM ROUGH OPENINGS
   - E. NOT CLOSER THAN 2'-0" FROM BEAM / JOIST BEARING CENTERLINES
   - F. NOT CLOSER THAN 8" FROM STEEL EMBED CENTERLINES
6. FOR PENETRATIONS IN MASONRY WALLS SEE 15/S-400

16 NO SCALE — TYPICAL STRUCTURAL MASONRY WALL ELEVATIONS

NOTES:
1. 90 DEG CORNER AND INTERSECTION IS SHOWN. WALLS MEETING AT OTHER ANGLES SHALL HAVE (a) BLOCK OVERLAPPING 4" MIN AT ALL HEAD JOINTS OR (b) FACE SHELL BROKEN OPEN AND COMMON CORE GROUTED
2. IF HEAD JOINT ALIGNS OVER THE FULL WALL HEIGHT, BREAK OPEN FACE SHELLS AND GROUT WALLS TOGETHER FULL HEIGHT, TYP AT ALL CORNERS AND INTERSECTIONS

INTEGRALLY CONNECTED AT CORNERS & INTERSECTIONS OF MASONRY WALLS

1 NO SCALE — INTEGRALLY CONSTRUCTED STRUCTURAL MASONRY CORNER

2 NO SCALE — TYPICAL MASONRY WALL CONTROL JOINT

3 NO SCALE — TYPICAL MASONRY BOND BEAM

STRUCTURAL MASONRY WALL SCHEDULE

MARK	WALL NOMINAL THK (IN)	REINFORCING				GROUT SOLID
		JOINT	VERT	HORIZ	DOWELS	
MW8-48(1)	8	NOTE 2	#5@48"OC	--	#5@48"OC	N
MW8-16(1)	8	NOTE 2	#5@16"OC	(2) #5@48"OC	SEE DTLS	Y
MW12-8(2)	12	NOTE 2	#5@8"OC EF	(2)#5@48"OC	SEE DTLS	Y
MW12-16(2)	12	NOTE 2	#5@16"OC EF	(2)#5@48"OC	-	Y
MW12-32(2)	12	NOTE 2	#5@32"OC EF	(2)#5@48"OC	SEE DTLS	Y

NOTES:
1. ALL VERTICAL REINFORCEMENT SHALL BE CENTERED (UNO) IN GROUTED CELLS
2. PROVIDE `LADDER' TYPE HORIZONTAL JOINT REINFORCEMENT WITH 2-W1.7 (9 GA) WIRES (MIN) AT 16" OC, TYPICAL, AND AT 8" OC IN PARAPETS.
3. REFERENCE SPECIAL JAMB REINFORCEMENT NOTED IN "MASONRY - LARGE WALL OPENING"
4. ONLY STRUCTURAL WALLS ARE INCLUDED IN STRUCTURAL DRAWINGS. SEE ARCH FOR CMU PARTITIONS.

4 NO SCALE — MASONRY WALL SCHEDULE - STRUCTURAL

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DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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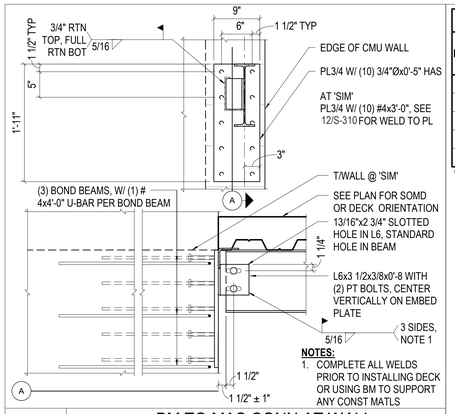
ISSUED FOR: 100% CD/PACKAGE 3
SHEET TITLE: MASONRY WALL DETAILS
SCALE: As indicated
SHEET NUMBER
S-400

10/25/2022 9:01:10 PM
BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB #: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:01:10 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



NOTES:
1. COMPLETE ALL WELDS PRIOR TO INSTALLING DECK OR USING BM TO SUPPORT ANY CONST MATLS

17 1" = 1'-0" BM TO MAS CONN AT WALL CORNER

STRUCTURAL MASONRY BEAM EMBED TABLE (LRFD)

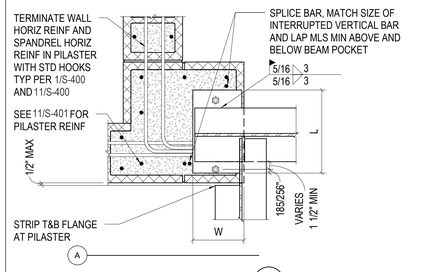
BEAM TYPE	D INCHES	L INCHES	TOTAL # HAS	TOTAL # BOND BEAMS	CONNECTION CAPACITY, KIPS *
					12" MASONRY
W8, C8	12	5	4	3	30
W12	12	6	4	3	36
W14	14	7	6	3	44
W16	16	8	6	3	48
W18, W21	21	11	8	4	56

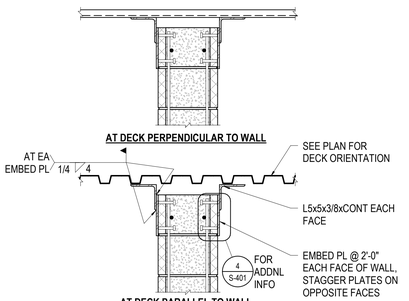
* ULTIMATE LEVEL (LRFD)

BEAM BEARING PLATE SCHEDULE (LRFD) - BEAM FROM (1) SIDE OF WALL

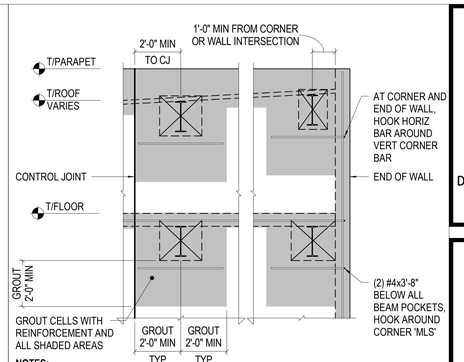
12" CMU	
REACTION	PL t x W x L
≤73k	3/4x10x1'-1"
≤152k	2x10x1'-5"

1. REACTIONS ARE ULTIMATE LEVEL (LRFD)





5 NO SCALE MASONRY WALL SUPPORTING SLOPED ROOF DECK

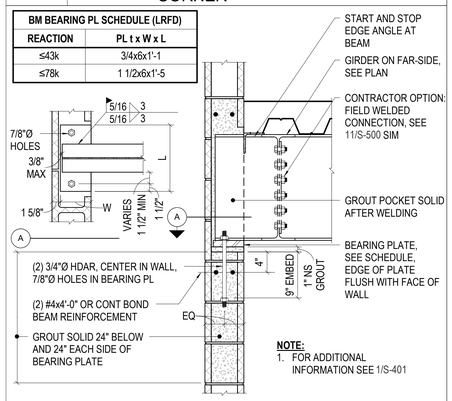


NOTES:
1. TYPICAL WALL VERTICAL & HORIZONTAL REINFORCING NOT SHOWN
2. GROUT SHOWN IS MINIMUM REQUIRED FOR BEAM BEARING, SEE TYPICAL MASONRY WALL SCHEDULE 4/S-400 FOR ADDITIONAL GROUTING REQUIREMENTS

1 NO SCALE MASONRY WALL ELEVATION AT BEAM POCKET

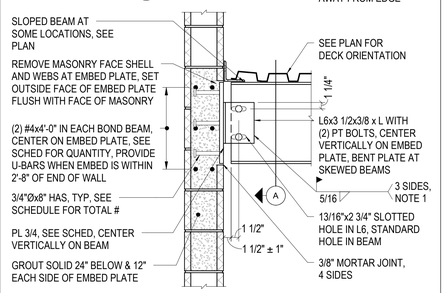
BM BEARING PL SCHEDULE (LRFD)

REACTION	PL t x W x L
≤43k	3/4x6x1'-1
≤78k	1 1/2x6x1'-5



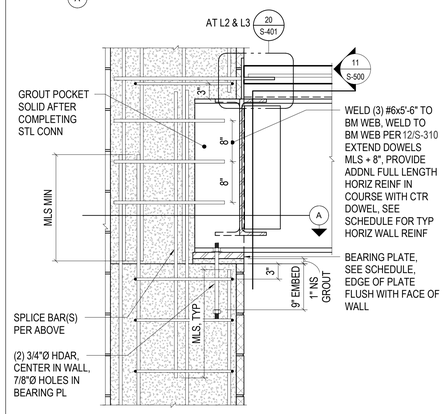
NOTE:
1. FOR ADDITIONAL INFORMATION SEE 1/S-401

18 1" = 1'-0" MASONRY CONNECTION BEAM POCKET

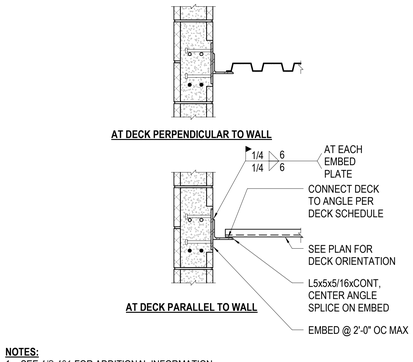


NOTES:
1. COMPLETE ALL WELDS PRIOR TO INSTALLING DECK OR USING BEAM TO SUPPORT ANY CONSTRUCTION MATERIALS

14 NO SCALE TYPICAL BEAM TO MASONRY WALL EMBED CONNECTION

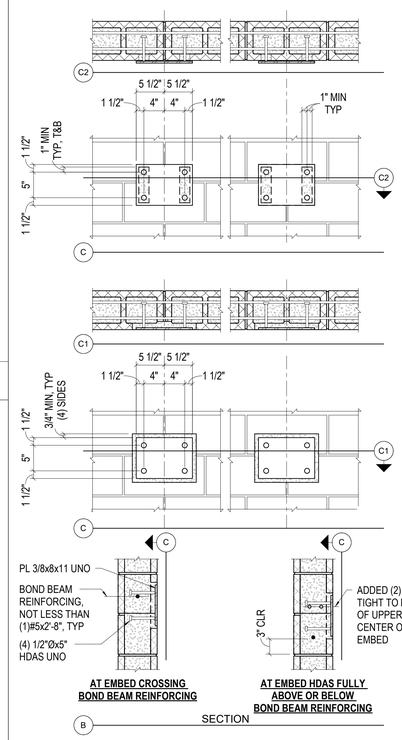


10 NO SCALE MASONRY BEAM BEARING - POCKET AT PILASTER



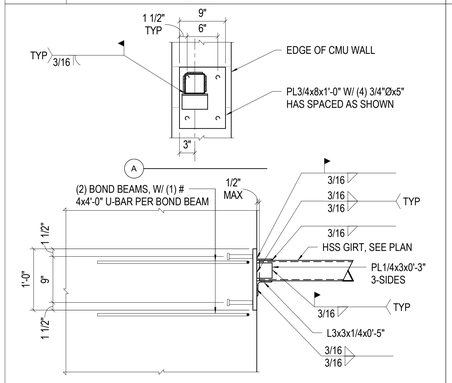
NOTES:
1. SEE 4/S-401 FOR ADDITIONAL INFORMATION

6 NO SCALE MASONRY WALL SUPPORTING ROOF DECK

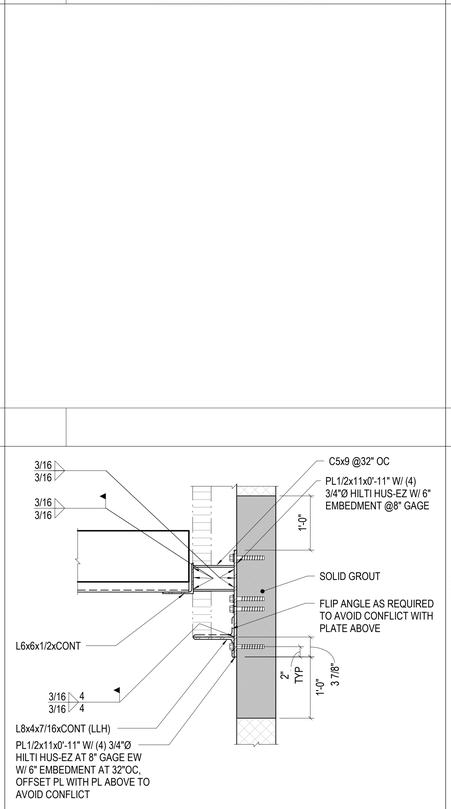


NOTES:
1. TYPICAL WALL VERTICAL & HORIZONTAL REINFORCING NOT SHOWN
2. GROUT SHOWN IS MINIMUM REQUIRED FOR EMBEDS, SEE TYPICAL MASONRY WALL SCHEDULE 4/S-400 FOR ADDITIONAL GROUTING REQUIREMENTS

4 NO SCALE MASONRY WALL ELEVATION AT EMBED

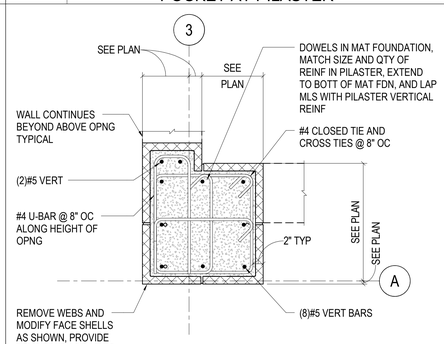


19 1" = 1'-0" HSS GIRT CONN TO MAS WALL

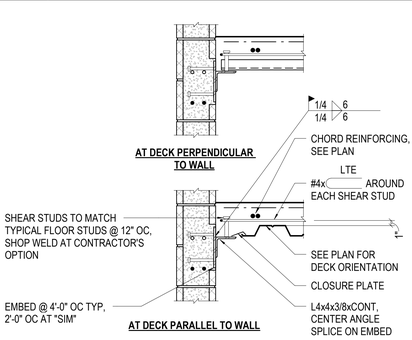


NOTES:
1. HDG ALL STEEL.

16 1" = 1'-0" CIP LID SUPPORT AT CMU CORE W/ VENEER

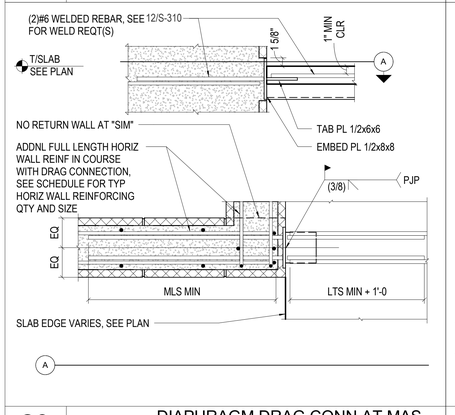


11 1" = 1'-0" PILASTER AT STAIR CORE



NOTES:
1. SEE 4/S-401 FOR ADDITIONAL INFORMATION

7 NO SCALE MASONRY WALL SUPPORTING COMPOSITE DECK

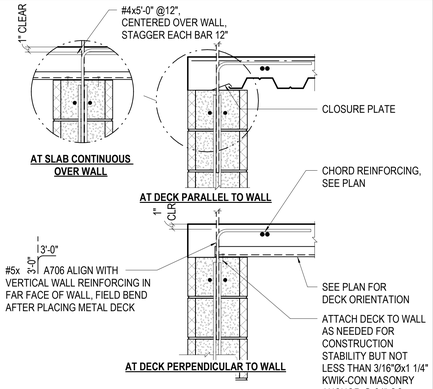


20 1" = 1'-0" DIAPHRAGM DRAG CONN AT MAS WALL

BRICK VENEER LOOSE LINTEL SCHEDULE

OPENING LENGTH...	LINTEL	BEARING EE	REMARKS
L ≤ 7'-0"	L3 1/2x3 1/2x1/4	4"	-
7'-0" < L ≤ 9'-0"	L5x3 1/2x1/4	6"	LLV
9'-0" < L ≤ 10'-8"	L6x3 1/2x5/16	6"	LLV
10'-8" < L ≤ 12'-0"	BENT PL 5/16x7x3 1/2	6"	LLV
12'-0" < L ≤ 16'-0"	WT10.5x22	6"	-

12 NO SCALE TYP MAS VENEER LOOSE LINTEL



8 NO SCALE MASONRY WALL SUPPORTING COMPOSITE DECK - THRESHOLD

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ANSCHUTZ ENGINEERING CENTER

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PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
MASONRY WALL DETAILS

SCALE: As indicated
SHEET NUMBER
S-401

10/25/2022 9:01:16 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM_VOB_#_1_10SB_01
PRINCIPAL: ALEX DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J HATT DEZORT
DES.SHEETS: GREG, DAE, KAUFMAN, LINDSEY, WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JOHN DALTON
DATE PRINTED: 10/25/2022 9:01:16 PM
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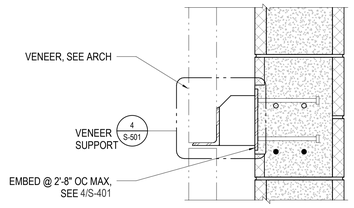
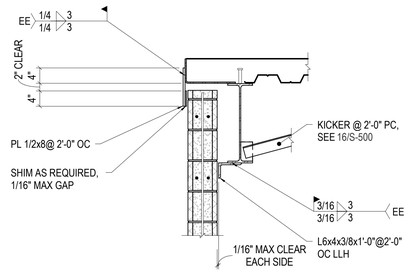
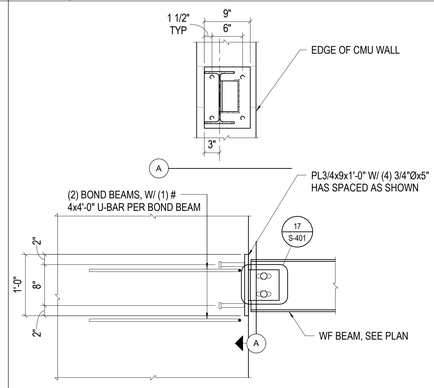


NOTES:
1. SEE 4/S-401 FOR ADDITIONAL INFORMATION

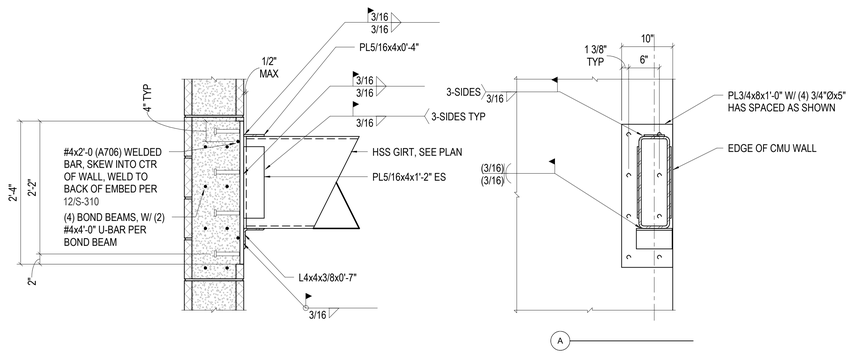
1 1 1/2" = 1'-0" MASONRY WALL SUPPORTING EXTERIOR VENEER



2 3/4" = 1'-0" MASONRY PARTITION SUPPORT - EOS



3 1" = 1'-0" SMALL WF TO MAS WALL END



8 1" = 1'-0" LARGE HSS GIRT CONN TO MAS WALL

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SHEET TITLE:
MASONRY WALL DETAILS

SCALE: As indicated
SHEET NUMBER
S-402

10/25/2022 9:01:17 PM
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MM JOB # 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:01:17 PM
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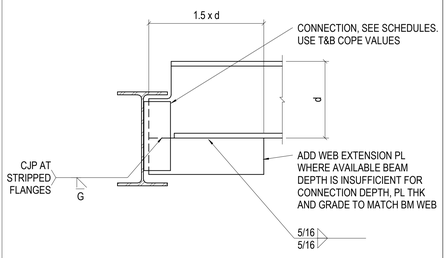
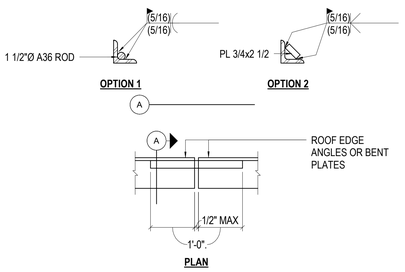
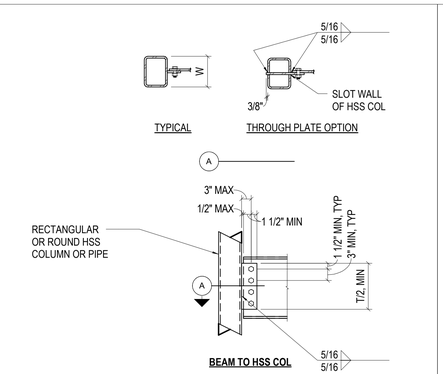


17 NO SCALE TYP BEAM WEB EXTENSION

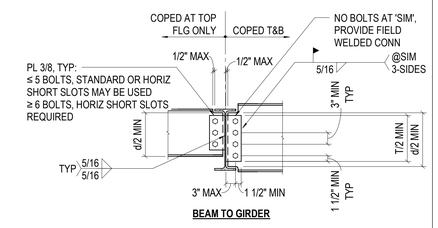


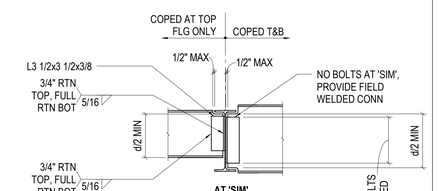
NOTES:
1. DETAIL APPLIES AT ALL NON-COMPOSITE METAL DECK EDGES UNLESS NOTED OTHERWISE

13 NO SCALE TYPICAL EDGE ANGLE CHORD SPLICE



NOTES:
1. MINIMUM BEAM WEB THICKNESS SHALL BE 0.23"

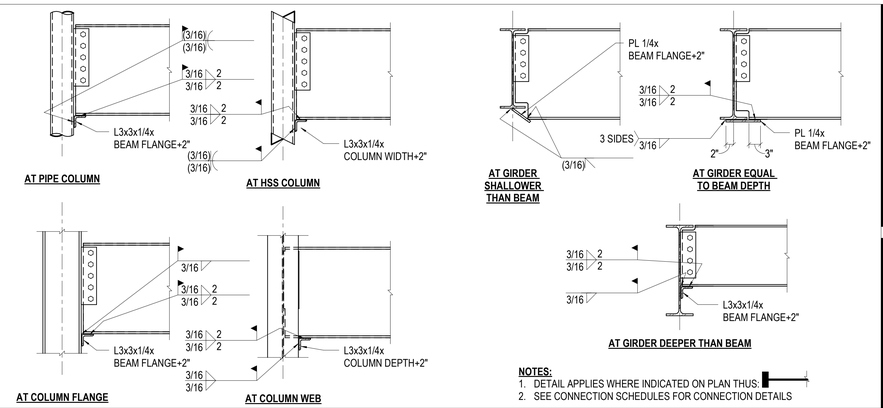




STEEL CONNECTION SCHEDULE	
BEAM SIZE	# OF ROWS OF BOLTS OR # OF BOLTS (#)
W8	(2)
W10	(3)
W12	(3)
W14	(3)
W16	(4)
W18	(5)
W21	(6)
W24	(7)
W27	(8)
W30	(9)
W33	(9)

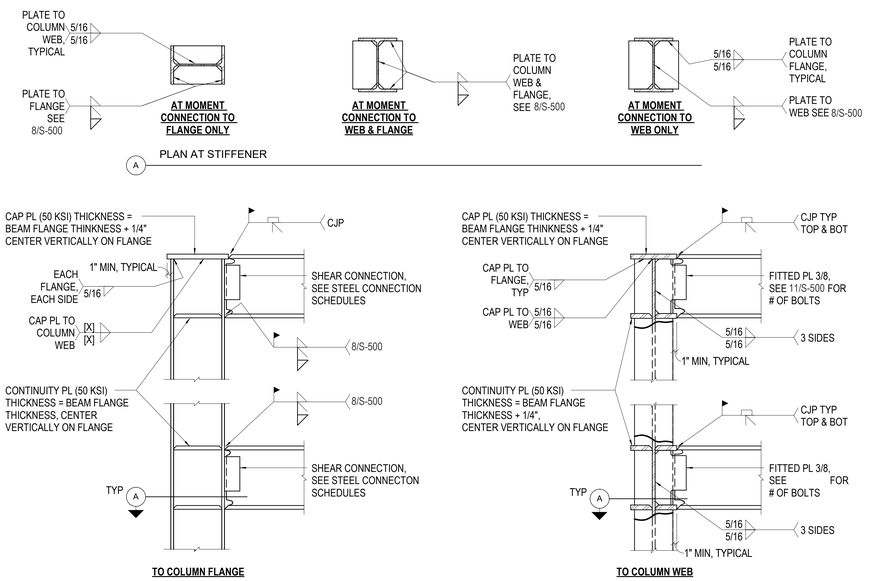
NOTES:
1. FOR WEB EXTENSION WHERE REQUIRED SEE 17/S-500
2. FOR BEAM COPING DETAIL SEE 10/S-501
3. FOR SKEWED CONNECTIONS SEE 9/S-501

11 NO SCALE STEEL CONNECTION SCHEDULE/DETAILS



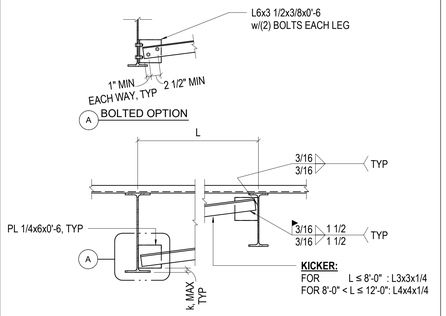
NOTES:
1. DETAIL APPLIES WHERE INDICATED ON PLAN THUS:
2. SEE CONNECTION SCHEDULES FOR CONNECTION DETAILS

5 NO SCALE BOTTOM FLANGE BRACING



NOTES:
1. CONNECTIONS ARE SIMILAR WHERE MOMENT CONNECTION OCCURS ON EACH SIDE OF COLUMN / GIRDER

7 NO SCALE TYPICAL MOMENT CONNECTION



NOTES:
1. CONTRACTOR MAY USE ANY COMBINATION OF WELDING OR BOLTING

16 NO SCALE TYPICAL KICKER

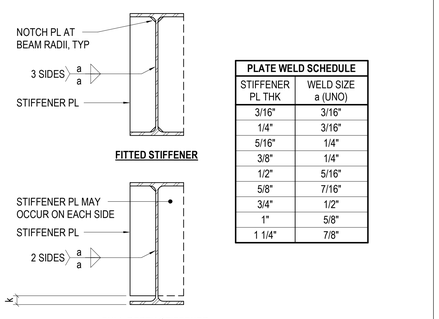
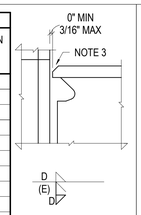


PLATE WELD SCHEDULE	
STIFFENER PL THK	WELD SIZE a (UNO)
3/16"	3/16"
1/4"	3/16"
5/16"	1/4"
3/8"	1/4"
1/2"	5/16"
5/8"	7/16"
3/4"	1/2"
1"	5/8"
1 1/4"	7/8"

NOTES:
1. ACTUAL STIFFENER GEOMETRY VARIES, SEE DETAILS
2. STIFFENER SURFACES THAT CONTACT BEAM FLANGES SHALL BE FINISHED FOR BEARING

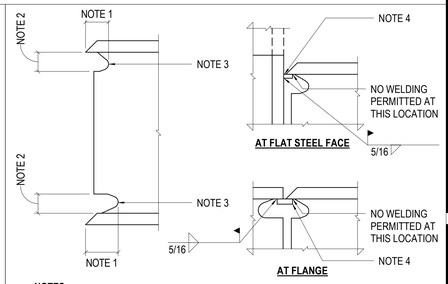
12 NO SCALE TYPICAL WIDE FLANGE BEAM STIFFENER

FULL CAPACITY WELD SCHEDULE		
CONNECTED FLANGE/PLATE THICKNESS (IN)	FILLET WELD SIZE D (IN)	PARTIAL PENETRATION WELD EFFECTIVE THROAT SIZE E (IN)
≤ 0.37	1/4	NOT REQD
≤ 0.46	5/16	NOT REQD
≤ 0.56	3/8	NOT REQD
≤ 0.65	7/16	NOT REQD
≤ 0.74	1/2	NOT REQD
≤ 0.84	9/16	NOT REQD
≤ 0.93	5/8	NOT REQD
≤ 1	7/16	13/16
≤ 1 1/8	7/16	1
≤ 1 1/4	1/2	1 1/16
≤ 1 3/8	1/2	1 1/4
≤ 1 1/2	9/16	1 5/16
≤ 1 5/8	5/8	1 7/16
> 1 5/8	N/A	CJP (NOTE 2)



NOTES:
1. COMPLETE JOINT PENETRATION WELDS MAY BE USED AS AN ALTERNATE TO FILLET AND BUILT-UP WELDS FOR ANY CONNECTED FLANGE/PLATE THICKNESS.
2. SEE DETAIL 4/S-500 FOR WELD ACCESS HOLE AND BACKING REQUIREMENTS AT COMPLETE JOINT PENETRATION WELDS.
3. SCHEDULED WELDS SHALL BE INCREASED IN SIZE BY GAP WIDTH FOR GAPS 1/16" AND GREATER.

8 NO SCALE TYPICAL FULL CAPACITY WELD SCHEDULE



NOTES:
1. GREATER OF 1.5 x WEB THICKNESS OR 1 1/2"
2. GREATER OF 1.0 x WEB THICKNESS OR 3/4", SHALL NOT EXCEED 2"
3. MIN RADIUS = 3/8"
4. BACKING MAY REMAIN IN PLACE UNO
5. COMPLETE JOINT PENETRATION WELDS MAY BE USED AS AN ALTERNATE TO FILLET AND BUILT-UP WELDS FOR ANY CONNECTED FLANGE/PLATE THICKNESS.
6. SCHEDULED WELDS SHALL BE INCREASED IN SIZE BY GAP WIDTH FOR GAPS 1/16" AND GREATER.

4 NO SCALE TYPICAL CJP WELD

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DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
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SHEET TITLE:
TYPICAL STEEL DETAILS

SCALE: As indicated
SHEET NUMBER

S-500

10/25/2022 9:01:21 PM BIM: 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM_X26 # 21.1038.S.01
PRINCIPAL: BEN DOWNEY
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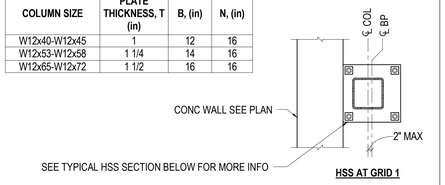
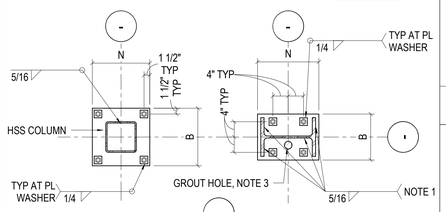
DESIGNERS: DSEE,RADMACHER, LINDSEY WHITTINGTON
LEAD ARCHITECT: LINDSEY WHITTINGTON, ARCHITECTON
DATE PRINTED: 10/25/2022 9:01:21 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

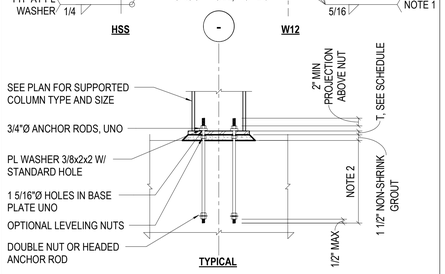
BASE PLATE DIMENSIONS			
HSS SQUARE			
COLUMN SIZE	PLATE THICKNESS, T (in)	B, (in)	N, (in)
HSS8x8x5/16-HSS8x8x3/8	1	15	15

BASE PLATE DIMENSIONS			
WF			
COLUMN SIZE	PLATE THICKNESS, T (in)	B, (in)	N, (in)
W12x40-W12x45	1	12	16
W12x53-W12x58	1 1/4	14	16
W12x65-W12x72	1 1/2	16	16



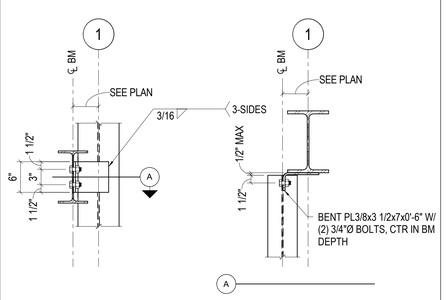
HSS AT GRID 1



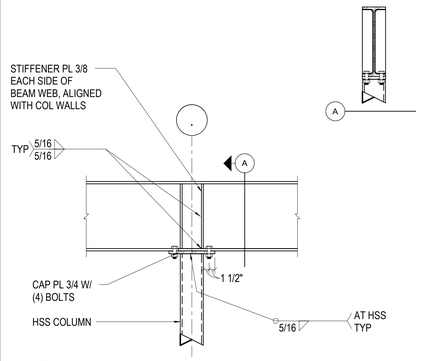


NOTES:
1. ALL AROUND WELD MAY BE USED IN LIEU OF THE WELD SHOWN
2. GREATER OF 9" OR 8xANCHOR ROD Ø
3. 2"Ø MAXIMUM GROUT HOLE AT CONTRACTOR'S OPTION. ONE OR TWO GROUT HOLES RECOMMENDED FOR BASE PLATES LARGER THAN 24" IN WIDTH.

18 NO SCALE TYPICAL GRAVITY COLUMN BASE PLATE

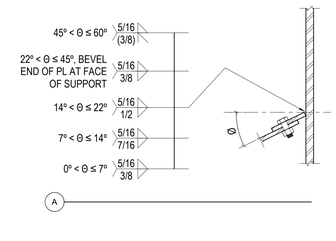


13 1" = 1'-0" OFFSET BEAM CONNECTION

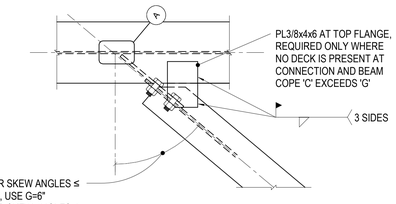


NOTES:
1. PERPENDICULAR MEMBERS NOT SHOWN

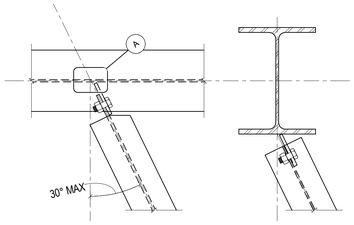
14 3/4" = 1'-0" BEAM OVER COLUMN



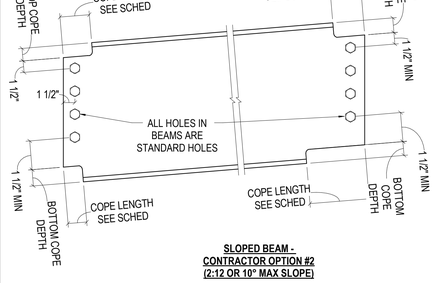
9 NO SCALE TYP BEAM SKEWED CONN



AT SKEW ≤ 60°

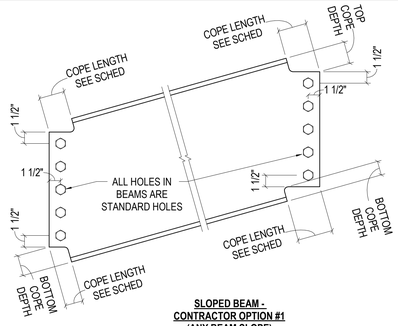


AT SKEW ≤ 30°



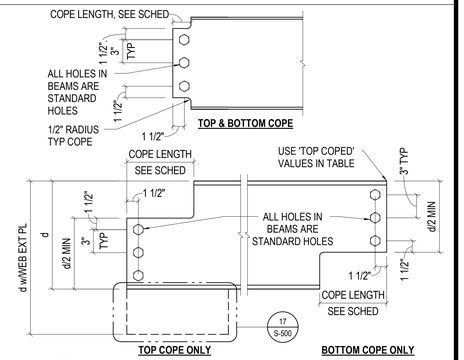
SLOPED BEAM - CONTRACTOR OPTION #2 (2:12 OR 10° MAX SLOPE)

NOTES:
1. DETAIL MAY BE USED AT MEMBERS SLOPED 10° (2:12) OR LESS AT CONTRACTOR'S OPTION



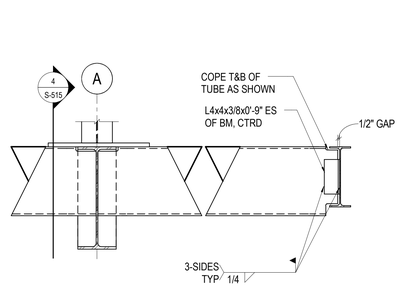
SLOPED BEAM - CONTRACTOR OPTION #1 (ANY BEAM SLOPE)

NOTES:
1. DETAIL MAY BE USED AT MEMBERS SLOPED AT ANY PITCH AT CONTRACTOR'S OPTION

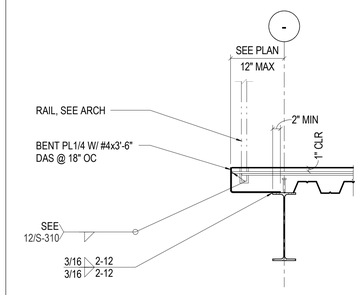


NOTES:
1. THE GEOMETRY SHOWN IS THE BASIS FOR CALCULATIONS OF LIMIT STATES INVOLVING COPED BEAMS, ALL EDGE DISTANCE DIMENSIONS SHOWN ARE MINIMUMS

10 NO SCALE TYP BEAM COPE GEOMETRY

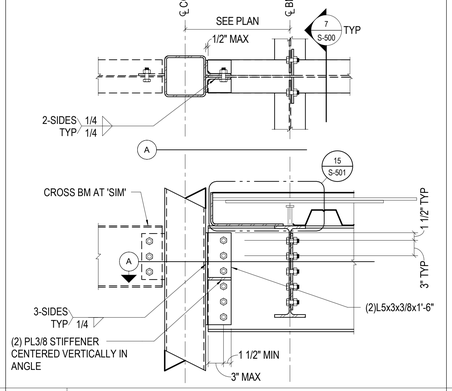


19 3/4" = 1'-0" HSS TO HSS MOMENT CONN AT WF BEAM - COND 2

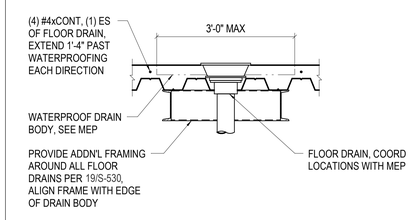


NOTES:
1. HDG ALL EXPOSED STEEL.

15 3/4" = 1'-0" INTERIOR SLAB EDGE

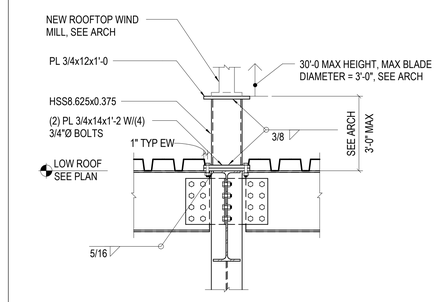


11 1" = 1'-0" HSS COL TO COMPOSITE FRAMING

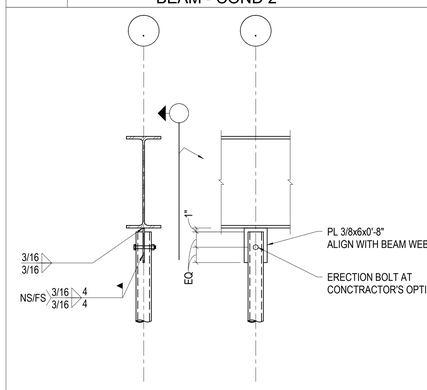


NOTES:
1. CENTER OF DRAIN BODY TO BE LOCATED 2'-6" MINIMUM FROM CENTERLINE OF ADJACENT BEAM OR GIRDER ALL DIRECTIONS.

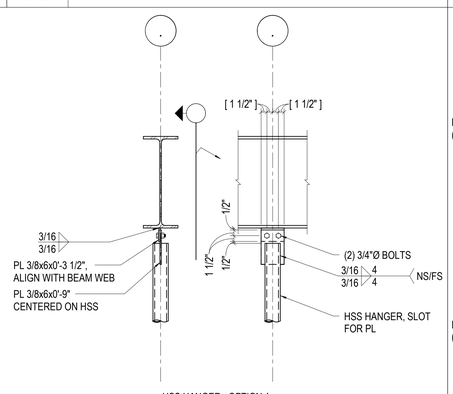
7 3/4" = 1'-0" TYPICAL FLOOR DRAIN



3 3/4" = 1'-0" ROOFTOP WINDMILL BASE CONNECTION

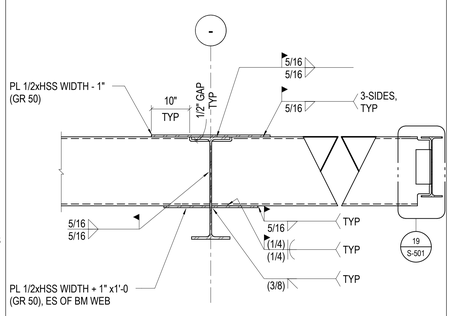


HSS HANGER - OPTION 2

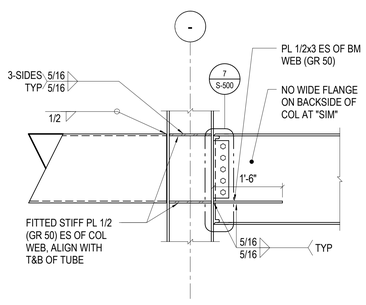


HSS HANGER - OPTION 1

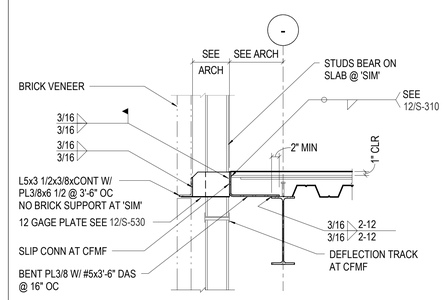
20 NO SCALE HANGER FROM WIDE FLANGE BEAM



12 3/4" = 1'-0" HSS TO HSS MOMENT CONNECTION AT WF BEAM



8 3/4" = 1'-0" HSS TO WF COLUMN MOMENT CONNECTION



NOTES:
1. HDG ALL EXPOSED STEEL.

4 3/4" = 1'-0" TYPICAL SLAB EDGE

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COLORADO LICENSED
BRIAN DAVID
42134
10/26/2022
PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO.	21.1038.S.01
DRAWN:	JD, LW, GR
CHECKED:	JMD
APPROVED:	BD
DATE:	10/26/2022
REVISIONS:	

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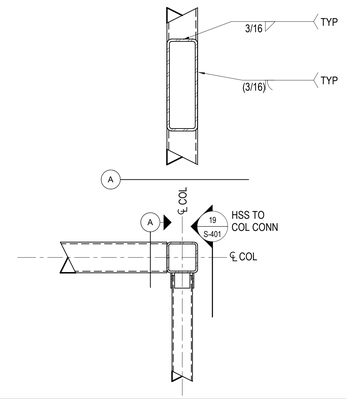
ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
TYPICAL STEEL DETAILS

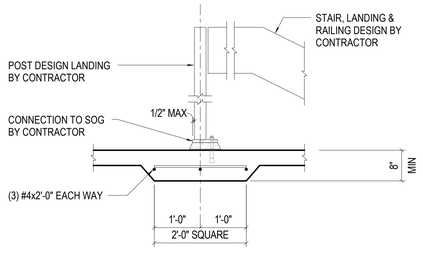
SCALE: As indicated
SHEET NUMBER

S-501

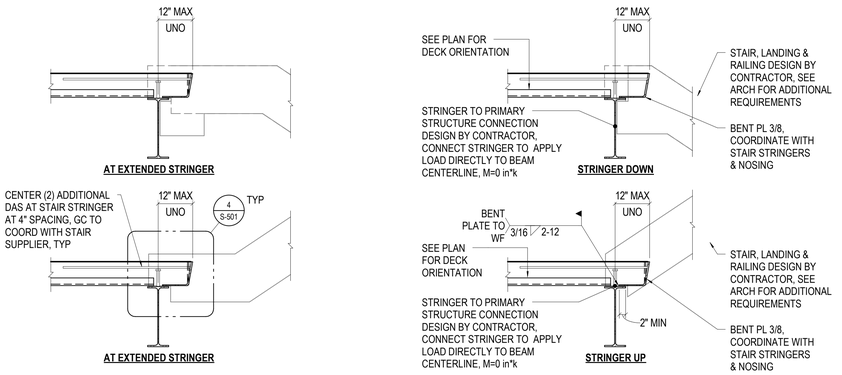
10/25/2022 9:01:26 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MK / DR # 1 / 1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RASMUSSEN, LINDSEY WHITTINGTON
LEAD DRFT: TECH: LINDSEY WHITTINGTON, JOHN HALTOM
DATE PRINTED:10/25/2022 9:01:26 PM
FILE PATH:BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



1 NO SCALE HSS GIRT CONN AT COLUMN



2 NO SCALE POST TO SOG AT PERFORMANCE SPECIFIED STAIR



7 NO SCALE PERFORMANCE SPECIFIED STAIR TO COMPOSITE FRAMING

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COLORADO LICENSED PROFESSIONAL ENGINEER
BENJAMIN WESTON DOWNEY
42134
10/26/2022

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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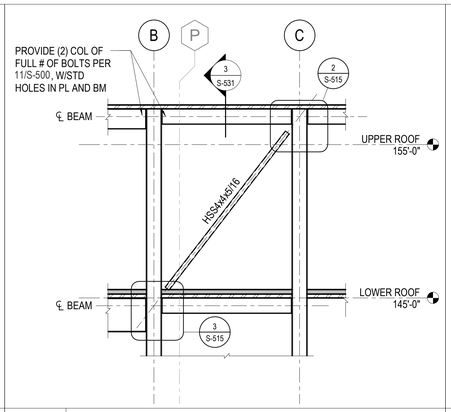
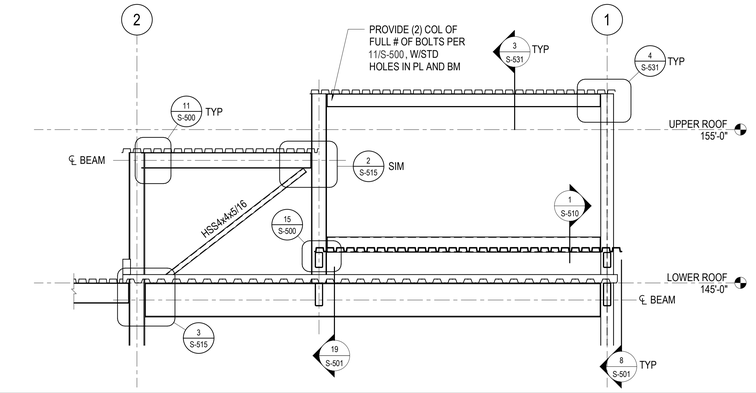
ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
PERFORMANCE STAIRS AND CURTAIN WALL DETAILS
SCALE: As indicated
SHEET NUMBER
S-510

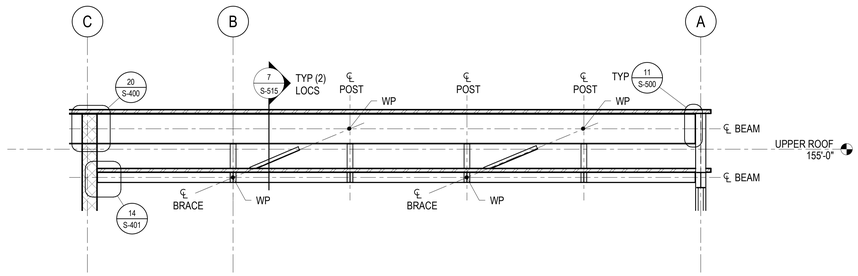
10/25/2022 9:01:27 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB # 21.1038.S.01 DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
PRINCIPAL: BEN DOWNEY LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
EOR: BEN DOWNEY DATE PRINTED: 10/25/2022 9:01:27 PM
PROJECT MANAGER: J. MATT DEZORT FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



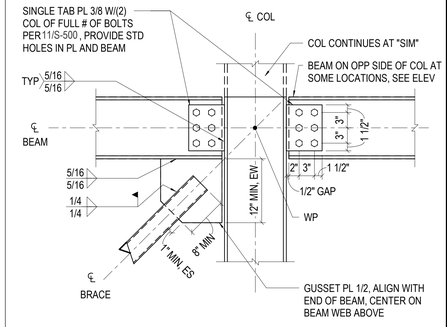
9 1/4" = 1'-0" BRACED FRAME 3 - GRID 1



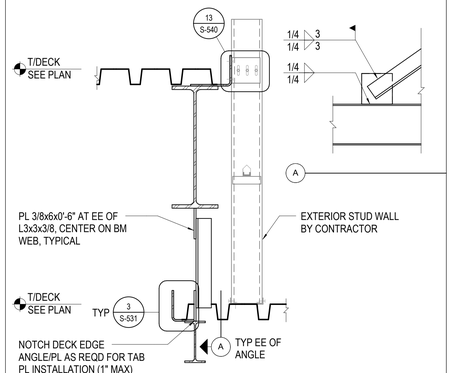
5 1/4" = 1'-0" BRACED FRAME 1 - GRID A



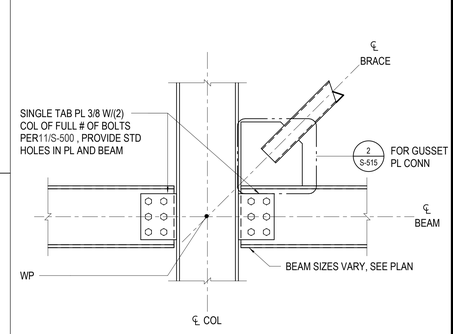
10 1/4" = 1'-0" PENTHOUSE ROOF STEP ELEVATION



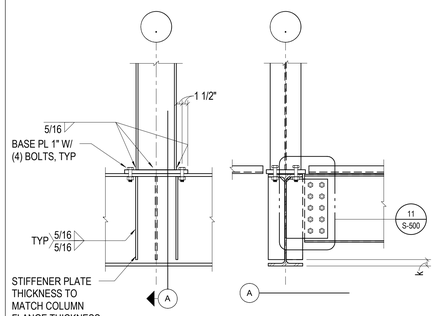
2 1" = 1'-0" T/BRACED FRAME CONN AT PENTHOUSE ROOF



7 1" = 1'-0" ROOF STEP SHEAR CONN



3 1" = 1'-0" B/BRACED FRAME CONN AT PENTHOUSE ROOF



4 3/4" = 1'-0" COLUMN TRANSFER

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1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: JD, LW, GR
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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ISSUED FOR:
100% CD/PACKAGE 3

SHEET TITLE:
BRACED FRAME ELEVATIONS AND DETAILS

SCALE: As indicated
SHEET NUMBER

S-515

10/25/2022 9:01:29 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MI_STR_21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J. MATT DEZORT
DESIGNERS: DSEE,RADMACHER, LINDSEY WHITTINGTON
LEAD DRFT: TECH LINDSEY WHITTINGTON, JOHN DILLON
DATE PRINTED: 10/25/2022 9:01:29 PM
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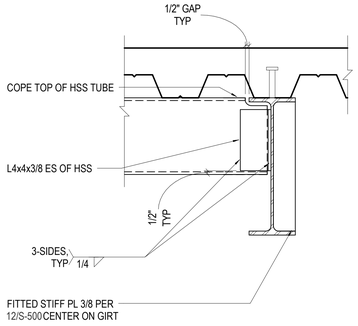
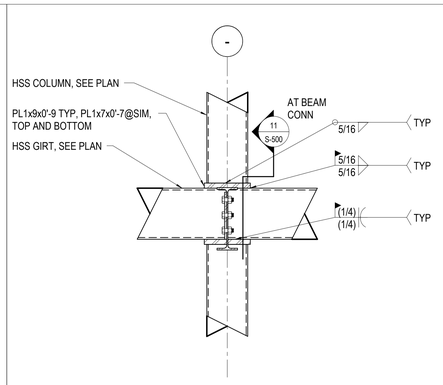
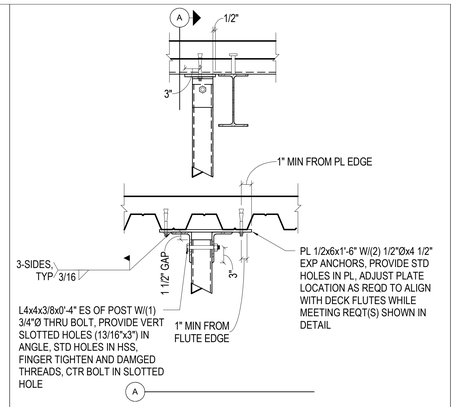


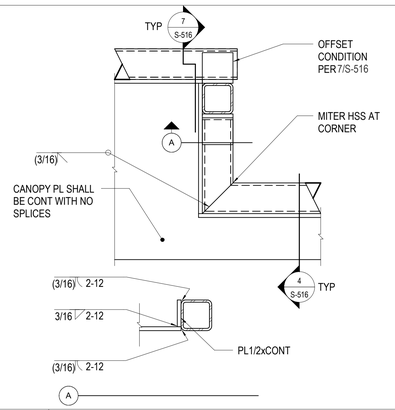
17 1 1/2" = 1'-0" HSS GIRT TO W-SHAPE CONN



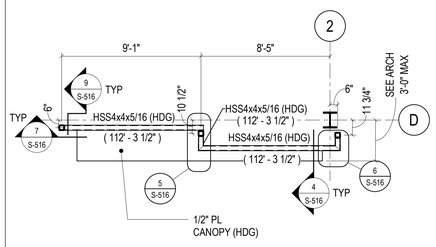
13 1" = 1'-0" INTERUPTED HSS COL AT GIRT



9 1" = 1'-0" TOP OF CANOPY POST CONN

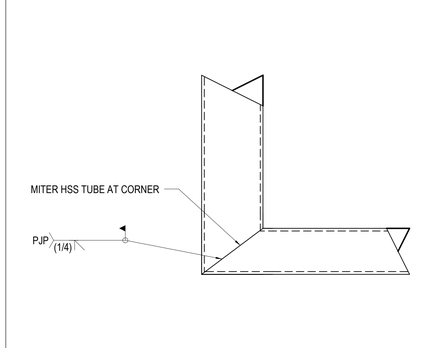


5 1 1/2" = 1'-0" CANOPY INSIDE CORNER - LAB

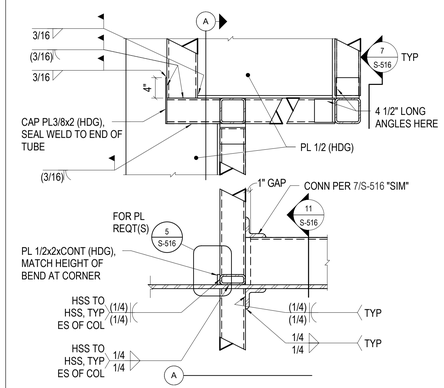


1 1/4" = 1'-0" PARTIAL PLAN - LAB ENTRY CANOPY

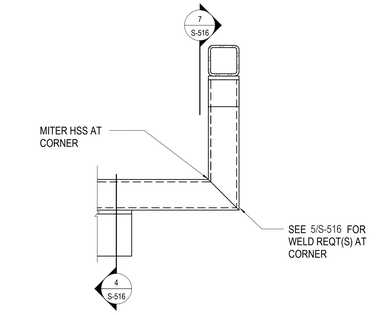
18 3/4" = 1'-0" VERTICAL POST TO GIRT CONNECTION



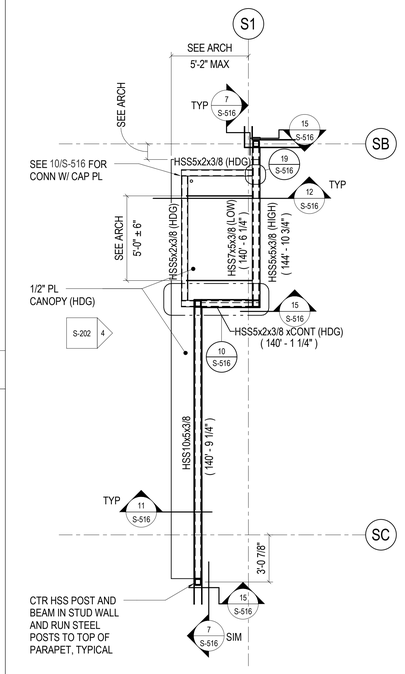
14 1" = 1'-0" HSS COLUMN BENT PLATE CONNECTION TO EMBEDS



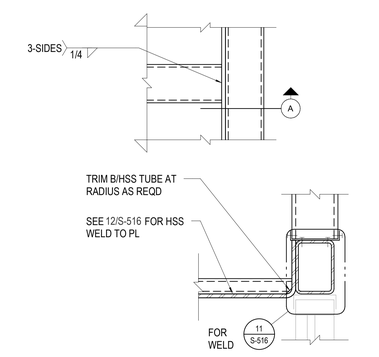
10 1" = 1'-0" CANOPY INSIDE CORNER - SHOP



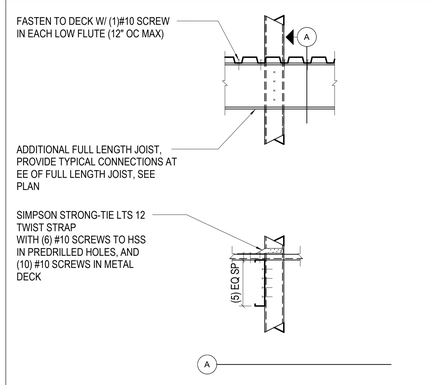
6 1 1/2" = 1'-0" CANOPY OUTSIDE CORNER - LAB



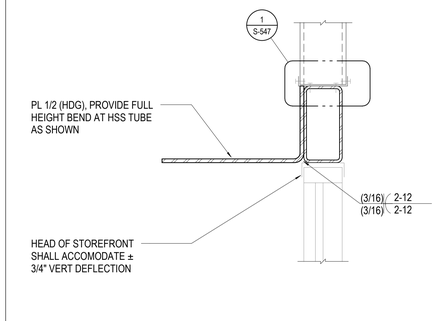
3 1/4" = 1'-0" PARTIAL PLAN - SHOP ENTRY CANOPY



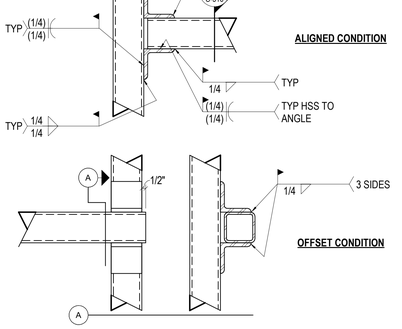
19 1 1/2" = 1'-0" HSS CONN AT BENT PL



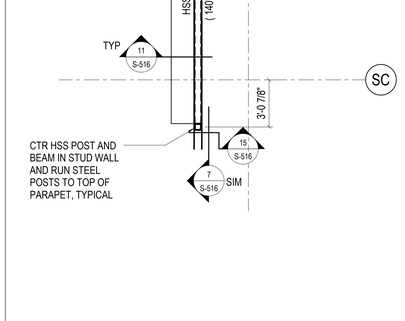
15 3/4" = 1'-0" ROOF DRAG CONNECTION AT SHOP CANOPY



11 1 1/2" = 1'-0" CANOPY SECTION - SHOP

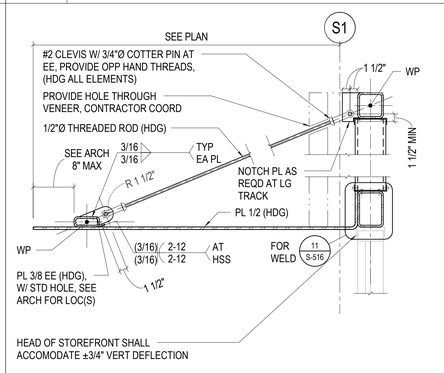


7 1 1/2" = 1'-0" CANOPY GIRT TO POST CONN

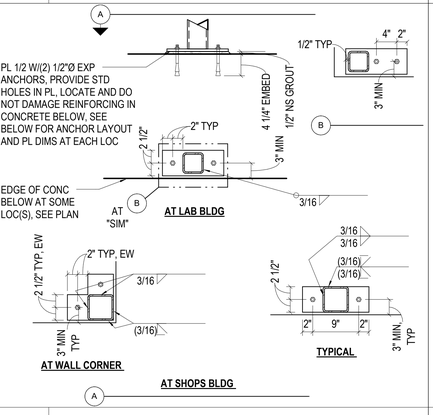


4 1 1/2" = 1'-0" CANOPY SECTION - LAB

16 1 1/2" = 1'-0" MITERED CORNER AT GIRT CONN



12 1" = 1'-0" CANOPY TENSION ROD



8 1" = 1'-0" CANOPY POST BASE CONN

4 1 1/2" = 1'-0" CANOPY SECTION - LAB

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STEEL DETAILS

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PRINCIPAL: BRIAN DOWNEY LEAD INTERIOR DESIGNER: WHITTINGTON, JOHN HALTOM
EOR:BEN DOWNEY DATE PRINTED:10/25/2022 9:01:33 PM
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19 — NO SCALE — SLAB ON METAL DECK PENETRATIONS AND SLAB OPENINGS

COMPOSITE SLAB PENETRATION REINFORCING

	SLAB TYPE	DECK SPAN (ft) LESS THAN 10'-0" "b" - MAX OPENING WIDTH	10'-0" TO 12'-0" "b" - MAX OPENING WIDTH	12'-0" TO 14'-0" "b" - MAX OPENING WIDTH
NORMAL WEIGHT	3VLI-3.5	3'-9"	3'-6"	2'-0"

C FRAME TO CONCRETE OR CMU WALL

B FRAME TO STEEL BEAM CONNECTION OPTIONS

A

AT OPENING WIDTHS 16" TO "b"

AT OPENING WIDTHS "b" TO 8'-0"

AT OPENINGS 4" TO 16"

NOTES:
1. IF DRAIN FLASHING EMBED IN SLAB IS REQUIRED, FLASHING SHALL NOT EXTEND OVER THE TOP OF COMPOSITE BEAMS
2. PROVIDE BACK UP BARS IF REQD FOR DECK WELDING

AT FLOOR DRAIN

AT OPENINGS 4" OR LESS

OPENING CONFIGURATIONS AT OPENINGS LARGER THAN 4"

NOTES:
1. PLACE SLEEVES ON DECK PRIOR TO CONCRETE PLACEMENT
2. DO NOT CUT DECK UNTIL CONCRETE HAS REACHED 75% f'c
3. WHERE POSSIBLE ALIGN PENETRATIONS PARALLEL & PERPENDICULAR TO DECK SUCH THAT ONE EDGE OF PENETRATION ALIGNS IN EACH DIRECTION
4. TREAT ADJACENT OPENINGS AS A SINGLE LARGE OPENING IF EITHER:
   A. OPENINGS ARE ALIGNED PARALLEL TO DECK SPAN WITH LESS THAN 10" CLEAR OR
   B. OPENINGS ARE ALIGNED PERPENDICULAR TO DECK SPAN WITH LESS THAN 20" CLEAR
5. NO PENETRATION REINFORCING IS REQUIRED AT:
   A. SLEEVES 4"Ø OR SMALLER
   B. SLEEVES 4"Ø OR SMALLER ALIGNED PARALLEL TO DECK SPAN
   C. SLEEVES 4"Ø OR SMALLER IF SPACED GREATER THAN 20" PERPENDICULAR TO DECK SPAN; IF SPACING BETWEEN OPENINGS PERPENDICULAR TO DECK SPAN DOES NOT EXCEED 20", REINFORCE AS A SINGLE OPENING

11 — NO SCALE — TYPICAL SLAB ON METAL DECK SCHEDULE, DECK LAYOUT AND STUD LAYOUT

SLAB ON METAL DECK CONNECTION SCHEDULE

TYPE	PERPENDICULAR SUPPORT MEMBERS CONNECTION	PERPENDICULAR SUPPORT MEMBERS PATTERN	PARALLEL SUPPORT MEMBERS CONN	PARALLEL SUPPORT MEMBERS PATTERN	SIDELAPS CONN	SIDELAPS PATTERN
A	3/4"Ø PUDDLE WELDS	36/4	3/4"Ø PUDDLE WELDS	12" OC	1 1/2" TOP ARCH SEAM WELD	1'-0" OC
B	#12 TEK SCREW	36/4	#12 TEK SCREW	12" OC	BUTTON PUNCH	3'-0" OC

NOTES:
1. SHEAR STUDS MAY REPLACE PUDDLE WELDS ONE-FOR-ONE

SLAB ON METAL DECK SCHEDULE

SLAB MARK	DECK TYPE	DECK GAGE	CONCRETE CONC ABOVE DECK (IN)	CONCRETE TOTAL THK (IN)	CONCRETE CONC TYPE (SEE NOTE 8)	CONCRETE SLAB REINF	MAXIMUM UNSHORED DECK SPAN 1 SPAN	2 SPAN	3 SPAN	CANTILEVER	CONN TYPE
3VLI3.5A	3VL	18	3 1/2	6 1/2	5 (NWC)	6x6-W2.1xW2.1 WWR	11'-1"	12'-3"	12'-8"	4'-0"	A
3VLI7A	3VL	16	7(MAX)	10(MAX)	6 (NWC)	SEE DETAIL	10'-0"	10'-0"	-	-	B

NOTES:
1. AT COMPOSITE SYSTEMS, NET-IN-PLACE LENGTH OF SHEAR STUDS SHALL MEET THE FOLLOWING:
   - 1 1/2" MIN ABOVE T/DECK
   - 1" MIN BELOW T/CONCRETE
2. SEE SPECIFICATIONS FOR FLOOR FINISH & FLATNESS REQUIREMENTS
3. INSTALL DECK OVER 4 SUPPORTS (3 SPAN CONTINUOUS) WHERE POSSIBLE
4. COMPOSITE DECK DESIGN IS SIZED BASED UPON THE FOLLOWING MAXIMUM CONDITIONS:
   a. DECK DEFLECTION = 1/2"
   b. AVERAGE SLAB THICKNESS INCREASED BY 1/2" FOR LEVELING
   c. CONSTRUCTION LIVE LOAD = 20 PSF, IF CONSTRUCTION LIVE LOAD EXCEEDS 20 PSF, CONTRACTOR SHALL DESIGN FOR INCREASED LOADING
   d. NORMAL WEIGHT CONCRETE: 150 PCF WET WEIGHT, 145 PCF DRY WEIGHT
5. DECK TYPE 'VL' MAY BE EITHER 'VLI' OR 'VLJ'
6. SUBMIT SHOP DRAWINGS INDICATING STUD LAYOUT (NO. OF STUDS/RIB) AND PLACEMENT ALONG BEAM
7. IF ACTUAL DECK SPANS EXCEED MAXIMUMS SHOWN IN TABLE ABOVE, CONTRACTOR TO SHORE DECK, PROVIDE HEAVIER GAUGE DECK, OR PROVIDE MUTIPLE LAYERS OF DECK.
8. SEE "CONCRETE MIX TABLE" IN GENERAL NOTES FOR CONCRETE MIX REQUIREMENTS
9. HANGERS WITH A 50 POUND MAXIMUM LOAD MAY BE PLACED AT 4'-0" MINIMUM SPACING EACH WAY, UNO

SLAB ON METAL DECK PROPERTIES

DECK TYPE	DECK DEPTH (IN)	DECK GAUGE	DECK Fy (KSI)	I POS (IN^4/FT)	S POS (IN^3/FT)	S NEG (IN^3/FT)	MINIMUM DECK BEARINGS (IN) EXTERIOR	MINIMUM DECK BEARINGS (IN) INTERIOR
3VL	3	18	50	1.253	0.761	0.794	2 1/2	5
3VL	3	16	50	1.580	1.013	1.013	2 1/2	5

NOTES:
1. COMPOSITE METAL DECK SPECIFIED IS MANUFACTURED BY VULCRAFT. ALTERNATE COMPOSITE METAL DECK MAY BE SUPPLIED PROVIDED MINIMUM DECK PROPERTIES ARE SATISFIED AND THE RATIO OF THE RIB WIDTH MEASURED AT MID HEIGHT OF DECK TO RIB HEIGHT IS NO LESS THAN 1.5.

B STUD LAYOUT AT DECK PERPENDICLUAR

C TYPICAL SLAB ON METAL DECK CONNECTIONS & LAYOUT

A STUD PLACEMENT AT DECK PERPENDICULAR

NOTES:
1. PROVIDE STUDS AT 12" MAX WHERE NUMBER OF STUDS IS NOT INDICATED

NOTE:
1. FOR EITHER OPTION, MAINTAIN 1" MIN CLEAR BETWEEN STUD AND DECK CLOSURES

B STUD PLACEMENT AT DECK TERMINATION

20 — NO SCALE — EQUIPMENT PAD ON SLAB ON METAL DECK

AT THIN EQUIPMENT PAD

NOTES:
1. COORDINATE PAD WITH ARCH/MECH/ELEC DRAWINGS AND EQUIPMENT SUPPLIER FOR SIZE, THICKNESS, AND LOCATIONS

16 — NO SCALE — CONCRETE CURB ON SLAB ON METAL DECK

NOTES:
1. COORDINATE CURB WITH ARCH/MECH/ELEC DRAWINGS AND EQUIPMENT SUPPLIER FOR SIZE, THICKNESS, AND LOCATIONS

12 — 1" = 1'-0" — SOUTH WALL SLAB EDGE

NOTES:
1. COLD FORMED METAL FRAMING NOT SHOWN FOR CLARITY

8 — NO SCALE — TYP SOMD GIRDER & DECK DIRECTION REINFORCING

4 — NO SCALE — TYPICAL SLAB ON METAL DECK CONSTRUCTION JOINT LOCATIONS

NOTES:
1. NO SAW CUT JOINTS IN ELEVATED SLAB ON METAL DECK UNO
2. SEE GENERAL NOTES FOR POUR LENGTH AND AREA LIMITS
3. SUBMIT DRAWINGS SHOWING CONSTRUCTION AND CONTROL JOINT LOCATIONS ALONG WITH THE SEQUENCE OF POURS. CONSTRUCTION JOINT LOCATIONS AND CASTING SEQUENCE SHALL BE ARRANGED TO MINIMIZE THE EFFECTS OF ELASTIC AND LONG-TERM SHORTENING/SHRINKAGE.

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S-530

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MM JOB #: 21.1038.S.01
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EOR: BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED: 10/25/2022 9:01:37 PM
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NOTES:
1. CONTRACTOR MAY DESIGN ALTERNATE METHODS OF DECK SUPPORT. DECK SUPPORTS SHALL BE ABLE TO SUPPORT THE DECK AS A FORM WITH THE WET WEIGHT OF THE CONCRETE AND ALL CONSTRUCTION LOADS

17 NO SCALE TYPICAL METAL DECK SUPPORT AT COLUMNS

NOTES:
1. WHERE POSSIBLE ALIGN PENETRATIONS PARALLEL & PERPENDICULAR TO DECK SUCH THAT ONE EDGE OF PENETRATION ALIGNS IN EACH DIRECTION
2. AT OPENINGS LARGER THAN 5"Ø, TREAT ADJACENT OPENINGS AS A SINGLE LARGE OPENING IF EITHER:
   A. OPENINGS ARE ALIGNED PARALLEL TO DECK SPAN WITH LESS THAN 24" CLEAR OR
   B. OPENINGS ARE ALIGNED PERPENDICULAR TO DECK SPAN WITH LESS THAN 24" CLEAR

NOTES:
3. NO PENETRATION REINFORCING IS REQUIRED AT:
   A. INDIVIDUAL ISOLATED PENETRATIONS 5"Ø OR SMALLER
   B. PENETRATIONS 5"Ø OR SMALLER ALIGNED PARALLEL TO DECK SPAN
   C. PENETRATIONS 5"Ø OR SMALLER IF SPACED GREATER THAN 24" PERPENDICULAR TO DECK SPAN; IF SPACING BETWEEN OPENINGS PERPENDICULAR TO DECK SPAN DOES NOT EXCEED 24", REINFORCE AS A SINGLE OPENING

20 NO SCALE TYPICAL SUPPORT AT ROOF DECK PENETRATIONS

10 3/4" = 1'-0" CONCRETE ROOF TOP EQUIPMENT PAD ABOVE INSULATION

NOTES:
1. DETAIL APPLIES AT MECHANICAL UNITS WEIGHING BETWEEN 40-80 PSF (SERVICE LOAD)

NOTES:
1. DETAIL APPLIES AT MECHANICAL UNITS WEIGHING 300 POUNDS OR LESS WITH DISTRIBUTED LOADS OF 40 PSF OR LESS (SERVICE LOADS)

12 NO SCALE ROOF TOP EQUIPMENT SUPPORT - LIGHTLY AND MODERATELY LOADED UNITS

TYPICAL ROOF DECK CONNECTIONS & LAYOUT

DECK DEPTH & TYPE — MINIMUM DECK GAGE — DECK MARK (MAY BE OMITTED)

NOTES:
1. DECK TYPE INDICATED ON PLAN THUS: 1.5B-18(A)
2. SEE SCHEDULES BELOW FOR ADDITIONAL INFORMATION, MINIMUM PROPERTIES AND CONNECTION REQUIREMENTS.
3. INSTALL DECK OVER 4 SUPPORTS (3) SPAN CONTINUOUS WHERE POSSIBLE
4. HANGERS WITH A 50 POUND MAXIMUM LOAD MAY BE PLACED AT 4'-0" MINIMUM SPACING EACH WAY

ROOF DECK SCHEDULE

MARK	DECK TYPE		DECK CONN TYPE	DIAPHRAGM SHEAR	MAXIMUM DECK SPAN		
	TYPE	GAUGE	PLF	PLF	1 SPAN	2 SPAN	3 SPAN
3N-18	3N	18	A	335	15'-11"	18'-1"	18'-1"
1.0C-32	1.0C-32	20	-	-	-	-	-

NOTES:
1. INSTALL DECK OVER 4 SUPPORTS (3) SPAN CONTINUOUS WHERE POSSIBLE
2. IF ACTUAL DECK SPANS EXCEED MAXIMUM SPAN LENGTHS INDICATED ABOVE, REQUEST ADDITIONAL INFORMATION FROM ENGINEER

ROOF DECK PROPERTIES

DECK TYPE	DECK DEPTH (IN)	DECK GAGE	DECK Fy (KSI)	I POS (IN^4/FT)	S POS (IN^3/FT)	S NEG (IN^3/FT)	MINIMUM DECK BEARINGS (IN)	
							EXTERIOR	INTERIOR
3N	3	18	50	1.123	0.660	0.675	1 1/2	3
1.0C-32	1	20	60	0.09	0.168	0.166	1 1/2	3

DECK CONNECTION SCHEDULE

TYPE	PERPENDICULAR SUPPORT MEMBERS		PARALLEL SUPPORT MEMBERS		SIDELAPS	
	CONNECTION	PATTERN	CONNECTION	PATTERN	CONNECTION	PATTERN
A	5/8"Ø PUDDLE WELDS	24/4	5/8"Ø PUDDLE WELDS	12" OC	#10 SCREW	6/SPAN

2 3/4" = 1'-0" ROOF DECK SCHEDULE, LAYOUT & CONNECTIONS

ROOF EDGE SCHEDULE

TYPE	BENT PLATE OR ANGLE INFORMATION				
	SECTION	THICKNESS	WIDTH	HEIGHT	NOTES
TYPE A	BENT PLATE	3/8"	-	5"	-WIDTH AS REQUIRED
TYPE B	ANGLE	3/8"	5"	5"	

3 3/4" = 1'-0" TYPICAL ROOF EDGE DETAIL - (BOTTOM FLANGE UNBRACED)

4 1" = 1'-0" ROOF DIAPHRAGM TRANSITION

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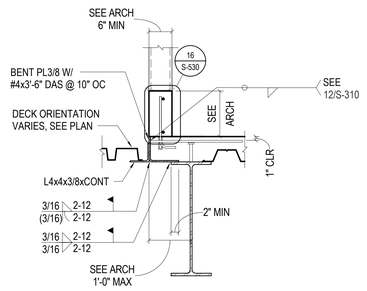
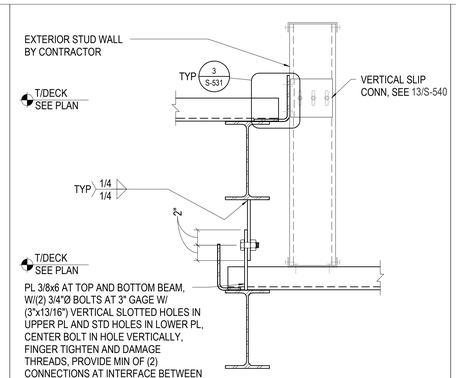
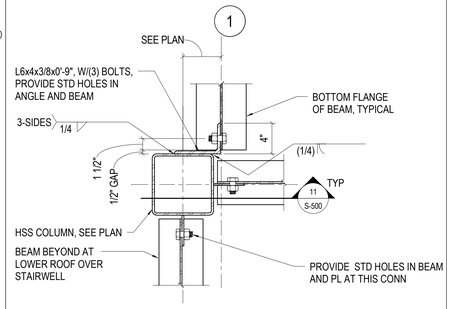


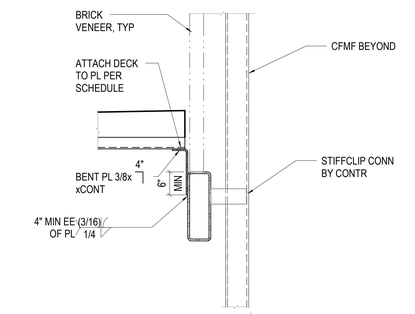
17 3/4" = 1'-0" ROOF CURB AT DIAPHRAGM TRANSITION



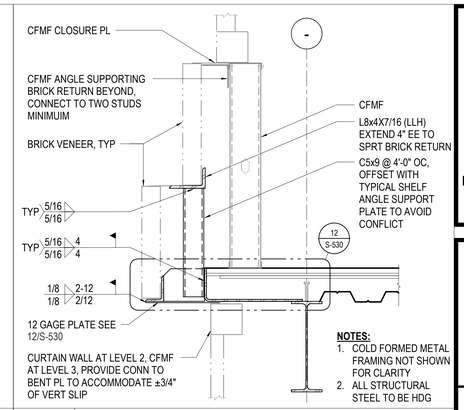
13 1 1/2" = 1'-0" DIAPHRAGM SHEAR CONN AT ROOF STEP



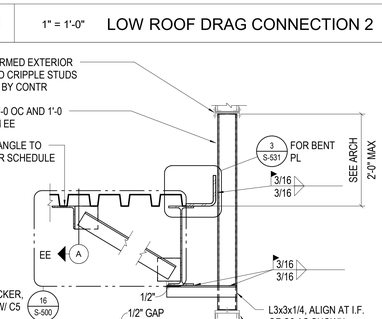
9 1 1/2" = 1'-0" ANGLE CONNECTION AT BEAM TO HSS COLUMN AT ROOF STEP



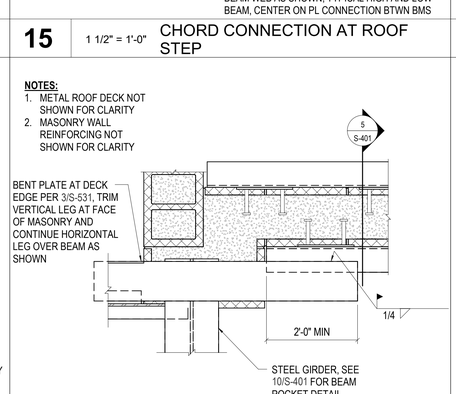
5 3/4" = 1'-0" AREA WELL LID AT MECH SHAFT



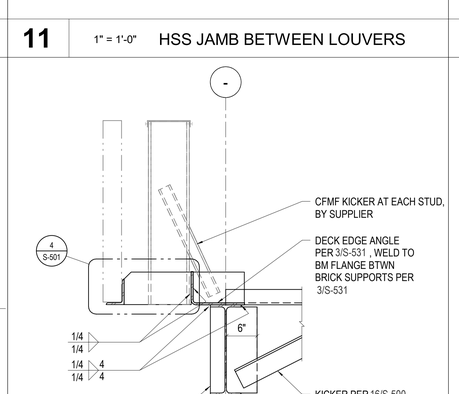
1 1" = 1'-0" SOUTH WALL BRICK SHELF ANGLE



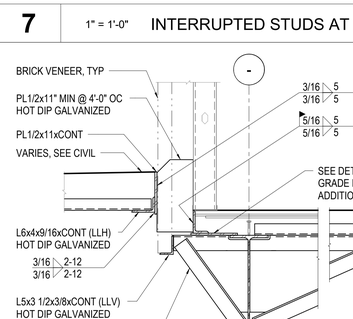
18 1" = 1'-0" SPLICE AT LOW ROOF DIAPHRAGM CHORD



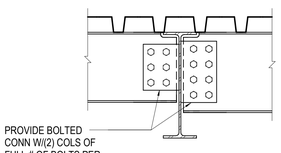
14 1" = 1'-0" SHELF ANGLE CONNECTION AT ROOF



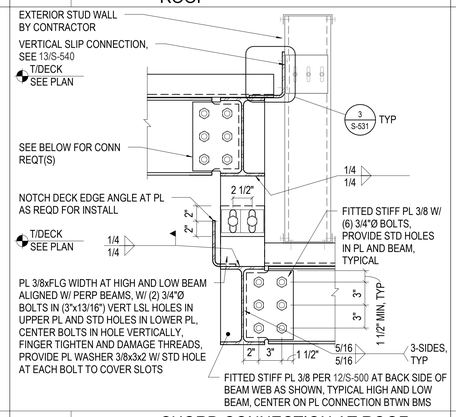
10 1 1/2" = 1'-0" HSS TO HSS CONNECTION



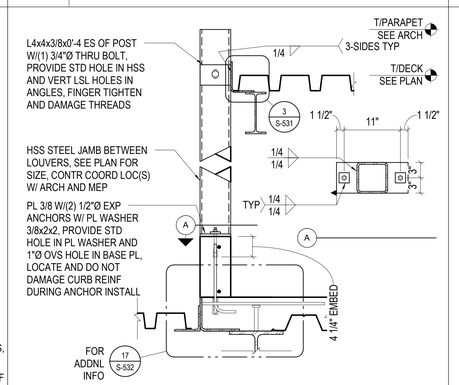
6 1" = 1'-0" SHELF ANGLE AT HSS BEAMS



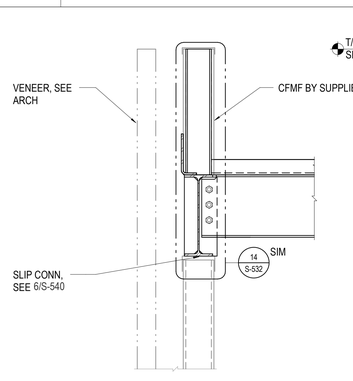
19 1" = 1'-0" LOW ROOF DRAG CONNECTION 2



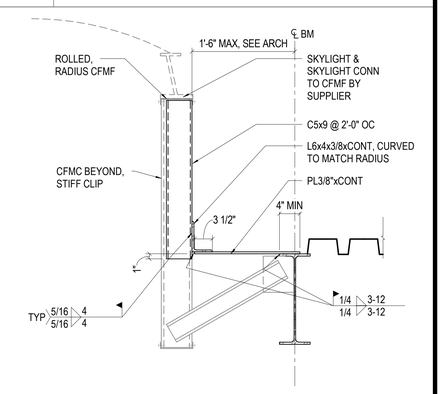
15 1 1/2" = 1'-0" CHORD CONNECTION AT ROOF STEP



11 1" = 1'-0" HSS JAMB BETWEEN LOUVERS



7 1" = 1'-0" INTERRUPTED STUDS AT PARAPET



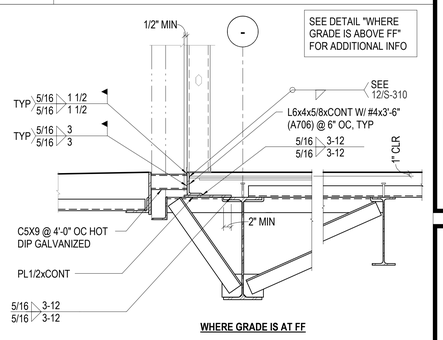
3 1" = 1'-0" SKYLIGHT FRAMING

20 3/4" = 1'-0" CURTAIN WALL SUPPORT ABOVE LOW ROOF

16 1" = 1'-0" ROOF EDGE ANGLE DRAG AT LOW ROOF

12 1" = 1'-0" SHELF ANGLE CONNECTION AT ROOF BENT PLATE

8 3/4" = 1'-0" AREA WELL LID SUPPORT AT NORTH WALL



NOTES:
1. TRANSITION TO PLATE AS EXTERIOR GRADE RAISES ABOVE BOTTOM OF CHANNEL

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JOHN S. DOWNEY
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PROFESSIONAL ENGINEER

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PROJ. NO. 21.1038.S.01
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CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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100% CD/PACKAGE 3

SHEET TITLE:
STEEL DETAILS

SCALE: As indicated
SHEET NUMBER

S-532

10/25/2022 9:01:42 PM BIM: 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MK, VER: 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J. MATT DEZORT
DESIGNERS: DSEE, RADMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, ANTHONY DALTON
DATE PRINTED: 10/25/2022 9:01:42 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

NOTES:
1. REINFORCING REQUIRED WHEN PUNCHOUT LOCATION SPECIFIED IN OTHER DETAILS CANNOT BE ACHIEVED
2. PUNCHOUT REINFORCING INDICATED IS A MINIMUM, FINAL REINFORCING SHALL BE DESIGNED BY CONTRACTOR

17 NO SCALE CONTRACTOR ENGINEERED WALL - PUNCHOUT REINFORCING

NOTES:
1. SEE DETAIL 17/S-540 IF MINIMUM DIMENSION CANNOT BE ACHIEVED

13 NO SCALE CONTRACTOR ENGINEERED WALL - SLIP CONN MIN REQUIREMENTS

NOTES:
1. DESIGN CONNECTION TO DELIVER VERTICAL SHEAR AND HORIZONTAL AXIAL FORCE AT WORKPOINT, DO NOT IMPOSE MOMENT ON PRIMARY STRUCTURE
2. SEE DETAIL 17/S-540 IF MINIMUM DIMENSION CAN NOT BE ACHIEVED

9 NO SCALE CONTRACTOR ENGINEERED WALL - FIXED CONNECTION MINIMUM REQUIREMENTS

NOTES:
1. PROVIDE GAP IN SUPPORT ANGLE AT EACH BRICK CONTROL JOINT, 30'-0" OC MAXIMUM

A AT SUPPORT ANGLE SPLICE

18 3/4" = 1'-0" CONTR ENGINEERED WALL - MAS SUPPORT TO METAL STUD

NOTES:
1. LOCATE BRIDGING 12" MAXIMUM ABOVE OR BELOW CONNECTION TO PRIMARY STRUCTURE
2. SEE DETAIL 17/S-540 IF MINIMUM DIMENSION CANNOT BE ACHIEVED

14 NO SCALE CONTRACTOR ENGINEERED WALL - FRAMING TO STEEL GIRT

NOTES:
1. LOCATE BRIDGING 12" MAXIMUM ABOVE OR BELOW CONNECTION TO PRIMARY STRUCTURE

6 NO SCALE CONTR ENGINEERED WALL - FRAMING TO B/PRIMARY STRUCT

19 NO SCALE TYP CF REINFORCEMENT FOR HOLE THROUGH WALL

11 1 1/2" = 1'-0" ROOF EDGE AT FRONT CW

7 NO SCALE CONTR ENG WALL - STOREFRONT / LOUVER TO FRAMING

NOTE:
BRACING AT 4'-0" OC MAX VERTICALLY

20 NO SCALE TYP CF LB WALL BRIDGING

NOTES:
1. DO NOT USE PAF's TO RESIST TENSION LOADS IN CONCRETE
2. DO NOT USE PAF's IN MASONRY

MINIMUM POWDER ACTUATED FASTENER (PAF) REQUIREMENTS

TEK SCREW SIZE	b
#6, #8	1/2"
#10	5/8"
#12	3/4"

MINIMUM TEK SCREW REQUIREMENTS

12 NO SCALE CONTR ENG WALL - FASTENER MINIMUM REQUIREMENTS

8 NO SCALE CONTRACTOR ENGINEERED WALL - BASE CONN MIN REQUIREMENTS

DESIGN CRITERIA FOR PERFORMANCE SPECIFIED COLD FORMED STEEL FRAMING (CFSF)

REQUIRED AT LABORATORY BUILDING STUDS

1) GENERAL COLD FORMED STEEL FRAMING REQUIREMENTS

1A) COLD FORMED STEEL FRAMING (CFSF) USED FOR EXTERIOR CLADDING SUPPORT IS A PERFORMANCE SPECIFIED SYSTEM DESIGNED (ENGINEERED) AND PROVIDED BY THE CONTRACTOR

1B) THE CONTRACTOR SHALL DESIGN ALL MEMBERS AND CONNECTIONS FORMING A COMPLETE SYSTEM FOR THE CLADDING SELF WEIGHT, WIND AND SEISMIC FORCES INDICATED IN THE DESIGN CRITERIA SECTION AND AS INDICATED IN THE STRUCTURAL DOCUMENTS

1C) INFORMATION PERTAINING TO THE FRAMING IS SHOWN THROUGHOUT THE ARCHITECTURAL AND STRUCTURAL DOCUMENTS AND IN THE SPECIFICATIONS. CONTRACTOR SHALL REFERENCE AND COORDINATE FRAMING WITH ALL TRADES AND DESIGN DOCUMENTS

1D) REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS INCLUDING PROFESSIONAL ENGINEERING AND SUBMITTAL REQUIREMENTS

1E) VARIATIONS PROPOSED BY THE CONTRACTOR TO ACCOMMODATE PREFABRICATION AND ALTERNATE SCHEMES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO PREPARING DRAWINGS AND ENGINEERING OF THE COLD FORMED STEEL FRAMING.

2) BIDDING REQUIREMENTS

2A) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A BID THAT INCLUDES ALL ITEMS ASSOCIATED WITH THE DESIGN AND CONSTRUCTION OF THE EXTERIOR WALL AND SOFFIT FRAMING, INCLUDING BUT NOT LIMITED TO:
- DESIGN OF THE FRAMING MEMBERS (STUDS, SILLS, HEADERS, JAMBS, SOFFITS, HANGERS & KICKERS, ETC.)
- CONNECTION DESIGN: BOTH FRAMING-TO-FRAMING CONNECTIONS AND CONNECTIONS BETWEEN FRAMING AND THE PRIMARY STRUCTURAL FRAME
- COORDINATION AND INSTALLATION OF ALL FRAMING

2B) BIDS SHALL BE BASED ON CONTRACTOR'S ENGINEERED SIZES TO RESIST THE DESIGN FORCES AND MEET THE MINIMUM REQUIREMENTS INDICATED IN THE CONTRACT DOCUMENTS
- DO NOT BASE BIDS SOLELY ON THE MINIMUM REQUIREMENTS

2C) FRAMING MEMBERS DEPTHS SHALL BE AS NOTED ON ARCHITECTURAL DOCUMENTS, UNLESS NOTED OTHERWISE

2D) VARY MEMBER THICKNESS, FLANGE WIDTH, YIELD STRESS, AND SPACING AS REQUIRED TO SATISFY:
- INDICATED PERFORMANCE CRITERIA
- MINIMUM STRUCTURAL REQUIREMENTS INDICATED IN THE SPECIFICATIONS AND STRUCTURAL DETAILS

3) ENGINEERING REQUIREMENTS

3A) GENERAL:
- FRAMING MEMBERS SHALL BE AS NOTED ON THE ARCHITECTURAL DOCUMENTS, UNLESS NOTED OTHERWISE
- FRAMING MEMBERS SHALL DELIVER MAXIMUM FORCES TO THE PRIMARY STRUCTURAL FRAME AT THE LOCATIONS, DIRECTIONS, AND MAGNITUDES NOTED IN STRUCTURAL DETAILS
- DO NOT CONNECT FRAMING TO THE PRIMARY STRUCTURAL FRAMING AT LOCATIONS OR IN WAYS NOT SPECIFICALLY INDICATED IN THE DETAILS
- ALL CONNECTIONS TO PRIMARY STRUCTURE SHALL BE DESIGNED AS PINNED CONNECTIONS. DO NOT DELIVER MOMENT TO PRIMARY STRUCTURE UNLESS SPECIFICALLY INDICATED.
- DO NOT CONNECT FRAMING TO THE BOTTOM FLANGE OF BEAMS UNLESS SPECIFICALLY INDICATED IN STRUCTURAL DETAILS

3B) GC / COLD FORMED STEEL FRAMING DESIGNER / CLADDING DESIGNER COORDINATION:
- COLD FORMED STEEL FRAMING MEMBERS AND FRAMING ATTACHMENT SHALL BE DESIGNED FOR THE TRIBUTARY LOADING AT THE FRAMING SPACING INDICATED ON THE CONTRACT DOCUMENTS
- CLADDING SUPPLIER SHALL DESIGN CLADDING TO DISTRIBUTE LOAD UNIFORMLY TO AND ATTACH TO EACH FRAMING MEMBER.
- CLADDING ATTACHMENT SPACING WHICH DOES NOT EQUALLY DISTRIBUTE LOAD TO EACH STEEL FRAMING MEMBER IS NOT ACCEPTABLE WITHOUT APPROVAL FROM THE STEEL FRAMING SUPPLIER / DESIGNER AND THE PROJECT ENGINEER OF RECORD (EOR)
- IF THE CLADDING SUPPLIER DOES NOT AND / OR CANNOT UNIFORMLY LOAD / ATTACH TO EACH STEEL FRAMING MEMBER, THE LOADS FROM THE CLADDING SUPPLIER MUST BE PROVIDED TO THE FRAMING SUPPLIER. THE STEEL FRAMING SUPPLIER WILL NEED TO INCORPORATE THESE INCREASED LOADS INTO THE FRAMING DESIGN.
- GC SHALL COORDINATE BETWEEN COLD FORMED STEEL FRAMING SUPPLIER AND CLADDING SUPPLIER AS REQUIRED.

3C) LOADS:
- WIND LOADS GIVEN IN THESE DOCUMENTS ARE BASED ON A COMPONENT AND CLADDING TRIBUTARY AREA OF 10 SQUARE FEET. REDUCTION IN LOADS BASED ON TRIBUTARY AREA ARE ALLOWED AS PERMITTED IN THE GOVERNING BUILDING CODE.
- CALCULATE AND APPLY TO COLD FORMED STEEL FRAMING HEADERS, SILLS & JAMBS CUMULATIVE LINE AND CONCENTRATED TRIBUTARY LOADS FROM CLADDING DEAD LOAD AND WIND PRESSURES ON WINDOWS, LOUVERS, DOORS, CURTAIN WALL, AND OTHER OPENINGS
- COORDINATE MULLION AND JAMB LOCATIONS WITH THE GENERAL CONTRACTOR
- CONTRACTOR SHALL ACCOUNT FOR LOCALIZED LOADS AND MOMENTS DUE TO ECCENTRICALLY APPLIED LOADS SUCH AS SLIP CONNECTIONS AND WINDOW HEAD TRACKS

3D) PRIMARY FRAME DEFLECTIONS: PROVIDE VERTICAL SLIP CONNECTIONS AND DEFLECTION TRACKS AS NEEDED TO ACCOMMODATE VERTICAL DEFLECTIONS OF THE PRIMARY STRUCTURAL FRAMING. UNLESS NOTED OTHERWISE, PROVIDE THE FOLLOWING ALLOWANCES FOR VERTICAL DEFLECTION OF THE PRIMARY STRUCTURAL FRAMING:
- AT EXTERIOR / SPANDREL INFILL FRAMING: 3/4”
- AT EXTERIOR / SPANDREL BYPASS FRAMING: 3/4”
- AT INTERIOR FRAMING: GREATER OF L/240 OR 3/4"

3E) VERTICAL DEFLECTION CRITERIA: DESIGN COLD FORMED METAL FRAMING HEADERS TO MEET THE FOLLOWING VERTICAL DEFLECTION CRITERIA:
- FOR STUDS SUPPORTING MASONRY VENEER = SPAN / 600
- FOR STUDS SUPPORTING METAL PANELS = SPAN / 240
- FOR STUDS SUPPORTING OTHER = SPAN / 240

3F) HORIZONTAL DEFLECTION CRITERIA: DESIGN COLD FORMED METAL FRAMING MEMBERS TO MEET THE FOLLOWING HORIZONTAL DEFLECTION CRITERIA:
- FOR STUDS BACKING-UP MASONRY VENEER = SPAN / 600
- FOR STUDS BACKING-UP METAL PANELS = SPAN / 240
- FOR STUDS BACKING-UP OTHER = SPAN / 240
- PER IBC TABLE 1604.3 FOOTNOTE F, WIND LOAD IS PERMITTED TO BE TAKEN AS 0.42 TIMES THE COMPONENT AND CLADDING ULTIMATE LOADS FOR THE PURPOSE OF DETERMINING DEFLECTION LIMITS.

4) CONSTRUCTION REQUIREMENTS

4A) CONSTRUCTION SHALL CONFORM TO THE MINIMUM REQUIREMENTS SHOWN ON THE CONTRACT DOCUMENTS, INCLUDING DETAILS THROUGHOUT THE STRUCTURAL DOCUMENTS AND MINIMUM REQUIREMENTS INDICATED IN DETAILS ON THIS SHEET
- SEE DETAILS THIS SHEET INDICATING ADDITIONAL MINIMUM CFSF CRITERIA

4B) REQUIRED SITE VISITS
- THE CONTRACTOR'S COLD FORMED STEEL FRAMING ENGINEER SHALL MAKE SITE VISITS AS APPROPRIATE (1 MINIMUM) TO OBSERVE THE INSTALLATION OF THE COLD FORMED METAL FRAMING

4C) MINIMUM STUD GAGES: MINIMUM STUD THICKNESS BASED ON THE ATTACHMENT OF CLADDING MATERIAL IS GIVEN IN THE FOLLOWING TABLE:

MATERIAL ATTACHED TO STUDS	MIN. MIL THICKNESS	MAX. STUD SPACING
WELDED MASONRY VENEER LEDGE	68	16" OC
MASONRY VENEER BACKUP	43	16" OC
ALL OTHERS	33	24" OC

4D) ADDITIONAL CRITERIA FOR CFSF:
- PROVIDE HORIZONTAL STUD BRIDGING AS REQUIRED TO BRACE FRAMING, MINIMUM OF (1) ROW AT MID-HEIGHT
- [PROVIDE (1) STUD EACH SIDE OF MASONRY CONTROL JOINTS]
- COLD FORMED STEEL TRACK THICKNESS SHALL BE EQUAL TO OR GREATER THAN THE CONNECTED WALL STUD THICKNESS
- ALL CONNECTIONS SHALL USE PREFABRICATED FRAMING CONNECTORS (CLIPS). DO NOT SITE / FIELD FABRICATE CONNECTORS FROM TRACKS OR STUDS UNLESS SPECIFICALLY SHOWN ON THE CONTRACT DOCUMENTS
- DO NOT USE PAF's TO RESIST TENSION LOADS IN CONCRETE
- DO NOT USE PAF's IN MASONRY
- DO NOT NOTCH, DRILL OR OTHERWISE MODIFY FRAMING WITHOUT PRIOR WRITTEN APPROVAL OF THE DESIGN ENGINEER AND EOR

4 NO SCALE CONTR ENGR WALL - NOTES / REQUIRED DESIGN CRITERIA

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COLORADO LICENSED PROFESSIONAL ENGINEER 42134 10/26/2022

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SHEET TITLE:
PERFORMANCE SPECIFIED FRAMING

SCALE: As indicated
SHEET NUMBER
S-540

10/25/2022 9:01:44 PM
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MM JOB #:21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J MATT DEZORT
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
LEAD REVIT TECH:LINDSEY WHITTINGTON, JON DALTON
DATE PRINTED:10/25/2022 9:01:44 PM
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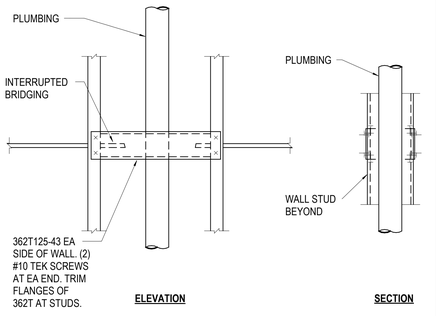
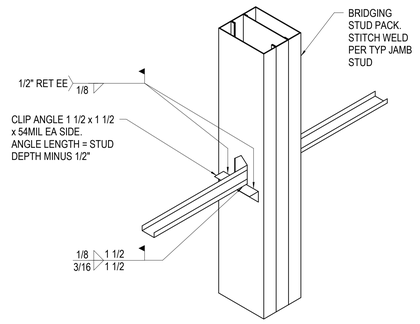


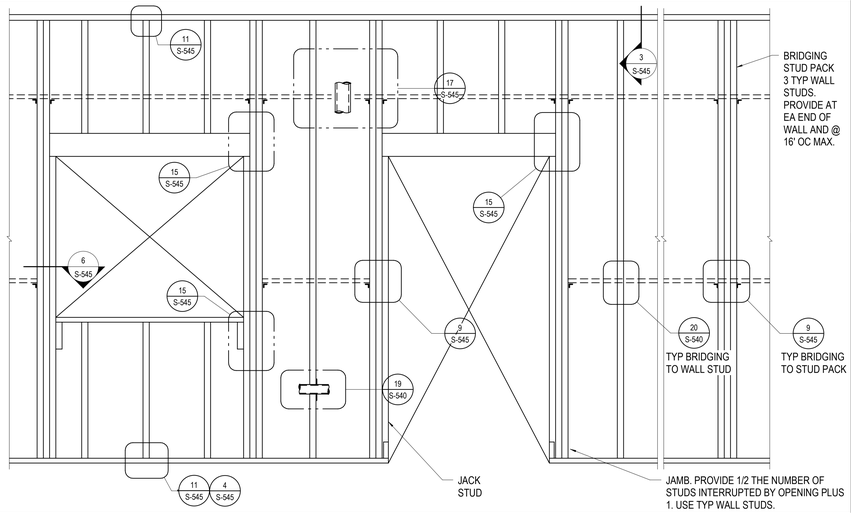
17 NO SCALE TYP CF LB REINF FOR INTER-RUPTED BRIDGING AT BRG WALL

HEADER AND SILL SCHEDULE		
OPNG WIDTH	EXTERIOR AREAS	
	EXTERIOR TYPICAL AREAS	
	HEADER	SILL
10'-0" <=	(2) 1200S250-97 (2) 600T250-97	600T125-54
10'-0" TO 16'-0"	(2) 1200S250-97* (2) 1200T200-97 (2) 600T250-97	600T250-97
OPNG WIDTH	INTERIOR AREAS	
	HEADER	SILL
6'-0" MAX	(2) 1200S162-97 (2) 600T125-54	600T125-54

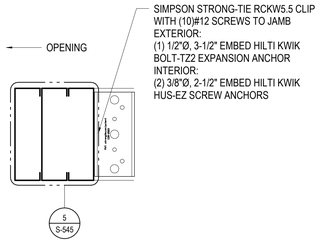
* SEE DETAIL 11/S-547 FOR HEADER CONNECTION



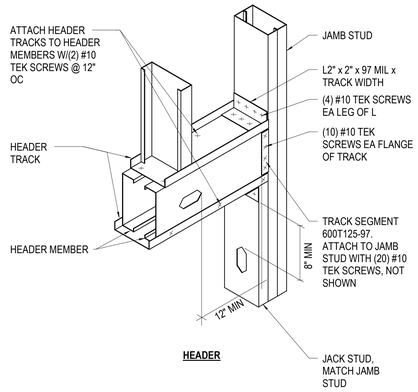
9 NO SCALE TYP CF LB BRIDGING ANCHORAGE AT BEARING WALL



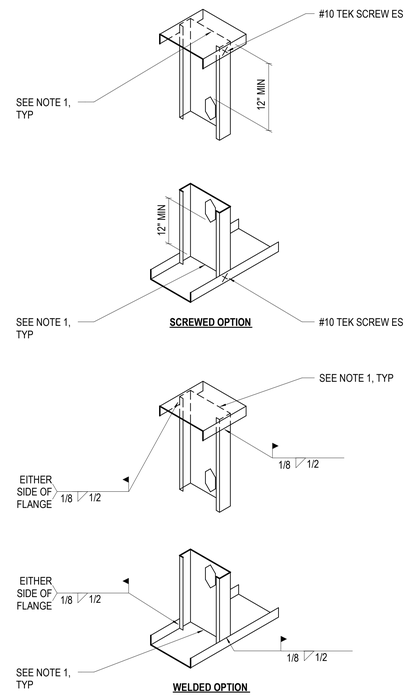
5 NO SCALE TYP CF BEARING WALL



18 NO SCALE TYP EXTERIOR JAMB CONNECTION



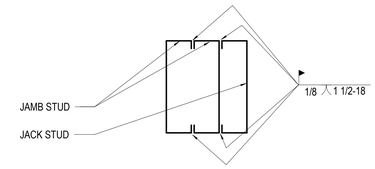
HEADER



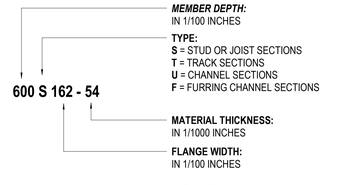
WELDED OPTION

NOTES:
1. 1/8" MAX GAP BTWN B/STUD AND TRACK. PRECOMPRESS WALL OR SHIM TO ACHIEVE GAP REQUIREMENT. SHIM SIZE EQUALS 3" (MIN) x STUD DEPTH x THICKNESS REQUIRED. SECURE SHIM W/(1) PAF OR TEK SCREW.

11 NO SCALE TYP CF LB STUD TO TRACK

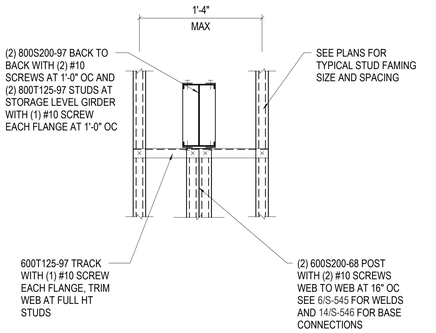


6 NO SCALE TYP CF LB STUD JAMB/JOIST

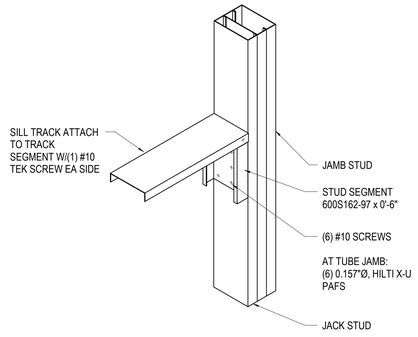


TYPICAL ANNOTATION

2 NO SCALE TYP CF LB ANNOTATION

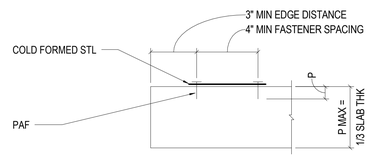


19 NO SCALE STORAGE LEVEL POST FRAMING



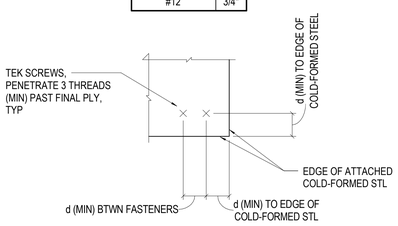
SILL

15 NO SCALE TYP CF LB HEADER AND SILL



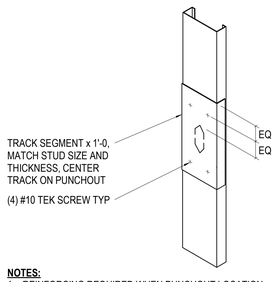
PAF IN CONCRETE

TEK SCREW SIZE	d
#10	5/8"
#12	3/4"



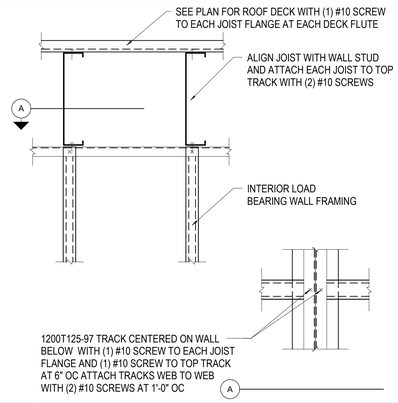
TYP SCREW PLACEMENT

8 NO SCALE TYP CF LB FASTENER DETAILS

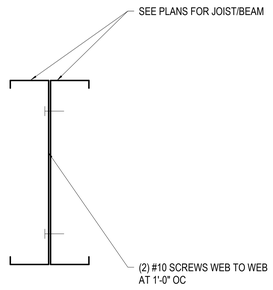


NOTES:
1. REINFORCING REQUIRED WHEN PUNCHOUT LOCATION SPECIFIED IN OTHER DETAILS CANNOT BE ACHIEVED

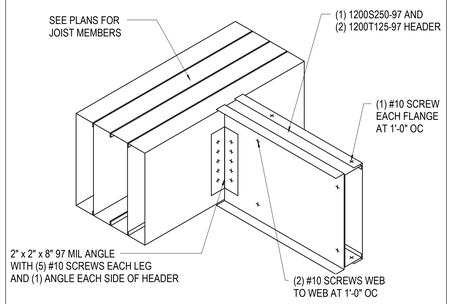
3 NO SCALE TYP CF PUNCHOUT REINFORCING



20 NO SCALE JOIST FRAMING AT INTERIOR BEARING WALL



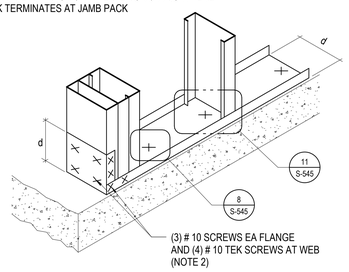
16 NO SCALE CF B-T-B JOIST/BEAM ASSEMBLY



12 NO SCALE CF JOIST OPENING

LOCATION	NUMBER OF FASTENERS REQUIRED
TYP FRAMING	(1) 0.157"Ø, 1" EMBED HILTI X-U PAF AT 8" OC
JAMBS	SEE DETAILS 18/S-545

NOTES:
1. 1" EMBED REQUIRED FOR ALL PAFs
2. CUT AND BEND TRACK UP AT EXTERIOR JAMBS WHERE TRACK TERMINATES AT JAMB PACK



4 NO SCALE TYP CF LB BOTTOM TRACK TO CONC

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COLORADO LICENSED 42134 10/26/2022 PROFESSIONAL ENGINEER

ANSCHUTZ ENGINEERING CENTER
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COLORADO SPRINGS, CO 80918

PROJ. NO. 21.1038.S.01
DRAWN: GG
CHECKED: JMD
APPROVED: BD
DATE: 10/26/2022
REVISIONS:

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ANSCHUTZ ENGINEERING CENTER
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100% CD/PACKAGE 3

SHEET TITLE:
TYP CF LOAD BEARING DETAILS

SCALE: As indicated
SHEET NUMBER
S-545

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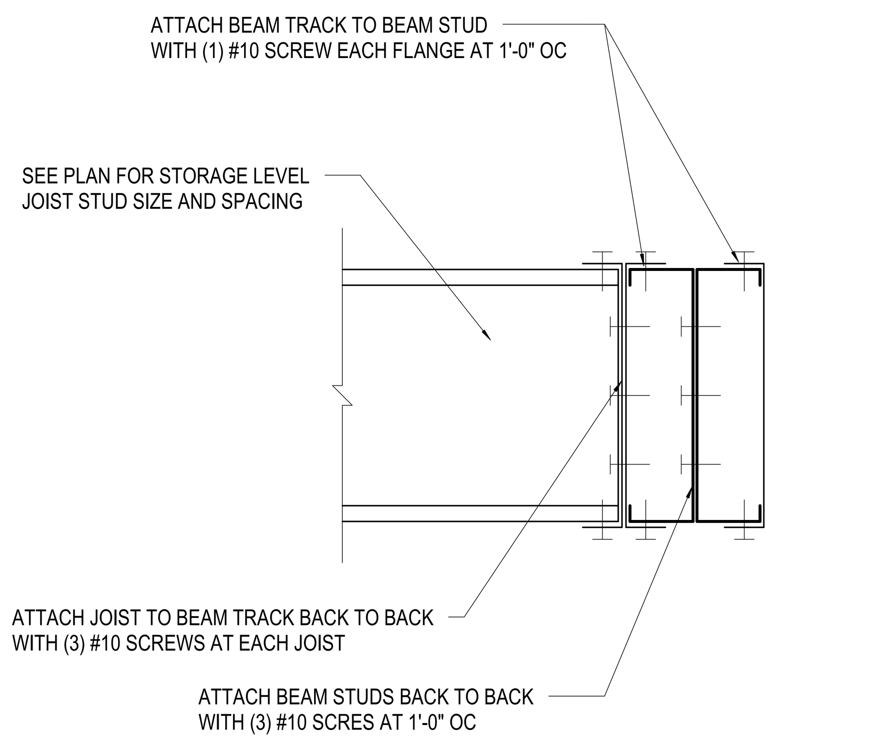
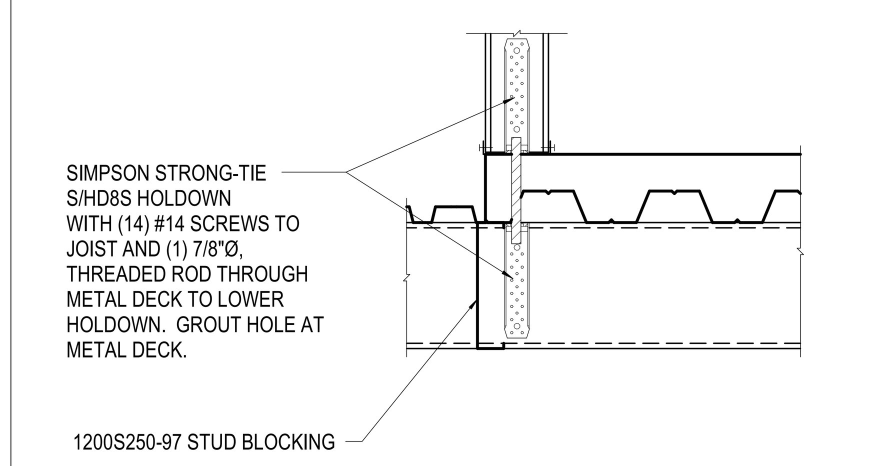
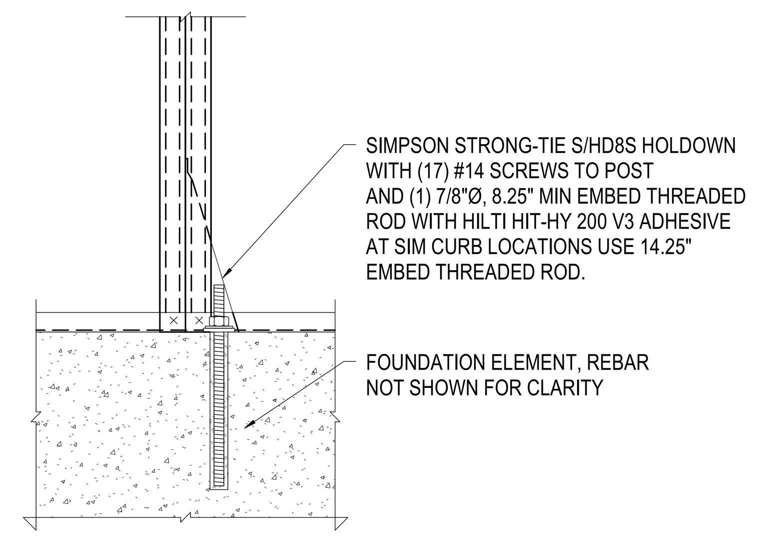
MM, USE 8.1, 1038.S.01 DESIGNERS: GBD, BAS/MA/HER, LINDSEY WHITTINGTON
PRINCIPAL: BERO DOWNEY LEAD ARCH: DESIGN: LINDSEY WHITTINGTON, JOHN HALOTA
EOR:BEN DOWNEY DATE PRINTED:10/25/2022 9:01:47 PM
PROJECT MANAGER: J MATT DEZORT FILE PATH:BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



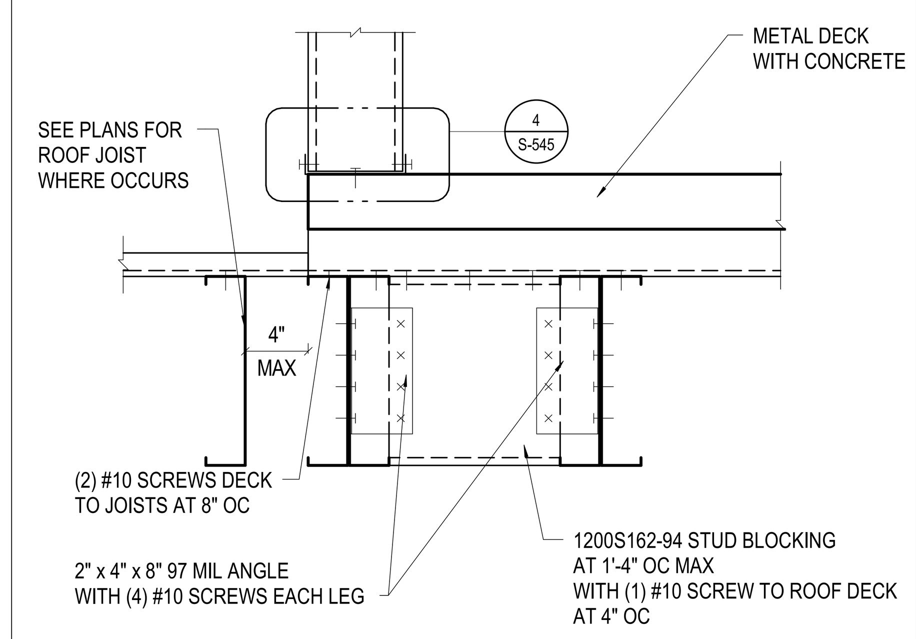
17 NO SCALE **STORAGE LEVEL BOX BEAM**



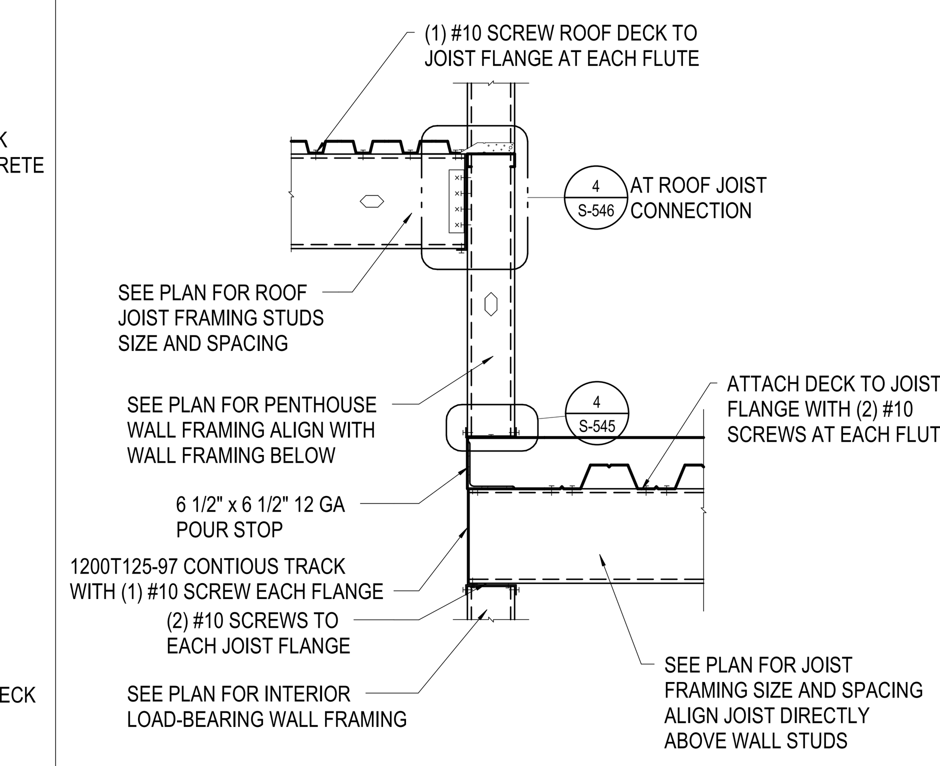
13 NO SCALE **SHEAR WALL CONNECTION AT JOIST**



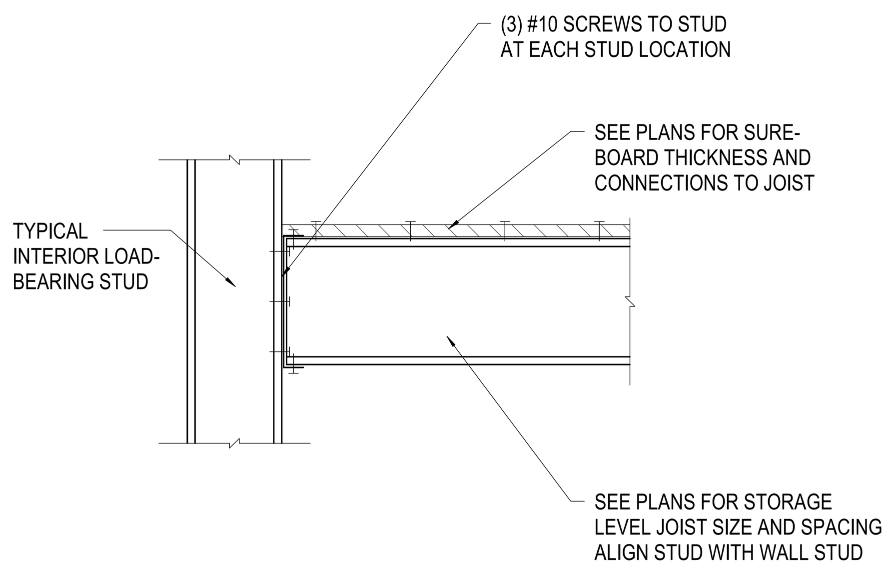
9 NO SCALE **SHEAR WALL HOLDDOWN CONNECTION STACKED**



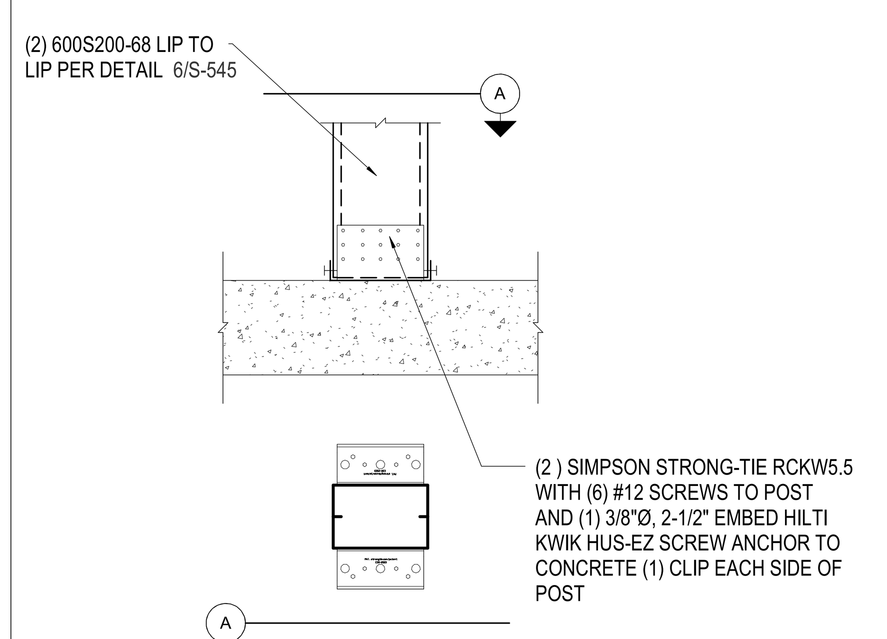
5 NO SCALE **TYP CF FLOOR AND WALL CONNECTION PERPENDICULAR**



1 NO SCALE **TYP CF FLOOR AND WALL CONNECTION**

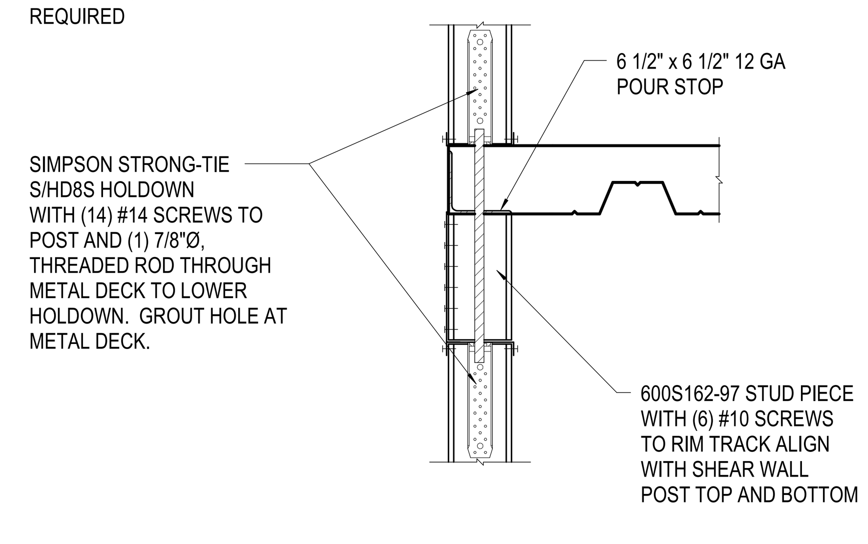


18 NO SCALE **STORAGE LEVEL JOIST CONNECTION**



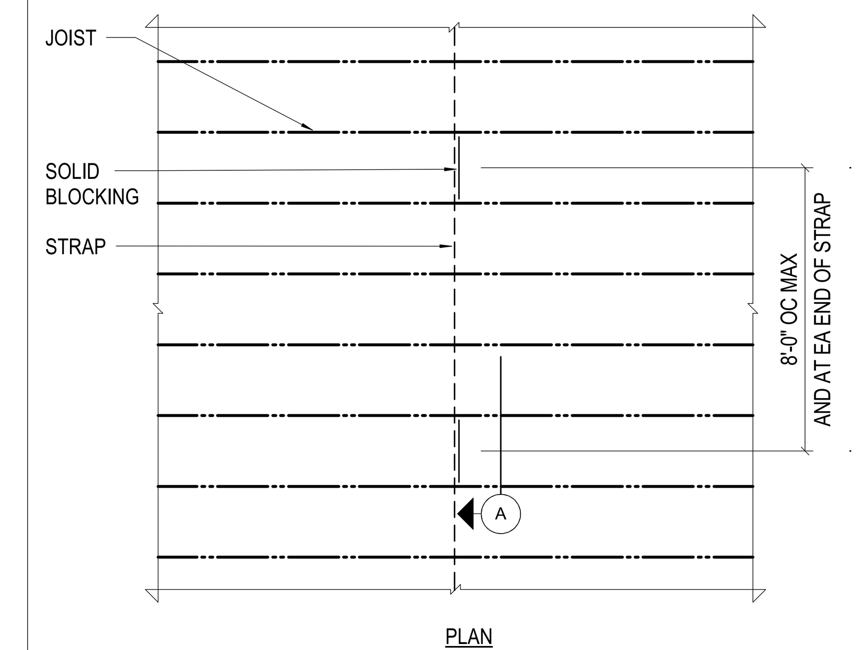
14 NO SCALE **BASE CONNECTION POST**

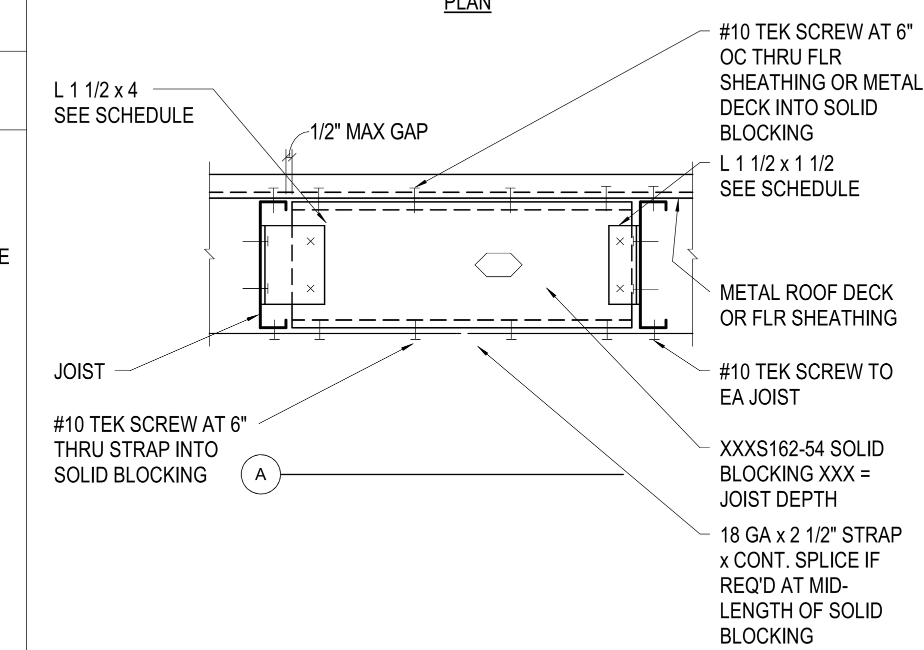
NOTE:
AT SIM LOWER WALL IS DIRECTLY BELOW DECK. NO STUD PIECE IS REQUIRED



10 NO SCALE **SHEAR WALL CONNECTION AT METAL DECK WITH CONCRETE**

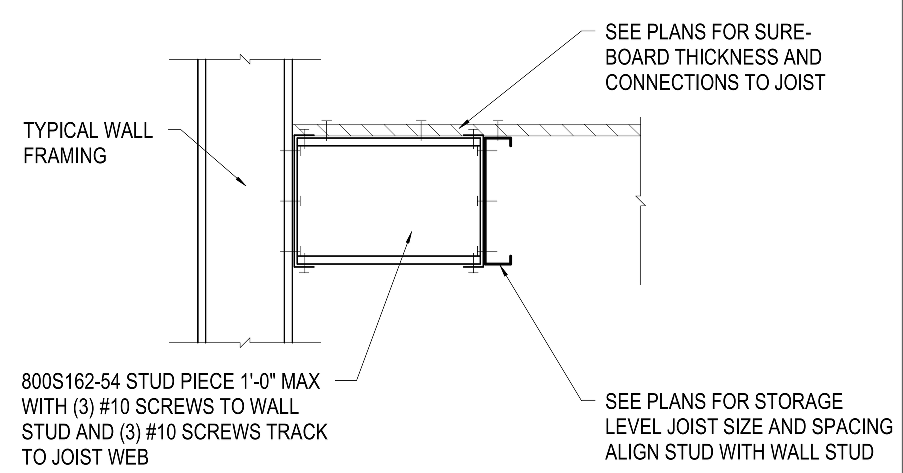
NOTE:
STRUCTURAL BLOCKING REQUIRED AT 8'-0" OC MAX AT HIGH AND LOW ROOF. MID-POINT BLOCKING REQUIRED AT PENTHOUSE ROOF.
BLOCKING REQUIRED BELOW PENTHOUSE FLOOR



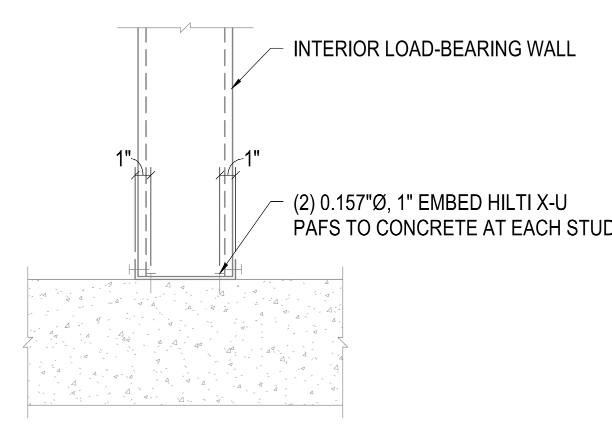


L PROPERTIES AS A FUNCTION OF JOIST DEPTH			
JOIST DEPTH	L LENGTH	TEK SCREW EA LEG	L THICKNESS (MILS)
7 1/4" - 8"	5"	2	54
9 1/4" - 10"	7"	3	54
11 1/4" - 14"	9"	4	54

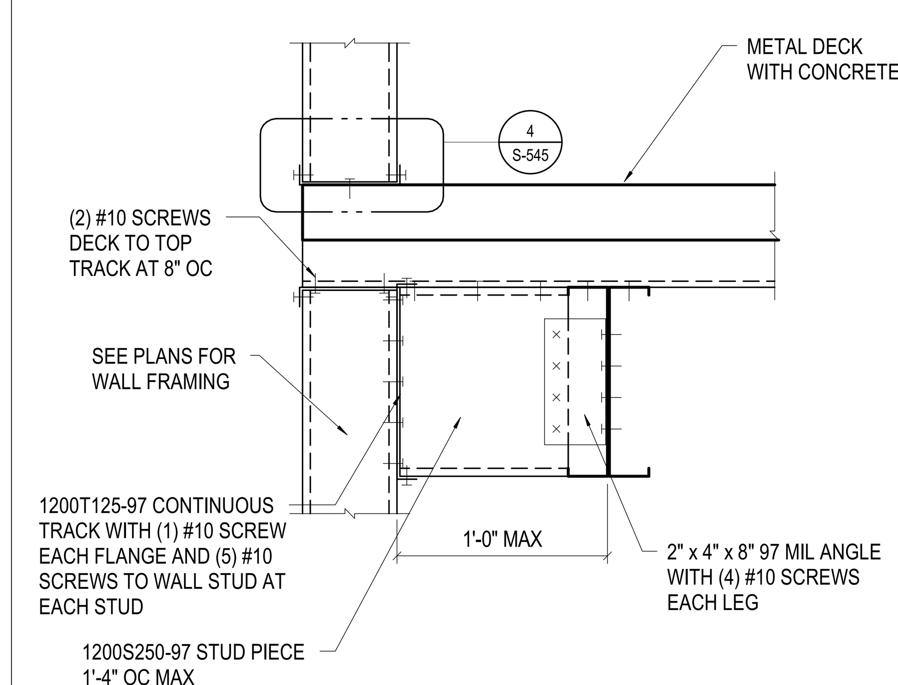
3 NO SCALE **TYP CF LB STRUCTURAL BLOCKING OF JOISTS**



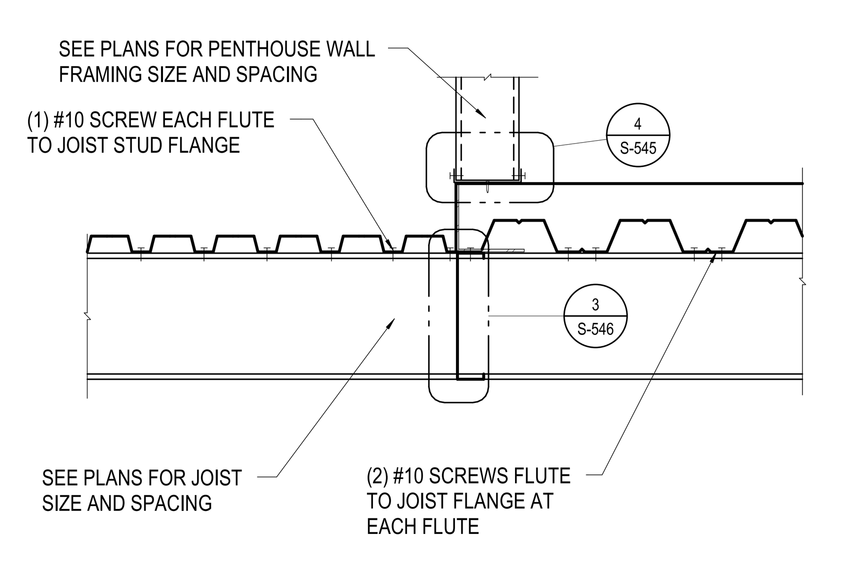
19 NO SCALE **STORAGE LEVEL JOIST BLOCKING CONNECTION**



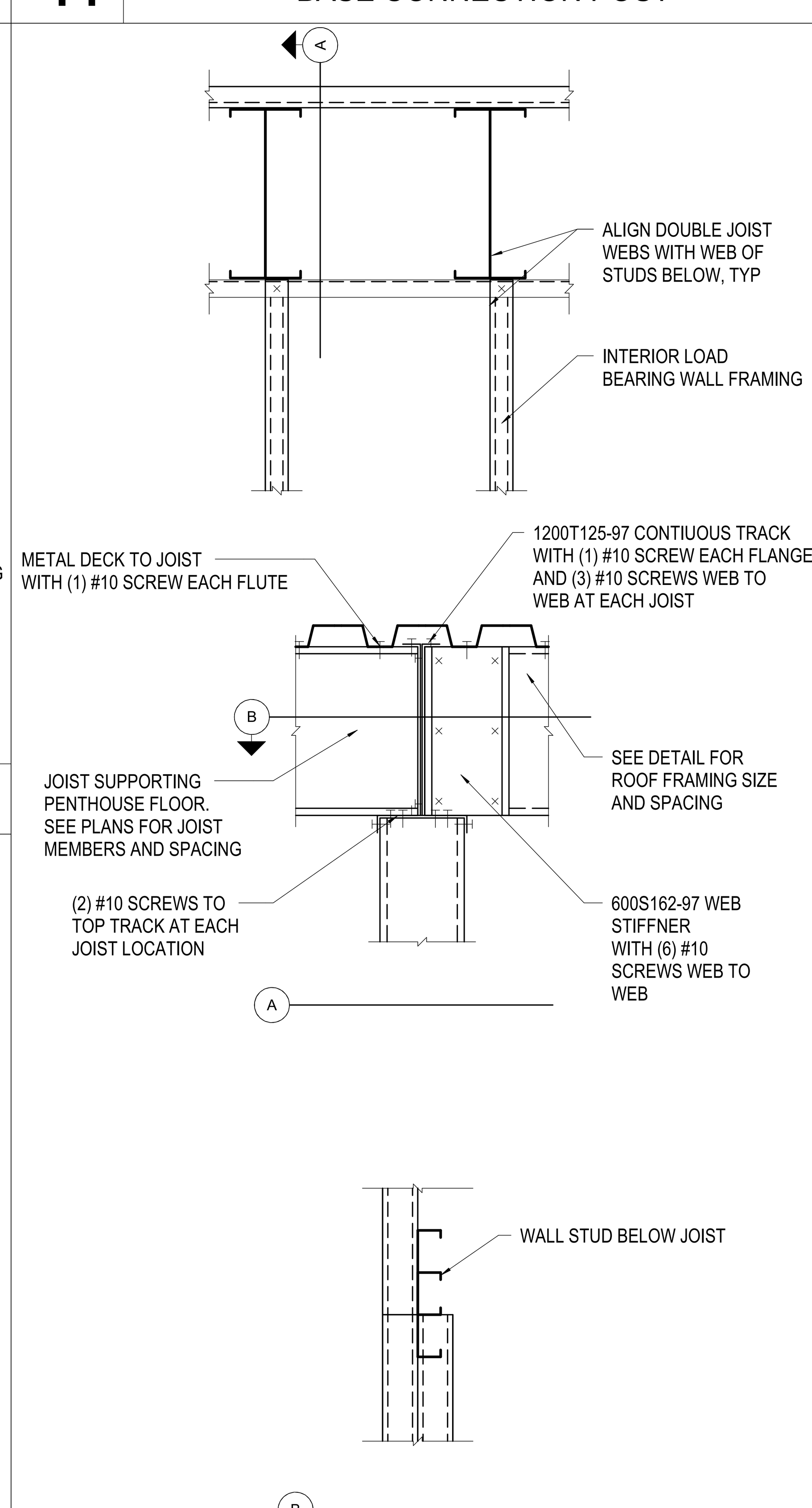
11 NO SCALE **TYP INTERIOR LOAD-BEARING WALL BASE CONNECTION**



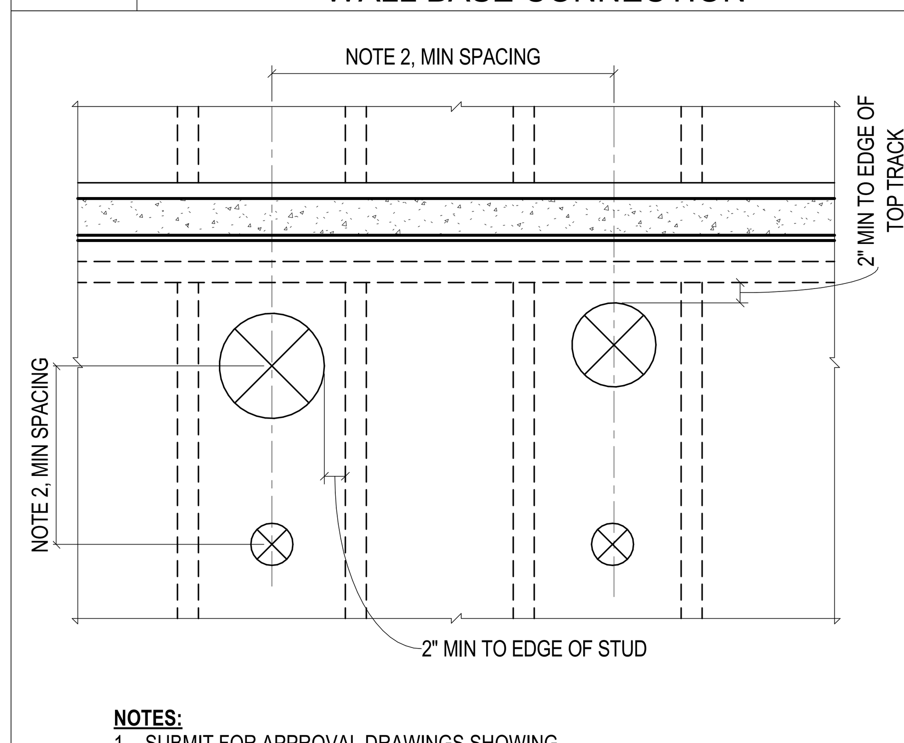
7 NO SCALE **TYP CF FLOOR AND WALL CONNECTION PERPENDICULAR 1**



20 NO SCALE **PENTHOUSE WALL AT JOIST**

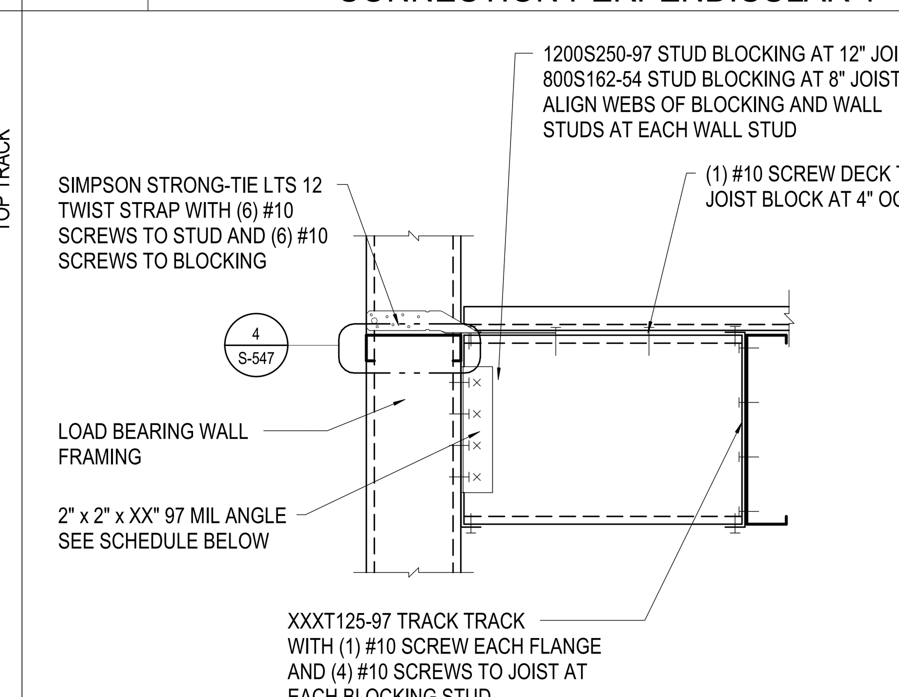


16 NO SCALE **FLOOR JOIST FRAMING AT INTERIOR BEARING WALL**



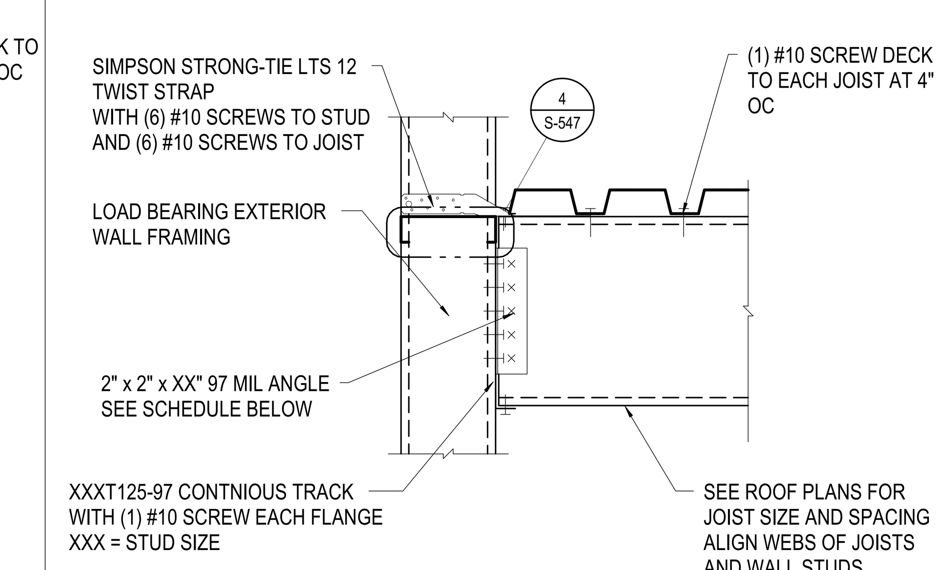
NOTES:
1. SUBMIT FOR APPROVAL DRAWINGS SHOWING COORDINATED LOCATIONS OF SHEAR WALL PENETRATIONS
2. MAXIMUM OF (2 x LARGER OPENING DIAMETER) AND (12")

12 NO SCALE **TYP CF SHEAR WALL PENETRATIONS**



JOIST SIZE	ANGLE LENGTH	# OF SCREWS EACH LEG
12"	8"	5 #10
8"	6"	4 #10

8 NO SCALE **INTERMEDIATE FLOOR CONN TO PARALLEL WALL**



JOIST SIZE	ANGLE LENGTH	# OF SCREWS
12"	8"	5 #10
8"	6"	4 #10

4 NO SCALE **TYP CF JOIST CONNECTION AT EXTERIOR WALL**

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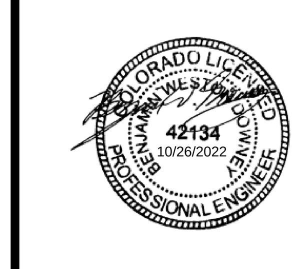

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DATE: 10/26/2022
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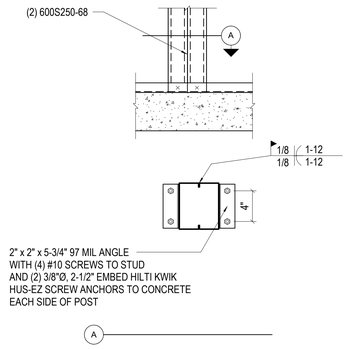
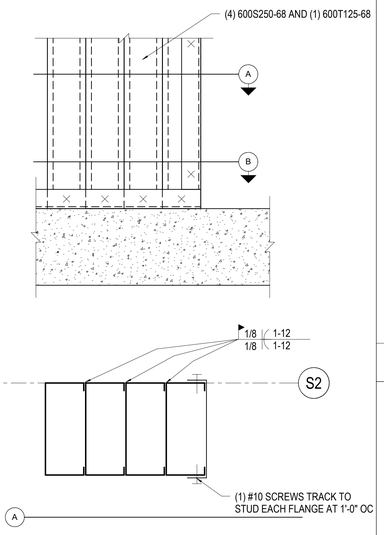
SHEET TITLE:
TYP CF LOAD BRG FLR & METAL STUD SHEAR WALL DETAILS
SCALE: As indicated
SHEET NUMBER
S-546

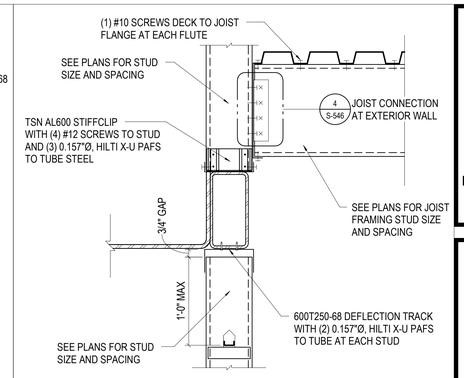
10/25/2022 9:01:49 PM
BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MM JOB #: 21.1038.S.01
DESIGNERS: GREG RADEMACHER, LINDSEY WHITTINGTON
PRINCIPAL: BEN DOWNEY
LEAD REVIT TECH: LINDSEY WHITTINGTON, JON DALTON
EOR: BEN DOWNEY
DATE PRINTED: 10/25/2022 9:01:49 PM
PROJECT MANAGER: J. MATT DEZORT
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt



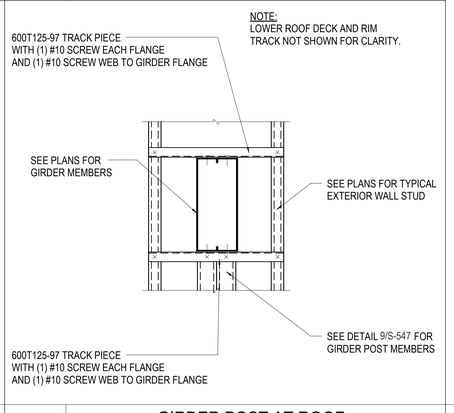
9 NO SCALE GIRDER POST AT SLAB PERPENDICULAR WALL



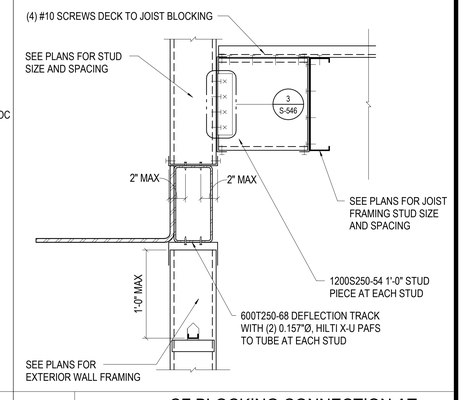
6 NO SCALE GIRDER POST AT SLAB



1 NO SCALE CF CONNECTION AT CANOPY



10 NO SCALE GIRDER POST AT ROOF PERPENDICULAR WALL



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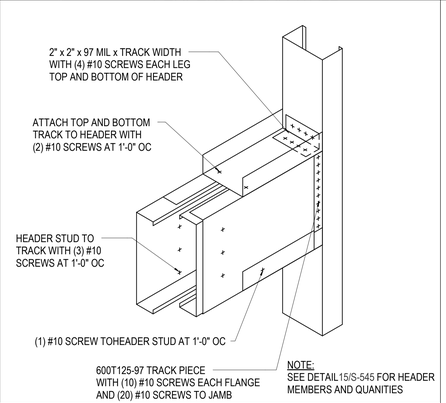
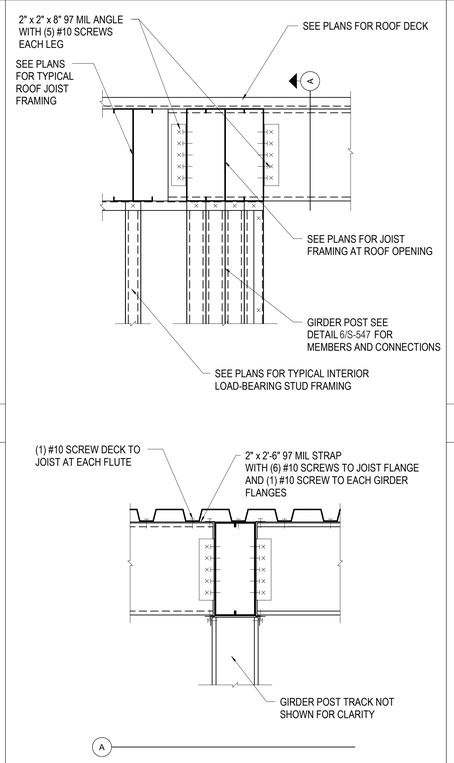
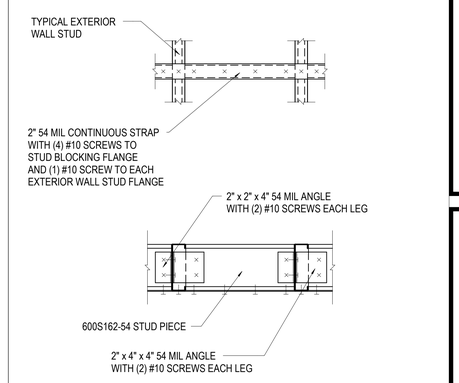


11 NO SCALE BOXED HEADER DETAIL



3 NO SCALE GIRDER AT HALLWAY

8 NO SCALE GIRDER POST AT ROOF



4 NO SCALE BLOCKING AT EXTERIOR WALL

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JAMES M. DAVIS
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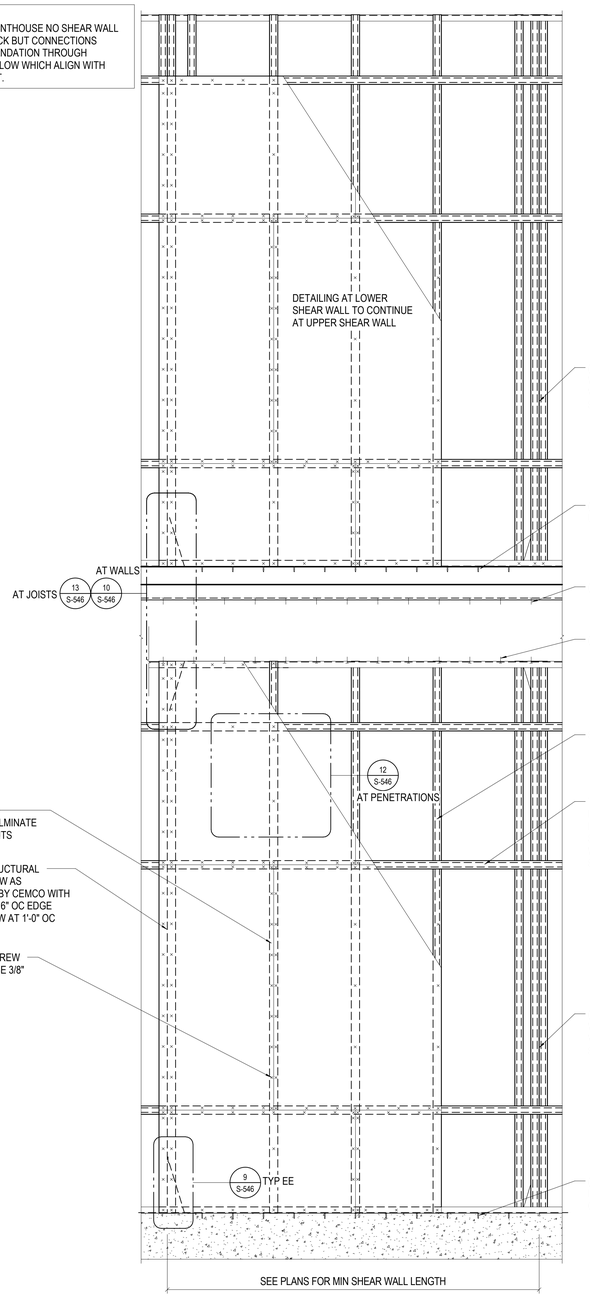
SHEET TITLE:
TYP CF LOAD BRG FLR & METAL STUD SHEAR WALL DETAILS
SCALE: As indicated
SHEET NUMBER
S-547

10/25/2022 9:01:51 PM BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt
MK ISS # 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR: BEN DOWNEY
PROJECT MANAGER: J. MATT DEZORT
DESIGNERS: GREG DAEMMRICH, LINDSEY WHITTINGTON
LEAD REVIT TECH: LINDSEY WHITTINGTON, JOHN DALTON
DATE PRINTED: 10/25/2022 9:01:51 PM
FILE PATH: BIM 360://121091.00 Anschutz Engineering Center/21.1038.S.01-UCCS Engineering Building Addition-S21.rvt

NOTE:
AT SOUTH SIDE PENTHOUSE NO SHEAR WALL BELOW METAL DECK BUT CONNECTIONS CONTINUE TO FOUNDATION THROUGH OPENING JAMB BELOW WHICH ALIGN WITH SHEAR WALL POST.



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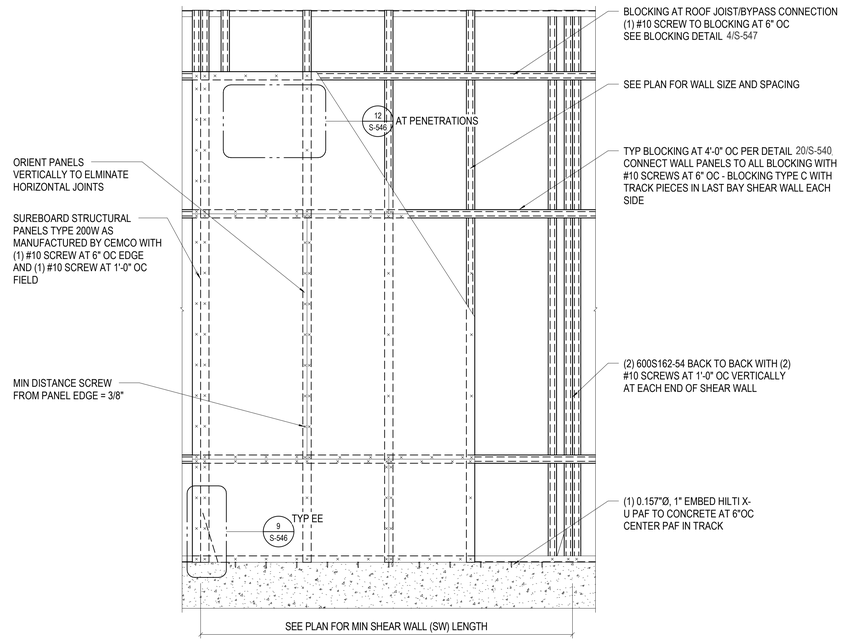

8 NO SCALE TYP CF SHEAR WALL

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DATE: 10/26/2022
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SHEET TITLE:
TYP CF SHEAR WALL ELEVATIONS

SCALE: 1" = 1'-0"
SHEET NUMBER
S-548

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IM_VDB_# 21.1038.S.01
PRINCIPAL: BEN DOWNEY
EOR:BEN DOWNEY
PROJECT MANAGER: J.MATT DEZORT
DESIGNED: GREG BAESHUYSEN, UNDER THE DIRECT SUPERVISION OF LEAD REVIT TECH: LINDSEY WHITTINGTON, CHRISTINA OAKLAND
DATE PRINTED: 10/25/2022 9:01:52 PM
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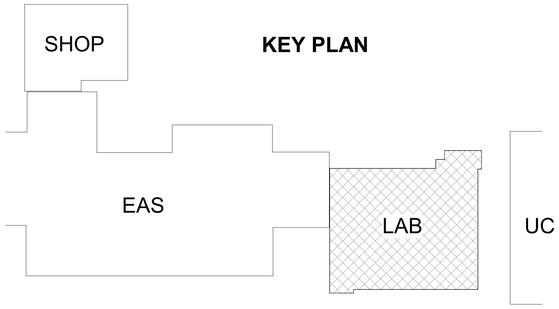

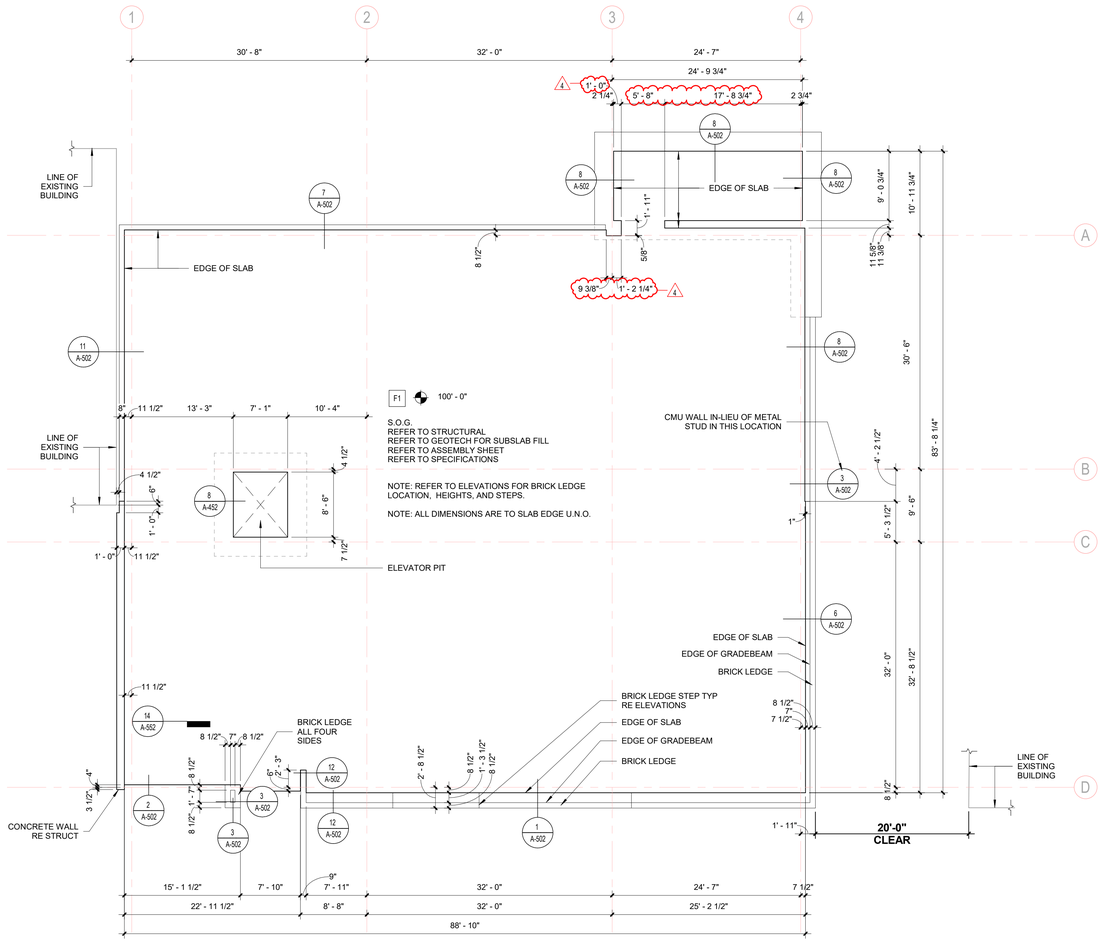

1 LEVEL 1 SLAB EDGE CONTROL PLAN

1/8" = 1'-0"

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STATE OF COLORADO
DAVID JOHN SCHAFER
#203158
LICENSED ARCHITECT

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1420 AUSTIN BLUFFS PKWY
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PROJ. NO. 121091.00
DRAWN: WTM
CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
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SHEET TITLE:
LEVEL 1 SLAB CONTROL PLAN

SCALE: 1/8" = 1'-0"
SHEET NUMBER
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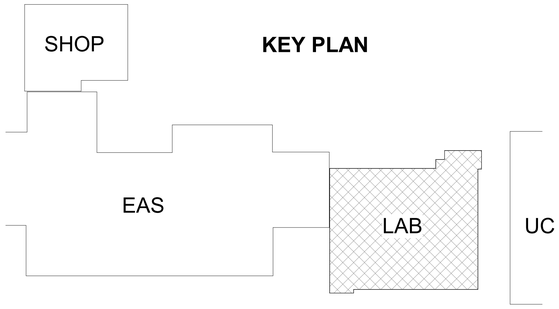
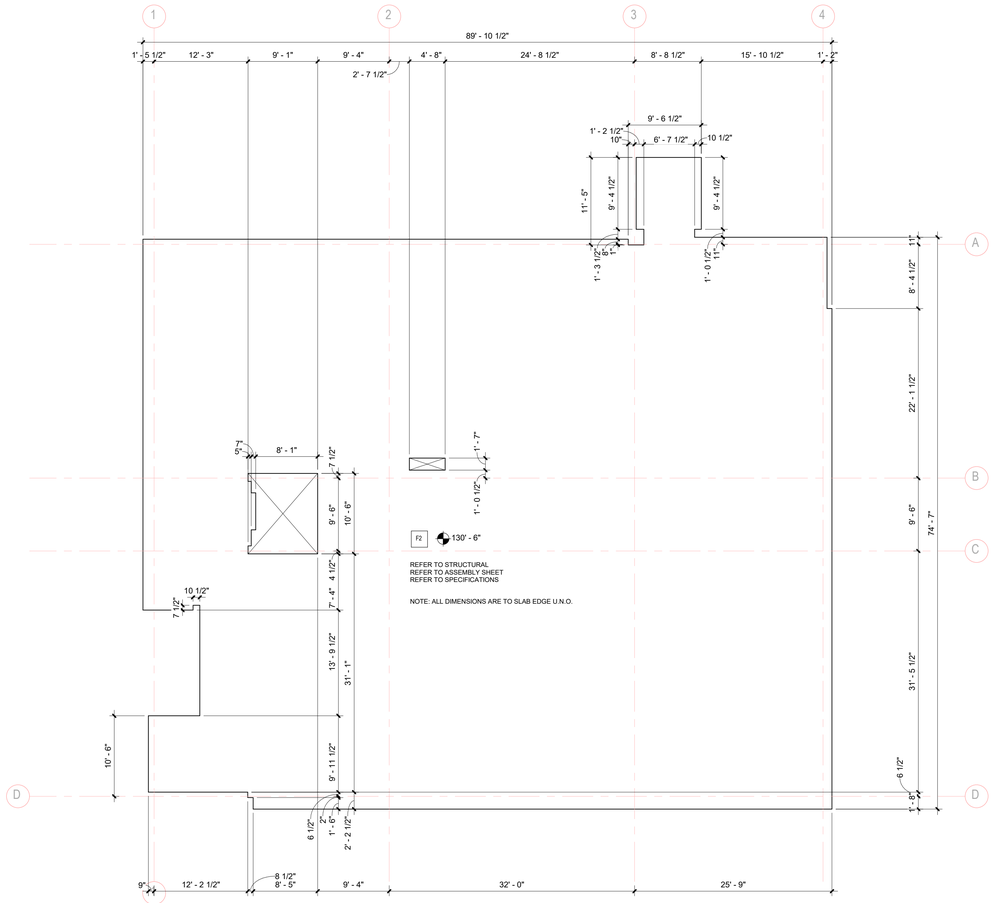
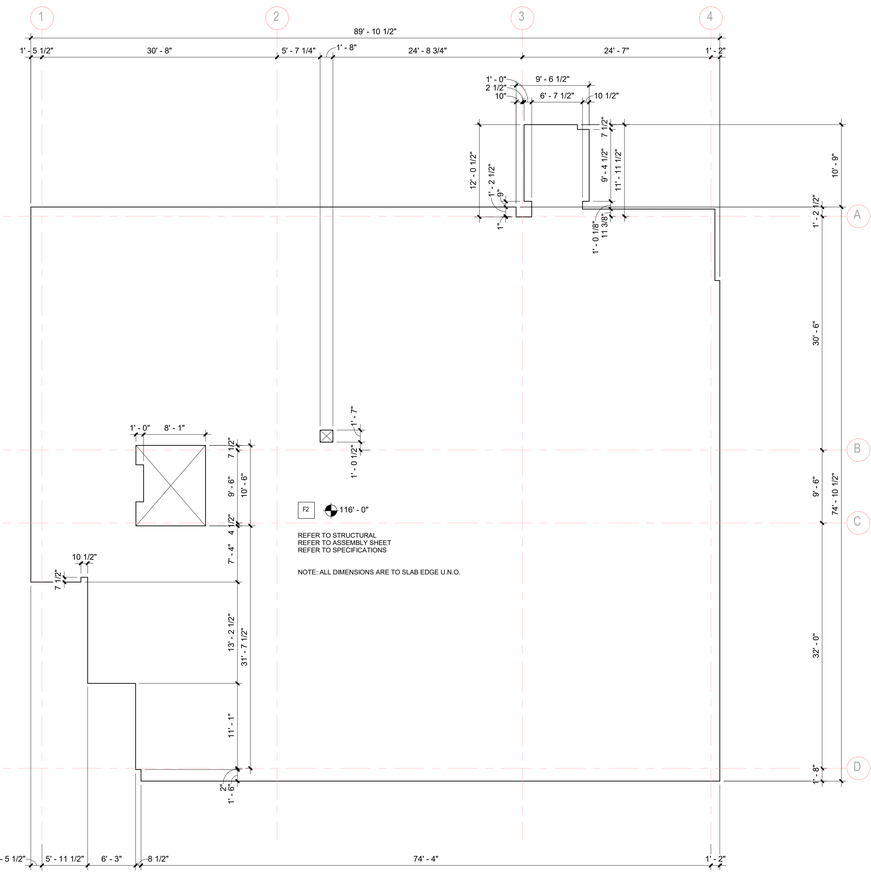




1 LEVEL 3 SLAB EDGE CONTROL PLAN

1/8" = 1'-0"



2 LEVEL 2 SLAB EDGE CONTROL PLAN

1/8" = 1'-0"

PROJECT NORTH

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DRAWN: WTM
CHECKED: JG
APPROVED: DS
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REVISIONS:

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100% CD / PACKAGE 3

SHEET TITLE:
LEVEL 2 & 3 SLAB CONTROL PLAN

SCALE: 1/8" = 1'-0"
SHEET NUMBER
A-002A

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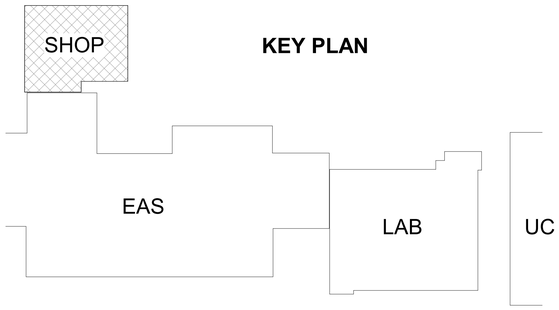
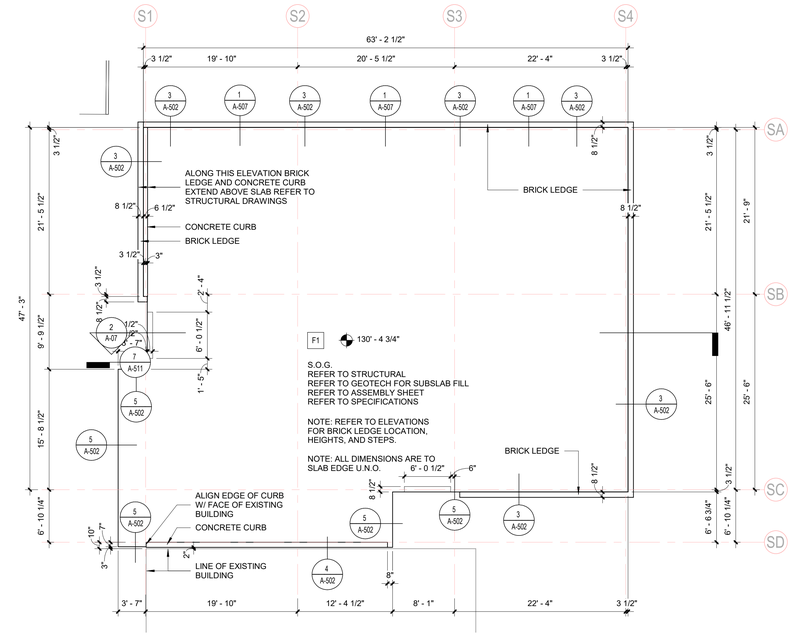


KEY PLAN



1 LEVEL 3 SLAB EDGE CONTROL PLAN - SHOP BLDG

1/8" = 1'-0"

PROJECT NORTH

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DAVID JOHN SCHAFER
#203158
LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
DRAWN: WTM
CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:
2 09/21/2022 REVISIONS - Pkg 1&2

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD / BID PACKAGE 3

SHEET TITLE:
LEVEL 3 SLAB CONTROL PLAN - SHOP BLDG
SCALE: 1/8" = 1'-0"
SHEET NUMBER

A-002B

10/26/2022 4:47:14 PM
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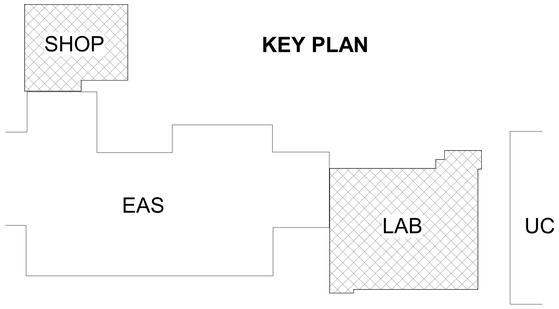
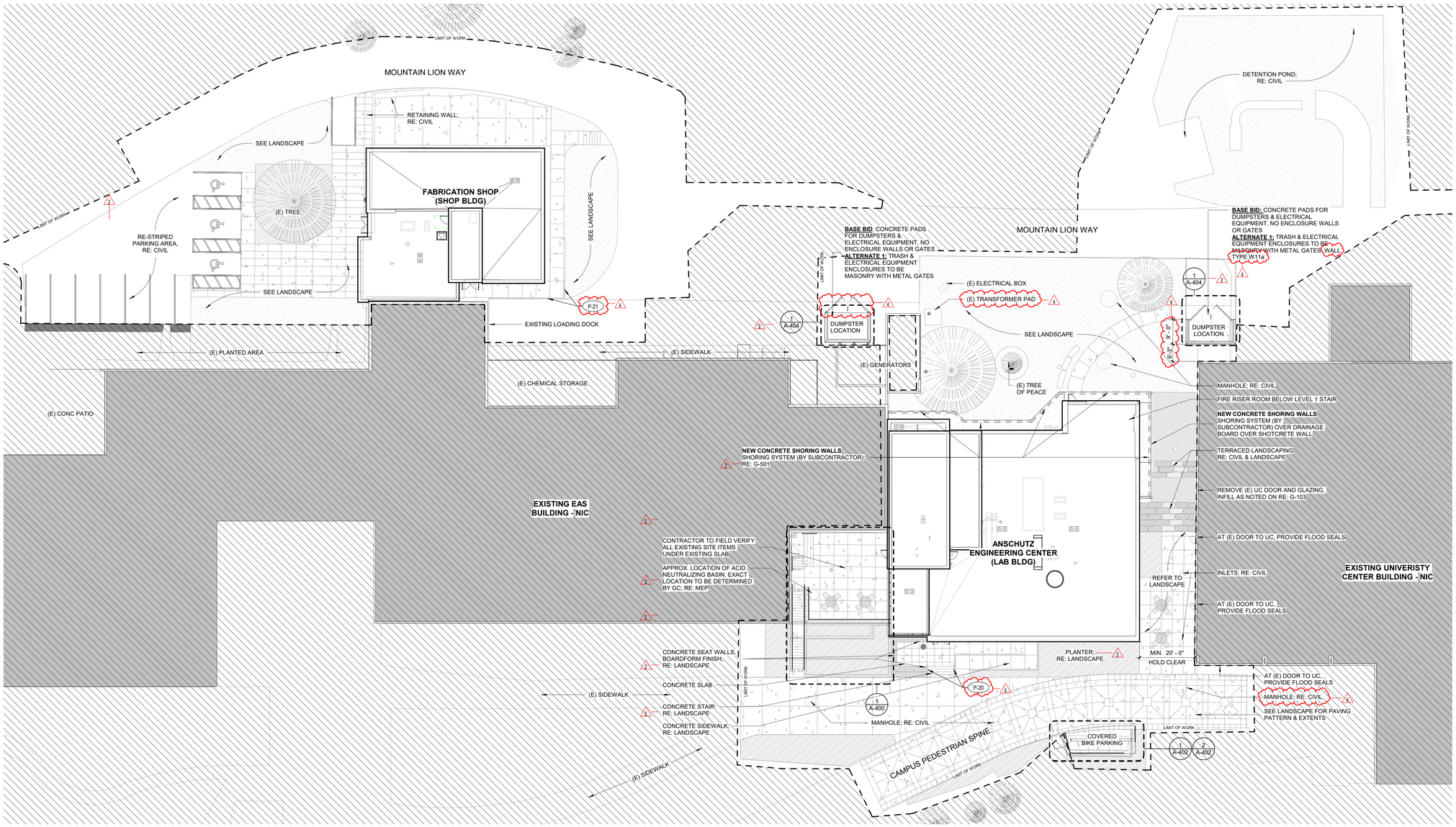


KEY PLAN



1 SITE PLAN
1/16" = 1'-0"

TRUE NORTH PROJECT NORTH

OZ ARCHITECTURE
3003 Larimer Street
Denver, Colorado 80205
phone 303.861.5704
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STATE OF COLORADO
DAVID JOHN SCHAFER
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LICENSED ARCHITECT
07/27/2022

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
DRAWN: KM
CHECKED: JG
APPROVED: DS
DATE: 10/26/2022

REVISIONS:

2	09/21/2022	REVISIONS - Pkg 1&2
3	10/4/2022	ADDENDA 3 - Pkg 1&2
4	10/26/2022	ADDENDA 4 - Pkg 1& 2

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
100% CD / BID PACKAGE 3

SHEET TITLE:
SITE PLAN

SCALE: 1/16" = 1'-0"
SHEET NUMBER
A-100

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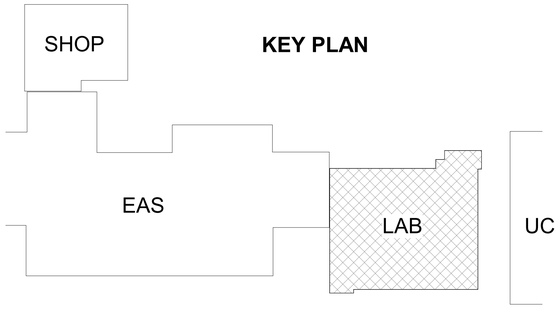

FLOOR PLAN LEGEND

- EXISTING WALL
- NEW WALL
- ADJACENT BUILDING
- 100A — DOOR TAG; RE: A-601 DOOR SCHEDULES & TYPES
- #22 — WINDOW TAG; RE: A-621, A-631, A-632 FOR WINDOW SCHEDULES & TYPES
- 23A — WALL TAG; RE: G-501 & G-502 FOR WALL TYPES
- 23A — ACOUSTIC WALL TAG; RE: G-501 & G-502 FOR WALL TYPES

CEILING PLAN LEGEND

- **C1:** GYPSUM BOARD ON METAL STUD FRAMING
  C1a: 1" SHAFTLINER ON 6" C-H CFMF ON 5/8" GYP BD
- **C2:** ACT-01
- **C3:** ACT-02 WITH 3.5" BATT INSULATION
- **C4:** ACT-03 ACOUSTIC FINS SUSPENDED BELOW EXPOSED METAL DECK (DECK PAINTED P-03); ELEVATIONS AFF NOTED ON RCP
- **C5:** ACT-04 3D ACOUSTIC TILES IN 15/16" GRID
- **C6:** 1-HR FIRE RATED CEILING: 2 LAYERS OF TYPE X 5/8" GYPSUM BOARD ATTACHED TO METAL STUD FRAMING
- EXPOSED STRUCTURAL METAL DECK, PAINTED P-03
- ADJACENT BUILDING

REFLECTED CEILING PLAN NOTES

1	REFLECTED CEILING PLANS INDICATE CEILING HEIGHTS AND LOCATION OF LIGHT FIXTURES, DIFFUSERS, DEVICES, AND SIMILAR ITEMS. REFER TO ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION REGARDING ELECTRICAL, HVAC, SPRINKLER AND LIFE SAFETY. IN THE EVENT OF A DISCREPANCY BETWEEN THE ARCHITECT'S REFLECTED CEILING PLAN AND THE ENGINEERS' PLANS, SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
2	COORDINATE ALL TRADES INVOLVED IN THE CEILING WORK TO ENSURE CLEARANCE FOR FIXTURES, DUCTS, PIPING, CEILING SUSPENSION SYSTEMS, ETC. NECESSARY TO MAINTAIN THE CEILING HEIGHTS INDICATED.
3	DIMENSIONS ARE TO FINISH U.N.O.
4	ACCESS PANELS NOT SHOWN, BUT REQUIRED BY PLUMBING, MECHANICAL, OR ELECTRICAL SYSTEMS, SHALL BE REVIEWED WITH ARCHITECT FOR LOCATION.
5	COORDINATE LOCATIONS OF SPRINKLER HEADS WITH ARCHITECT.
6	LIGHT FIXTURES, SPRINKLER HEADS, AND OTHER CEILING DEVICES SHALL BE EQUALLY SPACED AND ALIGNED WITH ADJACENT ELEMENTS AND CENTERED ON CEILING TILE. U.N.O.
7	CENTER ACOUSTICAL CEILING GRID WITHIN THE ROOM UNLESS DIMENSIONED OTHERWISE
8	PAINT GYPSUM BOARD CEILINGS P-01 U.N.O.
9	PAINT GYP BOARD SOFFITS (VERTICAL AND HORIZONTAL SURFACES) P-03 U.N.O.
10	PAINT EXPOSED CEILING STRUCTURE AND DUCTWORK P-01 U.N.O.
11	PROVIDE UL-CLASSIFIED LIGHT FIXTURES OR ENCLOSURES IN RATED FLOOR/CEILING ASSEMBLIES IN ACCORDANCE WITH IBC CHAPTER 7.
12	AT SHOPS BUILDING - SCRIBE GYPSUM WALLBOARD AROUND CFMF ROOF JOISTS. EXTEND TO B.O. DECK, SCRIBE TO DECK TYP THROUGHOUT
13	PAINT ALL EXPOSED CEILINGS, METAL DECK, DUCT WORK, CONDUIT, EXPOSED PIPE P-03 U.N.O.
14	ACOUSTIC FINS CAN BE REMOVED FROM SUSPENSION SYSTEM TO ACCESS CEILING ABOVE. IF THE SUSPENSION SYSTEM ITSELF PRESENTS AN ACCESS ISSUE, EACH 7FT SECTION CAN BE REMOVED AND REPLACED.
15	BULKHEAD ELEVATIONS AT WINDOW IN ROOMS WITH ACT CEILING SHOULD MATCH THE BOTTOM ELEVATION OF ACT, UNLESS OTHERWISE NOTED.

FLOOR PLAN NOTES

1	EL 100'-0" (LEVEL 1) EQUATES TO USGS DATUM ELEVATION OF 6415.
2	EXTERIOR DIMENSIONS ARE TO FACE OF SHEATHING, FACE OF CONCRETE/MASONRY, COLUMN CENTERLINE, OR CENTERLINE OF WINDOW U.N.O.
3	INTERIOR DIMENSIONS ARE TO FACE OF STUD, FACE OF CONCRETE/MASONRY, OR COLUMN CENTERLINE U.N.O. DIMENSIONS DESIGNATED AS "CLEAR" OR "HOLD" SHALL BE MAINTAINED.
4	SEE SHEET G-502 FOR PARTITION TYPES. SEE CODE PLANS, G-100 SERIES SHEETS, FOR RATINGS OF PARTITIONS. METAL STUD PARTITIONS ARE TYPE 23C, U.N.O.
5	PARTITION TYPES INDICATED CONTINUE AROUND CORNERS U.N.O.
6	MAINTAIN CONTINUITY OF RATED PARTITIONS AT HEAD AND BOTTOM OF PARTITION AND AT JOINTS WITH DISSIMILAR PARTITIONS WITH LISTED JOINT ASSEMBLIES.
7	WHERE TWO DIFFERING PARTITION TYPES ABUT ALONG A CONTINUOUS LINE, THE CONTINUOUS FINISHED SURFACE OF THESE PARTITIONS SHALL ALIGN U.N.O.
8	WHERE DOORS ARE NOT SPECIFICALLY LOCATED, PROVIDE A HINGE-SIDE JAMB DIMENSION OF 4" FROM DOOR OPENING TO ADJACENT PERPENDICULAR PARTITION.
9	WHERE MECHANICAL DUCTWORK PENETRATES A COMPONENT OF THE FIRE-RATED ASSEMBLY, PROVIDE FIRE AND/OR SMOKE DAMPERS IN ACCORDANCE WITH IBC CHAPTER 7.
10	PROVIDE 1/2" CLEARANCE FROM DUCTWORK FOR VIBRATION ISOLATION.
11	THERE SHALL BE NO EXPOSED PIPES, DUCTS, ETC. ALL SUCH LINES SHALL BE CONCEALED OR FURRED UNLESS SPECIFICALLY NOTED AS EXPOSED CONSTRUCTION.
12	FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION OF CASEWORK, MILLWORK AND OTHER BUILT-IN ITEMS.
13	SEE SHEET G-401 FOR MOUNTING HEIGHTS AND BLOCKING FOR FUTURE GRAB BARS.
14	SEE SHEET A-601 FOR DOOR SCHEDULE.
15	PROVIDE LEVEL 5 DRYWALL FINISH AT ALL WALLCOVERING LOCATIONS.
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17	LEVEL 1 OF THE FABRICATION SHOPS ALIGNS WITH LEVEL 3 OF THE LAB BUILDING. ELEVATION/LEVEL MARKERS WILL SHOW LEVEL 3 AS THE GROUND PLANE FOR THE FABRICATION SHOPS BUILDING.
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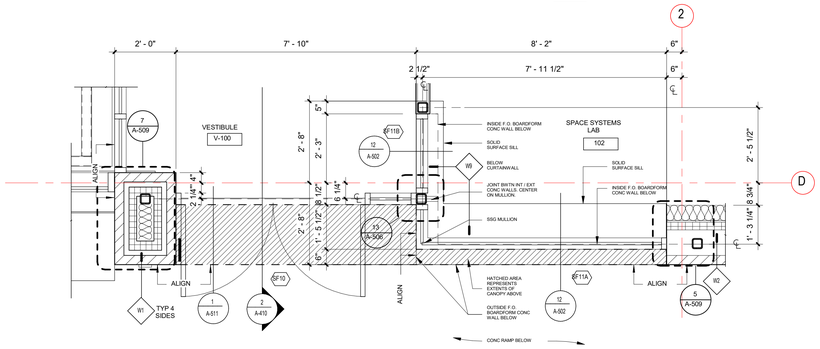
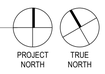
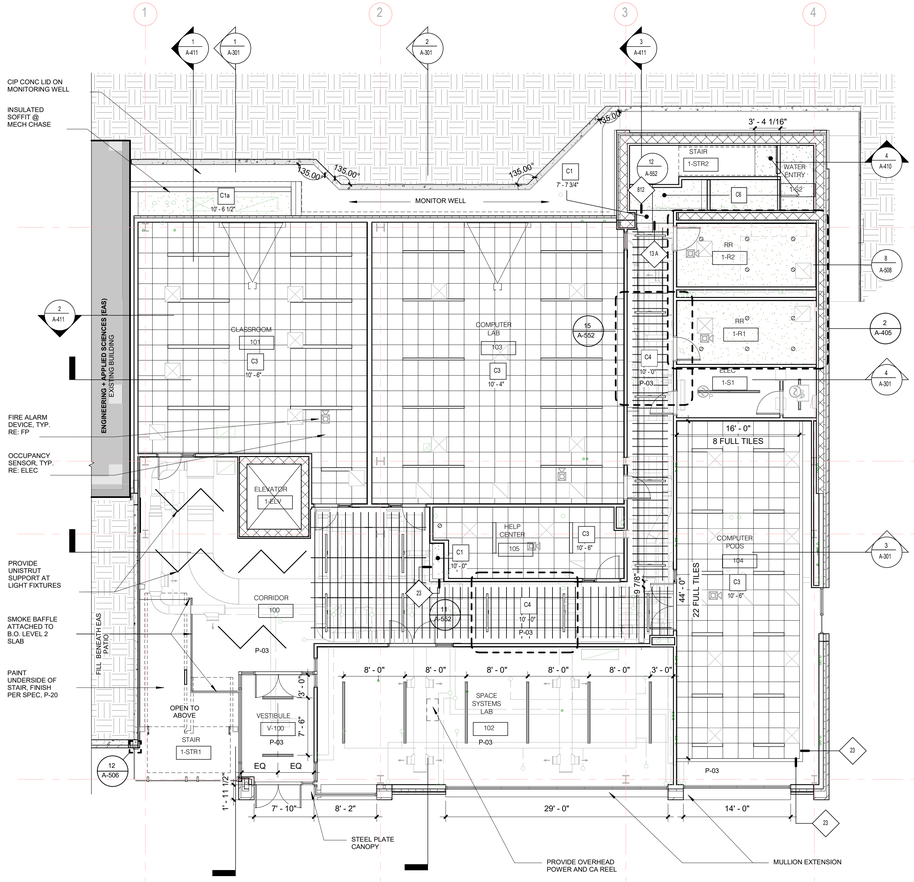


3 ENLARGED PLAN AT ENTRY

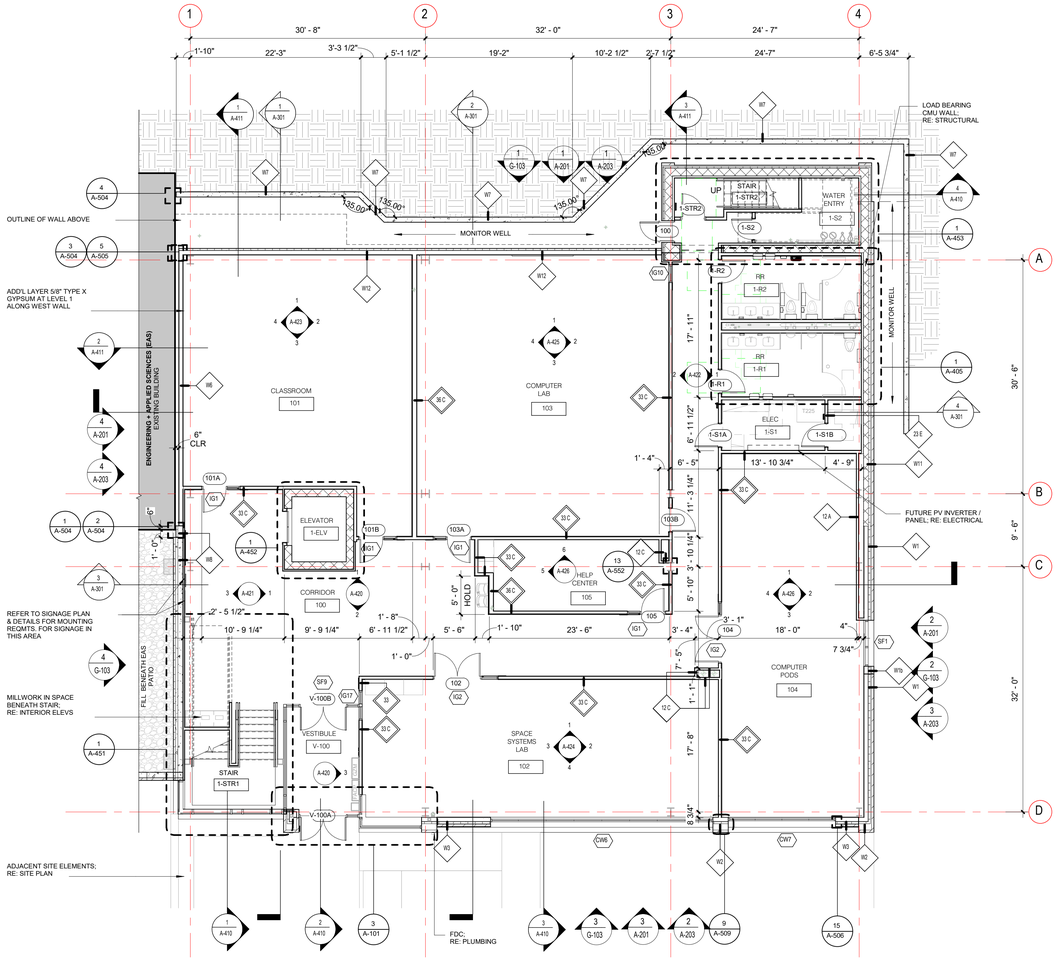
1/2" = 1'-0" RE: 1/ A-101





2 LEVEL 1 REFLECTED CEILING PLAN

1/8" = 1'-0"



1 LEVEL 1 FLOOR PLAN

1/8" = 1'-0"

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SHEET TITLE:
LEVEL 1 FLOOR PLAN & RCP

SCALE: As indicated
SHEET NUMBER
A-101

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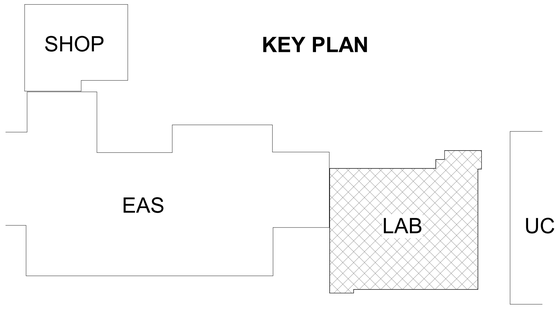

KEY PLAN

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- EXISTING WALL
- NEW WALL
- ADJACENT BUILDING
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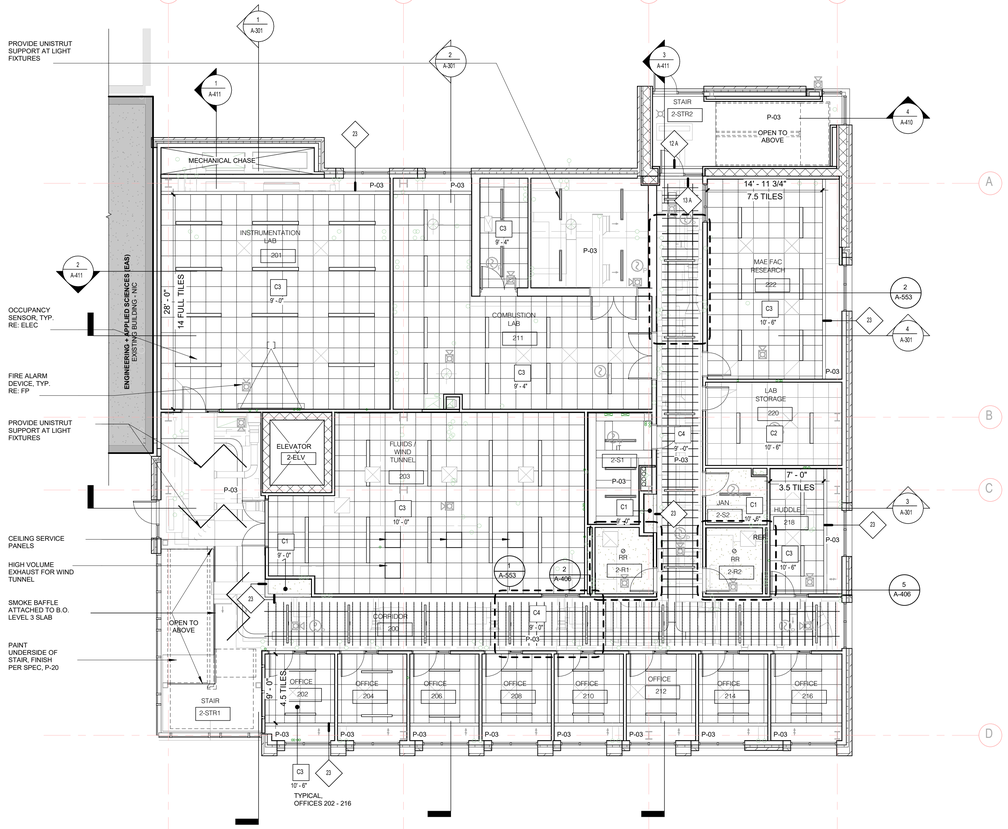
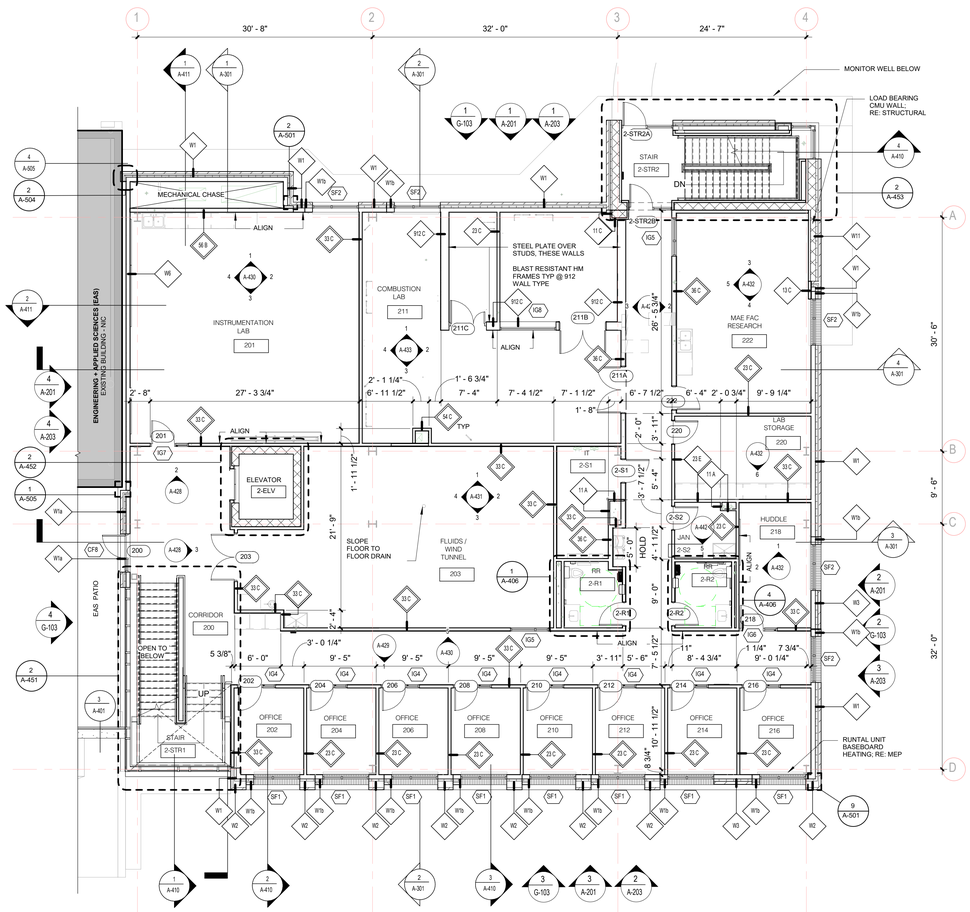


2 LEVEL 2 REFLECTED CEILING PLAN

1/8" = 1'-0"

PROJECT NORTH / TRUE NORTH



1 LEVEL 2 FLOOR PLAN

1/8" = 1'-0"

PROJECT NORTH / TRUE NORTH

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SHEET TITLE:
LEVEL 2 FLOOR PLAN & RCP

SCALE: As indicated
SHEET NUMBER
A-102

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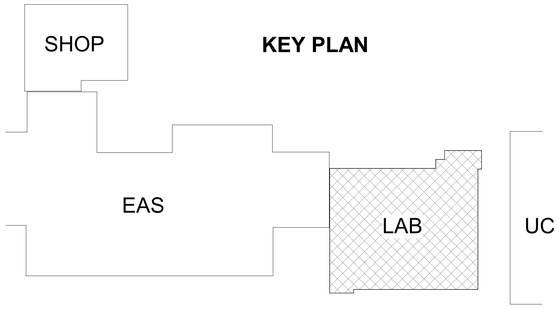

KEY PLAN

FLOOR PLAN LEGEND

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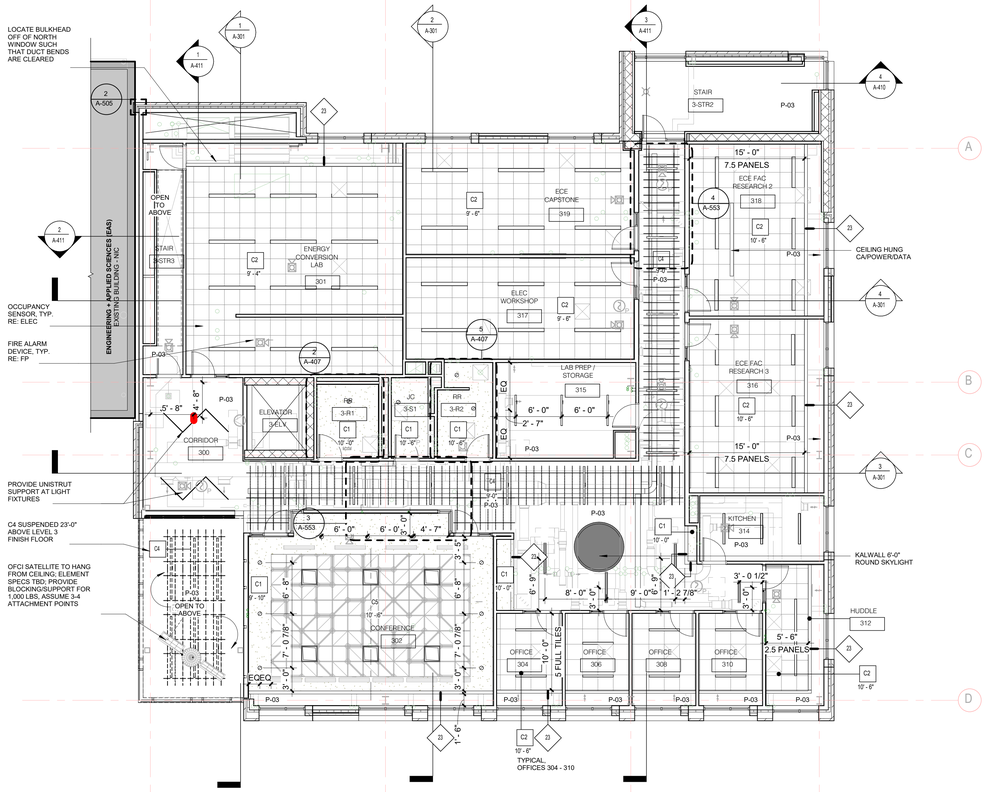
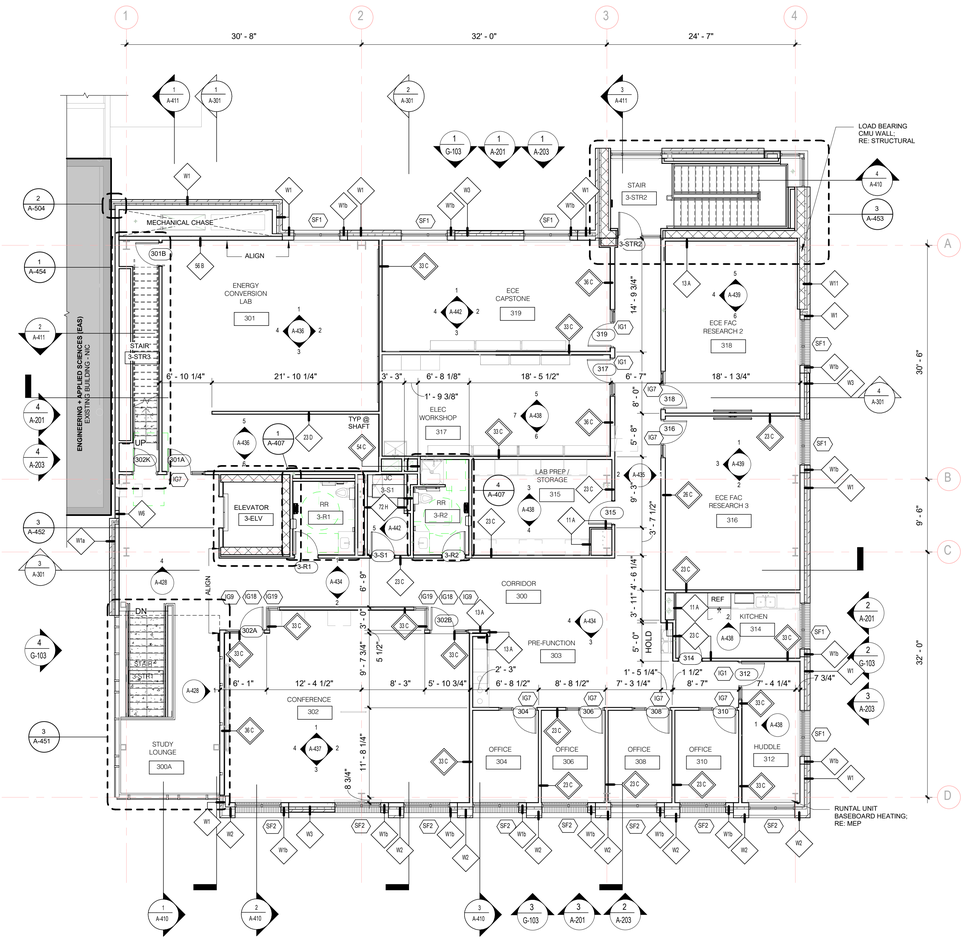
5	PARTITION TYPES INDICATED CONTINUE AROUND CORNERS U.N.O.
6	MAINTAIN CONTINUITY OF RATED PARTITIONS AT HEAD AND BOTTOM OF PARTITION AND AT JOINTS WITH DISSIMILAR PARTITIONS WITH LISTED JOINT ASSEMBLIES.
7	WHERE TWO DIFFERING PARTITION TYPES ABUT ALONG A CONTINUOUS LINE, THE CONTINUOUS FINISHED SURFACE OF THESE PARTITIONS SHALL ALIGN U.N.O.
8	WHERE DOORS ARE NOT SPECIFICALLY LOCATED, PROVIDE A HINGE-SIDE JAMB DIMENSION OF 4" FROM DOOR OPENING TO ADJACENT PERPENDICULAR PARTITION.
9	WHERE MECHANICAL DUCTWORK PENETRATES A COMPONENT OF THE FIRE-RATED ASSEMBLY, PROVIDE FIRE AND/OR SMOKE DAMPERS IN ACCORDANCE WITH IBC CHAPTER 7.
10	PROVIDE 1/2" CLEARANCE FROM DUCTWORK FOR VIBRATION ISOLATION.
11	THERE SHALL BE NO EXPOSED PIPES, DUCTS, ETC. ALL SUCH LINES SHALL BE CONCEALED OR FURRED UNLESS SPECIFICALLY NOTED AS EXPOSED CONSTRUCTION.
12	FIELD VERIFY DIMENSIONS PRIOR TO FABRICATION OF CASEWORK, MILLWORK AND OTHER BUILT-IN ITEMS.
13	SEE SHEET G-401 FOR MOUNTING HEIGHTS AND BLOCKING FOR FUTURE GRAB BARS.
14	SEE SHEET A-601 FOR DOOR SCHEDULE.
15	PROVIDE LEVEL 5 DRYWALL FINISH AT ALL WALLCOVERING LOCATIONS.
16	PROVIDE BLOCKING IN WALL AT ALL LCD AND WALL MOUNTED PC LOCATIONS
17	LEVEL 1 OF THE FABRICATION SHOPS ALIGNS WITH LEVEL 3 OF THE LAB BUILDING. ELEVATION/LEVEL MARKERS WILL SHOW LEVEL 3 AS THE GROUND PLANE FOR THE FABRICATION SHOPS BUILDING.
18	REFER TO FURNITURE AND FINISH FLOOR PLANS FOR WALL-MOUNTED ELEMENTS WHERE IN-WALL BLOCKING IS REQUIRED
19	PROVIDE BLOCKING AT ELECTRICAL PANELS; RE: ELECTRICAL



2 LEVEL 3 REFLECTED CEILING PLAN - LAB BLDG

1/8" = 1'-0"

PROJECT NORTH | TRUE NORTH



1 LEVEL 3 FLOOR PLAN - LAB BLDG

1/8" = 1'-0"

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STATE OF COLORADO — DAVID JOHN SCHAFER — #203158 — REGISTERED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

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SHEET TITLE:
LEVEL 3 FLOOR PLAN & RCP - LAB BLDG

SCALE: As indicated
SHEET NUMBER

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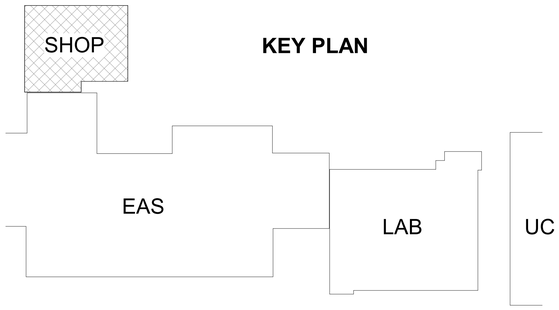

KEY PLAN

FLOOR PLAN LEGEND

- EXISTING WALL
- NEW WALL
- ADJACENT BUILDING
- 100A — DOOR TAG; RE: A-601 DOOR SCHEDULES & TYPES
- #22 — WINDOW TAG; RE: A-621, A-631, A-632 FOR WINDOW SCHEDULES & TYPES
- 23A — WALL TAG; RE: G-501 & G-502 FOR WALL TYPES
- 23A — ACOUSTIC WALL TAG; RE: G-501 & G-502 FOR WALL TYPES

CEILING PLAN LEGEND

- **C1:** GYPSUM BOARD ON METAL STUD FRAMING
  C1a: 1" SHAFTLINER ON 6" C-H CFMF ON 5/8" GYP BD
- **C2:** ACT-01
- **C3:** ACT-02 WITH 3.5" BATT INSULATION
- **C4:** ACT-03 ACOUSTIC FINS SUSPENDED BELOW EXPOSED METAL DECK (DECK PAINTED P-03); ELEVATIONS AFF NOTED ON RCP
- **C5:** ACT-04 3D ACOUSTIC TILES IN 15/16" GRID
- **C6:** 1-HR FIRE RATED CEILING: 2 LAYERS OF TYPE X 5/8" GYPSUM BOARD ATTACHED TO METAL STUD FRAMING
- EXPOSED STRUCTURAL METAL DECK, PAINTED P-03
- ADJACENT BUILDING

REFLECTED CEILING PLAN NOTES

1	REFLECTED CEILING PLANS INDICATE CEILING HEIGHTS AND LOCATION OF LIGHT FIXTURES, DIFFUSERS, DEVICES, AND SIMILAR ITEMS. REFER TO ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION REGARDING ELECTRICAL, HVAC, SPRINKLER AND LIFE SAFETY. IN THE EVENT OF A DISCREPANCY BETWEEN THE ARCHITECT'S REFLECTED CEILING PLAN AND THE ENGINEERS' PLANS, SEEK CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
2	COORDINATE ALL TRADES INVOLVED IN THE CEILING WORK TO ENSURE CLEARANCE FOR FIXTURES, DUCTS, PIPING, CEILING SUSPENSION SYSTEMS, ETC. NECESSARY TO MAINTAIN THE CEILING HEIGHTS INDICATED.
3	DIMENSIONS ARE TO FINISH U.N.O.
4	ACCESS PANELS NOT SHOWN, BUT REQUIRED BY PLUMBING, MECHANICAL, OR ELECTRICAL SYSTEMS, SHALL BE REVIEWED WITH ARCHITECT FOR LOCATION.
5	COORDINATE LOCATIONS OF SPRINKLER HEADS WITH ARCHITECT.
6	LIGHT FIXTURES, SPRINKLER HEADS, AND OTHER CEILING DEVICES SHALL BE EQUALLY SPACED AND ALIGNED WITH ADJACENT ELEMENTS AND CENTERED ON CEILING TILE, U.N.O.
7	CENTER ACOUSTICAL CEILING GRID WITHIN THE ROOM UNLESS DIMENSIONED OTHERWISE
8	PAINT GYPSUM BOARD CEILINGS P-01 U.N.O.
9	PAINT GYP BOARD SOFFITS (VERTICAL AND HORIZONTAL SURFACES) P-03 U.N.O.
10	PAINT EXPOSED CEILING STRUCTURE AND DUCTWORK P-01 U.N.O.
11	PROVIDE UL-CLASSIFIED LIGHT FIXTURES OR ENCLOSURES IN RATED FLOOR/CEILING ASSEMBLIES IN ACCORDANCE WITH IBC CHAPTER 7.
12	AT SHOPS BUILDING - SCRIBE GYPSUM WALLBOARD AROUND CFMF ROOF JOISTS. EXTEND TO B.O. DECK, SCRIBE TO DECK TYP THROUGHOUT
13	PAINT ALL EXPOSED CEILINGS, METAL DECK, DUCT WORK, CONDUIT, EXPOSED PIPE P-03 U.N.O.
14	ACOUSTIC FINS CAN BE REMOVED FROM SUSPENSION SYSTEM TO ACCESS CEILING ABOVE. IF THE SUSPENSION SYSTEM ITSELF PRESENTS AN ACCESS ISSUE, EACH 7FT SECTION CAN BE REMOVED AND REPLACED.
15	BULKHEAD ELEVATIONS AT WINDOW IN ROOMS WITH ACT CEILING SHOULD MATCH THE BOTTOM ELEVATION OF ACT, UNLESS OTHERWISE NOTED.

FLOOR PLAN NOTES

1	EL 100'-0" (LEVEL 1) EQUATES TO USGS DATUM ELEVATION OF 6415.
2	EXTERIOR DIMENSIONS ARE TO FACE OF SHEATHING, FACE OF CONCRETE/MASONRY, COLUMN CENTERLINE, OR CENTERLINE OF WINDOW U.N.O.
3	INTERIOR DIMENSIONS ARE TO FACE OF STUD, FACE OF CONCRETE/MASONRY, OR COLUMN CENTERLINE U.N.O. DIMENSIONS DESIGNATED AS "CLEAR" OR "HOLD" SHALL BE MAINTAINED.
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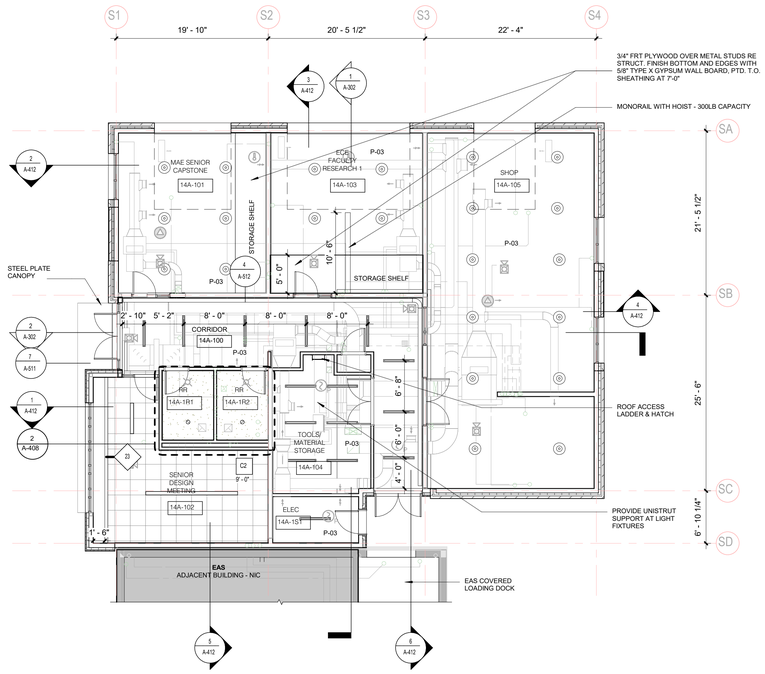
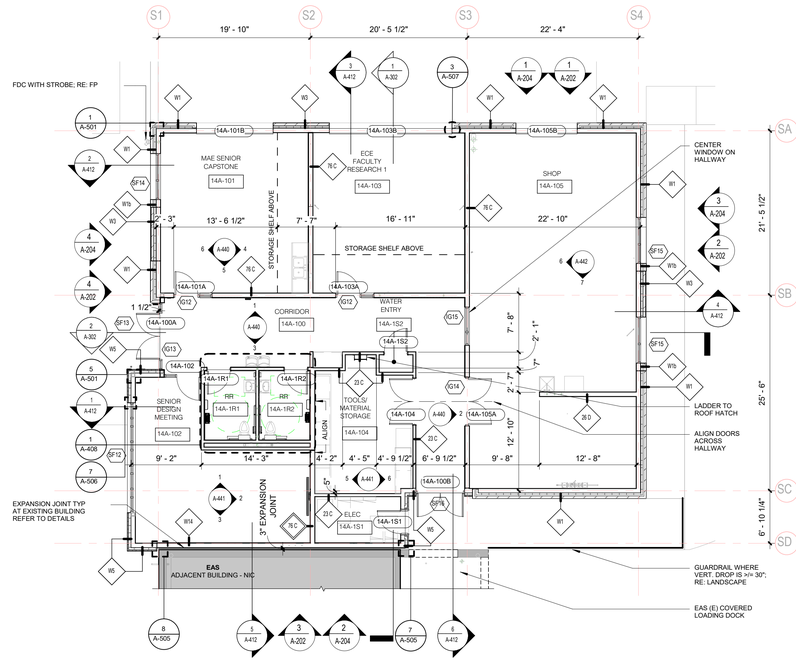


2 REFLECTED CEILING PLAN - SHOP BLDG

1/8" = 1'-0"

PROJECT NORTH / TRUE NORTH



1 FLOOR PLAN - SHOP BLDG

1/8" = 1'-0"

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SHEET TITLE:
FLOOR PLAN & RCP - SHOP BLDG

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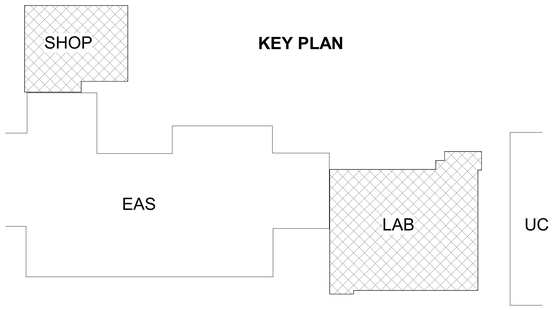
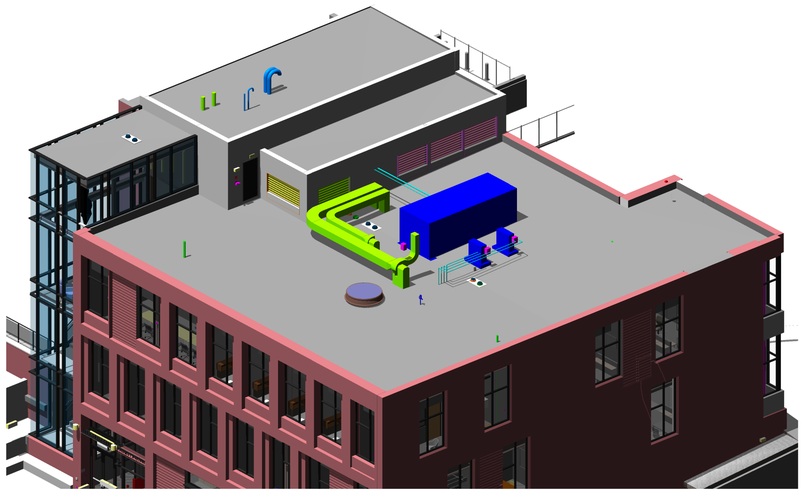
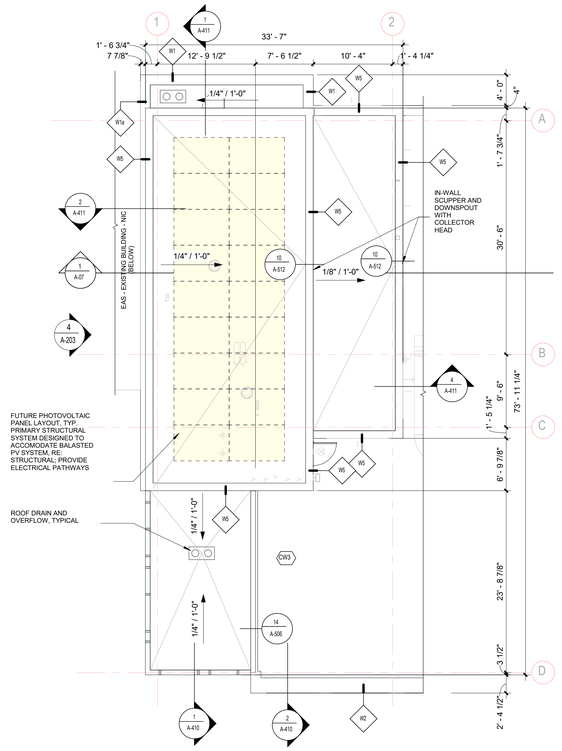


KEY PLAN



5 ROOFTOP AXON VIEW



3 UPPER ROOF PLAN - LAB BLDG

1/8" = 1'-0"

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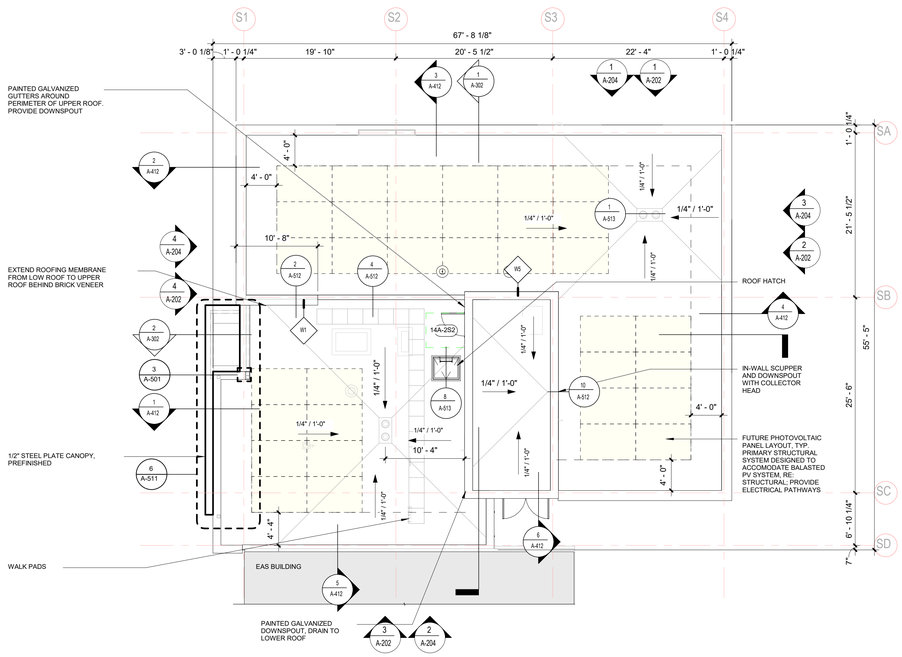
	ROOF PLAN NOTES
1	MAINTAIN MINIMUM SLOPE OF 1/4" PER FOOT AT ROOF AREAS (INCLUDING CRICKETS). SLOPE VALLEYS A MINIMUM OF 1/8" PER FOOT.
2	MAINTAIN 2" MINIMUM RIGID INSULATION AT ROOF DRAINS.
3	OVERFLOW DRAINS ARE TO BE 2" ABOVE PRIMARY ROOF DRAINS U.N.O.
4	PROVIDE WALKWAY PADS BETWEEN AND AROUND MECHANICAL EQUIPMENT, ACCESS POINTS, AND WINDOW WASHING LOCATIONS.
5	LAP, SEAL, AND WATERPROOF ROOF PENETRATIONS PER ROOFING MFR STD DETAILS AND INSTRUCTIONS RE: MEPT AND STRUCTURAL DRAWINGS FOR LOCATIONS AND QUANTITIES
6	PROVIDE BLOCKING AND FLASHING FOR ROOF HATCH AND ROOF SKYLIGHT PER MFR STD DETAILS AND INSTRUCTIONS. LAP, SEAL, AND WATERPROOF PER ROOFING MFR STD DETAILS AND INSTRUCTIONS. REINFORCE OPENINGS RE STRUCTURAL DRAWINGS
7	PROVIDE BLOCKING AND FLASHING FOR ROOF SCUPPERS, LAP, SEAL AND WATERPROOF PER ROOFING MFR STD DETAILS
8	LAP, SEAL AND WATERPROOF ROOF-TO-PARAPET BASE TRANSISTIONS PER MFR STD DETAILS AND INSTRUCTIONS
9	ALL PARAPET WALLS TO BE FILLED WITH BATT INSULATION ABOVE ROOF DECK LEVEL

PV PANEL TOTAL AREA COUNT

BUILDING	PV PANEL COUNT	TOTAL AREA (23.5 F² PER PANEL)
LAB BUILDING ROOF	76	1 786 F²
LOWER ROOF	58	
UPPER ROOF	18	
SHOP BUILDING ROOF	34	800 F²
BIKE RACK ROOF	2	47 F²
TOTAL	**112**	**2 632 F²**



2 ROOF PLAN - SHOP BLDG

1/8" = 1'-0"

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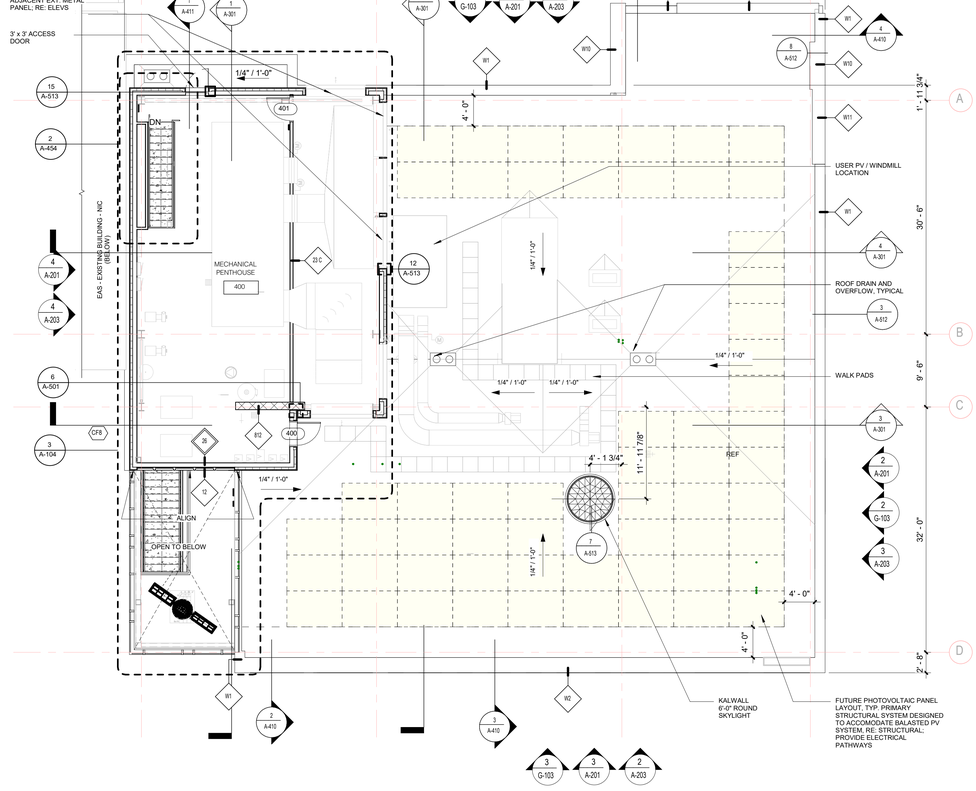

1 LOWER ROOF PLAN - LAB BLDG

1/8" = 1'-0"

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ROOF PLANS

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FINISH LEGEND - INTERIOR

MARK	LOCATION	MANUFACTURER	STYLE	COLOR	SIZE	FINISH	LEED DATA	LEED REF	REMARKS	CONTACT
ACOUSTIC TILE										
ACT-01		ARMSTRONG	ULTIMA TEGULAR - W/ 15/16" PRELUDE GRID - 1911HRC	WHITE	24X24					
ACT-02	CORRIDORS, L1, L2, L3	AUTEX	FRONTIER - TUNDRA BAFFLE	95% SAVOYE, 5% FALLING WATER(L3), 5% ACROS(L1), 5% FLATIRON(L2)	1/2"THICK, 8" FIN DEPTH, 12" SPACING *	95% SAVOYE, 5% FALLING WATER(L3), 5% ACROS(L1), 5% FLATIRON(L2)				
ACT-02(A)	ALTERNATE TO ACT-02	FSORB	SILENTILINE DIMENSION BAFFLES	95% LIGHT GREY, 5%OCEAN BLUE(L3), 5%MOSS GREEN (L1), 5%ORANGE (L2)	1/2" THICKNESS, SL-95-Box Baffle White-100-CG	95% LIGHT GREY, 5%OCEAN BLUE(L3), 5%MOSS GREEN (L1), 5%ORANGE (L2)				
ACT-03		TURF DESIGN	CREASE		24X24				15/16" GRID	
ACOUSTICAL TREATMENT										
AWP-01	L1 CORRIDORS	FITZ FELT	3MM WOOL DESIGN FELT	260 SPRIEBEN	3MM ROLL RE: ELEVATIONS					
AWP-02	L2 CORRIDORS	FITZ FELT	3MM WOOL DESIGN FELT	487 PFIRSICH	3MM ROLL: RE ELEVATIONS					
AWP-03	L3 CORRIDORS	FITZ FELT	3MM WOOL DESIGN FELT	551 EIS	3MM ROLL - RE: ELEVATIONS					
AWP-04	LABS/ CLASSROOMS - COVER 50% OF WALL SURFACE	FSORB	48x96 PANELS	LIGHT GREY FS-130	1"					
AWP-05	LABS/ CLASSROOMS - COVER 50% OF WALL SURFACE	FSORB	48x72 PANELS	LIGHT GREY FS-130	1"					
AWP-06	LABS/ CLASSROOMS - COVER 50% OF WALL SURFACE	FSORB	24x96 PANELS	LIGHT GREY FS-130	1"					
AWP-07	LABS/ CLASSROOMS - COVER 50% OF WALL SURFACE	FSORB	24x72 PANELS	LIGHT GREY FS-130	1"					
CARPET										
CPT-01	OFFICES	SHAW	RIDGE TILE - 5T446	GRANITE 06500	9X36				INSTALL METHOD: MONOLITHIC	
CPT-02	CLASSROOMS	SHAW	RIDGE TILE - 5T446	AGGREGATE 06501	9X36				INSTALL METHOD: MONOLITHIC	
CPT-03	CONFERENCE ROOMS/AREA RUGS	SHAW	COLLECTIVE IV TILE 5T441	CHARCOAL 38500	9X36				INSTALL METHOD: MONOLITHIC	
CPT-04	L3 AREA RUG	SHAW	WATERFALL 69170	LUSTER	ROUND - 12' DIAM , SLOPPED RUBBER EDGE				INSTALL METHOD: MONOLITHIC	
CPT-05	L1 AREA RUG	SHAW	COLLECTIVE IV TILE 5T441	CHARCOAL 38500	SLOPED RUBBER EDGE				INSTALL METHOD: MONOLITHIC	
CORNER GUARDS										
CG-01	RE: FINISH PLAN	ACROVYN	SM-20	TBD	FULL HEIGHT / 8'-0 MIN.	STAINLESS STEEL				
FIBERGLASS REINFORCED PANEL										
FRP-01	JANITOR CLOSETS, LABS AS NOTED	MARLITE	SMOOTH	WHITE						
FILM										
FLM-01	OFFICES/SIDLITE DONOR OPPORTUNITIES	3M	FASARA - FROST MATTE - SH2FGMR		RE: ELEVATIONS					
FLM-02	DONOR OPPORTUNITES	3M	SOLID WHITE VINYL FILM	WHITE	RE: ELEVATIONS				CONFIRM FINAL TEXT WITH OWNER	
GROUND MATS										
GM-01	ENERGY CONVERSION LAB	ULINE	GROUNDING MAT		RE: FINISH PLAN					
HARDWARE										
HWR-01		HAFELE	TAB PULLS	BLACK	4"					
LAMINATE										
LAM-01	RESTROOMS	WILSONART	D504-60	FOSSIL SHALE						
LAM-02		FORMICA	9684-58	NATURAL RECYCLED KRAFT						
MARKERBOARD										
MKR-01		GHENT	PORCELLAIN M1 - MAGNETIC	WHITE	4X6				PROVIDE MARKER TRAY/ERASER/MAGNETS	
MKR-02		GHENT	PORCELLAIN M1 - MAGNETIC	WHITE	4X8				PROVIDE MARKER TRAY/ERASER/MAGNETS	
MKR-03		GHENT	PORCELLAIN M1 - MAGNETIC	WHITE	4X4				PROVIDE MARKER TRAY/ERASER/MAGNETS	
MKR-04	CONFERENCE ROOM 302 & 14A-102	SPRINGBOARD	LITETCH FLUSH MOUNTED MARKERBOARD	WHITE	RE: ELEVATIONS				PROVIDE MARKER TRAY/ERASER/MAGNETS	
PAINT										
P-01	TYPICAL WALL PAINT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 7063	NEBULOUS WHITE		EGGSHELL				
P-02	TRIM PAINT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 6990	CAVIAR		SEMI GLOSS				
P-03	EXPOSED CEILING PAINT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 7006	EXTRA WHITE		EGGSHELL				
P-04	TYPICAL CEILING PAINT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 7006	EXTRA WHITE		FLAT				
P-05	STAIR/RAILING/STRINGER PAINT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 6990	CAVIAR		EGGSHELL				
P-06	ACCENT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 7074	SOFTWARE		EGGSHELL				
P-07	L1 ACCENT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 6430	GREAT GREEN		EGGSHELL				
P-08	L2 ACCENT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 6627	EMBERGLOW		EGGSHELL				
P-09	L3 ACCENT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 6494	LAKESHORE		EGGSHELL				
P-10	ACCENT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 7674	PEPPERCORN		EGGSHELL				
P-20	EXTERIOR PAINT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC	SW 6990	CAVIAR						
P-21	EXTERIOR PAINT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC		RAL 6009						
P-22	EXTERIOR PAINT	SHERWIN WILLIAMS - Pro-Mar 200 Zero VOC		RAL 8019						
PHENOLIC COUNTERTOPS										
PHE-01		SOLID PHENOLIC COUNTERTOP	SOLID PHENOLIC COUNTERTOP	BLACK	RE: ELEVATIONS					
POLISHED CONCRETE										
PC-01		POLISHED CONCRETE								
POURED FLOOR										
PF-01	ELEC CAR BAY	POURED EPOXY FLOOR - SHERWIN WILLIAMS	RESUFLOR - DECO QUARTZ BC23	TBD	INTEGRAL 4" BASE					
RESILIENT FLOORING										
RF-02	ELEC. WORKSHOP	ROPPE	ESD RUBBER STATIC CONTROL TILE		24X24					
RF-03		INTERFACE	BRUSHED LINES	A016 / A01609 PARAFFIN	25CM X 1 M	INCLUDE SOUND CHOICE BACKING				
RF-04		INTERFACE	BRUSHED LINES	A016 / A01604 GALENA	25CM X 1 M	INCLUDE SOUND CHOICE BACKING				
RUBBER BASE										
RB-01		TARKETT	COVE BASE		4"					
SEALED CONCRETE										
SC-01		CRL	EUCLID SUPER DIAMOND CLEAR VOX							
SOLID SURFACE										
SS-01	RESTROOMS	DUPONT CORIAN	CARBON CONCRETE							
SS-02		DUPONT CORIAN	DOVE							
SS-03	WINDOW SILLS	DUPONT CORIAN	DESIGNER WHITE							
TACKBOARD										
TKB-01		FORBO BULLETIN BOARD		2187 BROWN RICE						
TILE										
T-01	DRINKING FOUNTAIN WALL	ERGON	ABACUS - PLISSE, LUX	CALCE PLISSE, LUX	2-15/16"x7-7/8"					
T-02		ERGON	MEDLEY	GREY						
T-03	RESTROOM WALL	ERGON	ABACUS - ELGV	CALCE LUX	2-15/16"x7-7/8"					
TRANSITION STRIP										
TS-01	CARPET TO POLISHED/SEALED CONCRETE	TARKETT	SLT XX L	CHARCOAL						
TS-02	CARPET TO RESILIENT FLOORING (LVT)	TARKETT	SLT XX F	CHARCOAL						
TS-03	RESILIENT FLOORING TO TILE	SCHLUTER	RENO-TK							
TS-04	TRANSITION AT TOP OF TILE	SCHLUTER	JOLLY							
TS-05	TRANSITION AT TILE COVE BASE	SCHLUTER	DILEX-AHK							
TS-06	TRANSITION AT AWP-01,02, 03	FRYREGLET	WCTBT125-217							
TS-07	STAIR NOSING @ ALL STAIR TREDS	AMSTEP PRODUCTS	SERIES 200 ANTI SLIP SAFETY STAIR NOSING	224A	2 3/8"					
TS-09	TILE TO CONCRETE	SCHLUTER	RENO-RAMP/-K							
TS-10	TRANSITION AT TILE COVE BASE @ CONCRETE	SCHLUTER	DILEX-AHKA							
WALK OFF CARPET										
WM-01		MOHAWK	FIRST STEP II	IRON ORE					INSTALL METHOD: MONOLITHIC	
WALL COVERING										
WC-01		DESIGN TEX	CUSTOM WALL GRAPHIC						Rendering appearance not upgraded	
WINDOW TREATMENT										
WIN-01		MECHOSHADE	MANUAL ROLLER SHADES 1% OPENNESS FACTOR	ECOVEIL 0950						
WIN-02		MECHOSHADE	MANUAL ROLLER SHADES 3% OPENNESS FACTOR	ECOVEIL 1550		NORTH / EAST WINDOWS				
WIN-03		MECHOSHADE	MANUAL DOUBLE ROLLER SHADES 1% OPENNESS FACTOR/BLACKOUT	ECOVEIL 0950, Equinox Blackout 0100 Series		SOUTH / WEST WINDOWS				
WIN-04		MECHOSHADE	MANUAL DOUBLE ROLLER SHADES 3% OPENNESS FACTOR/BLACKOUT	ECOVEIL 1550, Equinox Blackout 0100 Series						

ACCESSORY SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL	FINISH	THESE WILL POPULATE ONCE CFCI / OFCI / OFOI/CFOI ARE FILLED IN				COMMENTS
					CFCI "X"	OFCI "X"	OFOI "X"	CFOI "X"	
ACC-01	36" GRAB BAR	BOBRICK	B-9806 x 36:		X				
ACC-02	40" GRAB BAR	BOBRICK	B-9806 x 40:		X				
ACC-03	18" GRAB BAR	BOBRICK	B-9806 x 18		X				
ACC-04	TOILET TISSUE DISPENSER	BRADLEY	5425			X			
ACC-05	SANITARY NAPKIN DISPOSAL	BOBRICK	B-270		X				
ACC-06	TOILET PRIVACY PARTITION	STRANTON PRODUCTS	HINY HIDERS - FLOOR MOUNTED, OVERHEAD BRACED		X				
ACC-07	FACE LIT FRAMELESS MIRROR	SCOTTARCHLIGHTING.COM	SM030_42X84 - L930K		X				RE: ELECTRICAL DRAWINGS.
ACC-08	FACE LIT FRAMELESS MIRROR	SCOTTARCHLIGHTING.COM	SM010_48x30 - L930K		X				FRAMELESS TEMPERED GLASS
ACC-09	WALL MOUNTED HAND DRYER	Dyson	Dyson Airblade V AB12 Nickel		X				
ACC-10	SEMI-RECESSED TOWEL DISPENSER AND WASTE	BOBRICK	B-3942		X				
ACC-11	WALL-MOUNTED SOAP DISPENSER	SCOTT 92145	1250 ML			X			
ACC-12	18" BRACKET MOUNTED SHELVING	BOBRICK	STAINLESS STEEL		X				RECESSED REQUIRED
ACC-15	FACE LIT FRAMELESS MIRROR	SCOTTARCHLIGHTING.COM	SM010_40X24 - L930K		X				
ACC-16	Feminine Hygiene Dispenser	AUNT FLOW MENSTRUAL PRODUCTS	AF-DISP-ESTR-1 / AFL 03691						
ACC-25	TOILET PRIVACY PARTITION	STRANTON PRODUCTS	HINY HIDERS - FLOOR MOUNTED, OVERHEAD BRACED		X				
ACC-26	TOILET PRIVACY PARTITION	STRANTON PRODUCTS	HINY HIDERS - FLOOR MOUNTED, OVERHEAD BRACED		X				
ACC-27	DOOR HOOK	BOBRICK	B211		X				
ACC-28	FOOT DOOR PULL	STEPNPULL	STEPNPULL						
ACC-38	ADA TRANSFER SHOWER	FREEDOM SHOWERS	APFQ3682BF75R		X				PROVIDE GRAB BARS, FOLDING SEAT, COLLAPSIBLE RETAINER, WEIGHTED SHOWER CURTAIN AND ROD, SOAP DISH
ACC-45	Touchless Paper Towel Dispenser	GP PRO Georgia-Pacific LLC	59462A		X				

APPLIANCE SCHEDULE

x	DESCRIPTION	ROOM	MANUFACTURER	MODEL	LENGTH X WIDTH X HEIGHT	DIMENSIONS			FINISH	COMMENTS
						LENGTH	WIDTH	HEIGHT		
APP-01	MICROWAVE	KITCHEN	GE	PES7227SLSS	19' - 0 3/4"/ x 24' - 0 1/8"/ x 1' - 2"/	19' - 0 3/4"	24' - 0 1/8"	1' - 2"	STAINLESS	
APP-02	REFRIGERATOR	KITCHEN	GE	PWE23KYNFS	2' - 11 3/4"/ x 2' - 7 1/4"/ x 5' - 9 7/8"/	2' - 11 3/4"	2' - 7 1/4"	5' - 9 7/8"	STAINLESS	

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SHEET TITLE:
FINISH LEGEND

SCALE:

SHEET NUMBER
A-140

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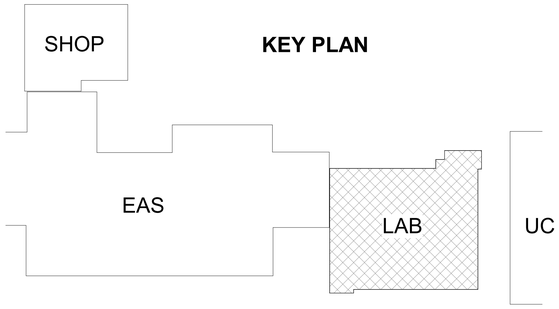


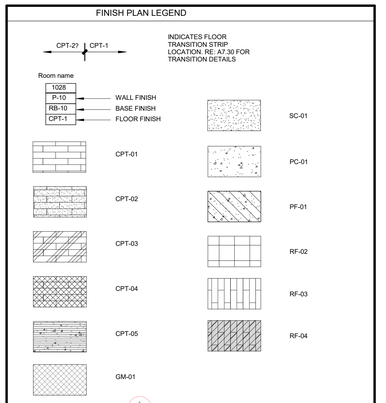
EQUIPMENT SCHEDULE_MAE SPACE SYSTEMS LAB

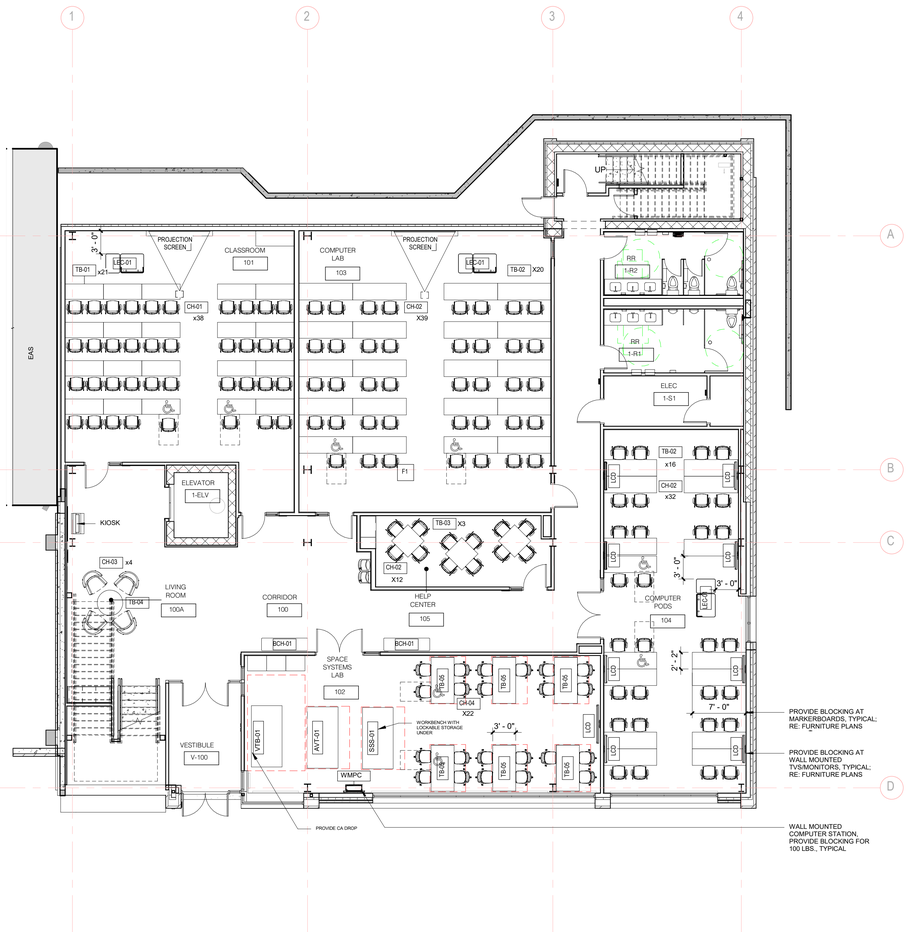
EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
AVT-01	OFOI	AVIONICS TESTBED				8' - 0"	4' - 0"	2' - 9"							PC	None	None	MOBILE
SSS-01	OFOI	SPACE SYSTEMS STATION						2' - 9"							PC	None	None	
VTB-01	OFOI	VIBRATION TABLE	SENETEK DYNAMICS	L0111A		8' - 0"	4' - 0"	3' - 0"	4.5 KVA	12.5 A	3P					None	Outside	Need access to 2 sides (placed in corner), 6 in clr. to wall, 4 ft clr. in front of control panel side, min. 3 ft clr. in front of remaining side is ideal. Comes with AIF - Air Isolation Feet for mounting to concrete floor. Blower ideally located outside within 18 ft of shaker. 19 A min slow-blow fuse/circuit breaker
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														

FINISH PLAN NOTES

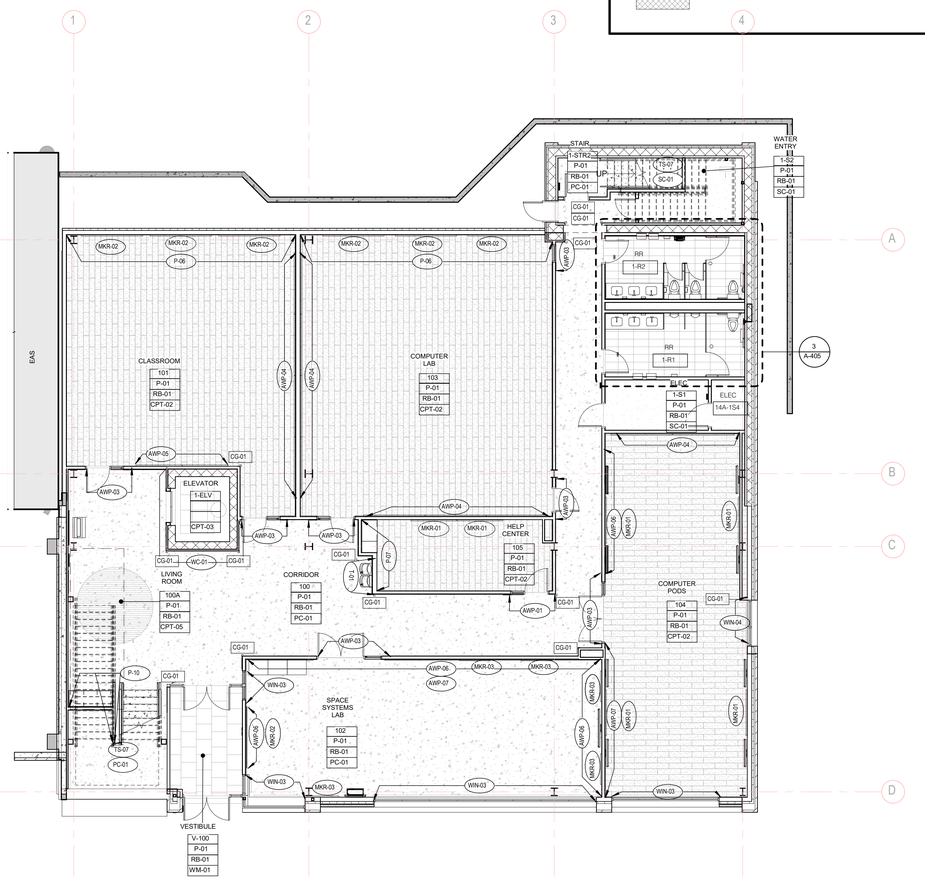
1	DIMENSIONS ARE TO FACE OF FINISH U.N.O.
2	SEE SHEET A-140 FOR FINISH LEGEND.
3	SEE RCPs (A-130 SERIES SHEETS) AND INTERIOR ELEVATIONS (A- 800 SERIES SHEETS) FOR ADDITIONAL FINISH INFORMATION.
4	SEE SHEET A-552 FOR FLOOR AND BASE TRANSITION DETAILS.
5	FLOOR MATERIAL TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
6	FLOORING TO EXTEND UNDER COUNTERS, WORKSURFACES, APPLIANCES AND REMOVABLE BASE CABINETS.
7	PAINT TRANSITIONS TO OCCUR AT INSIDE CORNERS U.N.O.
8	PAINT GYP BOARD WALLS P-01 U.N.O.
9	PAINT DOOR FRAMES P-02 U.N.O.
10	BASE TO BE RB-01 U.N.O.
11	PAINT EXPOSED CONDUIT, PIPING, ETC. TO MATCH ADJACENT FINISH.
12	PAINT ALL EXPOSED CEILINGS P-03 U.N.O.
13	PROVIDE FLM-01 AT ALL OFFICE FRONTS U.N.O.
14	PROVIDE TS-05 AT WALL TILE TO FLOOR TILE TRANSITIONS U.N.O.
15	PROVIDE LEVEL 5 DRYWALL FINISH AT ALL WALLCOVERING LOCATIONS.
16	PROVIDE SS-03 AT ALL WINDOW SILLS U.N.O.
17	PROVIDE CG-01 AT ALL OUTSIDE CORNERS.
18	PAINT ALL METAL STAIR STRINGERS, RISERS AND RAILING P-05 U.N.O.
19	PAINT ALL EXPOSED INTERIOR COLUMNS P-05 U.N.O.

FINISH PLAN LEGEND





2 LEVEL 1 FURNITURE/EQUIPMENT PLAN
1/8" = 1'-0"



1 LEVEL 1 WALL FINISH PLAN
1/8" = 1'-0"

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SHEET TITLE:
LEVEL 1 INTERIOR FINISH & FURNITURE PLANS - LAB BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER
A-141

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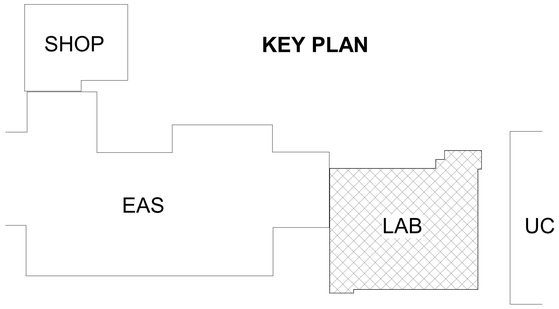


EQUIPMENT SCHEDULE_MAE INSTRUMENTATION LAB

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
LSN-01	OFOI	LAB STATION				6' - 0"	2' - 6"	5' - 0"	125		1		NO	YES	PC	CA	None	POWER SUPPLY AND COMPUTER, DIGITAL MULTIMETER AND OSCILLOSCOPE AT EACH STATION
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														

EQUIPMENT SCHEDULE_MAE COMBUSTION LAB

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
CBT-##	OFOI	COMBUSTION STATION	UCCS			6' - 0"	10' - 0"	5' - 0"			3P		NO	YES	PC	NG, CA	YES	
CLN	CFCI	CYLINDER RESTRAINT	Ply-Cylinder	7210-YE														
DLS-01	OFOI	DYE LASER SYSTEM	EDGEWAVE, SIRHA	IS-slab Nd:YAG pump laser and Credo high-speed dye laser		4' - 0"	6' - 0"	4' - 0"			1P		NO	4 CIRCUITS OF UP TO 4kW	PC	None	None	
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														

EQUIPMENT SCHEDULE_MAE FACULTY RESEARCH

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
LSN-01	OFOI	LAB STATION				6' - 0"	2' - 6"	5' - 0"	125		1		NO	YES	PC	CA	None	MOBILE WORKSTATION WITH STORAGE
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														

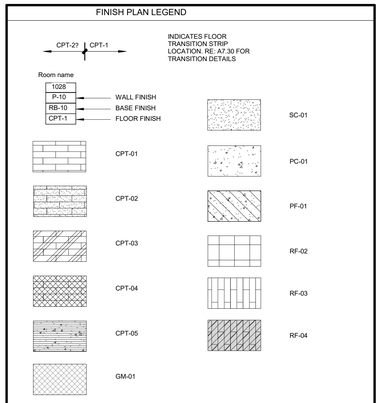
EQUIPMENT SCHEDULE_MAE FLUIDS LAB

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														
WND-01	OFOI	WIND TUNNEL	AEROVENT	22-CBD-2253-10		16' - 0"	4' - 0"	6' - 0"	460	40	3		No		No	None	None	need 8ft in front and 8 ft behind for proper tunnel use. Flow development, need outside venting

FINISH PLAN NOTES

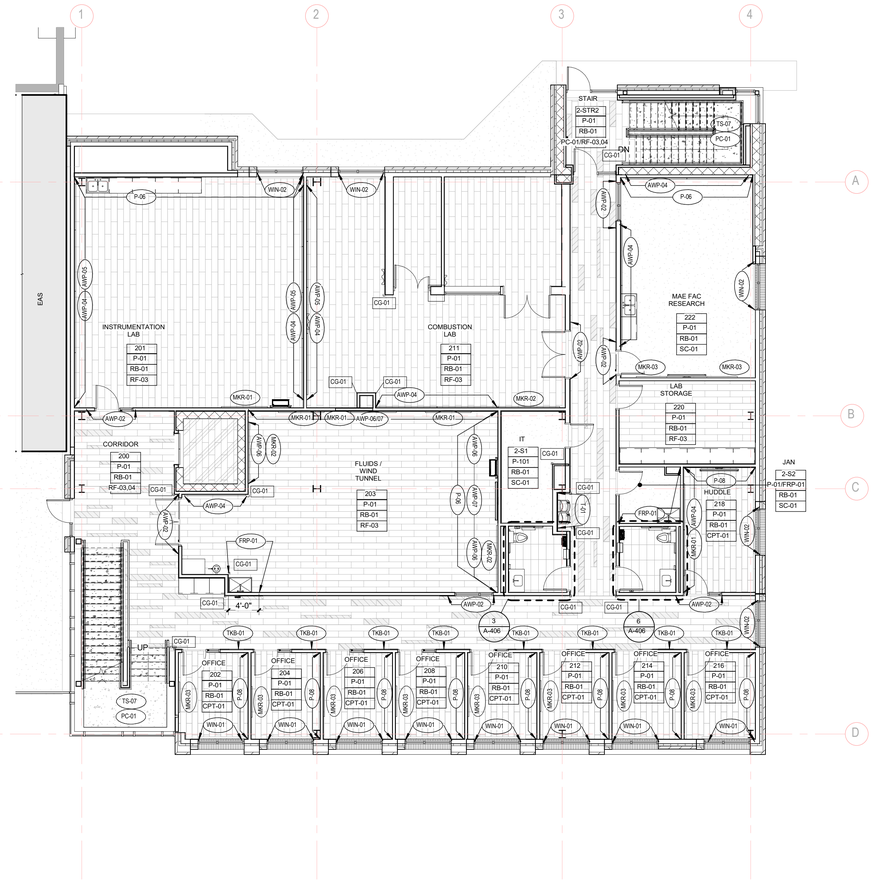
1	DIMENSIONS ARE TO FACE OF FINISH U.N.O.
2	SEE SHEET A-140 FOR FINISH LEGEND.
3	SEE RCPs (A-130 SERIES SHEETS) AND INTERIOR ELEVATIONS (A- 800 SERIES SHEETS) FOR ADDITIONAL FINISH INFORMATION.
4	SEE SHEET A-552 FOR FLOOR AND BASE TRANSITION DETAILS.
5	FLOOR MATERIAL TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
6	FLOORING TO EXTEND UNDER COUNTERS, WORKSURFACES, APPLIANCES AND REMOVABLE BASE CABINETS.
7	PAINT TRANSITIONS TO OCCUR AT INSIDE CORNERS U.N.O.
8	PAINT GYP BOARD WALLS P-01 U.N.O.
9	PAINT DOOR FRAMES P-02 U.N.O.
10	BASE TO BE RB-01 U.N.O.
11	PAINT EXPOSED CONDUIT, PIPING, ETC. TO MATCH ADJACENT FINISH.
12	PAINT ALL EXPOSED CEILINGS P-03 U.N.O.
13	PROVIDE FLM-01 AT ALL OFFICE FRONTS U.N.O.
14	PROVIDE TS-05 AT WALL TILE TO FLOOR TILE TRANSITIONS U.N.O.
15	PROVIDE LEVEL 5 DRYWALL FINISH AT ALL WALLCOVERING LOCATIONS.
16	PROVIDE SS-03 AT ALL WINDOW SILLS U.N.O.
17	PROVIDE CG-01 AT ALL OUTSIDE CORNERS.
18	PAINT ALL METAL STAIR STRINGERS, RISERS AND RAILING P-05 U.N.O.
19	PAINT ALL EXPOSED INTERIOR COLUMNS P-05 U.N.O.

FINISH PLAN LEGEND



2 LEVEL 2 FURNITURE/EQUIPMENT PLAN

1/8" = 1'-0"



1 LEVEL 2 WALL FINISH PLAN

1/8" = 1'-0"

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SHEET TITLE:
LEVEL 2 INTERIOR FINISH & FURNITURE PLANS - LAB BLDG

SCALE: 1/8" = 1'-0"

SHEET NUMBER
A-142

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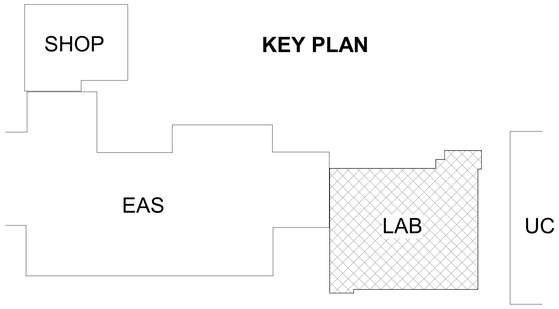

EQUIPMENT SCHEDULE_ENERGY CONVERSION / POWER GEN LAB

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
BAT-01	OFOI	BATTERY STATION	UCCS			7' - 0"	2' - 6"	3' - 4"	208, 240	11	3P			YES	PC	None	None	
PWR-01	OFOI	POWER LAB STATION	UCCS			4' - 2"	2' - 4"	6' - 7"	208, 240	11	3P			YES	PC	None	None	5 STATIONS, WITH CPU TABLES AT EACH; DIRECT CIRCUIT, INDUCTION, TRANFORM, SYNCH, REGEN. PROVIDE (2) 3" CONDUITS FROM CEILING TO ROOF, WITH DEDICATED AREA NEARBY ON ROOF, ALL POWER TYPES
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														

EQUIPMENT SCHEDULE_ECE FACULTY RESEARCH 3

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														

EQUIPMENT SCHEDULE_ELEC WORKSHOP

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
CAB-01	OFOI	TOOL STORAGE				3' - 6"	2' - 6"	3' - 0"									None	

EQUIPMENT SCHEDULE_ECE FACULTY RESEARCH 2

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														

FINISH PLAN NOTES

1	DIMENSIONS ARE TO FACE OF FINISH U.N.O.
2	SEE SHEET A-140 FOR FINISH LEGEND.
3	SEE RCPs (A-130 SERIES SHEETS) AND INTERIOR ELEVATIONS (A- 800 SERIES SHEETS) FOR ADDITIONAL FINISH INFORMATION.
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5	FLOOR MATERIAL TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
6	FLOORING TO EXTEND UNDER COUNTERS, WORKSURFACES, APPLIANCES AND REMOVABLE BASE CABINETS.
7	PAINT TRANSITIONS TO OCCUR AT INSIDE CORNERS U.N.O.
8	PAINT GYP BOARD WALLS P-01 U.N.O.
9	PAINT DOOR FRAMES P-02 U.N.O.
10	BASE TO BE RB-01 U.N.O.
11	PAINT EXPOSED CONDUIT, PIPING, ETC. TO MATCH ADJACENT FINISH.
12	PAINT ALL EXPOSED CEILINGS P-03 U.N.O.
13	PROVIDE FLM-01 AT ALL OFFICE FRONTS U.N.O.
14	PROVIDE TS-05 AT WALL TILE TO FLOOR TILE TRANSITIONS U.N.O.
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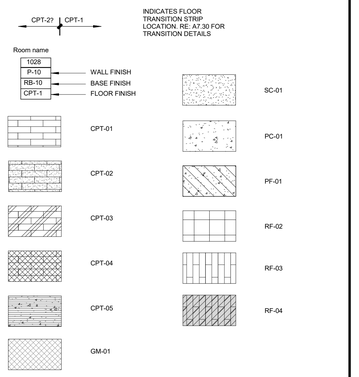
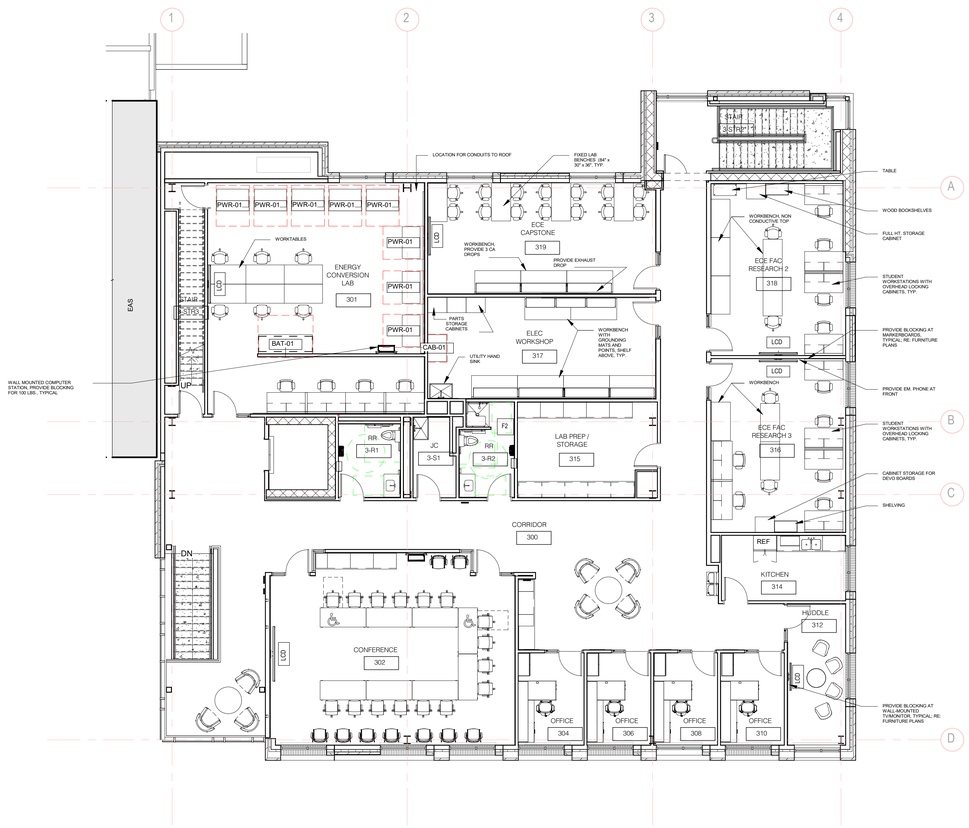
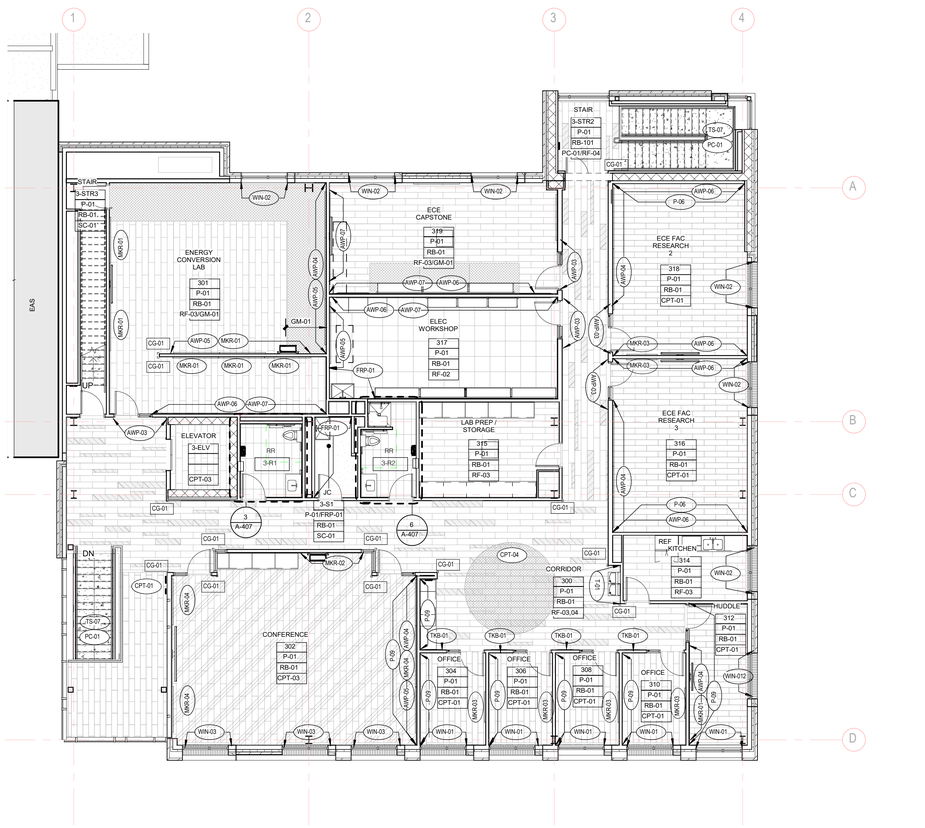
19	PAINT ALL EXPOSED INTERIOR COLUMNS P-05 U.N.O.

FINISH PLAN LEGEND





2 FURNITURE/EQUIPMENT PLAN - LAB BLDG
1/8" = 1'-0"



1 FINISH PLAN - LAB BLDG
1/8" = 1'-0"

PROJECT NORTH TRUE NORTH

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SHEET TITLE:
LEVEL 3 INTERIOR FINISH & FURNITURE PLANS - LAB BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER
A-143A

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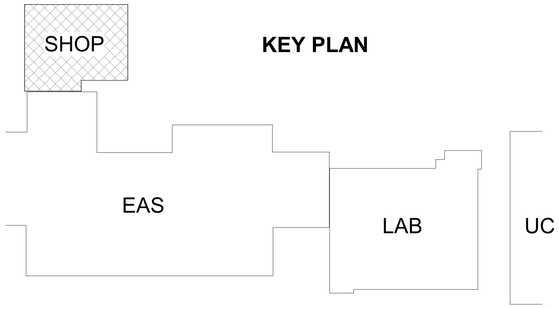


KEY PLAN

EQUIPMENT SCHEDULE_SAE CAR BAY

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
BAT-01	O/O	BATTERY STORAGE				2' - 0"	2' - 0"	5' - 0"									None	1'x8"x4" PACKS OF BATTERIES ON SHELVING
CAR-01	OFOI	ELECTRIC CAR	UCCS			5' - 0"	11' - 0"	4' - 6"							PC	None	None	
FE	CFCI	FIRE EXTINGUISHER	SEE SPECS	3A-40B:C														
	CFCI	PAPER TOWEL	GP PRO Georgia-Pacific LLC	59462A														
CAB-01	OFOI	TOOL STORAGE				3' - 6"	2' - 6"	3' - 0"									None	

EQUIPMENT SCHEDULE_ELEC CAR BAY

EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
CH-01	OFOI	CAR CHARGING CIRCUIT				6"	4"	6"	240	50							None	
CH-01	OFOI	CAR CHARGING CIRCUIT				6"	4"	6"	240	50							None	
CAR-02	OFOI	ELECTRIC CAR	UCCS			5' - 0"	10' - 0"	4' - 6"							PC	None	None	
CAR-01	OFOI	ELECTRIC CAR	UCCS			5' - 0"	11' - 0"	4' - 6"							PC	None	None	
FE	CFCI	FIRE EXTINGUISHER	SEE SPECS	3A-40B:C														
CAB-01	OFOI	TOOL STORAGE				3' - 6"	2' - 6"	3' - 0"									None	

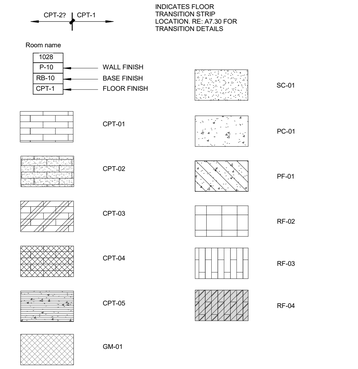
EQUIPMENT SCHEDULE_SHOP

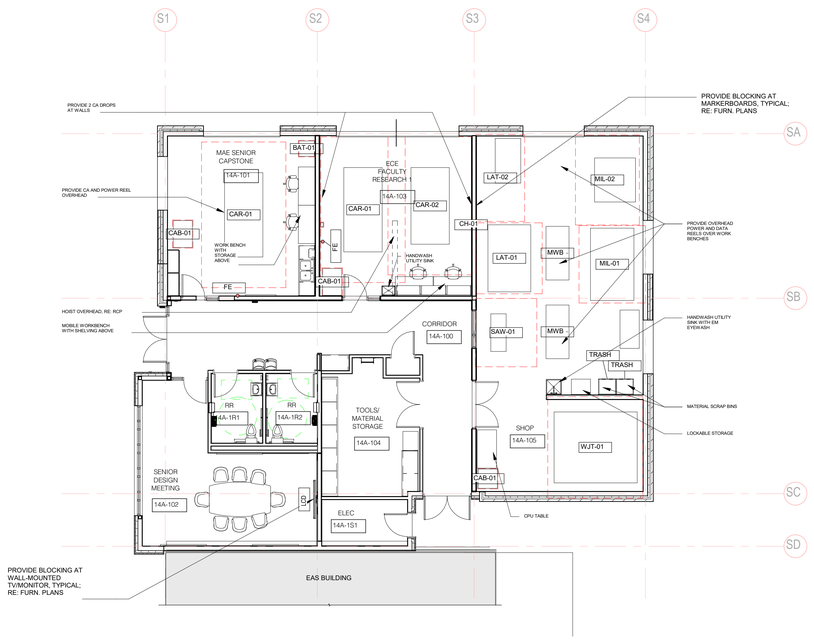
EQUIPMENT DESCRIPTION						DIMENSIONS			ELECTRICAL									
Label	Furnished/ Installed	Equipment Name	Manufacturer	Model	Weight (lbs)	Width	Depth	Height	Voltage	Amp	Phase	Watts	Emergency Power	Multi-Plugs	Data	Req. Gas/Plumbing	Exhaust Req.	Comments
CAB-01	OFOI	CABINET				2' - 6"	2' - 6"	5' - 0"									None	
LAT-01	OFOI	CNC LATHE	HAAS	TL-1		8' - 9"	5' - 7"	6' - 7"	220	25A	3P		NO	YES	PC	CA	None	80 PSI MIN
MIL-01	OFOI	CNC MILL	HAAS	TM-1P		9' - 5"	5' - 8"	8' - 9"	220	25A	3P		NO	YES	PC	CA	None	80 PSI MIN
SAW-01	OFOI	DROP SAW	ELLIS	1600-ELL		4' - 11"	2' - 0"	4' - 0"	125	20	1P		NO	NO	NO		None	
LAT-02	OFOI	LATHE	HARDINGE	HLV H		5' - 10"	3' - 4"	5' - 8"	220	20	3P		NO	YES	PC		None	
MIL-02	OFOI	MILL	HARDINGE	BRIDGEPORT 2.5		5' - 9"	5' - 4"	7' - 3"	220	20	3P		NO	YES	NO		None	
MWB	OFOI	MOBILE WORK BENCH																
TRASH	OFOI	TRASH BIN																
WMPC	OFCI	WALL MOUNTED PC	ERGOTRON	61-367-030 CAREFIT ENCLOSURE														
WJT-01	OFOI	WATER JET	OMAX	MAXIEM 1515		9' - 3"	10' - 10"	10' - 6"	125	60A	3P		NO	YES	PC	CA	None	75-120 PSI

FINISH PLAN NOTES

1	DIMENSIONS ARE TO FACE OF FINISH U.N.O.
2	SEE SHEET A-140 FOR FINISH LEGEND.
3	SEE RCPs (A-130 SERIES SHEETS) AND INTERIOR ELEVATIONS (A- 800 SERIES SHEETS) FOR ADDITIONAL FINISH INFORMATION.
4	SEE SHEET A-552 FOR FLOOR AND BASE TRANSITION DETAILS.
5	FLOOR MATERIAL TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS U.N.O.
6	FLOORING TO EXTEND UNDER COUNTERS, WORKSURFACES, APPLIANCES AND REMOVABLE BASE CABINETS.
7	PAINT TRANSITIONS TO OCCUR AT INSIDE CORNERS U.N.O.
8	PAINT GYP BOARD WALLS P-01 U.N.O.
9	PAINT DOOR FRAMES P-02 U.N.O.
10	BASE TO BE RB-01 U.N.O.
11	PAINT EXPOSED CONDUIT, PIPING, ETC. TO MATCH ADJACENT FINISH.
12	PAINT ALL EXPOSED CEILINGS P-03 U.N.O.
13	PROVIDE FLM-01 AT ALL OFFICE FRONTS U.N.O.
14	PROVIDE TS-05 AT WALL TILE TO FLOOR TILE TRANSITIONS U.N.O.
15	PROVIDE LEVEL 5 DRYWALL FINISH AT ALL WALLCOVERING LOCATIONS.
16	PROVIDE SS-03 AT ALL WINDOW SILLS U.N.O.
17	PROVIDE CG-01 AT ALL OUTSIDE CORNERS.
18	PAINT ALL METAL STAIR STRINGERS, RISERS AND RAILING P-05 U.N.O.
19	PAINT ALL EXPOSED INTERIOR COLUMNS P-05 U.N.O.

FINISH PLAN LEGEND

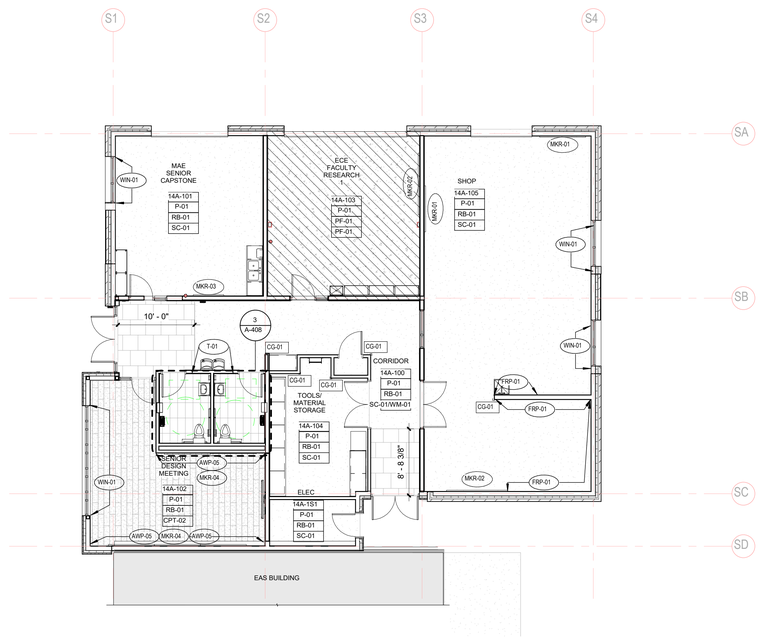




2 LEVEL 3 FURNITURE/EQUIPMENT PLAN - SHOP BLDG

1/8" = 1'-0"

PROJECT NORTH | TRUE NORTH



1 LEVEL 3 WALL FINISH PLAN - SHOP BLDG

1/8" = 1'-0"

PROJECT NORTH | TRUE NORTH

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SHEET TITLE:
INTERIOR FINISH & FURNITURE PLANS - SHOP BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER

A-143B

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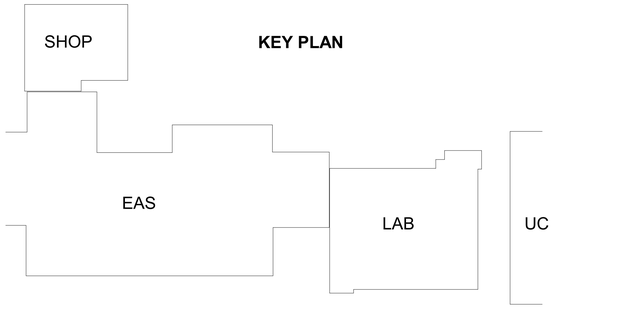
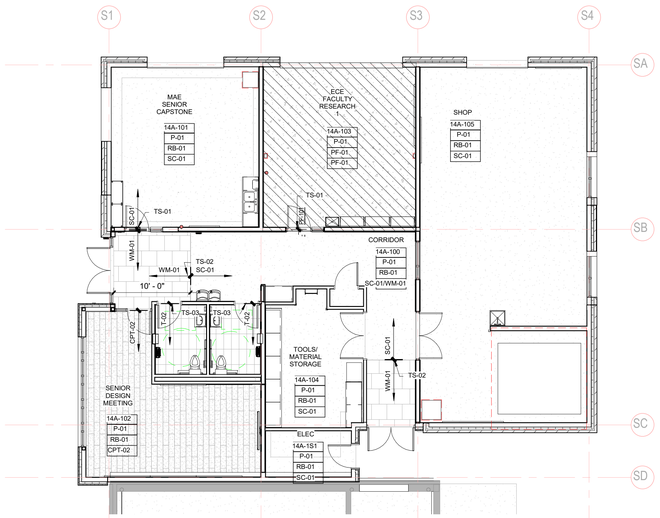
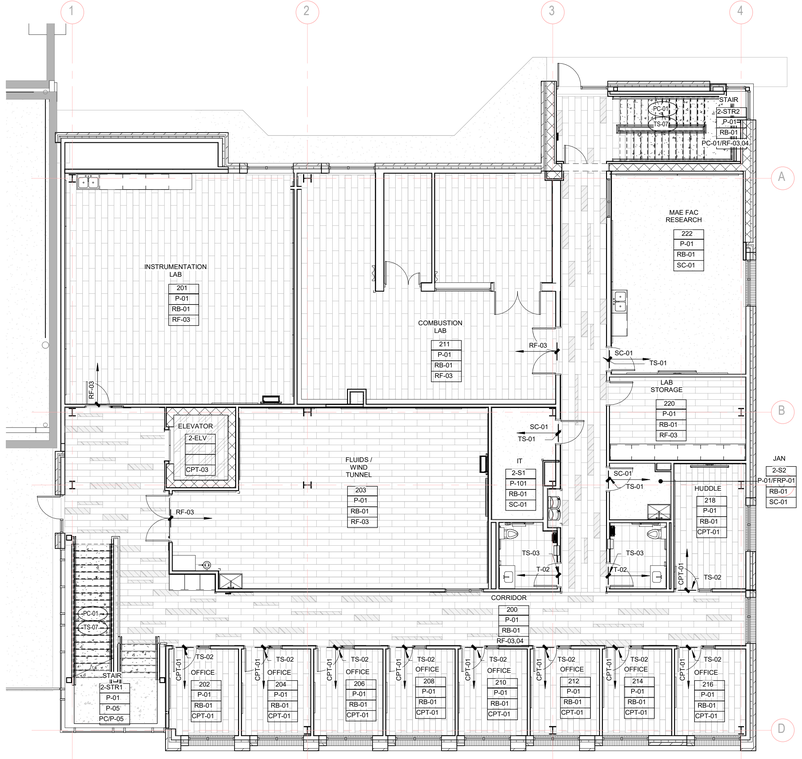




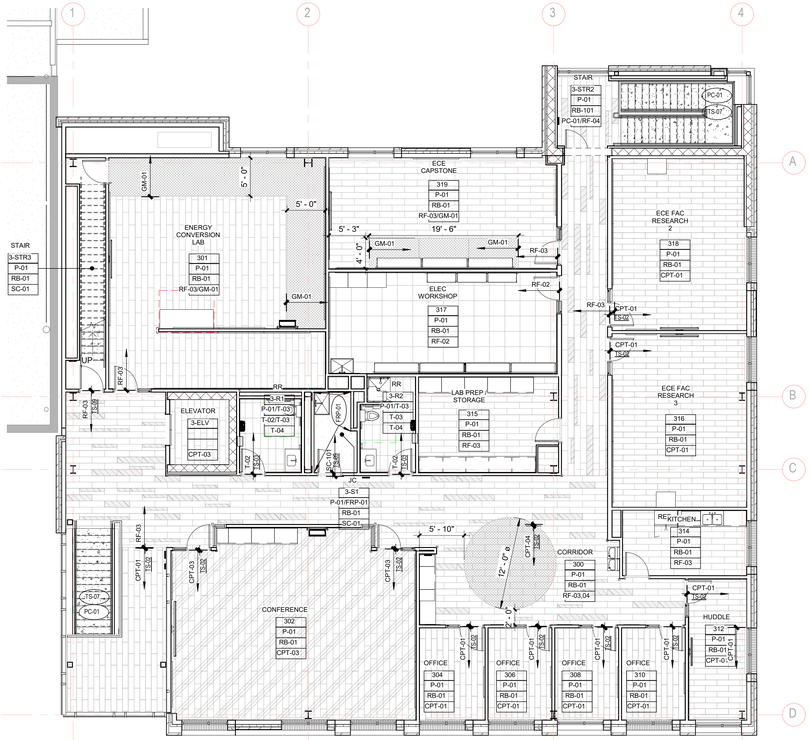
4 FLOOR FINISH PLAN - SHOP BLDG

1/8" = 1'-0"



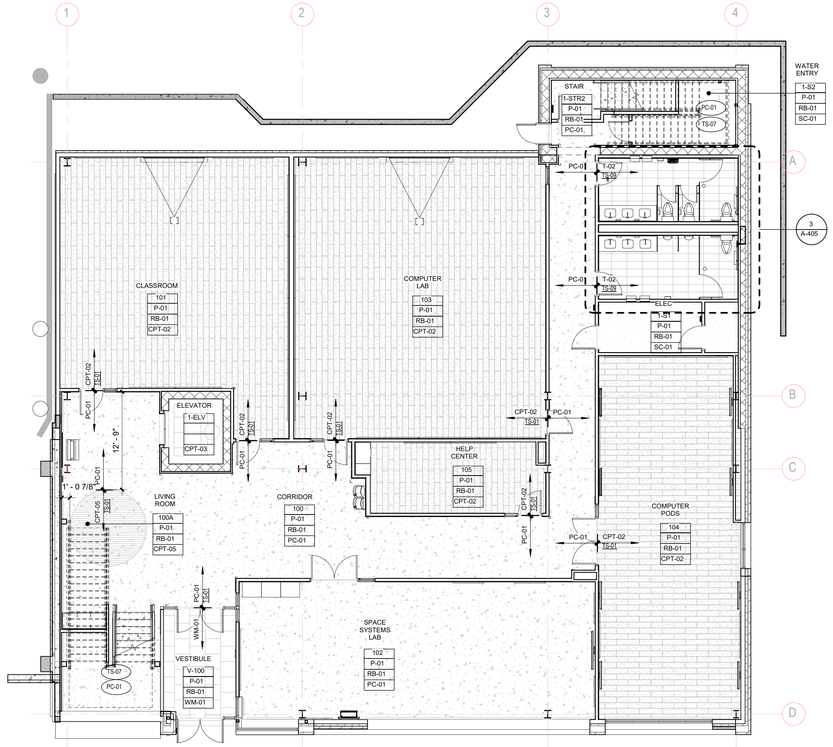
2 LEVEL 2 FLOOR FINISH PLAN

1/8" = 1'-0"



3 LEVEL 3 FLOOR FINISH PLAN - LAB BLDG

1/8" = 1'-0"



1 LEVEL 1 FLOOR FINISH PLAN

1/8" = 1'-0"

FINISH PLAN NOTES	
1	DIMENSIONS ARE TO FACE OF FINISH U.N.O.
2	SEE SHEET A-140 FOR FINISH LEGEND.
3	SEE RCPs (A-130 SERIES SHEETS) AND INTERIOR ELEVATIONS (A- 800 SERIES SHEETS) FOR ADDITIONAL FINISH INFORMATION.
4	SEE SHEET A-552 FOR FLOOR AND BASE TRANSITION DETAILS.
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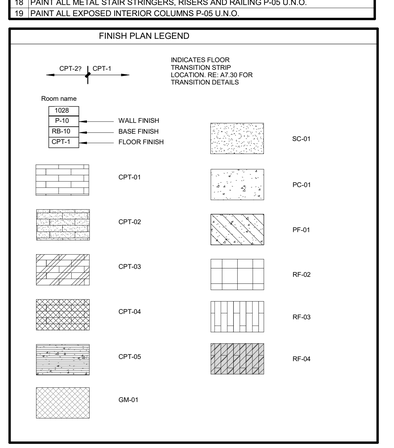
8	PAINT GYP BOARD WALLS P-01 U.N.O.
9	PAINT DOOR FRAMES P-02 U.N.O.
10	BASE TO BE RB-01 U.N.O.
11	PAINT EXPOSED CONDUIT, PIPING, ETC. TO MATCH ADJACENT FINISH.
12	PAINT ALL EXPOSED CEILINGS P-03 U.N.O.
13	PROVIDE FLM-01 AT ALL OFFICE FRONTS U.N.O.
14	PROVIDE TS-05 AT WALL TILE TO FLOOR TILE TRANSITIONS U.N.O.
15	PROVIDE LEVEL 5 DRYWALL FINISH AT ALL WALLCOVERING LOCATIONS.
16	PROVIDE SS-03 AT ALL WINDOW SILLS U.N.O.
17	PROVIDE CG-01 AT ALL OUTSIDE CORNERS.
18	PAINT ALL METAL STAIR STRINGERS, RISERS AND RAILING P-05 U.N.O.
19	PAINT ALL EXPOSED INTERIOR COLUMNS P-05 U.N.O.



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SHEET TITLE:
INTERIOR FLOOR FINISH PLANS

SCALE: 1/8" = 1'-0"

SHEET NUMBER
A-150

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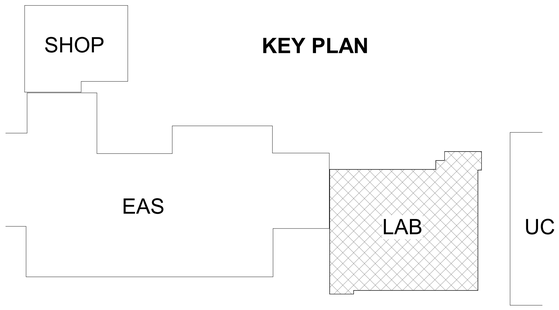
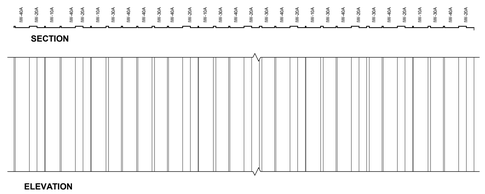


KEY PLAN



5 ELEVATION DETAIL - TYP METAL PANEL LAYOUT

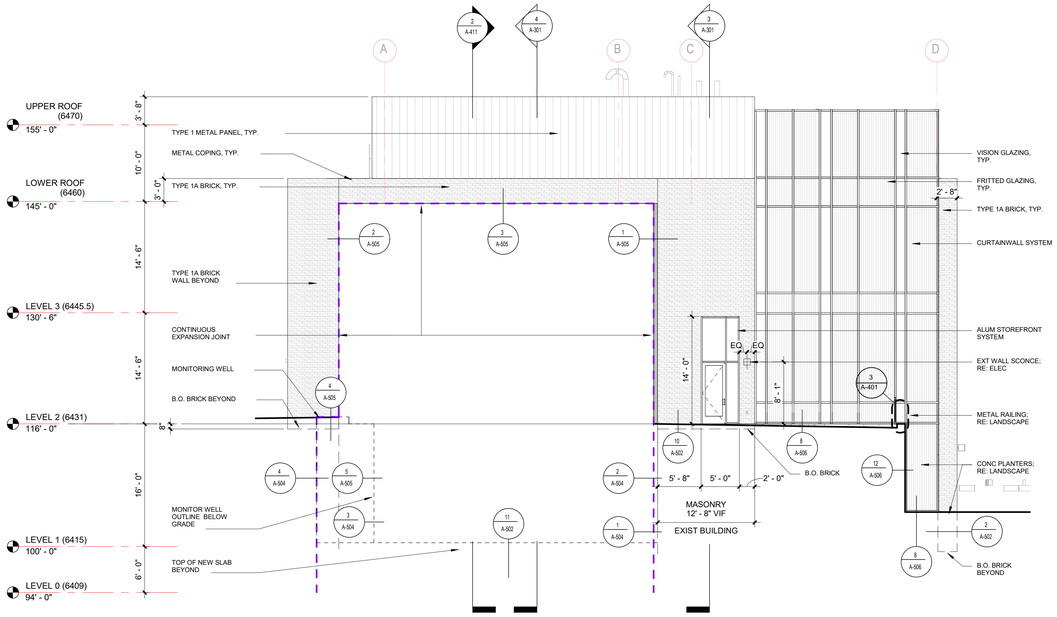
1/4" = 1'-0"

ELEVATION MATERIAL LEGEND

- **BRICK TYPE 1A:** NORMAN RED-BROWN BRICK, INSTALLED 1/3 RUNNING BOND
- **BRICK TYPE 1B:** NORMAN RED-BROWN BRICK, INSTALLED IN HORIZONTAL STACK BOND WITH EVERY OTHER COURSE 5/8" PROUD
- **BRICK TYPE 2A:** NORMAN IRONSPOT BRICK, INSTALLED IN VERTICAL STACK BOND, USE FULL BRICKS, ADJUST VERTICAL MORTAR JOINTS +/- 1/16"
- **BRICK TYPE 2B:** NORMAN IRONSPOT BRICK, INSTALLED IN HORIZONTAL STACK BOND
- **METAL PANEL TYPE 1:** CONCEALED FASTENER METAL PANEL RAINSCREEN SYSTEM
- **METAL PANEL TYPE 2:** CONCEALED FASTENER METAL PANEL RAINSCREEN SYSTEM

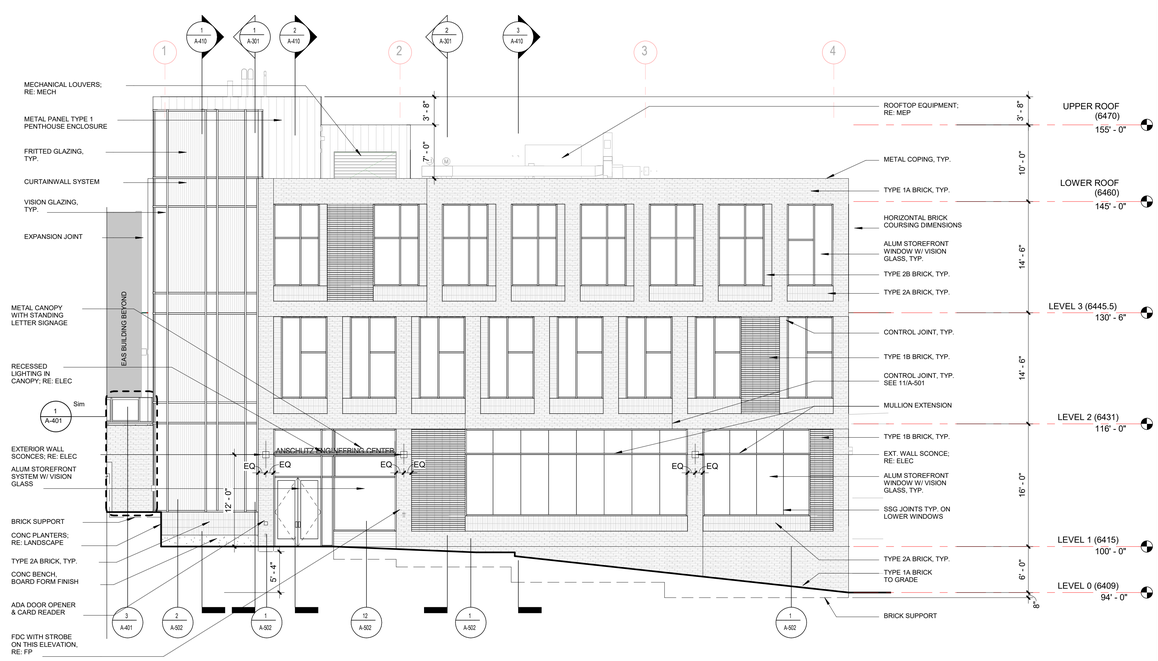
NOTE: MATERIALS AND PATTERNS RETURN TO BUILDING AT CORNERS, TYP

PROVIDE A MINIMUM OF TWO MOCKUPS, APPROXIMATELY 24"x24" SHOWING SELECTED BRICK COLOR BLEND, AND TWO MORTER COLORS AS SELECTED BY ARCHITECT PRIOR TO FABRICATION.



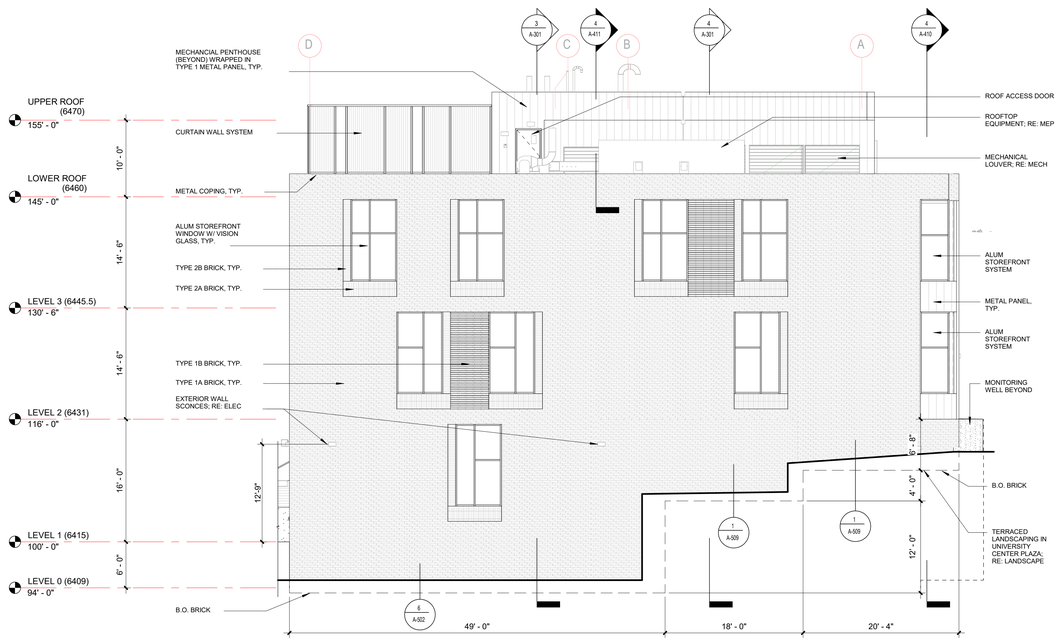
4 WEST ELEVATION - LAB BLDG

1/8" = 1'-0"



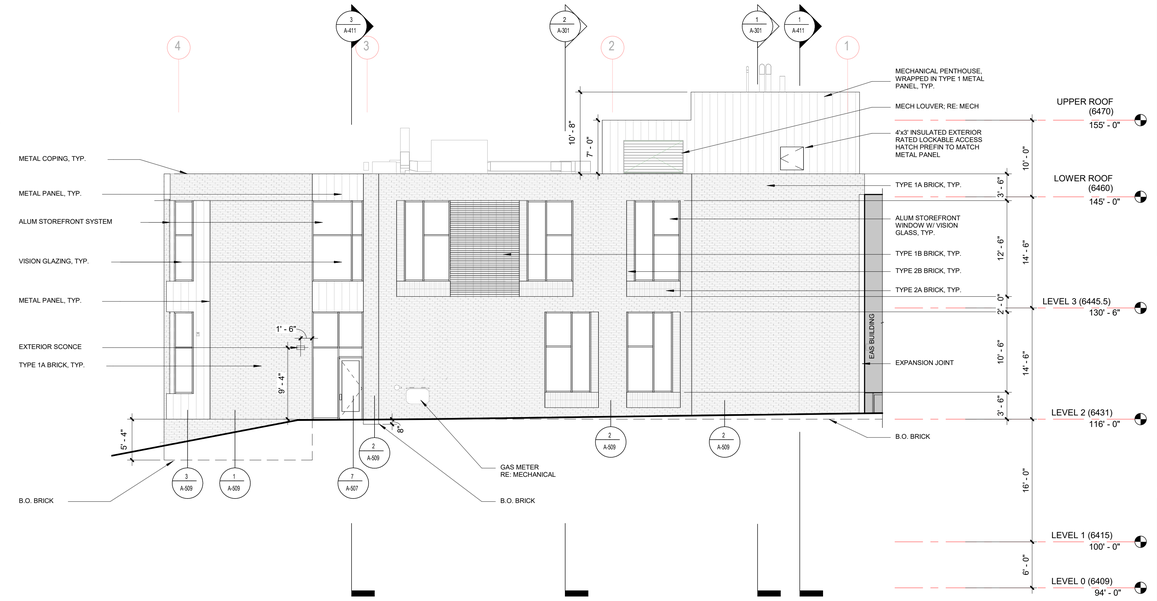
3 SOUTH ELEVATION - LAB BLDG

1/8" = 1'-0"



2 EAST ELEVATION - LAB BLDG

1/8" = 1'-0"



1 NORTH ELEVATION - LAB BLDG

1/8" = 1'-0"

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SHEET TITLE:
BUILDING ELEVATIONS - LAB BLDG

SCALE: As indicated
SHEET NUMBER

A-201

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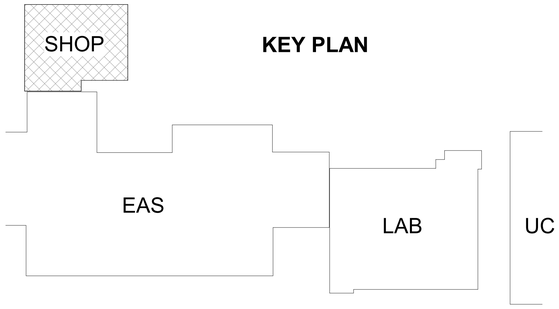


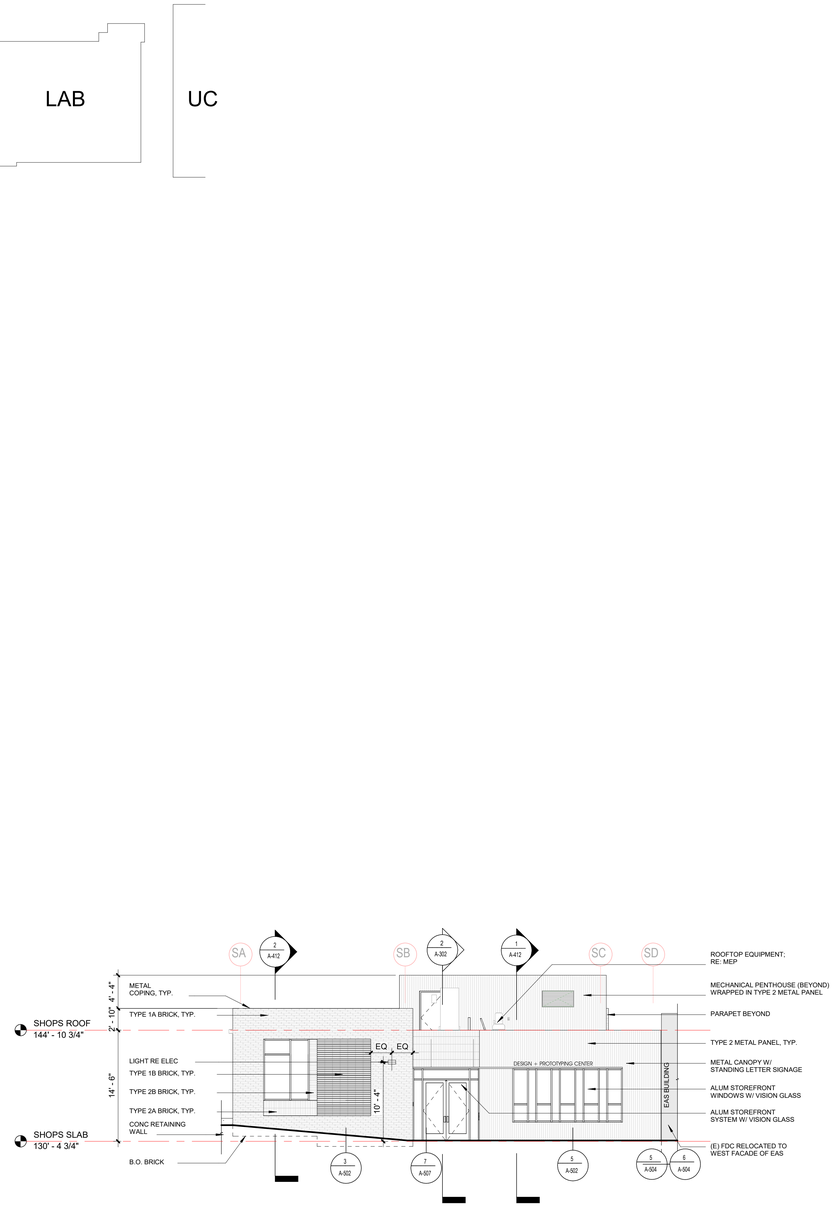
KEY PLAN

ELEVATION MATERIAL LEGEND

- **BRICK TYPE 1A:** NORMAN RED-BROWN BRICK, INSTALLED 1/3 RUNNING BOND
- **BRICK TYPE 1B:** NORMAN RED-BROWN BRICK, INSTALLED IN HORIZONTAL STACK BOND WITH EVERY OTHER COURSE 5/8" PROUD
- **BRICK TYPE 2A:** NORMAN IRONSPOT BRICK, INSTALLED IN VERTICAL STACK BOND, USE FULL BRICKS, ADJUST VERTICAL MORTAR JOINTS +/- 1/16"
- **BRICK TYPE 2B:** NORMAN IRONSPOT BRICK, INSTALLED IN HORIZONTAL STACK BOND
- **METAL PANEL TYPE 1:** CONCEALED FASTENER METAL PANEL RAINSCREEN SYSTEM
- **METAL PANEL TYPE 2:** CONCEALED FASTENER METAL PANEL RAINSCREEN SYSTEM

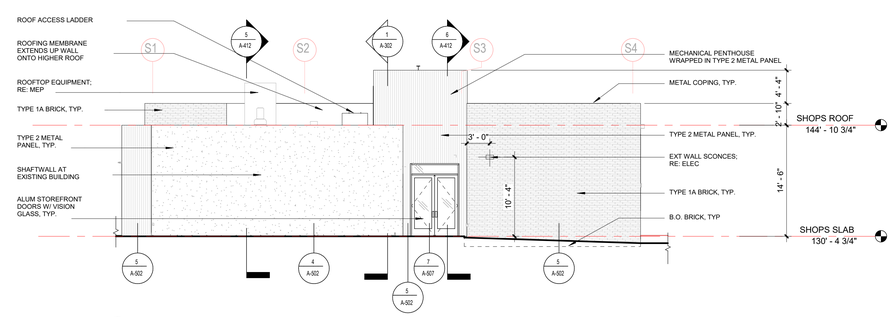
NOTE: MATERIALS AND PATTERNS RETURN TO BUILDING AT CORNERS, TYP

PROVIDE A MINIMUM OF TWO MOCKUPS, APPROXIMATELY 24"x24" SHOWING SELECTED BRICK COLOR BLEND, AND TWO MORTER COLORS AS SELECTED BY ARCHITECT PRIOR TO FABRICATION.



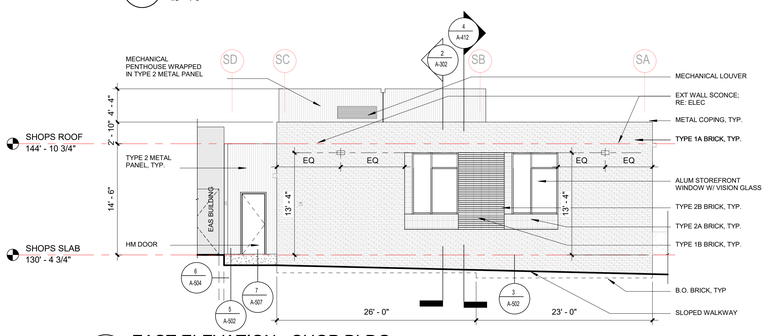
4 WEST ELEVATION - SHOP BLDG

1/8" = 1'-0"



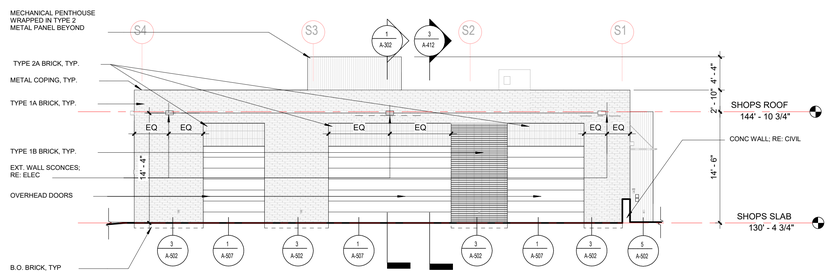
3 SOUTH ELEVATION - SHOP BLDG

1/8" = 1'-0"



2 EAST ELEVATION - SHOP BLDG

1/8" = 1'-0"



1 NORTH ELEVATION - SHOP BLDG

1/8" = 1'-0"

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SHEET TITLE:
BUILDING ELEVATIONS - SHOP BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER

A-202

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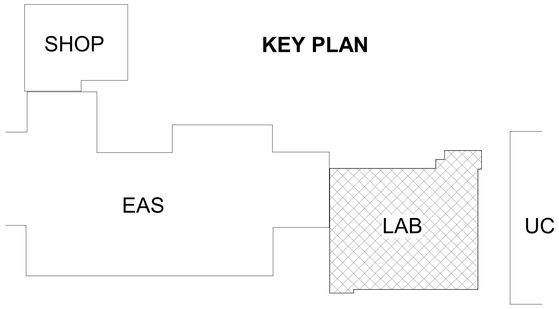

KEY PLAN

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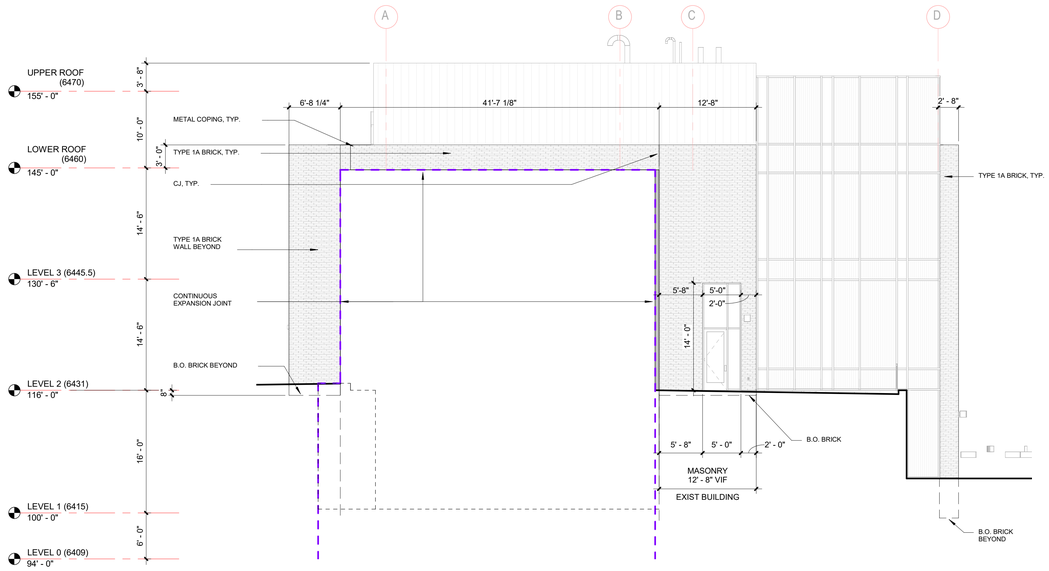
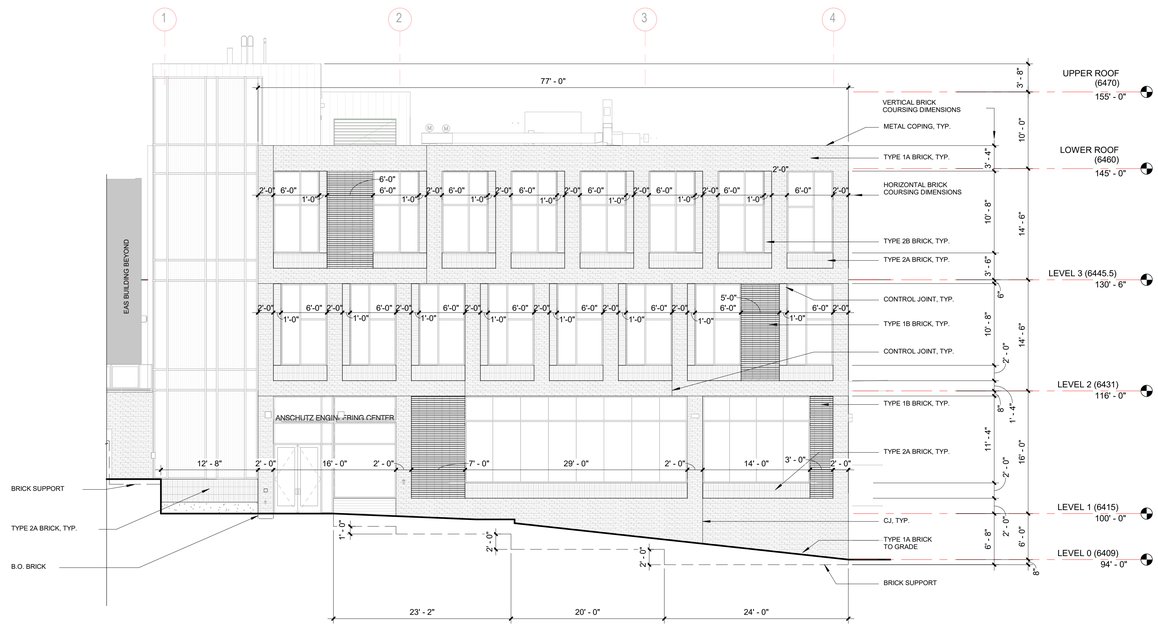
NOTE: MATERIALS AND PATTERNS RETURN TO BUILDING AT CORNERS, TYP

PROVIDE A MINIMUM OF TWO MOCKUPS, APPROXIMATELY 24"x24" SHOWING SELECTED BRICK COLOR BLEND, AND TWO MORTER COLORS AS SELECTED BY ARCHITECT PRIOR TO FABRICATION.



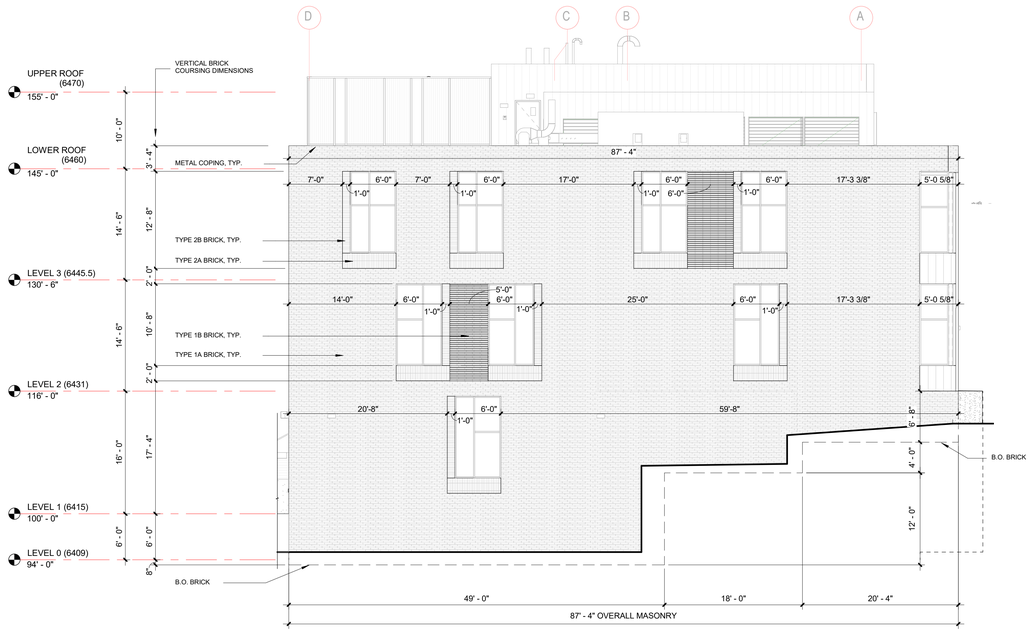
4 WEST BRICK ELEVATION - LAB BLDG

1/8" = 1'-0"



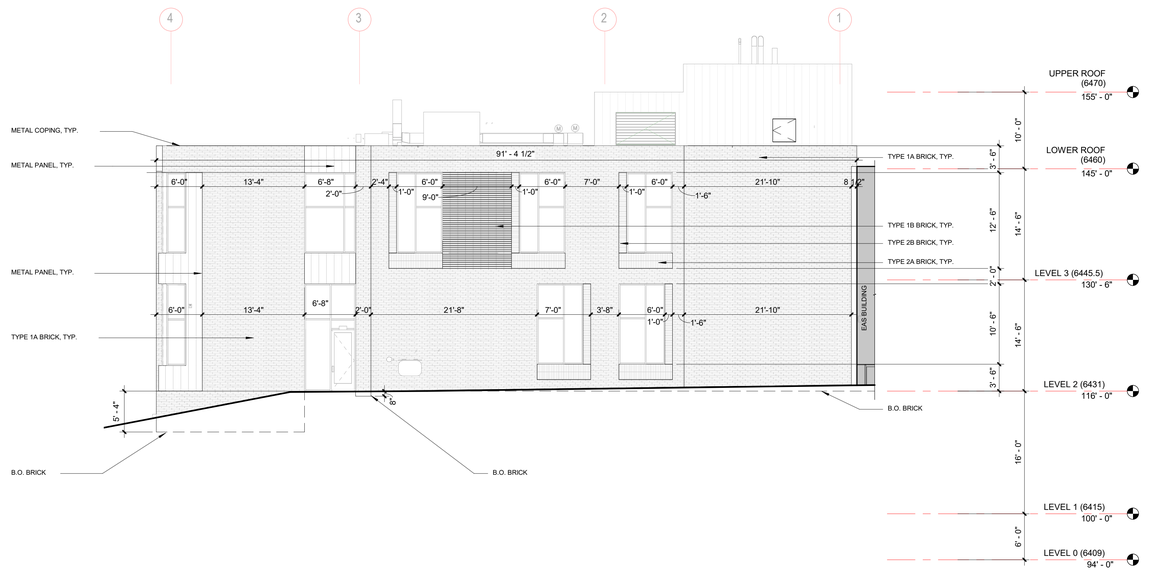
2 SOUTH BRICK ELEVATION - LAB BLDG

1/8" = 1'-0"



3 EAST BRICK ELEVATION - LAB BLDG

1/8" = 1'-0"



1 NORTH BRICK ELEVATION - LAB BLDG

1/8" = 1'-0"

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BRICK ELEVATIONS - LAB BLDG

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SHEET NUMBER
A-203

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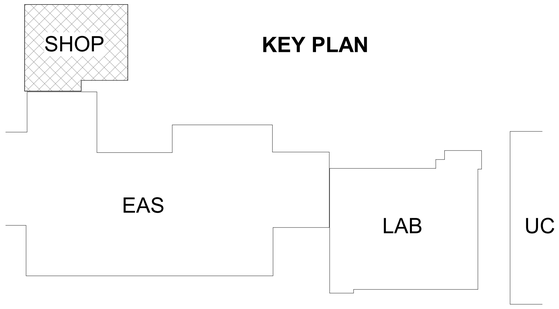
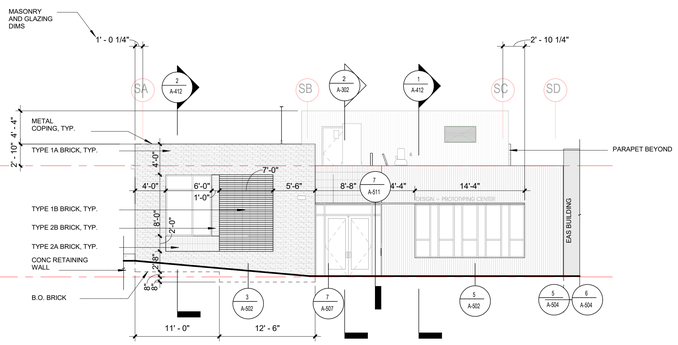
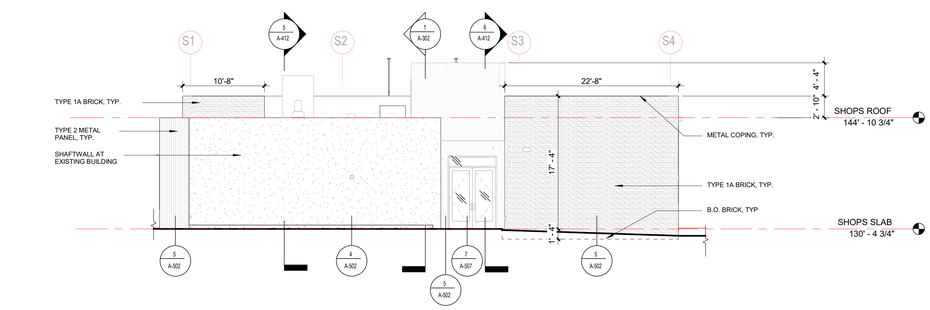


KEY PLAN



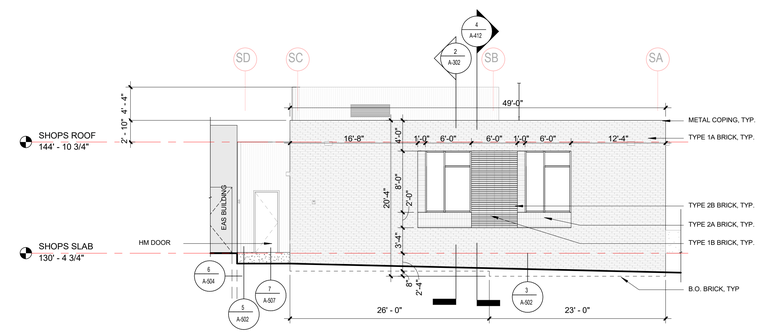
4 WEST BRICK ELEVATION - SHOP BLDG

1/8" = 1'-0"



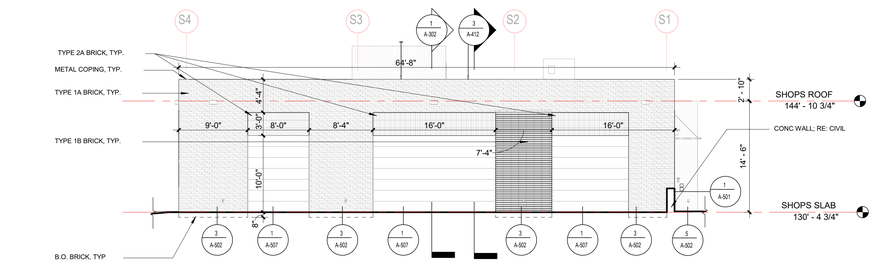
2 SOUTH BRICK ELEVATION - SHOP BLDG

1/8" = 1'-0"



3 EAST BRICK ELEVATION - SHOP BLDG

1/8" = 1'-0"



1 NORTH BRICK ELEVATION - SHOP BLDG

1/8" = 1'-0"

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APPROVED: Approver
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SHEET TITLE:
BRICK ELEVATIONS - SHOP BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER
A-204

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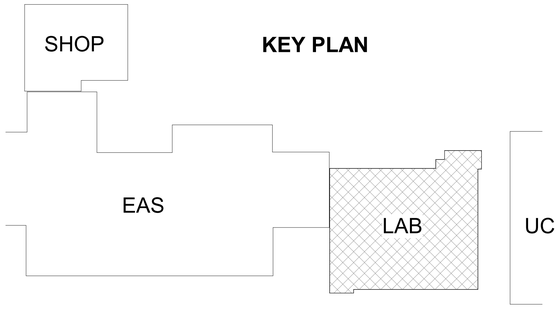
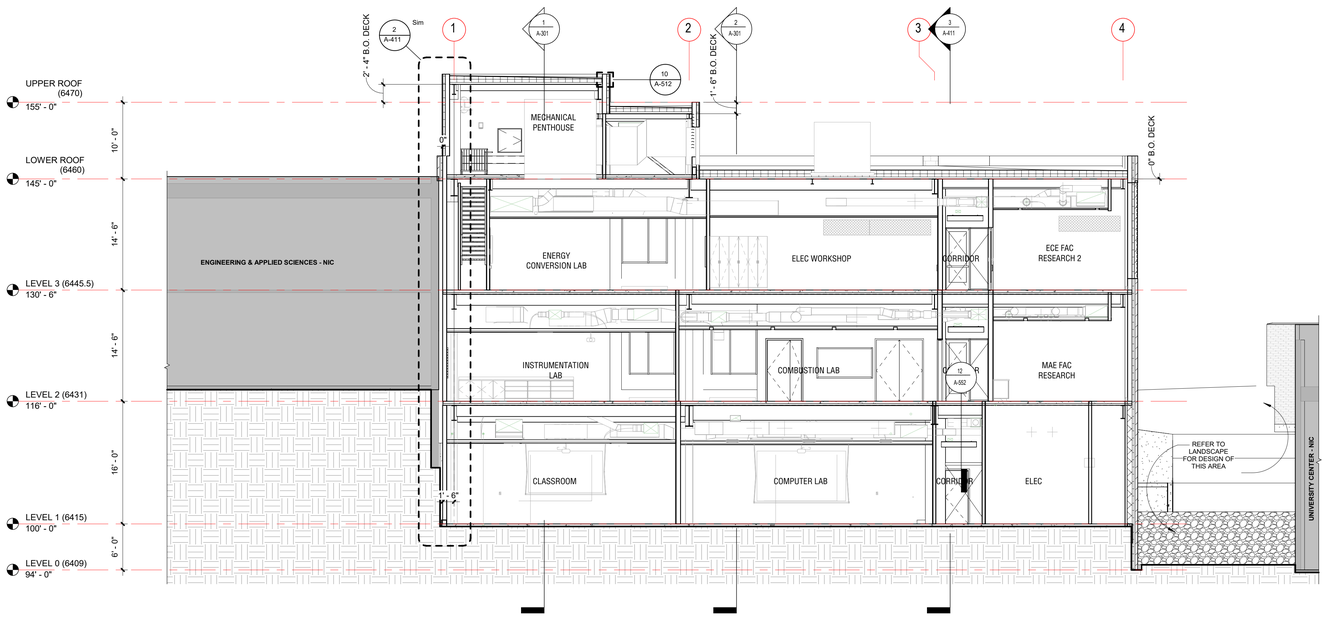
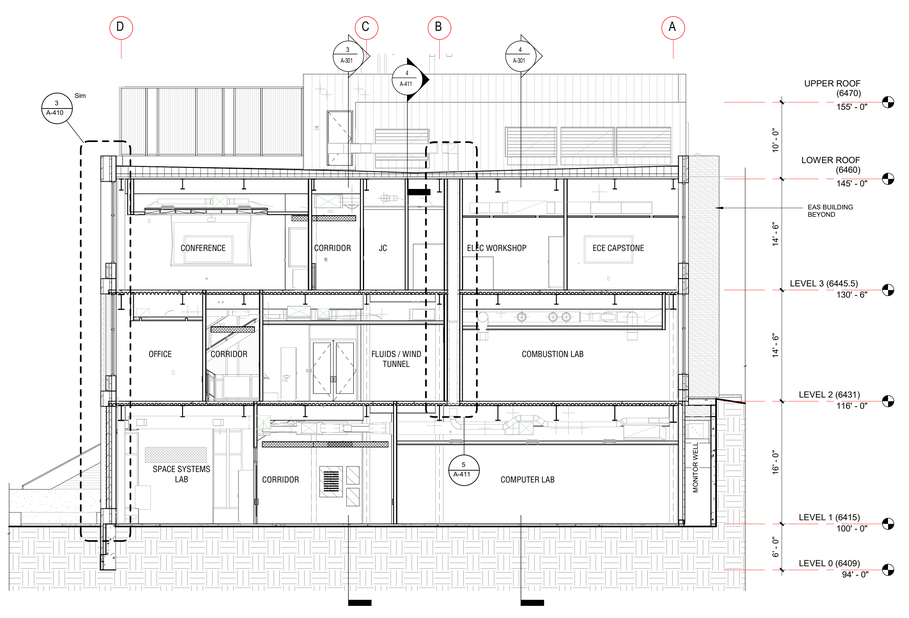


KEY PLAN



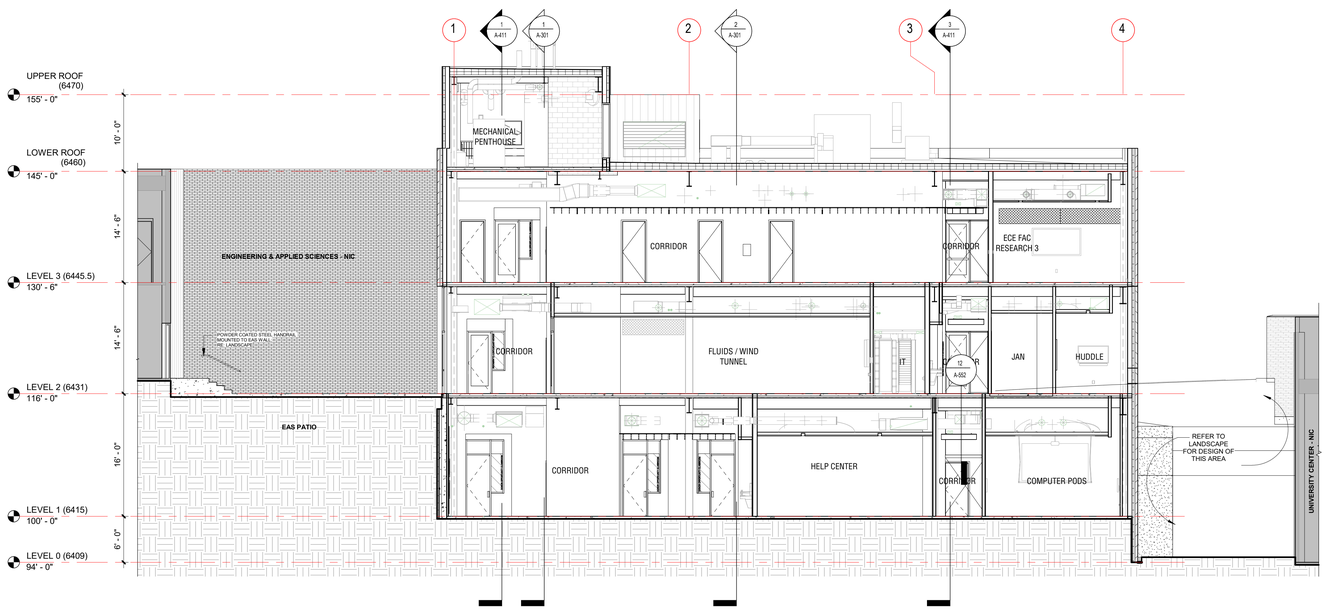
4 LAB E/W BUILDING SECTION 2

1/8" = 1'-0"



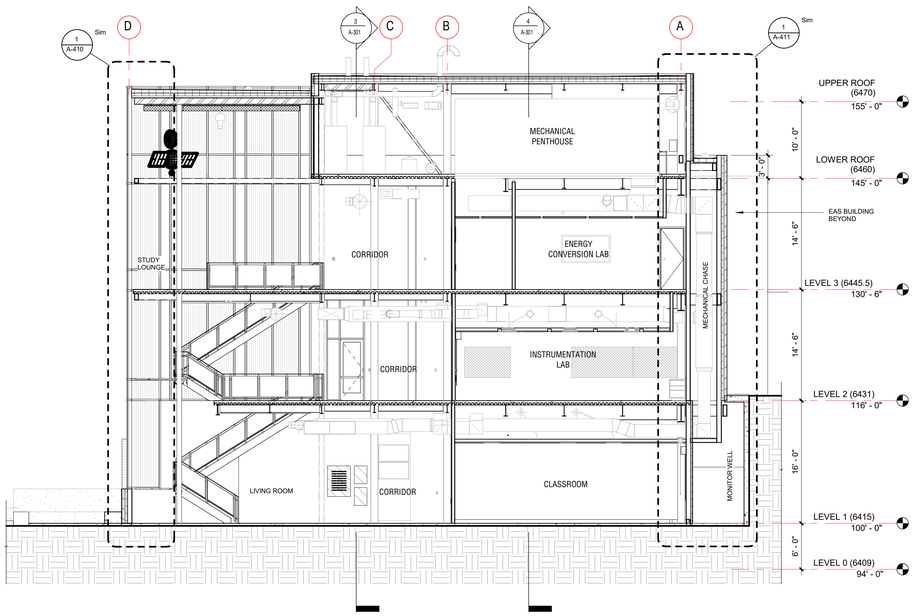
2 LAB N/S BUILDING SECTION - MIDDLE

1/8" = 1'-0"



3 LAB E/W BUILDING SECTION - MIDDLE

1/8" = 1'-0"



1 LAB N/S BUILDING SECTION - LINK

1/8" = 1'-0"

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BUILDING SECTIONS - LAB BLDG

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A-301

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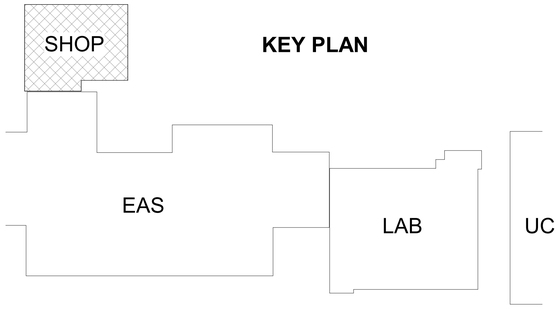
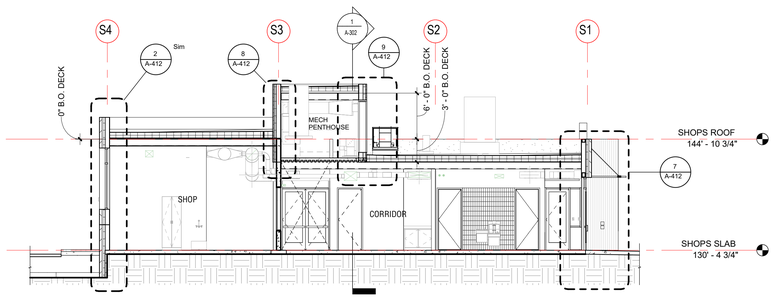
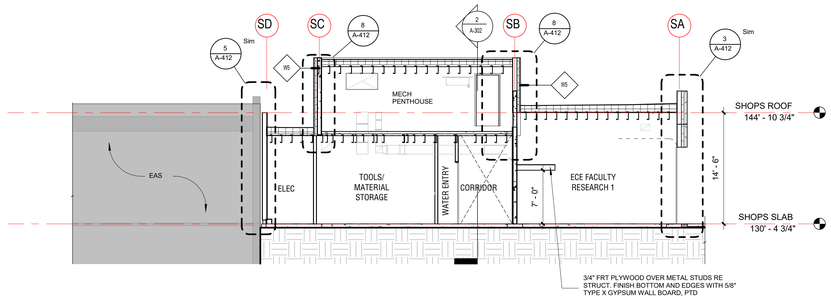


KEY PLAN



2 SHOPS E/W BUILDING SECTION

1/8" = 1'-0"



1 SHOPS N/S BUILDING SECTION

1/8" = 1'-0"

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SHEET TITLE:
BUILDING SECTIONS - SHOP BLDG

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SHEET NUMBER

A-302

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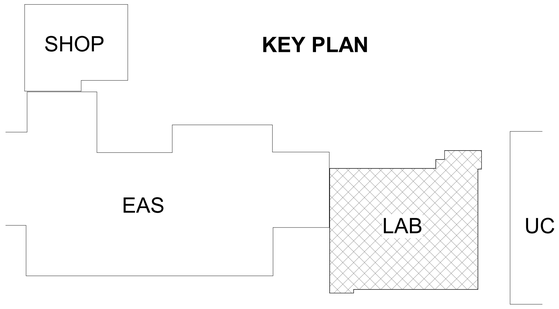
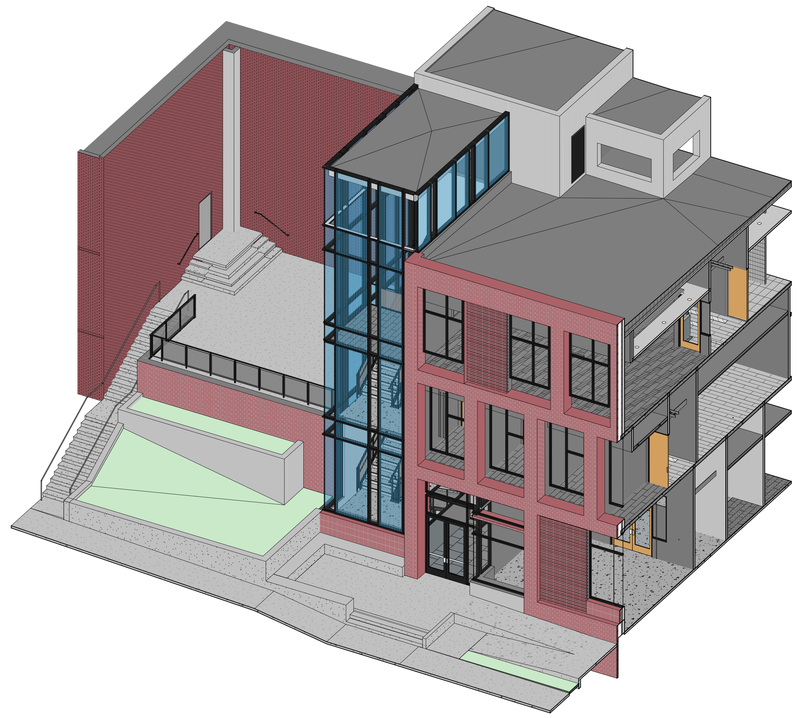
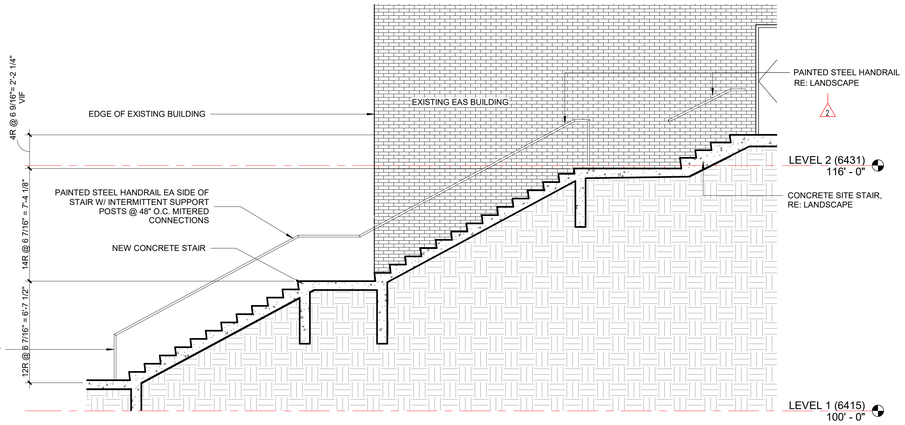


KEY PLAN

BIKE SHELTER DETAILS MOVED TO A-402]

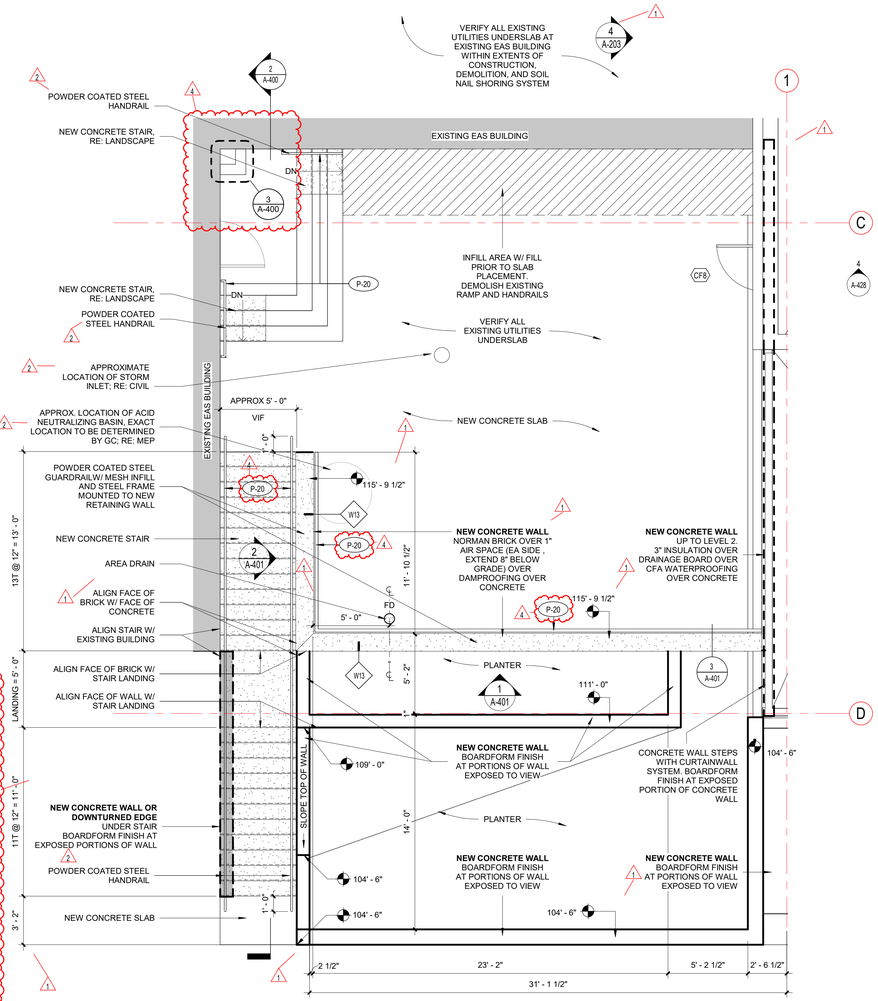


5 AXO - EAS PATIO



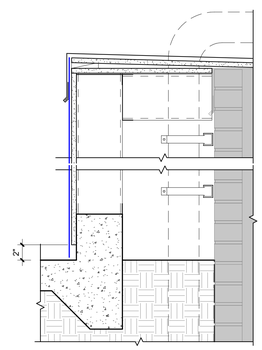
2 SITE STAIR - SECTION 1

1/4" = 1'-0"



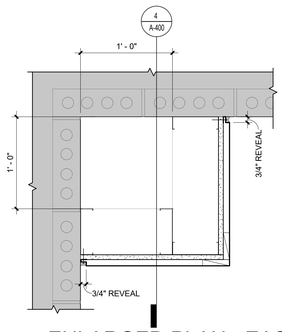
1 ENLARGED PLAN - EAS PATIO

1/4" = 1'-0"



4 SECTION DETAIL - EAS PATIO - ELECTRICAL SHAFT

1 1/2" = 1'-0"RE: 3/ A-400



3 ENLARGED PLAN - EAS PATIO - ELECTRICAL SHAFT

1 1/2" = 1'-0"RE: 1/ A-400

TRUE NORTH

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1	08/07/2022	ADDENDA 1 - PACKAGE 1
2	09/21/2022	REVISIONS - Pkg 1&2
4	10/26/2022	ADDENDA 4 - Pkg 1& 2

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A-400

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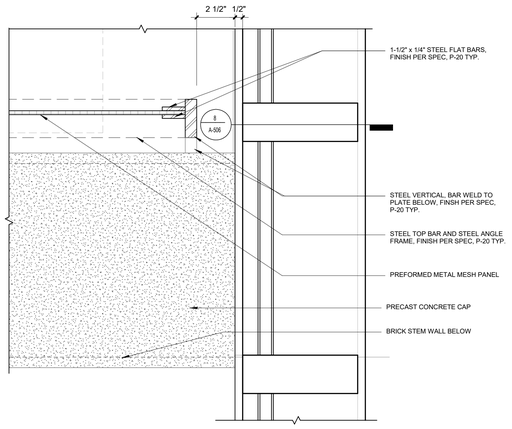
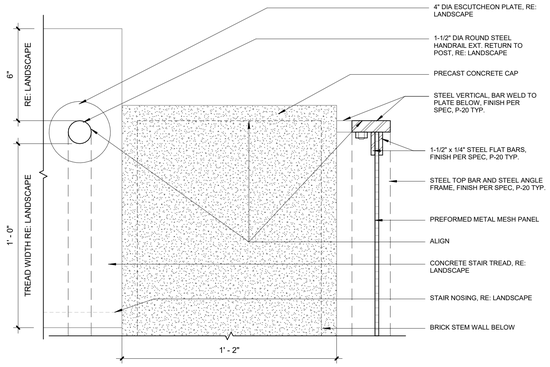


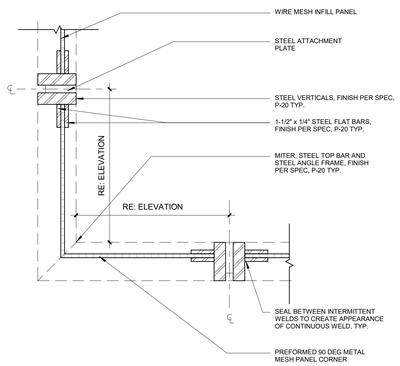
5 PLAN DETAIL - END OF GUARD AT GLAZING

3" = 1'-0" RE: 1/ A-401



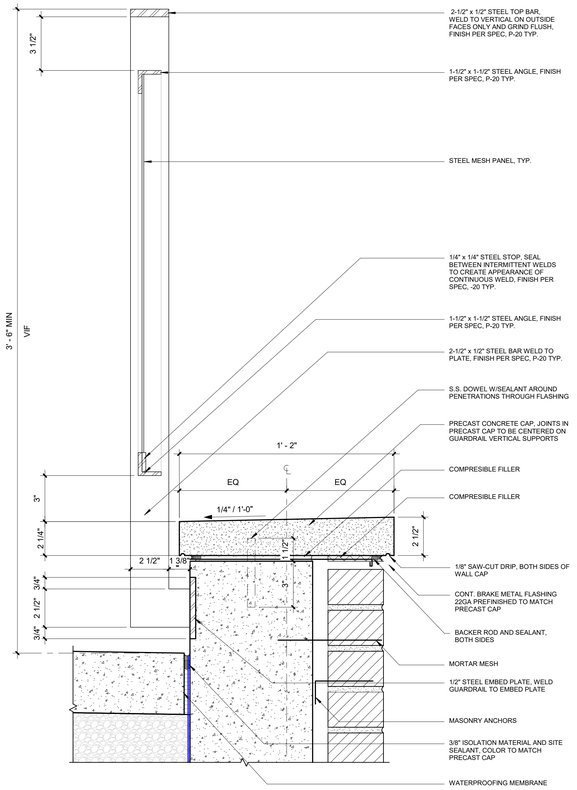
6 PLAN DETAIL - END OF GUARD AT T.O. STAIR

3" = 1'-0" RE: 2/ A-401



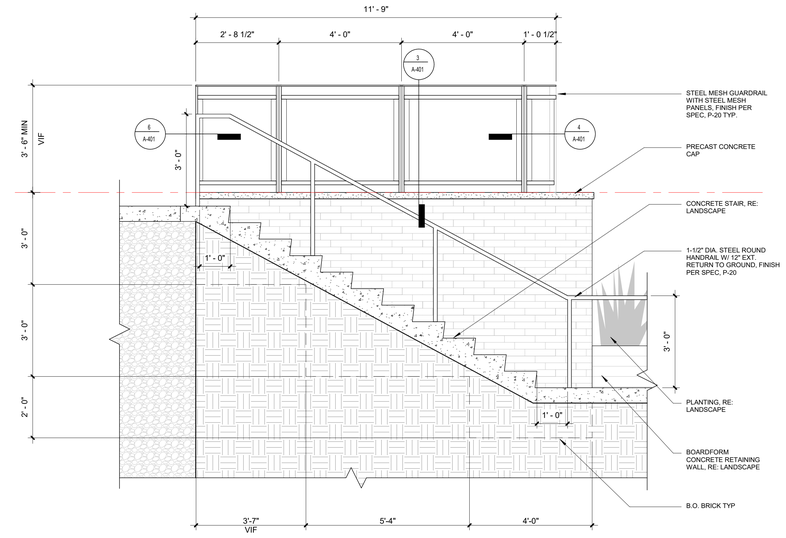
4 PLAN DETAIL - OUTSIDE CORNER AT GUARD

3" = 1'-0" RE: 1/ A-401



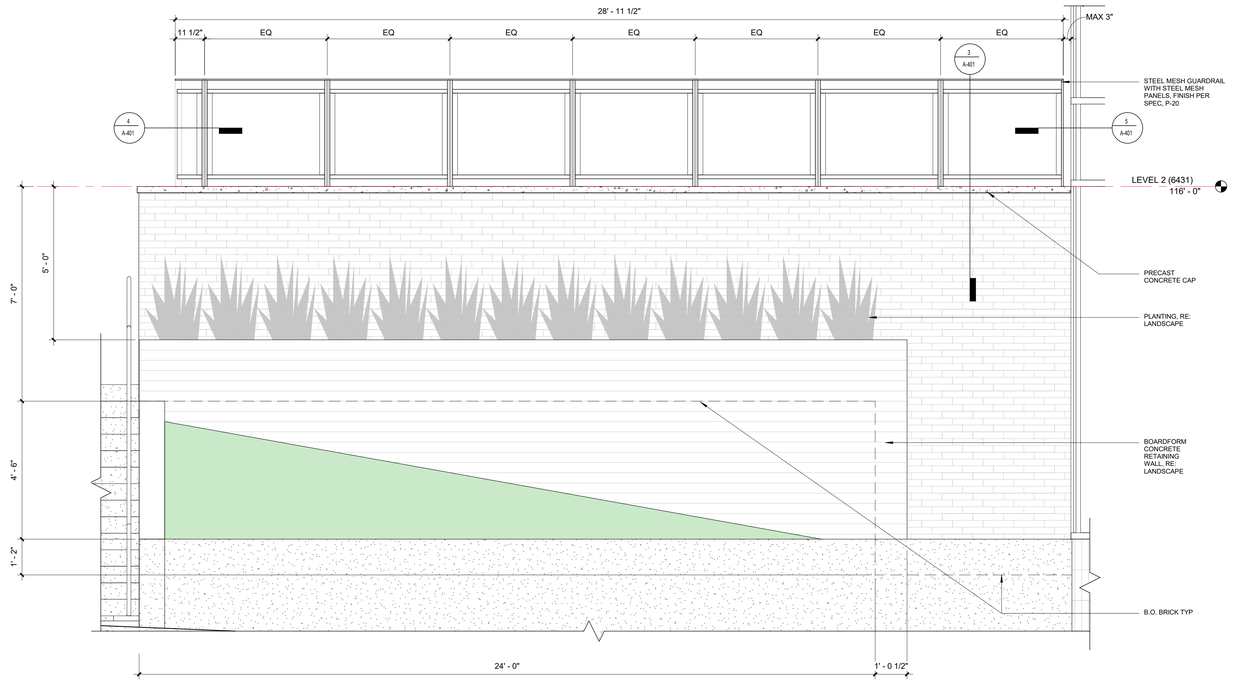
SECTION DETAIL - LAB BUILDING - GUARDRAIL AT EAS PATIO

3 3" = 1'-0"



2 ELEVATION - EAS PATIO WEST GUARDRAIL

1/2" = 1'-0"



1 ELEVATION - EAS PATIO SOUTH GUARDRAIL

1/2" = 1'-0"

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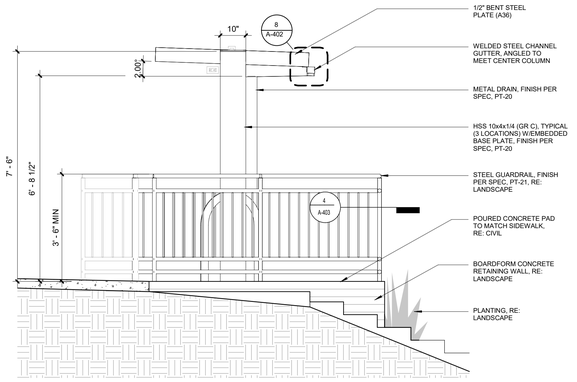
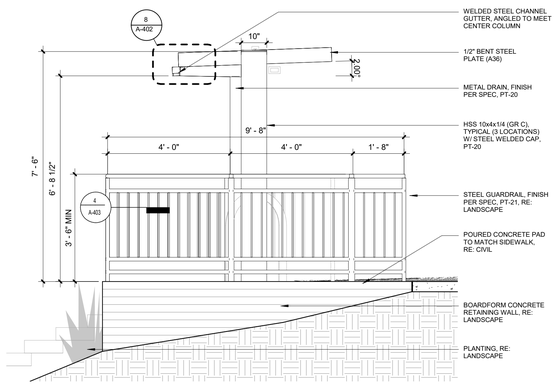


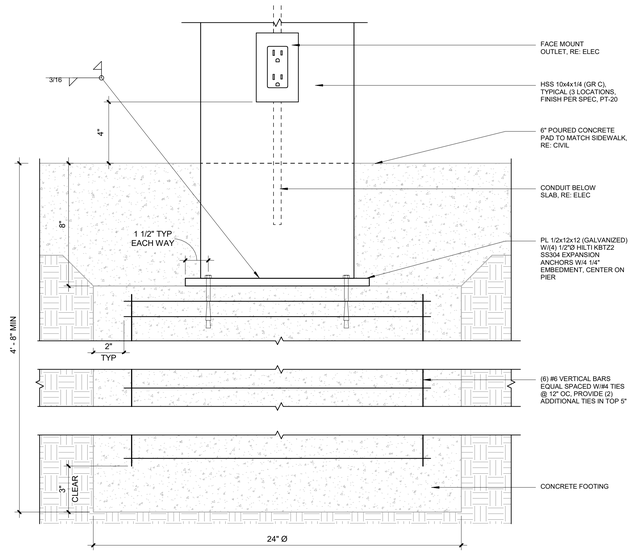
5 BIKE RACK - WEST ELEVATION

1/2" = 1'-0"



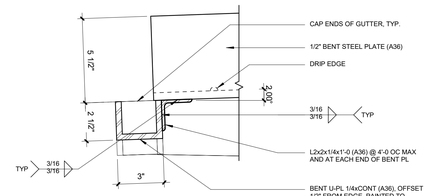
6 BIKE RACK - EAST ELEVATION

1/2" = 1'-0"



7 BIKE RACK SECTION DETAIL - COLUMN BASE

3" = 1'-0"

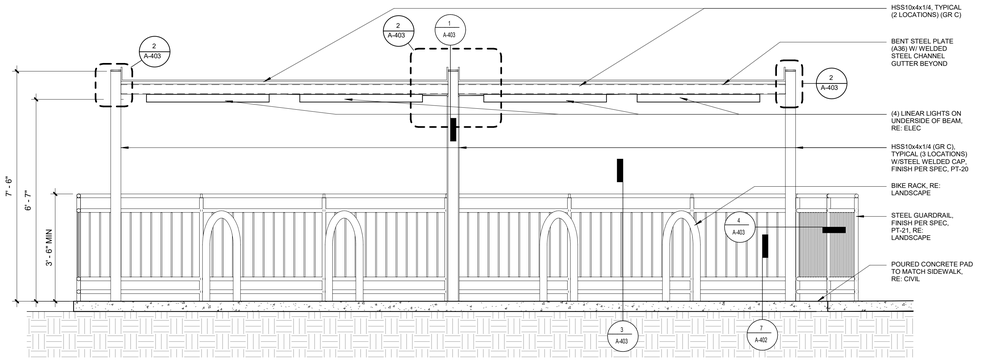


8 BIKE RACK SECTION DETAIL - GUTTER

3" = 1'-0"

4 BIKE RACK - SOUTH ELEVATION

1/2" = 1'-0"

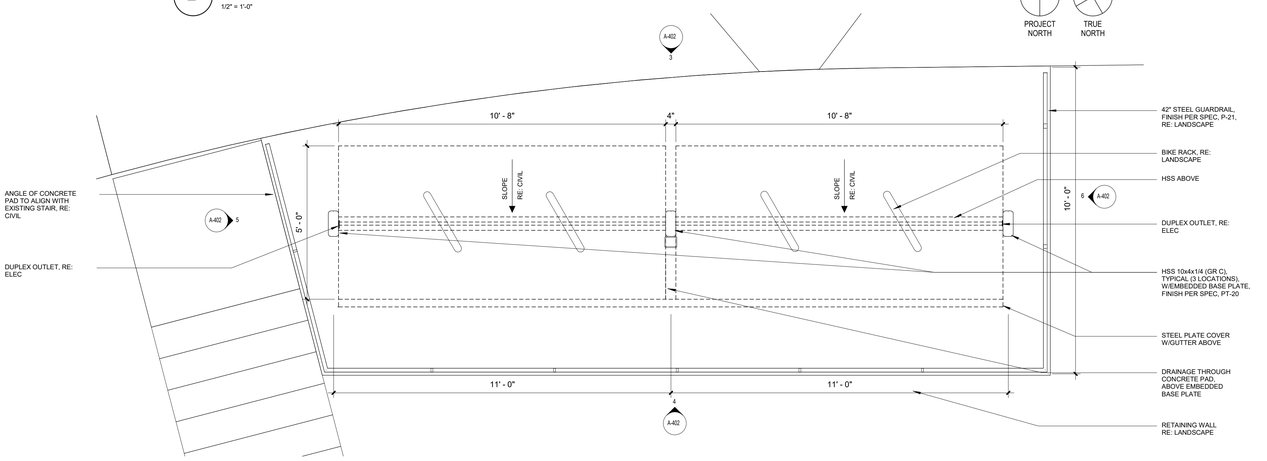


3 BIKE RACK - NORTH ELEVATION

1/2" = 1'-0"

2 ENLARGED PLAN - BIKE RACK ROOF

1/2" = 1'-0"



1 ENLARGED PLAN - BIKE RACK

1/2" = 1'-0"

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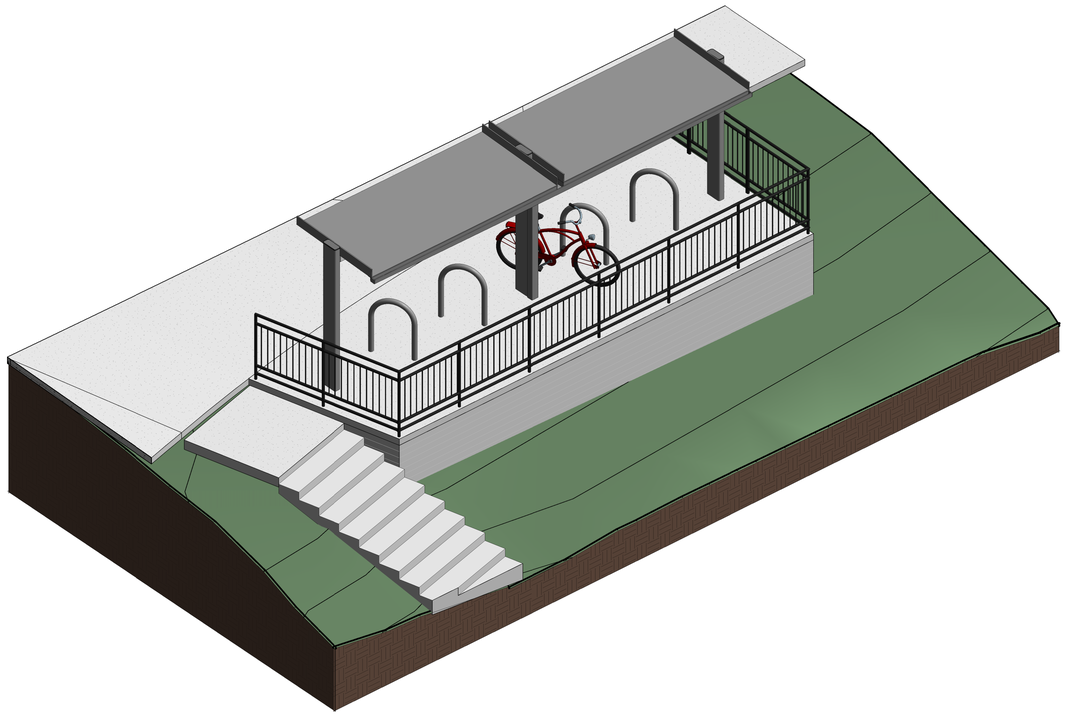
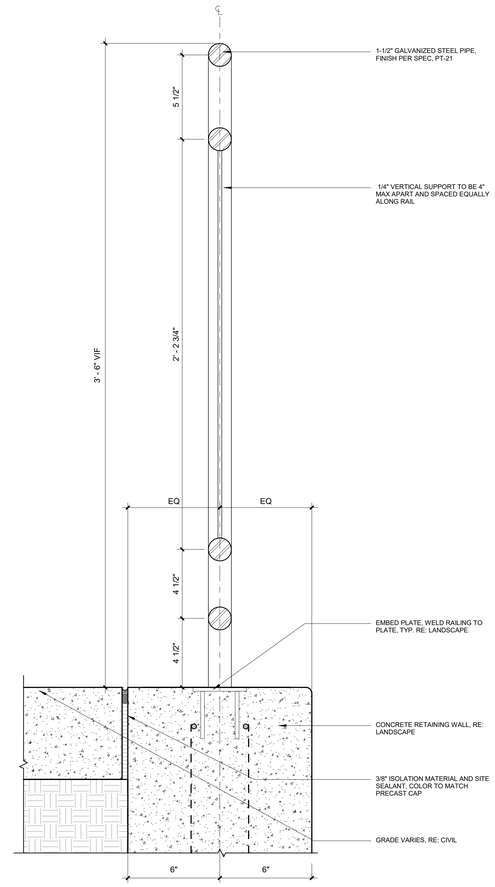
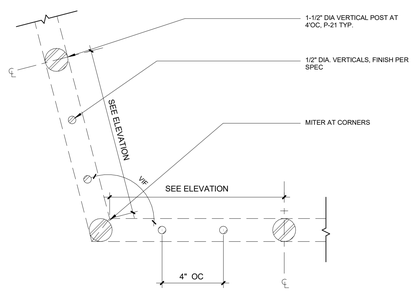


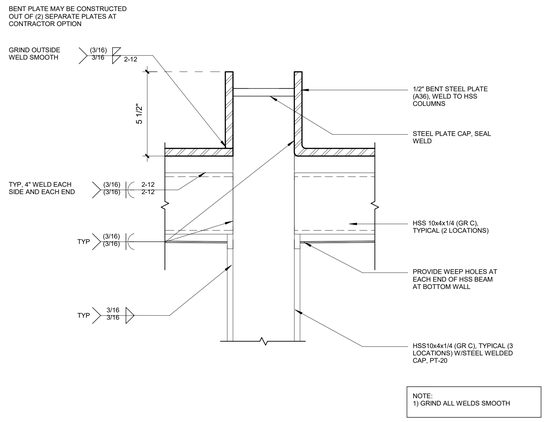
5 AXON - BIKE RACK



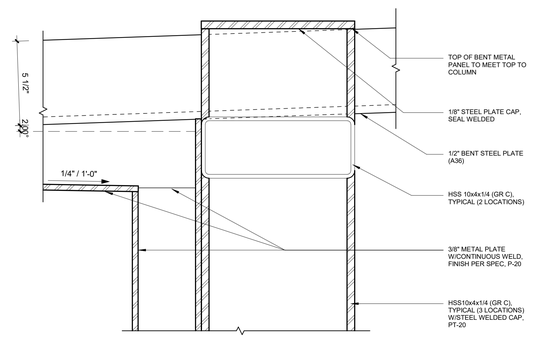
3 BIKE RACK SECTION DETAIL - GUARDRAIL
3" = 1'-0"



4 BIKE RACK PLAN DETAIL - GUARDRAIL CORNER
3" = 1'-0"



BIKE RACK SECTION DETAIL - STEEL PLATE AT COLUMN
2 3" = 1'-0"



1 BIKE RACK SECTION DETAIL - GUTTER TO COLUMN
3" = 1'-0"

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#203158
LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
DRAWN: CD
CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
ENLARGED DRAWINGS - SITE

SCALE: 3" = 1'-0"

SHEET NUMBER
A-403

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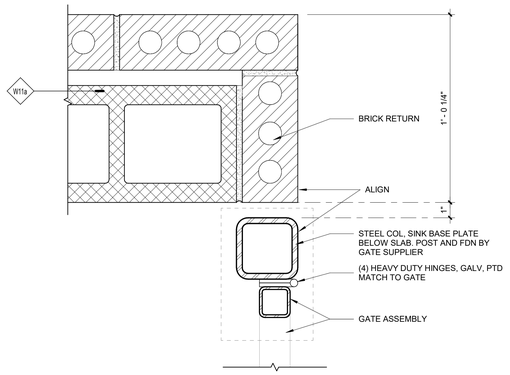
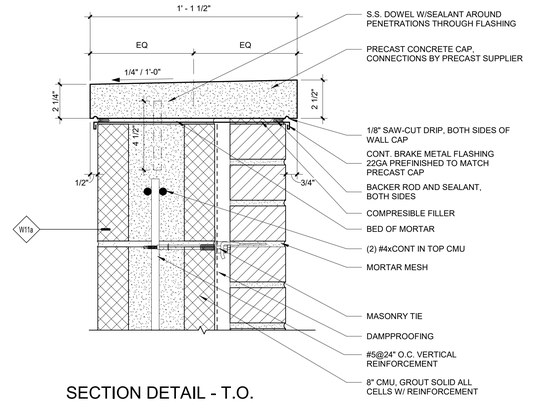


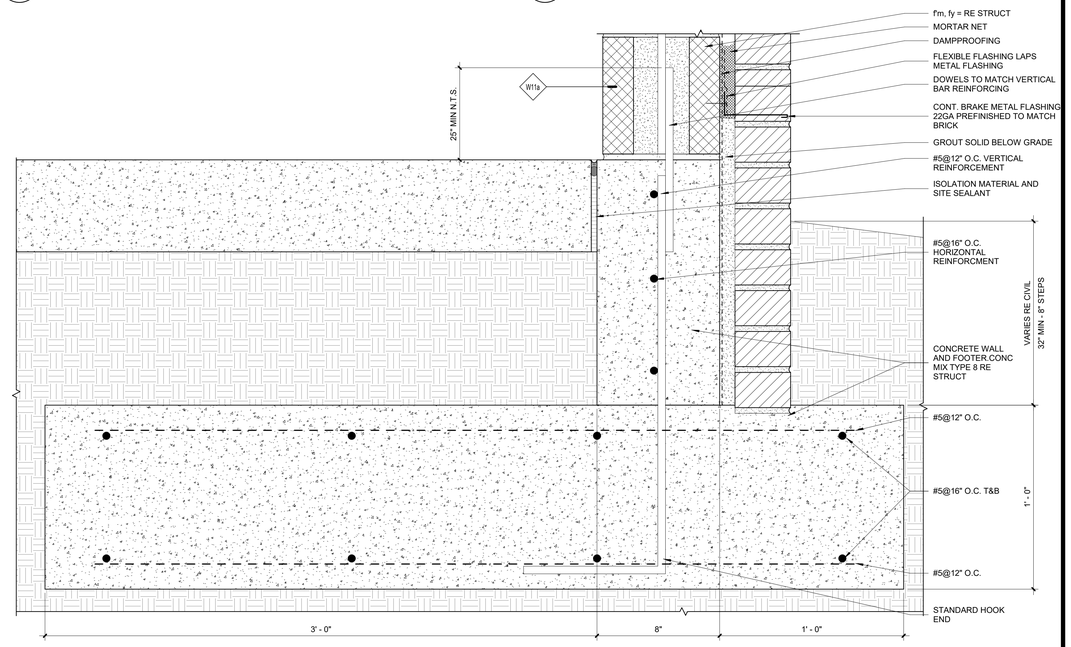
PLAN DETAIL - GATE JAMB AT ENCLOSURE

6 — 3" = 1'-0" RE: 1/ A-404



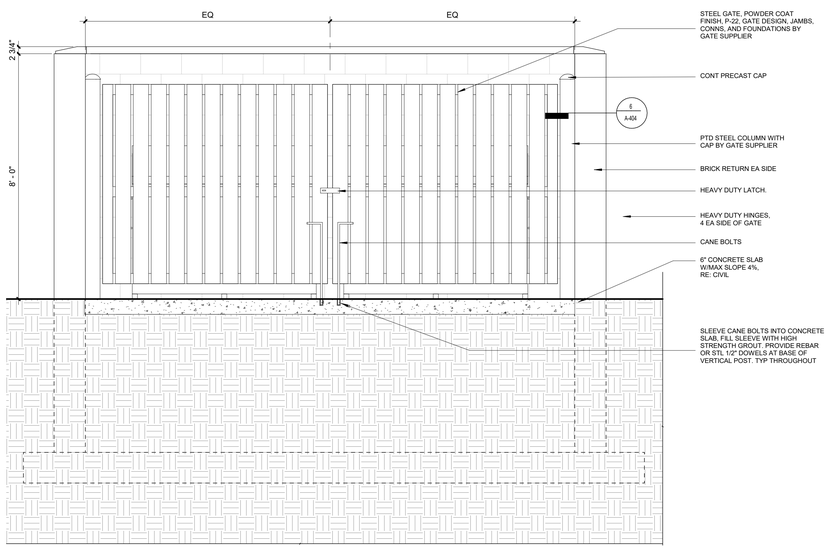
SECTION DETAIL - T.O. WALL AT ENCLOSURE

4 — 3" = 1'-0" RE: 2/ A-404



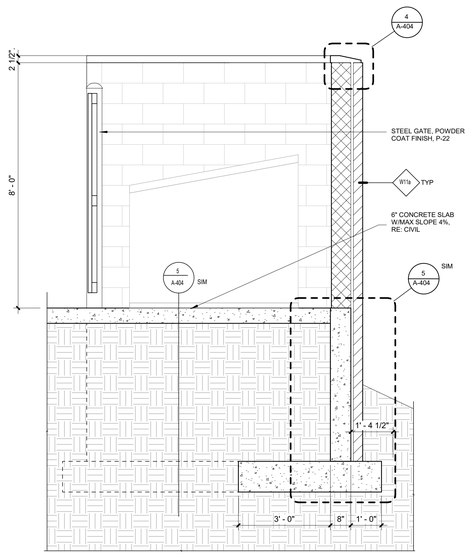
5 SECTION DETAIL - B.O. WALL AT ENCLOSURE

3" = 1'-0" RE: 1/ A-404



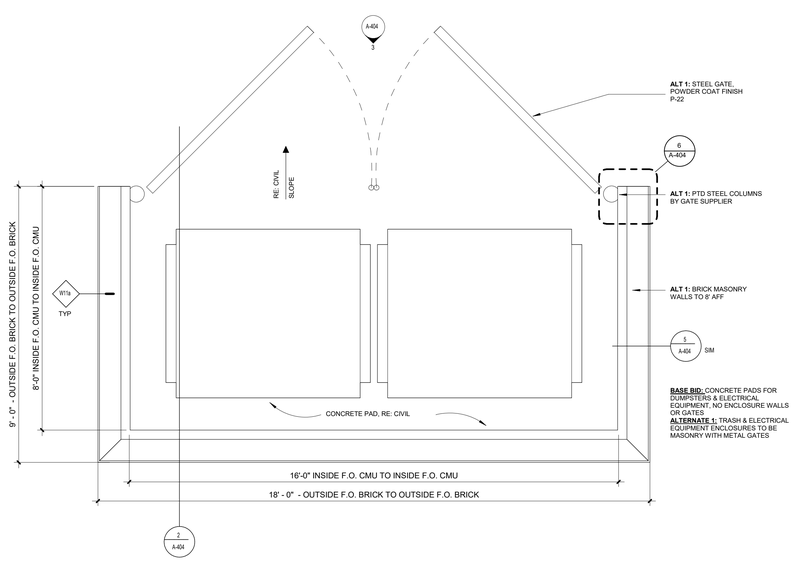
3 TRASH ENCLOSURE - NORTH ELEVATION

1/2" = 1'-0"



2 TRASH ENCLOSURE - SECTION

1/2" = 1'-0"



1 ENLARGED PLAN - TRASH ENCLOSURE

1/2" = 1'-0"

PROJECT NORTH — TRUE NORTH

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A-404

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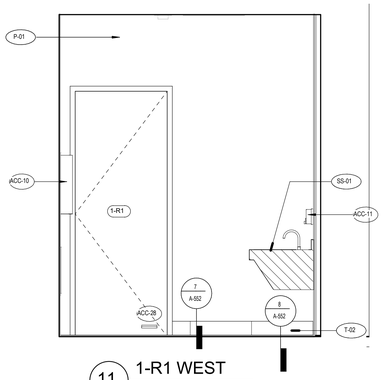
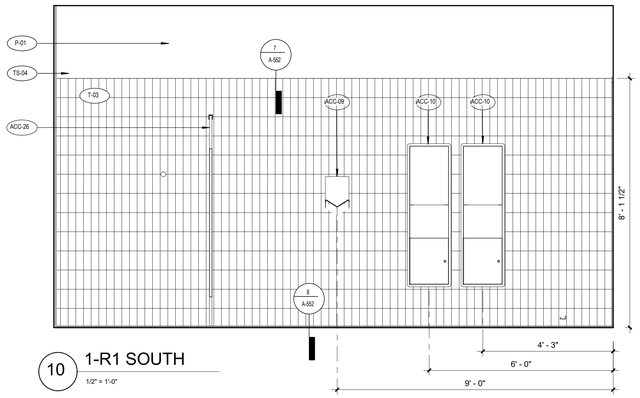
GENERAL FINISH NOTES:

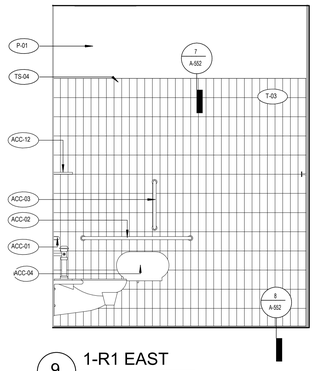
1. PROVIDE TRANSITION STRIP TS-05 FROM WALL TILE TO FLOOR TILE WHERE EVER IT OCCURS
2. PROVIDE TRANSITION STRIP TS-04 AT ALL EXPOSED EDGES OF TILE U.N.O.



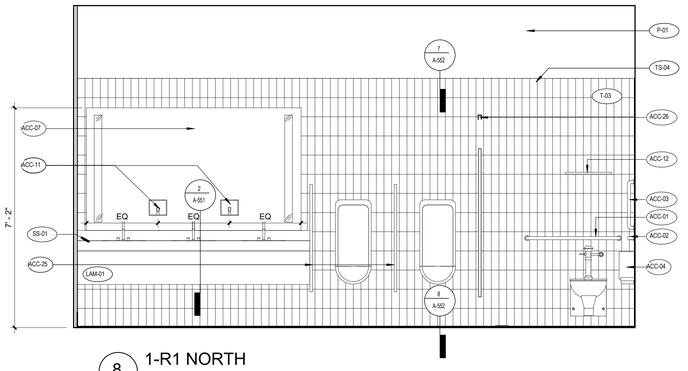
11 1-R1 WEST
1/2" = 1'-0"



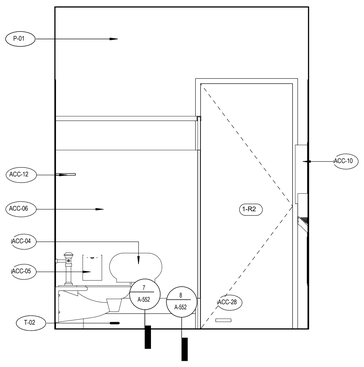
10 1-R1 SOUTH
1/2" = 1'-0"



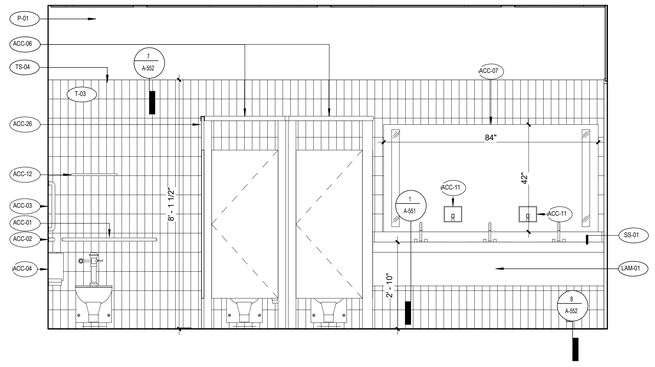
9 1-R1 EAST
1/2" = 1'-0"



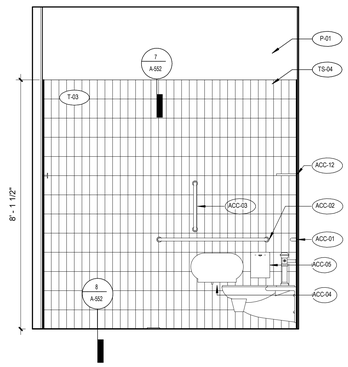
8 1-R1 NORTH
1/2" = 1'-0"



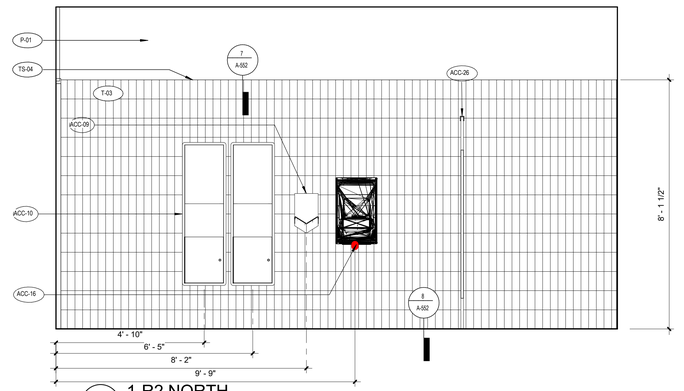
7 1-R2 WEST
1/2" = 1'-0"



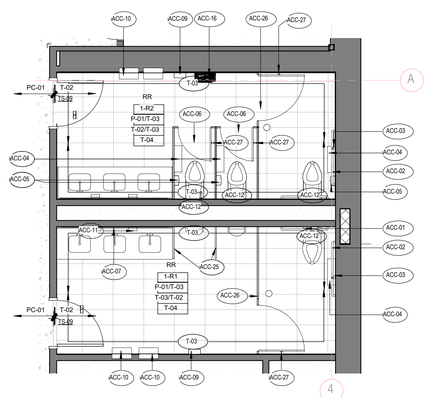
6 1-R2 SOUTH
1/2" = 1'-0"



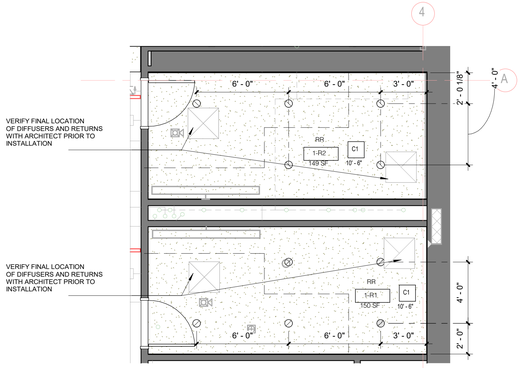
5 1-R2 EAST
1/2" = 1'-0"



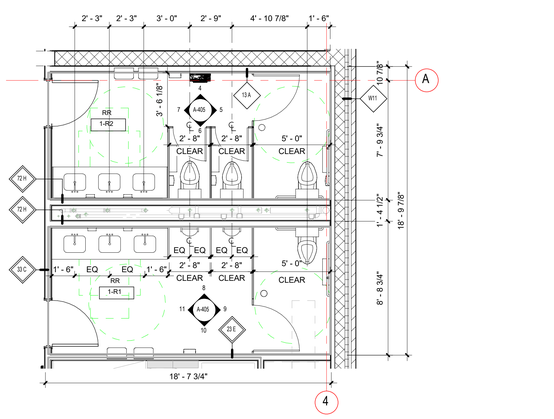
4 1-R2 NORTH
1/2" = 1'-0"



3 1-R1 & 1-R2 - ENLARGED FINISH PLAN
1/4" = 1'-0"



2 1-R1 & 1-R2 - ENLARGED REFLECTED CEILING PLAN
1/4" = 1'-0"



1 1-R1 & 1-R2 - ENLARGED FLOOR PLAN
1/4" = 1'-0"

PROJECT NORTH TRUE NORTH

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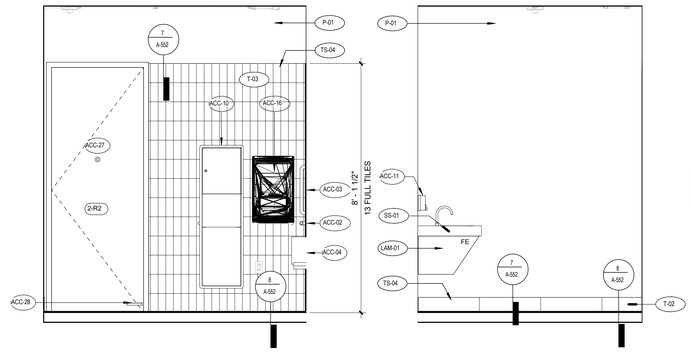
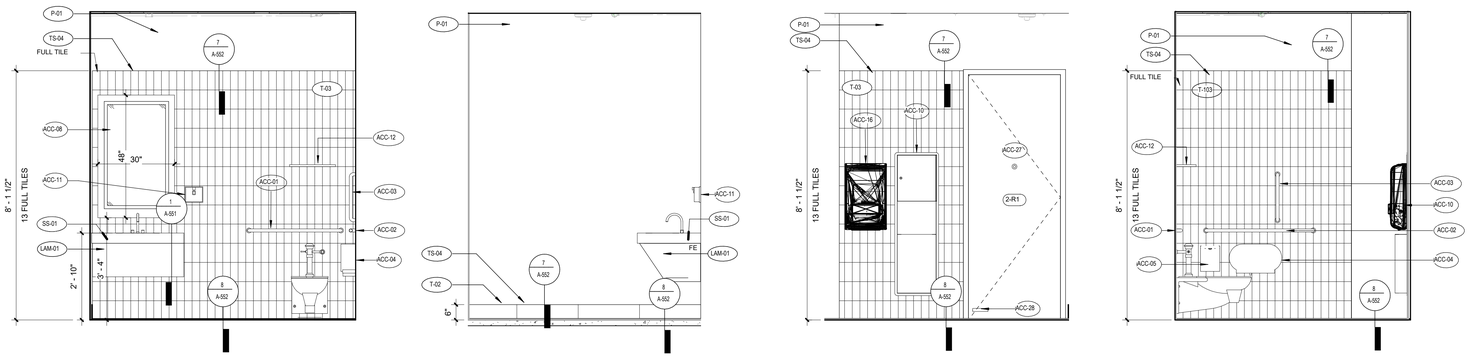


14 2-R2 WEST
1/2" = 1'-0"

13 2-R2 SOUTH
1/2" = 1'-0"

12 2-R2 EAST
1/2" = 1'-0"

11 2-R2 NORTH
1/2" = 1'-0"

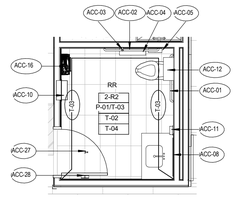


10 2-R1 WEST
1/2" = 1'-0"

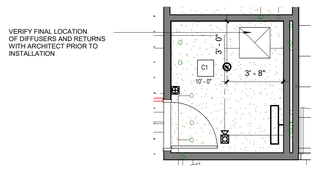
9 2-R1 SOUTH
1/2" = 1'-0"

8 2-R1 EAST
1/2" = 1'-0"

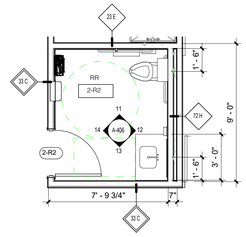
7 2-R1 NORTH
1/2" = 1'-0"



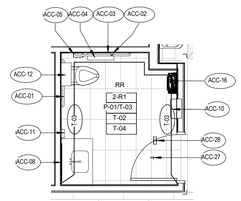
6 2-R2 - ENLARGED FINISH PLAN
1/4" = 1'-0"



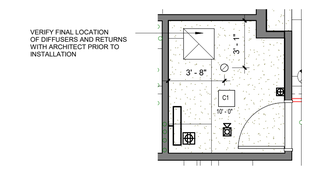
5 2-R2 - ENLARGED REFLECTED CEILING PLAN
1/4" = 1'-0"



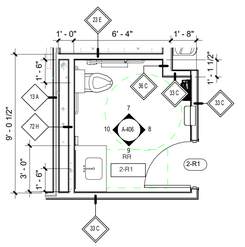
4 2-R2 - ENLARGED FLOOR PLAN
1/4" = 1'-0"



3 2-R1 - ENLARGED FINISH PLAN
1/4" = 1'-0"



2 2-R1 - ENLARGED REFLECTED CEILING PLAN
1/4" = 1'-0"



1 2-R1 - ENLARGED FLOOR PLAN
1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH

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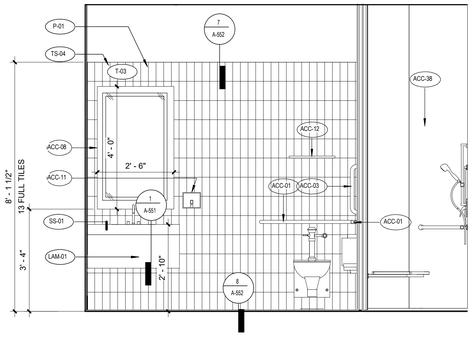
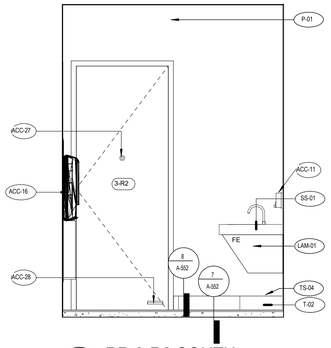
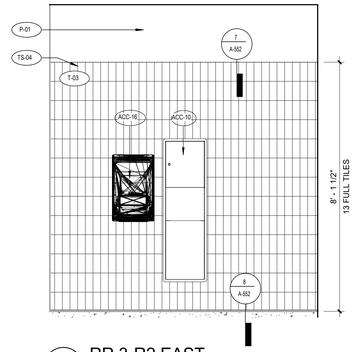


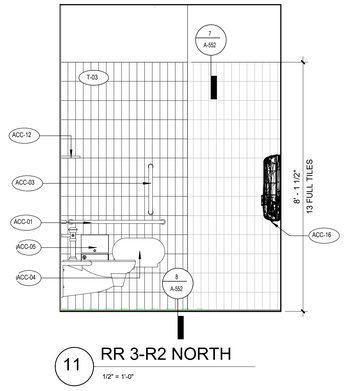
14 RR 3-R2 WEST
1/2" = 1'-0"



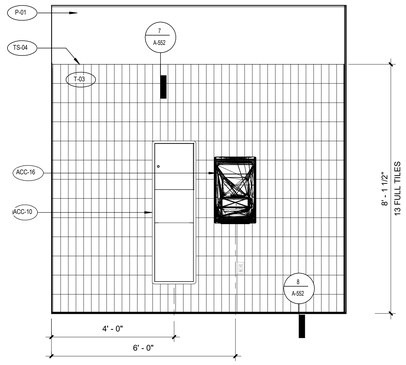
13 RR 3-R2 SOUTH
1/2" = 1'-0"



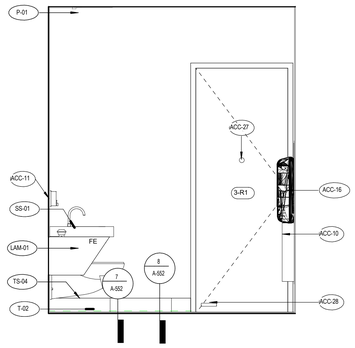
12 RR 3-R2 EAST
1/2" = 1'-0"



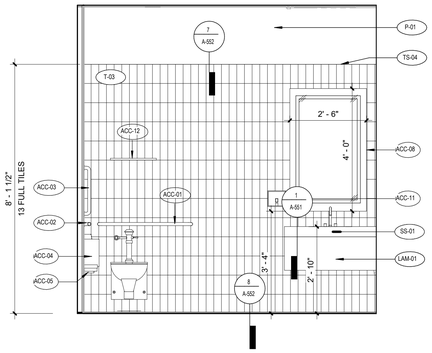
11 RR 3-R2 NORTH
1/2" = 1'-0"



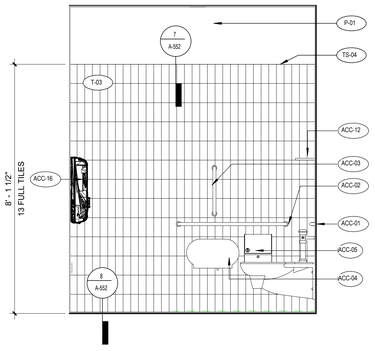
10 RR 3-R1 WEST
1/2" = 1'-0"



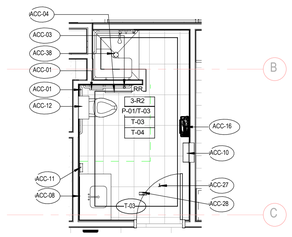
9 RR 3-R1 SOUTH
1/2" = 1'-0"



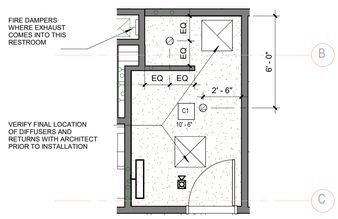
8 RR 3-R1 EAST
1/2" = 1'-0"



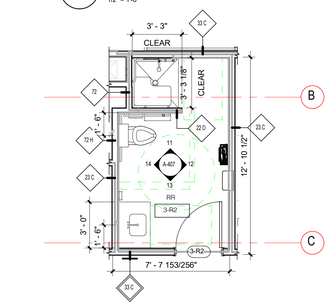
7 RR 3-R1 NORTH
1/2" = 1'-0"



3-R2 - ENLARGED FINISH PLAN - LAB BLDG
6 1/4" = 1'-0"



3-R2 - ENLARGED REFLECTED CEILING PLAN - LAB BLDG
5 1/4" = 1'-0"



4 3-R2 - ENLARGED PLAN - LAB BLDG
1/4" = 1'-0"

3-R1 - ENLARGED FINISH PLAN - LAB BLDG
3 1/4" = 1'-0"

3-R1 - ENLARGED REFLECTED CEILING PLAN - LAB BLDG
2 1/4" = 1'-0"

1 3-R1 - ENLARGED PLAN - LAB BLDG
1/4" = 1'-0"

PROJECT NORTH
TRUE NORTH

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SHEET TITLE:
ENLARGED DRAWINGS - RESTROOMS

SCALE: As indicated
SHEET NUMBER
A-407

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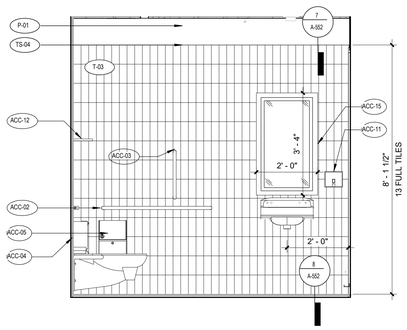
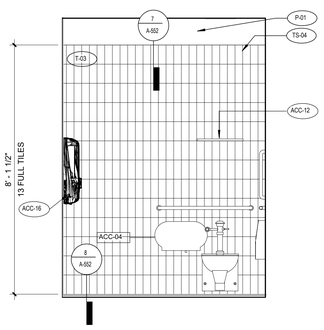


11 14A-1R2 WEST
1/2" = 1'-0"



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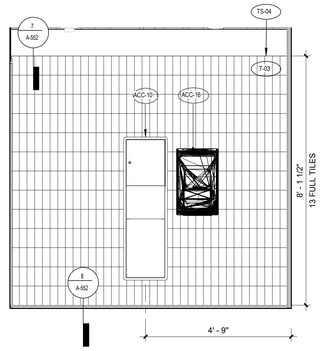

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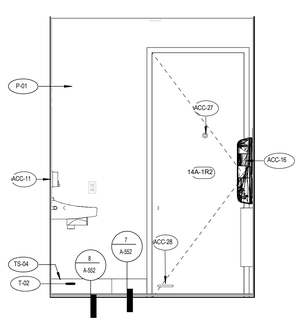
1/2" = 1'-0"



8 14A-1R2 NORTH
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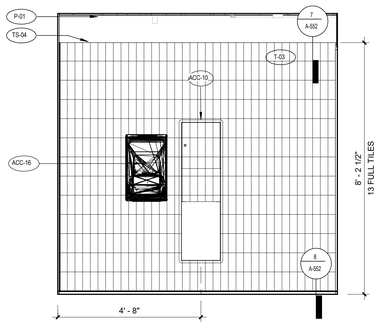
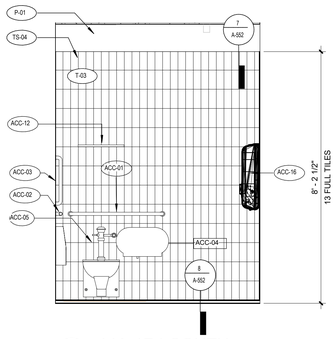
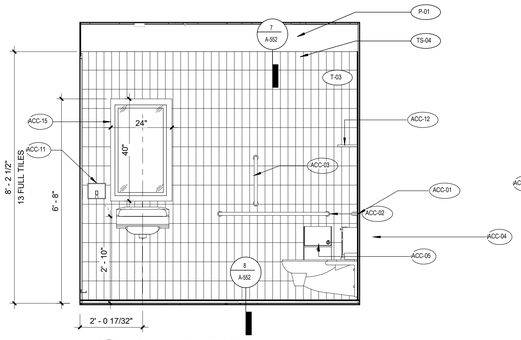


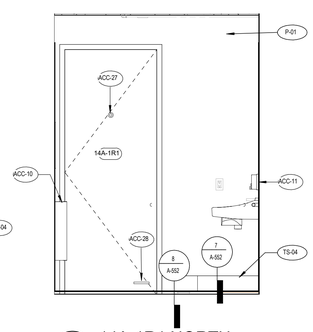
7 14A-1R1 WEST
1/2" = 1'-0"



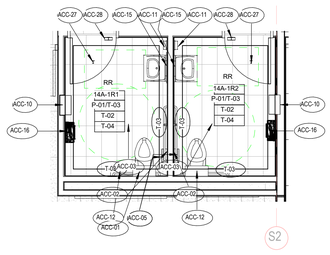
6 14A-1R1 SOUTH
1/2" = 1'-0"



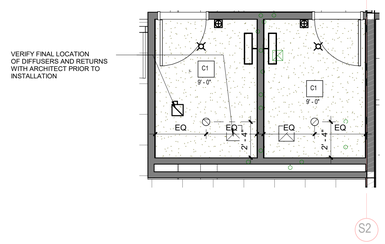
5 14A-1R1 EAST
1/2" = 1'-0"



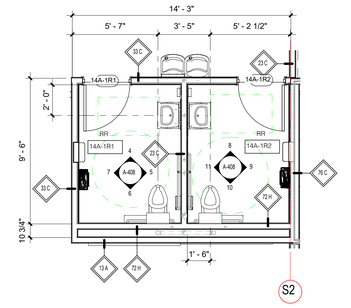
4 14A-1R1 NORTH
1/2" = 1'-0"



3 14A-1R1 & 14A-1R2 - ENLARGED FINISH PLAN - SHOP BLDG
1/4" = 1'-0"



2 14A-1R1 & 14A-1R2 - ENLARGED REFLECTED CEILING PLAN - SHOP BLDG
1/4" = 1'-0"



1 14A-1R1 & 14A-1R2 - ENLARGED PLAN - SHOP BLDG
1/4" = 1'-0"

PROJECT NORTH TRUE NORTH

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A-408

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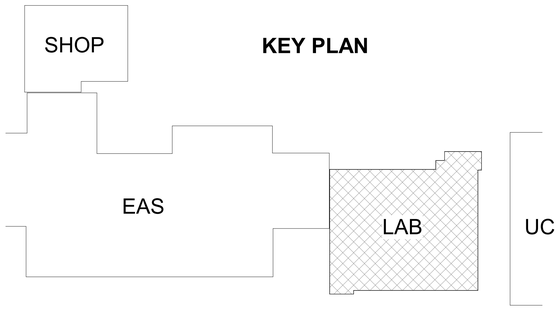
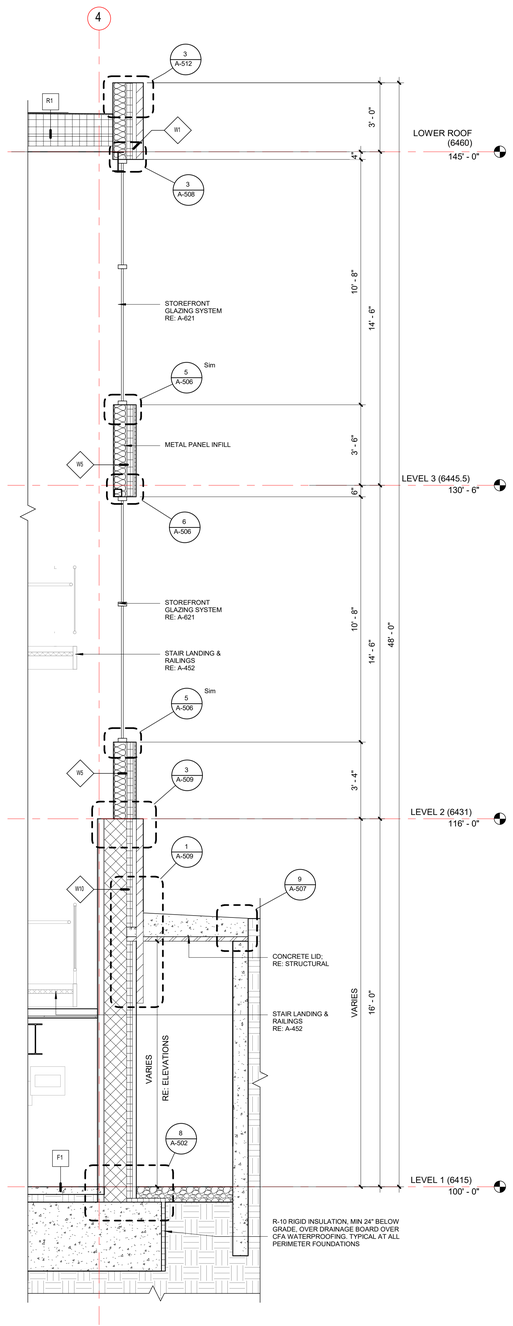
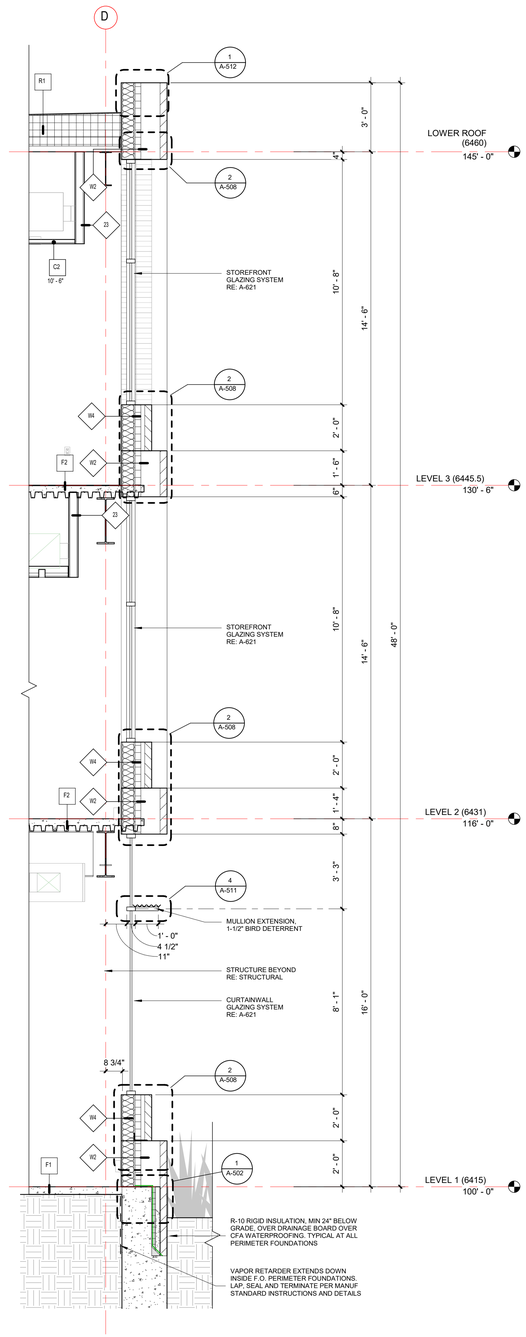
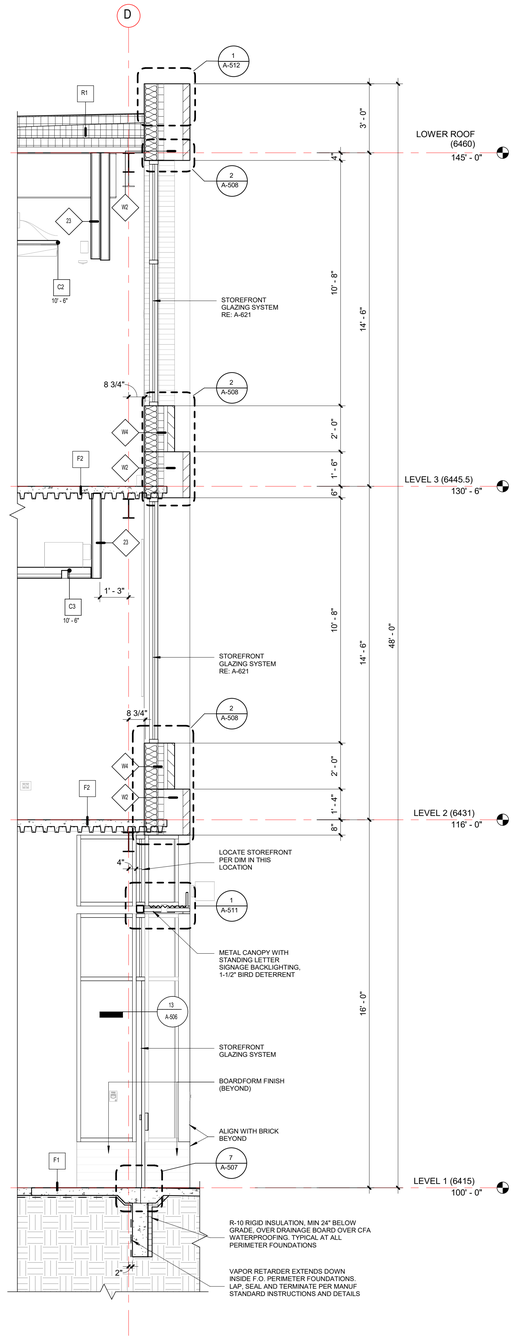




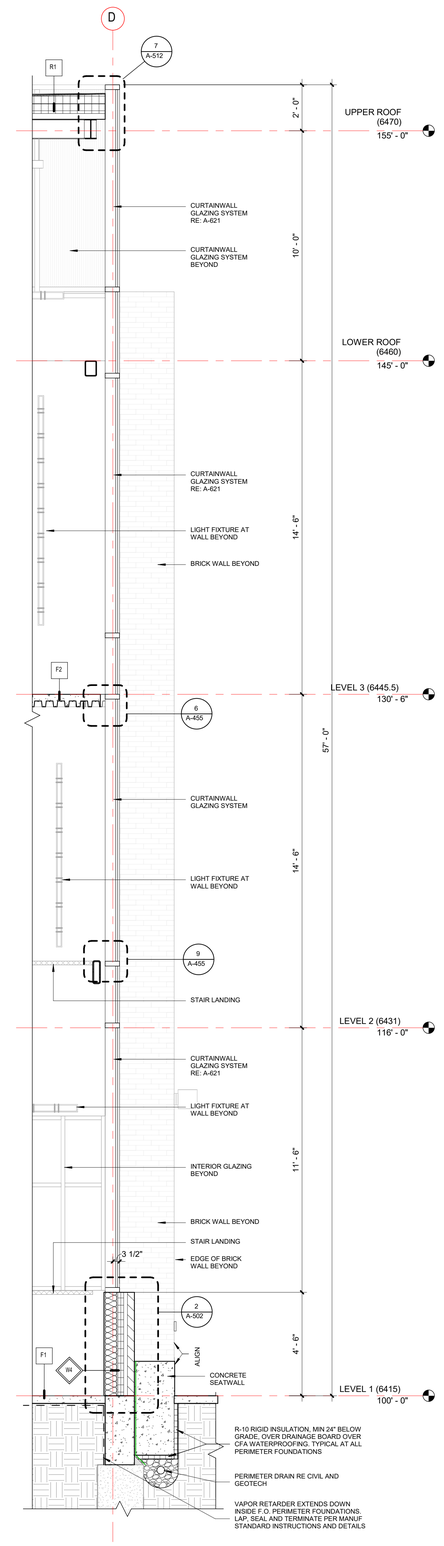
4 LAB BLDG - NORTHEAST STAIR
3/8" = 1'-0"



3 LAB BLDG - TYP. BRICK WALL & WDW - SOUTH ELEVATION
3/8" = 1'-0"



2 LAB BLDG - MAIN ENTRY
3/8" = 1'-0"



1 LAB BLDG - LANTERN
3/8" = 1'-0"

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SHEET TITLE:
WALL SECTIONS - LAB

SCALE: 3/8" = 1'-0"
SHEET NUMBER
A-410

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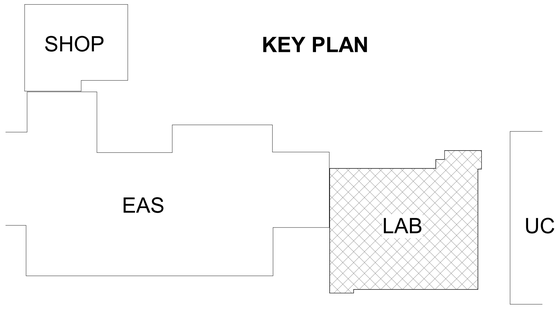
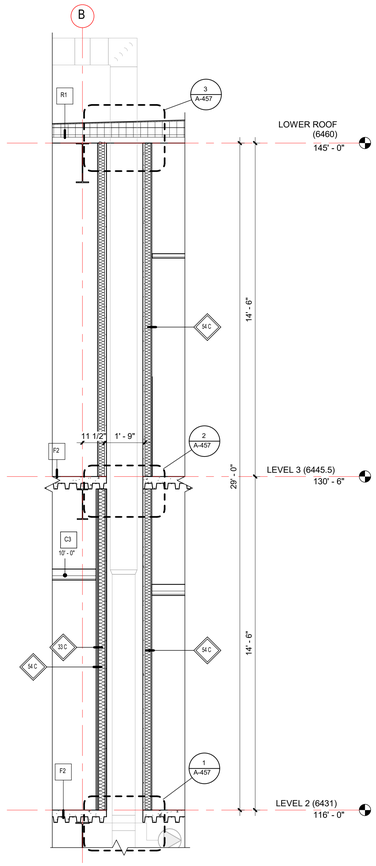
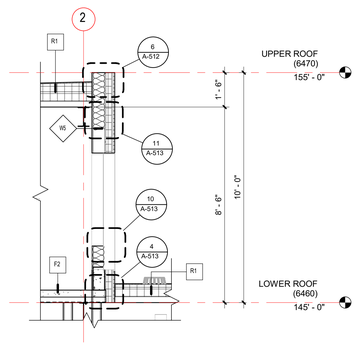


KEY PLAN



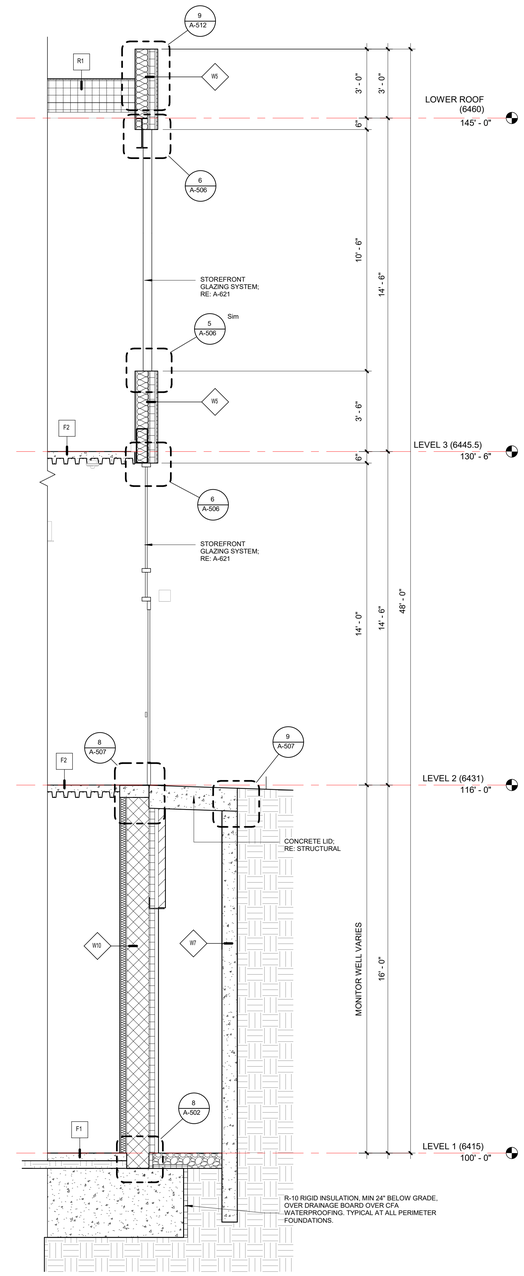
5 LAB BLDG - TYP RATED SHAFT

3/8" = 1'-0" RE: 2/ A-301



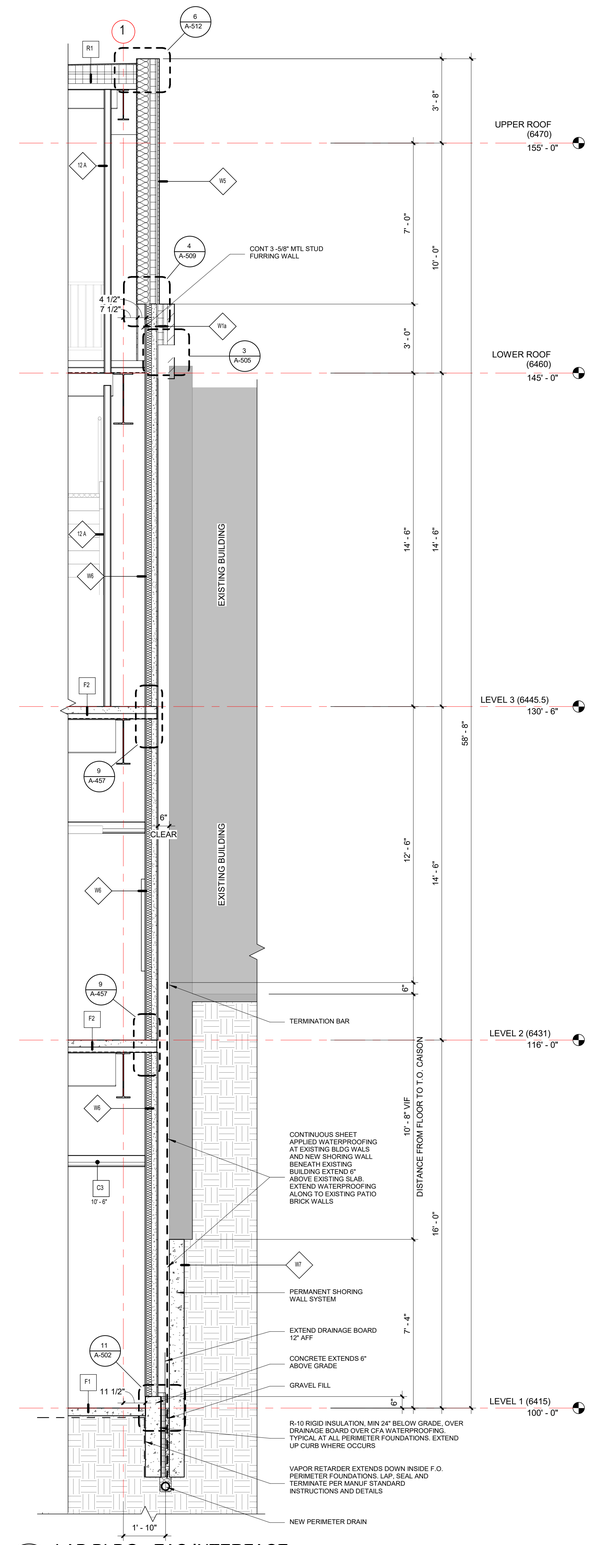
4 LAB BLDG - PENTHOUSE

3/8" = 1'-0" RE: 3/ A-104



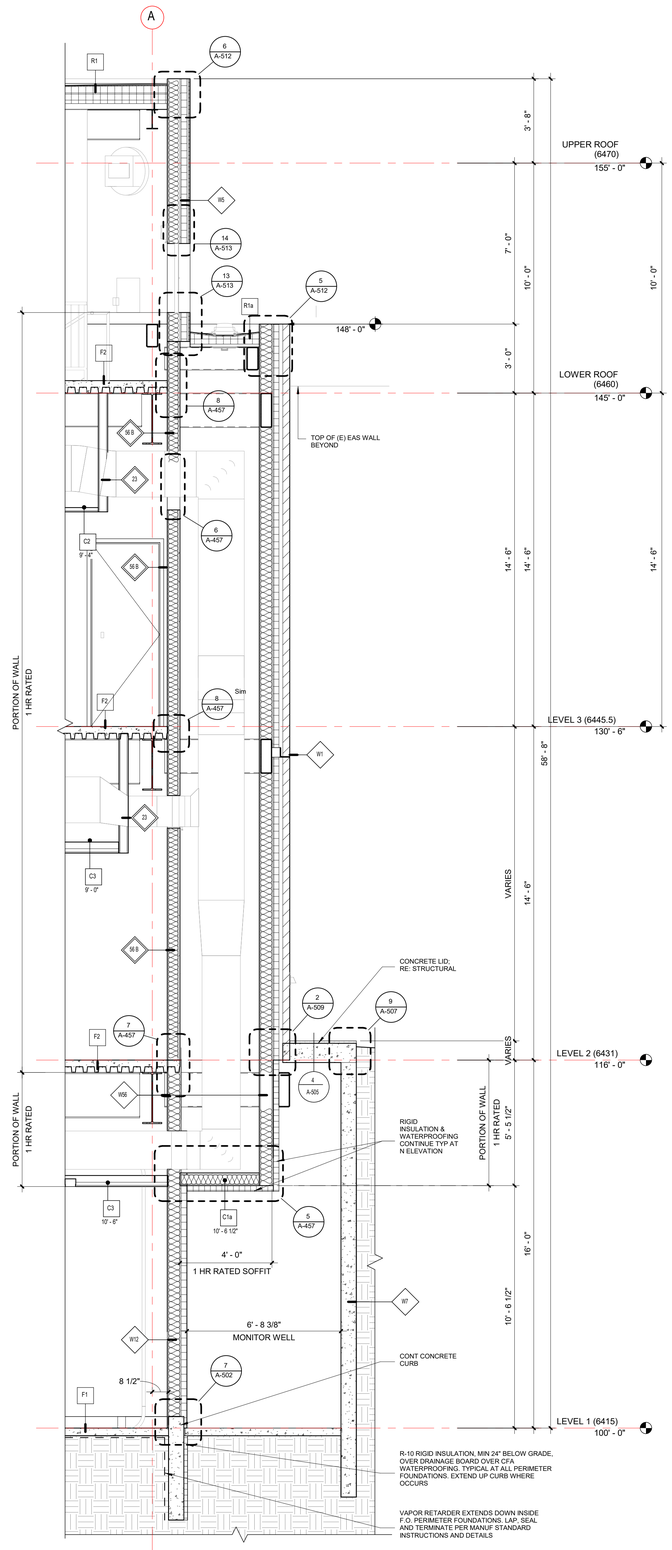
3 LAB BLDG - NORTHEAST STAIR ENTRY

3/8" = 1'-0" RE: 1/ A-07



2 LAB BLDG - EAS INTERFACE

3/8" = 1'-0" RE: 1/ A-07



1 LAB BLDG - MECHANICAL CHASE

3/8" = 1'-0" RE: 1/ A-101

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WALL SECTIONS - LAB

SCALE: 3/8" = 1'-0"
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A-411

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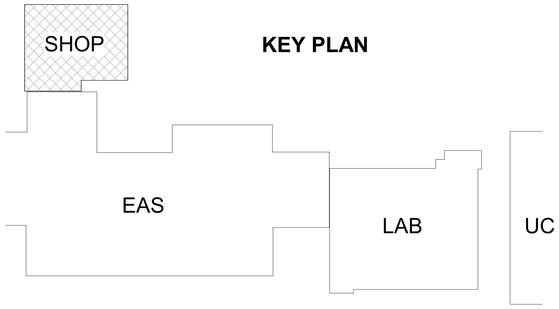

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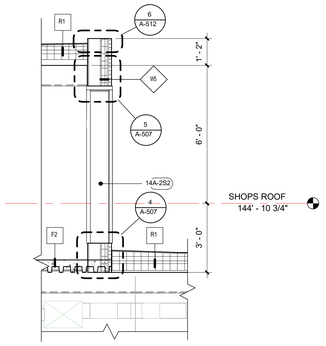
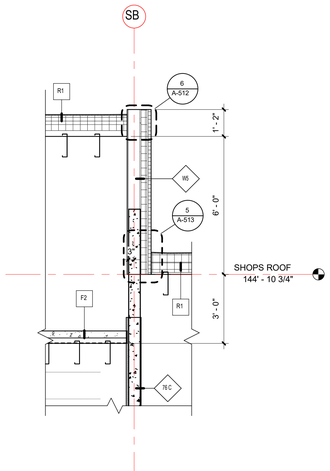


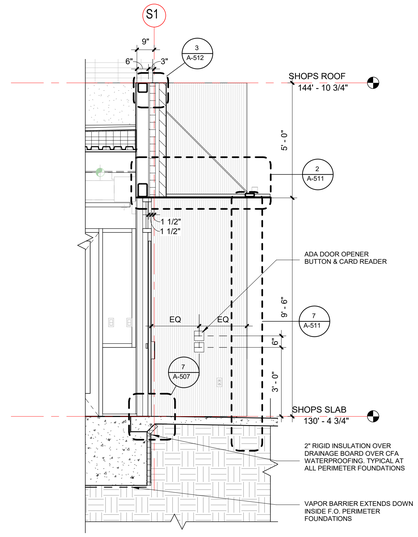
9 SHOP BLDG - PENTHOUSE WALLS AT DOOR

3/8" = 1'-0"



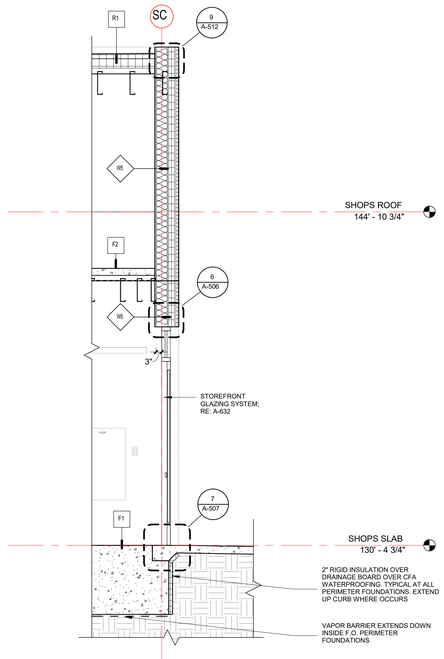
8 SHOP BLDG - PENTHOUSE WALLS AT ROOF

3/8" = 1'-0"



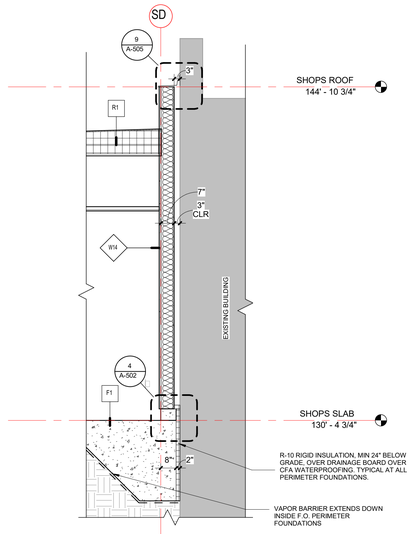
7 SHOP BLDG - WEST BLDG ENTRY

3/8" = 1'-0"



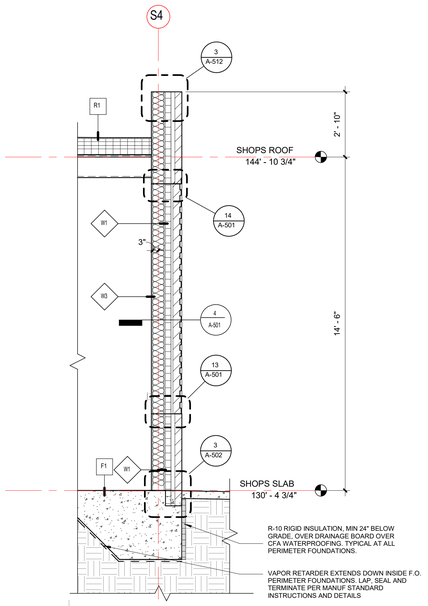
6 SHOP BLDG - LOADING ENTRY

3/8" = 1'-0"



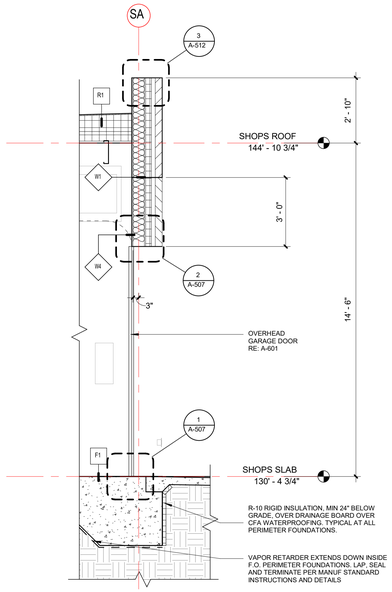
5 SHOP BLDG - AT EXISTING BUILDING

3/8" = 1'-0"



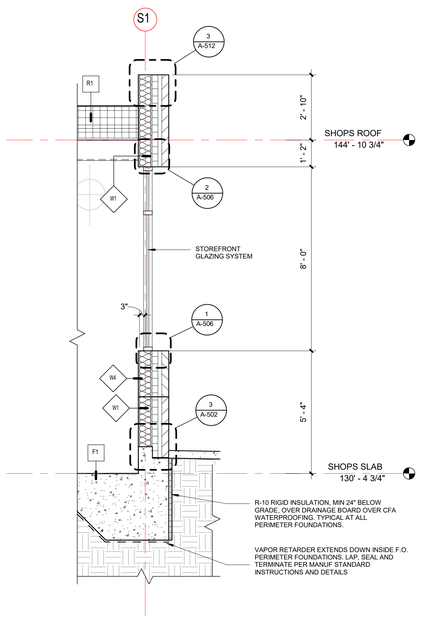
4 SHOPS BLDG - PROUD COURSING

3/8" = 1'-0"



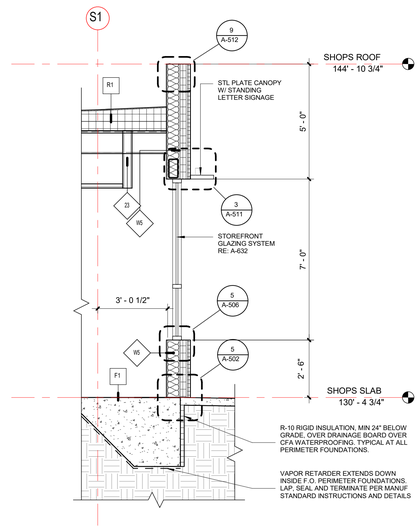
3 SHOPS BLDG - GARAGE DOOR

3/8" = 1'-0"



2 SHOP BLDG - WINDOW @ BRICK WALL

3/8" = 1'-0"



1 SHOP BLDG - WINDOW @ METAL PANEL

3/8" = 1'-0"

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SHEET TITLE:
WALL SECTIONS - SHOP

SCALE: 3/8" = 1'-0"
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A-412

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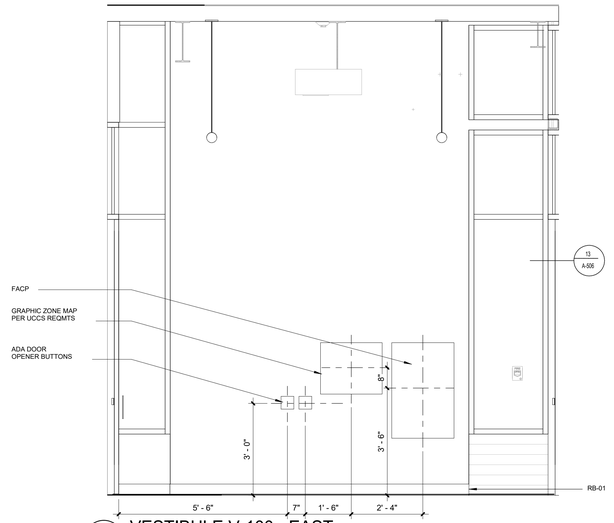
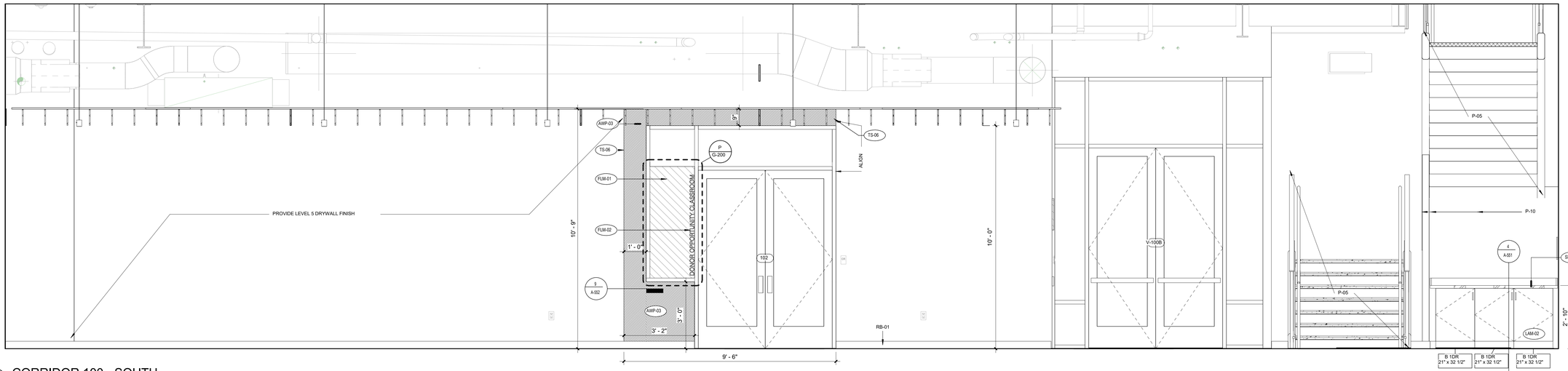


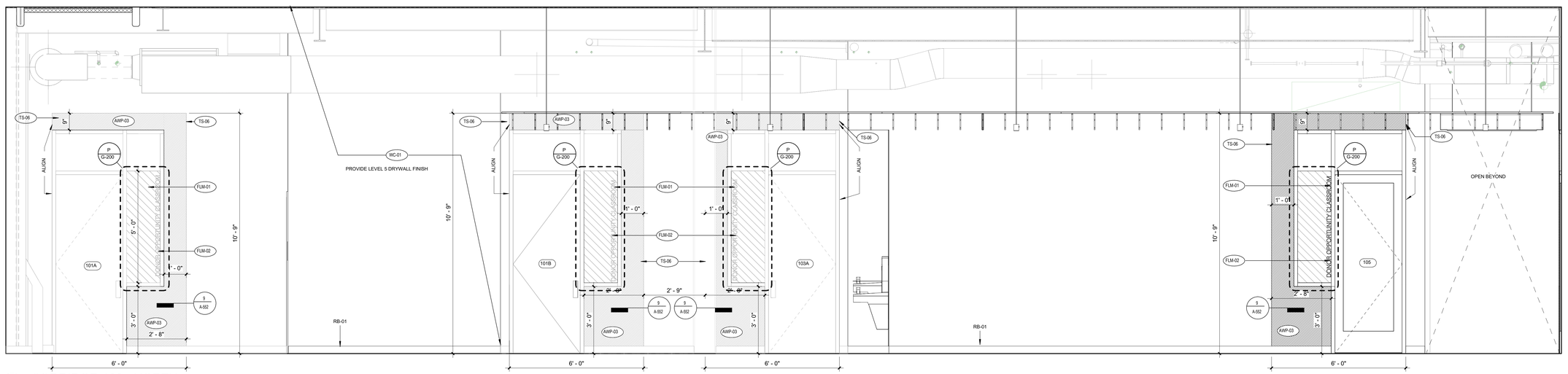
3 VESTIBULE V-100 - EAST

1/2" = 1'-0"



2 CORRIDOR 100 - SOUTH

1/2" = 1'-0"



1 CORRIDOR 100 - NORTH

1/2" = 1'-0"

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SHEET TITLE:
INTERIOR ELEVATIONS

SCALE: 1/2" = 1'-0"
SHEET NUMBER

A-420

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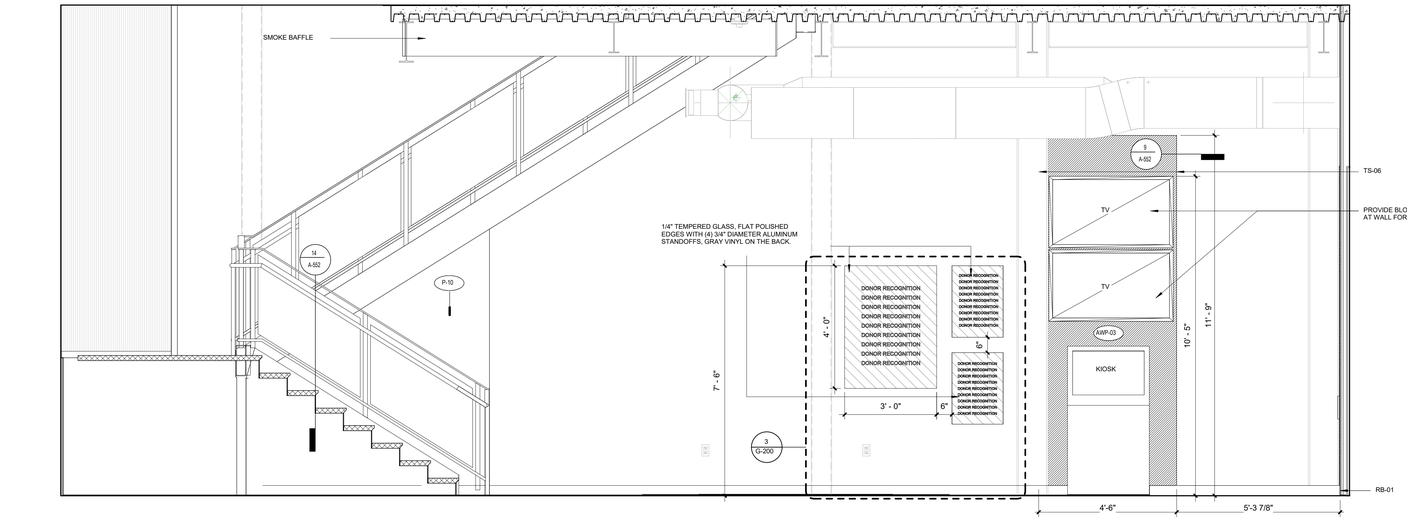

3 CORRIDOR 100 - INTERIOR ELEVATION 1 - WEST

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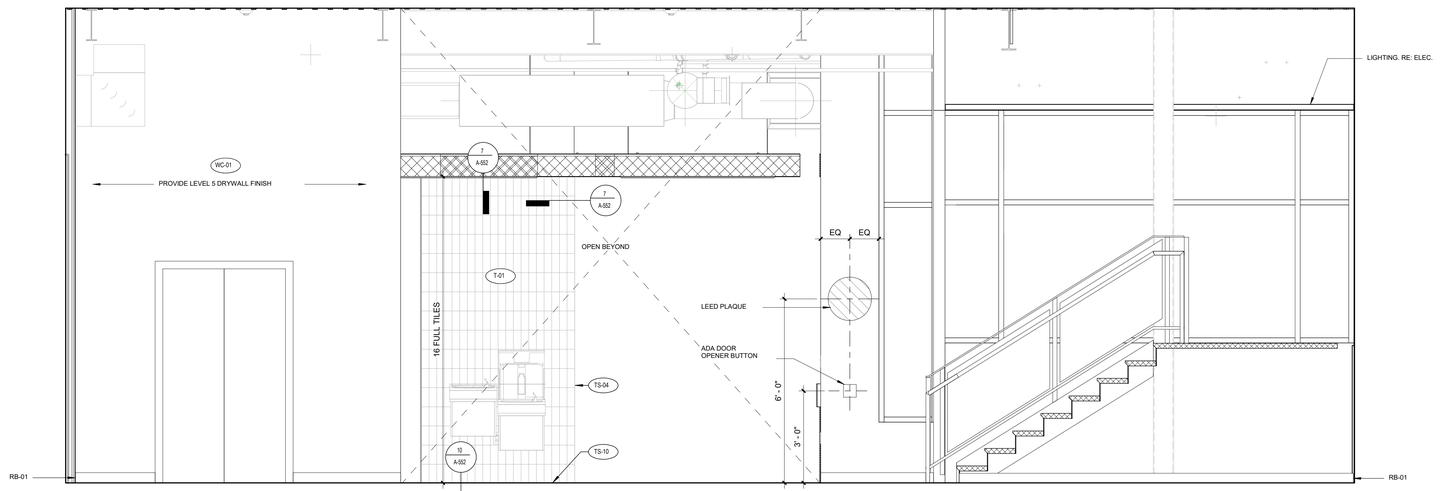

1 CORRIDOR 100 - INTERIOR ELEVATION 1 - EAST

1/2" = 1'-0"

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LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
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SHEET TITLE:
INTERIOR ELEVATIONS

SCALE: 1/2" = 1'-0"
SHEET NUMBER
A-421

10/26/2022 8:55:09 PM
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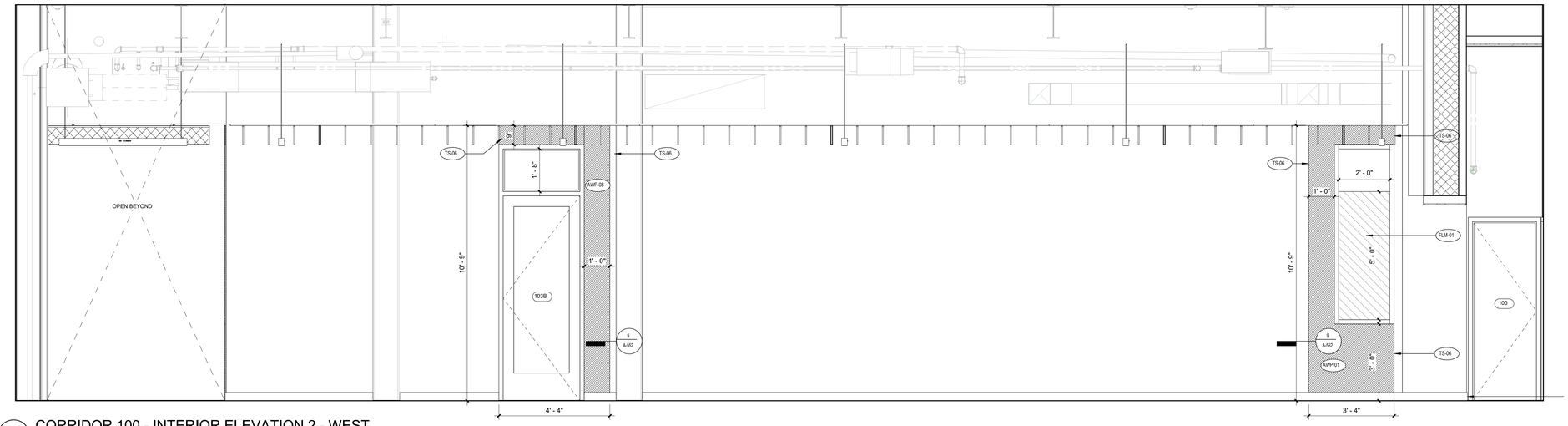
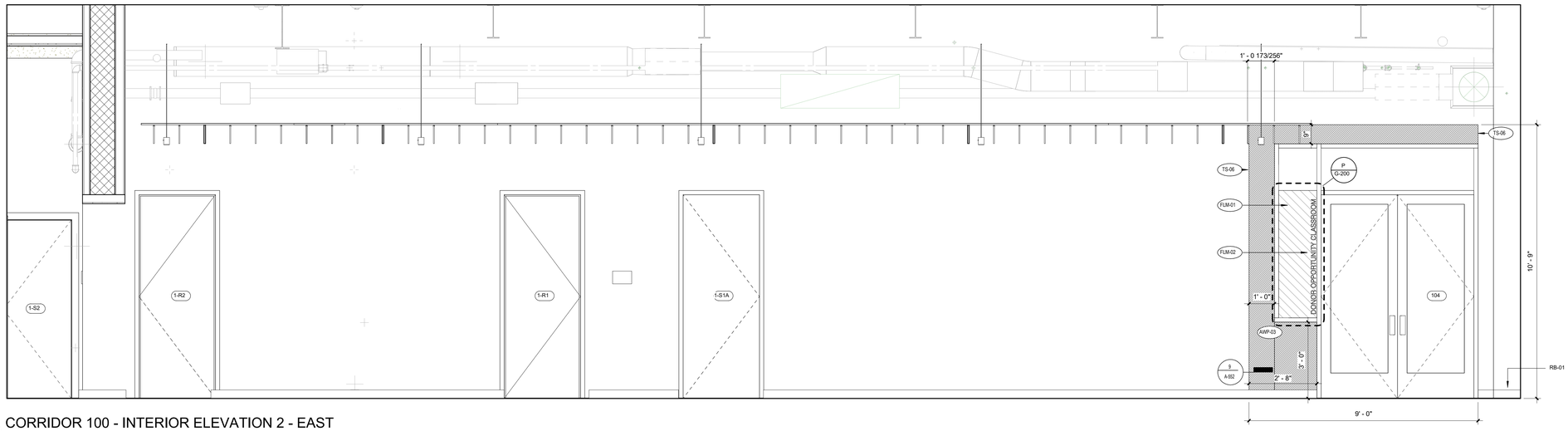


2 CORRIDOR 100 - INTERIOR ELEVATION 2 - WEST

1/2" = 1'-0"



1 CORRIDOR 100 - INTERIOR ELEVATION 2 - EAST

1/2" = 1'-0"

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INTERIOR ELEVATIONS

SCALE: 1/2" = 1'-0"

SHEET NUMBER

A-422

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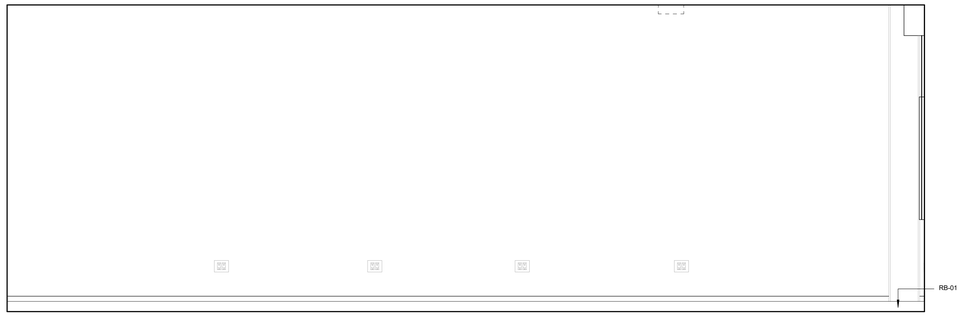
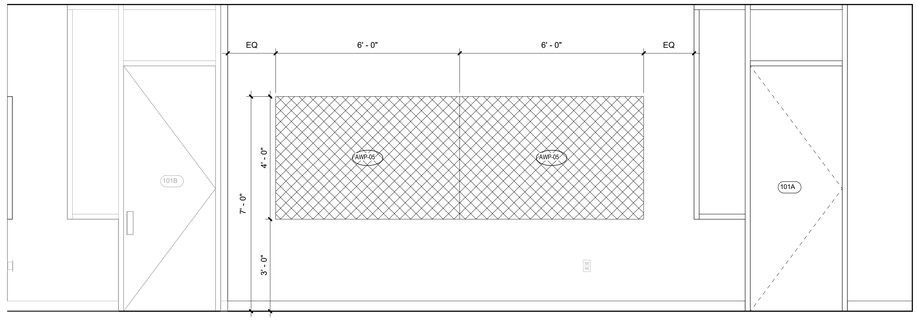
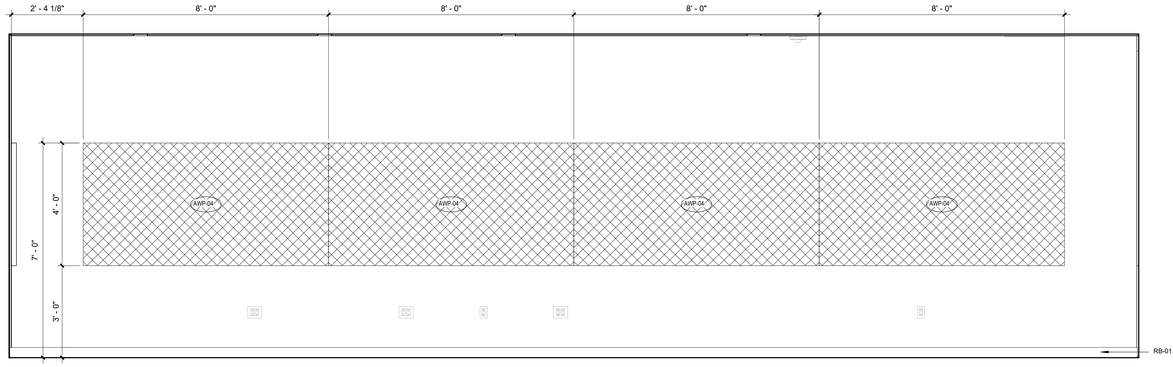


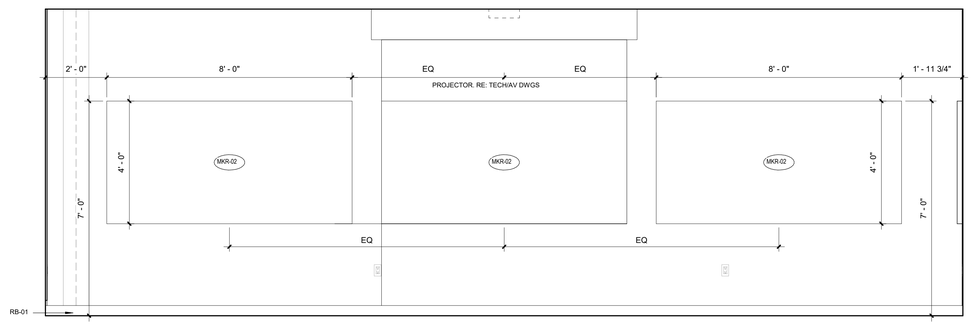
4 CLASSROOM 101 - WEST
1/2" = 1'-0"



3 CLASSROOM 101 - SOUTH
1/2" = 1'-0"



2 CLASSROOM 101 - EAST
1/2" = 1'-0"



1 CLASSROOM 101 - NORTH
1/2" = 1'-0"

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INTERIOR ELEVATIONS

SCALE: 1/2" = 1'-0"
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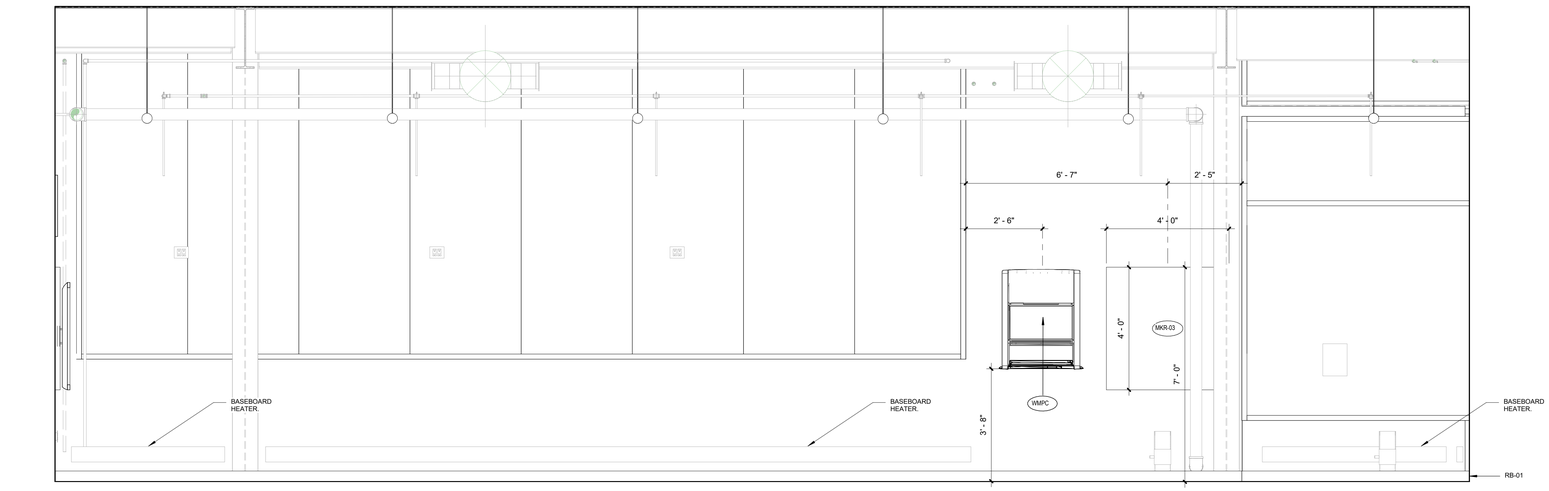
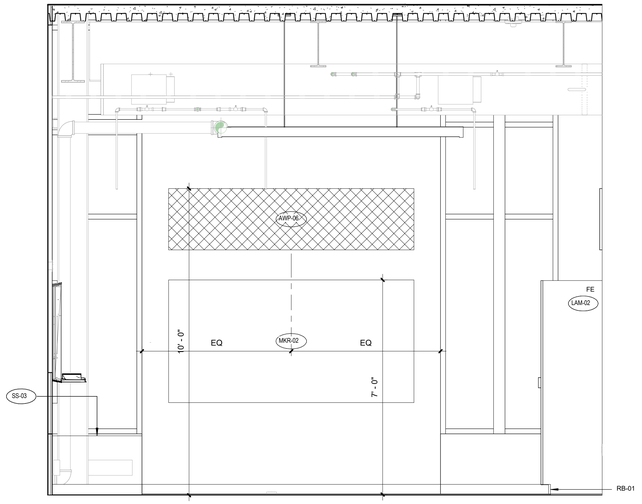
A-423

10/26/2022 8:55:17 PM BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt



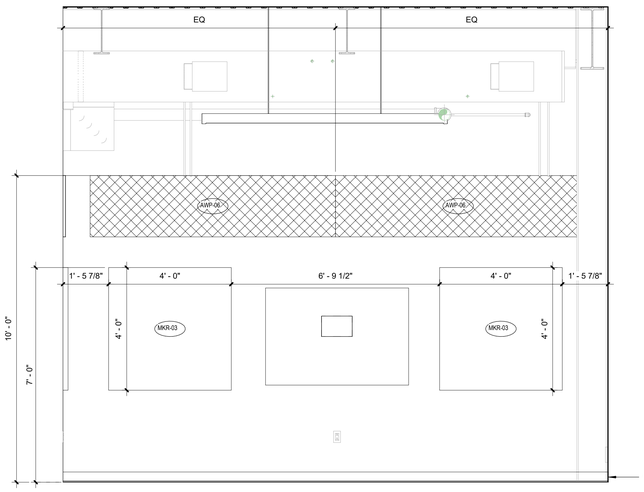
4 SPACE SYSTEMS LAB 102 - SOUTH

1/2" = 1'-0"



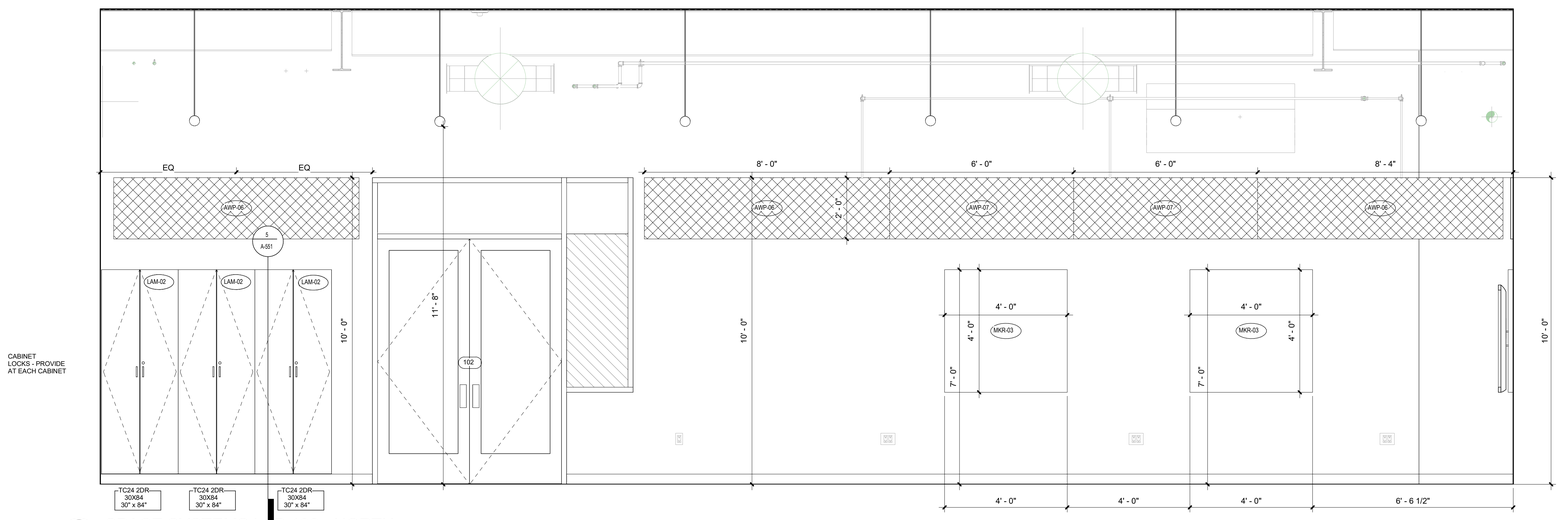
3 SPACE SYSTEMS LAB 102 - WEST

1/2" = 1'-0"



2 SPACE SYSTEMS LAB 102 - EAST

1/2" = 1'-0"



1 SPACE SYSTEMS LAB 102 - NORTH

1/2" = 1'-0"

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INTERIOR ELEVATIONS

SCALE: 1/2" = 1'-0"
SHEET NUMBER

A-424

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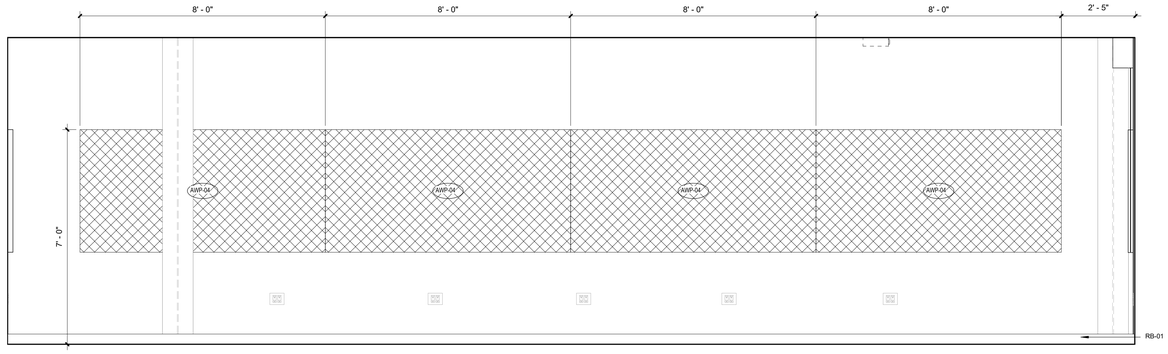
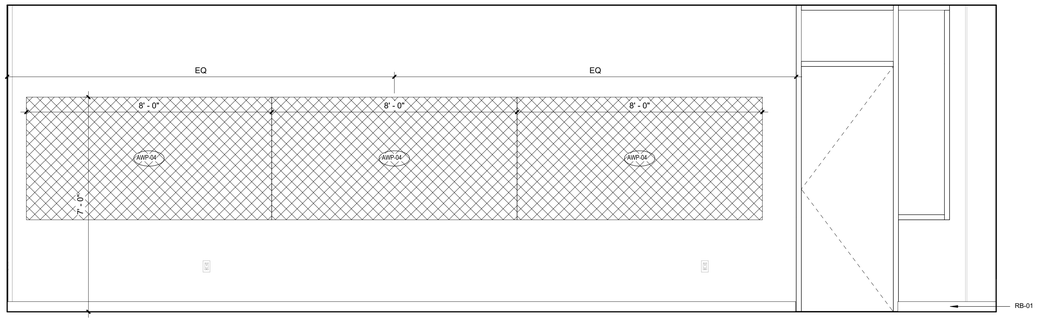
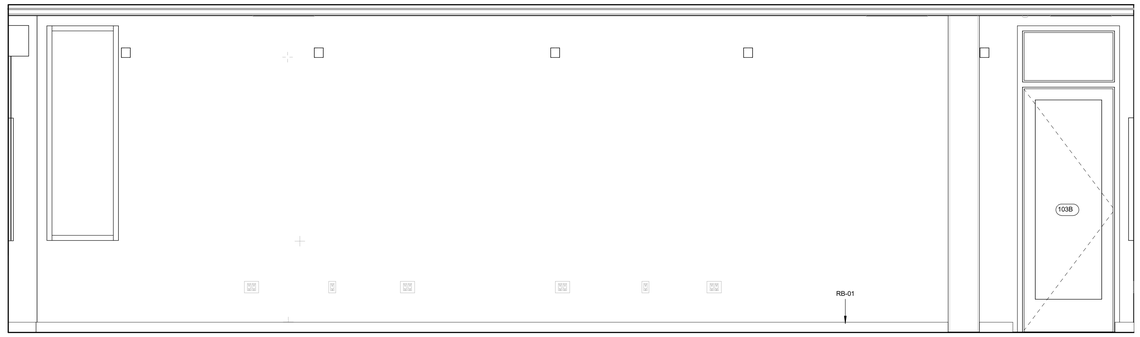


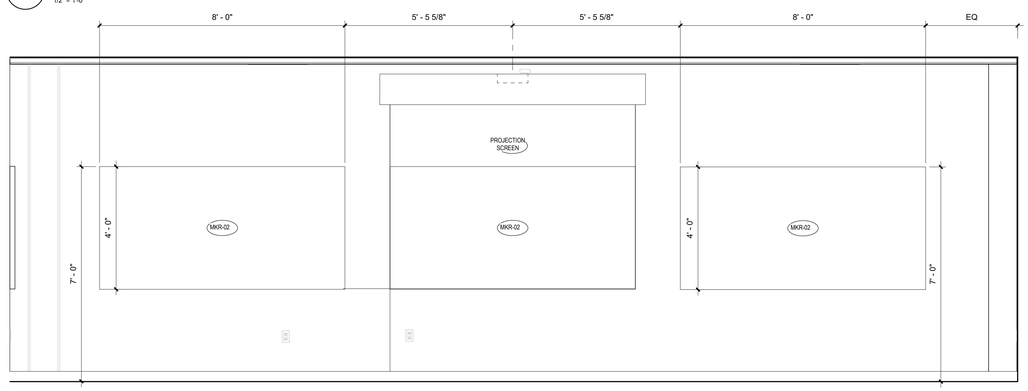
4 COMPUTER LAB 103 - WEST
1/2" = 1'-0"



3 COMPUTER LAB 103 - SOUTH
1/2" = 1'-0"



2 COMPUTER LAB 103 - EAST
1/2" = 1'-0"



1 COMPUTER LAB 103 - NORTH
1/2" = 1'-0"

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SCALE: 1/2" = 1'-0"
SHEET NUMBER
A-425

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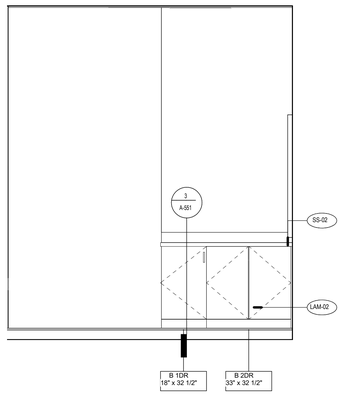
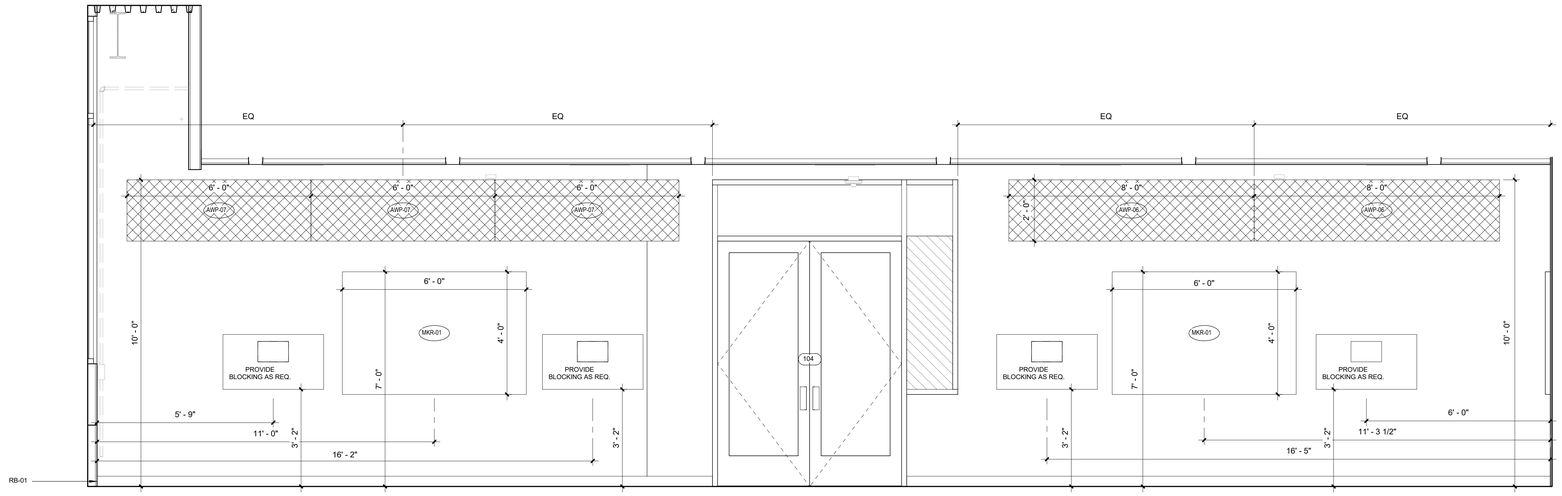
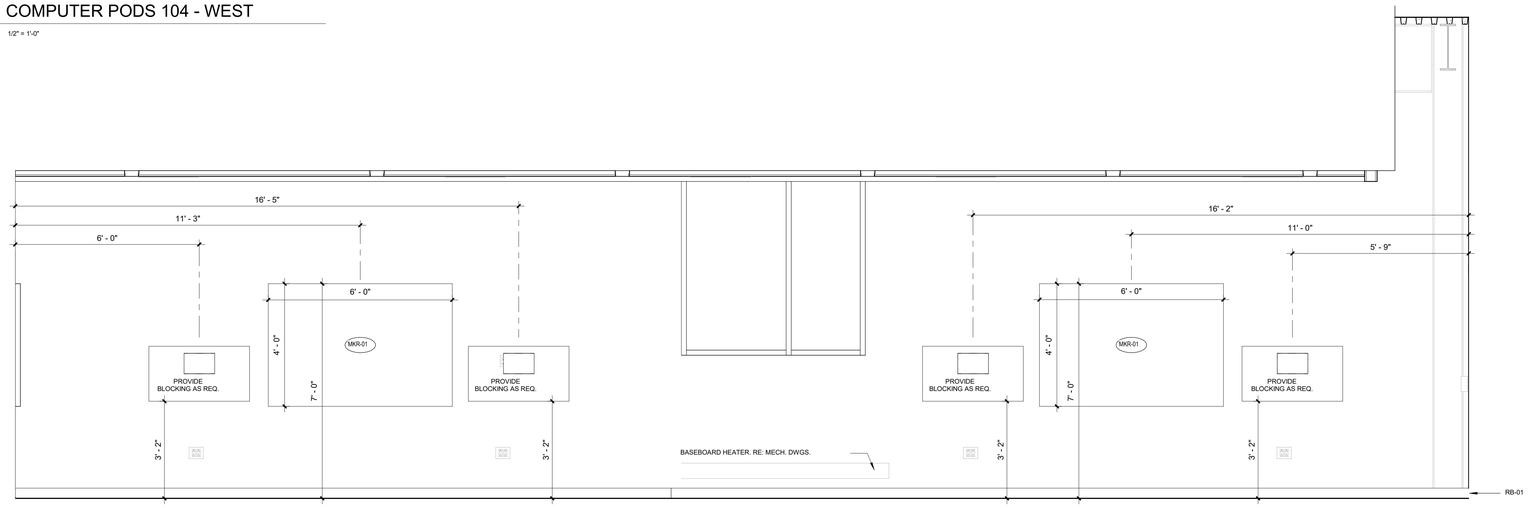


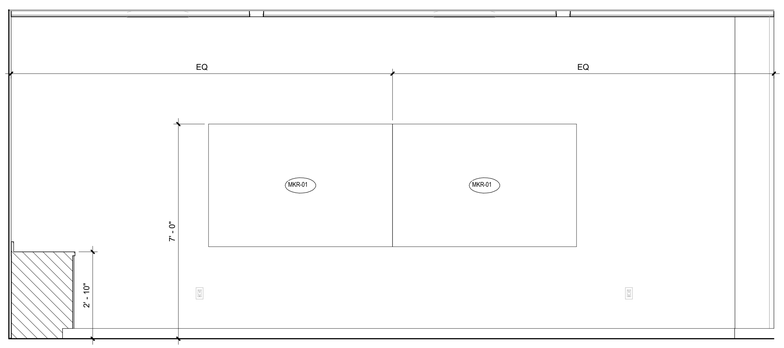
5 HELP CENTER 105 - WEST
1/2" = 1'-0"



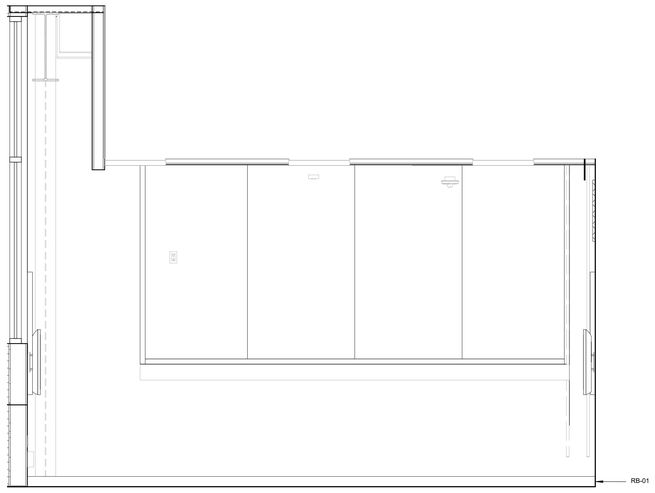
4 COMPUTER PODS 104 - WEST
1/2" = 1'-0"



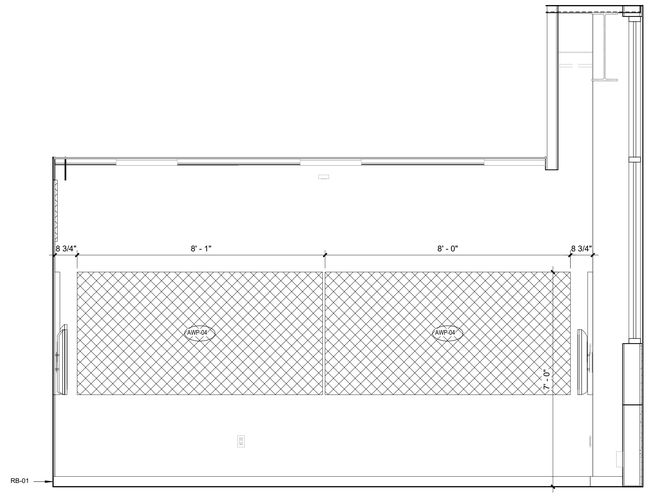
2 COMPUTER PODS 104 - EAST
1/2" = 1'-0"



6 HELP CENTER 105 - NORTH
1/2" = 1'-0"



3 COMPUTER PODS 104 - SOUTH
1/2" = 1'-0"



1 COMPUTER PODS 104 - NORTH
1/2" = 1'-0"

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SHEET TITLE:
INTERIOR ELEVATIONS

SCALE: 1/2" = 1'-0"
SHEET NUMBER
A-426

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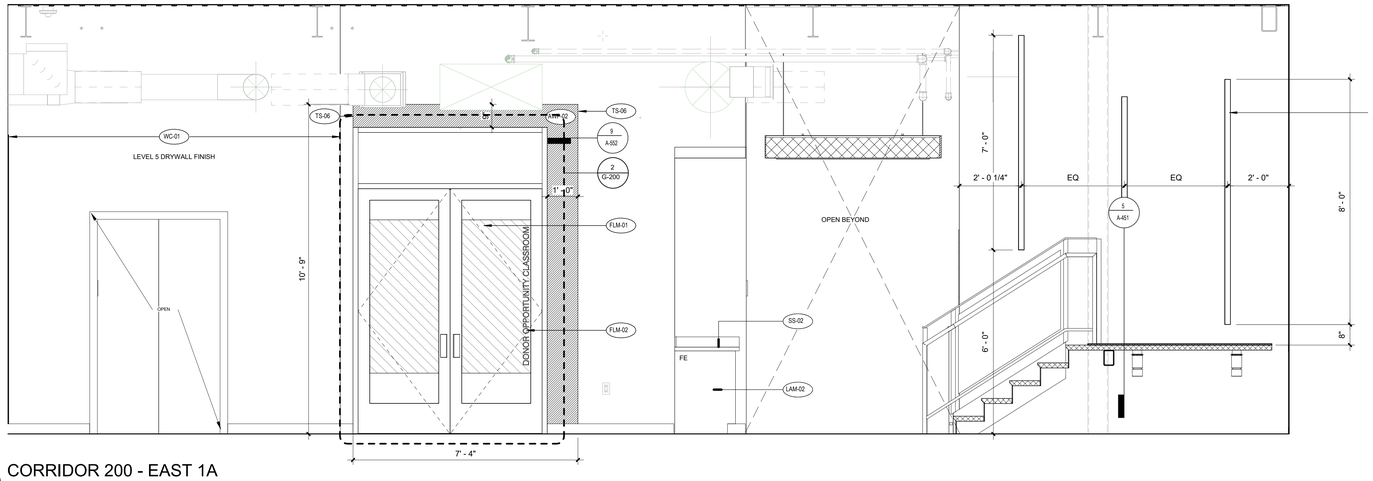
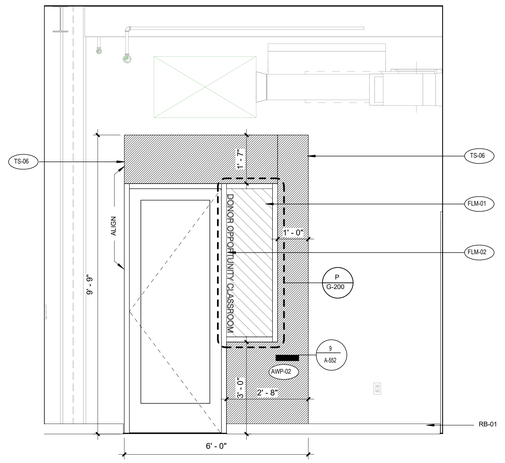


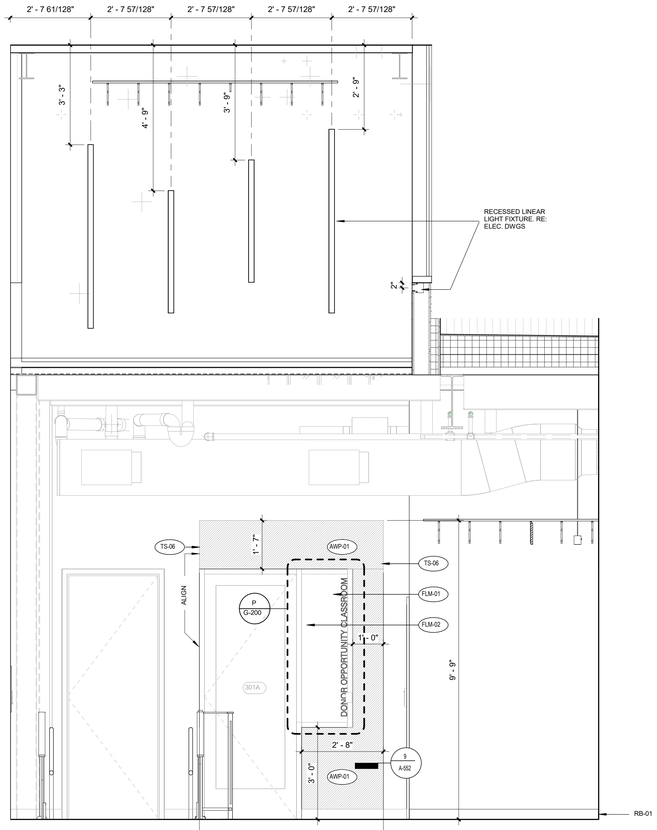
3 CORRIDOR 200 - EAST 1A

1/2" = 1'-0"



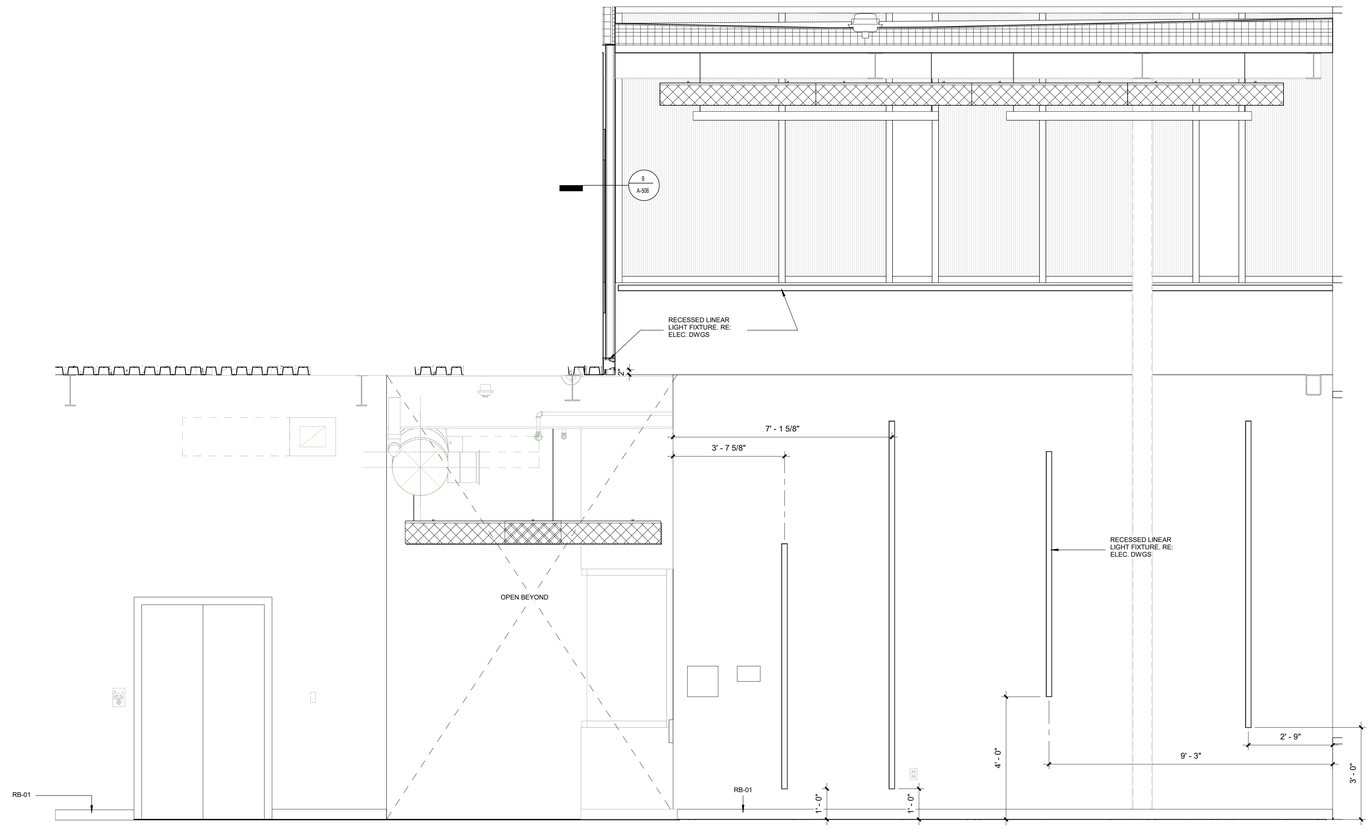
2 CORRIDOR 200 - NORTH

1/2" = 1'-0"



4 L3 / LANTERN NORTH

1/2" = 1'-0"



1 COORIDOR 300 - LANTERN EAST

1/2" = 1'-0"

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SCALE: 1/2" = 1'-0"

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A-428

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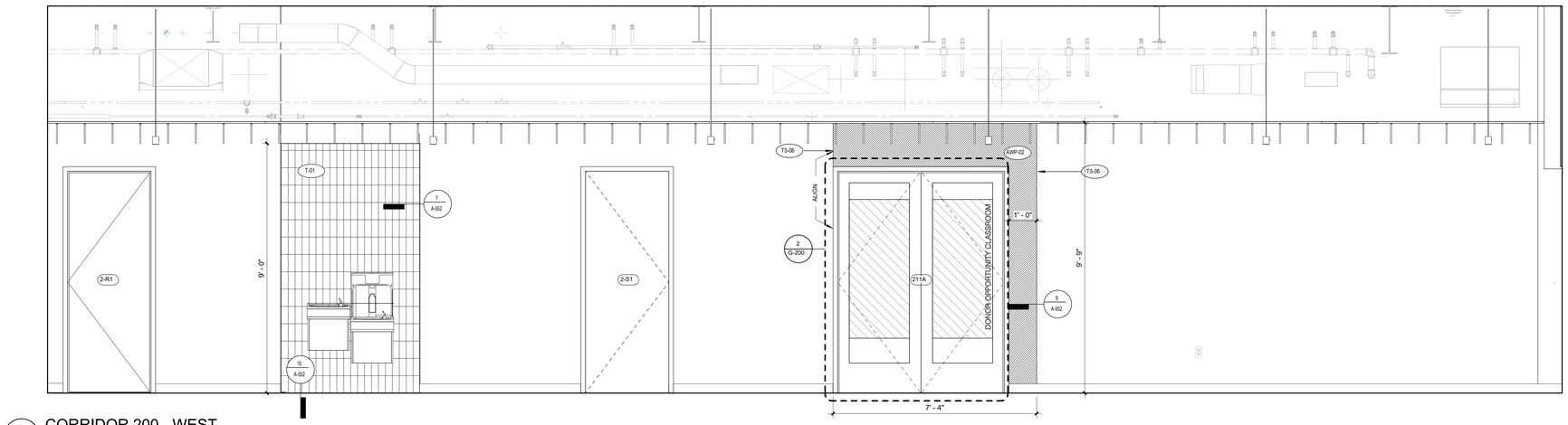
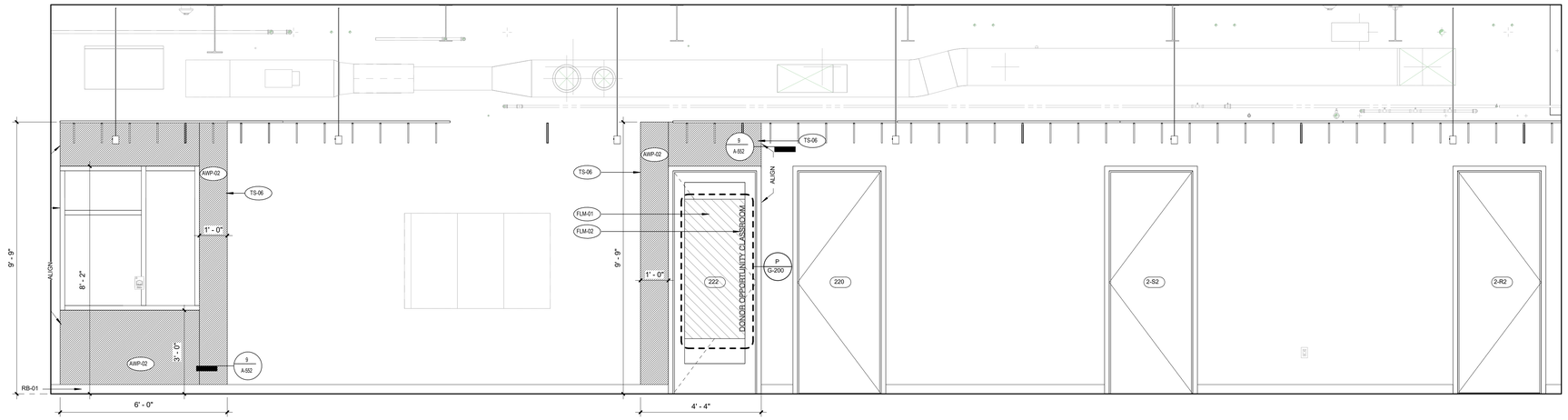


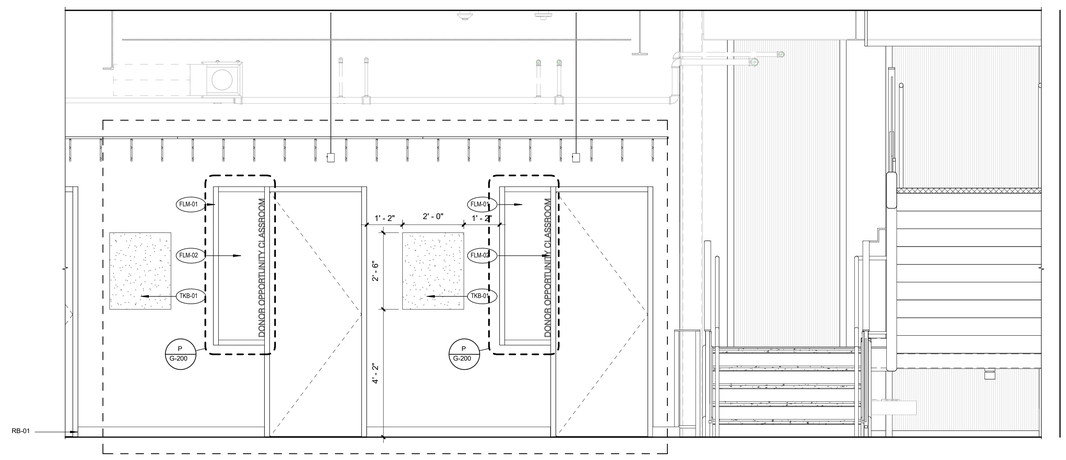
3 CORRIDOR 200 - WEST

1/2" = 1'-0"



2 CORRIDOR 200 - EAST 1B

1/2" = 1'-0"



TYPICAL OFFICE FRONT CONDITION

1 CORRIDOR 200 - SOUTHWEST

1/2" = 1'-0"

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SCALE: 1/2" = 1'-0"
SHEET NUMBER
A-429

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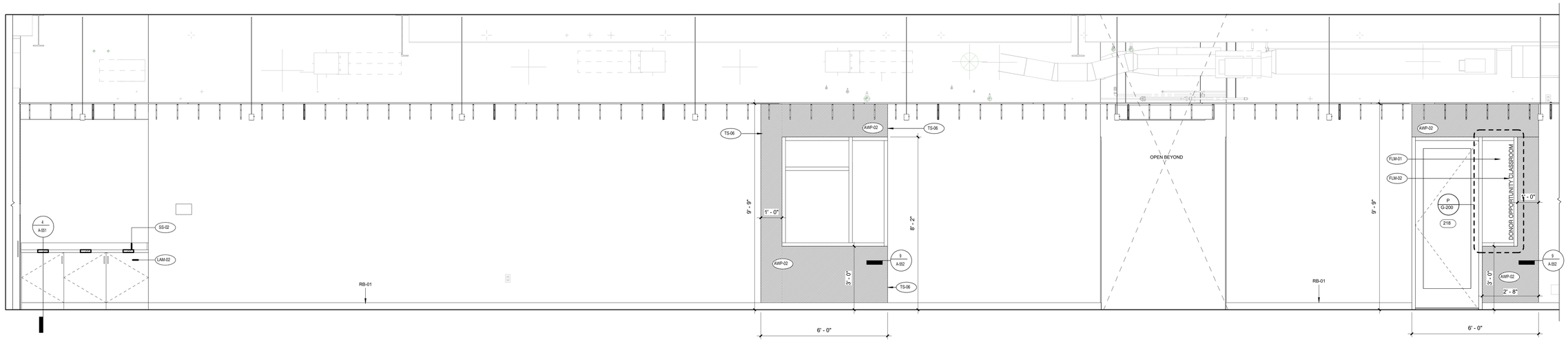
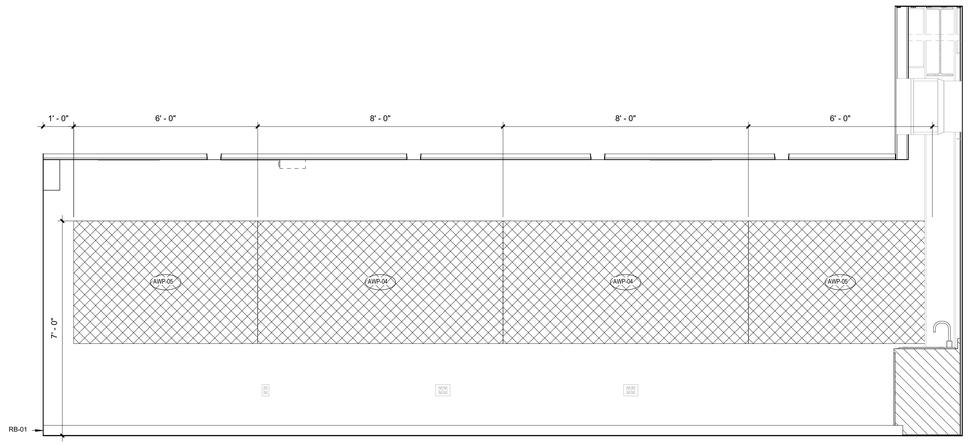


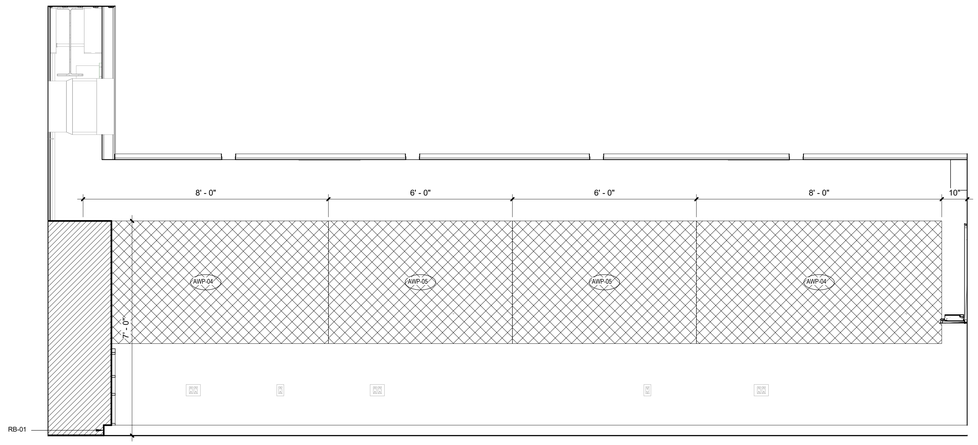
5 L2 COORIDOR 200 NORTH

1/2" = 1'-0"



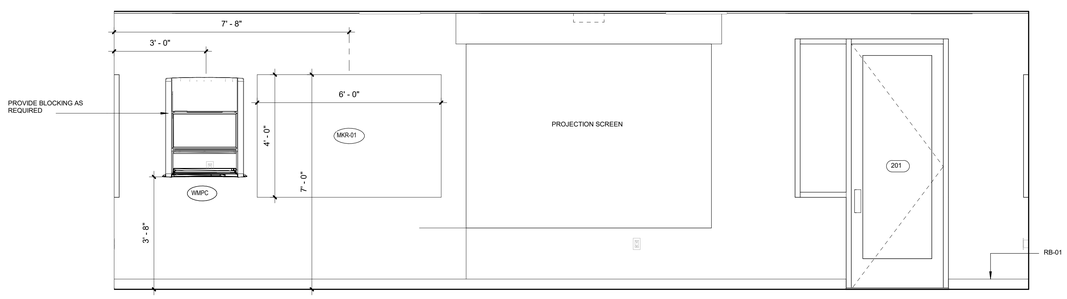
4 INSTRUMENTATION LAB 201 - WEST

1/2" = 1'-0"



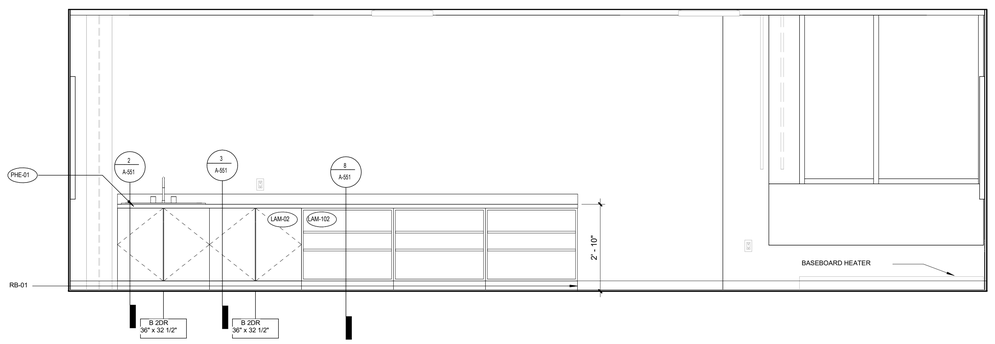
2 INSTRUMENTATION LAB 201 - EAST

1/2" = 1'-0"



3 INSTRUMENTATION LAB 201 - SOUTH

1/2" = 1'-0"



1 INSTRUMENTATION LAB 201 - NORTH

1/2" = 1'-0"

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INTERIOR ELEVATIONS

SCALE: 1/2" = 1'-0"
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A-430

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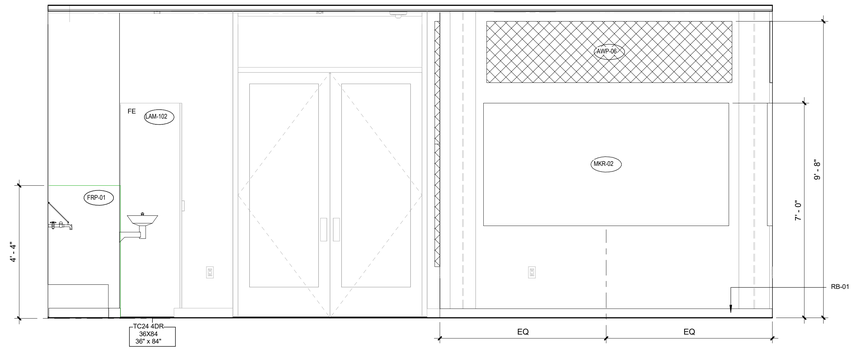
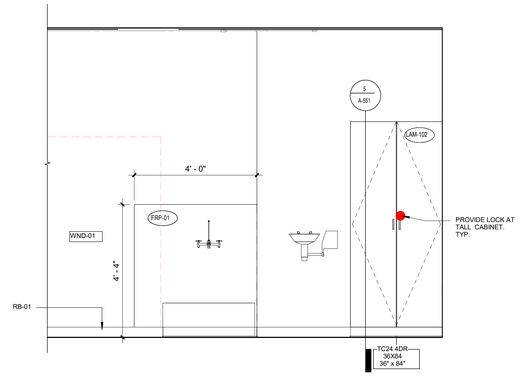


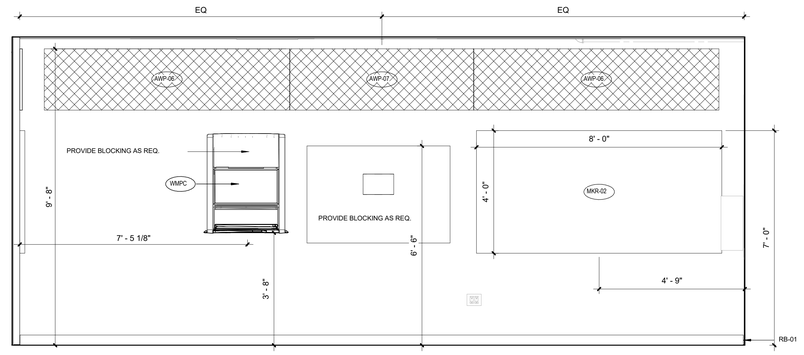
4 FLUIDS / WIND TUNNEL 203 - WEST

1/2" = 1'-0"



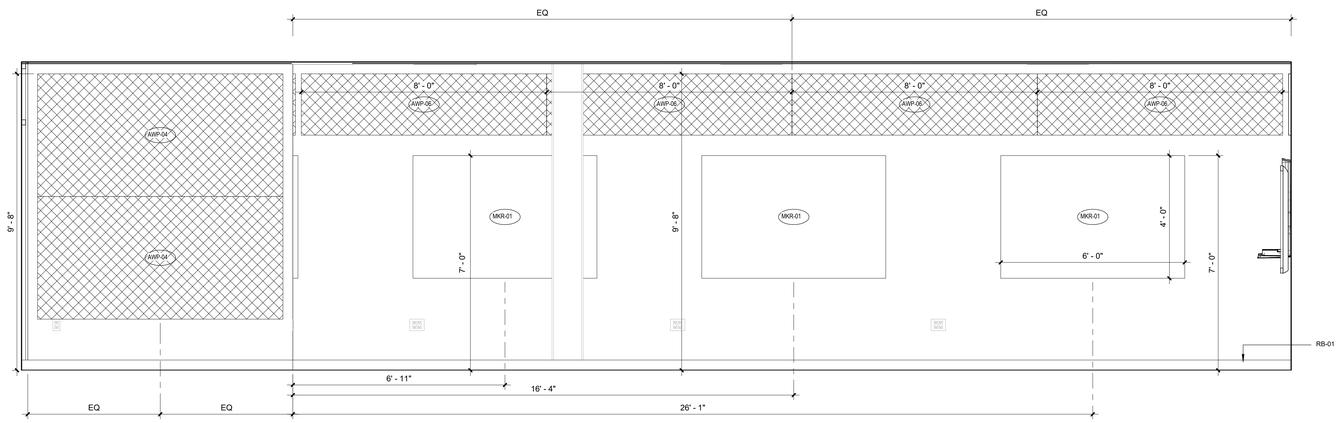
3 FLUIDS / WIND TUNNEL 203 - SOUTH

1/2" = 1'-0"



2 FLUIDS / WIND TUNNEL 203 - EAST

1/2" = 1'-0"



1 FLUIDS / WIND TUNNEL 203 - NORTH

1/2" = 1'-0"

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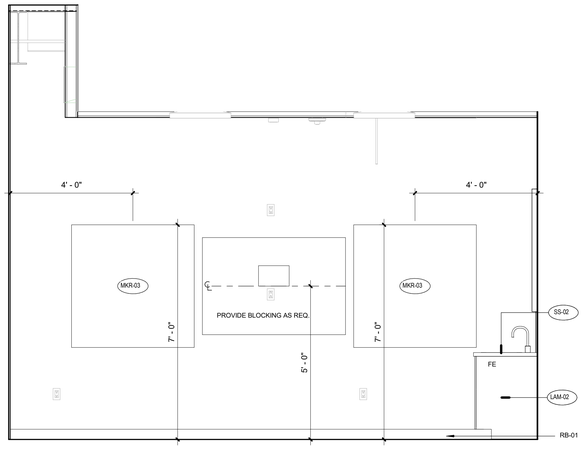
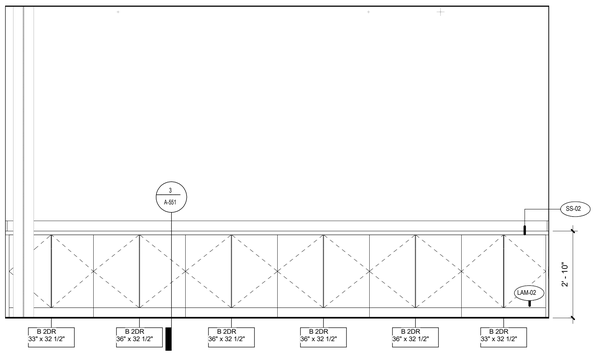


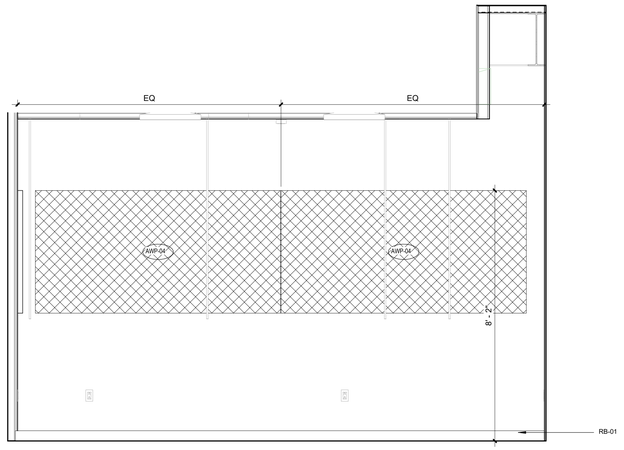
4 MAE FAC RESEARCH 222 - SOUTH

1/2" = 1'-0"



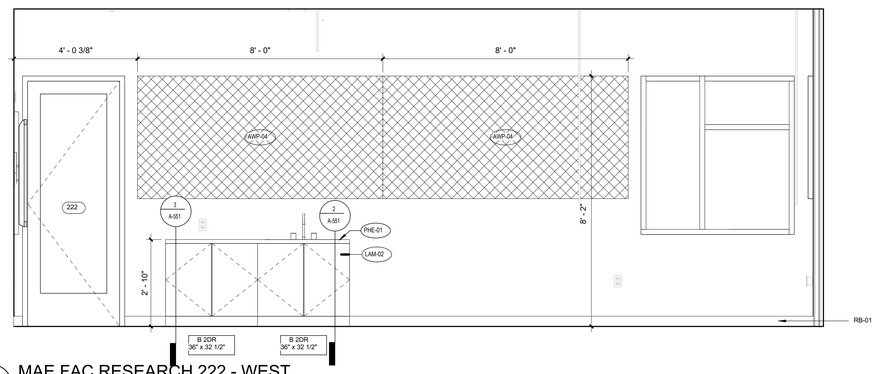
6 LAB STORAGE 222 - SOUTH

1/2" = 1'-0"



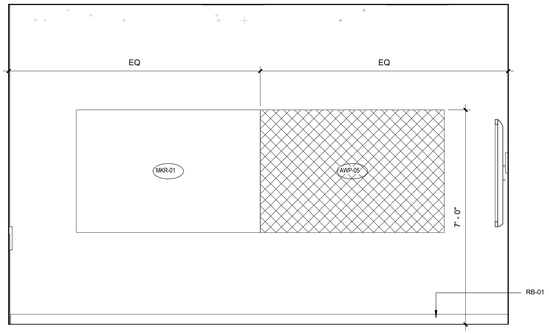
3 MAE FAC RESEARCH 222 - NORTH

1/2" = 1'-0"



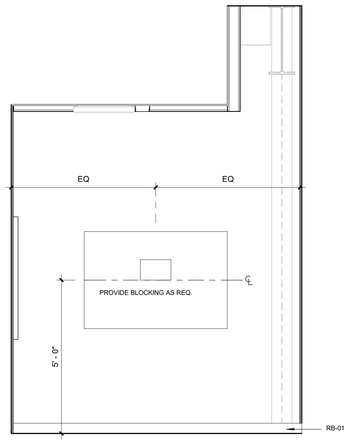
5 MAE FAC RESEARCH 222 - WEST

1/2" = 1'-0"



2 HUDDLE 218 - WEST

1/2" = 1'-0"



1 HUDDLE 218 - NORTH

1/2" = 1'-0"

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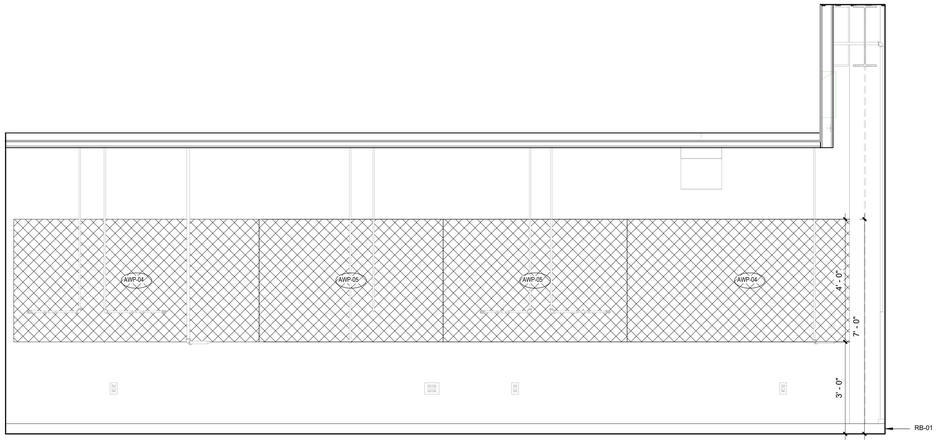
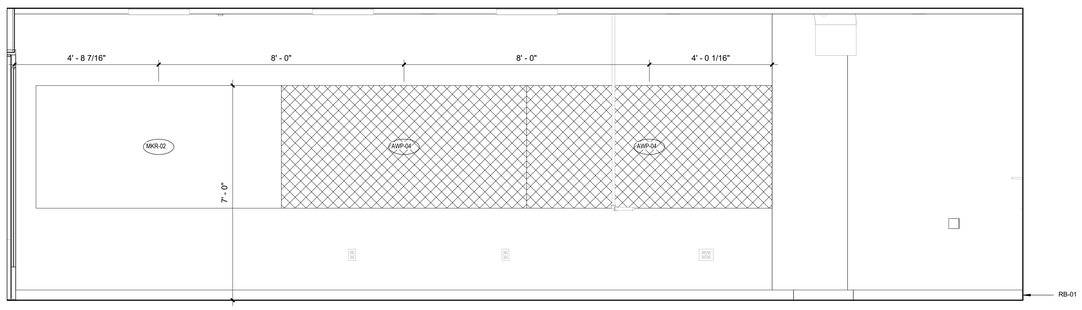
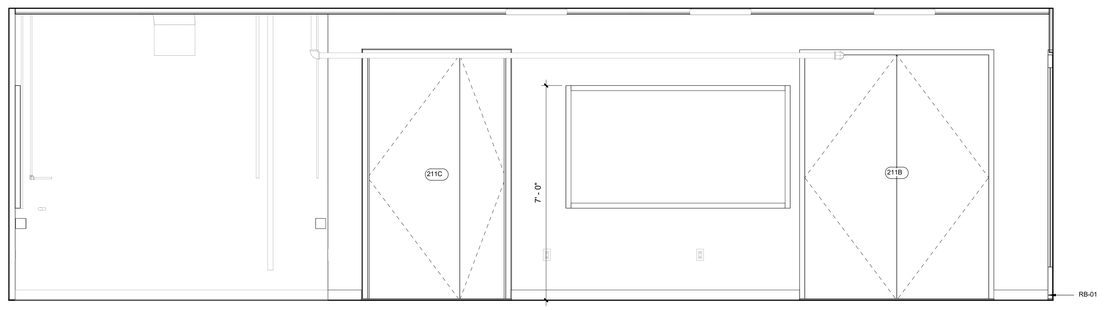


4 COMBUSTION LAB 211 - WEST
1/2" = 1'-0"

2 COMBUSTION LAB 211 - EAST
1/2" = 1'-0"



3 COMBUSTION LAB 211 - SOUTH
1/2" = 1'-0"



1 COMBUSTION LAB 211 - NORTH
1/2" = 1'-0"

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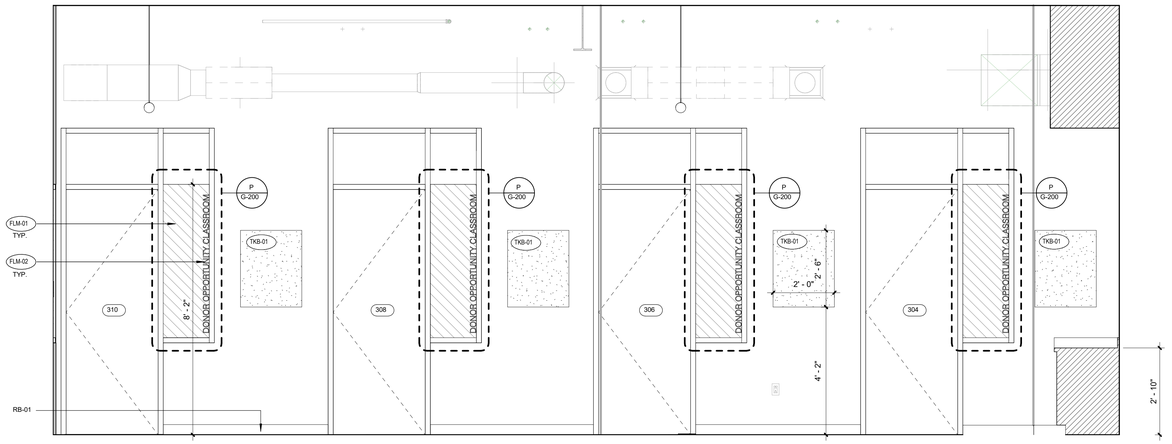
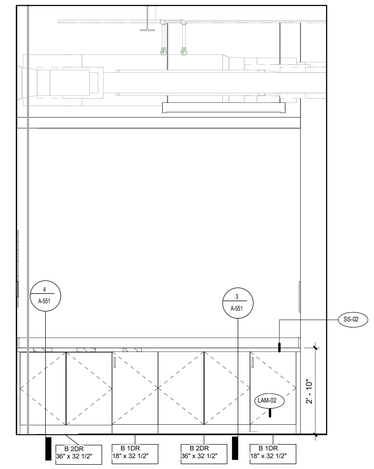


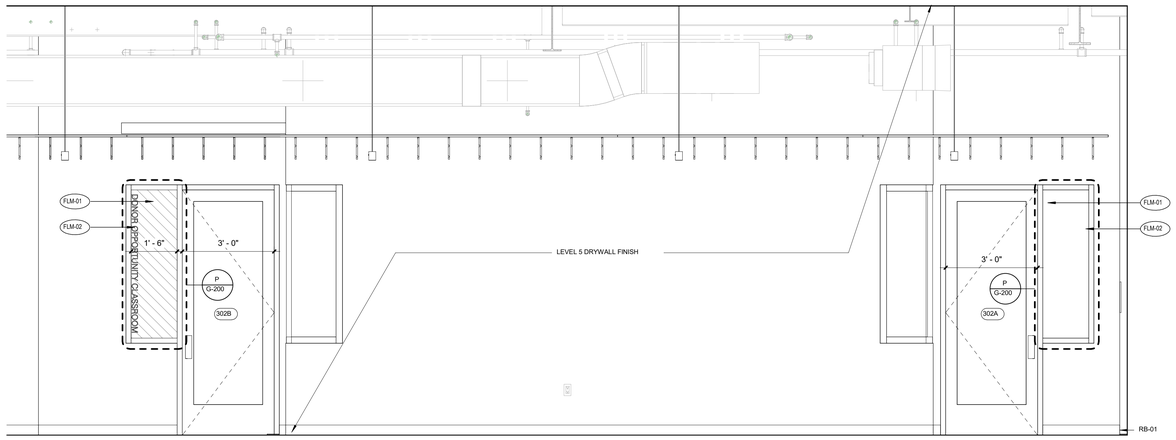
3 CORRIDOR 300 - SOUTH 2

1/2" = 1'-0"



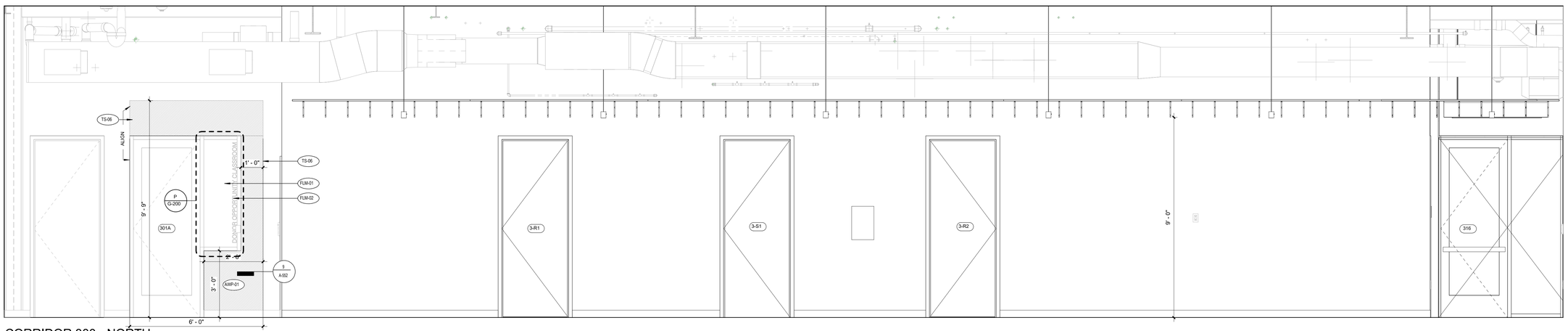
4 CORRIDOR 300 - WEST 1

1/2" = 1'-0"



2 CORRIDOR 300 - SOUTH 1

1/2" = 1'-0"



1 CORRIDOR 300 - NORTH

1/2" = 1'-0"

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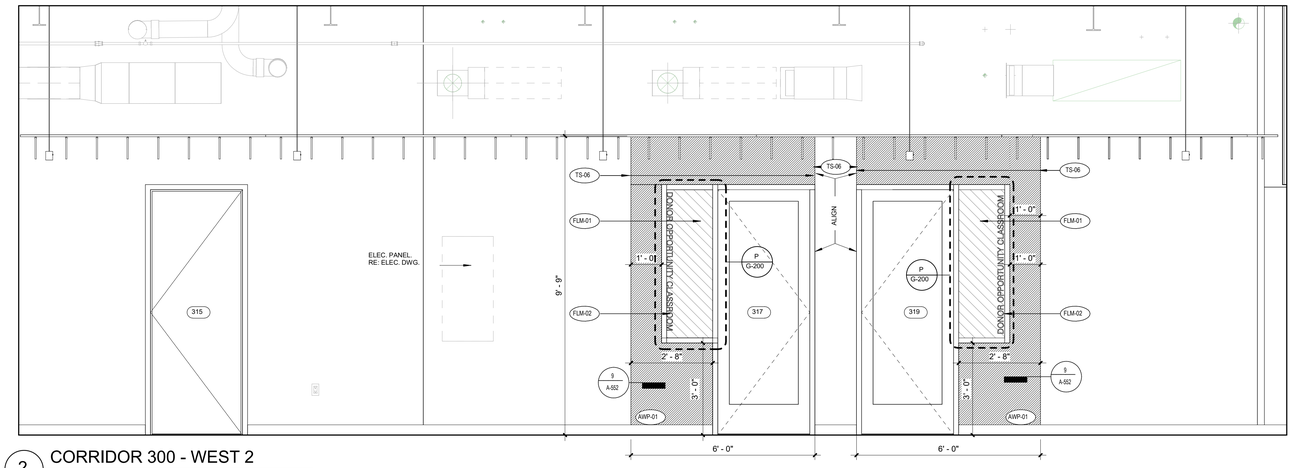
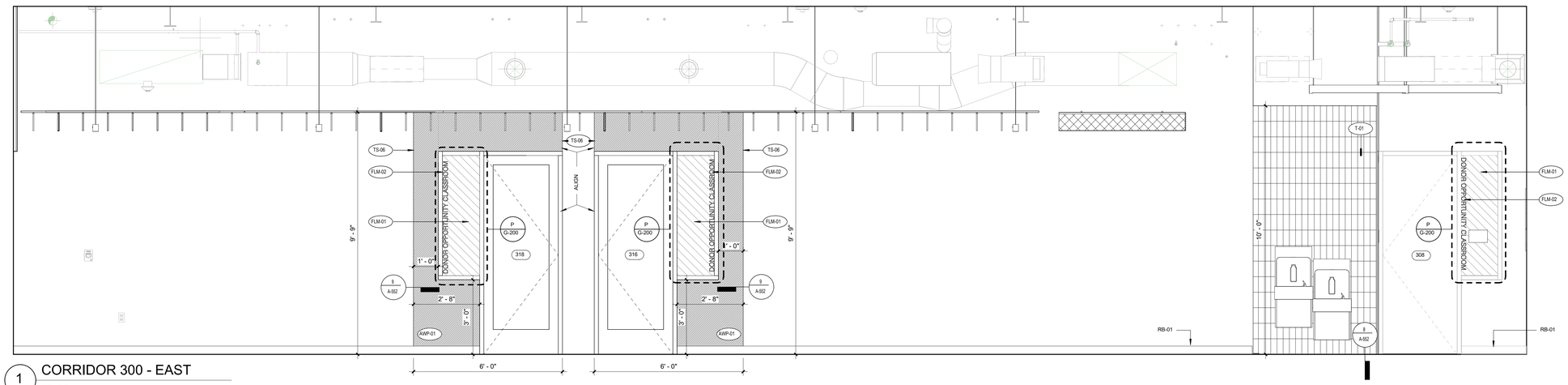


2 CORRIDOR 300 - WEST 2

1/2" = 1'-0"



1 CORRIDOR 300 - EAST

1/2" = 1'-0"

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A-435

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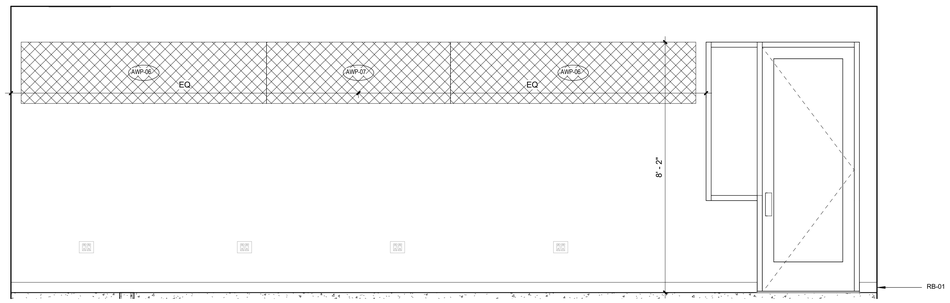
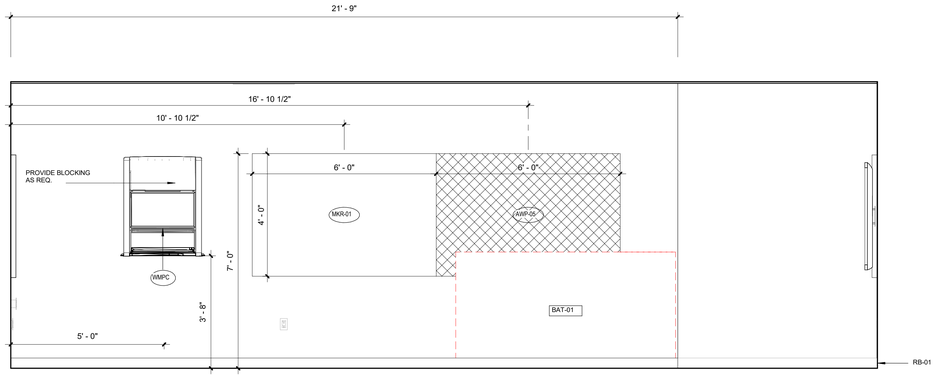


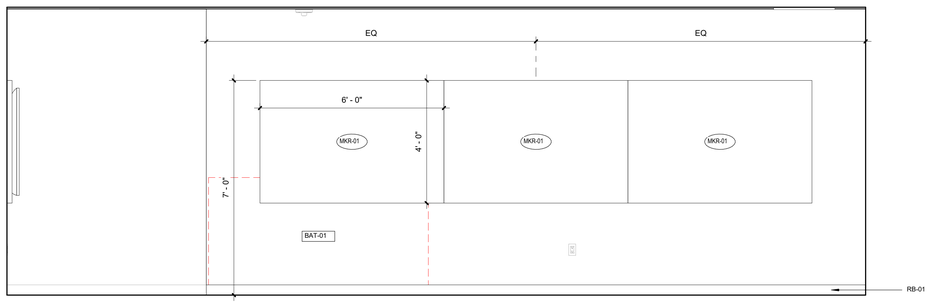
6 ENERGY CONVERSION LAB 301 SOUTH 2

1/2" = 1'-0"



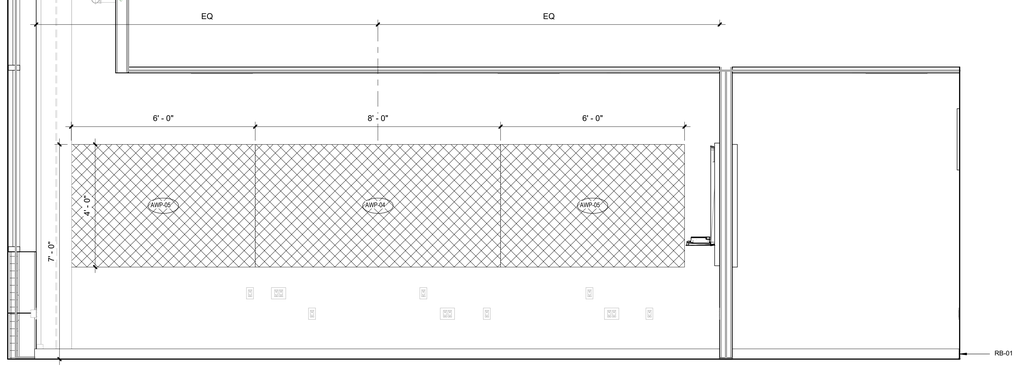
3 ENERGY CONVERSION LAB 301 SOUTH

1/2" = 1'-0"



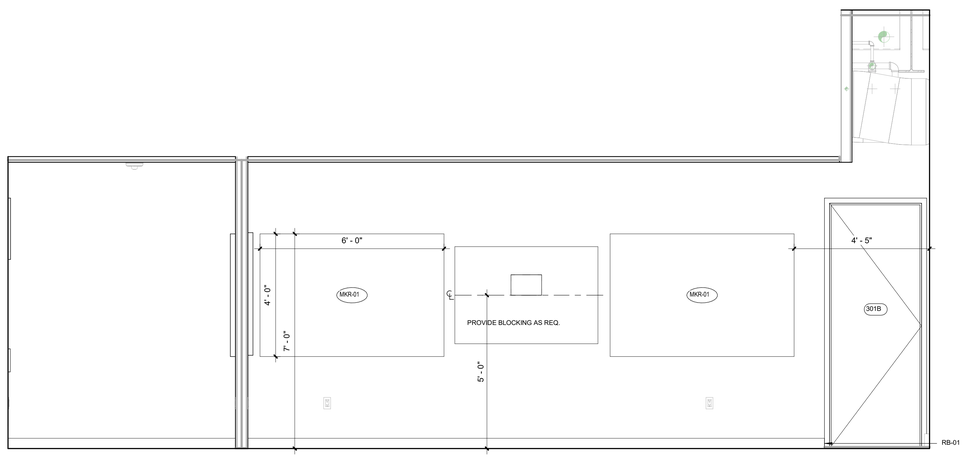
5 ENERGY CONVERSION LAB 301 NORTH 2

1/2" = 1'-0"



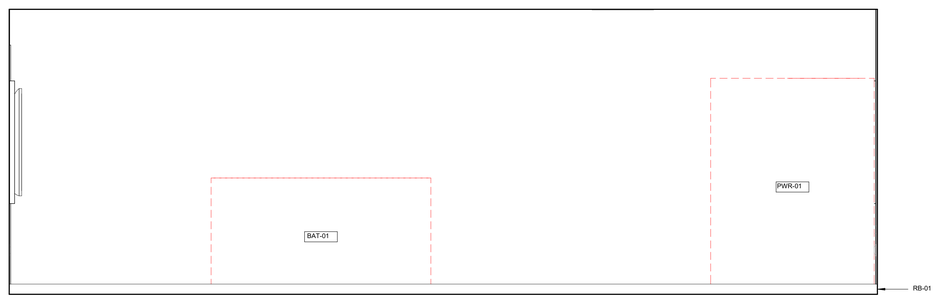
2 ENERGY CONVERSION LAB 301 EAST

1/2" = 1'-0"



4 ENERGY CONVERSION LAB 301 WEST

1/2" = 1'-0"



1 ENERGY CONVERSION LAB 301 NORTH

1/2" = 1'-0"

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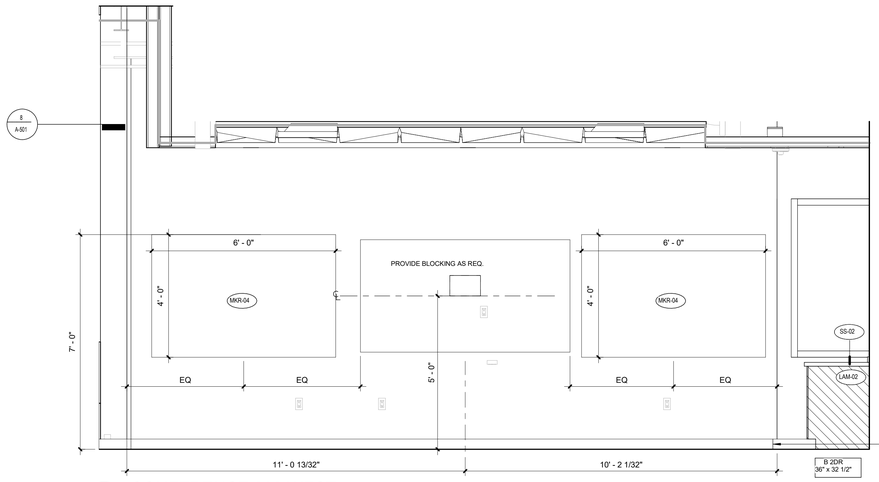
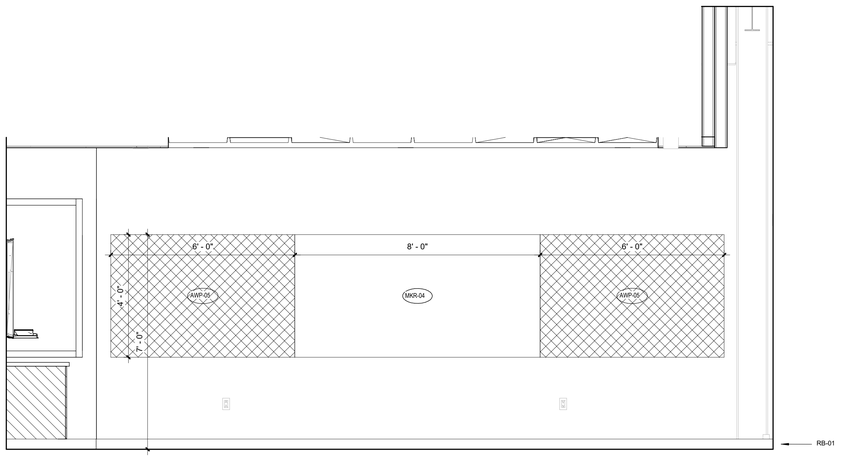


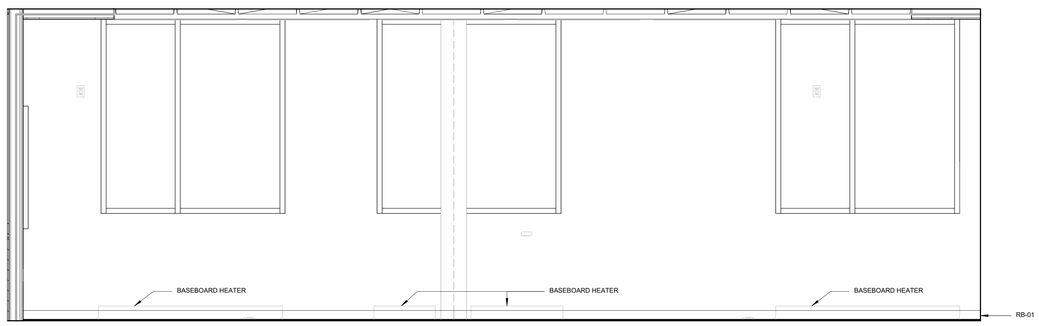
4 CONFERENCE 302 WEST

1/2" = 1'-0"



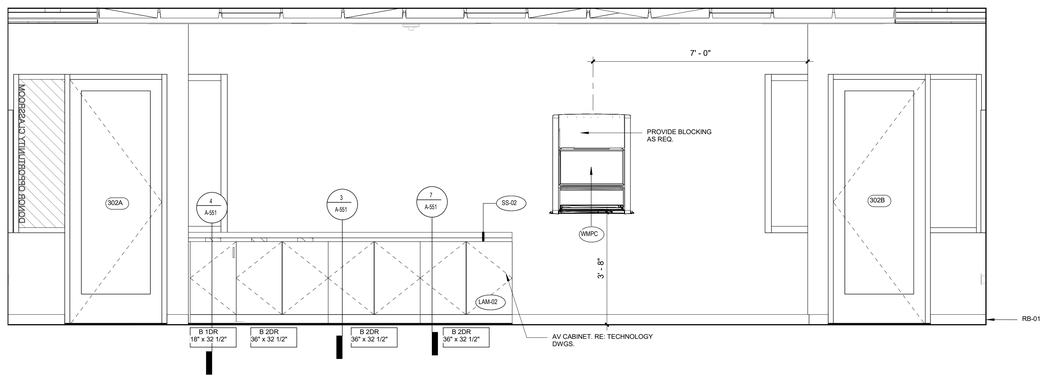
2 CONFERENCE 302 EAST

1/2" = 1'-0"



3 CONFERENCE 302 SOUTH

1/2" = 1'-0"



1 CONFERENCE 302 NORTH

1/2" = 1'-0"

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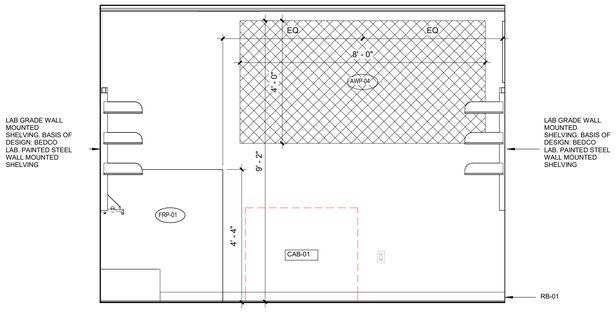
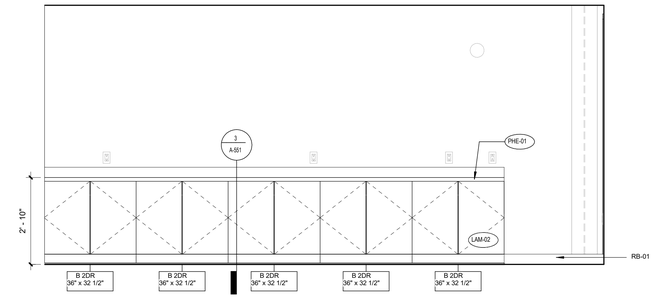


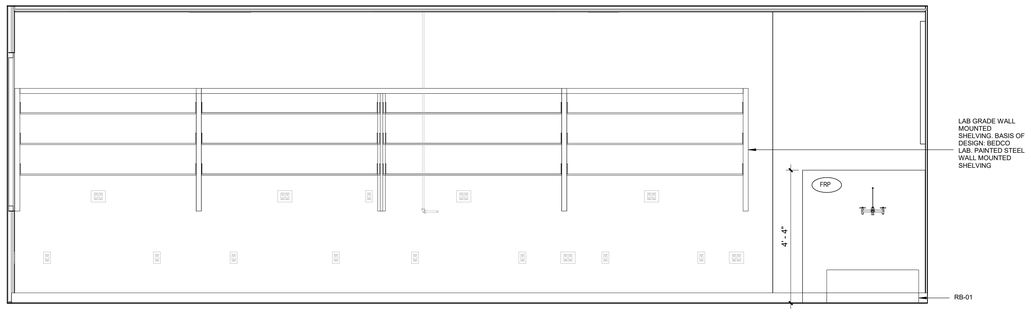
7 ELEC WORKSHOP 317 WEST

1/2" = 1'-0"



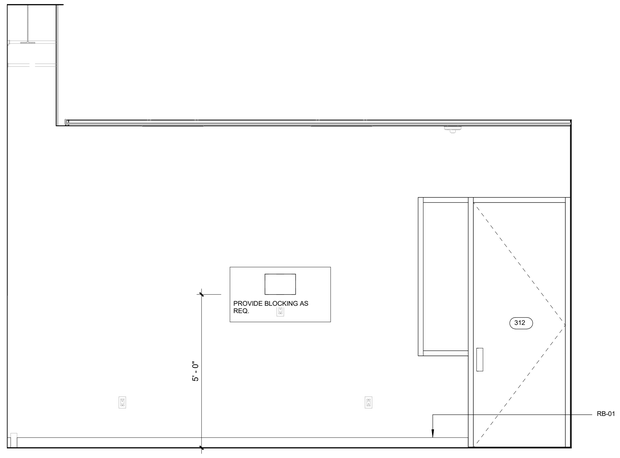
3 LAB PREP / STORAGE 315 NORTH

1/2" = 1'-0"



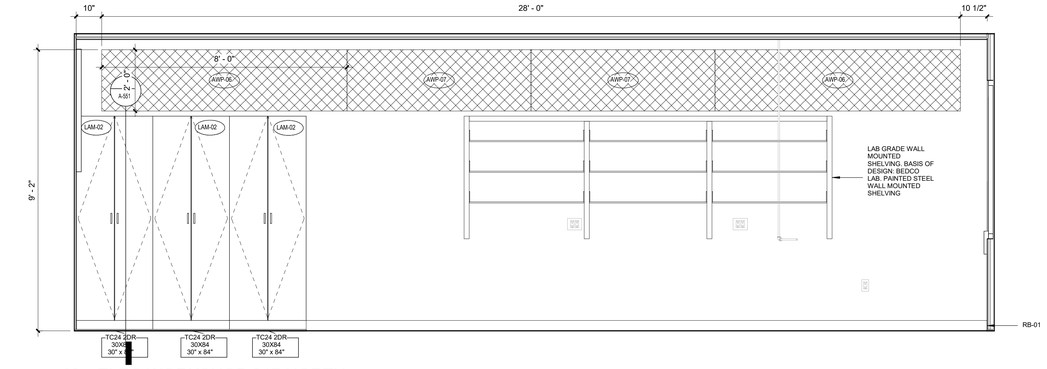
6 ELEC WORKSHOP 317 - SOUTH

1/2" = 1'-0"



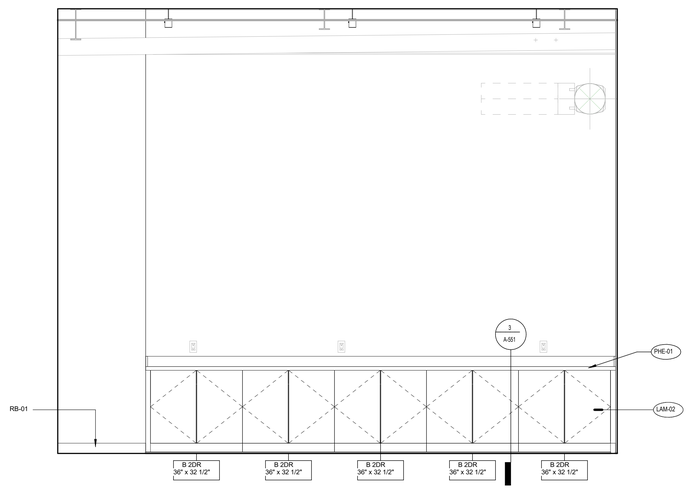
1 HUDDLE 312 WEST

1/2" = 1'-0"



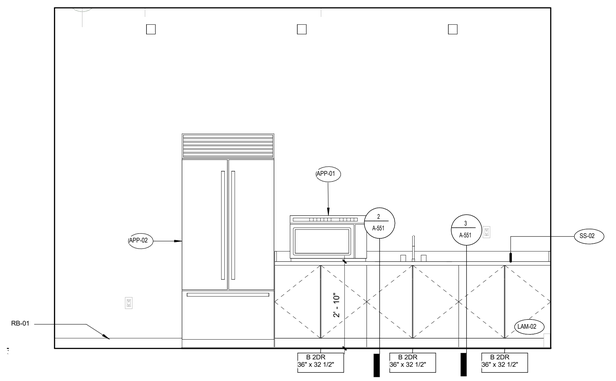
5 ELEC WORKSHOP 317 NORTH

1/2" = 1'-0"



4 LAB PREP / STORAGE 315 SOUTH

1/2" = 1'-0"



2 KITCHEN 309 NORTH

1/2" = 1'-0"

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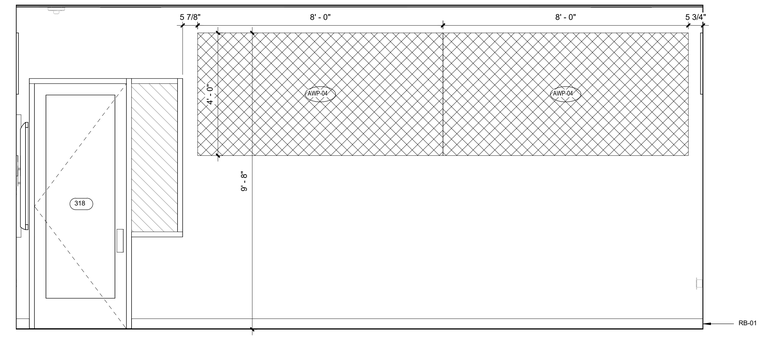
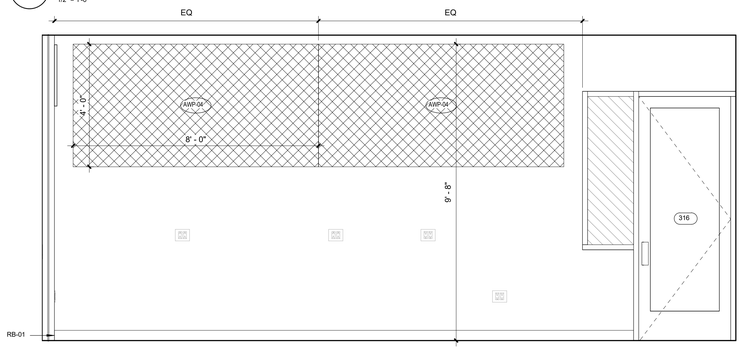


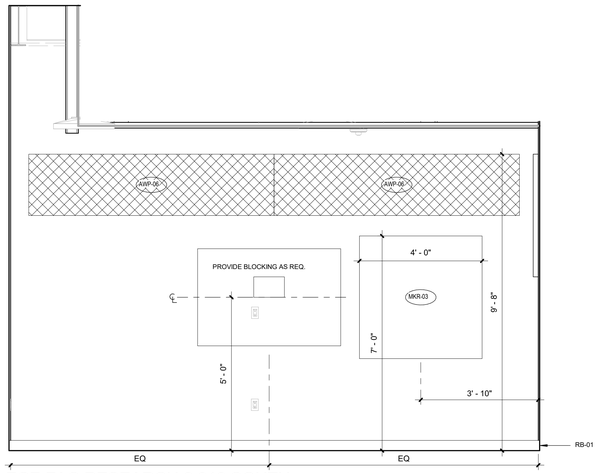
4 ECE FAC RESEARCH 2 318 WEST

1/2" = 1'-0"



3 ECE FAC RESEARCH 3 316 WEST

1/2" = 1'-0"



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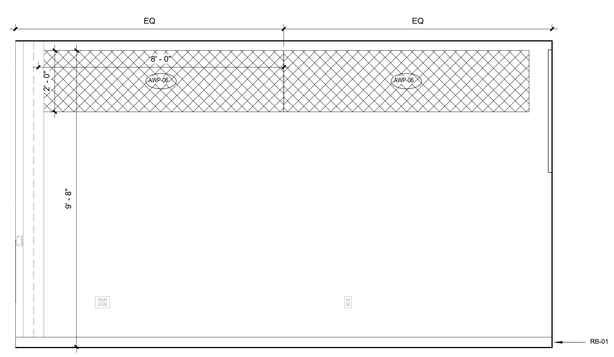
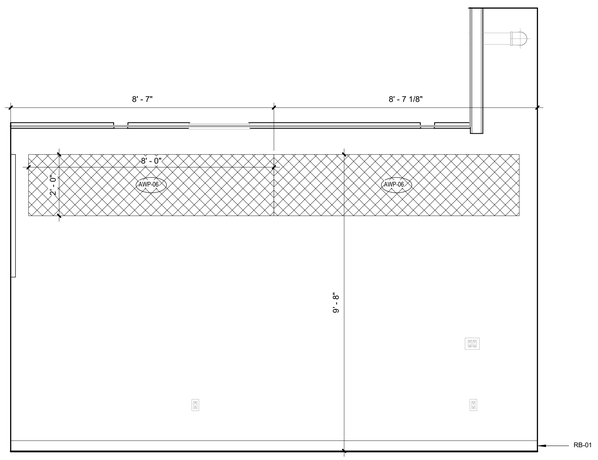


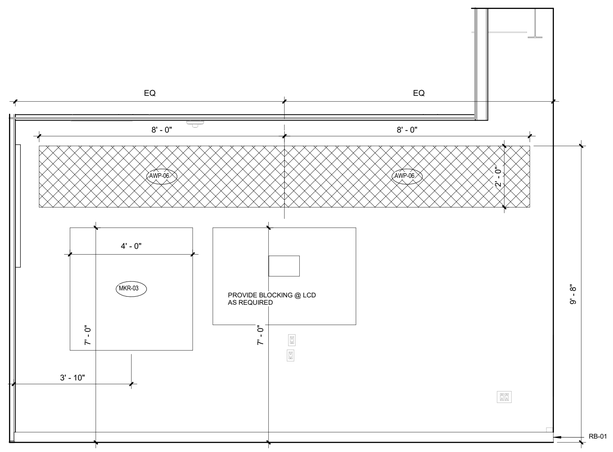
2 ECE FAC RESEARCH 3 316 SOUTH

1/2" = 1'-0"



5 ECE FAC RESEARCH 2 318 NORTH

1/2" = 1'-0"



1 ECE FAC RESEARCH 3 316 NORTH

1/2" = 1'-0"

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SCALE: 1/2" = 1'-0"
SHEET NUMBER
A-439

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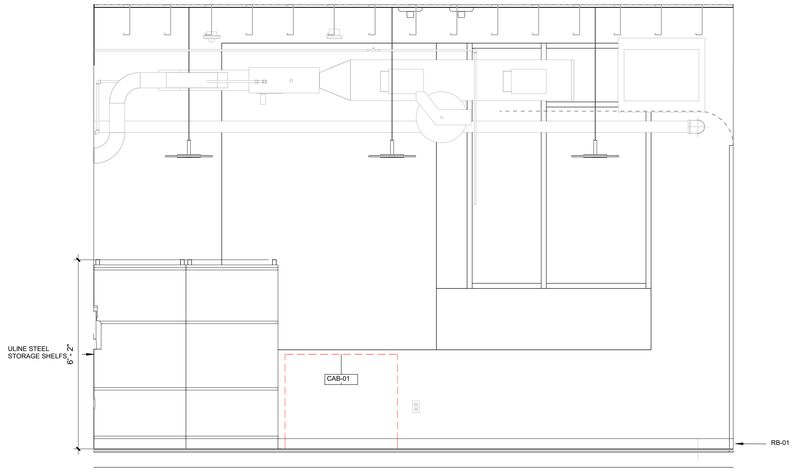
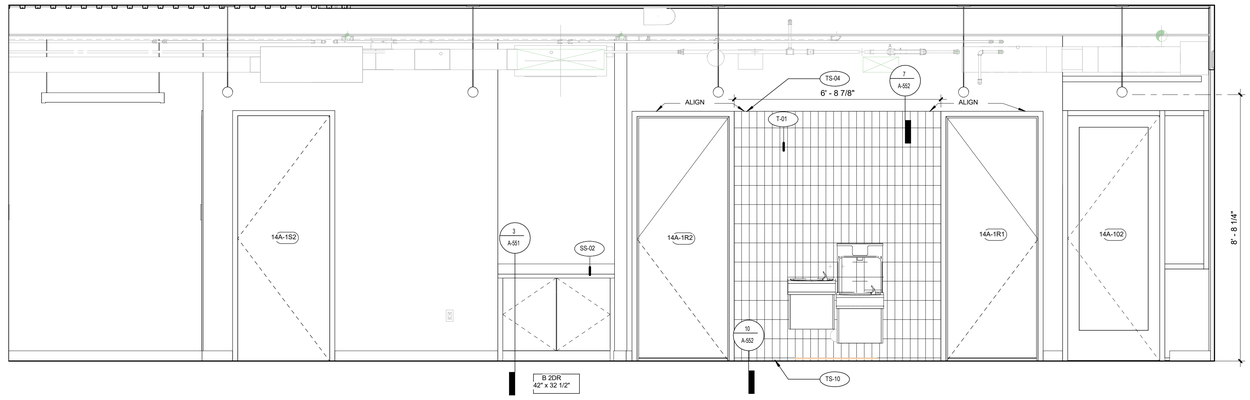
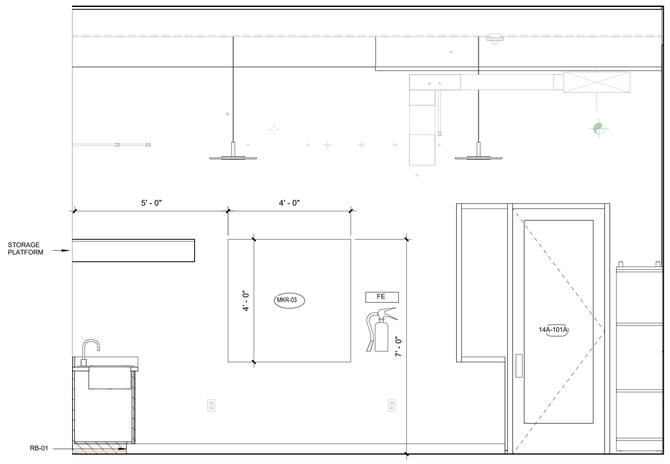


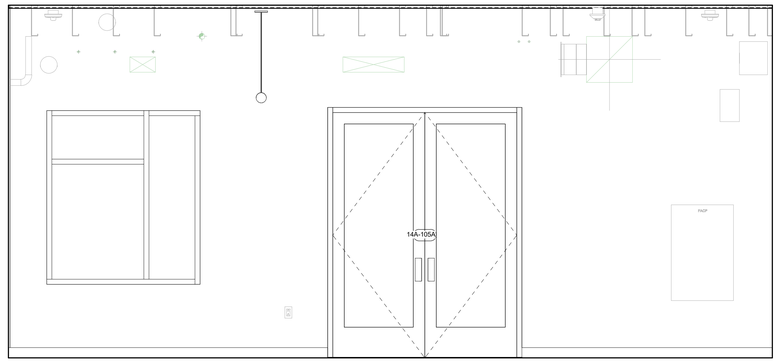
6 MAE SENIOR CAPSTONE -14A-101 WEST
1/2" = 1'-0"



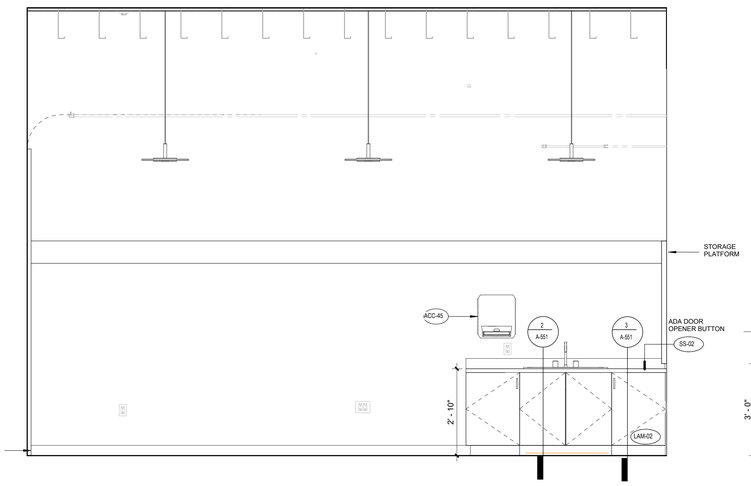
3 COORIDOR 14A-100 SOUTH
1/2" = 1'-0"



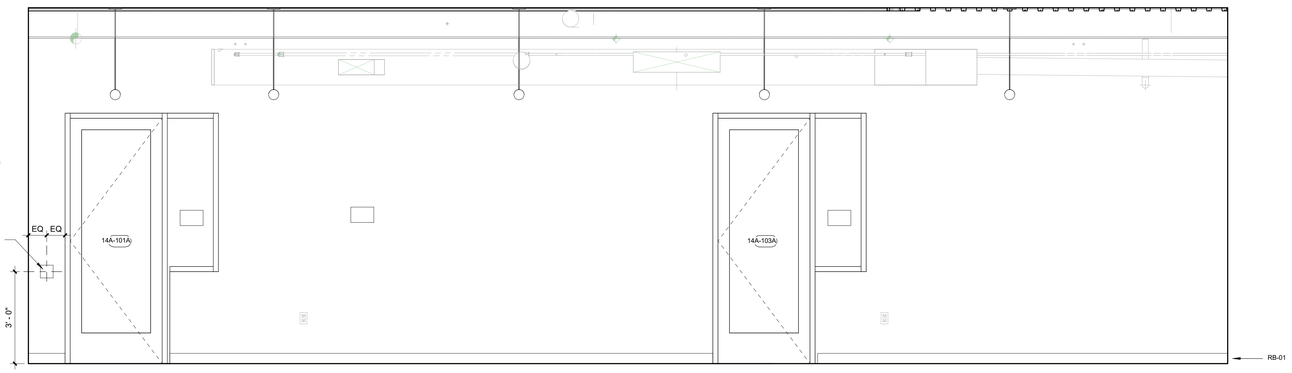
5 MAE SENIOR CAPSTONE -14A-101 SOUTH
1/2" = 1'-0"



2 COORIDOR COS101 EAST
1/2" = 1'-0"



4 MAE SENIOR CAPSTONE -14A-101 EAST
1/2" = 1'-0"



1 COORIDOR 14A-100 NORTH
1/2" = 1'-0"

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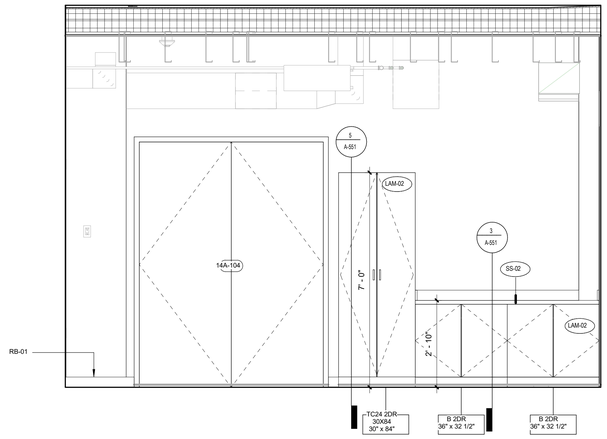
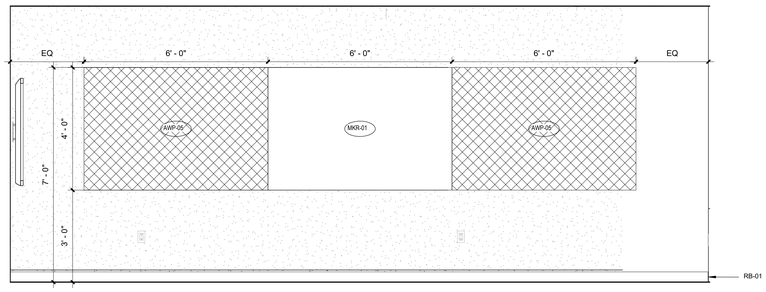
10/26/2022 8:58:42 PM



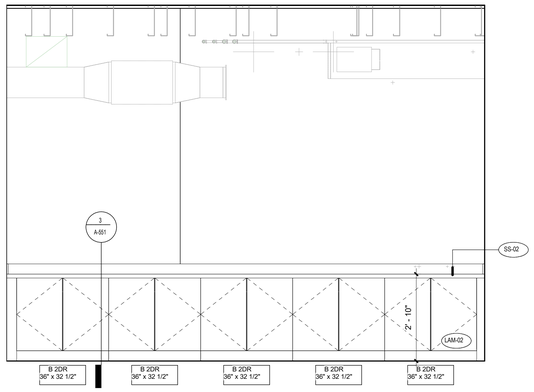
6 TOOLS/ MATERIAL STORAGE S108 EAST

1/2" = 1'-0"



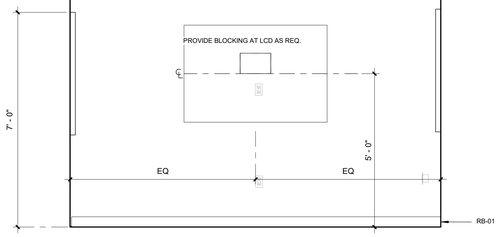
3 SENIOR DESIGN MEETING S102 SOUTH

1/2" = 1'-0"



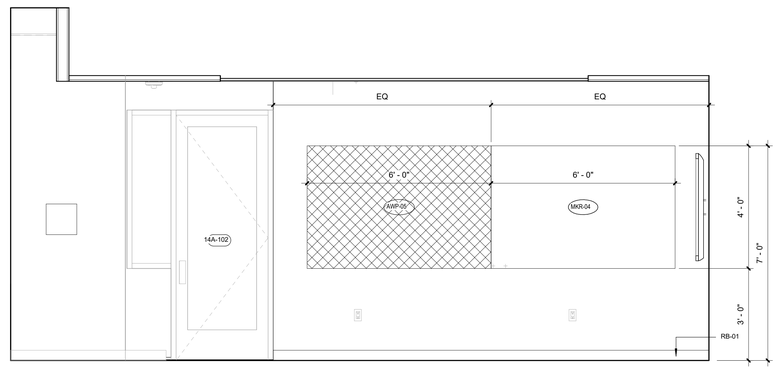
5 TOOLS/ MATERIAL STORAGE S108 WEST

1/2" = 1'-0"



2 SENIOR DESIGN MEETING S102 EAST

1/2" = 1'-0"



1 SENIOR DESIGN MEETING S102 NORTH

1/2" = 1'-0"

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A-441

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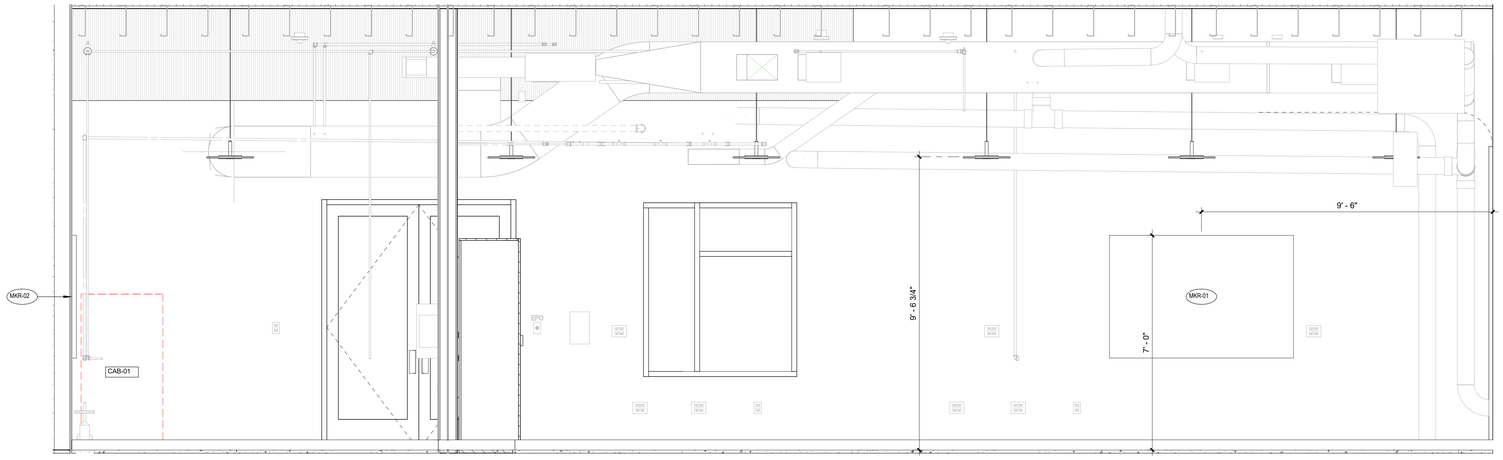
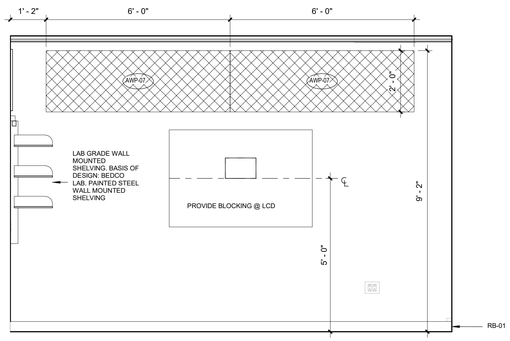


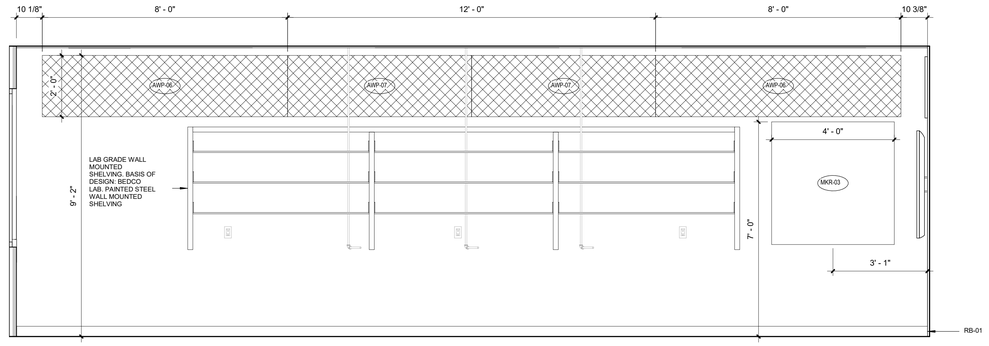
6 SHOP S105 WEST

1/2" = 1'-0"



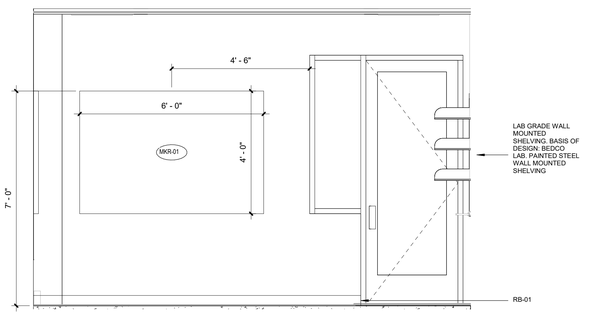
4 ECE CAPSTONE 319 WEST

1/2" = 1'-0"



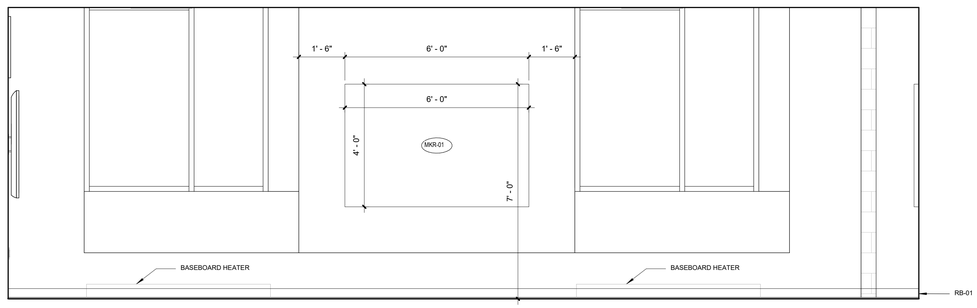
3 ECE CAPSTONE 319 SOUTH

1/2" = 1'-0"



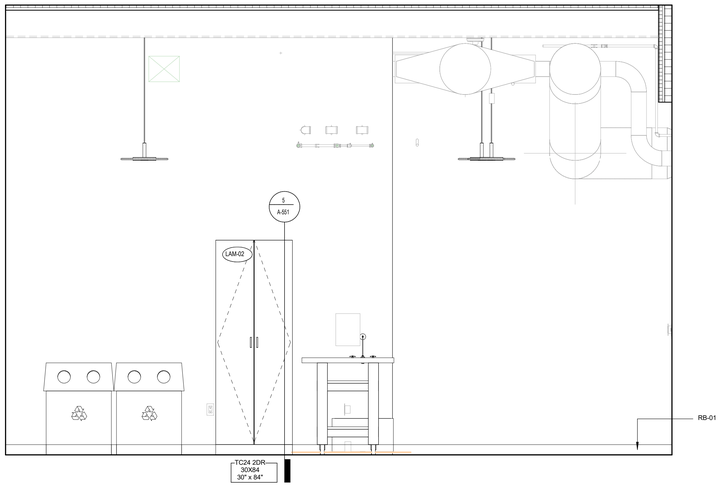
2 ECE CAPSTONE 319 EAST

1/2" = 1'-0"



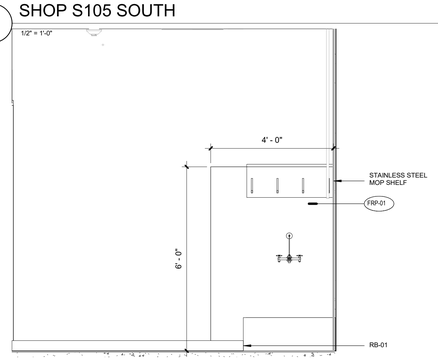
1 ECE CAPSTONE 319 NORTH

1/2" = 1'-0"



7 SHOP S105 SOUTH

1/2" = 1'-0"



5 TYPICAL JANITOR CLOSET

1/2" = 1'-0"

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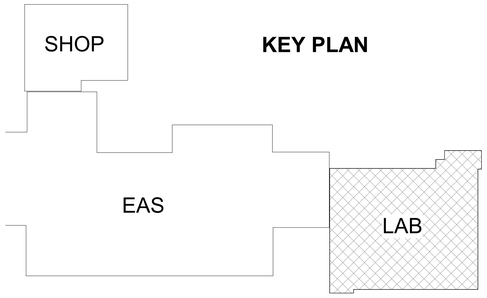
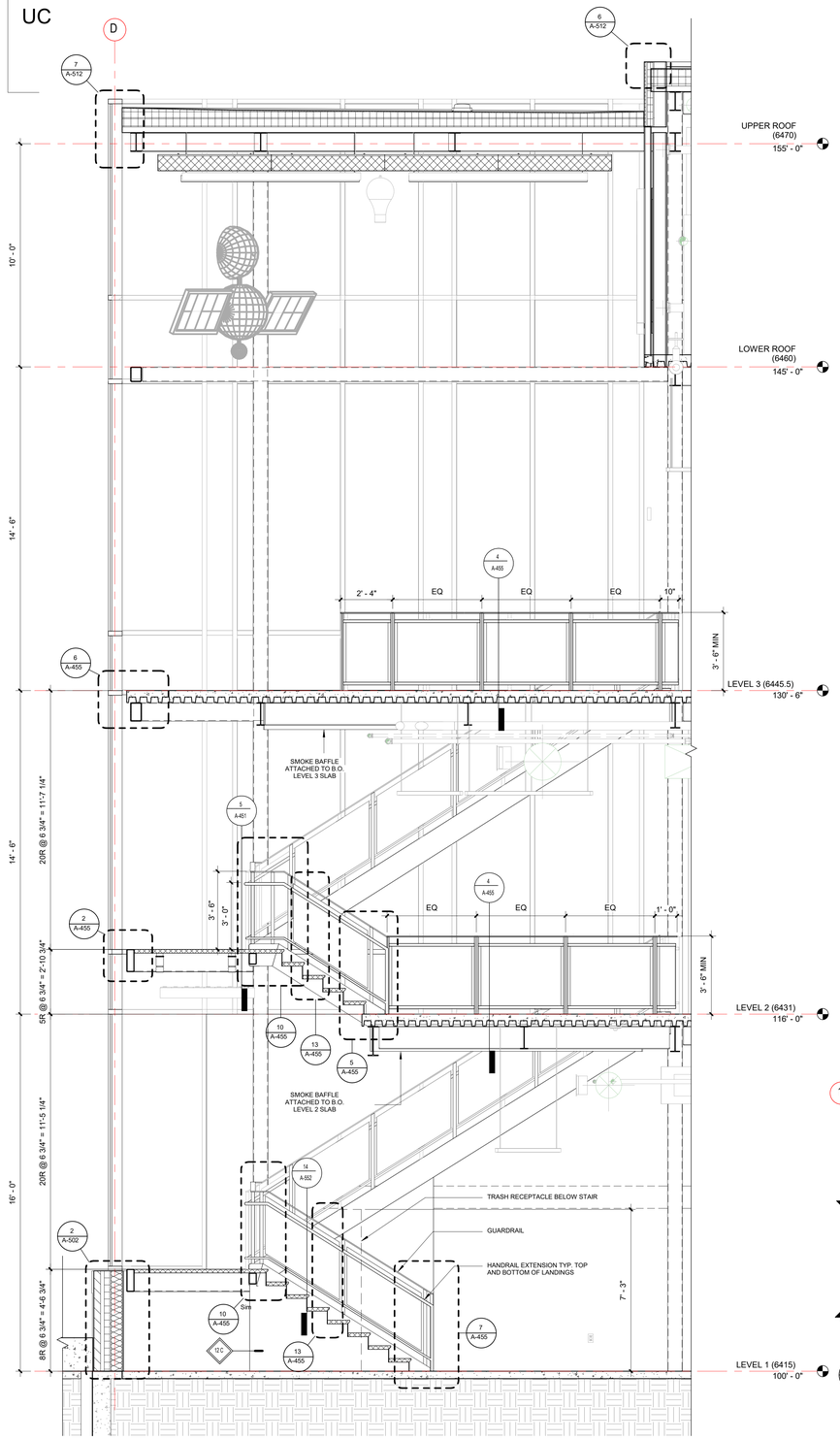
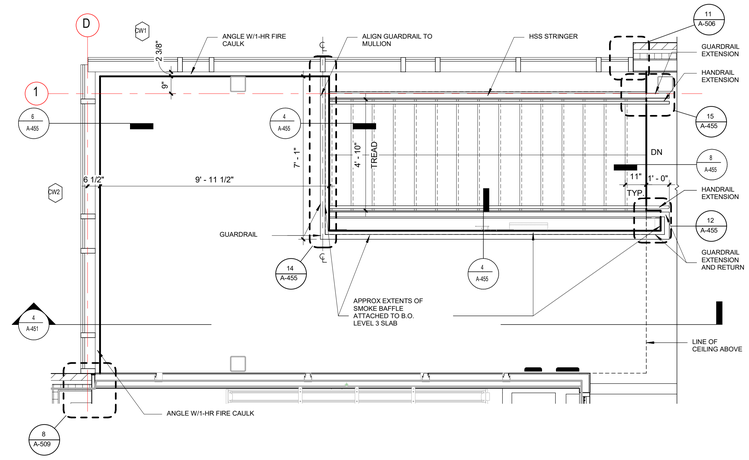


KEY PLAN



4 SECTION - STAIR ONE

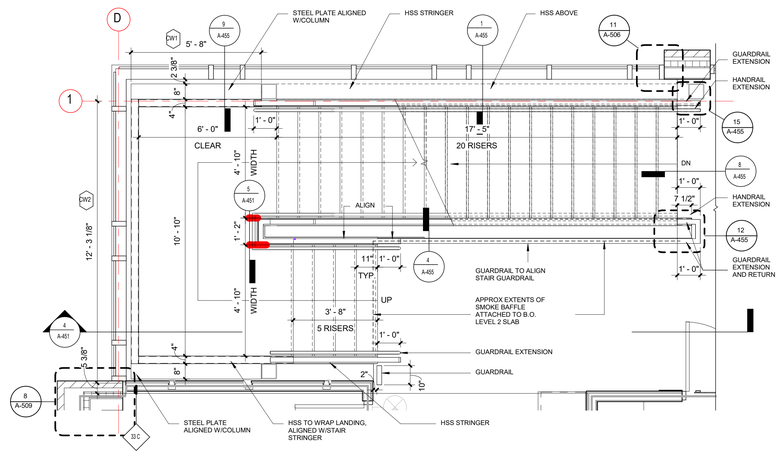
3/8" = 1'-0"



3 ENLARGED PLAN - LEVEL 3 STAIR ONE

3/8" = 1'-0"

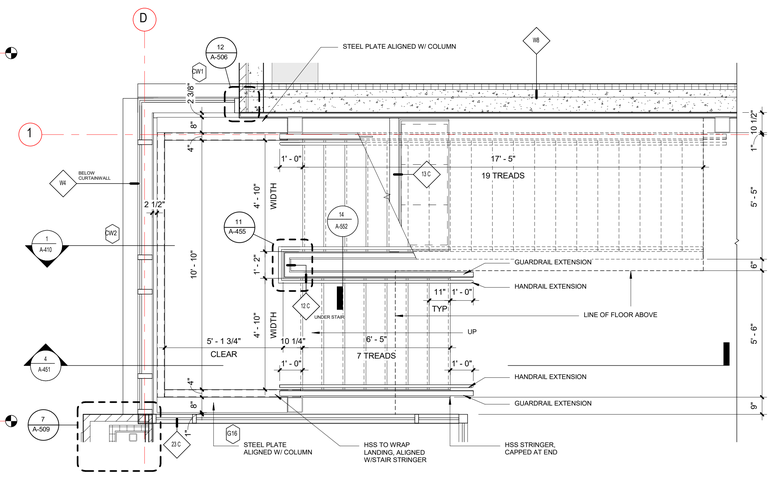
PROJECT NORTH TRUE NORTH



2 ENLARGED PLAN - LEVEL 2 STAIR ONE

3/8" = 1'-0"

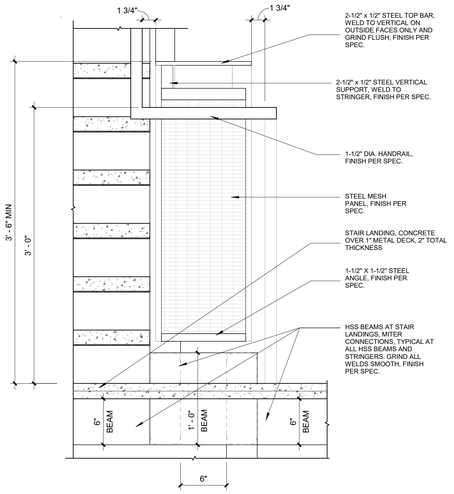
PROJECT NORTH TRUE NORTH



1 ENLARGED PLAN - LEVEL ONE STAIR ONE

3/8" = 1'-0"

PROJECT NORTH TRUE NORTH



SECTION DETAIL - LAB BLDG - TYP GUARDRAIL AT LANDING

5 1 1/2" = 1'-0" RE: 3/ A-428

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A-451

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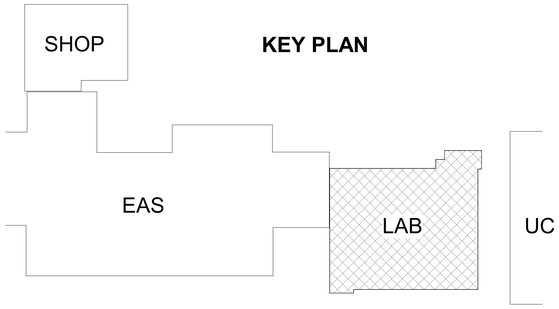
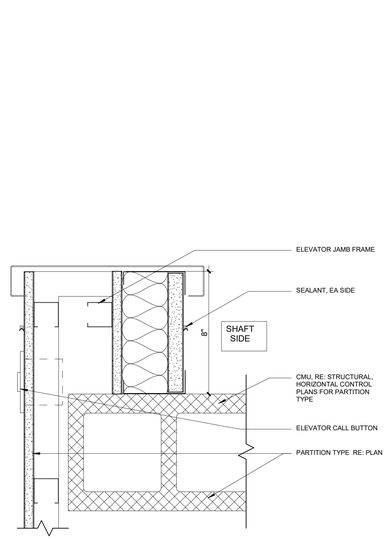
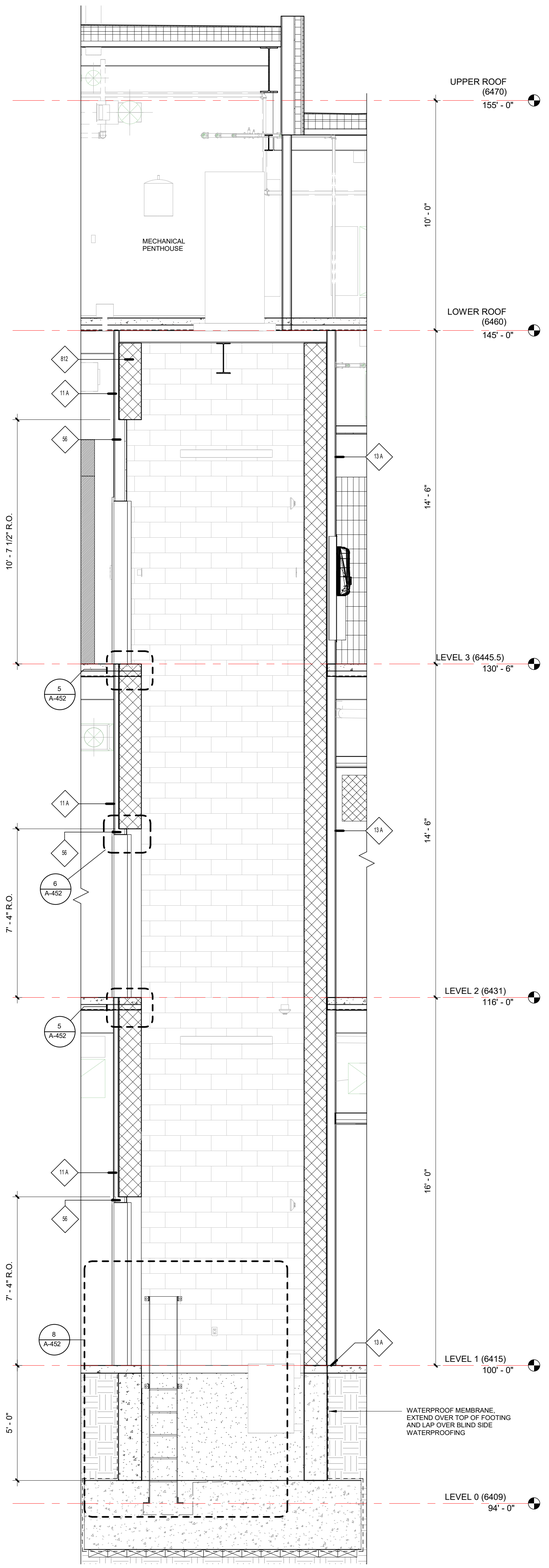


KEY PLAN

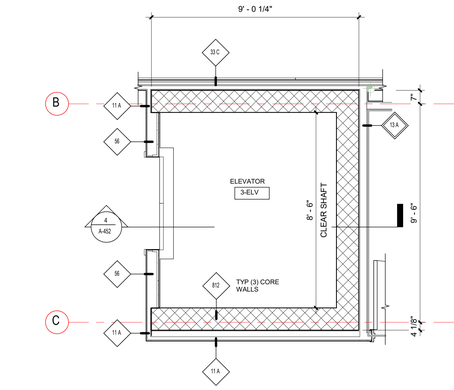


PLAN DETAIL - TYP
ELEVATOR DOOR JAMB

7 — 3" = 1'-0" RE: 1/ A-452

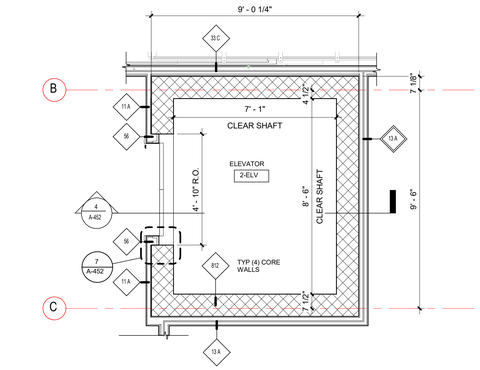


4 SECTION - ELEVATOR — 3/8" = 1'-0"



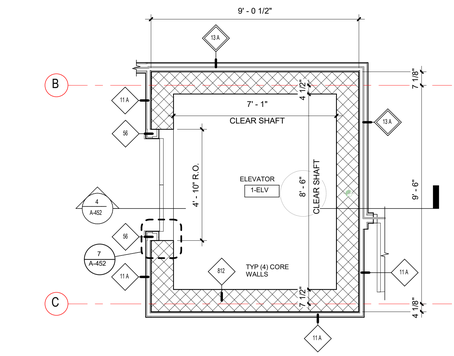
3 ENLARGED PLAN - LEVEL 3 ELEVATOR — 3/8" = 1'-0"

PROJECT NORTH | TRUE NORTH



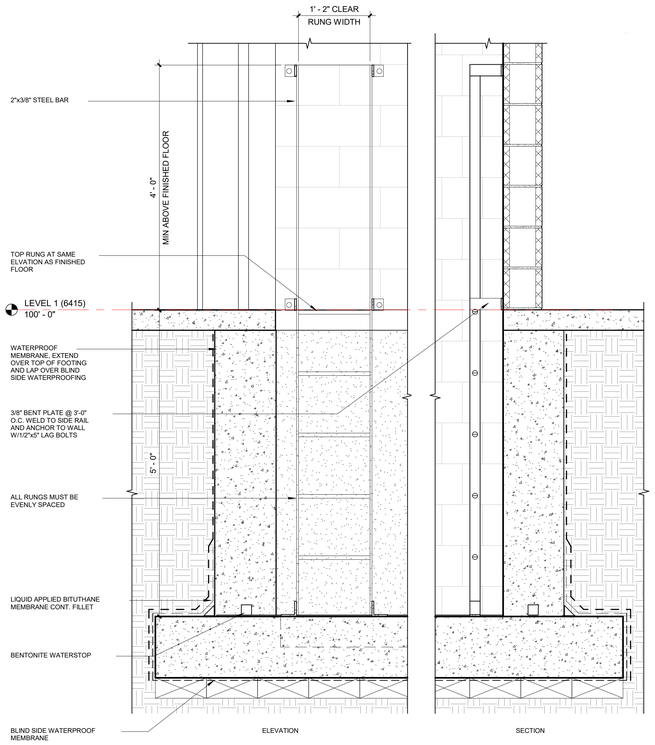
2 ENLARGED PLAN - LEVEL 2 ELEVATOR — 3/8" = 1'-0"

PROJECT NORTH | TRUE NORTH



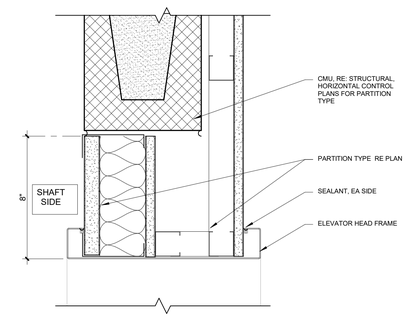
1 ENLARGED PLAN - LEVEL 1 ELEVATOR — 3/8" = 1'-0"

PROJECT NORTH | TRUE NORTH



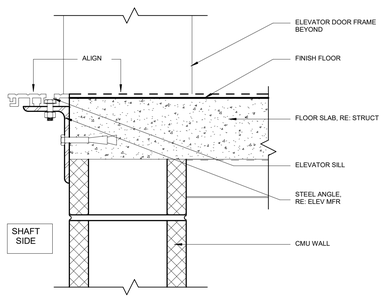
TYPICAL ELEVATOR PIT
WATERPROOFING

8 — 1" = 1'-0"



SECTION DETAIL - TYP
ELEVATOR DOOR HEAD

6 — 3" = 1'-0" RE: 4/ A-452



SECTION DETAIL - TYP
ELEVATOR DOOR SILL

5 — 3" = 1'-0" RE: 4/ A-452

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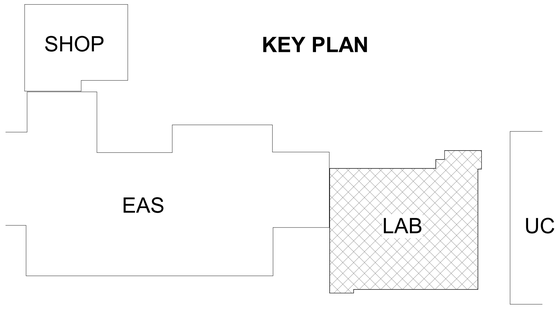
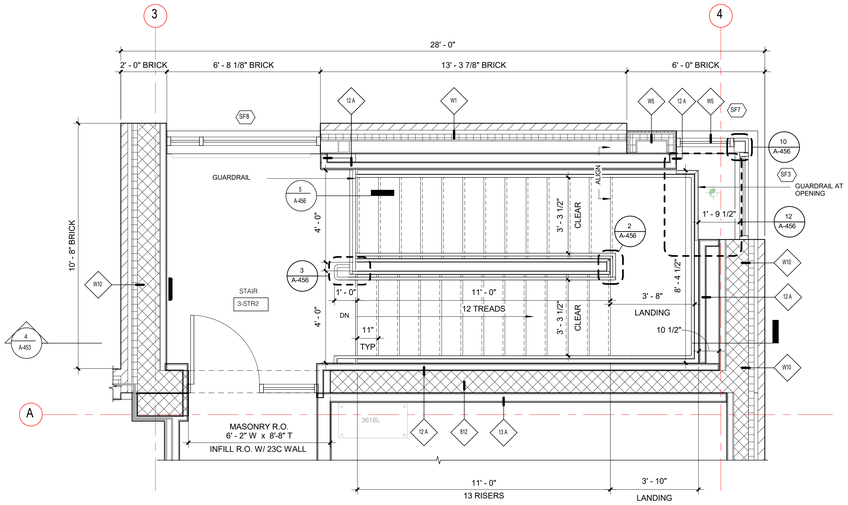
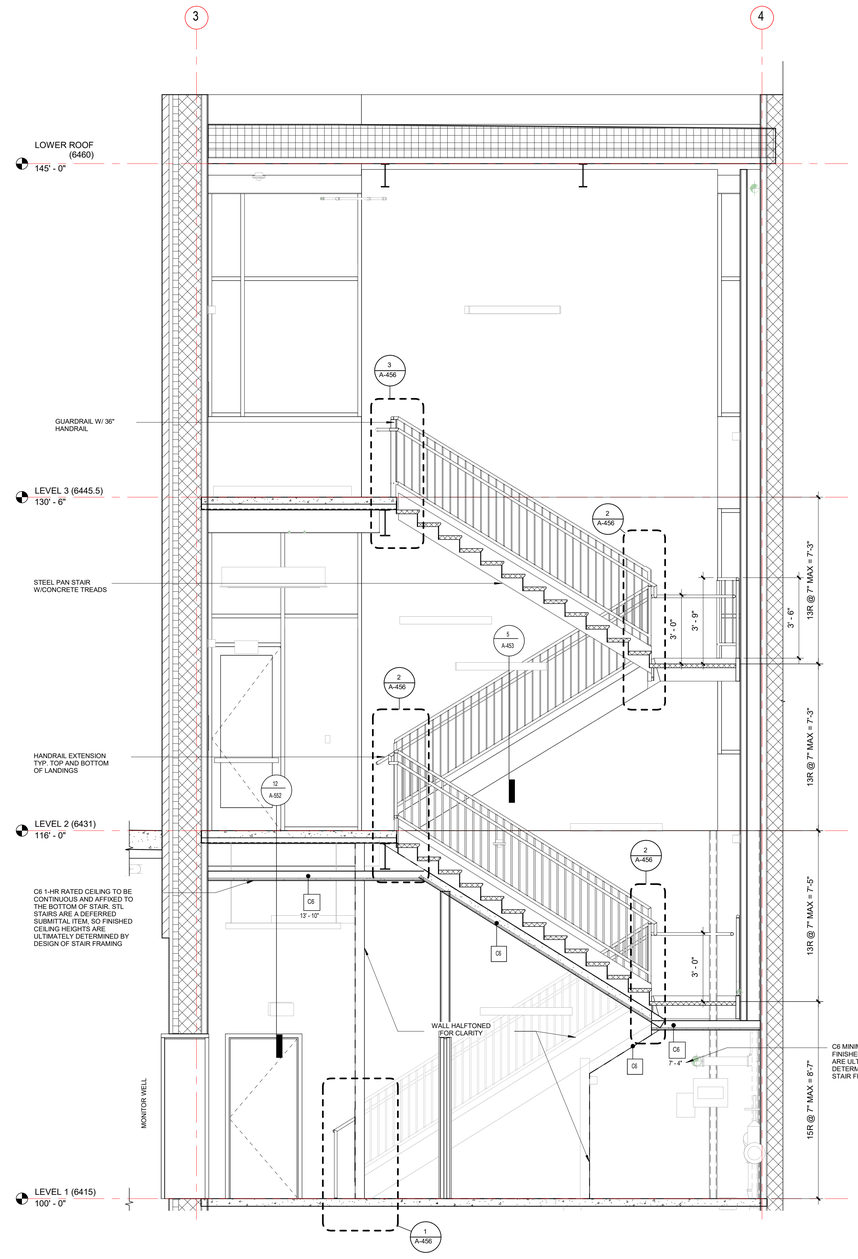


KEY PLAN

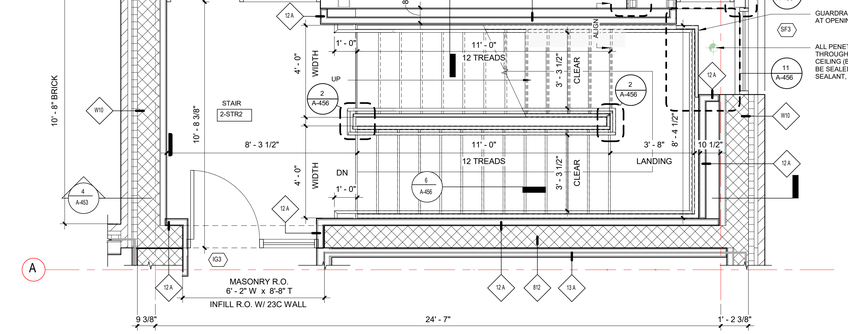


3 ENLARGED PLAN - LEVEL 3 STAIR TWO
3/8" = 1'-0"

PROJECT NORTH TRUE NORTH

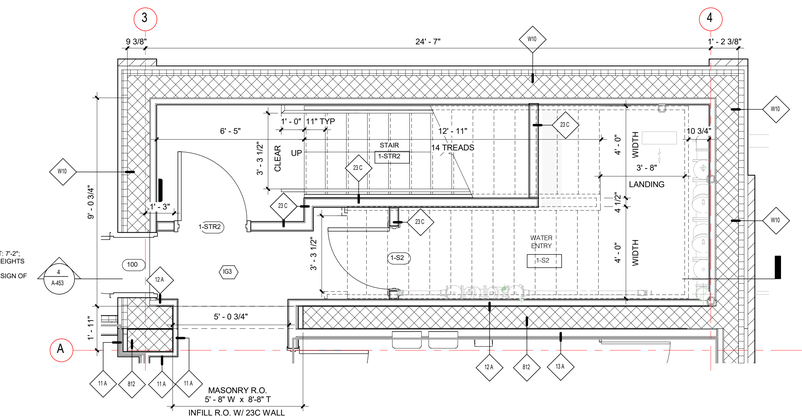


4 SECTION - STAIR TWO
3/8" = 1'-0"



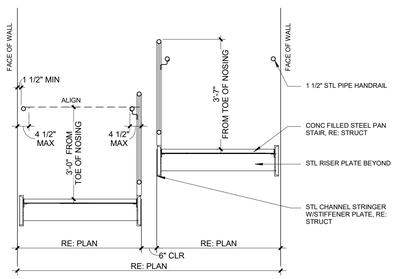
2 ENLARGED PLAN - LEVEL 2 STAIR TWO
3/8" = 1'-0"

PROJECT NORTH TRUE NORTH



1 ENLARGED PLAN - LEVEL 1 STAIR TWO
3/8" = 1'-0"

PROJECT NORTH TRUE NORTH



5 STAIR TWO - METAL PAN SECTION
1/2" = 1'-0"

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DAVID JOHN SCHAFER
#203158
LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

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CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
STAIR & ELEVATOR PLANS & SECTIONS

SCALE: As indicated
SHEET NUMBER
A-453

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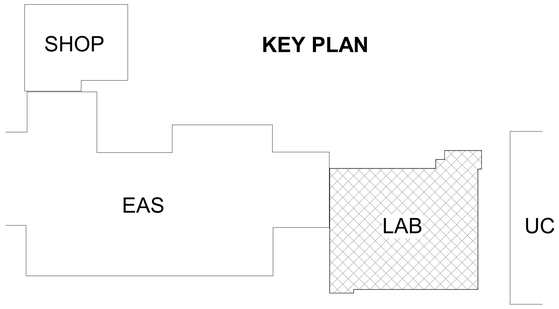
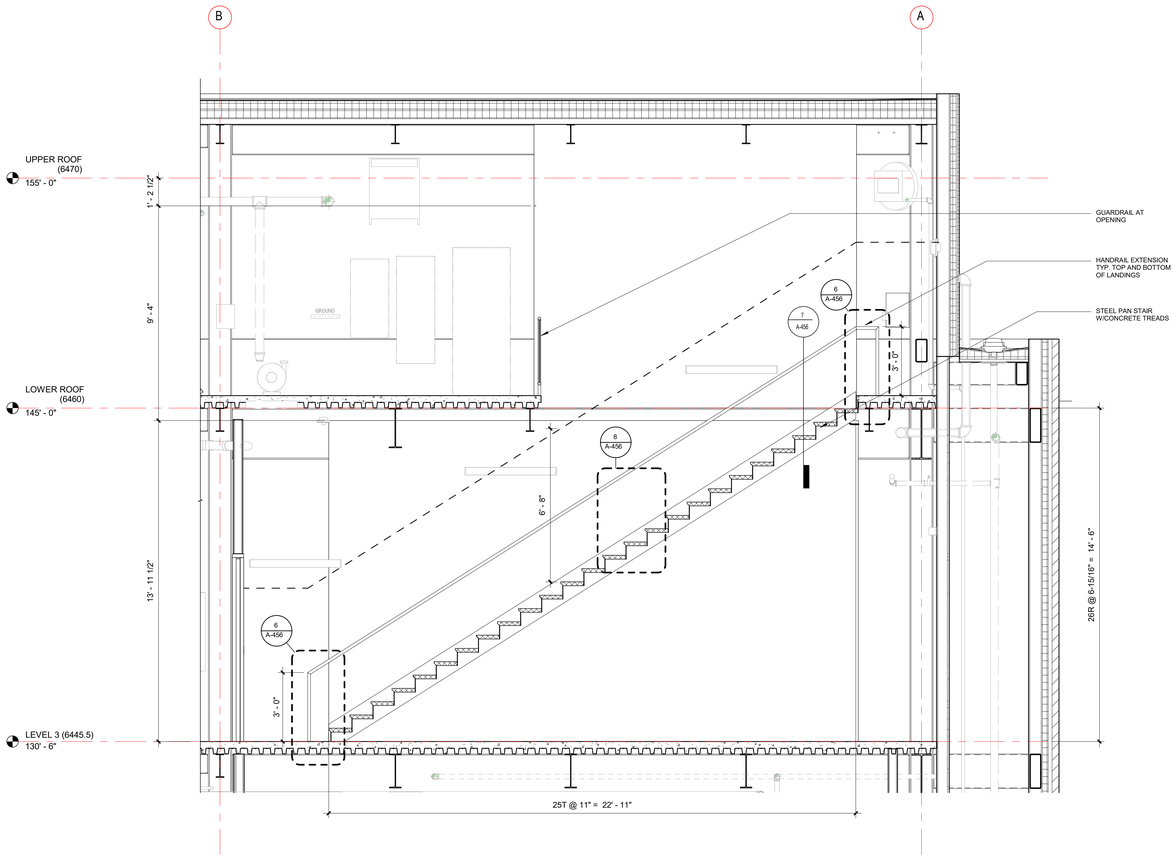
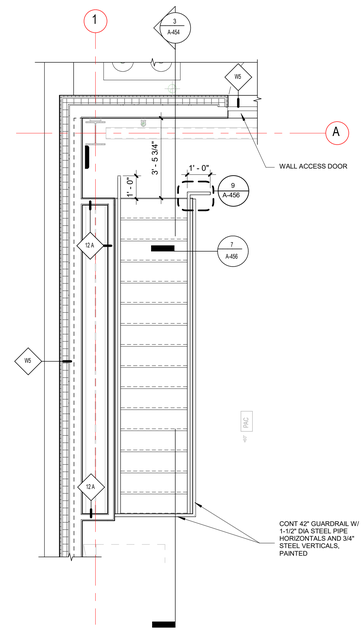


KEY PLAN



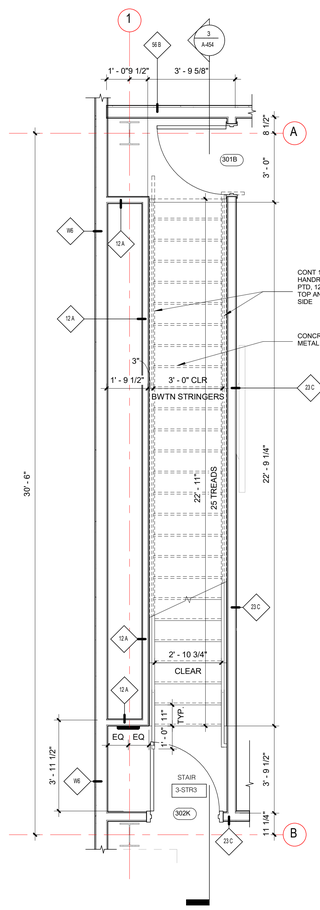
3 SECTION - STAIR THREE

3/8" = 1'-0"



2 LOWER ROOF LEVEL STAIR THREE

3/8" = 1'-0"



1 LEVEL 3 STAIR THREE

3/8" = 1'-0"

PROJECT NORTH

TRUE NORTH

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SHEET TITLE:
STAIR & ELEVATOR PLANS & SECTIONS

SCALE: 3/8" = 1'-0"
SHEET NUMBER

A-454

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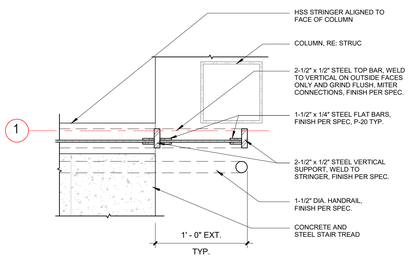
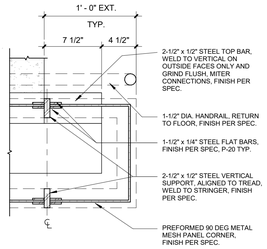


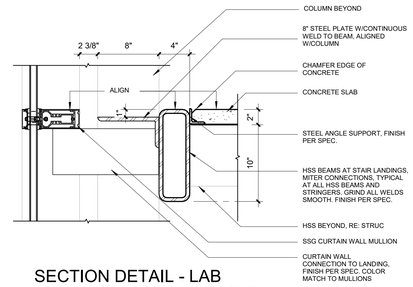
PLAN DETAIL - LAB BLDG - GUARDRAIL AT COLUMN

15 — 1 1/2" = 1'-0" RE: 2/ A-451



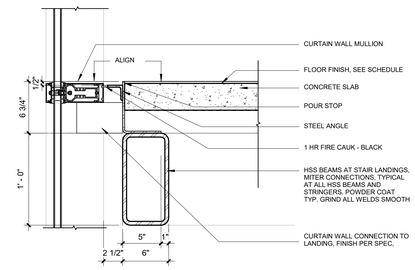
PLAN DETAIL - GUARD AND HANDRAIL AT TOP OF STAIR - STAIR ONE

12 — 1 1/2" = 1'-0" RE: 2/ A-451



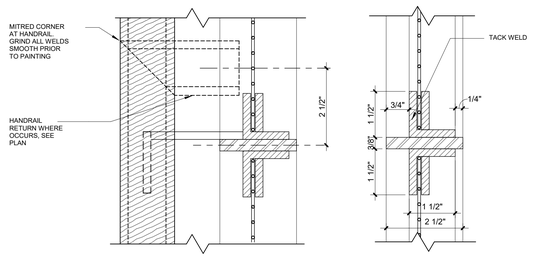
SECTION DETAIL - LAB BLDG - TYP EDGE AT SIDE OF LANDING - STAIR ONE

9 — 1 1/2" = 1'-0" RE: 1/ A-410



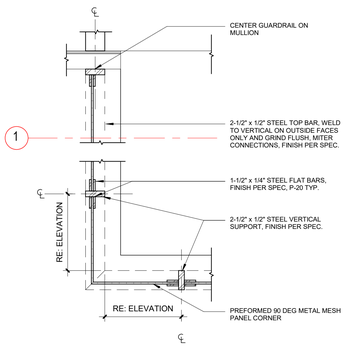
SECTION DETAIL - LAB BLDG - TYP EDGE OF LEVEL 3 FLR AT CW - STAIR ONE

6 — 1 1/2" = 1'-0" RE: 1/ A-410



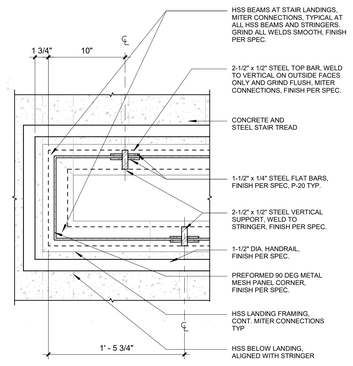
PLAN DETAIL - LAB BLDG - TYP GUARDRAIL POST AND HANDRAIL STAND OFF

3 — 6" = 1'-0"



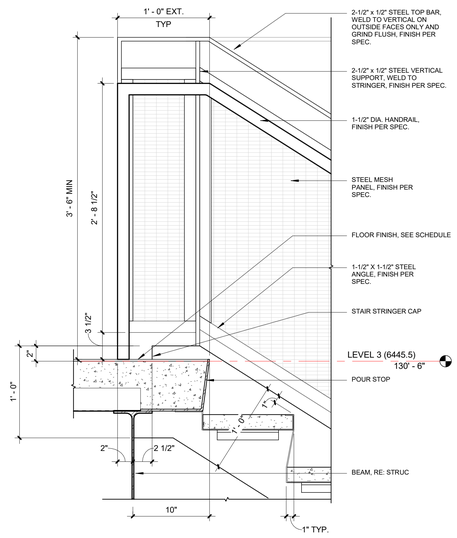
PLAN DETAIL - LAB BLDG - GUARDRAIL AT LVL 3

14 — 1 1/2" = 1'-0" RE: 3/ A-451



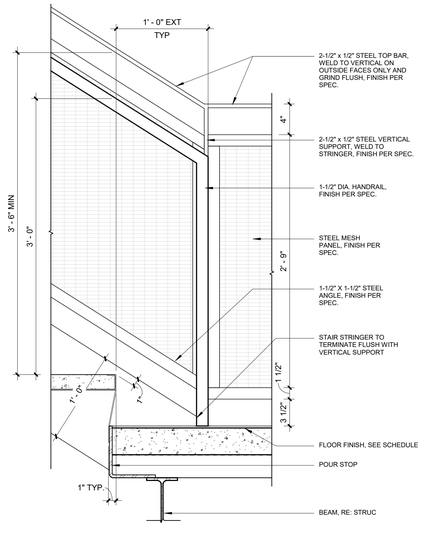
PLAN DETAIL - LAB BLDG - GUARD & HANDRAIL AT LANDING

11 — 1 1/2" = 1'-0" RE: 1/ A-451



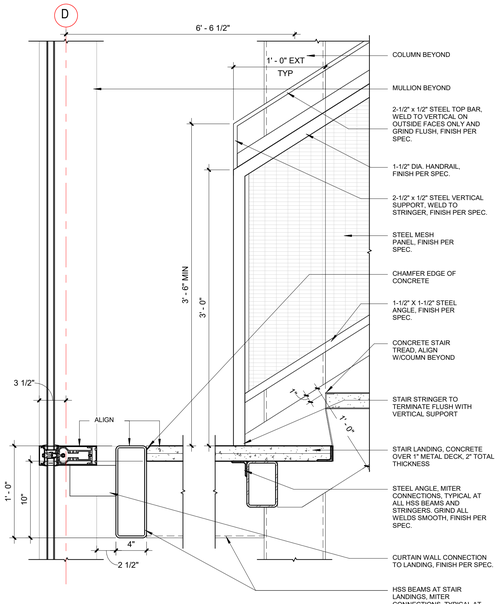
SECTION DETAIL - LAB BLDG - TYP TOP OF STAIR AT LVL 3 - STAIR ONE

8 — 1 1/2" = 1'-0" RE: 2/ A-451



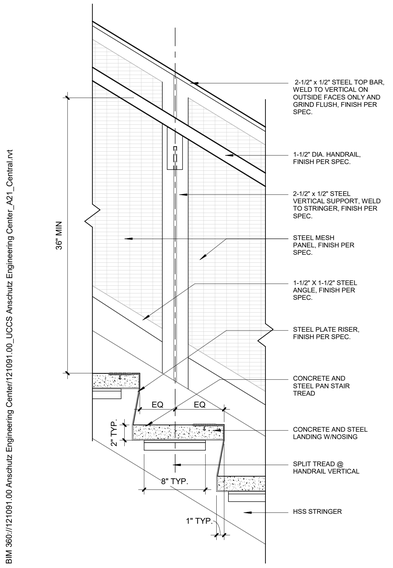
SECTION DETAIL - LAB BLDG - TYP BOT OF STAIR AT FLR SLAB - STAIR ONE

5 — 1 1/2" = 1'-0" RE: 4/ A-451



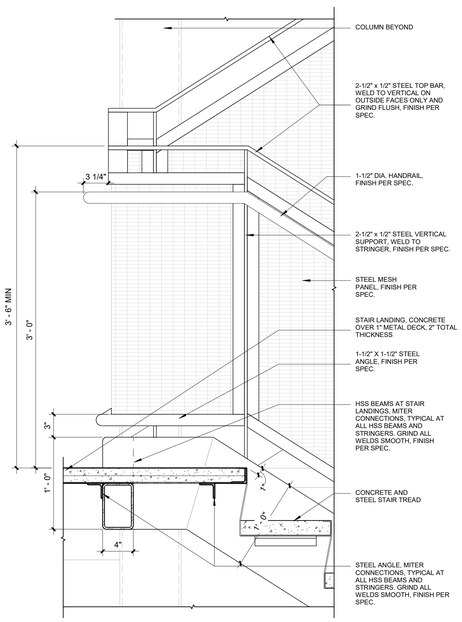
SECTION DETAIL - LAB BLDG - TYP LANDING - STAIR ONE

2 — 1 1/2" = 1'-0" RE: 4/ A-451



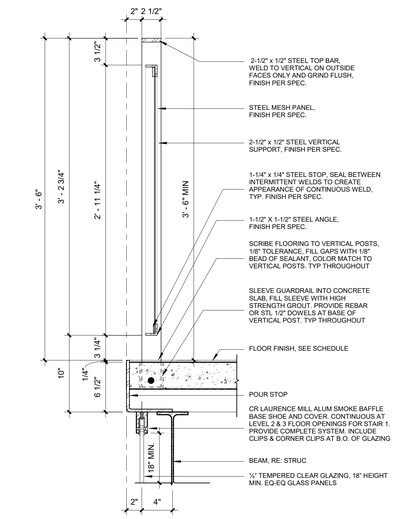
SECTION DETAIL - LAB BLDG - TYP TREAD - STAIR ONE

13 — 1 1/2" = 1'-0" RE: 4/ A-451



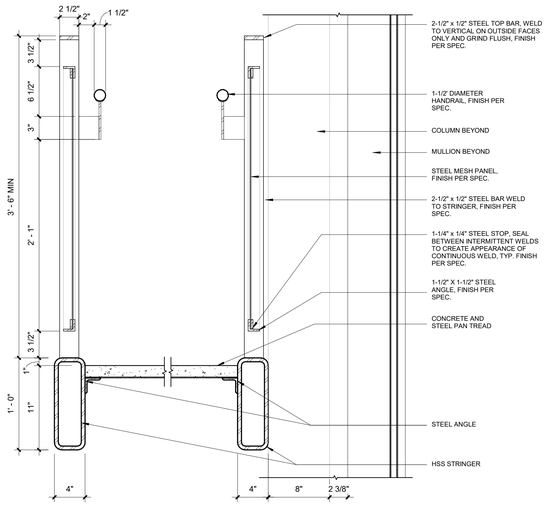
SECTION DETAIL - LAB BLDG - TYP TOP OF STAIR AT INTERMEDIATE LANDING - STAIR ONE

10 — 1 1/2" = 1'-0" RE: 4/ A-451



SECTION DETAIL - LAB BUILDING - TYP GUARD AT FLR OPENING - STAIR ONE

4 — 1 1/2" = 1'-0" RE: 2/ A-451



SECTION DETAIL - LAB BLDG - TYP CROSS SECTION - STAIR ONE

1 — 1 1/2" = 1'-0" RE: 2/ A-451

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SHEET TITLE:
STAIR DETAILS - STAIR ONE

SCALE: As indicated
SHEET NUMBER

A-455

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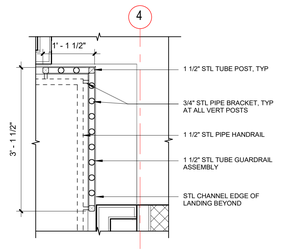
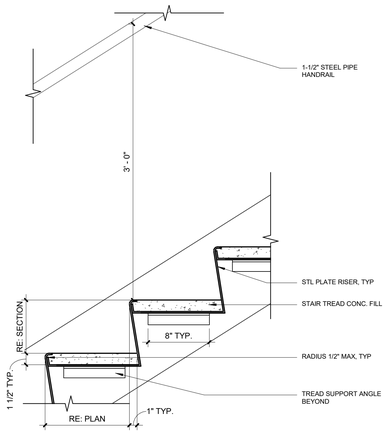


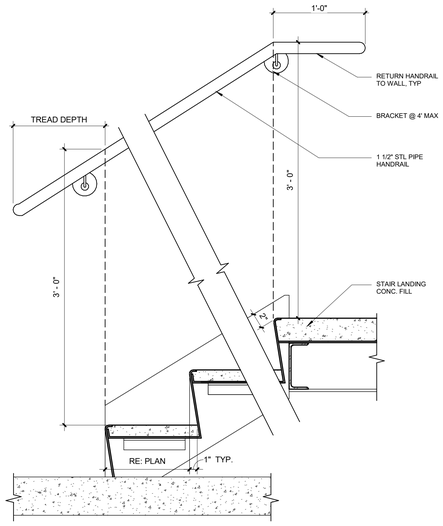
PLAN DETAIL - LAB BLDG - GUARDRAIL AT STAIR TWO UPPER LANDING

12 — 3/4" = 1'-0"



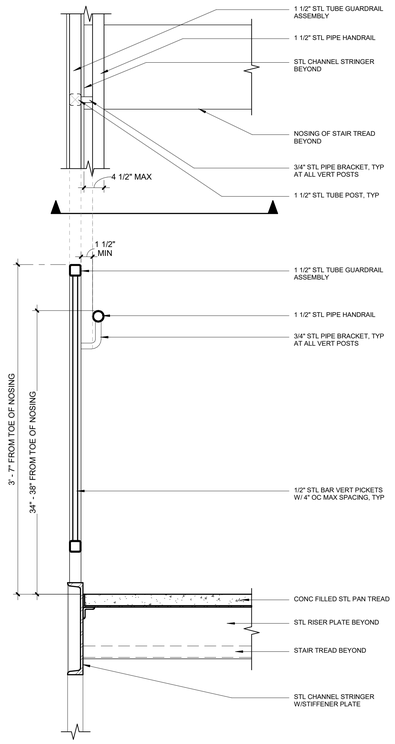
SECTION DETAIL - LAB BLDG - TYP TREAD - STAIR TWO AND THREE

8 — 1 1/2" = 1'-0" RE: 3/ A-454



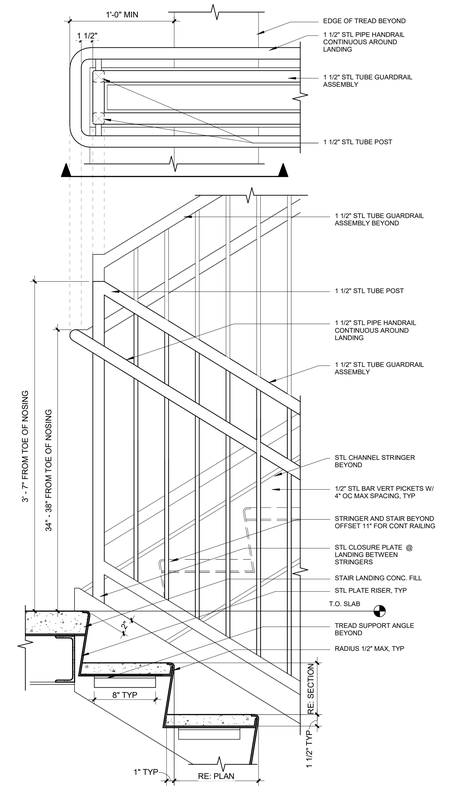
SECTION DETAIL - LAB BLDG - TYP HANDRAIL - STAIR TWO AND THREE

6 — 1 1/2" = 1'-0" RE: 2/ A-453



SECTION DETAIL - LAB BLDG - TYP GUARDRAIL - STAIR TWO

4 — 1 1/2" = 1'-0" RE: 2/ A-453

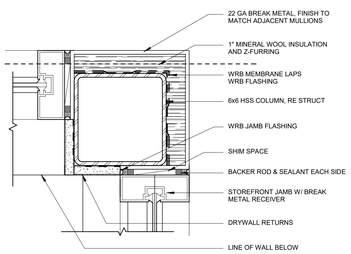


SECTION DETAIL - LAB BLDG - LANDING - STAIR TWO

2 — 1 1/2" = 1'-0" RE: 2/ A-453

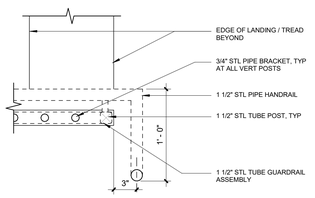
PLAN DETAIL - LAB BLDG - GUARDRAIL AT STAIR TWO LOWER LANDING

11 — 3/4" = 1'-0"



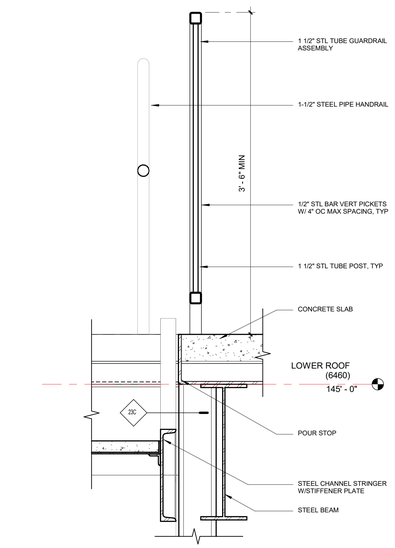
PLAN DETAIL - TYP CURTAINWALL JAMB AT METAL PANEL STAIR TWO

10 — 3" = 1'-0"



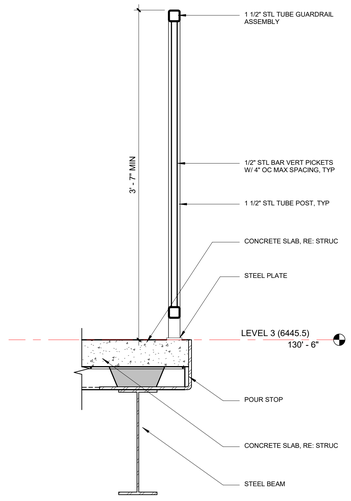
PLAN DETAIL - LAB BLDG - TOP - STAIR THREE

9 — 1 1/2" = 1'-0" RE: 2/ A-454



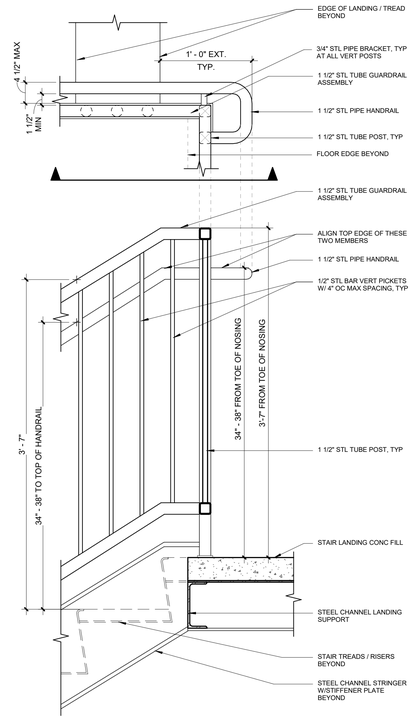
SECTION DETAIL - LAB BLDG - TYP GUARD AT FLR OPENING - STAIR THREE

7 — 1 1/2" = 1'-0" RE: 2/ A-454



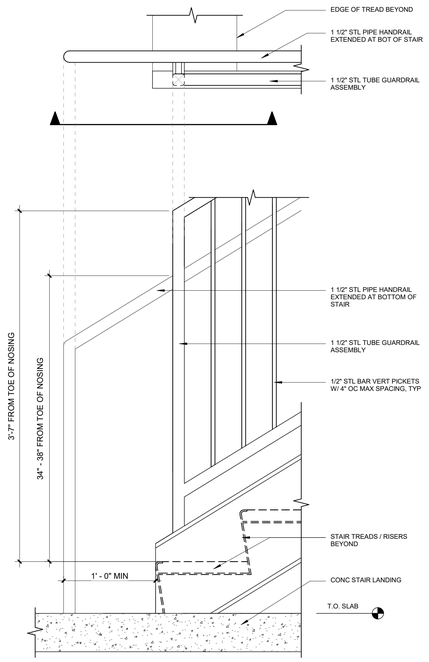
SECTION DETAIL - LAB BUILDING - TYP TOP OF STAIR AT LVL 3 - STAIR TWO

5 — 1 1/2" = 1'-0" RE: 3/ A-453



SECTION DETAIL - LAB BLDG - TOP - STAIR TWO

3 — 1 1/2" = 1'-0" RE: 3/ A-453



SECTION DETAIL - LAB BLDG - BOTTOM - STAIR TWO

1 — 1 1/2" = 1'-0" RE: 4/ A-453

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SHEET TITLE:
STAIR DETAILS - STAIR TWO & THREE

SCALE: As indicated

SHEET NUMBER
A-456

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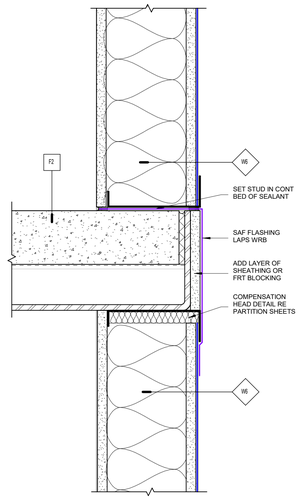
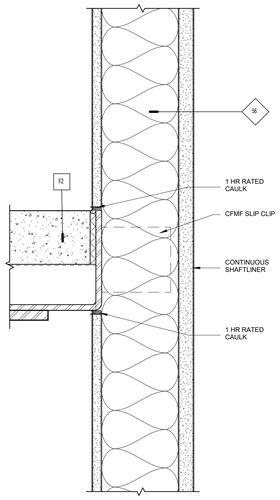


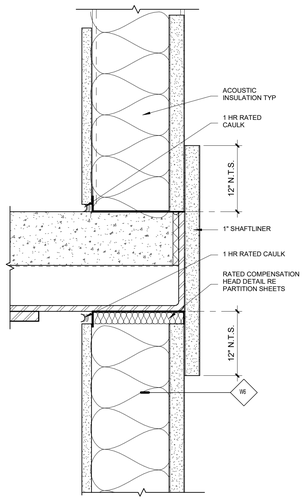
SECTION DETAIL - LAB BLDG - FLOOR INTERSECTION AT WEST WALL ALONG EXST BLDG

9 — 3" = 1'-0" RE: 2/ A-411



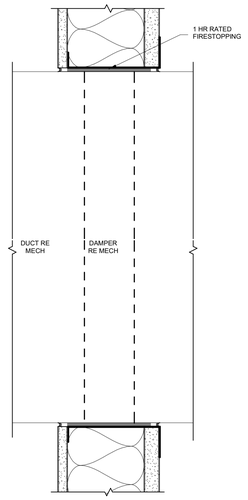
SECTION DETAIL - TYP FLOOR / BYPASS FRAMING AT RATED SHAFT

8 — 3" = 1'-0" RE: 1/ A-411



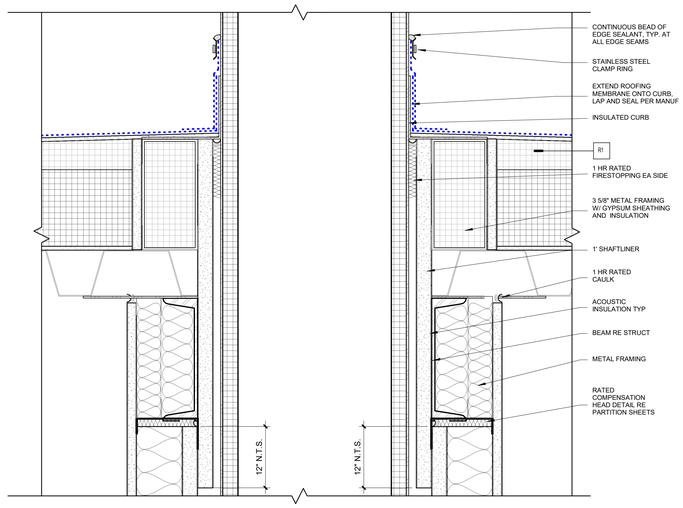
SECTION DETAIL - LAB BLDG - FLOOR AT RATED SHAFT

7 — 3" = 1'-0" RE: 1/ A-411



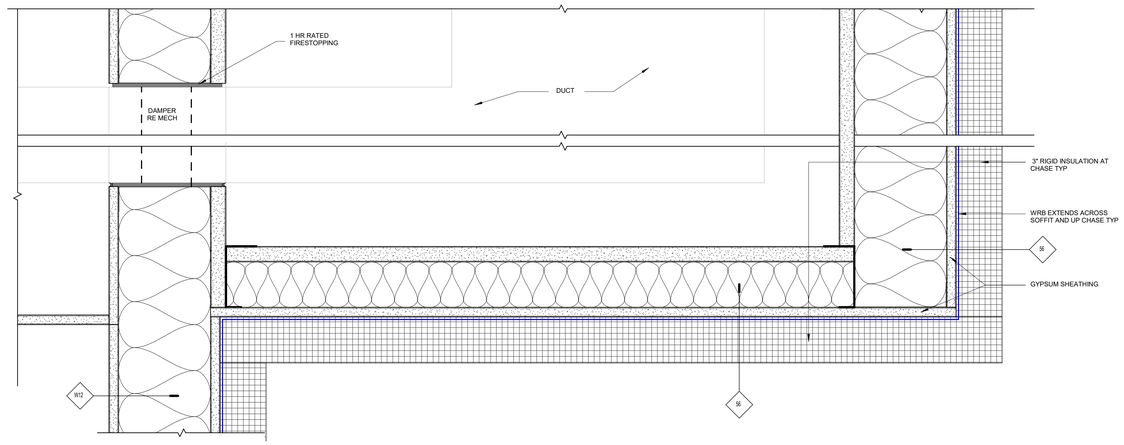
LAB BLDG - TYP HORIZ DUCT PENETRATION AT RATED SHAFT

6 — 3" = 1'-0" RE: 1/ A-411



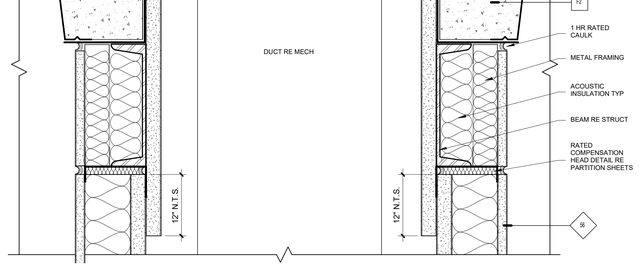
SECTION DETAIL - TYP ROOF AT RATED SHAFT

3 — 3" = 1'-0" RE: 5/ A-411



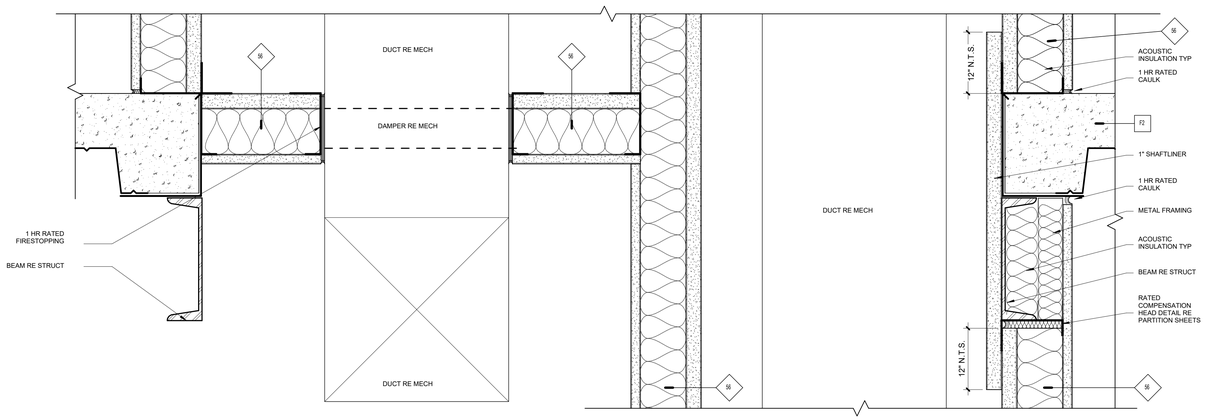
SECTION DETAIL - SOFFIT AT BLDG AT RATED SHAFT

5 — 3" = 1'-0" RE: 1/ A-411



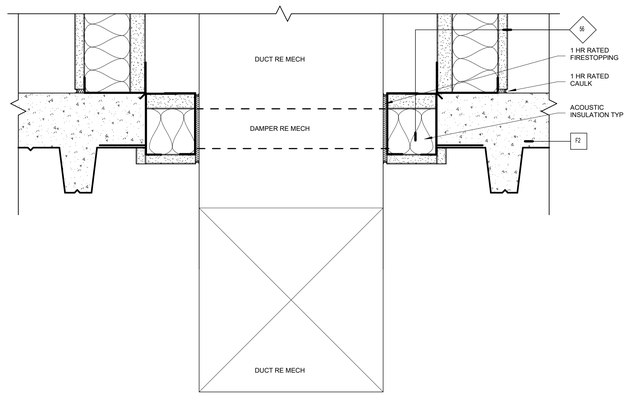
SECTION DETAIL - TYP FLOOR AT RATED SHAFT

2 — 3" = 1'-0" RE: 5/ A-411



SECTION DETAIL - FLOOR AND HORIZ CLOSURE AT RATED SHAFT

4 — 3" = 1'-0"



SECTION DTL - TYP HORIZONTAL CLOSURE AT RATED SHAFT

1 — 3" = 1'-0" RE: 5/ A-411

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CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
ELEVATOR & SHAFT DETAILS

SCALE: 3" = 1'-0"
SHEET NUMBER
A-457

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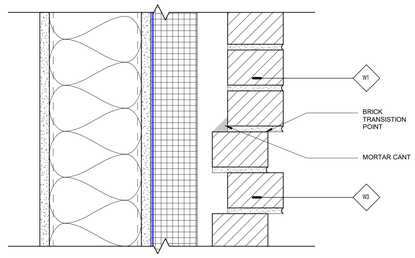
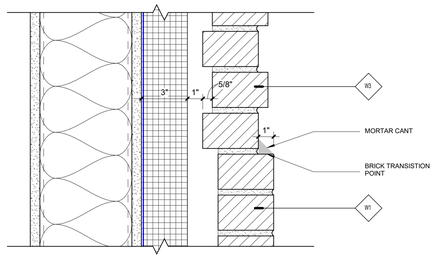
10/26/2022 8:57:33 PM



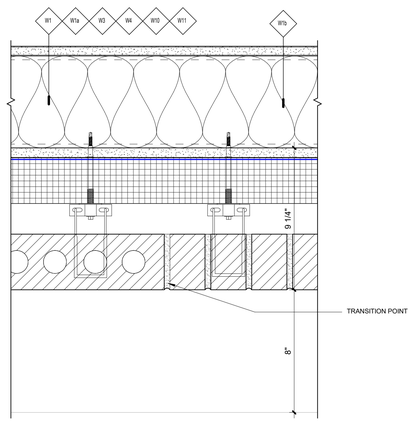
SECTION DETAIL - SHOP BLDG - TYP OFFSET BRICK HEAD

14 — 3" = 1'-0" RE: 4/ A-412



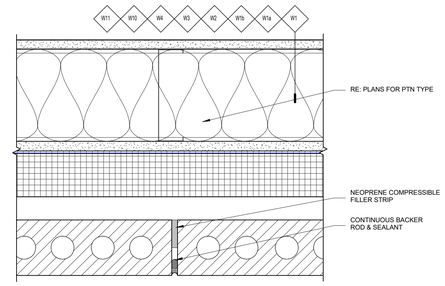
SECTION DETAIL - SHOP BLDG - TYP OFFSET BRICK SILL

13 — 3" = 1'-0" RE: 4/ A-412



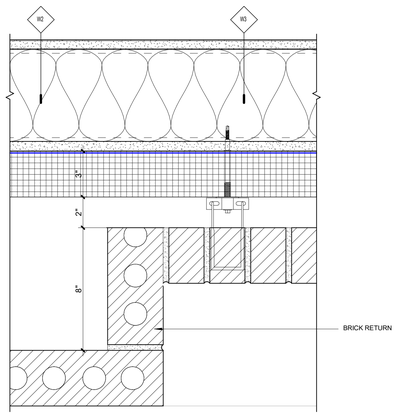
MASONRY PLAN TRANS FROM SOLDIER COURSE TO BRICK INFILL

12 — 3" = 1'-0"



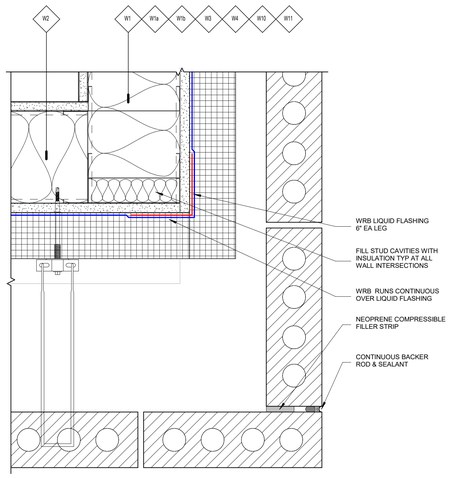
PLAN DETAIL - TYP BRICK CONTROL JOINT

11 — 3" = 1'-0"



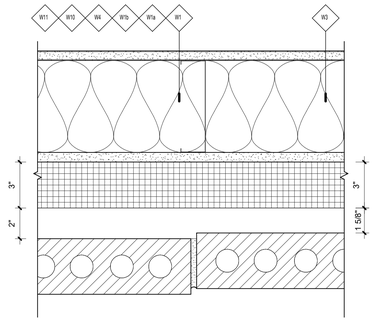
MASONRY PLAN TRANS FROM OUTER MASONRY EDGE TO SOLDIER COURSE

10 — 3" = 1'-0"



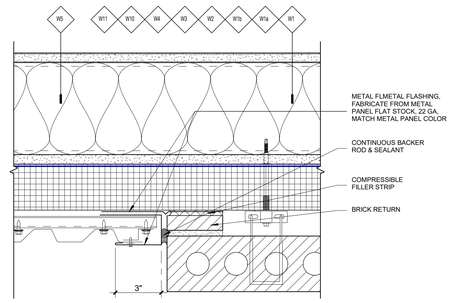
PLAN DETAIL BRICK OUTSIDE CORNER AT SOUTH ELEVATION

9 — 3" = 1'-0" RE: 1/ A-102



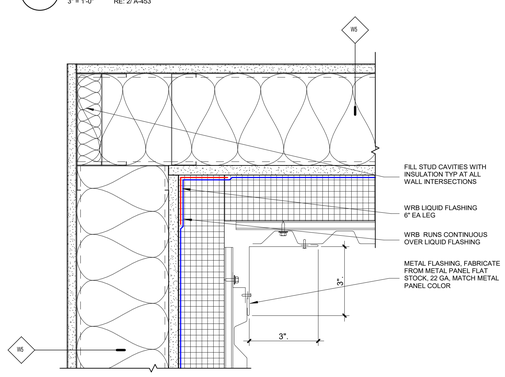
PLAN DETAIL - BRICK AT FIELD BRICK

8 — 3" = 1'-0" RE: 4/ A-437



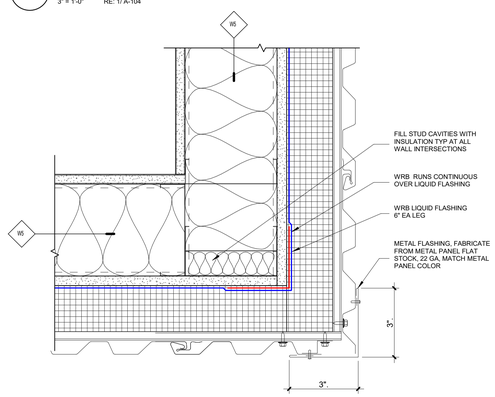
PLAN DETAIL - TYP BRICK TO METAL PANEL

7 — 3" = 1'-0" RE: 2/ A-453



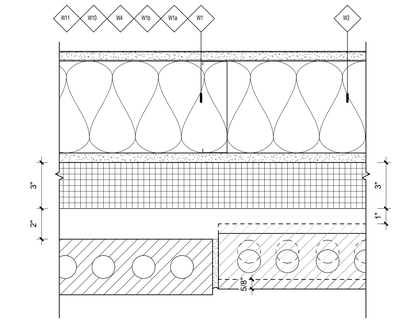
PLAN DTL - TYP INSIDE CORNER METAL PANEL

6 — 3" = 1'-0" RE: 1/ A-104



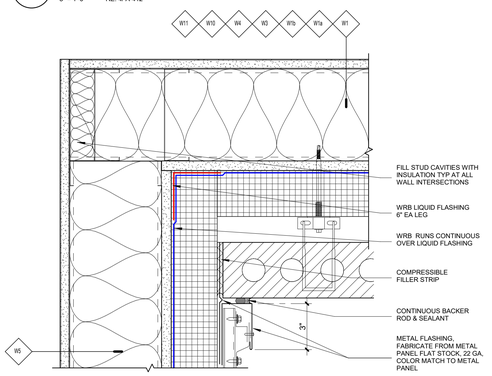
PLAN DETAIL - TYP OUTSIDE CORNER AT METAL PANEL

5 — 3" = 1'-0" RE: 1/ A-103B



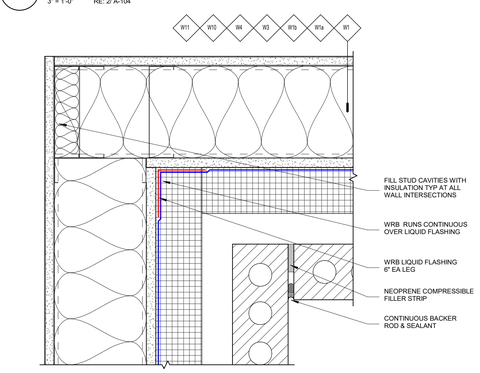
PLAN DETAIL - OFFSET BRICK AT FIELD BRICK

4 — 3" = 1'-0" RE: 4/ A-412



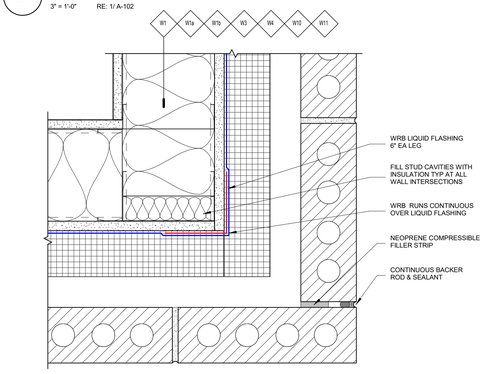
PLAN DTL - TYP INSIDE CORNER BRICK

3 — 3" = 1'-0" RE: 2/ A-104



PLAN DETAIL - TYP INSIDE CORNER BRICK

2 — 3" = 1'-0" RE: 1/ A-102



PLAN DETAIL - TYP OUTSIDE CORNER AT BRICK

1 — 3" = 1'-0" RE: 1/ A-103B

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SHEET TITLE:
EXTERIOR DETAILS - TRANSITIONS

SCALE: 3" = 1'-0"
SHEET NUMBER
A-501

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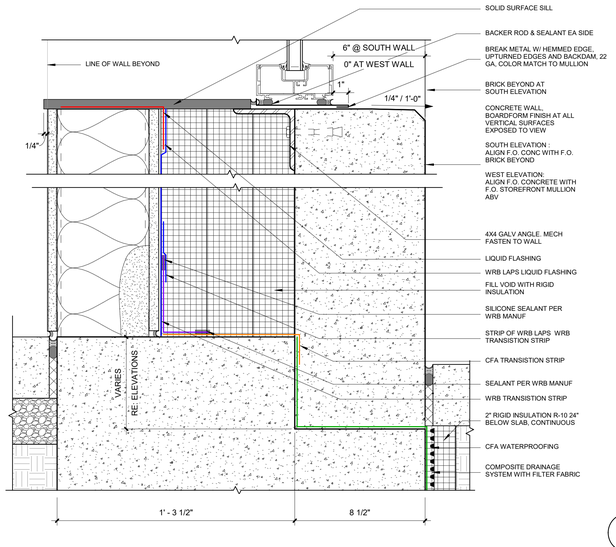
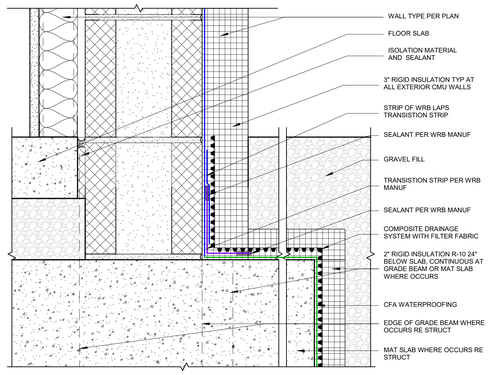


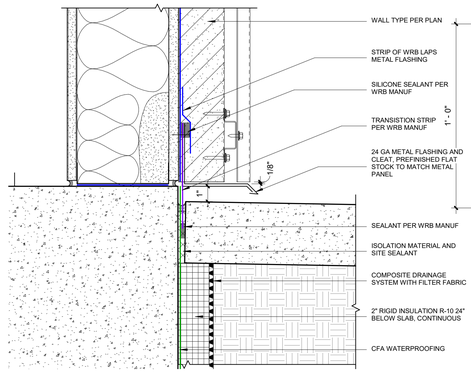
SECTION DETAIL - LAB BUILDING - CONCRETE WALLS AT VESTIBULE

12 — 3" = 1'-0" RE: 1/ A-001



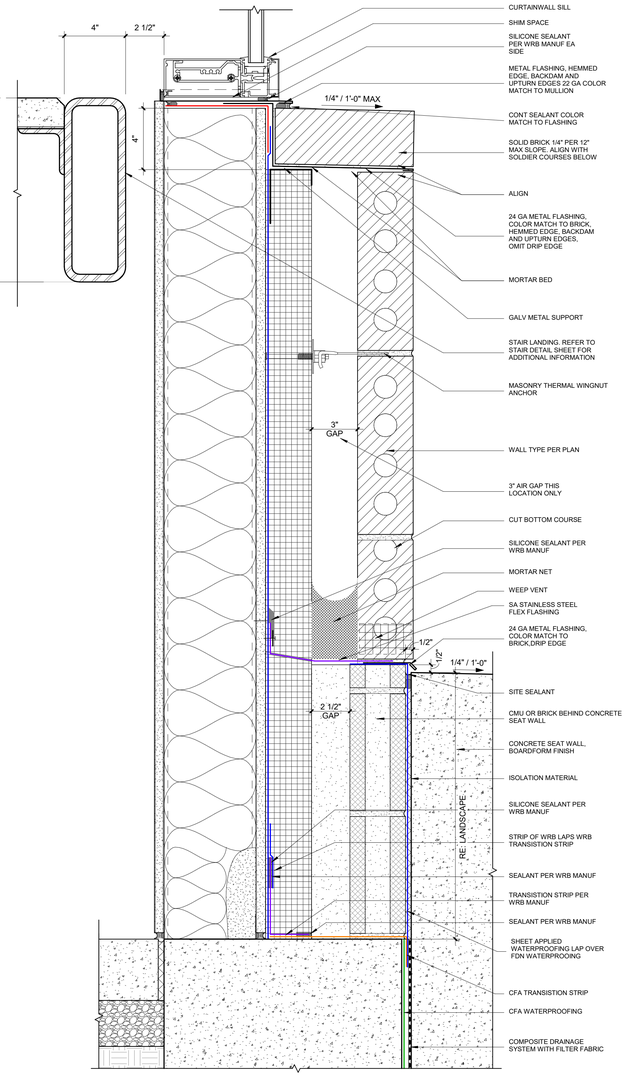
SECTION DETAIL - BASE OF WALL - CMU AT MONITORING WELL

8 — 3" = 1'-0" RE: 1/ A-001



SECTION DETAIL - TYP METAL PANEL AT GRADE

5 — 3" = 1'-0" RE: 1/ A-002B



SECTION DETAIL - LAB BLDG - BRICK AT CONC BENCH

2 — 3" = 1'-0" RE: 1/ A-001

SECTION DETAIL - BASE OF SHAFTWALL ALONG W ELEV - LAB BLDG

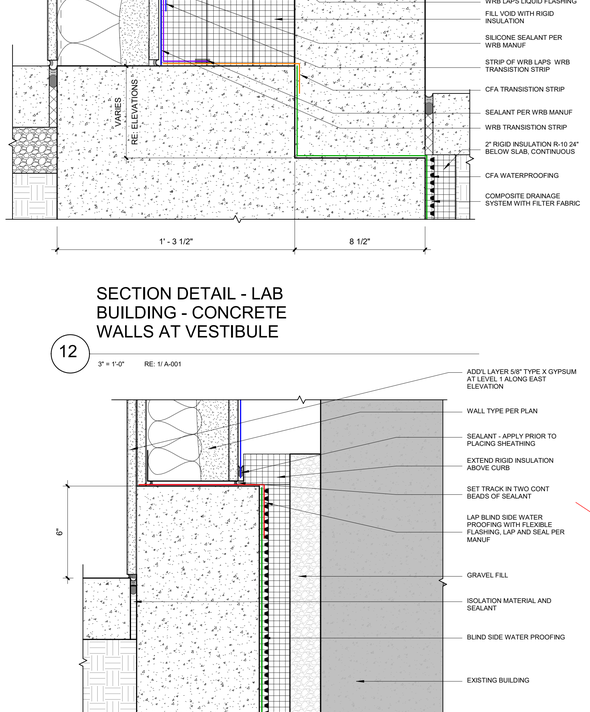
11 — 3" = 1'-0" RE: 1/ A-001

SECTION DETAIL - BASE OF WALL AT MONITORING WELL ALONG N & E ELEV - LAB BLDG

7 — 3" = 1'-0" RE: 1/ A-001

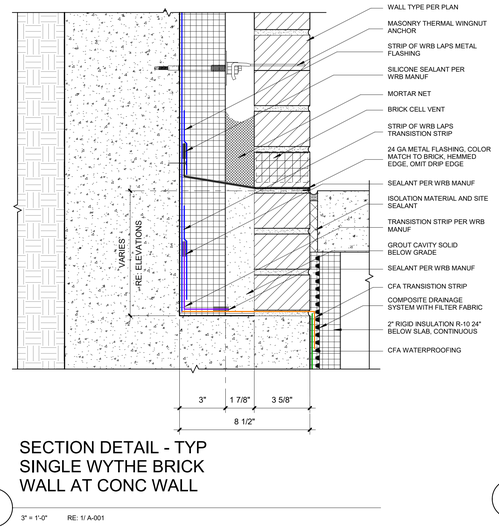
SECTION DETAIL - BASE OF SHAFTWALL ALONG S ELEV - SHOPS BLDG

4 — 3" = 1'-0" RE: 1/ A-002B



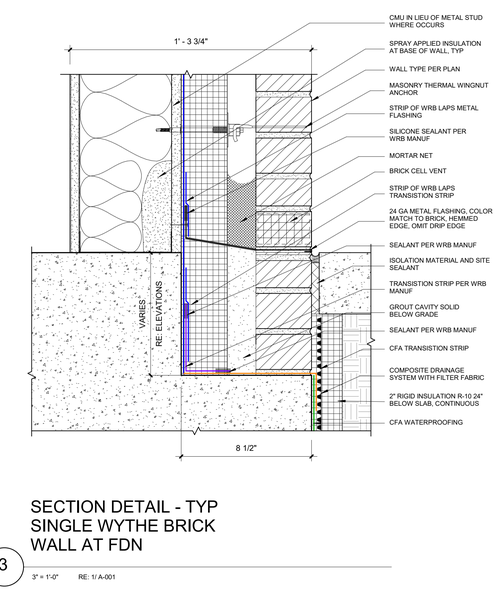
SECTION DETAIL - TYP SINGLE WYTHE BRICK WALL AT EAS PATIO

10 — 3" = 1'-0" RE: 4/ A-201



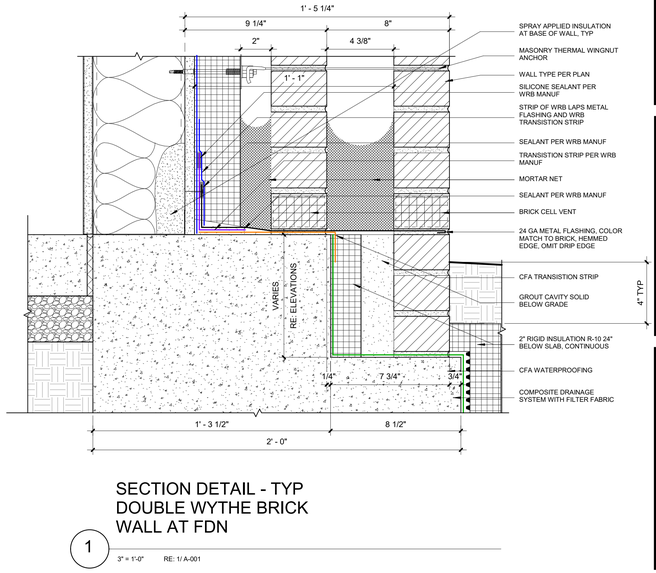
SECTION DETAIL - TYP SINGLE WYTHE BRICK WALL AT CONC WALL

6 — 3" = 1'-0" RE: 1/ A-001



SECTION DETAIL - TYP SINGLE WYTHE BRICK WALL AT FDN

3 — 3" = 1'-0" RE: 1/ A-001



SECTION DETAIL - TYP DOUBLE WYTHE BRICK WALL AT FDN

1 — 3" = 1'-0" RE: 1/ A-001

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DRAWN: WTM
CHECKED: JG
APPROVED: DS
DATE: 10/26/2022

REVISIONS:
2 09/21/2022 REVISIONS - Pkg 1&2
3 10/4/2022 ADDENDA 3 - Pkg 1&2

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SHEET TITLE:
EXTERIOR DETAILS - FOUNDATION

SCALE: 3" = 1'-0"
SHEET NUMBER
A-502

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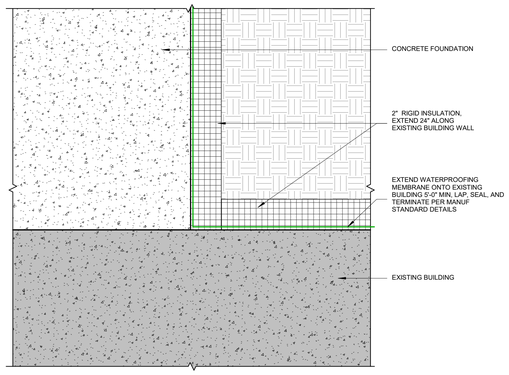
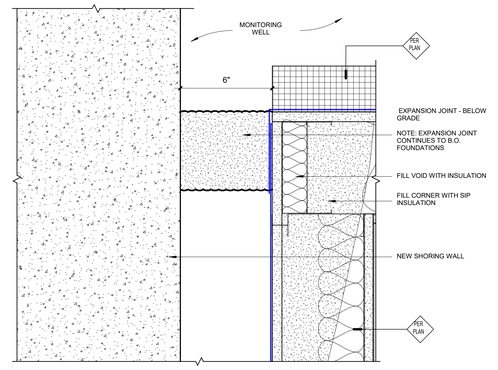


PLAN DETAIL - SHOPS BLDG
FDN AT SE CORNER BELOW GRADE

6

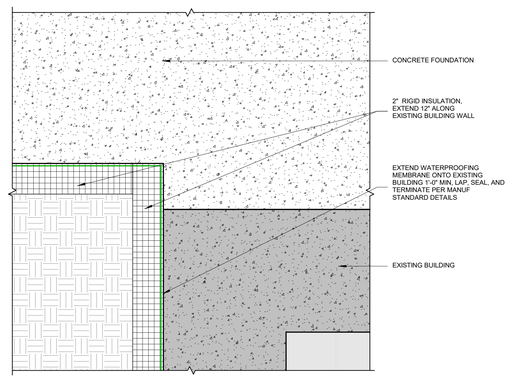
3" = 1'-0" RE: 2/ A-202



PLAN DETAIL - LAB BLDG -
EXP JOINT AT NW CORNER
BELOW GRADE - LAB BLDG
FRAMED WALL

3

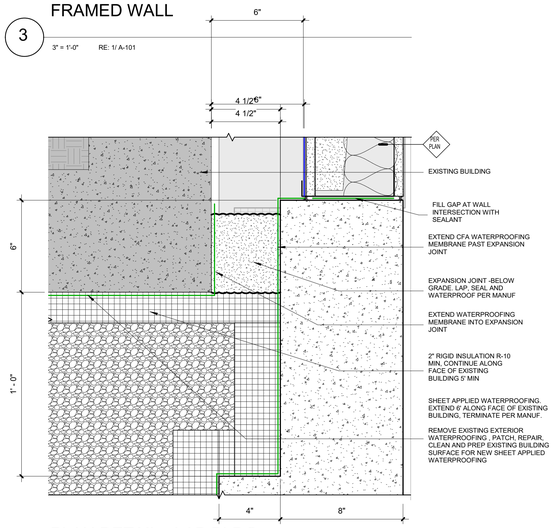
3" = 1'-0" RE: 1/ A-101



PLAN DETAIL - SHOPS BLDG
EXP JOINT AT SW CORNER
BELOW GRADE

5

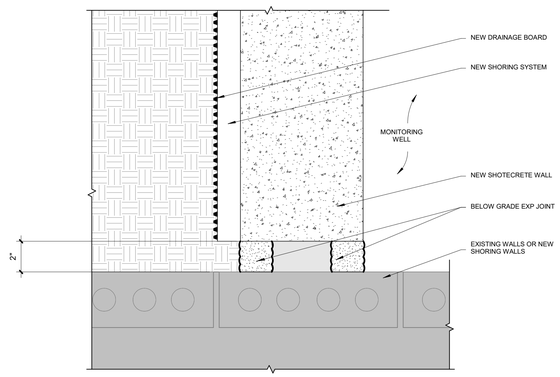
3" = 1'-0" RE: 4/ A-202



PLAN DETAIL - LAB BLDG -
EXP JOINT AT PATIO -
BELOW GRADE AT
EXISTING BUILDING

2

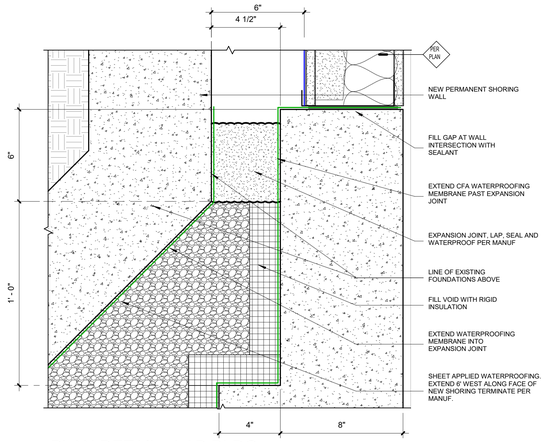
3" = 1'-0" RE: 1/ A-101



PLAN DETAIL - LAB
BUILDING - EXP JOINT AT
NW CORNER BELOW
GRADE - SHOTCRETE WALL

4

3" = 1'-0" RE: 1/ A-101



PLAN DETAIL - LAB BLDG
EXP JOINT AT PATIO -
BELOW GRADE AT NEW
SHORING WALL

1

3" = 1'-0" RE: 1/ A-101

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SHEET TITLE:
EXTERIOR DETAILS - EXPANSION JOINT

SCALE: 3" = 1'-0"
SHEET NUMBER

A-504

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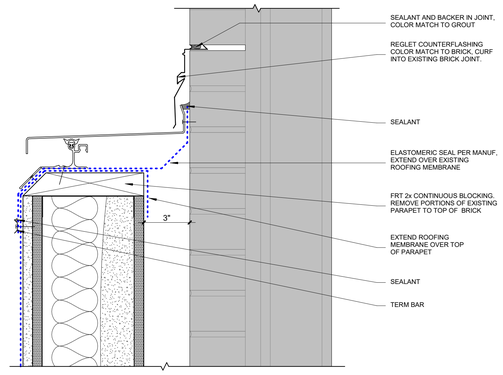
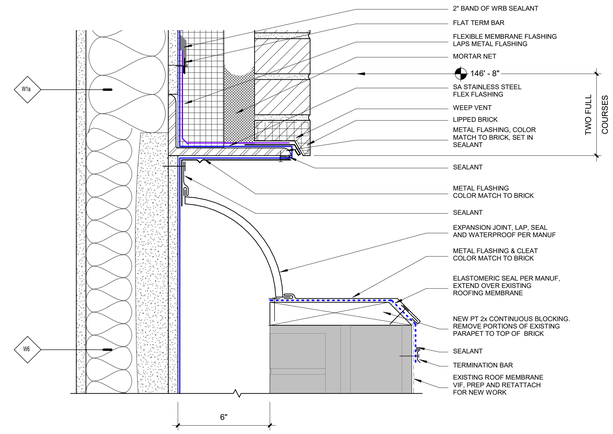


SECTION DETAIL - SHOPS BLDG - EXP JNT - AT PARAPET

9 — 3" = 1'-0" RE: 5/ A-412



SECTION DETAIL - LAB BLDG - EXP JNT - AT PARAPET

3 — 3" = 1'-0" RE: 4/ A-201

PLAN DETAIL - SHOPS BLDG - EXP JOINT - SW CORNER

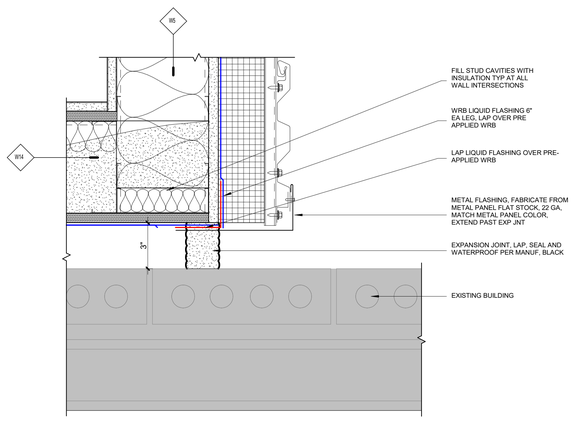
8 — 3" = 1'-0" RE: 1/ A-103B

PLAN DETAIL - LAB BLDG - EXP JNT - NW CORNER - BELOW MONITORING WELL CAP

5 — 3" = 1'-0" RE: 1/ A-101

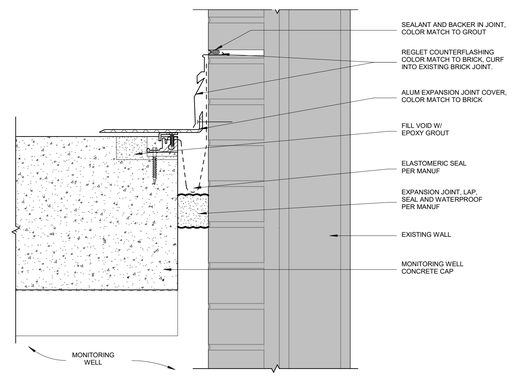
PLAN DETAIL - LAB BLDG - EXP JNT - NW CORNER

2 — 3" = 1'-0" RE: 2/ A-103A



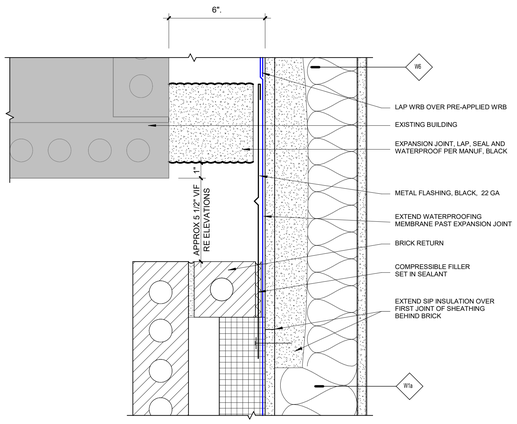
PLAN DETAIL - SHOPS BLDG - EXP JOINT - SE CORNER

7 — 3" = 1'-0" RE: 1/ A-103B



SECTION DETAIL - LAB BLDG - EXP JNT - AT MONITORING WELL CAP

4 — 3" = 1'-0" RE: 1/ A-102



PLAN DETAIL - LAB BLDG - EXP JNT - ABV GRADE - EAS PATIO

1 — 3" = 1'-0" RE: 1/ A-102

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REVISIONS:

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100% CD / PACKAGE 3

SHEET TITLE:
EXTERIOR DETAILS - EXPANSION JOINT

SCALE: 3" = 1'-0"
SHEET NUMBER
A-505

10/26/2022 8:57:55 PM
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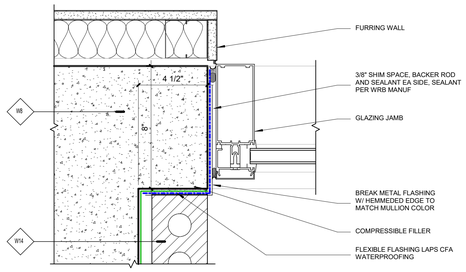
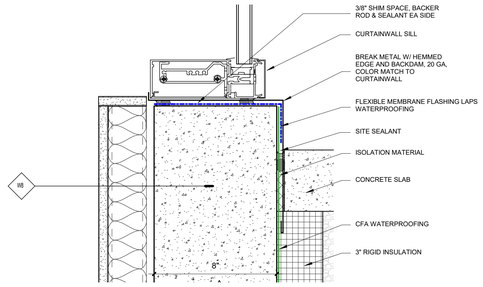


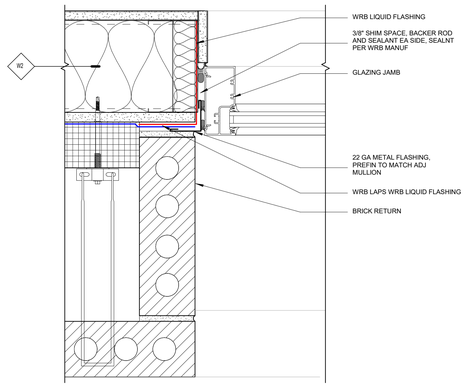
PLAN DETAIL - LAB BUILDING - CURTAINWALL JAMB AT EAS PATIO

12 — 3" = 1'-0" RE: 2/ A-101



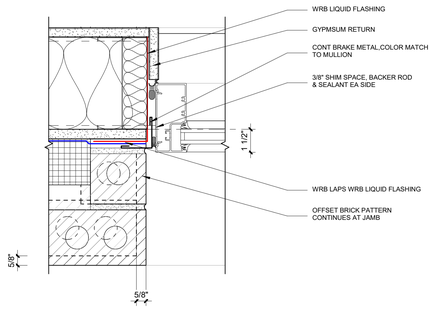
SECTION DETAIL - LAB BLDG - CURTAINWALL SILL AT EAS PATIO

8 — 3" = 1'-0" RE: 4/ A-201



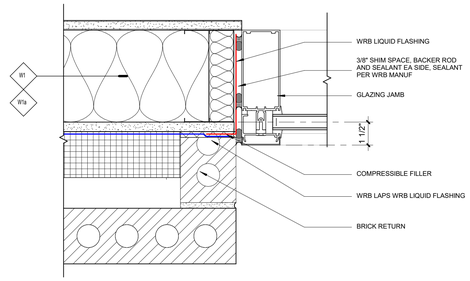
PLAN DTL - TYP GLAZING JAMB AT DEEP BRICK S ELEVATION

4 — 3" = 1'-0" RE: 1/ A-508



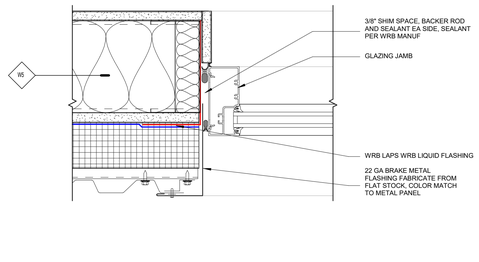
PLAN DTL - TYP GLAZING JAMB AT OFFSET BRICK

15 — 3" = 1'-0" RE: 1/ A-101



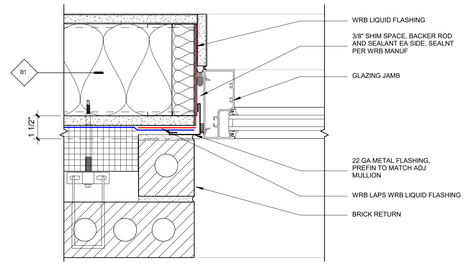
PLAN DETAIL - LAB BLDG - CURTAINWALL JAMB AT WEST WALL - BRICK

11 — 3" = 1'-0" RE: 2/ A-451



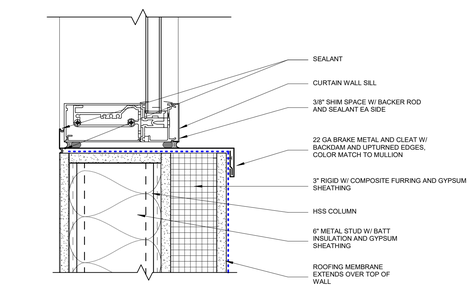
PLAN DETAIL - TYP GLAZING JAMB AT METAL PANEL

7 — 3" = 1'-0" RE: 1/ A-103B



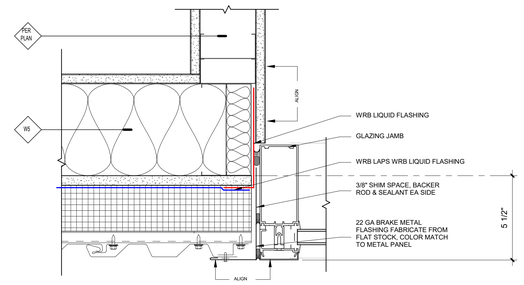
PLAN DTL - TYP GLAZING JAMB AT BRICK

3 — 3" = 1'-0" RE: 1/ A-508



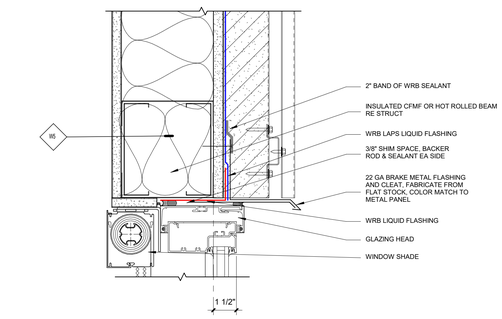
SECTION DETAIL - LAB BLDG - CURTAINWALL AT LOWER ROOF PARAPET

14 — 3" = 1'-0" RE: 3/ A-104



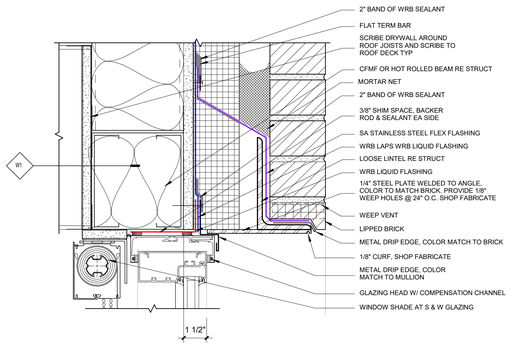
PLAN DETAIL - LAB BLDG - CURTAINWALL JAMB AT WEST WALL - METAL PANEL

10 — 3" = 1'-0" RE: CW1/ A-621



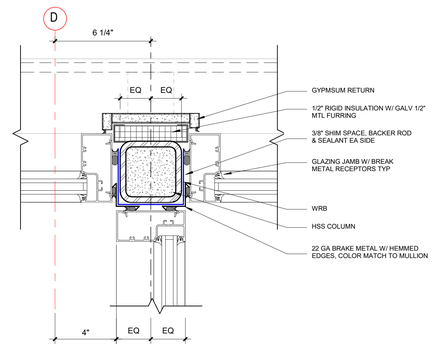
SECTION DETAIL - TYP GLAZING HEAD AT METAL PANEL

6 — 3" = 1'-0" RE: 4/ A-410



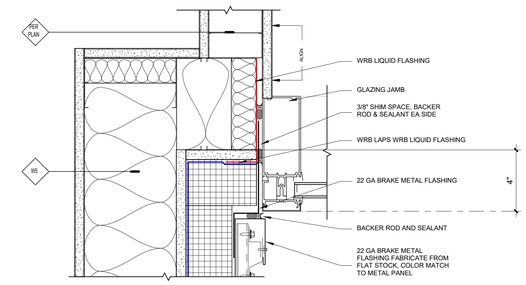
SECTION DTL - TYP GLAZING HEAD AT BRICK - SHOPS BLDG

2 — 3" = 1'-0" RE: 2/ A-412



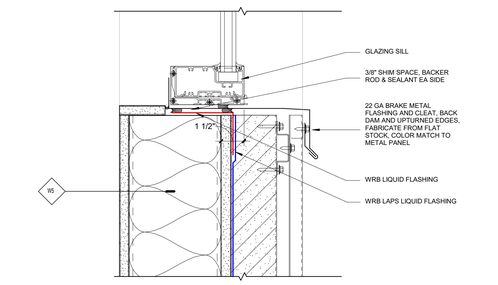
PLAN DETAIL - VESTIBULE THREE WAY JAMB

13 — 3" = 1'-0" RE: 3/ A-101



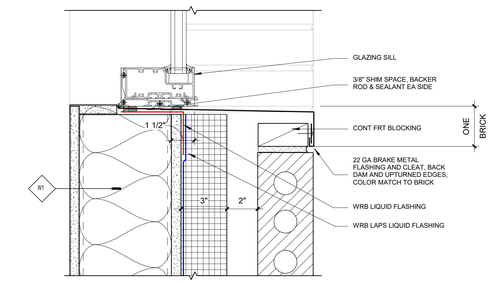
PLAN DETAIL - LAB BLDG - CURTAINWALL JAMB AT EAST WALL - METAL PANEL

9 — 3" = 1'-0" RE: 2/ A-06



SECTION DETAIL - TYP GLAZING SILL AT METAL PANEL

5 — 3" = 1'-0" RE: 4/ A-410



SECTION DTL - TYP GLAZING SILL AT BRICK - SHOPS BLDG

1 — 3" = 1'-0" RE: 2/ A-412

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SHEET TITLE:
EXTERIOR DETAILS - GLAZING

SCALE: 3" = 1'-0"
SHEET NUMBER
A-506

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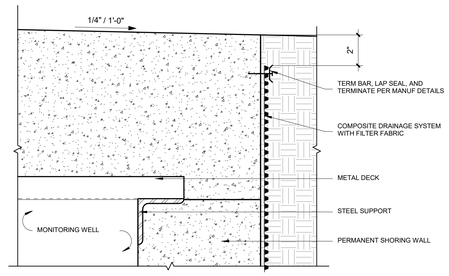
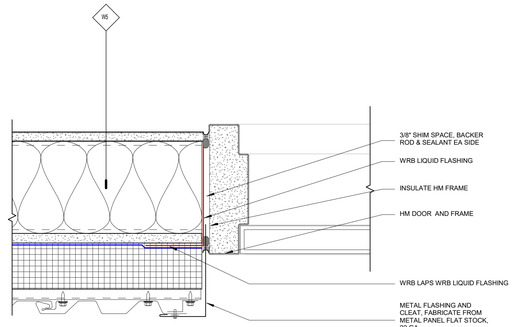


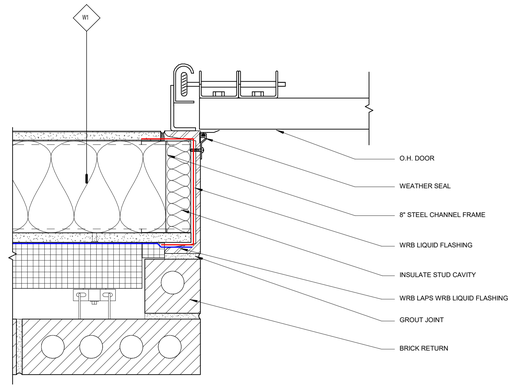
SECTION DETAIL - CAP AT MONITORING WELL - EXT GRADE

9 — 3" = 1'-0" RE: 4/ A-410



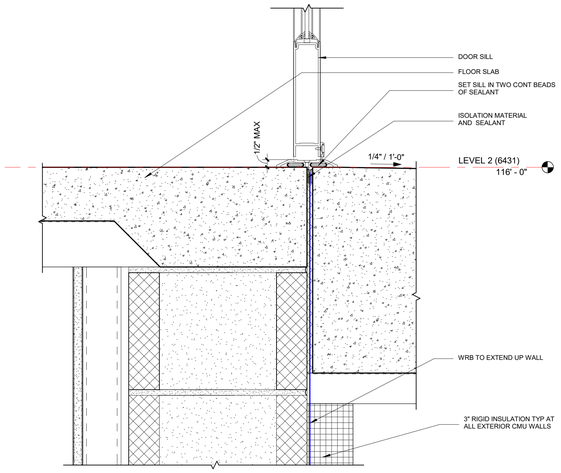
PLAN DETAIL - TYP HM DOOR JAMB AT METAL PANEL

6 — 3" = 1'-0"



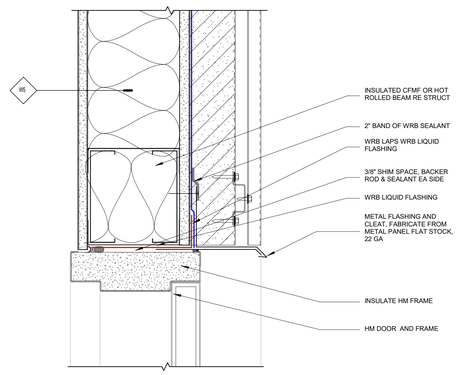
PLAN DETAIL - TYP SECTIONAL DOOR JAMB

3 — 3" = 1'-0" RE: 1/ A-103B



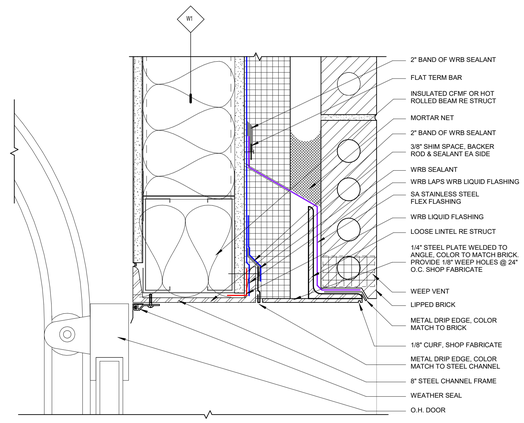
SECTION DETAIL - LAB BLDG - DOOR AT MONITORNG WELL

8 — 3" = 1'-0" RE: 3/ A-411



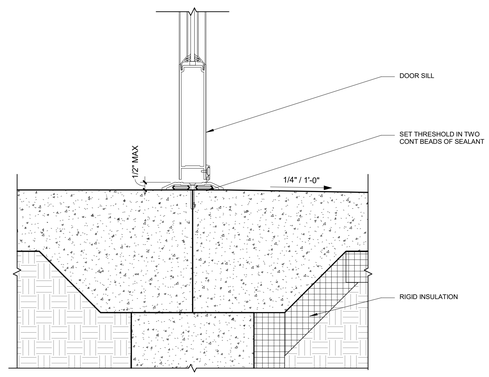
SECTION DETAIL - TYP HM DOOR HEAD AT METAL PANEL

5 — 3" = 1'-0" RE: 9/ A-412



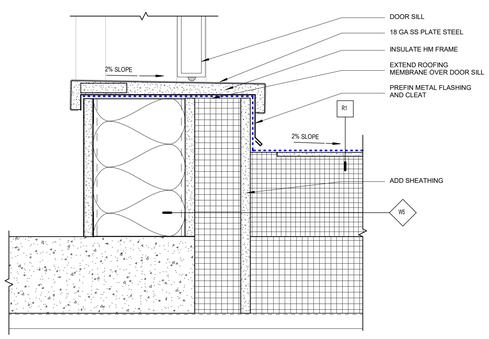
SECTION DETAIL - TYP SECTIONAL DOOR HEAD

2 — 3" = 1'-0" RE: 3/ A-412



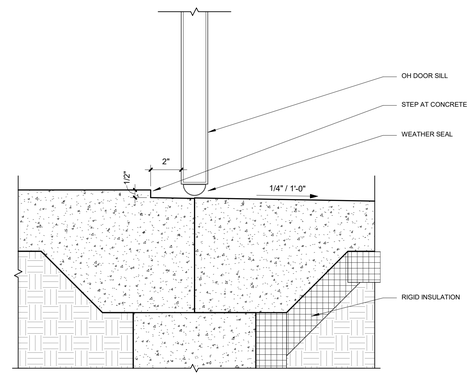
SECTION DETAIL - TYP SWING DOOR SILL AT GRADE / HARDSCAPE

7 — 3" = 1'-0" RE: 1/ A-201



SECTION DETAIL - TYP HM DOOR SILL AT ROOF

4 — 3" = 1'-0" RE: 9/ A-412



SECTION DETAIL - TYP O.H. DOOR AT GRADE / HARDSCAPE

1 — 3" = 1'-0" RE: 1/ A-002B

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SHEET TITLE:
EXTERIOR DETAILS - DOOR

SCALE: 3" = 1'-0"
SHEET NUMBER
A-507

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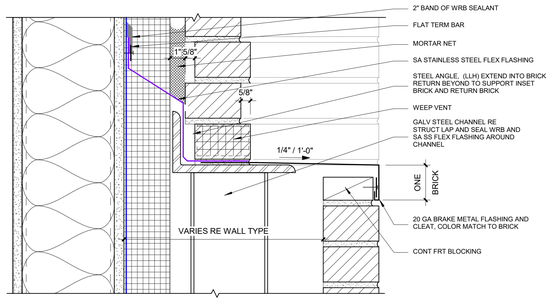
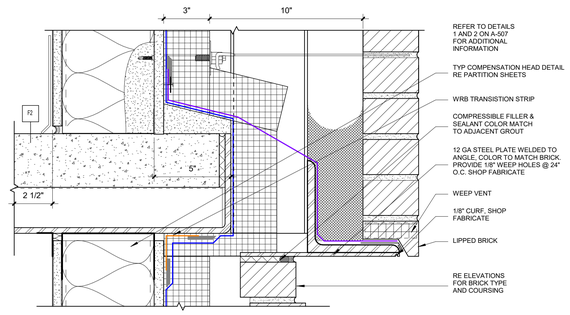


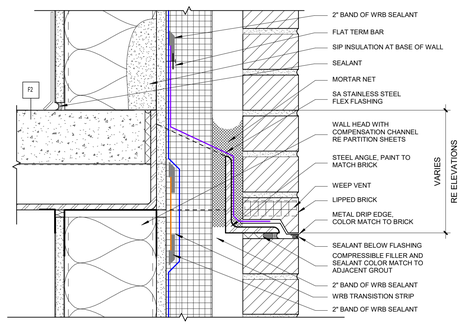
SECTION DTL - TYP OFFSET BRICK TO FIELD BRICK - LAB & SHOP BLDG

9 — 3" = 1'-0" RE: 1/ A-508



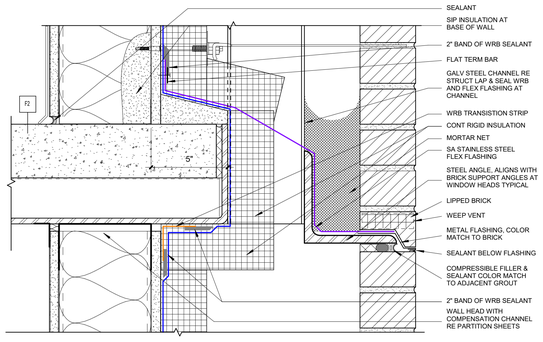
SECTION DTL - INSET BRICK AT SOUTH ELEVATION

6 — 3" = 1'-0" RE: 1/ A-508



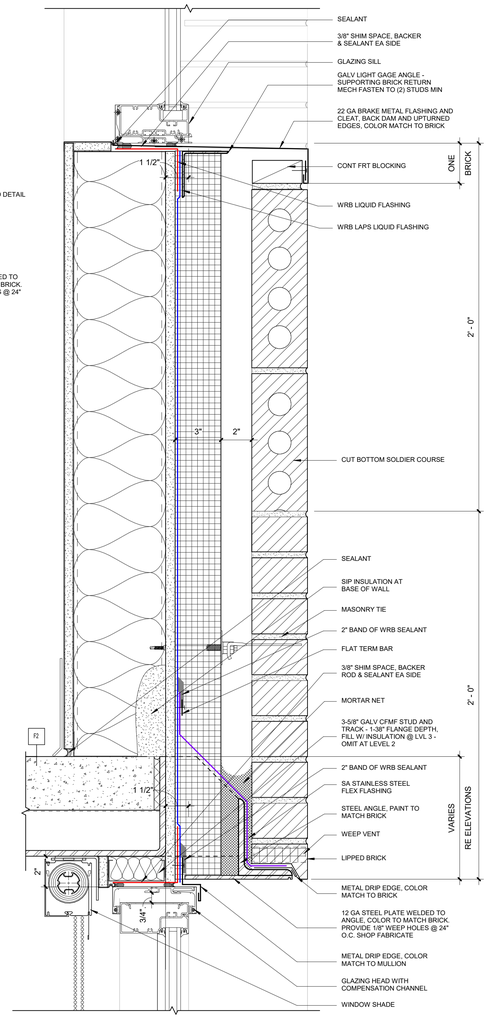
SECTION DTL - TYP RELIEF ANGLE - LAB BLDG - N & E ELEVATION

8 — 3" = 1'-0" RE: 2/ A-101



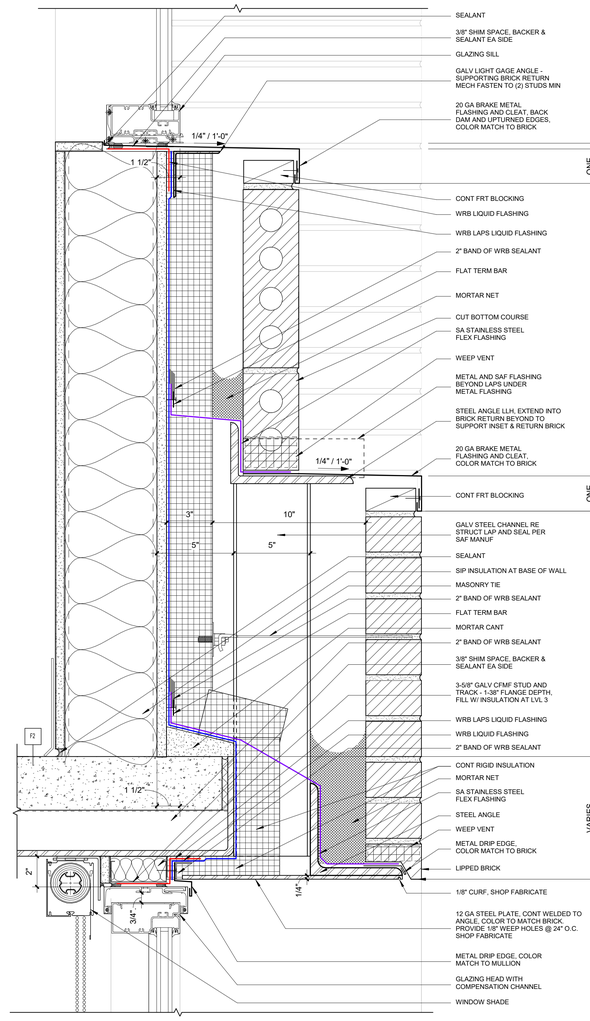
SECTION DTL - TYP RELIEF ANGLE - LAB BLDG - S ELEVATION

5 — 3" = 1'-0" RE: 1/ A-508



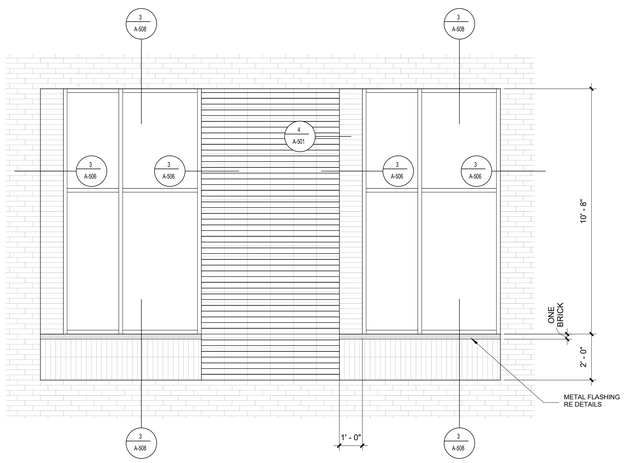
SECTION DTL - TYP GLAZING HEAD & SILL AT BRICK - LAB BLDG - N & E ELEVATION

3 — 3" = 1'-0" RE: 4/ A-410



SECTION DTL - TYP GLAZING HEAD & SILL AT BRICK - LAB BLDG - S ELEVATION

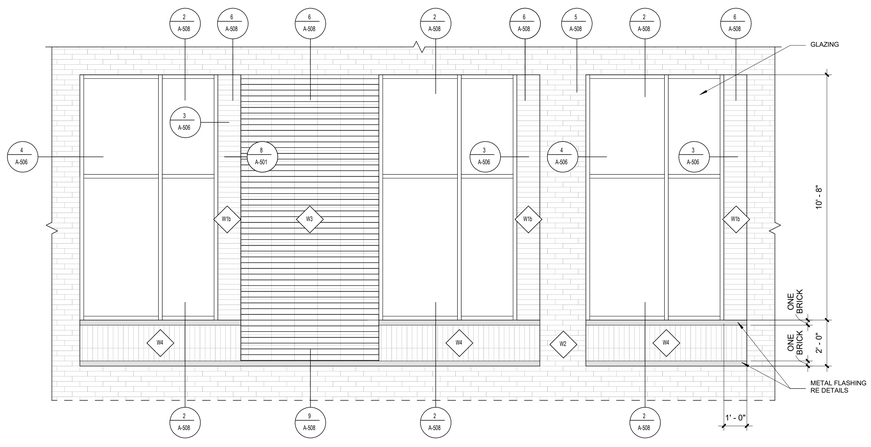
2 — 3" = 1'-0" RE: 2/ A-410



7 ELEVATION - TYP GLAZING & BRICK

3/8" = 1'-0" NOTE : BRICK AND GLAZING ARE MIRRORED IN VARIOUS LOCATIONS. RE OVERALL BUILDING ELEVATIONS FOR ACTUAL BRICK AND WINDOW LOCATIONS

4 AXO - TYP GLAZING AT BRICK - SOUTH ELEVATION



1 ELEVATION - TYP GLAZING & BRICK - SOUTH ELEVATION

3/8" = 1'-0" NOTE : BRICK AND GLAZING ARE MIRRORED IN VARIOUS LOCATIONS. RE OVERALL BUILDING ELEVATIONS FOR ACTUAL BRICK AND WINDOW LOCATIONS

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APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
EXTERIOR DETAILS - BRICK

SCALE: As indicated
SHEET NUMBER

A-508

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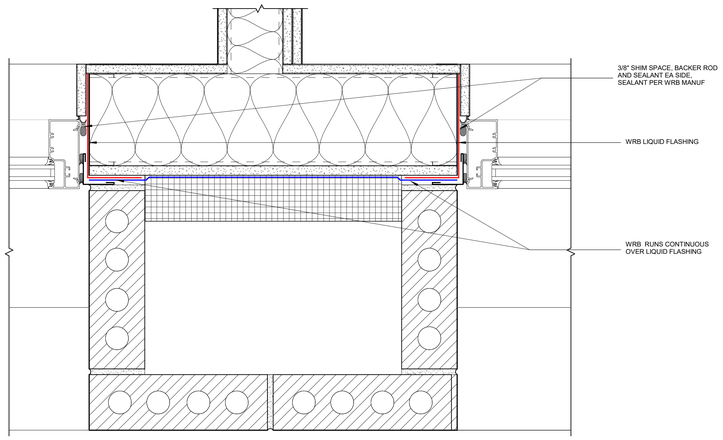
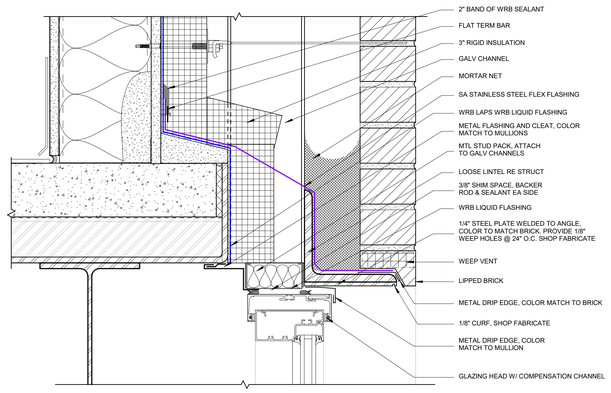


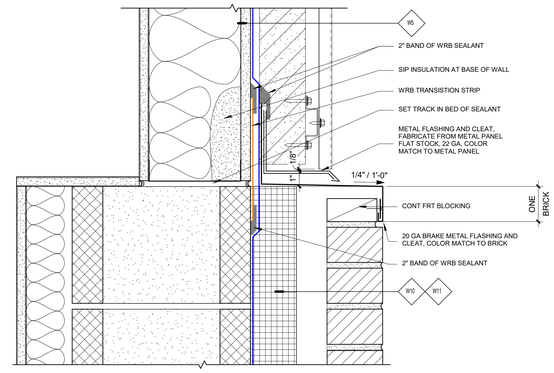
PLAN DETAIL - LAB - BRICK PILASTER @ LVL 1 SOUTH WALL

9 — 3" = 1'-0" RE: 1/ A-101



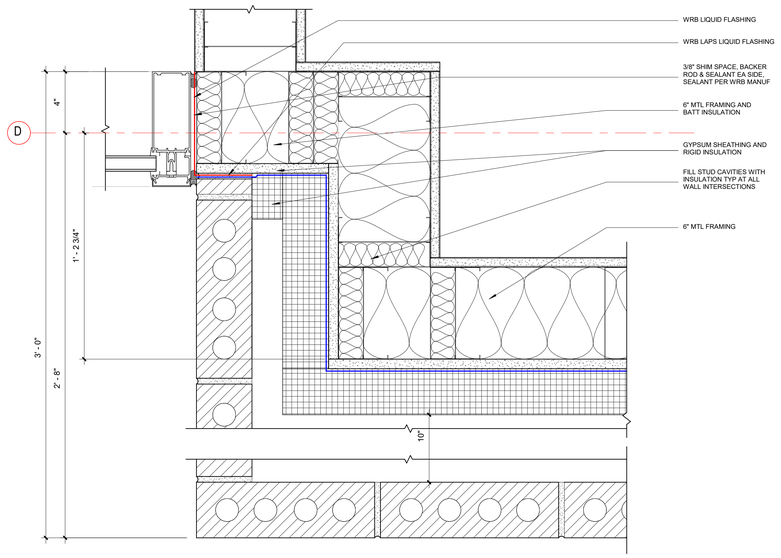
PLAN DETAIL - STOREFRONT HEAD ADJ BOARD FORM WALL

6 — 3" = 1'-0"



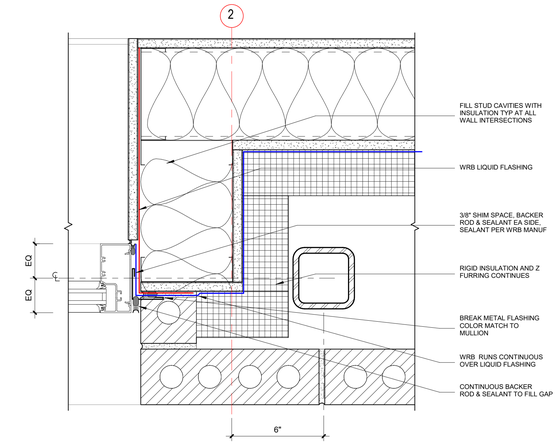
SECTION DETAIL - TYP BRICK TO METAL PANEL

3 — 3" = 1'-0" RE: 1/ A-201



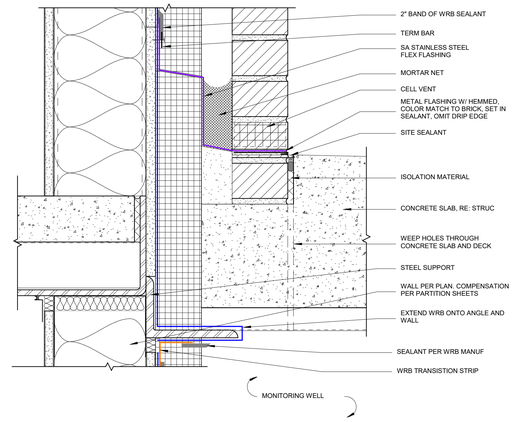
PLAN DETAIL - LAB BLDG - BRICK PILASTER LVL 2-3

8 — 3" = 1'-0"



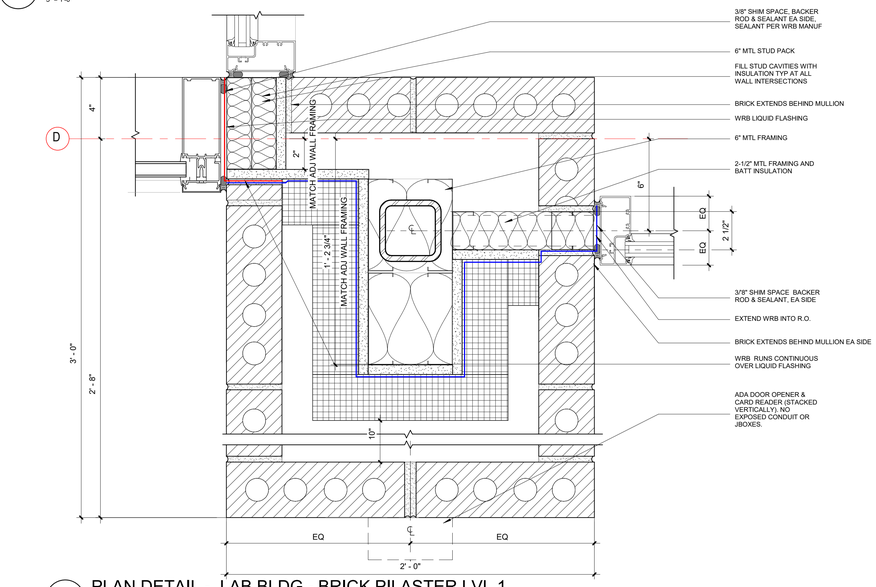
PLAN DETAIL - STOREFRONT JAMB ADJ BOARD FORM WALL

5 — 3" = 1'-0" RE: 3/ A-101



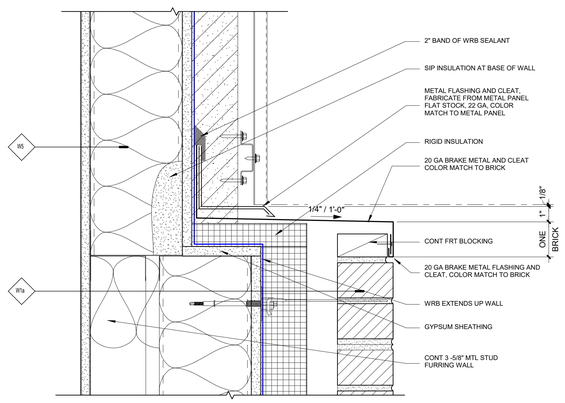
SECTION DETAIL - BRICK AT MONITORING WELL - SHAFTWALL

2 — 3" = 1'-0" RE: 1/ A-201



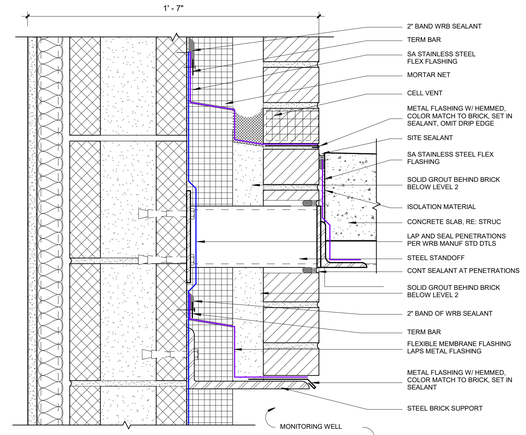
PLAN DETAIL - LAB BLDG - BRICK PILASTER LVL 1

7 — 3" = 1'-0"



SECTION DETAIL - LAB BLDG - BRICK TO METAL PANEL @ WEST WALL

4 — 3" = 1'-0" RE: 2/ A-411



SECTION DETAIL - BRICK AT MONITORING WELL - CMU WALL

1 — 3" = 1'-0" RE: 1/ A-201

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PROJ. NO. 121091.00
DRAWN: WTM
CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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100% CD / PACKAGE 3

SHEET TITLE:
EXTERIOR DETAILS - BRICK

SCALE: 3" = 1'-0"
SHEET NUMBER
A-509

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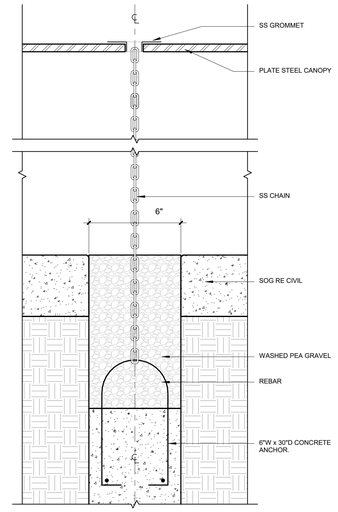
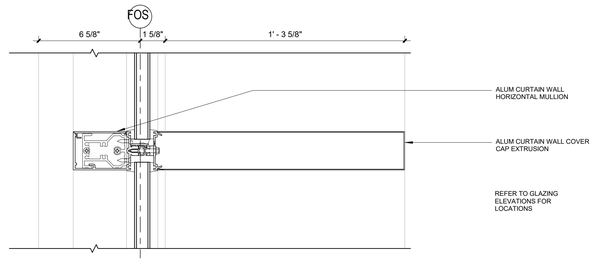
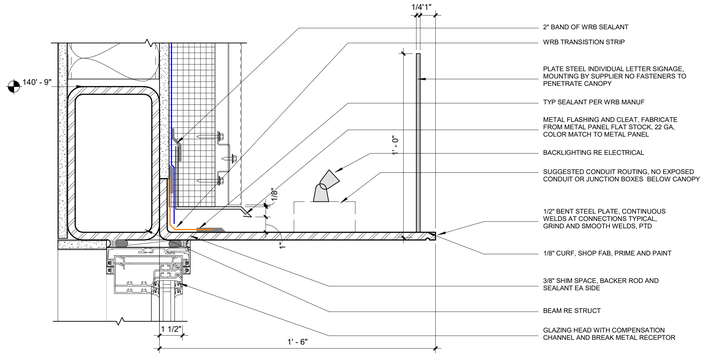


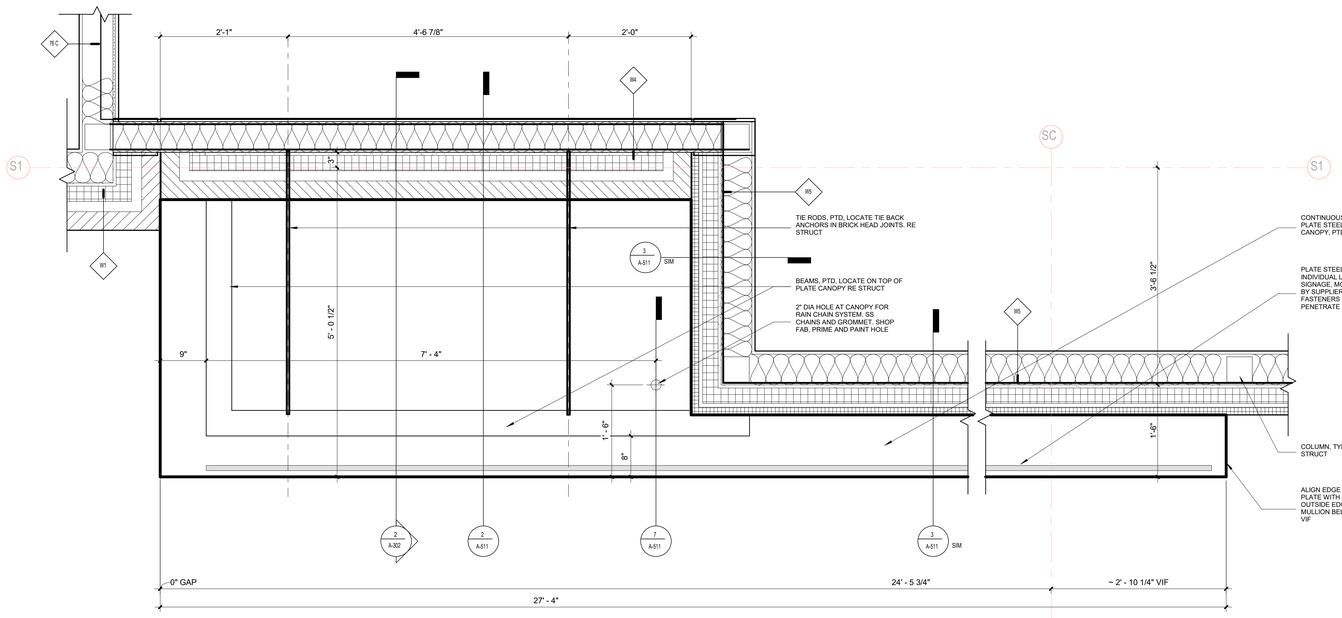
7 SECTION DETAIL - RAIN CHAIN
3" = 1'-0"



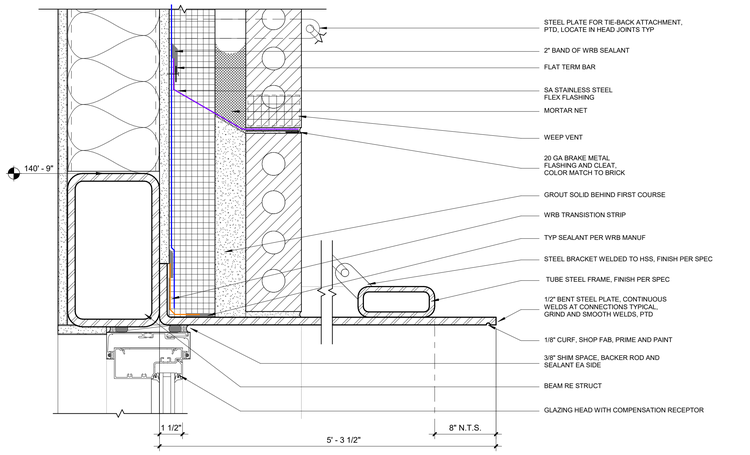
4 CURTAIN WALL MID MULLION AT EXTENSION CAP
3" = 1'-0"



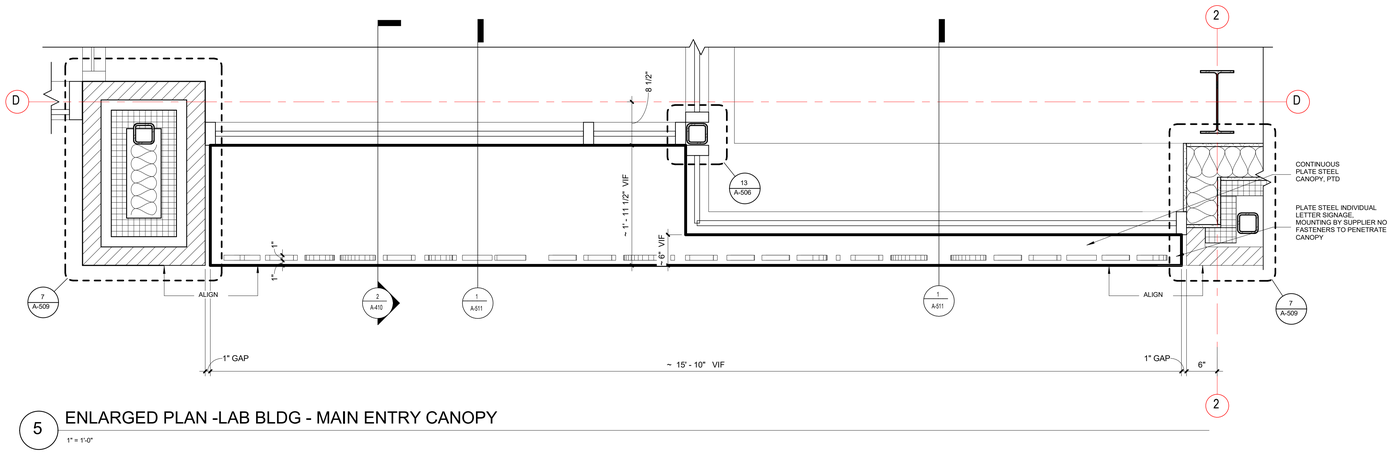
3 SECTION DTL - SHOPS BLDG - CANOPY AT METAL PANEL
3" = 1'-0"



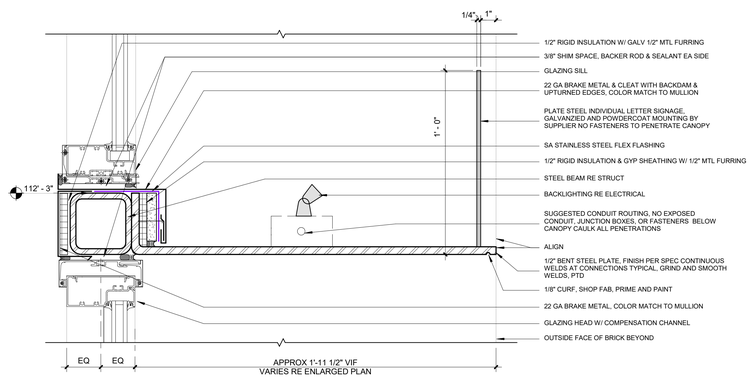
6 SECTION DETAIL - SHOPS BLDG - CANOPY
1" = 1'-0"



2 SECTION DETAIL - SHOPS BLDG - CANOPY AT BRICK
3" = 1'-0"



5 ENLARGED PLAN -LAB BLDG - MAIN ENTRY CANOPY
1" = 1'-0"



1 SECTION DETAIL - LAB BLDG - MAIN ENTRY CANOPY
3" = 1'-0"

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SHEET TITLE:
EXTERIOR DETAILS - ENTRIES

SCALE: As indicated
SHEET NUMBER
A-511

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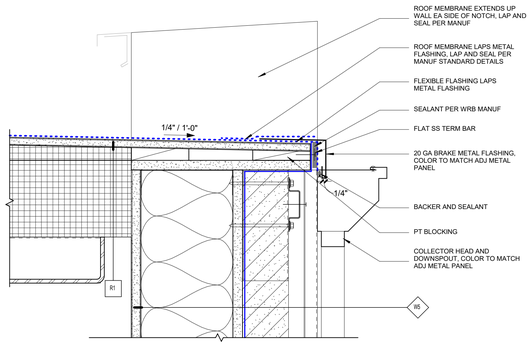
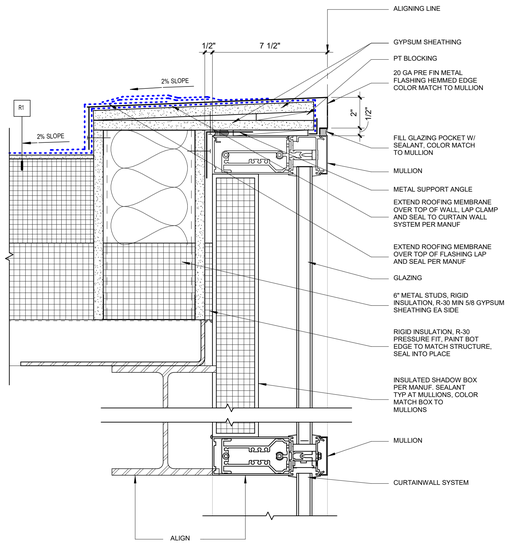


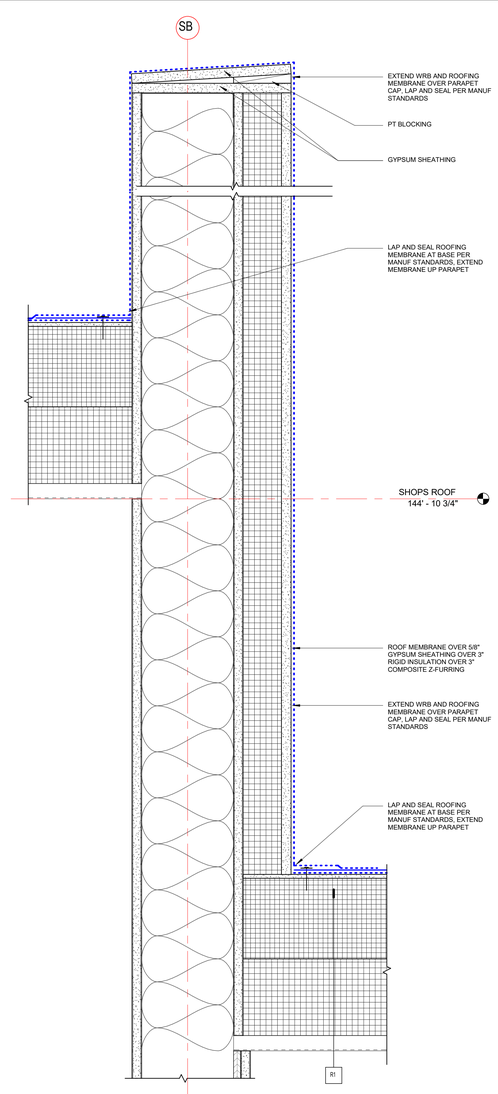
SECTION DETAIL - TYP NOTCH AT ROOF LEVEL

10 — 3" = 1'-0" RE: 1/ A-07



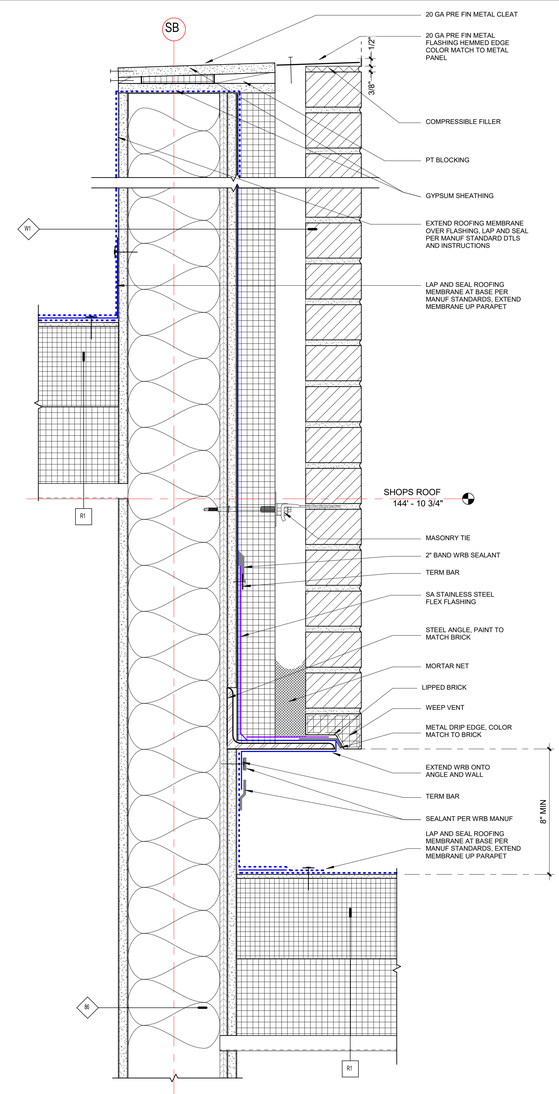
SECTION DETAIL - TYP PARAPET AT GLAZING SYSTEM

7 — 3" = 1'-0" RE: 1/ A-410



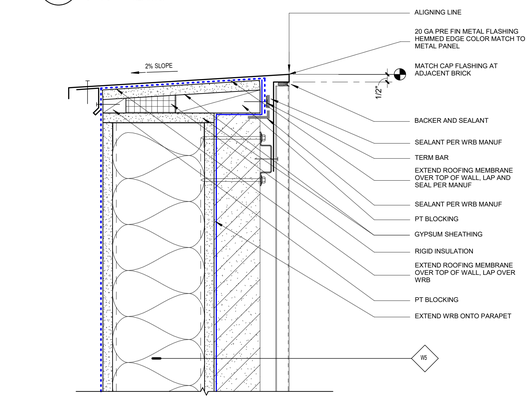
SECTION DETAIL - SHOP BLDG - ROOF TRANSITION AT STUD WALL

4 — 3" = 1'-0" RE: 2/ A-103B



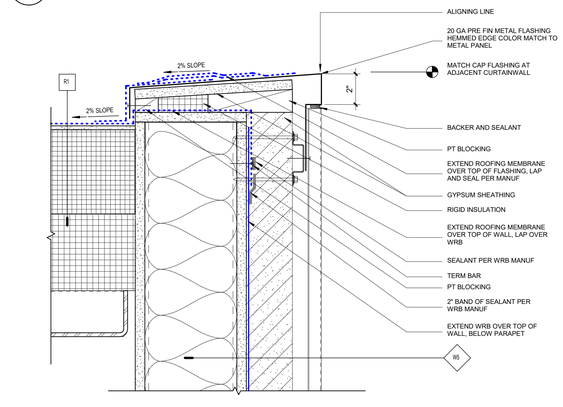
SECTION DETAIL - SHOP BLDG - ROOF TRANSITION AT BRICK PARAPET

2 — 3" = 1'-0" RE: 1/ A-01



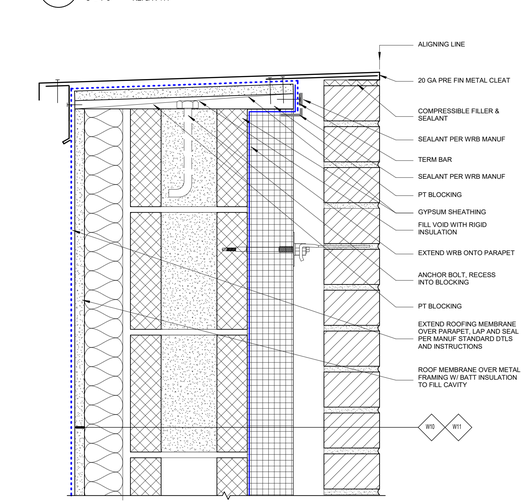
SECTION DETAIL - SHOPS BLDG - TYP PARAPET AT METAL PANEL

9 — 3" = 1'-0" RE: 3/ A-411



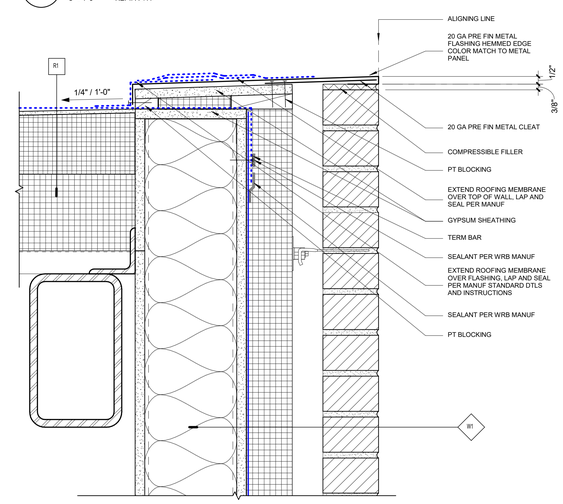
SECTION DETAIL - LAB BLDG - TYP PARAPET AT METAL PANEL

6 — 3" = 1'-0" RE: 1/ A-411



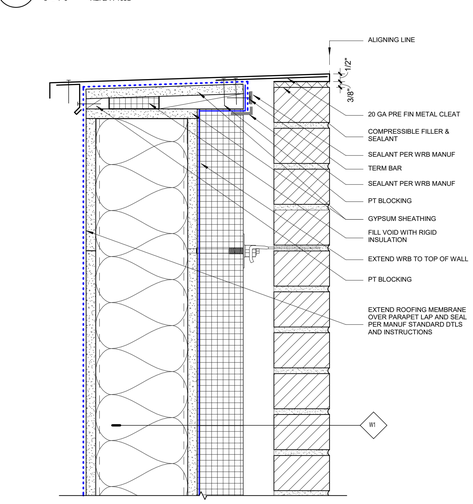
SECTION DETAIL - TYP PARAPET AT BRICK - CMU

8 — 3" = 1'-0" RE: 1/ A-104



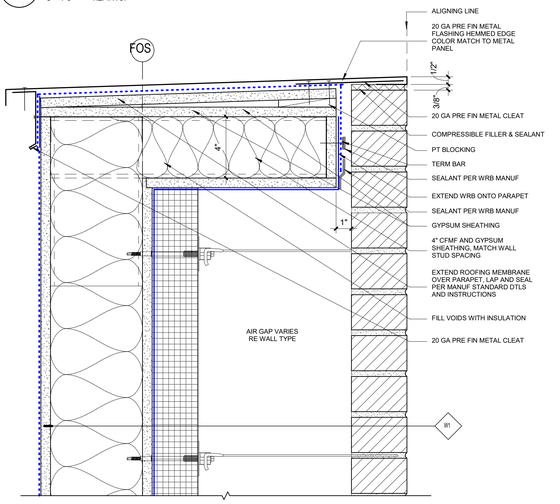
SECTION DETAIL - LAB BLDG - BRICK PARAPET AT MECH SHAFT ROOF

5 — 3" = 1'-0" RE: 1/ A-411



SECTION DETAIL - TYP PARAPET AT BRICK

3 — 3" = 1'-0" RE: 1/ A-104



SECTION DETAIL - LAB BLDG - TYP PARAPET AT BRICK - SOUTH ELEVATION

1 — 3" = 1'-0" RE: 2/ A-410

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SHEET TITLE:
EXTERIOR DETAILS - ROOF

SCALE: 3" = 1'-0"
SHEET NUMBER
A-512

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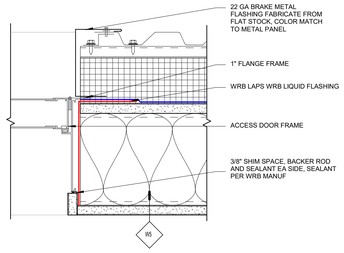
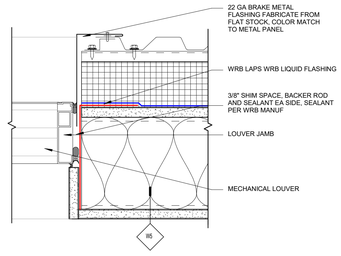


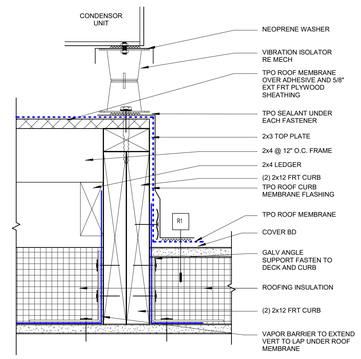
PLAN DETAIL - LAB BLDG - ACCESS DOOR JAMB AT METAL PANEL

15 — 3" = 1'-0" RE: 1/ A-104



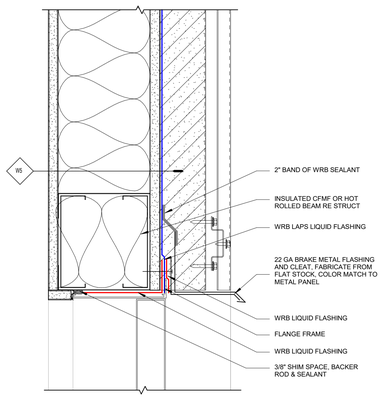
PLAN DETAIL - TYP. LOUVER JAMB AT METAL PANEL

12 — 3" = 1'-0" RE: 1/ A-104



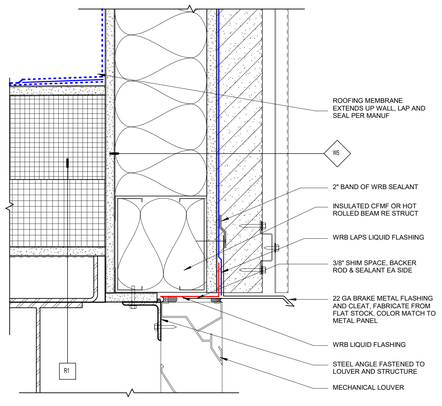
TYP. ROOF CURB DETAIL

9 — 3" = 1'-0"



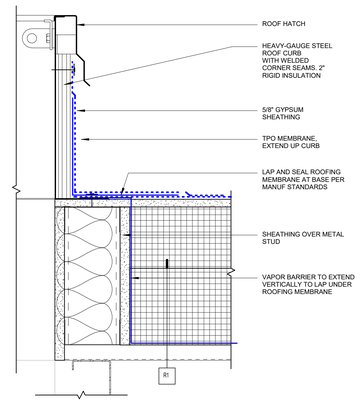
SECTION DETAIL - LAB BLDG - ACCESS DOOR HEAD AT METAL PANEL

14 — 3" = 1'-0" RE: 1/ A-411



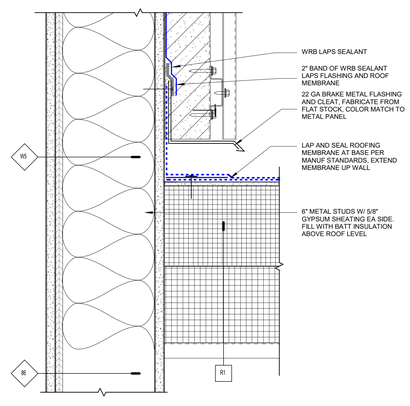
SECTION DETAIL - TYP LOUVER HEAD AT METAL PANEL

11 — 3" = 1'-0" RE: 4/ A-411



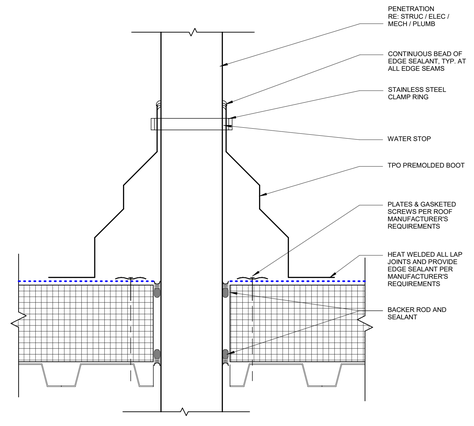
SECTION DETAIL - ROOF HATCH

8 — 3" = 1'-0" RE: 2/ A-07



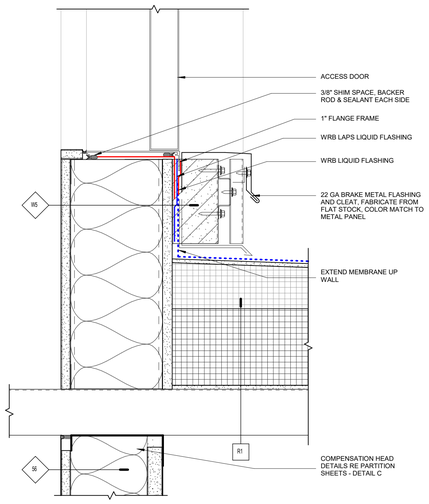
SECTION DETAIL - SHOP BLDG - TYP METAL PANEL AT ROOF

5 — 3" = 1'-0" RE: 8/ A-412



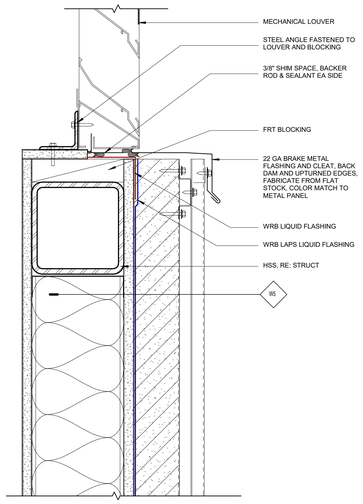
SECTION DETAIL - TYP ROOF PENETRATION AT MEMBRANE ROOF

2 — 3" = 1'-0"



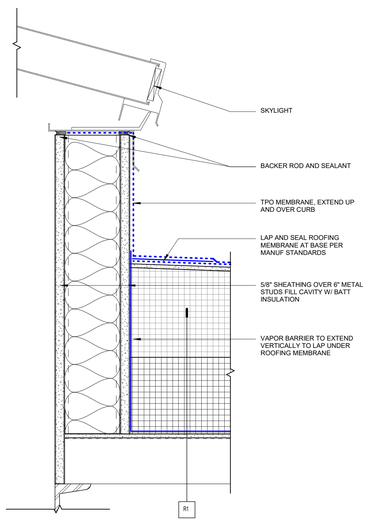
SECTION DETAIL - LAB BLDG - ACCESS DOOR SILL AT METAL PANEL

13 — 3" = 1'-0" RE: 1/ A-411



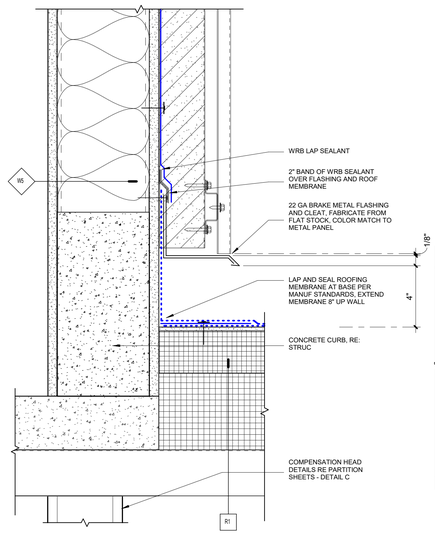
SECTION DETAIL - TYP LOUVER SILL AT METAL PANEL

10 — 3" = 1'-0" RE: 4/ A-411



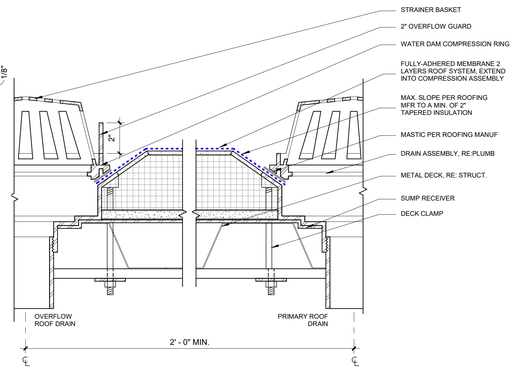
SECTION DETAIL - SKYLIGHT

7 — 3" = 1'-0" RE: 1/ A-104



SECTION DETAIL - LAB BLDG - METAL PANEL AT ROOF

4 — 3" = 1'-0" RE: 4/ A-411



SECTION DETAIL - TYPICAL ROOF DRAIN / OVERFLOW DRAIN

1 — 3" = 1'-0" RE: 2/ A-104

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DRAWN: Author
CHECKED: Checker
APPROVED: Approver
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
EXTERIOR DETAILS - ROOF

SCALE: 3" = 1'-0"
SHEET NUMBER
A-513

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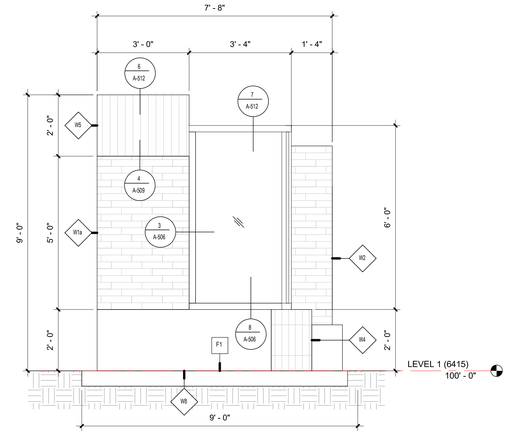
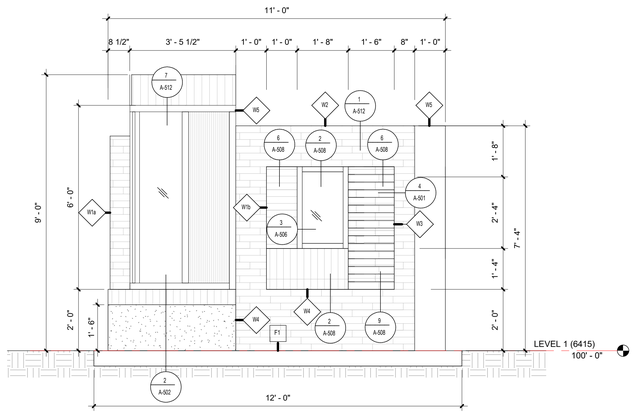


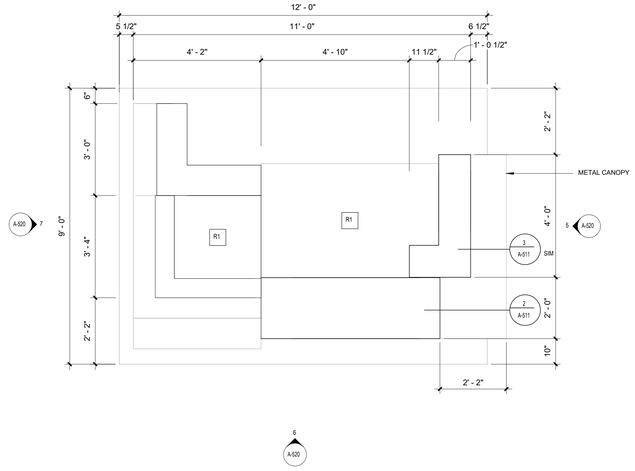
7 MOCK UP - WEST ELEVATION

1/2" = 1'-0"



6 MOCK UP - SOUTH ELEVATION

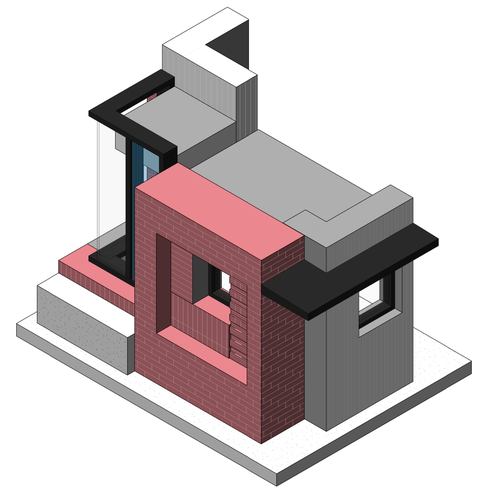
1/2" = 1'-0"



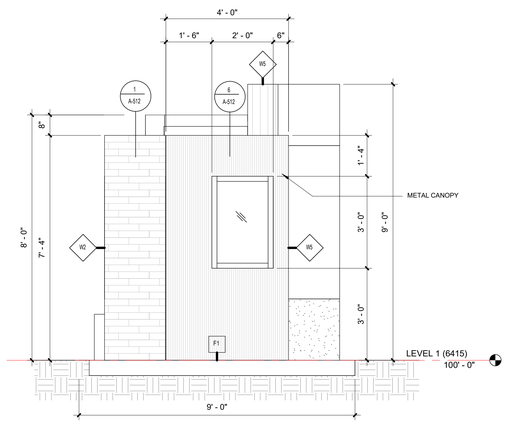
4 MOCK UP - ROOF PLAN

1/2" = 1'-0"

PROJECT NORTH

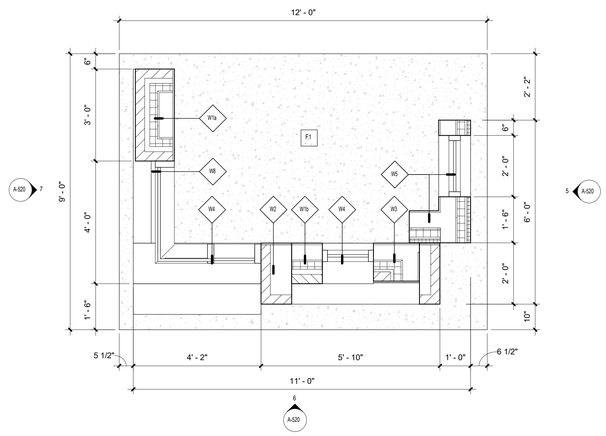


2 MOCK UP SE AXON



5 MOCK UP - EAST ELEVATION

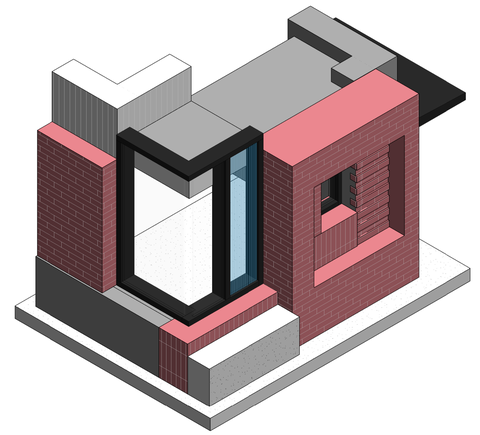
1/2" = 1'-0"



3 MOCK UP LEVEL 1 PLAN

1/2" = 1'-0"

PROJECT NORTH



1 MOCK UP SW AXON

ELEVATION MATERIAL LEGEND

BRICK TYPE 1A: NORMAN RED-BROWN BRICK, INSTALLED 1/3 RUNNING BOND

BRICK TYPE 1B: NORMAN RED-BROWN BRICK, INSTALLED IN HORIZONTAL STACK BOND WITH EVERY OTHER COURSE 5/8" PROUD

BRICK TYPE 2A: NORMAN IRONSPOT BRICK, INSTALLED IN VERTICAL STACK BOND, USE FULL BRICKS, ADJUST VERTICAL MORTAR JOINTS +/- 1/16"

BRICK TYPE 2B: NORMAN IRONSPOT BRICK, INSTALLED IN HORIZONTAL STACK BOND

METAL PANEL TYPE 1: CONCEALED FASTENER METAL PANEL RAINSCREEN SYSTEM

METAL PANEL TYPE 2: CONCEALED FASTENER METAL PANEL RAINSCREEN SYSTEM

NOTE: MATERIALS AND PATTERNS RETURN TO BUILDING AT CORNERS, TYP

PROVIDE A MINIMUM OF TWO MOCKUPS, APPROXIMATELY 24"x24" SHOWING SELECTED BRICK COLOR BLEND, AND TWO MORTER COLORS AS SELECTED BY ARCHITECT PRIOR TO FABRICATION.

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ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
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CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
EXTERIOR MOCK UP

SCALE: As indicated
SHEET NUMBER
A-520

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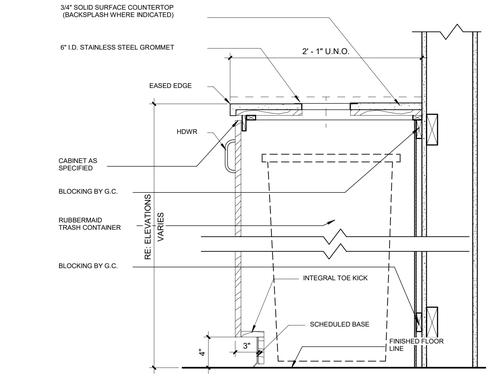
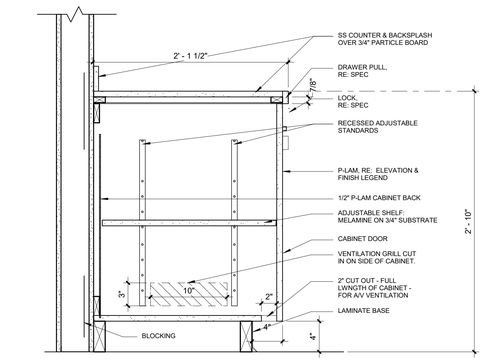


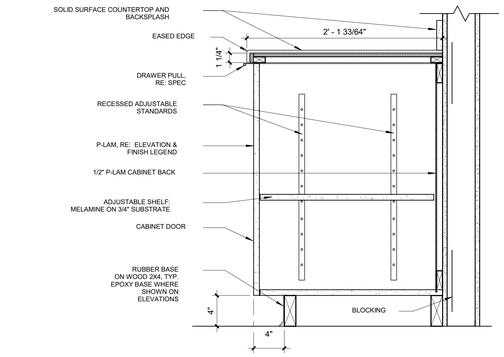
4 INTERIOR - CASEWORK - BASE CABINET @ RECYCLING

1 1/2" = 1'-0"



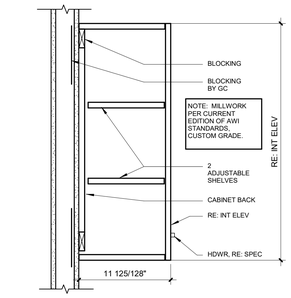
7 INTERIOR CASEWORK DETAIL @ AV CABINET

1 1/2" = 1'-0"



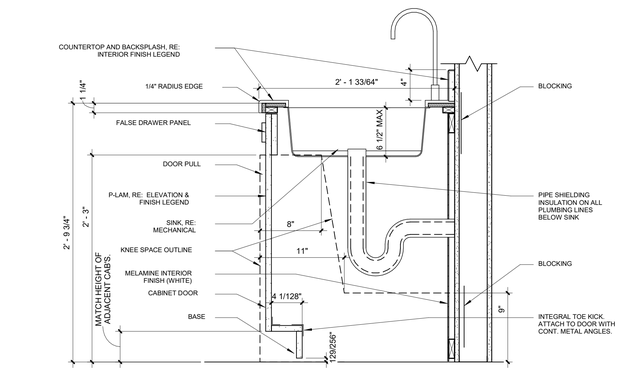
3 INTERIOR - CASEWORK - BASE CABINET

1 1/2" = 1'-0"



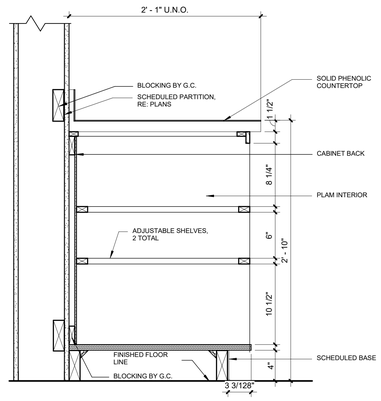
6 INTERIOR - CASEWORK - UPPER CAB1

1 1/2" = 1'-0"



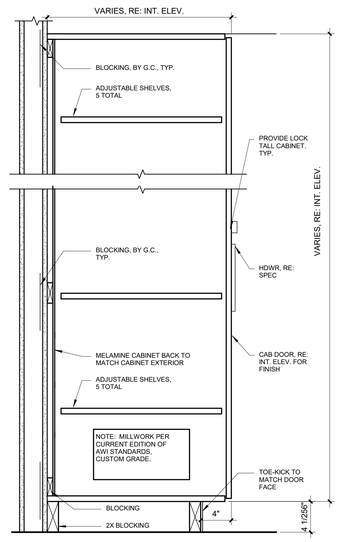
2 INTERIOR - CASEWORK - ADA SINK BASE CABINET

1 1/2" = 1'-0"



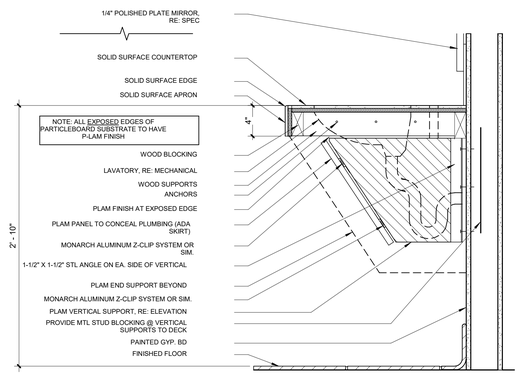
8 INTERIOR - CASEWORK - BASE CABINET W/ 2 CUBBIES

1 1/2" = 1'-0"



5 INTERIOR - CASEWORK - FULL HT. CABINET

1 1/2" = 1'-0"



1 INTERIOR - CASEWORK - LAVATORY

1 1/2" = 1'-0"

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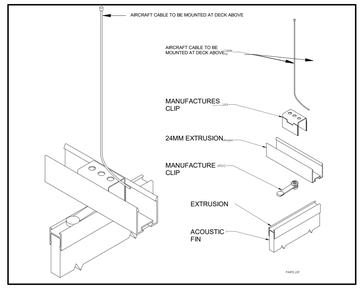
SHEET TITLE:
INTERIOR DETAILS

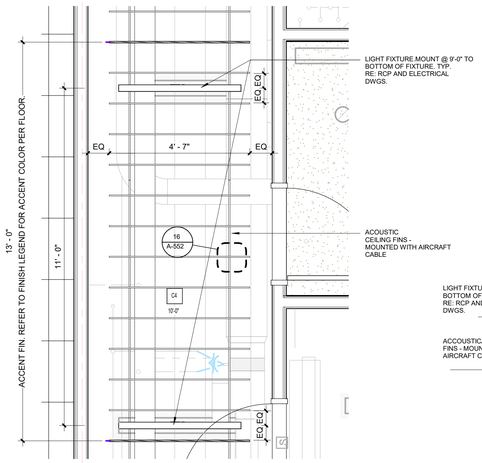
SCALE: 1 1/2" = 1'-0"
SHEET NUMBER
A-551

10/26/2022 8:58:45 PM BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt



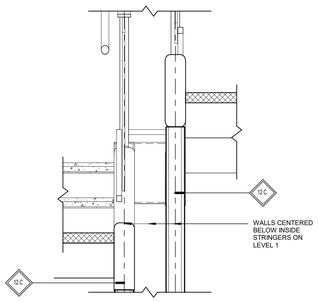
DETAIL AT ACOUSTIC FIN CONNECTION

16 — 3" = 1'-0"



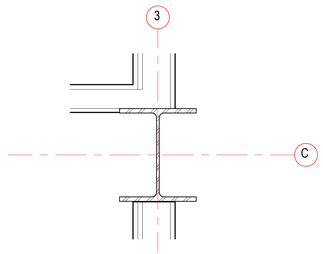
LEVEL 1 ENLARGED CEILING PLAN NORTH / SOUTH

15 — 1/2" = 1'-0"



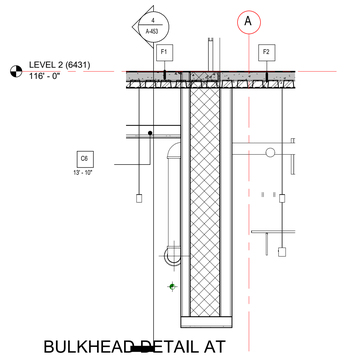
WALLS UNDER STAIR STRINGERS

14 — 1" = 1'-0"



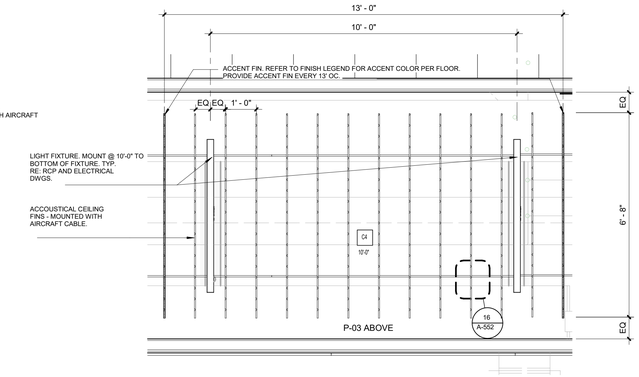
TYPICAL WALL TERMINATION @ STL COLUMN

13 — 1 1/2" = 1'-0"



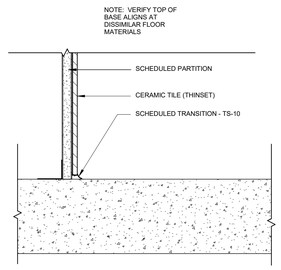
BULKHEAD DETAIL AT RATED CEILING TRANSITION

12 — 1/2" = 1'-0"



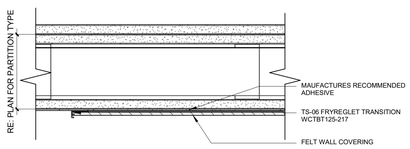
L1 ENLARGED CEILING PLAN - EAST WEST

11 — 1/2" = 1'-0"



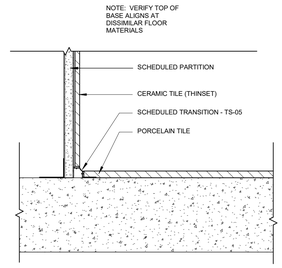
WALL TILE TO CONCRETE FLOOR

10 — 3" = 1'-0"



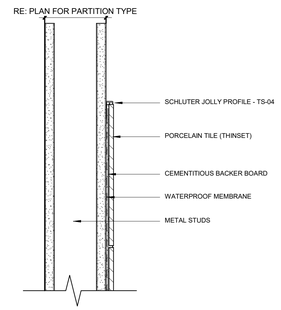
TRANSITION AT AWP-01,02,03

9 — 3" = 1'-0"



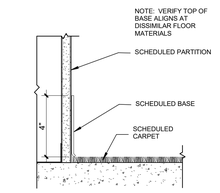
WALL TILE TO FLOOR TILE

8 — 3" = 1'-0"



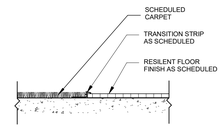
TRANSITION AT WALL TILE AND WALL TILE BASE

7 — 3" = 1'-0"



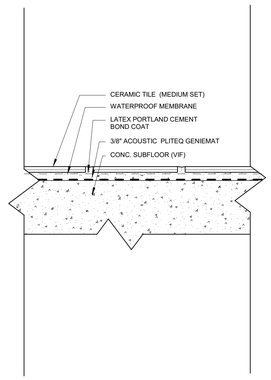
BASE AT CARPET

6 — 3" = 1'-0"



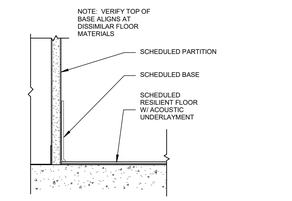
CARPET TO RESILENT FLOORING

5 — 3" = 1'-0"



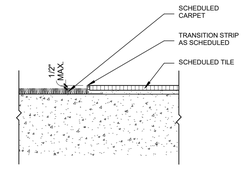
INTERIOR - BATHROOM - TILE ON CONC. SUBFLOOR

3 — 3" = 1'-0"



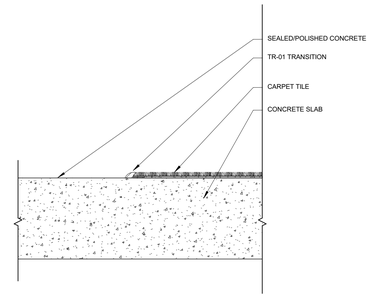
BASE AT RESILIENT FLOORING

4 — 3" = 1'-0"



CARPET TO TILE

2 — 3" = 1'-0"



CARPET/RESILIENT TO CONCRETE

1 — 3" = 1'-0"

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INTERIOR DETAILS

SCALE: As indicated
SHEET NUMBER
A-552

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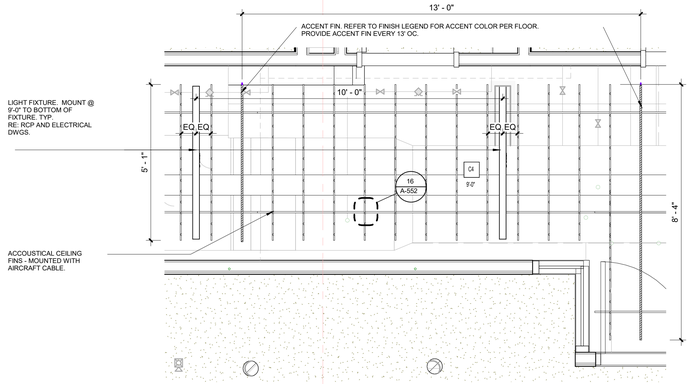
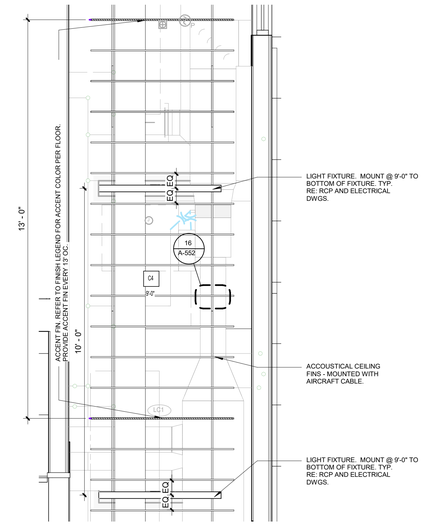


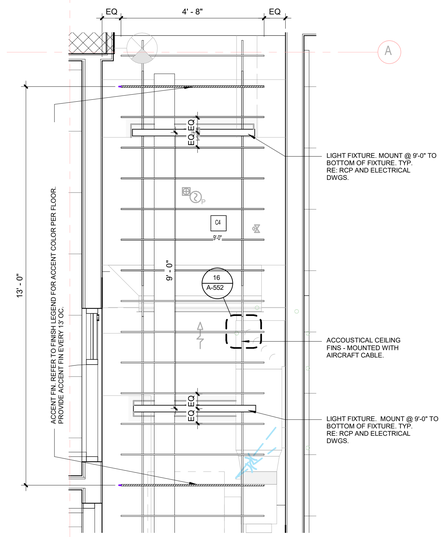
3 L3 ENLARGED CEILING PLAN -EAST / WEST

1/2" = 1'-0"



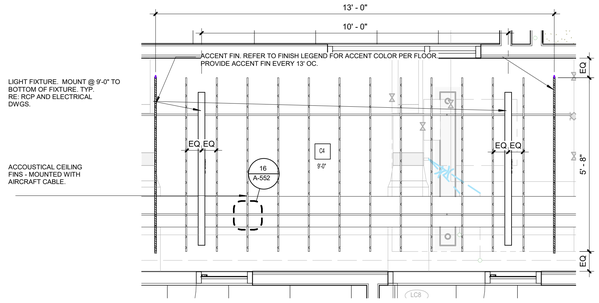
2 L2 ENLARGED CEILING PLAN -NORTH / SOUTH

1/2" = 1'-0"



4 L3 ENLARGED CEILING PLAN -NORTH / SOUTH

1/2" = 1'-0"



1 L2 ENLARGED CEILING PLAN - EAST /WEST

1/2" = 1'-0"

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REVISIONS:	

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SHEET TITLE:
INTERIOR DETAILS

SCALE: 1/2" = 1'-0"

SHEET NUMBER
A-553

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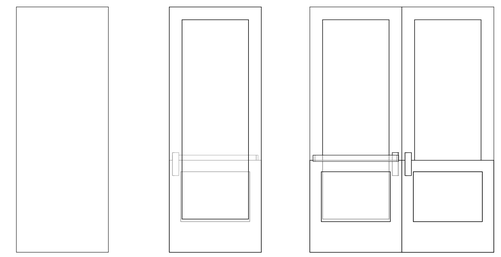
DOOR SCHEDULE - SHOP BLDG

DOOR NUMBER	DOOR						ASSEMBLY CODE RATING (MIN.)	HARDWARE SET NO.	FRAME				COMMENTS
	PANEL TYPE	LEAF QUANTITY	LEAF WIDTH	HEIGHT	MATERIAL	FINISH			FRAME TYPE	MATERIAL	FINISH	HEAD HEIGHT	
14A-1R1	F	1	3' - 0"	8' - 0"	WD			21	1	HM		2"	
14A-1R2	F	1	3' - 0"	8' - 0"	WD			21	1	HM		2"	
14A-1S1	F	1	3' - 0"	8' - 0"	HM			01	1	HM		2"	DOOR CONTACT
14A-1S2	F	1	3' - 0"	8' - 0"	WD			16	1	HM		2"	
14A-2S2	F	1	3' - 0"	6' - 8"	HM			16	1	HM		2"	
14A-2S4				1' - 0 19/32"									
14A-2S5				0"									EXCLUDE
14A-100A	FG	2	3' - 0"	8' - 0"	ALUM			AL-01	2	ALUM			ELEC. PANIC HARDWARE, CARD READER, DOOR CONTACT, ADA OPENER
14A-100B	FG	2	3' - 0 5/64"	8' - 0"	ALUM			AL-01	2	ALUM			ELEC. PANIC HARDWARE, CARD READER, DOOR CONTACT
14A-101A	FG	1	3' - 0"	8' - 0"	WD			05	1	ALUM			KEYPAD LOCK (BATTERY OPERATED)
14A-101B				10' - 0"				OH-01					OVERHEAD DOOR
14A-102	FG	1	3' - 0"	8' - 0"	WD			05	1	ALUM			
14A-103A	FG	1	3' - 0"	8' - 0"	WD			10.01	1	ALUM			KEYPAD LOCK (BATTERY OPERATED)
14A-103B				10' - 0"				OH-01					OVERHEAD DOOR
14A-104	F	2	3' - 0"	8' - 0"	WD			15.01	2	HM		2"	KEYPAD LOCK (BATTERY OPERATED)
14A-105A	WFG	2	3' - 0"	8' - 0"	WD			06	2	ALUM			KEYPAD LOCK (BATTERY OPERATED)
14A-105B				10' - 0"				OH-01					OVERHEAD DOOR

DOOR SCHEDULE - LAB BLDG

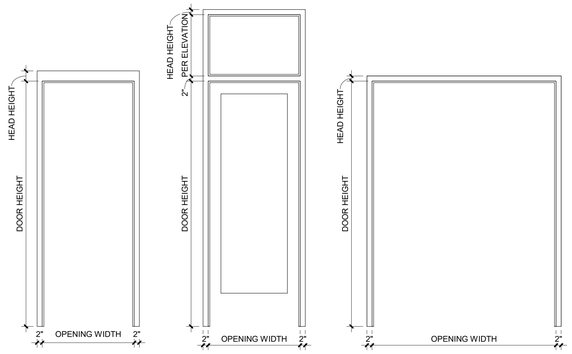
DOOR NUMBER	DOOR						ASSEMBLY CODE RATING (MIN.)	HARDWARE SET NO.	FRAME				COMMENTS
	PANEL TYPE	LEAF QUANTITY	LEAF WIDTH	HEIGHT	MATERIAL	FINISH			FRAME TYPE	MATERIAL	FINISH	HEAD HEIGHT	
1-R1	F	1	3' - 0"	8' - 0"	WD			20	1	HM		2"	
1-R2	F	1	3' - 0"	8' - 0"	WD			20	1	HM		2"	
1-S1A	F	1	3' - 0"	8' - 0"	WD			17	1	HM		2"	
1-S1B	F	1	3' - 0"	8' - 0"	WD			17	1	HM		2"	
1-S2	F	1	2' - 8"	7' - 0"	WD			18	1	WD			
1-STR2	F	1	3' - 0"	7' - 0"	HM		45 MIN		1	HM		2"	1 HR RATED DOOR
2-R1	F	1	3' - 0"	8' - 0"	WD			21	1	HM		2"	
2-R2	F	1	3' - 0"	8' - 0"	WD			21	1	HM		2"	
2-S1	F	1	3' - 0"	8' - 0"	WD			03.01	1	HM		2"	
2-S2	F	1	3' - 0"	8' - 0"	WD			19	1	HM		2"	
2-STR2A	FG	1	3' - 0"	8' - 0"	ALUM			AL-02	1	ALUM			ELEC. PANIC HARDWARE, CARD READER, DOOR CONTACT
2-STR2B	FG	1	3' - 0"	8' - 0"	ALUM		45 MIN	03	1	ALUM			1 HR RATED DOOR, 1 HR RATED GLAZING
3-R1	F	1	3' - 0"	8' - 0"	WD			21	1	HM		2"	
3-R2	F	1	3' - 0"	8' - 0"	WD			21	1	HM		2"	
3-S1	F	1	3' - 0"	8' - 0"	WD			19	1	HM		2"	
3-STR2	FG	1	3' - 0"	8' - 0"	ALUM		1 HR RATED	03	1	ALUM			1 HR RATED DOOR, 1 HR RATED GLAZING
100	F	1	2' - 6"	7' - 0"	HM			02	1	HM		2"	DOOR CONTACT
101A	F	1	3' - 0"	8' - 0"	WD			11	1	HM			DOOR CONTACT
101B	F	1	3' - 0"	8' - 0"	WD			10	1	HM			FAIL SECURE ELEC. LOCK, CARD READER, DOOR CONTACT
102	WFG	2	3' - 0"	8' - 0"	WD			14.01	2	ALUM			KEYPAD EXIT DEVICE (BATTERY OPERATED)
103A	F	1	3' - 0"	8' - 0"	WD			10.01	1	HM			KEYPAD LOCK (BATTERY OPERATED)
103B	FG	1	3' - 0"	8' - 0"	WD			10.01	1_T	HM			KEYPAD LOCK (BATTERY OPERATED)
104	WFG	2	3' - 0"	8' - 0"	WD			14.01	2	ALUM			KEYPAD EXIT DEVICE (BATTERY OPERATED)
105	FG	1	3' - 0"	8' - 0"	WD			05	1	ALUM			
200	FG	1	3' - 0"	8' - 0"	ALUM			AL-02	1	ALUM			ELEC. PANIC HARDWARE, CARD READER, DOOR CONTACT
201	FG	1	3' - 0"	8' - 0"	WD			10.01	1	ALUM			KEYPAD LOCK (BATTERY OPERATED)
202	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
203	WFG	2	3' - 0"	8' - 0"	WD			14	2	ALUM			ELEC. PANIC HARDWARE, CARD READER, DOOR CONTACT
204	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
206	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
208	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
210	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
211A	FG	2	3' - 0"	8' - 0"	WD			15	2	HM		2"	KEYPAD LOCK (BATTERY OPERATED)
211B	F	2	3' - 0"	8' - 0"	WD			09	2	HM		2"	
211C	F	2	3' - 0"	8' - 0"	HM			09	2	HM		2"	
212	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
214	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
216	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
218	FG	1	3' - 0"	8' - 0"	WD			07	1	ALUM			
220	F	1	3' - 0"	8' - 0"	WD			10.01	1	HM		2"	KEYPAD LOCK (BATTERY OPERATED)
222	FG	1	3' - 0"	8' - 0"	WD			10.01	1	HM		2"	KEYPAD LOCK (BATTERY OPERATED)
301A	FG	1	3' - 0"	8' - 0"	WD			10.01	1	ALUM			KEYPAD LOCK (BATTERY OPERATED)
301B	F	1	3' - 0"	8' - 0"	WD				1	HM		2"	
302A	FG	1	3' - 0"	8' - 0"	WD			05	1	ALUM			
302B	FG	1	3' - 0"	8' - 0"	WD			05	1	ALUM			
302K	F	1	3' - 0"	8' - 0"	HM			17	1	HM		2"	
304	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
306	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
308	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
310	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
312	F	1	3' - 0"	8' - 0"	WD			07	1	HM			
314	F	1	3' - 0"	8' - 0"	WD			07	1	HM		2"	
315	F	1	3' - 0"	8' - 0"	WD			10.02	1	HM		2"	KEYPAD LOCK (BATTERY OPERATED)
316	FG	1	3' - 0"	8' - 0"	WD			13	1	ALUM			ELEC. PANIC HARDWARE, CARD READER, DOOR CONTACT
317	FG	1	3' - 0"	8' - 0"	WD			10.01	1	ALUM			KEYPAD LOCK (BATTERY OPERATED)
318	FG	1	3' - 0"	8' - 0"	WD			10.01	1	ALUM			KEYPAD LOCK (BATTERY OPERATED)
319	FG	1	3' - 0"	8' - 0"	WD			10.01	1	ALUM			KEYPAD LOCK (BATTERY OPERATED)
400	F	1	3' - 0"	7' - 0"	HM			02	1	HM		2"	DOOR CONTACT
401	F	1	3' - 0"	6' - 8"	HM				1	HM		2"	
V-100A	FG	2	3' - 0"	9' - 0"	ALUM			AL-01	2	ALUM			ELEC. PANIC HARDWARE, CARD READER, DOOR CONTACT, ADA OPENER
V-100B	FG	2						AL-03	2	ALUM			ADA OPENER



PANEL TYPE F | PANEL TYPE FG | PANEL TYPE WFG

DOOR PANEL TYPE ELEVATIONS

1/2" = 1'-0"



FRAME TYPE 1 | FRAME TYPE 1_T | FRAME TYPE 2

DOOR FRAME TYPE ELEVATIONS

1/2" = 1'-0"

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STATE OF COLORADO
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LICENSED ARCHITECT

ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
DRAWN: KM
CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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ANSCHUTZ ENGINEERING CENTER

ISSUED FOR:
100% CD / PACKAGE 3

SHEET TITLE:
DOOR SCHEDULES, TYPES & DETAILS

SCALE: 1/2" = 1'-0"
SHEET NUMBER

A-601

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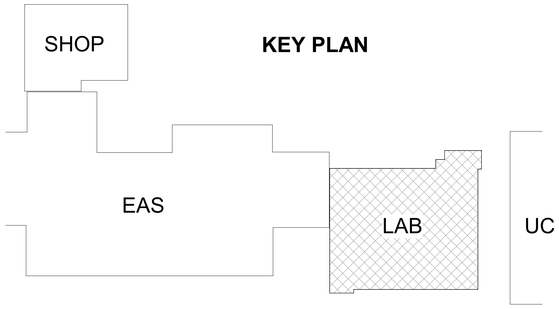
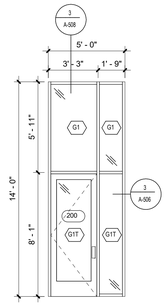
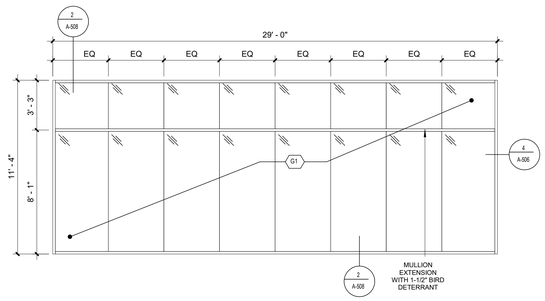
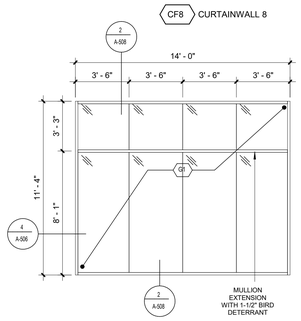




GLAZING TYPES LEGEND	
G1	LOW-E INSULATING GLASS
G1T	LOW-E INSULATING TEMPERED GLASS
G2	LOW-E INSULATING GLASS WITH FRIT
G2T	LOW-E INSULATING TEMPERED GLASS WITH FRIT
G4	INTERIOR CLEAR FLOAT GLASS
G4T	INTERIOR TEMPERED CLEAR FLOAT GLASS
	HATCH INDICATES FROSTED VINYL ON INTERIOR GLAZING



CW6 CURTAINWALL 6



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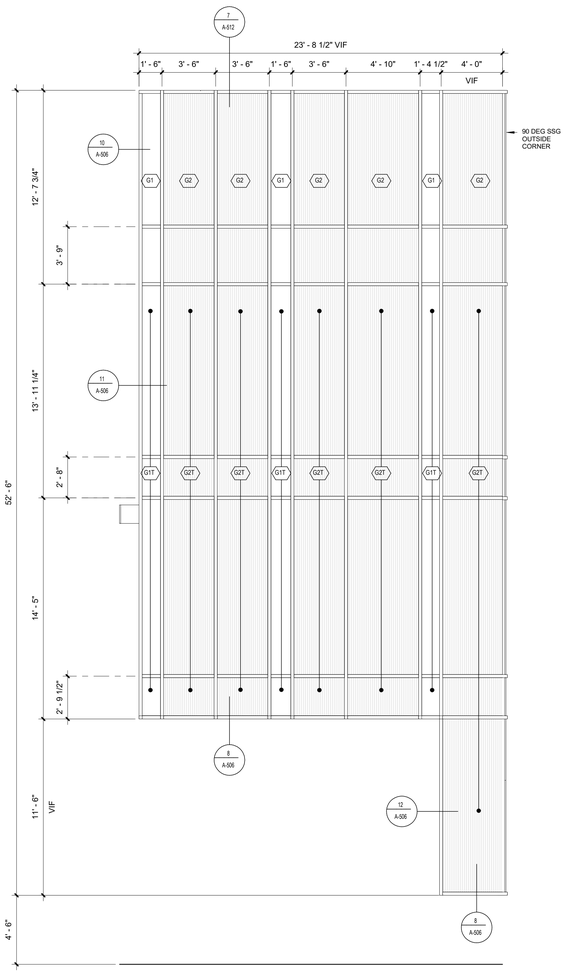

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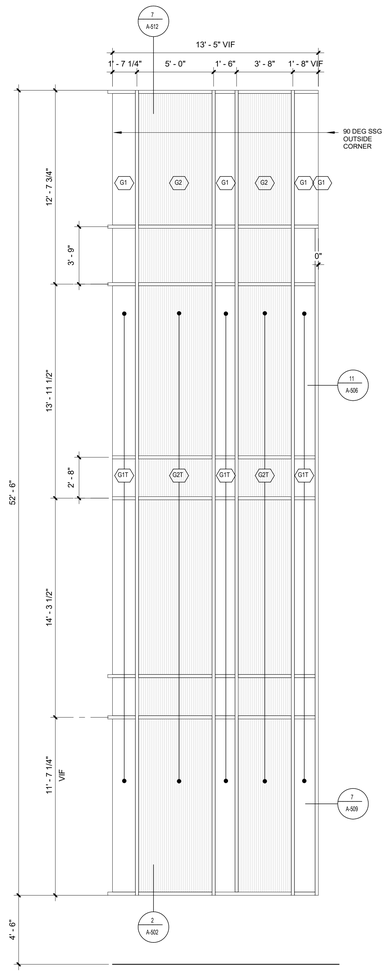

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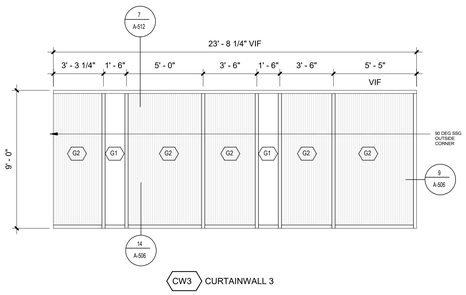
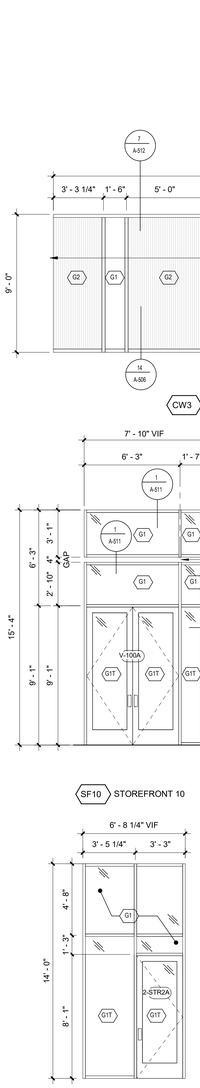


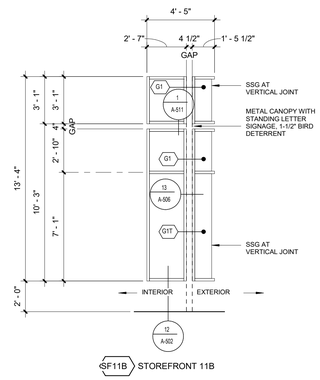
CW3 CURTAINWALL 3

SF10 STOREFRONT 10



SF5 STOREFRONT 5

SF4 STOREFRONT 4



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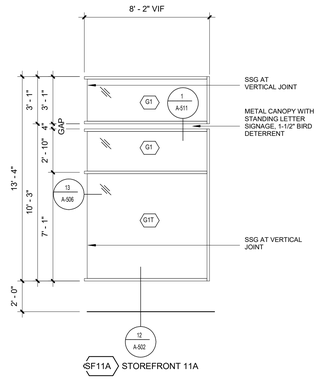
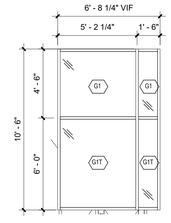
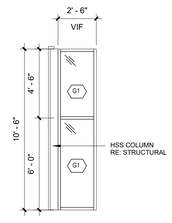


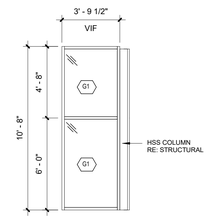
SF11A STOREFRONT 11A



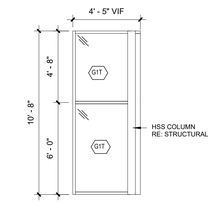
SF8 STOREFRONT 8



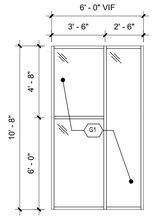
SF7 STOREFRONT 7



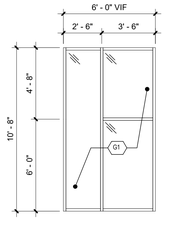
SF6 STOREFRONT 6



SF3 STOREFRONT 3



SF2 STOREFRONT 2



SF1 STOREFRONT 1

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STATE OF COLORADO
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ANSCHUTZ ENGINEERING CENTER

1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
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CHECKED: LM
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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ANSCHUTZ ENGINEERING CENTER

ISSUED FOR:
100% CD / PACKAGE 3

SHEET TITLE:
EXTERIOR GLAZING SYSTEMS - LAB BLDG

SCALE: As indicated
SHEET NUMBER
A-621

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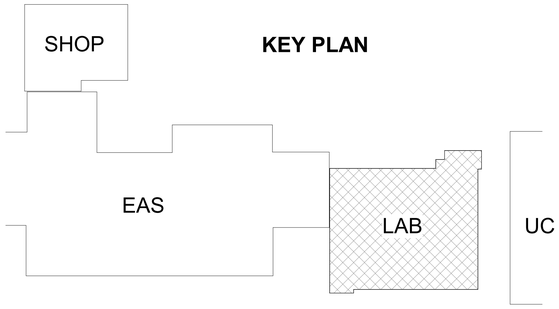

KEY PLAN

GLAZING TYPES LEGEND	
G1	LOW-E INSULATING GLASS
G1T	LOW-E INSULATING TEMPERED GLASS
G2	LOW-E INSULATING GLASS WITH FRIT
G2T	LOW-E INSULATING TEMPERED GLASS WITH FRIT
G4	INTERIOR CLEAR FLOAT GLASS
G4T	INTERIOR TEMPERED CLEAR FLOAT GLASS
	HATCH INDICATES FROSTED VINYL ON INTERIOR GLAZING

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LICENSED ARCHITECT

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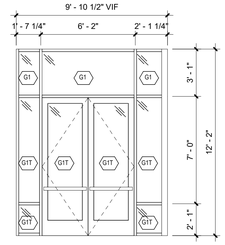
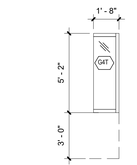
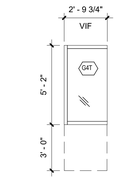
COLORADO SPRINGS, CO 80918



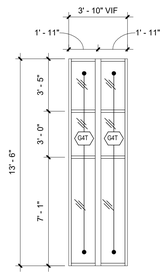
SF9 STOREFRONT 9



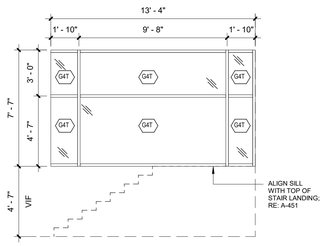
IG19 INTERIOR GLAZING 19



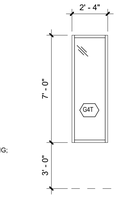
IG18 INTERIOR GLAZING 18



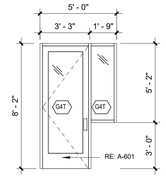
IG17 INTERIOR GLAZING 17



IG16 INTERIOR GLAZING 16



IG10 INTERIOR GLAZING 10



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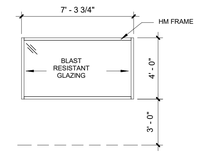
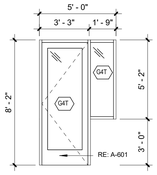


IG8 INTERIOR GLAZING 8



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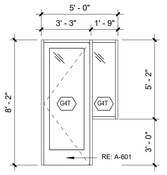

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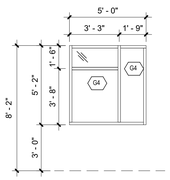

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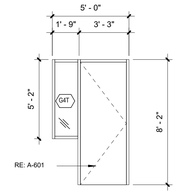

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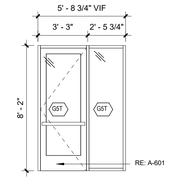
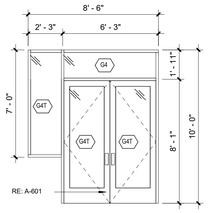


IG3 INTERIOR GLAZING 3



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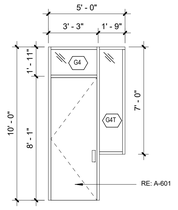

IG1 INTERIOR GLAZING 1

PROJ. NO. 121091.00
DRAWN: KM
CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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100% CD / PACKAGE 3

SHEET TITLE:
INTERIOR GLAZING
SYSTEMS - LAB BLDG

SCALE: As indicated
SHEET NUMBER

A-631

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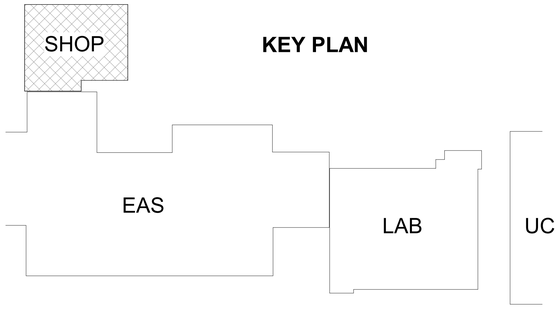

KEY PLAN

GLAZING TYPES LEGEND	
G1	LOW-E INSULATING GLASS
G1T	LOW-E INSULATING TEMPERED GLASS
G2	LOW-E INSULATING GLASS WITH FRIT
G2T	LOW-E INSULATING TEMPERED GLASS WITH FRIT
G4	INTERIOR CLEAR FLOAT GLASS
G4T	INTERIOR TEMPERED CLEAR FLOAT GLASS
	HATCH INDICATES FROSTED VINYL ON INTERIOR GLAZING

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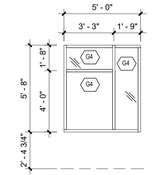
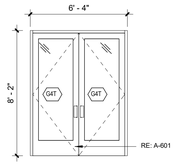


IG15 INTERIOR GLAZING 15



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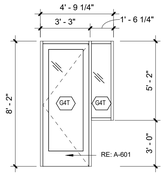

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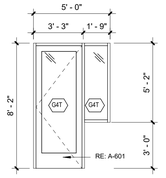

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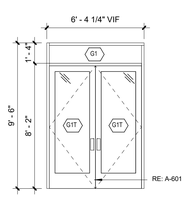
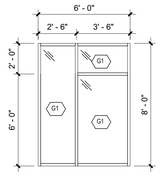


SF16 STOREFRONT 16



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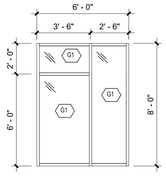

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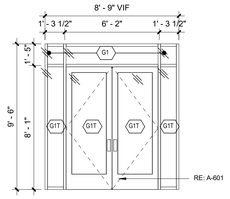

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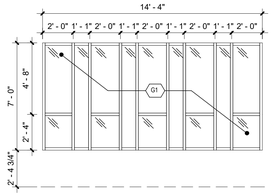

SF12 STOREFRONT 12

PROJ. NO. 121091.00
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CHECKED: JG
APPROVED: DS
DATE: 10/26/2022
REVISIONS:

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ANSCHUTZ ENGINEERING CENTER

ISSUED FOR:
100% CD / PACKAGE 3

SHEET TITLE:
EXTERIOR & INTERIOR GLAZING SYSTEMS - SHOP BLDG

SCALE: As indicated
SHEET NUMBER

A-632

10/26/2022 8:59:11 PM BIM 360://121091.00 Anschutz Engineering Center/121091.00_UCCS Anschutz Engineering Center_A21_Central.rvt

GENERAL LEGEND
(Not all symbols listed below are used on these drawings)

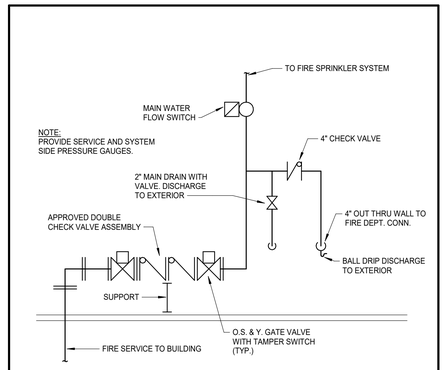
ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
	X / X-X	SECTION DESIGNATION SECTION CUT ON THIS SHEET			CAP END OF PIPE
				S.025	PITCH DOWN IN DIRECTION OF ARROW
					PIPE ANCHOR
	X / X-X	VIEW REFERENCE DESIGNATION VIEW REFERENCE ON THIS SHEET			PIPE ALIGNMENT GUIDE
					UNION OR FLANGE
	X / 1-2-3	EQUIPMENT UNIT IDENTIFICATION EQUIPMENT UNIT NUMBER (UNIT SERVED - FLOOR - SEQUENCE #)			CONCENTRIC PIPE REDUCER
					ECCENTRIC PIPE REDUCER
	A 10| 250	DIFFUSER IDENTIFICATION DIFFUSER NECK DIAMETER DIFFUSER CFM	PRV		PRESSURE REDUCING VALVE
			PTRV		PRESSURE AND/OR TEMPERATURE RELIEF VALVE
	E 08'24"L 9999	LINEAR DIFFUSER IDENTIFICATION LINEAR DIFFUSER NECK DIAMETER LINEAR DIFFUSER LENGTH LINEAR DIFFUSER CFM			ISOLATION VALVE (RE: SPEC FOR TYPE)
					VERTICAL PIPE VALVE
			CV		CHECK VALVE
	2'-6" / 2'-6" FTR 28	FINNED TUBE RADIATOR ACTIVE ELEMENT LENGTH EQUIPMENT UNIT IDENTIFICATION EQUIPMENT UNIT NUMBER RADIATOR ENCLOSURE LENGTH (OR W-W=WALL-TO-WALL)			SOLENOID / MOTORIZED VALVE
					SOLENOID VALVE
					HOSE END DRAIN VALVE
	<1>	KEY NOTE REFERENCE	P/T	P/T	PRESSURE / TEMPERATURE TAP
	1	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE			STRAINER
		TYPICAL ROOM REFERENCE (TOP = RM.#, BOTTOM = FLR)			STRAINER W/ BLOWDOWN
		POINT OF CONNECTION, NEW TO EXISTING			BRAIDED FLEXIBLE PIPE CONNECTOR
		POINT OF DISCONNECTION, DEMO			DOUBLE-BOWL FLEXIBLE PIPE CONNECTOR
		DIRECTION OF FLOW IN PIPE			THERMOMETER
		DUCTWORK, PIPING AND EQUIPMENT TO BE REMOVED			PRESSURE GAUGE
(E)		EXISTING			SIGHT GLASS
(N)		NEW	C.A.P.		CEILING ACCESS PANEL
(R)		RELOCATED			PUMP
(F)		FUTURE	TB		THRUST BLOCK
DIA	Ø	DIAMETER	MAV		MANUAL AIR VENT
WAD		WALL ACCESS DOOR	AAV		AUTOMATIC AIR VENT
NIC		NOT IN CONTRACT			
AFF		ABOVE FINISHED FLOOR			
GC		GENERAL CONTRACTOR			
MC		MECHANICAL CONTRACTOR			
EC		ELECTRICAL CONTRACTOR			
UNO		UNLESS NOTED OTHERWISE			
C		COMMON			
NC		NORMALLY CLOSED			
NO		NORMALLY OPEN			

FIRE PROTECTION LEGEND
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
F		FIRE SERVICE PIPING			NEW SPRINKLER HEAD
O.S.&Y.		O.S.&Y. GATE VALVE W/ TAMPER SWITCH			EXISTING SPRINKLER HEAD
FS		FLOW SWITCH			RELOCATED SPRINKLER HEAD
PIV		POST INDICATOR VALVE			SIDEWALL SPRINKLER HEAD
FDC		FIRE DEPARTMENT CONNECTION		D24	DRY SPRINKLER HEAD (SHAFT LENGTH)
			FHC		FIRE HOSE CABINET
			FVC		FIRE VALVE CABINET
			A/S		AUTOMATIC FIRE SPRINKLER

FIRE PROTECTION NOTES:

1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE INSTALLATION OF A COMPLETE AND PROPERLY FUNCTIONING FIRE PROTECTION SYSTEM.
2. THE FIRE PROTECTION WORK INVOLVES ENGINEERING AND DESIGN BY THE CONTRACTOR TO DETERMINE THE EXTENT OF NEW WORK AND THE MODIFICATION AND EXTENSION OF EXISTING SYSTEMS TO PROVIDE FULL COVERAGE TO THE PROJECT AREA SHOWN ON THESE AND THE ARCHITECTURAL PLANS.
3. THE INFORMATION PRESENTED ON THESE DRAWINGS IS DIAGRAMMATIC. IT DOES NOT NECESSARILY REPRESENT ALL ELBOWS, OFFSETS, HANGERS, ETC., REQUIRED FOR A COMPLETE WORKING SYSTEM.
4. ALL FIRE PROTECTION SYSTEMS INSTALLED SHALL BE IN ACCORDANCE WITH NFPA-13, 14, 20, ETC. AND LOCAL BUILDING CODES AND ORDINANCES.
5. FIRE PROTECTION CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL NEW FIRE PROTECTION EQUIPMENT AND PIPING WITH ALL OTHER TRADES PRIOR TO SUBMITTAL OF SHOP DRAWINGS AND SYSTEM INSTALLATION, SO AS NOT TO INTERFERE WITH THE ROUTING OF NEW DUCTWORK, PLUMBING PIPING, ETC.
6. PROVIDE ALL FITTINGS, RISER NIPPLES, ARM-OVERS, HANGERS, ETC. TO MAINTAIN CONFORMANCE WITH APPLICABLE STANDARDS AND TO POSITION THE SPRINKLERS IN THE PROPER LOCATIONS.
7. SEAL ALL PIPE PENETRATIONS THROUGH FIRE RATED WALLS AND CEILINGS WITH FIRE STOPPING MATERIALS AS REQUIRED.
8. PROVIDE WORKING DRAWINGS AND HYDRAULICALLY CALCULATE THIS FIRE SPRINKLER SYSTEM PER NFPA-13 WHERE REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
9. PROVIDE FIELD COORDINATION OF PIPING AND SPRINKLER INSTALLATIONS WITH DUCTWORK, LIGHTS, SMOKE DETECTORS, DIFFUSERS, ETC.
10. REFER TO SPECIFICATION FOR AREA DENSITIES MINIMUM REQUIREMENTS.



FIRE LINE ENTRY DETAIL
SCALE: NONE

1000-05

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10/25/2022
Mechanical
Adam Ackerman

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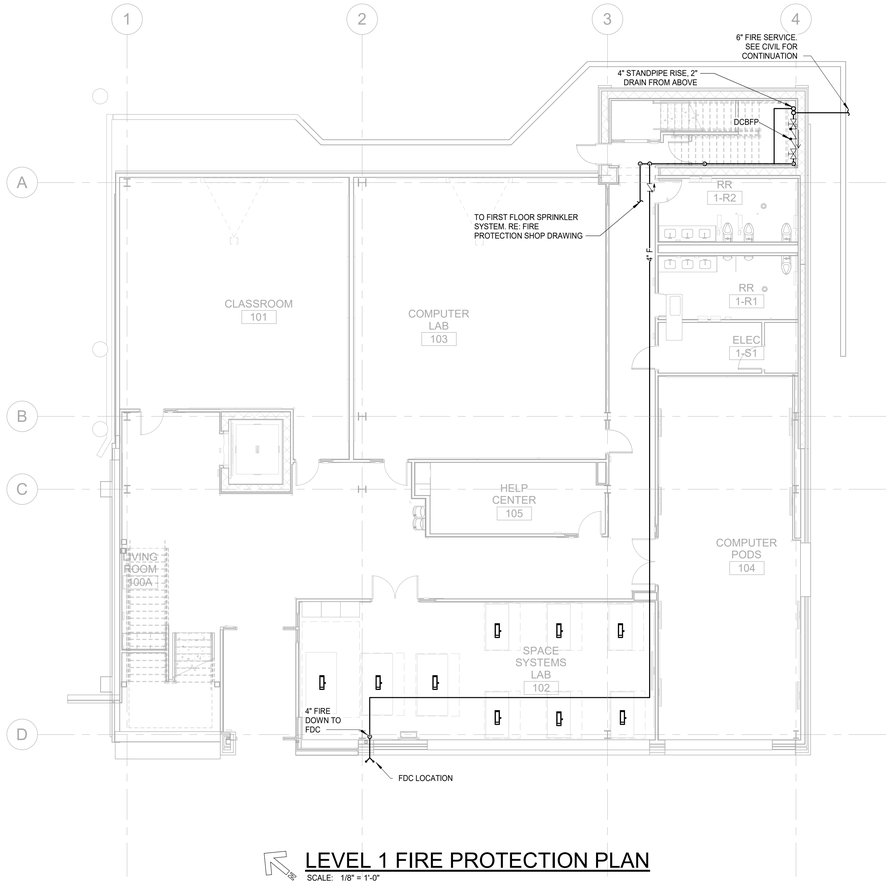
CONSTRUCTION DOCUMENTS

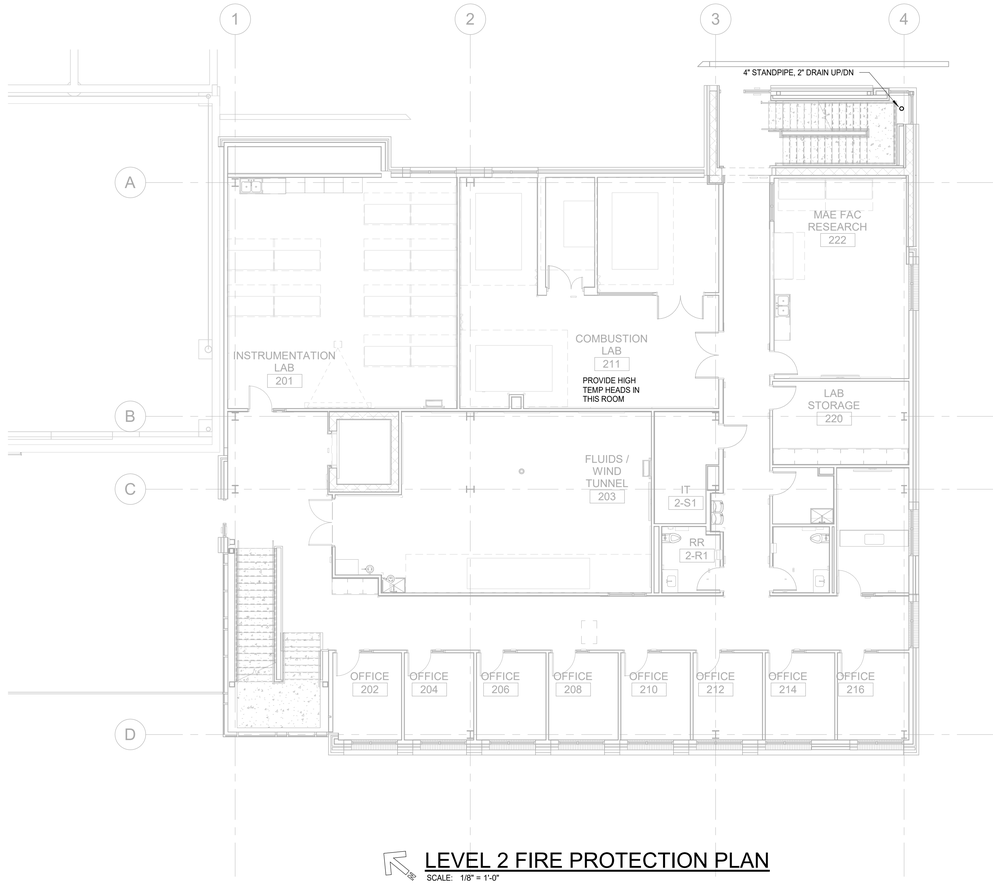
SHEET TITLE:
FIRE PROTECTION LEGENDS & NOTES

SCALE: 1/8" = 1'-0"
SHEET NUMBER
F-001

10/25/2022 12:51:26 PM P:\CU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad



LEVEL 1 FIRE PROTECTION PLAN
SCALE: 1/8" = 1'-0"



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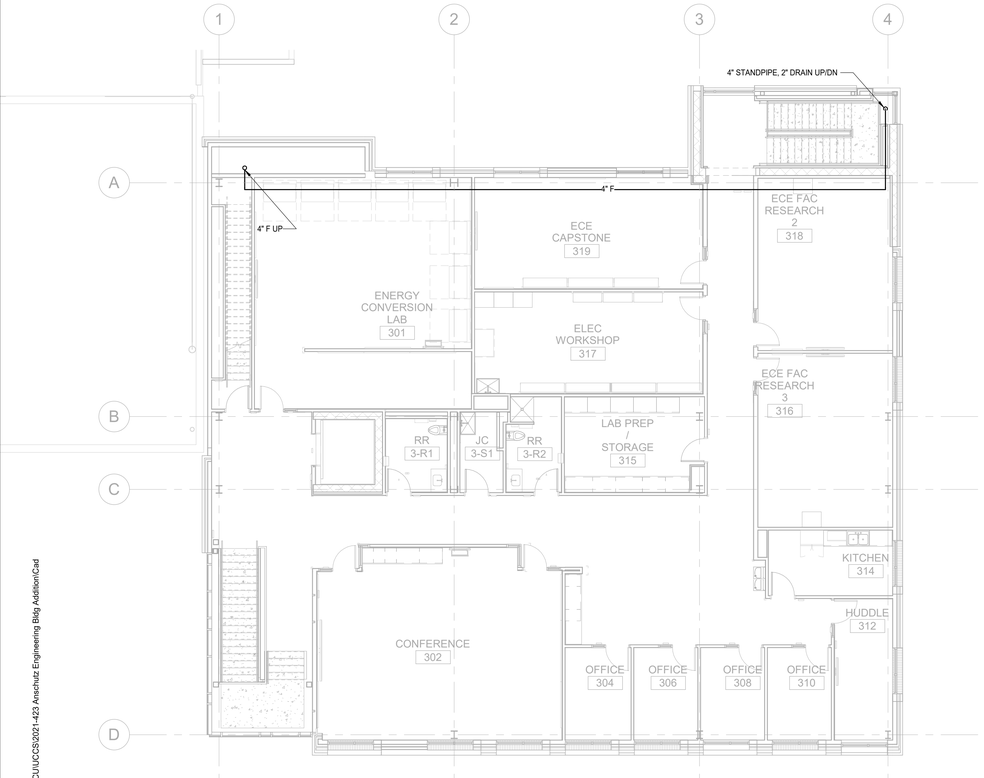
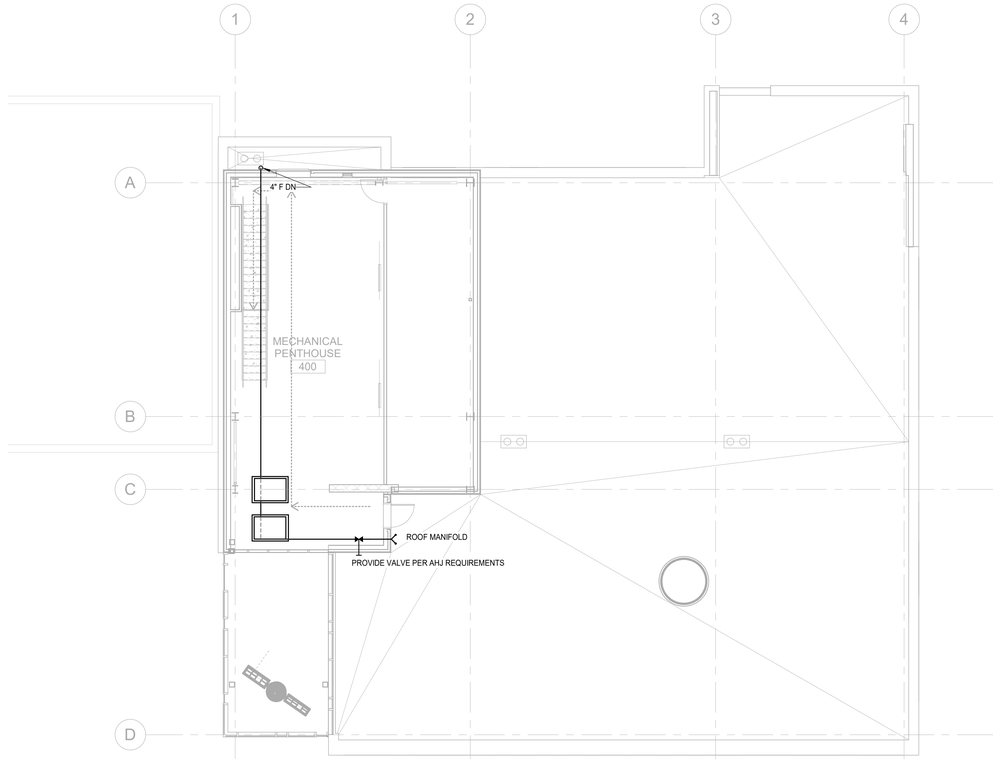
SCALE: 1/8" = 1'-0"



LEVEL 3 FIRE PROTECTION PLAN
SCALE: 1/8" = 1'-0"



LEVEL 4 FIRE PROTECTION PLAN
SCALE: 1/8" = 1'-0"

KEYNOTES

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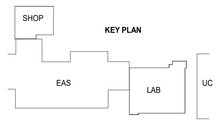
SHEET TITLE:
FIRE PROTECTION PLAN SERIES - LAB BLDG
SCALE: 1/8" = 1'-0"
SHEET NUMBER
F-101A



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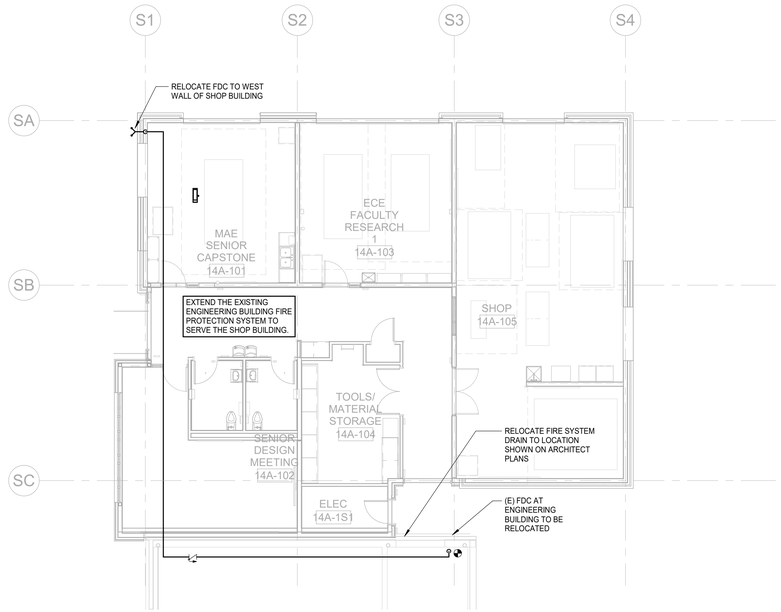
KEYNOTES



LEVEL 3 FIRE PROTECTION PLAN

SCALE: 1/8" = 1'-0"

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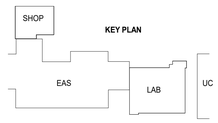
CONSTRUCTION DOCUMENTS

SHEET TITLE:
FIRE PROTECTION PLAN SERIES - SHOP BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER

F-103B



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GENERAL LEGEND
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
	X / X-X	SECTION DESIGNATION SECTION CUT ON THIS SHEET			CAP END OF PIPE
				6.0%	PITCH DOWN IN DIRECTION OF ARROW
					PIPE ANCHOR
	X / X-X	VIEW REFERENCE DESIGNATION VIEW REFERENCE ON THIS SHEET			PIPE ALIGNMENT GUIDE
					UNION OR FLANGE
	X / 1-2-3	EQUIPMENT UNIT IDENTIFICATION EQUIPMENT UNIT NUMBER (UNIT SERVED - FLOOR - SEQUENCE #)			CONCENTRIC PIPE REDUCER
					ECCENTRIC PIPE REDUCER
	A 10 / 250	DIFFUSER IDENTIFICATION DIFFUSER NECK DIAMETER DIFFUSER CFM	PRV		PRESSURE REDUCING VALVE
			PTRV		PRESSURE AND/OR TEMPERATURE RELIEF VALVE
	S 8@24"L 9999	LINEAR DIFFUSER IDENTIFICATION LINEAR DIFFUSER NECK DIAMETER LINEAR DIFFUSER LENGTH LINEAR DIFFUSER CFM			ISOLATION VALVE (RE: SPEC FOR TYPE)
					VERTICAL PIPE VALVE
			CV		CHECK VALVE
	2'-0" / 3'-0" FTR 28	FINNED TUBE RADIATOR ACTIVE ELEMENT LENGTH EQUIPMENT UNIT IDENTIFICATION EQUIPMENT UNIT NUMBER RADIATOR ENCLOSURE LENGTH (OR W-W=WALL-TO-WALL)			SOLENOID / MOTORIZED VALVE
					SOLENOID VALVE
					HOSE END DRAIN VALVE
	<1>	KEY NOTE REFERENCE	P/T	P/T	PRESSURE / TEMPERATURE TAP
	1	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE			STRAINER
		TYPICAL ROOM REFERENCE (TOP = RM #, BOTTOM = FLR)			STRAINER W/ BLOWDOWN
		POINT OF CONNECTION, NEW TO EXISTING			BRAIDED FLEXIBLE PIPE CONNECTOR
		POINT OF DISCONNECTION, DEMO			DOUBLE-BOWL FLEXIBLE PIPE CONNECTOR
		DIRECTION OF FLOW IN PIPE			THERMOMETER
		DUCTWORK, PIPING AND EQUIPMENT TO BE REMOVED			PRESSURE GAUGE
(E)		EXISTING			SIGHT GLASS
(N)		NEW	C.A.P.		CEILING ACCESS PANEL
(R)		RELOCATED			PUMP
(F)		FUTURE	TB		THRUST BLOCK
DIA	Ø	DIAMETER	MAV		MANUAL AIR VENT
WAD		WALL ACCESS DOOR	AAV		AUTOMATIC AIR VENT
NIC		NOT IN CONTRACT			
AFF		ABOVE FINISHED FLOOR			
GC		GENERAL CONTRACTOR			
MC		MECHANICAL CONTRACTOR			
EC		ELECTRICAL CONTRACTOR			
UNO		UNLESS NOTED OTHERWISE			
C		COMMON			
NC		NORMALLY CLOSED			
NO		NORMALLY OPEN			

LABORATORY / MEDICAL SERVICES LEGEND
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
O2	—O2—	OXYGEN PIPING	IA	—IA—	INSTRUMENT AIR PIPING
LVAC	—LVAC—	LABORATORY VACUUM PIPING	H	—H—	HYDROGEN PIPING
MVAC	—MVAC—	MEDICAL VACUUM PIPING	ACET	—ACET—	ACETYLENE GAS PIPING
MVACE	—MVACE—	MEDICAL VACUUM EXHAUST PIPING	O2		OXYGEN SERVICE OUTLET
N2O	—N2O—	NITROUS OXIDE PIPING	LVAC/MVAC		LABORATORY/MEDICAL VACUUM SERVICE INLET
N	—N—	NITROGEN PIPING	WAGD		WASTE ANESTHESIA GAS DISPOSAL INLET
MA	—MA—	MEDICAL AIR PIPING	N2O		NITROUS OXIDE SERVICE OUTLET
MAI	—MAI—	MEDICAL AIR INTAKE PIPING	N		NITROGEN SERVICE OUTLET
CO2	—CO2—	CARBON DIOXIDE	G		NATURAL GAS SERVICE OUTLET
WAGD	—WAGD—	WASTE ANESTHESIA GAS DISPOSAL	LA/MA		LABORATORY/MEDICAL AIR SERVICE OUTLET
DI	—DI—	DEIONIZED WATER PIPING	CO2		CARBON DIOXIDE SERVICE OUTLET
RO	—RO—	REVERSE OSMOSIS WATER PIPING	IA		INSTRUMENT AIR SERVICE OUTLET
He	—He—	HELIUM GAS PIPING	ZVB		ZONE VALVE BOX
LN	—LN—	LIQUID NITROGEN PIPING	AAP		AREA ALARM PANEL
LA	—LA—	LABORATORY COMPRESSED AIR PIPING	MAP		MASTER ALARM PANEL

PLUMBING LEGEND
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION
CW	— – —CW—	DOMESTIC COLD WATER PIPING	GCO/SCO		GRADE CLEANOUT / SURFACE CLEANOUT
HW	— – —HW—	DOMESTIC HOT WATER PIPING	FCO		FLOOR CLEANOUT
HWC	— – – —HWC—	DOMESTIC HOT WATER CIRC PIPING	WCO		WALL CLEANOUT
CW-S	— – —CW-S—	SOFTENED DOMESTIC COLD WATER PIPING	CO		LINE CLEANOUT
HW-S	— – —HW-S—	SOFTENED DOMESTIC HOT WATER PIPING	AD		AREA DRAIN
140°F HW	— – —140°F HW	DOMESTIC HOT WATER PIPING @ TEMP SHOWN	FD		FLOOR DRAIN
140°F HWC	— – – —140°F HWC	DOMESTIC HOT WATER CIRC PIPING @ TEMP SHOWN	FS		FLOOR SINK
TW	— – – —TW—	TEPID WATER PIPING	RD / OD		ROOF DRAIN OR OVERFLOW DRAIN
TWC	— – – – —TWC—	TEPID WATER CIRC PIPING			
ICW	— – – —ICW—	INDUSTRIAL COLD WATER PIPING	VB		ATMOSPHERIC VACUUM BREAKER
IHW	— – – —IHW—	INDUSTRIAL HOT WATER PIPING	BFP		BACKFLOW PREVENTER
IHWC	— – – – —IHWC—	INDUSTRIAL HOT WATER CIRC PIPING	SA		SHOCK ARRESTOR W / ISOLATION VALVE
NPCW	— – —NPCW—	NON-POTABLE COLD WATER PIPING	GC		GAS SHUT-OFF VALVE
NPHW	— – —NPHW—	NON-POTABLE HOT WATER PIPING			STOP AND DRAIN VALVE
NPHR	— – – —NPHR—	NON-POTABLE HOT WATER CIRC PIPING	BV		BALANCING VALVE
V	— – — V — – —	VENT PIPING	WH		WALL HYDRANT
AV	— – —AV— – —	ACID RESISTANT VENT PIPING	HB		HOSE BIBB
W	——W——	WASTE PIPING	RH		ROOF HYDRANT
W	— —W— —	WASTE PIPING BELOW FLOOR	YH		YARD HYDRANT
AW	——AW——	ACID RESISTANT WASTE PIPING	DSN		DOWNSPOUT NOZZLE
AW	— —AW— —	ACID RESISTANT WASTE PIPING BELOW FLOOR	MH		MANHOLE
GW	——GW——	GREASE WASTE (TO GREASE INTERCEPTOR)	CI		CAST IRON
GW	— —GW— —	GREASE WASTE PIPING BELOW FLOOR	CB		CATCH BASIN
SD	——SD——	STORM DRAIN PIPING	VTR		VENT THRU ROOF
SD	— —SD— —	STORM DRAIN PIPING BELOW FLOOR	IE		INVERT ELEVATION
OD	——OD——	OVERFLOW DRAIN PIPING	PVC		POLYVINYL CHLORIDE
OD	— —OD— —	OVERFLOW DRAIN PIPING BELOW FLOOR			
CA	——CA——	COMPRESSED AIR			
G	——G——	NATURAL GAS PIPING			

PLUMBING SPECIALTY SCHEDULE

NOTES:
1.

DESIG.	FIXTURE TYPE	LOCATION	MANUFACTURER	MODEL #	REMARKS
AHR-1	COMPRESSED AIR HOSE REEL	SHOP	GRACO	HELI010	
DSN-1	DOWNSPOUT NOZZLE	EXTERIOR WALL	J.R. SMITH	1770	BRONZE FINISH WITH WALL FLANGE
FD-1	FLOOR DRAIN	TOILET ROOM / SHOWERS	J.R. SMITH	2005Y-05-P05 -NB	4 PROVIDE TRAP SEAL DEVICE
FS-1	FLOOR SINK	MECHANICAL ROOM	J.R. SMITH	3101	PROVIDE TRAP SEAL DEVICE
OD-1	OVERFLOW ROOF DRAIN	ROOF	J.R. SMITH	1070	CAST IRON DRAIN WITH CAST IRON DOME DOME STRAINER, PROVIDE DECK CLAMP ASSEMBLY & DRAIN RECEIVER ASSEMBLY AS REQUIRED
RD-1	ROOF DRAIN	ROOF	J.R. SMITH	1010	CAST IRON DRAIN WITH CAST IRON DOME STRAINER, PROVIDE DECK CLAMP ASSEMBLY & DRAIN RECEIVER ASSEMBLY AS REQUIRED

GENERAL NOTES:

1. WORK INCLUDED IN THE CONTRACT IS DENOTED IN BOLD. EXISTING CONDITIONS TO REMAIN ARE DENOTED LIGHTLY.
2. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK AND SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY DISCREPANCIES FOR RESOLUTION.
3. COORDINATE WORK WITH ALL TRADES.
4. CONTRACTOR IS RESPONSIBLE FOR SECURING AND WEATHERPROOFING ANY ROOF OPENING NOT COMPLETED DURING WORKING HOURS.
5. COORDINATE ALL PIPING WITH EQUIPMENT, STRUCTURE, ETC.

PLUMBING NOTES:

1. CONTRACTOR SHALL NOT SHUT-OFF/PUT OUT OF SERVICE ANY SYSTEMS/SERVICES WITHOUT FIRST COORDINATING WITH OWNER.
2. THIS CONTRACTOR SHALL COORDINATE LOCATIONS OF PIPING WITH OTHER TRADES AND ADVISE ARCHITECT/ENGINEER OF ANY POSSIBLE CONFLICTS. VERIFY EXACT LOCATIONS, ELEVATIONS AND DIMENSIONS OF STRUCTURAL MEMBERS AND OPENINGS.
3. SEE SPECIFICATIONS FOR WATER HAMMER ARRESTOR (WHA) SIZING. ALL FLUSH VALVES AND SOLENOID OPERATED EQUIPMENT SHALL HAVE A WATER HAMMER ARRESTOR. INSTALL ACCESS PANEL IN MEN'S RESTROOM SIDE ADA STALL.
4. SEE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZING TO INDIVIDUAL PLUMBING FIXTURES.
5. ALL EXISTING FIXTURES AND EQUIPMENT TO BE REMOVED SHALL HAVE ALL ASSOCIATED PIPING CONTROLS, HANGERS, SUPPORTS AND ANY MISCELLANEOUS ASSOCIATED SERVICE OR PART REMOVED COMPLETELY.
6. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF PENETRATION DETAILS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE ELEVATIONS AND LOCATIONS.
8. INVERT ELEVATIONS SHOWN ARE BASED ON LAB FINISHED FLOOR ELEVATION OF 6415.0' AND SHOP FINISHED FLOOR 6445.40'.
9. SEE ARCHITECTURAL CONSTRUCTION DOCUMENTS FOR DIMENSIONED LOCATION OF PLUMBING FIXTURES AND WALLS.
10. PROVIDE CLEANOUTS IN ACCESSIBLE LOCATIONS PER THE PROJECT SPECIFICATIONS AND LOCAL PLUMBING CODES.

FOUNDATION PLUMBING NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK.
2. COORDINATE WORK WITH ALL TRADES.
3. SEE ARCHITECTURAL CONSTRUCTION DOCUMENTS FOR EXACT LOCATION OF PLUMBING FIXTURES AND WALLS.
4. PROVIDE A WALL CLEANOUT ON ALL VERTICAL VENT PIPING SERVING BELOW GRADE HORIZONTAL WASTE PIPING.

DEMOLITION GENERAL NOTES:

1. EXISTING ITEMS TO REMAIN ARE DENOTED LIGHTLY UNLESS OTHERWISE NOTED. ALL ITEMS SHOWN DASHED & BOLD SHALL BE REMOVED UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL NOT SHUT-OFF OR PUT-OUT OF SERVICE ANY SYSTEMS OR SERVICE WITHOUT FIRST COORDINATING WITH THE OWNER.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE AND UNDERSTAND THE EXTENT OF THE REMODEL WORK REQUIRED PRIOR TO BID. NO EXTRAS WILL BE ALLOWED FOR WORK REQUIRED TO ACHIEVE THE END RESULT AS INDICATED BY THE CONTRACT DOCUMENT.
4. CONTRACTOR SHALL DETERMINE AND COORDINATE THE EXACT EXTENT OF DEMOLITION TO FACILITATE ALL WORK INDICATED BY THE CONTRACT DOCUMENT.
5. PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK, VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES FOR RESOLUTION.
6. ALL ITEMS IDENTIFIED TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY UNLESS OTHERWISE NOTED. REMOVED ITEMS SHALL BE TURNED OVER TO THE OWNER UNLESS OTHERWISE NOTED AND STORED IN THE AREA DESIGNATED BY THE OWNER. REMOVE FROM SITE AND LEGALLY DISPOSE OF ALL ITEMS THE OWNER CHOOSES NOT TO ACCEPT.
7. WHERE EXISTING PIPING, WIRING ETC. ARE TO BE REMOVED FROM WALLS WHICH ARE REMAINING, THE WALLS SHALL BE REPAIRED TO MATCH ORIGINAL CONDITIONS.
8. WHERE EXISTING PIPING TO BE REMOVED PASSES THROUGH FLOORS, THEY SHALL BE CUT BACK TO WITHIN CONCRETE AND FILLED WITH GROUT TO ACHIEVE A SMOOTH AND EVEN FINISH WITH CONCRETE SURFACE.

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4 10/26/2022 Addenda 4

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SHEET TITLE:
PLUMBING LEGENDS & NOTES

SCALE: 1/8" = 1'-0"
SHEET NUMBER
P-001

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PLUMBING FIXTURE SCHEDULE

NOTES:
1. REFER TO GENERAL SPECIFICATIONS FOR WATER CLOSETS, URINALS, LAVATORIES, SINKS AND MISCELLANEOUS FIXTURE REQUIREMENTS.
2. GRAB BARS BY ARCHITECT.
3. THIS SCHEDULE INCLUDES ITEMS THAT MAY NOT BE INCLUDED IN THE DRAWING DOCUMENTS.
4. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION AND MOUNTING HEIGHT.

	FIXTURE					TRIM		ELECTRICAL ACCESSORY REQUIREMENTS I.R/BATTERY/HP		CONNECTIONS				
DESIG.	FIXTURE NAME	FIXTURE DESCRIPTION	MANUFACTURER	MODEL	SIZE	MANUFACTURER	MODEL		FLOW	WASTE	VENT	CW	HW	REMARKS
EW-1	EYE/ FACE WASH FIXTURE	BARRIER FREE, WALL MOUNTED, EYE / FACE WASH FIXTURE WITH MIXING VALVE	GUARDIAN EQUIPMENT	GBF1724	20" X 11-1/8"	GUARDIAN EQUIPMENT	G3707LF MIXING VALVE	MANUAL	1.4 GPM	2"	1 1/2"	1/2"	1/2"	
EWC-1	ELECTRIC WATER COOLER	ADA HI/LOW POSITION ELECTRIC WALL HUNG WATER COOLER AND FILTERED WITH FILLING STATION, HARD WIRE	ELKAY	EZOOTL8WSSK	N/A	N/A	N/A	HARDWIRE	-	2"	1 1/2"	1/2"	-	
HB-1	HOSE BIB	HOSE BIBB WITH VACUUM BREAKER	CHICAGO FAUCET CO.	952-CP	N/A	N/A	N/A	N/A	-	-	-	3/4"	-	INTEGRAL VACUUM BREAKER
L-1	LAVATORY	ADA, UNDERMOUNT, VITREOUS CHINA, SENSOR OPERATED FAUCET, TURBINE	KOHLER	K-2214	20" X 14"	CHICAGO FAUCET	116.956.AB.1-0.5	TURBINE	0.5 GPM	1 1/2"	1 1/2"	1/2"	1/2"	PROVIDE AND INSTALL ASSE 1070 MIXING VALVE
L-2	LAVATORY	ADA, WALL HUNG, ZURN FLOOR MOUNTED CARIER, VITREOUS CHINA, SINGLE HOLE FAUCET CENTER, SENSOR OPERATED FAUCET, TURBINE	KOHLER	K-2005	21"X18"	CHICAGO FAUCET	116.956.AB.1-0.5	TURBINE	0.5 GPM	1 1/2"	1 1/2"	1/2"	1/2"	PROVIDE AND INSTALL ASSE 1070 MIXING VALVE.
L-3	LAVATORY (LEVEL 1)	ADA, UNDERMOUNT, VITREOUS CHINA, SENSOR OPERATED FAUCET, BATTERY	KOHLER	K-2214	20" X 14"	CHICAGO FAUCET	116.980.AB.1-0.35	BATTERY	0.35 GPM	1 1/2"	1 1/2"	1/2"	1/2"	PROVIDE AND INSTALL ASSE 1070 MIXING VALVE
MSB-1	MOP SERVICE BASIN	12" DEEP TERRAZZO MOP SERVICE BASIN, CORNER INSTALLATION WITH 8" WALL MOUNTED SERVICE SINK, WITH VACUUM BREAKER	FIAT	TERRAZZO TSB-100	24" X 24" X 12"	CHICAGO	445-897SRXKCCP	MANUAL	10 GPM	3"	2"	1/2"	1/2"	
MSB-2	MOP SERVICE BASIN	12" DEEP TERRAZZO MOP SERVICE BASIN, WALL INSTALLATION WITH 8" WALL MOUNTED SERVICE SINK, WITH VACUUM BREAKER	FIAT	TERRAZZO TSB-700	36" X 24" X 12"	CHICAGO	445-897SRXKCCP	MANUAL	10 GPM	3"	2"	1/2"	1/2"	
RH-1	ROOF HYDRANT	FREEZELESS ROOF HYDRANT WITH DUAL CHECK BACKFLOW PREVENTER	WOODFORD	RHY2-MS	N/A	N/A	N/A	N/A	-	-	-	3/4"	-	
S-1	2 COMPARTMENT SINK (ADA)	SELF-RIMMING, STAINLESS STEEL, 37"X 22" 6 1/2", 4-HOLE PUNCH OFF-CENTER DRAIN, MANUAL OPERATED FAUCET, 18 GA.	ELKAY	LRAD372265	37" X 22" X 6 1/2"	CHICAGO	786-E35-319ABCP-0.5	MANUAL	0.5 GPM	2"	1 1/2"	1/2"	1/2"	
SH-1	SHOWER	SHOWER / HAND SHOWER SYSTEM WITH PRESSURE BALANCING TUB / SHOWER VALVE AND DUAL OUTLET DIVERTER VALVE, WITH GRAB BAR, ADA ROLL IN SHOWER	FREEDOM SHOWERS	APFQ3682BF75	39" X 36"	DELTA	T13H382	MANUAL	1.0/1.0 GPM	2"	1 1/2"	1/2"	1/2"	(2) FIX HEADS, PROFLO #PFSH314CP, AT 72" & 48" AFF WITH DIVERTER
UR-1	URINAL	ADA, WALL HUNG, SIPHON JET, WITH SENSOR FLUSH VALVE	AMERICAN STANDARD	6590.001	N/A	ZURN	ZER6003AV	BATTERY	0.125 GPF	2"	1 1/2"	3/4"	-	ZURN EZCARRY CARRIER
WC-1	WATER CLOSET	ADA, WALL HUNG, SIPHON JET, ELONGATED BOWL WITH SENSOR FLUSH VALVE	AMERICAN STANDARD	2257.101	N/A	SLOAN	ECOS 8111-1.28/1.1	BATTERY	1.28/1.1 GPF	4"	2"	1"	-	BEMIS #10SSCT SEAT / ZURN EZCARRY CARRIER
WH-1	WALL HYDRANT	STANDARD CHROME FINISH, FREEZELESS WALL HYDRANT, ASSE 1052 BACKFLOW PREVENTION	WOODFORD	B67	7 1/2" X 6 1/2"	N/A	N/A	N/A	-	-	-	3/4"	-	

DOMESTIC WATER HEATER AND STORAGE TANK SCHEDULE

REMARK...
1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES (OCPD). REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED.
2. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
3. PERFORMANCE FOR GAS WATER HEATERS IS DERATED DUE TO PROJECT ELEVATION
4. REFER TO MECHANICAL LENGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG.					MBH NATURAL GAS					DOMESTIC WATER CONDITIONS					ELECTRICAL		SIZE (INCHES)			
								PRESSURE												
NAME	NO.	MFR.	MODEL	SERVICE	INPUT AT S.L.	OUTPUT AT S.L.	OUTPUT AT ELEV.	LOW (IN WC)	HIGH (IN WC)	RECOVERY RATE 90 F (GPH)	TEMP RISE (°F)	EWT (°F)	LWT (°F)	STORAGE CAPACITY (GAL)	VOLTAGE	PHASE	DIA	H	OPER. WEIGHT (LBS)	REMARKS
WH	1	STATE	GP6 75 YTPDT	LAB	100	96.0	76.8	3.5	14	129	80	40	120	75.0	120	1	28	67	1010	1,2,3,4

DOMESTIC HOT WATER THERMAL EXPANSION TANK SCHEDULE

REMARKS:
1. ALL MATERIALS IN CONTACT WITH WATER SHALL BE NSF/ANSI 61 COMPLIANT.

DESIG.					TANK			SIZE (INCHES)			
					TOTAL VOL	ACCEPTANCE				OPERATING	
NAME	NO.	TYPE	MANUFACTURER	MODEL	(GAL.)	FACTOR	VOL (GAL)	DIA	H	WEIGHT (LBS)	REMARKS
DET	1	DIAPHRAGM	AMTROL THERM-X-TROL	ST-25V	10.3	1.00	10.3	15	19	87	1

PLUMBING PUMP SCHEDULE

REMARKS:
1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES (OCPD). REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. REFER TO DETAIL FOR SIZE OF SUMP PIT.
3. PROVIDE WITH B&G #TC-1 TIMER KIT AND B&G AQS-3/4 AQUASTAT

DESIG.						PIPE SIZE					MOTOR				
TYPE	NO.	MFR.	MODEL	PUMP TYPE	SERVICE	SUCTION (IN.)	DISCHARGE (IN.)	MAX PUMP OPER (°F)	GPM	TOTAL DYNAMIC HEAD (FT.)	RPM	VOLTAGE	PHASE	HP	REMARKS
DCP	1	B&G	PL-36B	INLINE	DHW LAB	1.00	1.00	225	4	32	3300	115	1	0.167	1,3
ESP	1	ZOELLER	940-0008-161	SUMP	ELEV	3.00	3.00	170	50	34	3450	115	1	0.5	1,2

AIR COMPRESSOR SCHEDULE

REMARKS:
1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. PROVIDE DRYER #DS4IM WITH PLUG AND CORD.
3. PROVIDE FILTER #FA7SI (45 CFM MAX FLOW)
4. PROVIDE 120 PSI OPERATING AT 5400' LEVEL. MAX 175 PSI RATING
5. PROVIDE AUTOMATIC DRAIN KIT

DESIG.				SCFM AT 90 PSI	RECEIVER CAPACITY (GAL.)	ELECTRICAL			SIZE (INCHES)			OPER. WEIGHT (LBS)	REMARKS
NAME	NO.	MFR.	MODEL			NUMBER OF MOTORS	SUM OF MOTOR POWER	VOLTAGE	PHASE	L	W	H	
AC	1	INGERSOLL RAND	2545N7.5	27	80.0	1	7.5 HP	460	3	44	31	79	750	1,2,3,4,5
AC	2	INGERSOLL RAND	2545N7.5	27	80.0	1	7.5 HP	460	3	44	31	79	750	1,2,3,4,5

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P-002

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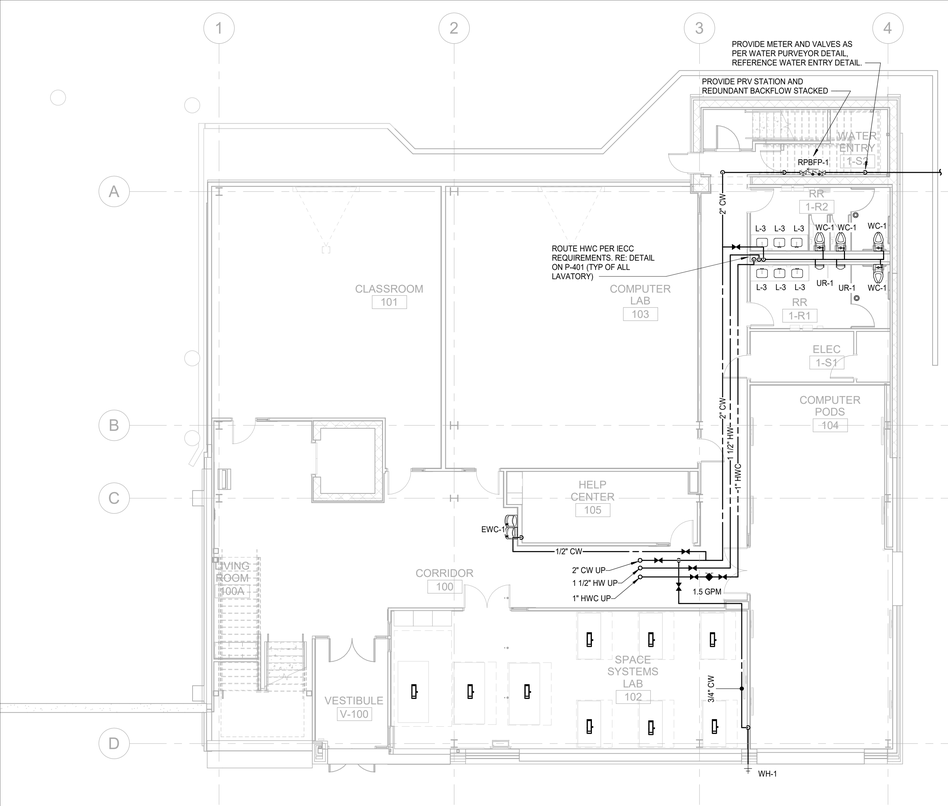
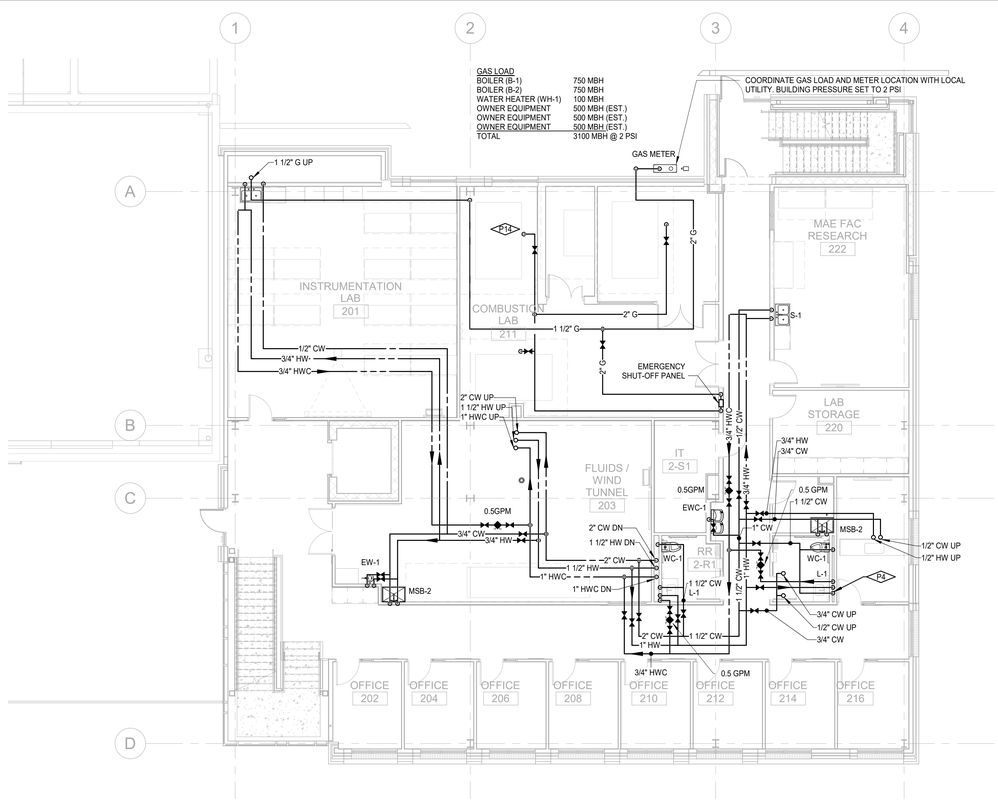


LEVEL 1 DOMESTIC WATER PLAN

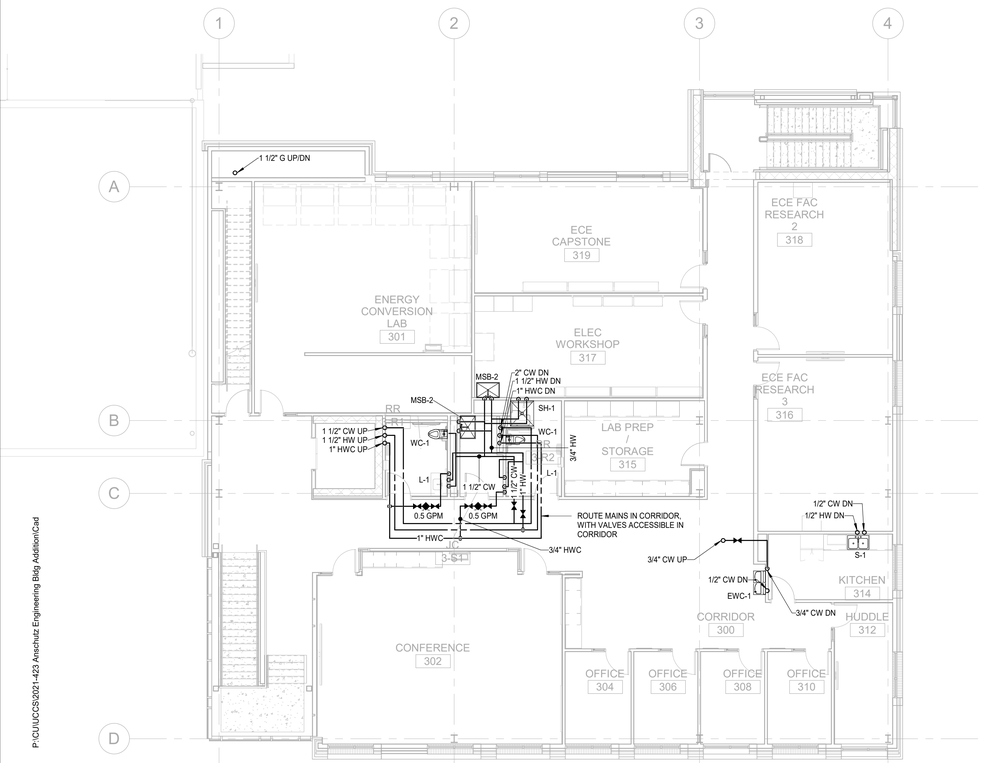
SCALE: 1/8" = 1'-0"



LEVEL 2 DOMESTIC WATER PLAN

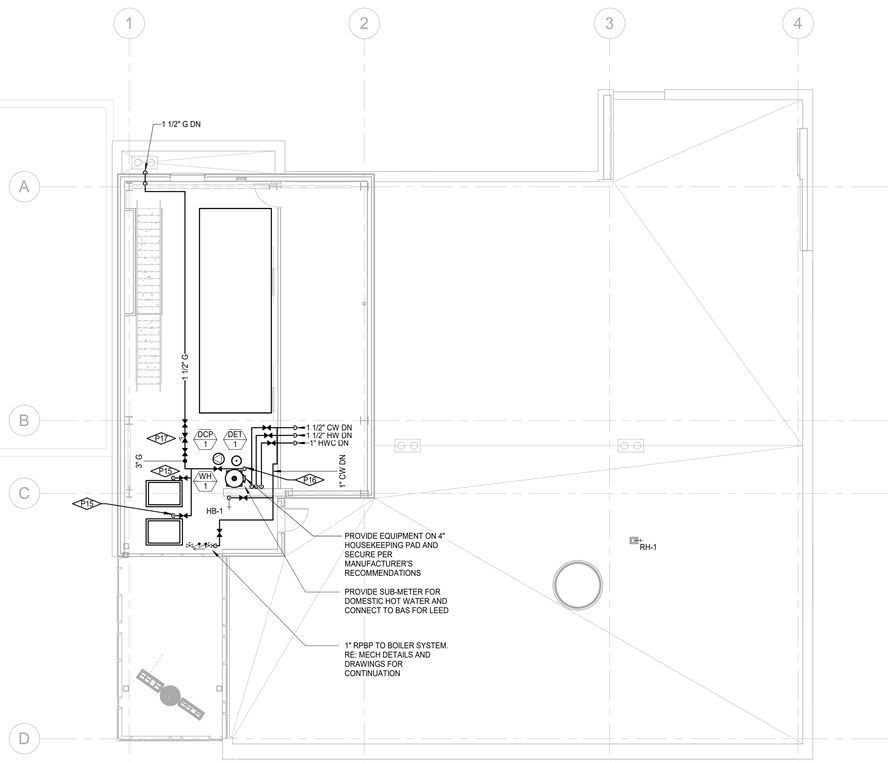
SCALE: 1/8" = 1'-0"

KEYNOTES	
P4	CONNECT HW TO HWC WITHIN 2'-0" OF LAVATORIES PER IECC REQUIREMENTS. (TYPICAL)
P14	CONNECT 2" GAS TO OWNER PROVIDED EQUIPMENT. CONNECT PER MANUFACTURER'S RECOMMEDATIONS AND COORDINATE WITH OWNER REQUIREMENTS. (TYP OF 3)
P15	2" GAS DOWN TO BOILER WITH GAS COCK AND 6" DIRT LEG.
P16	1-1/4" DOWN TO WATER HEATER WITH GAS COCK AND 6" DIRT LEG.
P17	PROVIDE PRV, 1600 MBH, 2 PSI TO 11" WC. ROUTE VENT FULL SIZE THRU ROOF WITH GOOSENECK AND INSECT SCREEN.



LEVEL 3 DOMESTIC WATER PLAN

SCALE: 1/8" = 1'-0"



LEVEL 4 DOMESTIC WATER PLAN

SCALE: 1/8" = 1'-0"

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SHEET TITLE:
DOMESTIC WATER PLAN SERIES - LAB BLDG
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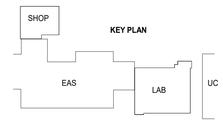
SHEET NUMBER
P-101A



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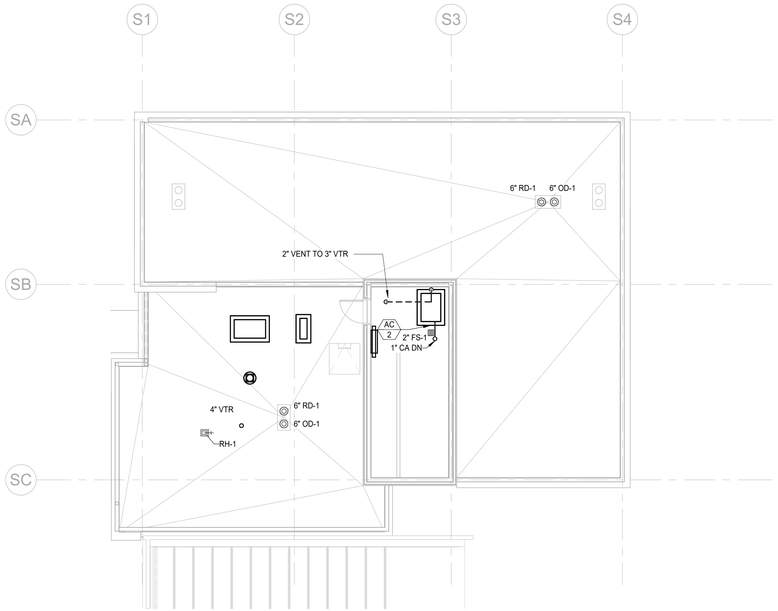
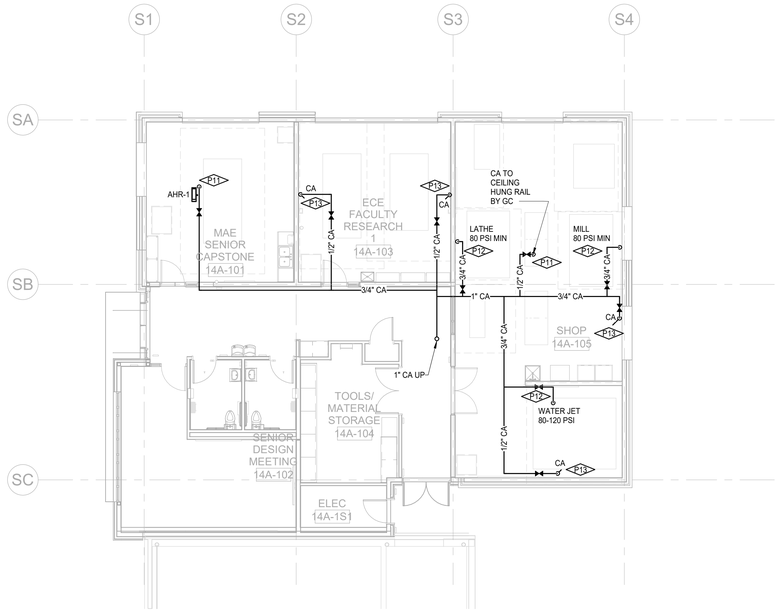
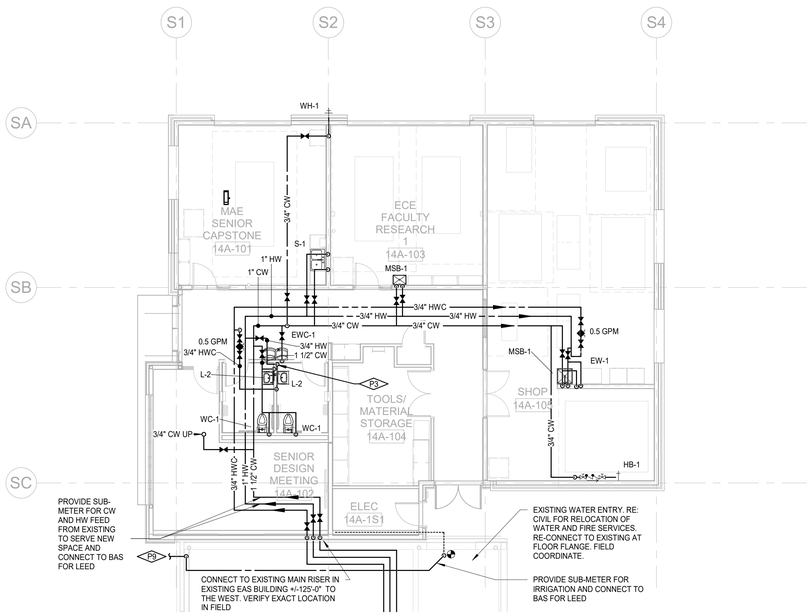
KEYNOTES	
P3	3/4" CW, 3/4" HW AND 3/4" HWC DOWN TO LAVATORIES. CONNECT HW TO HWC WITHIN 2'-0" OF LAVATORIES PER IECC REQUIREMENTS.
P9	ROUTE NEW 2" IRRIGATION THROUGH EXISTING SHOP AREA AVOIDING EQUIPMENT AND ELECTRICAL PANELS. ROUTE DOWN ON WALL AND THROUGH EXTERIOR WALL TO IRRIGATION CONTROLLER. PROVIDE ISOLATION VALVE AND DRAIN VALVE INSIDE BUILIDNG AT EXTERIOR WALL. IRRIGATION PIPE INSTALLED BY PLUMBER INSIDE BUILDING SHALL MATCH SPECIFICATION AND CODE REQUIREMENTS FOR COLD WATER PIPING (COPPER WITH INSULATION). DEMOLISH EXISTING LINE OUTSIDE BUILDING TO BELOW GRADE.
P11	1/2" CA TO HOSE REEL WITH PRV
P12	3/4" CA DOWN IN WALL WITH ISOLATION VALVE AND PRV FOR CONNECT TO OWNER EQUIPMENT
P13	1/2" CA TO AIR QUICK CONNECT WITH PRV



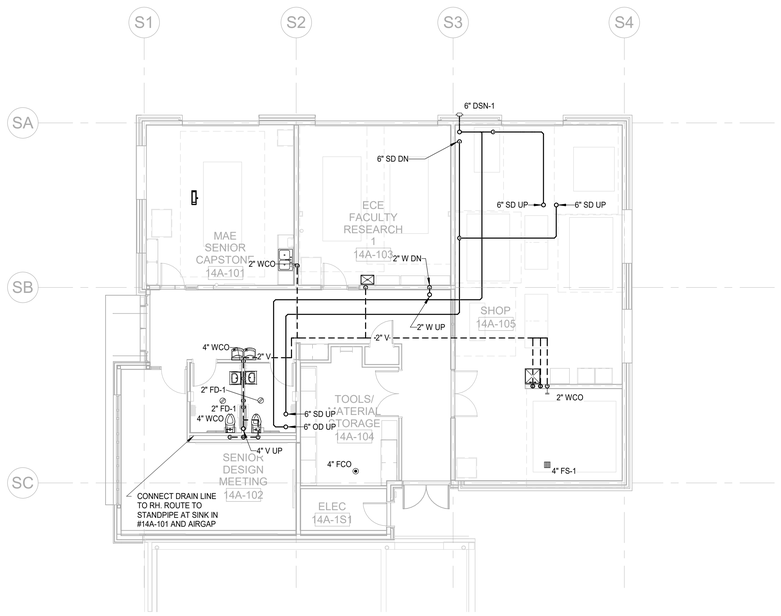
ROOF PLUMBING PLAN - SHOP
SCALE: 1/8" = 1'-0"



LEVEL 3 COMPRESSED AIR PLAN
SCALE: 1/8" = 1'-0"



LEVEL 3 DOMESTIC WATER PLAN - SHOP
SCALE: 1/8" = 1'-0"



LEVEL 3 WASTE & VENT PLAN - SHOP
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PLUMBING PLAN
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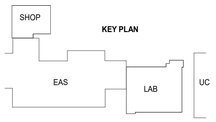

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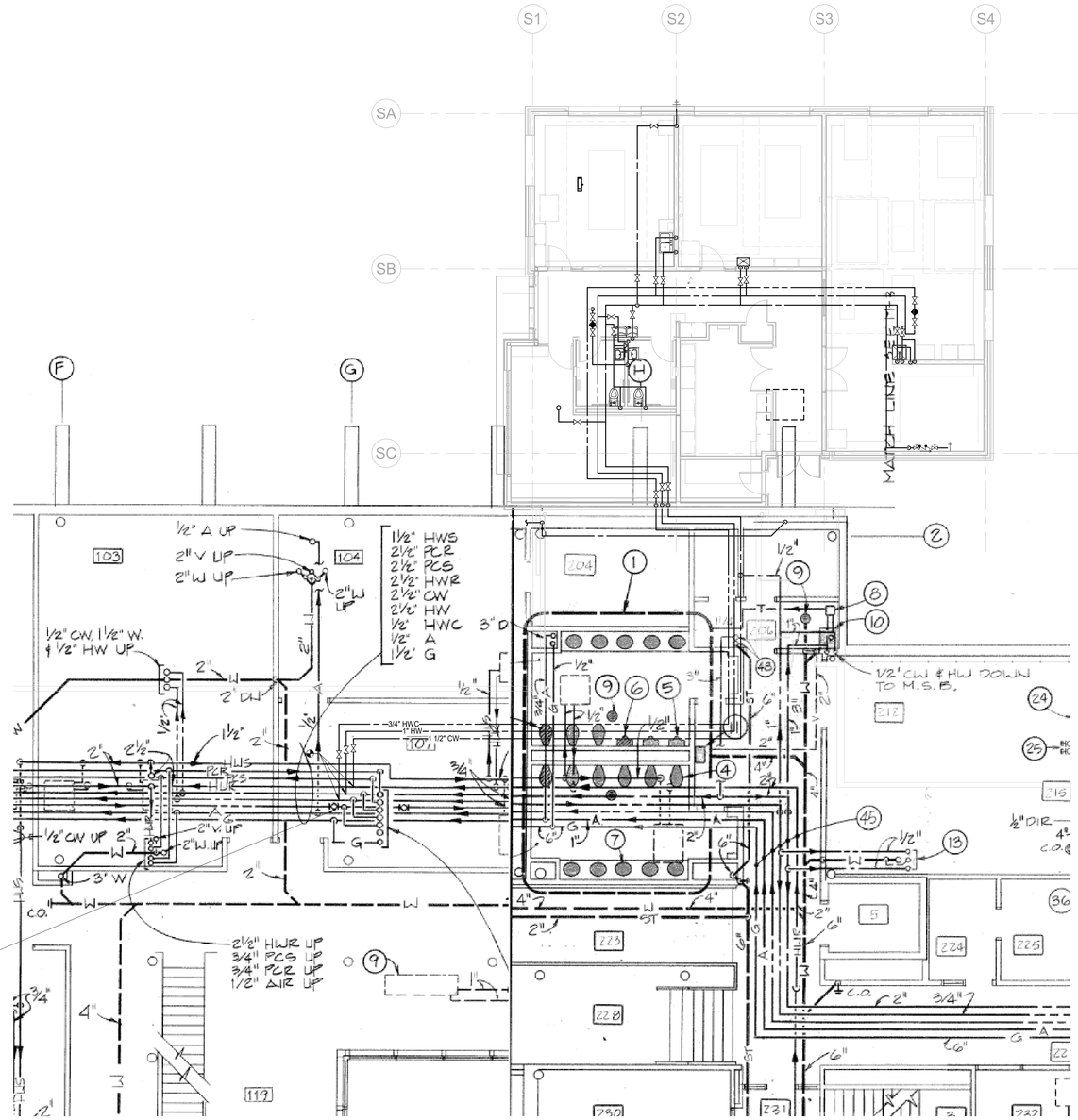

CONNECT TO RISER MAIN IN THIS AREA

LEVEL 3 DOMESTIC WATER PLAN - SHOP

SCALE: 1/8" = 1'-0"

EXISTING BUILDING PLUMBING PLAN SHOWN FOR INTENT OF ROUTING AND CONNECTION POINT INSIDE EXISTING BUILDING. COORDINATE CEILING REMOVAL AND REPLACE WITH GC ALONG WITH CUTTING AND PATCHING.

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PROJ. NO. 121091.00
DRAWN: Author
CHECKED: Checker
APPROVED: Approver
DATE: 10/26/2022

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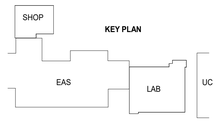
ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
PLUMBING PLAN
SERIES - SHOP BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER
P-104B



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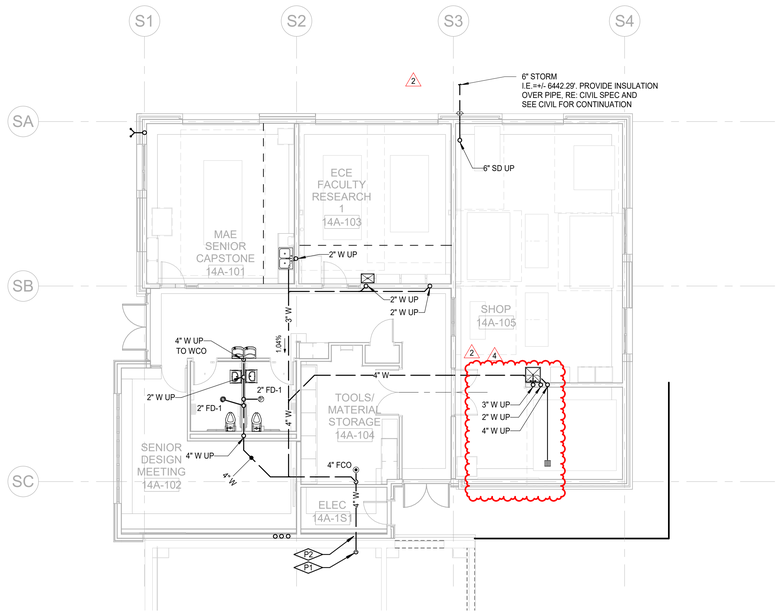
KEYNOTES	
P1	CONNECT 4" WASTE TO EXISTING WASTE MAIN AT RESTROOM IN EXISTING EAS BUILDING. CUT AND PATCH FLOOR AS REQUIRED.
P2	OFFSET WASTE INSIDE AND OUTSIDE OF BUILDING AS REQUIRED TO CONNECT TO EXISTING EAS BUILDING SYSTEM.



FOUNDATION WASTE & VENT PLAN - SHOP

SCALE: 1/8" = 1'-0"

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4 10/26/2022 Addenda 4

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
CONSTRUCTION DOCUMENTS

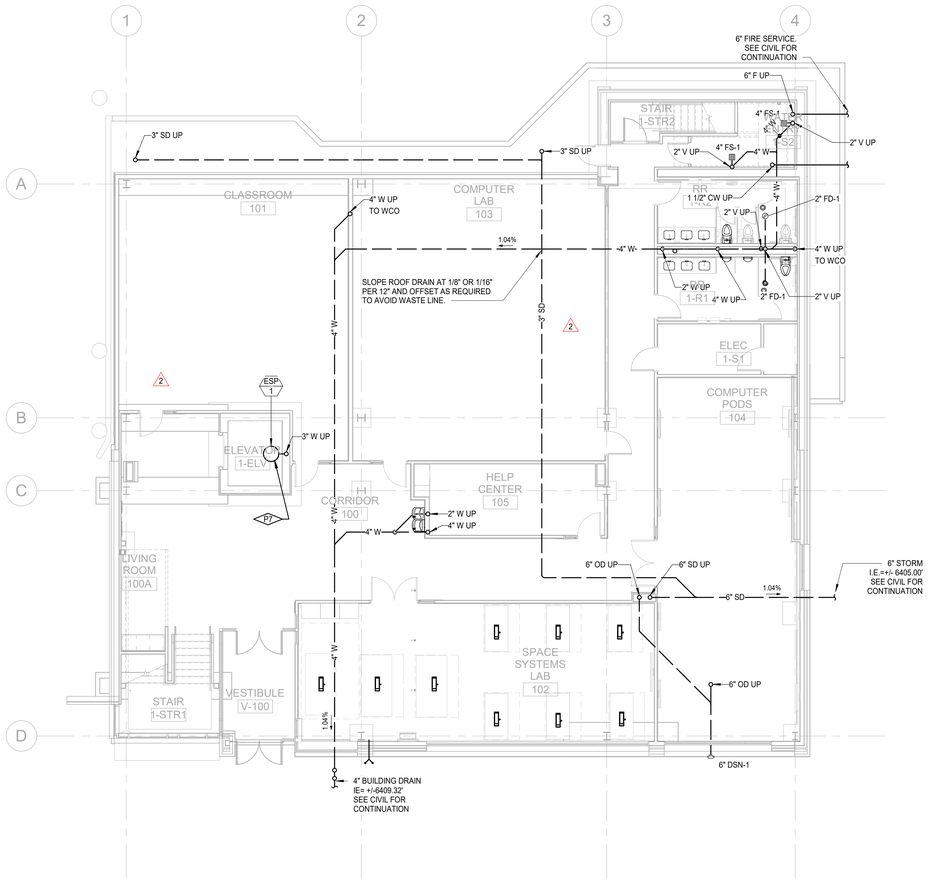
SHEET TITLE:
WASTE & VENT PLAN SERIES - FOUNDATION - SHOP BLDG
SCALE: 1/8" = 1'-0"
SHEET NUMBER

P-109A

10/25/2022 12:51:50 PM P:\CU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad

KEYNOTES	
P7	ELEVATOR SUMP PUMP. COORDINATE SUMP LOCATION AND PIPE RISER LOCATION WITH ELEVATOR INSTALLER PRIOR TO CONSTRUCTION. COORDINATE PIPE ROUTING IN SHAFT WITH ELEVATOR MANUFACTURER.

4



FOUNDATION WASTE & VENT PLAN

SCALE: 1/8" = 1'-0"

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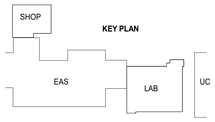
SHEET TITLE:
WASTE & VENT PLAN SERIES - FOUNDATION - LAB BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER

P-110A



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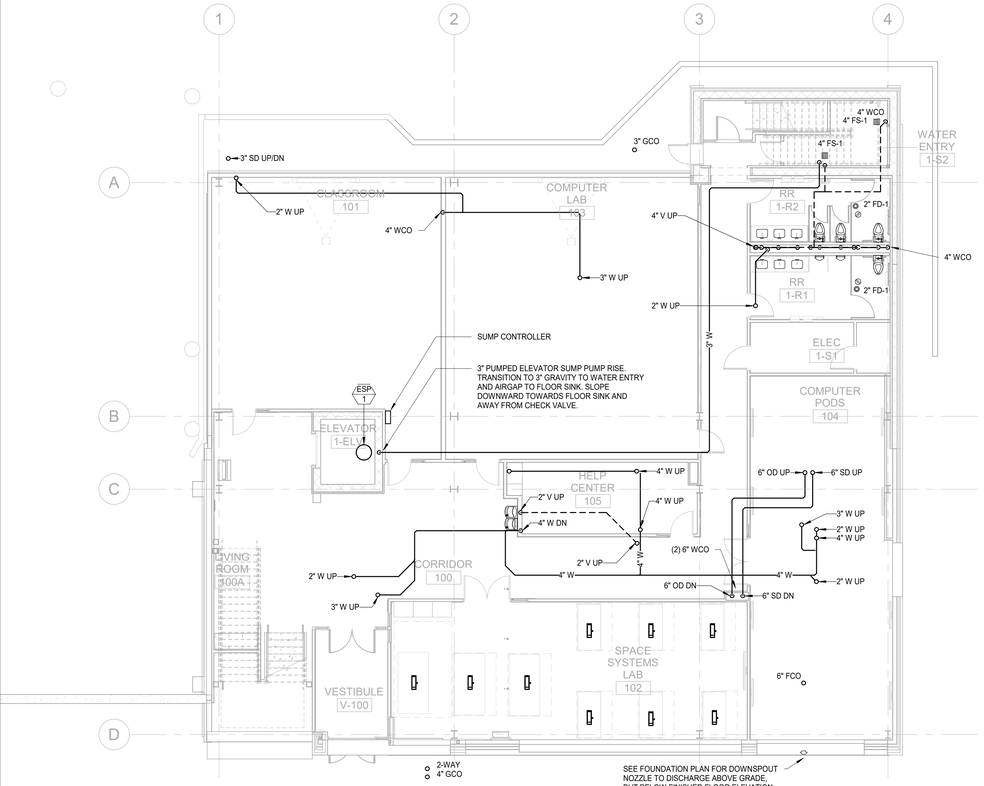
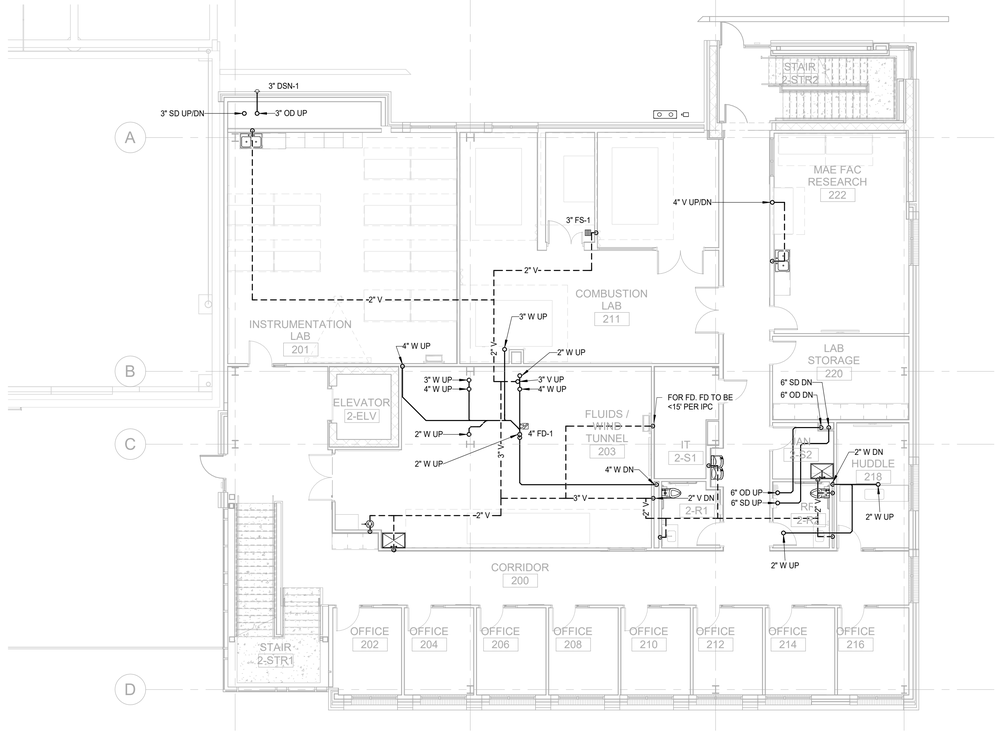
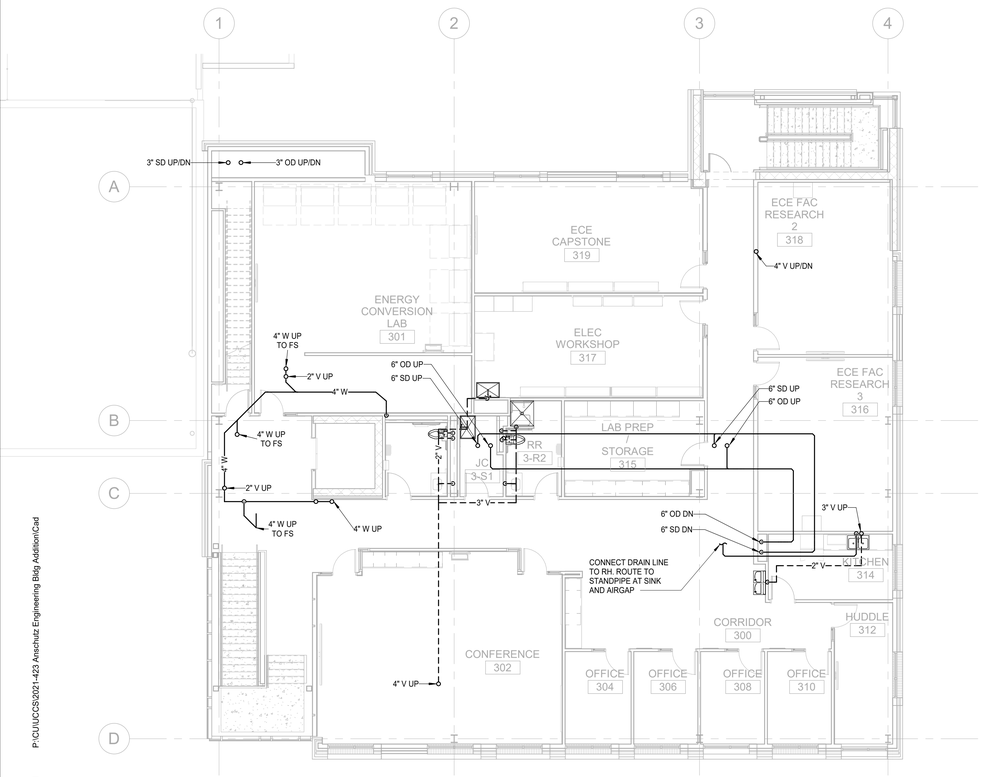


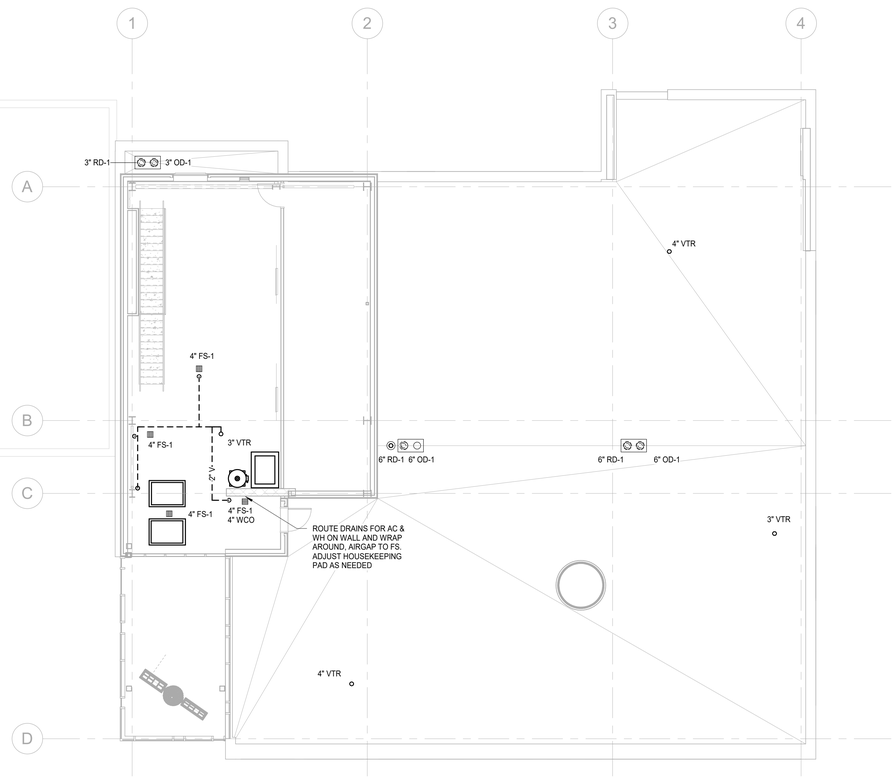
LEVEL 1 WASTE & VENT PLAN
SCALE: 1/8" = 1'-0"



LEVEL 2 WASTE & VENT PLAN
SCALE: 1/8" = 1'-0"



LEVEL 3 WASTE & VENT PLAN
SCALE: 1/8" = 1'-0"



LEVEL 4 WASTE & VENT PLAN
SCALE: 1/8" = 1'-0"

KEYNOTES

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ISSUED FOR:
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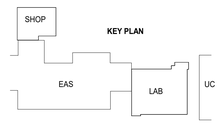
SHEET TITLE:
WASTE & VENT PLAN SERIES - LAB BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER
P-111A



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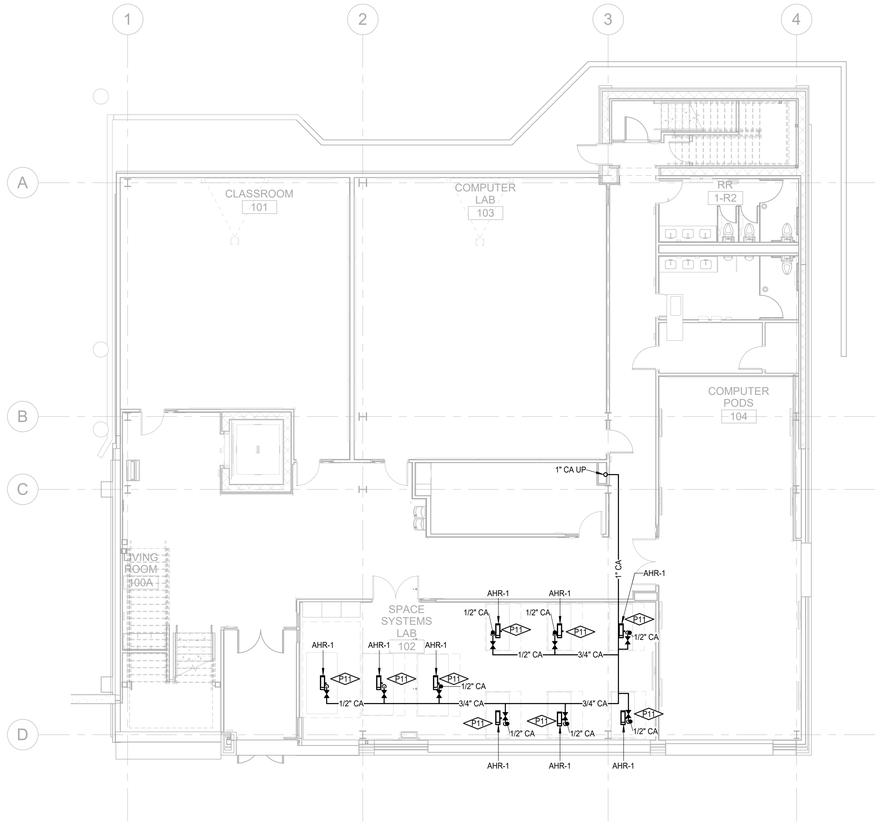
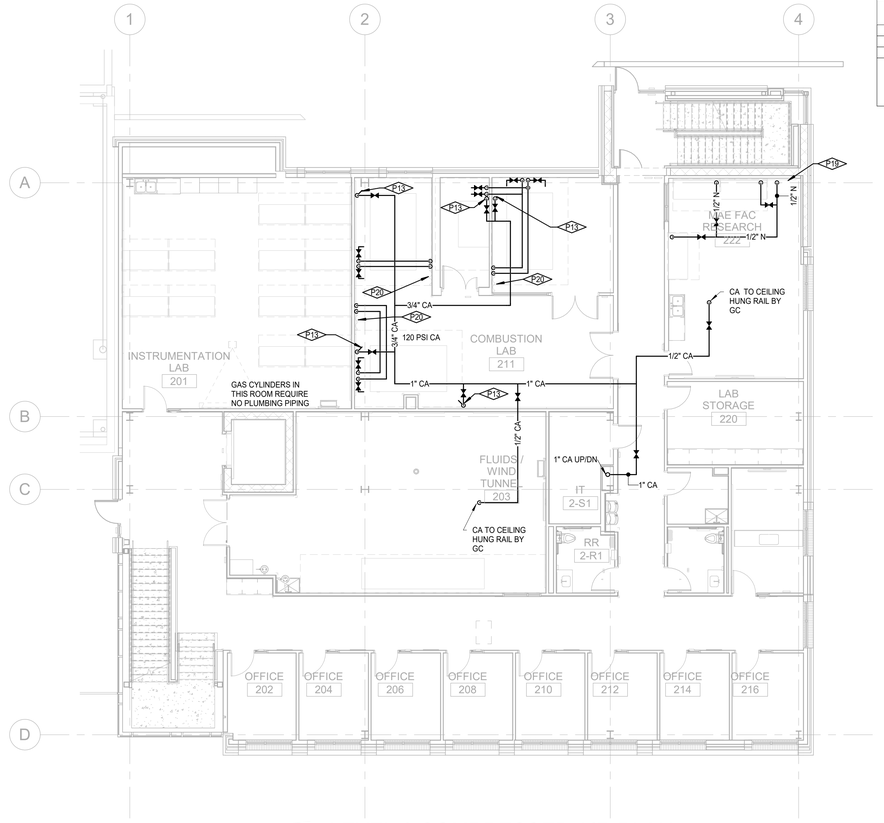
KEYNOTES

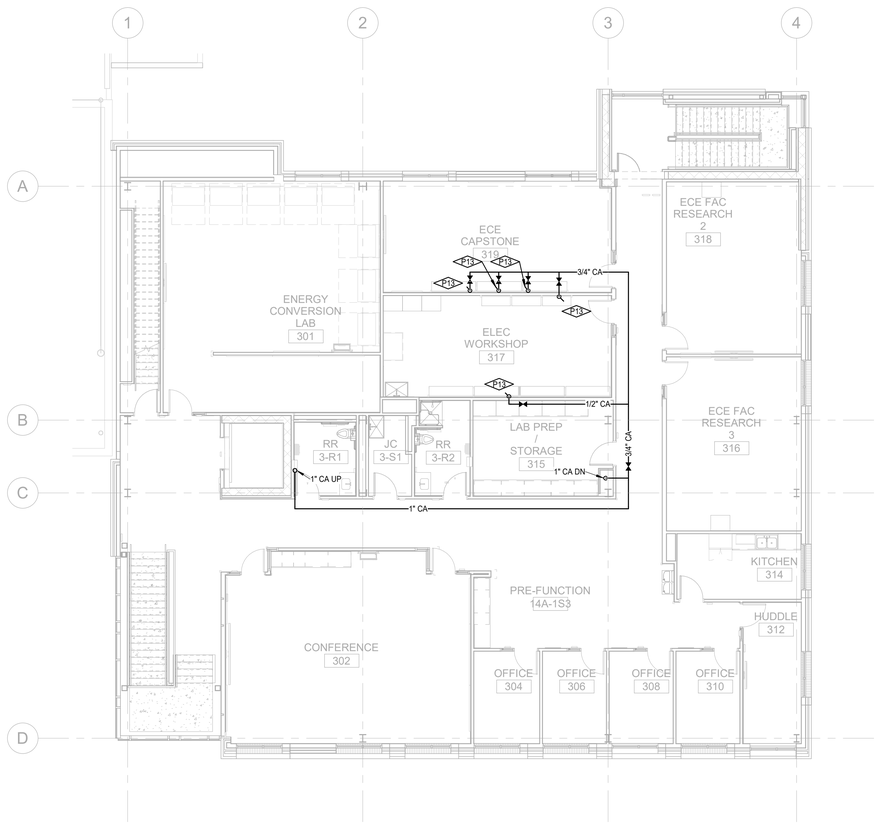
P11	1/2" CA TO HOSE REEL WITH PRV
P13	1/2" CA TO AIR QUICK CONNECT WITH PRV
P19	PROVIDE MANIFOLD FOR GASES AND PRESUSRE REQUESTED BY OWNER.
P20	PROVIDE PROPANE AND HYDROGEN MANIFOLDS FOR GASES. VERIFY PRESSURE WITH OWNER PRIOR TO ORDERING MANIFOLD. PROVIDE 3/16" HP SS TUBE WITH SWAGELOK FITTING FROM MANIFOLD TO LOCATION SHOWN WITH SHUTOFF VALVE FOR EACH. CONNECTION TO EQUIPMENT BY OWNER.



LEVEL 1 COMPRESSED AIR PLAN
SCALE: 1/8" = 1'-0"



LEVEL 2 COMPRESSED AIR PLAN
SCALE: 1/8" = 1'-0"



LEVEL 3 COMPRESSED AIR PLAN
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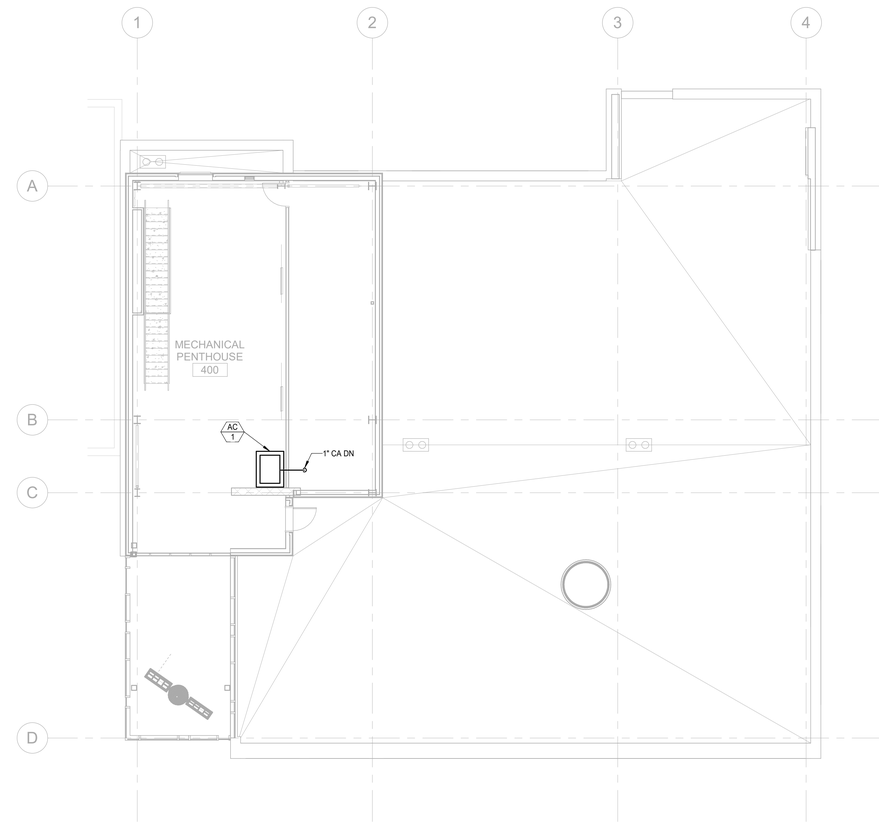
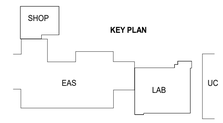


LEVEL 4 COMPRESSED AIR PLAN
SCALE: 1/8" = 1'-0"



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SHEET TITLE:
COMPRESSED AIR PLAN

SCALE: 1/8" = 1'-0"
SHEET NUMBER
P-120A

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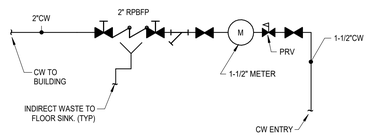
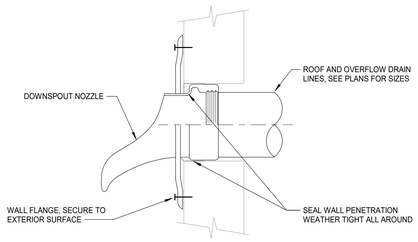


DOMESTIC WATER ENTRY DETAIL

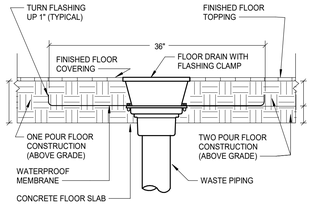
SCALE: NONE 1000-05



DOWNSPOUT NOZZLE DETAIL

SCALE: NONE

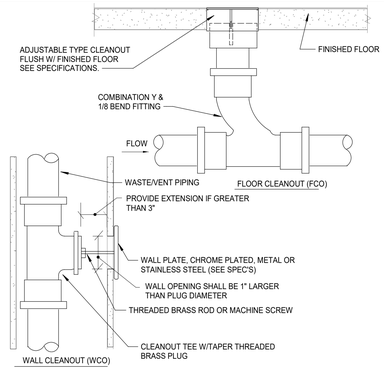
1423-03



FLOOR DRAIN FLASHING DETAIL

SCALE: NONE

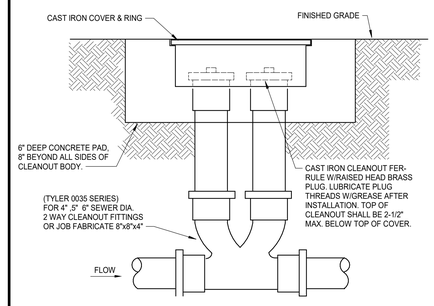
1319-05



CLEANOUT DETAIL

SCALE: NONE

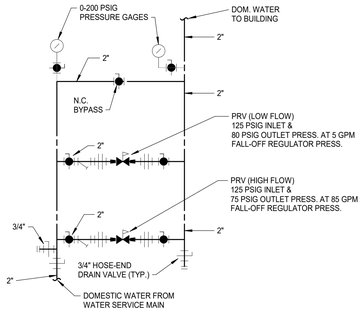
1319-08



SURFACE 2-WAY CLEANOUT DETAIL

SCALE: NONE

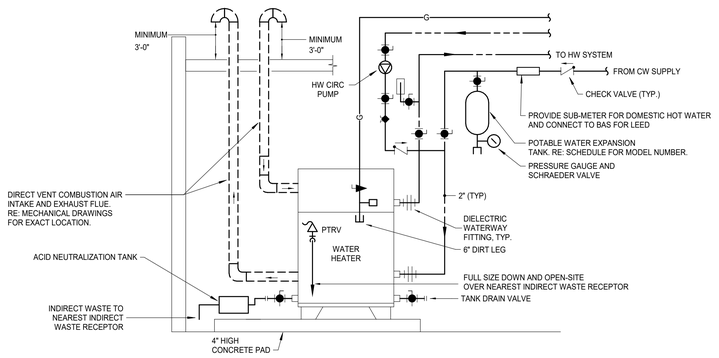
1319-06 09.24.20



WATER PRESSURE REDUCING STATION DETAIL

SCALE: NONE

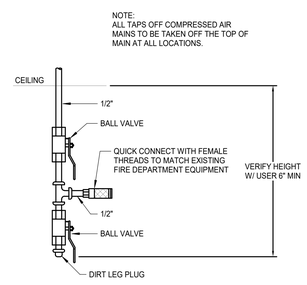
1110-01



CONDENSING GAS WATER HEATER PIPING DETAIL

SCALE: NONE

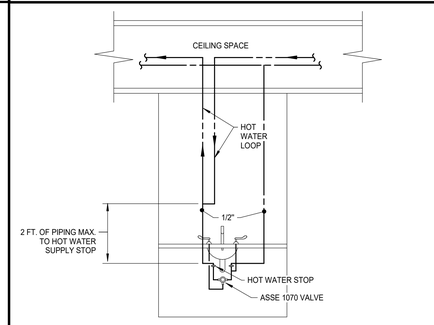
3000-07 05.04.22



COMPRESSED AIR CONNECTION DETAIL

SCALE: NONE

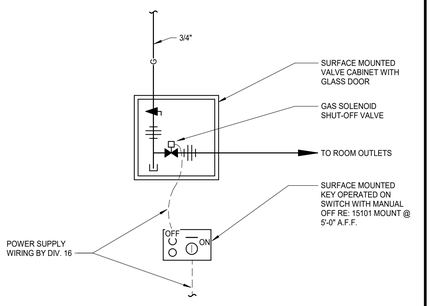
1513-02



HOT WATER RECIRCULATION DETAIL FOR PUBLIC LAVATORY FAUCETS

SCALE: NONE

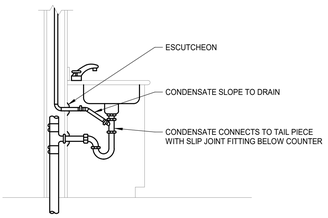
1110-09



GAS SHUT-OFF VALVE DETAIL

SCALE: NONE

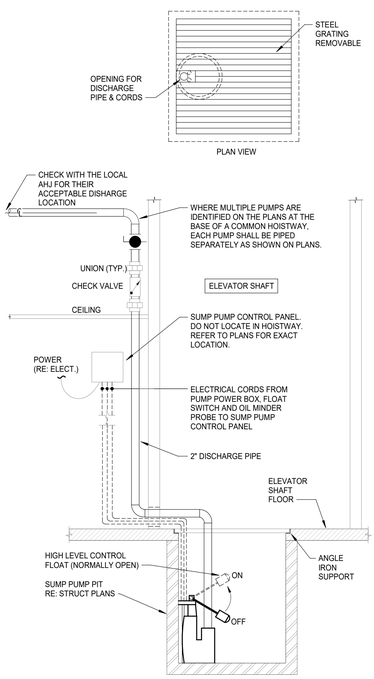
1123-02



CONDENSATE TO LAVATORY DETAIL

SCALE: NONE

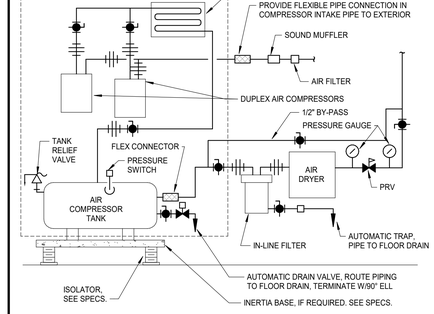
1319-09



ELEVATOR SUMP DETAIL

SCALE: NONE

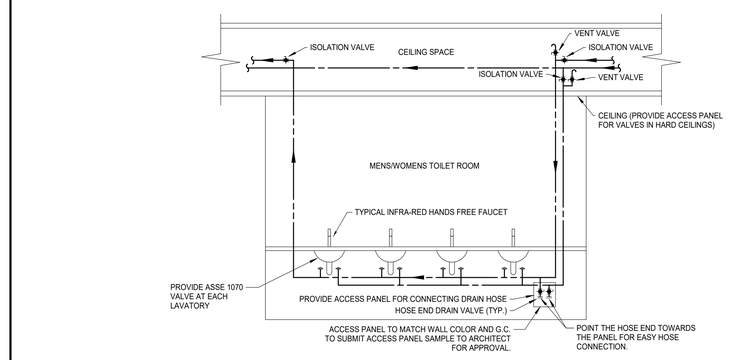
1023-06 04.20.22



AIR COMPRESSOR DETAIL

SCALE: NONE

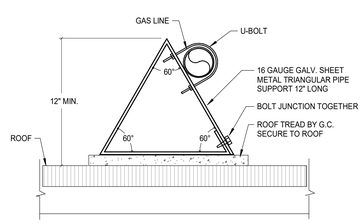
0943-01



HOT WATER RECIRCULATION DETAIL FOR MULTIPLE PUBLIC LAVATORY FAUCETS

SCALE: NONE

1110-10



GAS PIPING ON ROOF SUPPORT DETAIL

SCALE: NONE

0529-04

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SHEET TITLE:
PLUMBING DETAILS

SCALE: 1/8" = 1'-0"
SHEET NUMBER
P-401

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GENERAL LEGEND
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION
	X / X-X	SECTION DESIGNATION SECTION CUT ON THIS SHEET
	X / X-X	VIEW REFERENCE DESIGNATION VIEW REFERENCE ON THIS SHEET
	X / 1-2-3	EQUIPMENT UNIT IDENTIFICATION EQUIPMENT UNIT NUMBER (UNIT SERVED - FLOOR - SEQUENCE #)
	A 10 / 250	DIFFUSER IDENTIFICATION DIFFUSER NECK DIAMETER DIFFUSER CFM
	E 8ø/24"L / 9999	LINEAR DIFFUSER IDENTIFICATION LINEAR DIFFUSER NECK DIAMETER LINEAR DIFFUSER LENGTH LINEAR DIFFUSER CFM
	2'-6" FTR / 3'-6" 28	FINNED TUBE RADIATOR ACTIVE ELEMENT LENGTH EQUIPMENT UNIT IDENTIFICATION EQUIPMENT UNIT NUMBER RADIATOR ENCLOSURE LENGTH (OR W-W=WALL-TO-WALL)
	X	KEY NOTE REFERENCE
	1	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE
		TYPICAL ROOM REFERENCE (TOP = RM #, BOTTOM = FLR)
		POINT OF CONNECTION, NEW TO EXISTING
		POINT OF DISCONNECTION, DEMO
		DIRECTION OF FLOW IN PIPE
		DUCTWORK, PIPING AND EQUIPMENT TO BE REMOVED
(E)		EXISTING
(N)		NEW
(R)		RELOCATED
(F)		FUTURE
DIA	Ø	DIAMETER
WAD		WALL ACCESS DOOR
NIC		NOT IN CONTRACT
AFF		ABOVE FINISHED FLOOR
GC		GENERAL CONTRACTOR
MC		MECHANICAL CONTRACTOR
EC		ELECTRICAL CONTRACTOR
UNO		UNLESS NOTED OTHERWISE
C		COMMON
NC		NORMALLY CLOSED
NO		NORMALLY OPEN

ABBR.	SYMBOL	DESCRIPTION
		CAP END OF PIPE
	SLOPE	PITCH DOWN IN DIRECTION OF ARROW
		PIPE ANCHOR
		PIPE ALIGNMENT GUIDE
		UNION OR FLANGE
		CONCENTRIC PIPE REDUCER
		ECCENTRIC PIPE REDUCER
PRV		PRESSURE REDUCING VALVE
PTRV		PRESSURE AND/OR TEMPERATURE RELIEF VALVE
		ISOLATION VALVE (RE: SPEC FOR TYPE)
		VERTICAL PIPE VALVE
CV		CHECK VALVE
		SOLENOID / MOTORIZED VALVE
		SOLENOID VALVE
		HOSE END DRAIN VALVE
P/T	P/T	PRESSURE / TEMPERATURE TAP
		STRAINER
		STRAINER W/ BLOWDOWN
		BRAIDED FLEXIBLE PIPE CONNECTOR
		DOUBLE-BOWL FLEXIBLE PIPE CONNECTOR
		THERMOMETER
		PRESSURE GAUGE
		SIGHT GLASS
C.A.P.		CEILING ACCESS PANEL
		PUMP
TB		THRUST BLOCK
MAV		MANUAL AIR VENT
AAV		AUTOMATIC AIR VENT

DOUBLE/SINGLE LINE DUCT LEGEND
(Not all symbols listed below are used on these drawings)

HVAC LEGEND
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION
HWS	—HWS—	HEATING WATER SUPPLY PIPING
HWR	— -HWR- —	HEATING WATER RETURN PIPING
HTWS	—HTWS—	HIGH TEMPERATURE HEATING WATER SUPPLY PIPING
HTWR	— HTWR —	HIGH TEMPERATURE HEATING WATER RETURN PIPING
CHWS	—CHWS—	CHILLED WATER SUPPLY PIPING
CHWR	— CHWR —	CHILLED WATER RETURN PIPING
D	—D—	COOLING COIL DRAIN PAN PIPING
CWS	—CWS—	CONDENSER WATER SUPPLY PIPING
CWR	— -CWR- —	CONDENSER WATER RETURN PIPING
GHWS	—GHWS—	GLYCOL HEATING WATER SUPPLY PIPING
GHWR	— GHWR —	GLYCOL HEATING WATER RETURN PIPING
PCWS	—PCWS—	PROCESS CHILLED WATER SUPPLY PIPING
PCWR	— PCWR —	PROCESS CHILLED WATER RETURN PIPING
LPS	—LPS—	LOW PRESSURE STEAM SUPPLY PIPING (0 - 15#)
LPC	— -LPC- —	LOW PRESSURE CONDENSATE RETURN PIPING
MPS	—MPS—	MEDIUM PRESSURE STEAM SUPPLY PIPING (16# - 60#)
MPC	— -MPC- —	MEDIUM PRESSURE CONDENSATE RETURN PIPING
HPS	—HPS—	HIGH PRESSURE STEAM SUPPLY PIPING (61# - 125#)
HPC	— -HPC- —	HIGH PRESSURE CONDENSATE RETURN PIPING
PC	—PC—	PUMPED CONDENSATE PIPING
BBD	—BBD—	BOILER BLOWDOWN PIPING
BF	—BF—	BOILER FEED WATER PIPING
RL	—RL—	REFRIGERANT LIQUID PIPING
RS	— -RS- —	REFRIGERANT SUCTION PIPING
RHG	—RHG—	REFRIGERANT HOT GAS PIPING
TT	TT	THERMOSTATIC STEAM TRAP
F&T	F&T	FLOAT AND THERMOSTATIC STEAM TRAP
IBT	IBT	INVERTED BUCKET STEAM TRAP
TCV		(2 OR 3-WAY) TEMPERATURE CONTROL VALVE
		VENTURI METER
BV		CALIBRATED BALANCING VALVE
AFV		AUTO FLOW VALVE
RSV		REFRIGERANT SERVICE VALVE
DPS	DP	DIFFERENTIAL PRESSURE SWITCH
FS		FLOW SWITCH
EJ		EXPANSION JOINT
BJ		BALL JOINT EXPANSION COMPENSATOR
SA		SUPPLY AIR
RA		RETURN AIR
EA		EXHAUST AIR
OA		OUTSIDE AIR

ABBR.	SYMBOL	DESCRIPTION
		SUPPLY DUCT UP / DOWN
		RETURN DUCT UP / DOWN
		EXHAUST DUCT UP / DOWN
		ROUND DUCT UP / ROUND DUCT DOWN
48F12		FLAT OVAL DUCTWORK
		FLEXIBLE DUCT CONNECTION
BDD		BACKDRAFT DAMPER
TCD		TEMP. CONTROL DAMPER-OPPOSED BLADE
TCD		TEMP. CONTROL DAMPER- PARALLEL BLADE
MVD		MANUAL VOLUME DAMPER
MD	M	DUCT MOTORIZED DAMPER
		CONICAL FITTING WITH MVD
		SPIN-IN FITTING WITH MVD
FD		DUCT FIRE DAMPER
FSD		COMBINATION DUCT FIRE/SMOKE DAMPER
SD		DUCT SMOKE DAMPER
		DUCT SMOKE DETECTOR
DAD		DUCT ACCESS DOOR
		TURNING VANES IN DUCT ELBOW
EP		ELECTRIC-PNEUMATIC CONTROL VALVE
PE		PNEUMATIC-ELECTRIC CONTROL SWITCH
	S ES	WALL SWITCH / EMERGENCY SWITCH
	TS	TEMPERATURE SENSOR
	T	WALL MOUNTED THERMOSTAT
	CO2	WALL MOUNTED CARBON DIOXIDE SENSOR
	O2	WALL MOUNTED OXYGEN SENSOR
	H	HUMIDISTAT
	T	UNIT MOUNTED THERMOSTAT
	P PM	PRESSURE SENSOR / PRESSURE MONITOR
	U	UNDERCUT DOOR
	L	LOUVER IN DOOR
	RISE	DUCT RISE
	DROP	DUCT DROP
A.L.		ACOUSTICAL INTERNALLY LINED DUCTWORK
TCOAD		TEMPERATURE CONTROL OUTSIDE AIR DAMPER
TCRAD		TEMPERATURE CONTROL RETURN AIR DAMPER
TCEAD		TEMPERATURE CONTROL EXHAUST AIR DAMPER
SP IN WC		STATIC PRESSURE IN INCHES WATER COLUMN
EOMD		END OF MAIN DRIP
SCCR		SHORT CIRCUIT CURRENT RATING
SD		SUPPLY AIR DEVICE
RG		RETURN AIR DEVICE
RG		RETURN AIR DEVICE WITH SOUND BOOT
EG		EXHAUST AIR DEVICE

BAS CONTROL LEGEND & NOTES
(Not all symbols listed below are used on these drawings)

ABBR.	SYMBOL	DESCRIPTION
D.I.	D.I.	DIGITAL INPUT
D.O.	D.O.	DIGITAL OUTPUT
A.I.	A.I.	ANALOG INPUT
A.O.	A.O.	ANALOG OUTPUT

GENERAL NOTES:

1. THE TEMPERATURE CONTROL MATRIX, CONTROL DIAGRAMS, AND THE SEQUENCE OF OPERATIONS ARE ALL BINDING AND COMPLEMENTARY. IF THERE IS A DISCREPANCY BETWEEN THEM, THE WORST CASE SCENARIO SHALL BE USED FOR BIDDING PURPOSES. ADDITIONAL COSTS WILL NOT BE ALLOWED FOR DISCREPANCIES BETWEEN THE SPECIFICATIONS AND THE DRAWINGS.
2. IN ADDITION TO THE DDC POINTS LISTED, THE CONTRACTOR SHALL CAREFULLY REVIEW ALL DRAWINGS, ALL SPECIFICATIONS, AND ALL SEQUENCES OF OPERATION. THE DOCUMENTS ARE ALL INCLUSIVE AND COMPLIMENTARY TO EACH OTHER. THE PROJECT SHALL INCLUDE ANY AND ALL NECESSARY DDC POINTS TO SUPPORT THE REQUIREMENTS OF ALL THE DOCUMENTS.
3. ALWAYS REFER TO DRAWINGS FOR QUANTITY.
4. PROVIDE OPEN PROTOCOL COMMUNICATION WITH FACTORY SUPPLIED CONTROLLER.
5. BAS CONTRACTOR SHALL COORDINATE STATUS LEVEL FOR EACH ALARM POINT WITH THE OWNER TO DETERMINE WHICH ONES REQUIRE IMMEDIATE ATTENTION.
6. IF THERE IS A DISCREPANCY BETWEEN ANY DOCUMENTATION, THE WORST CASE SCENARIO SHALL BE USED FOR BIDDING PURPOSES. ADDITIONAL COSTS WILL NOT BE ALLOWED FOR DISCREPANCIES BETWEEN THE SPECIFICATIONS AND DRAWINGS.

UNLESS NOTED OTHERWISE ALL SCHEDULED DATA IS LISTED AT ELEVATION 6000 FT

HVAC PLAN NOTES:

1. ALL SUPPLY AIR DIFFUSERS ARE 4-WAY AIR PATTERN UNLESS SHOWN OTHERWISE.
2. DUCT SIZE OF BRANCH DUCT TO AIR DEVICE SHALL BE THE SAME SIZE AS NECK SIZE OF AIR DEVICE UNLESS NOTED OTHERWISE.
3. ALL HEATING WATER SUPPLY AND RETURN BRANCH PIPING TO TERMINAL BOXES SHALL BE 3/4" UNLESS NOTED OTHERWISE. ALL PIPING TAKE-OFFS FROM MAINS SHALL BE TOP TAKE-OFFS WITH SWING JOINTS.
4. BRANCH DUCT SIZE TO INLET OF ALL TERMINAL BOXES SHALL BE THE SAME SIZE AS THE INLET SCHEDULED UNLESS NOTED OTHERWISE. BRANCH DUCTS TO TERMINAL BOXES EXCEEDING 15' OR TWO ELBOWS, SHALL BE UP-SIZED TO NEXT STANDARD DIAMETER.
5. UNLESS OTHERWISE NOTED, ALL CONCEALED MEDIUM PRESSURE SUPPLY AIR DUCTWORK SHALL BE EXTERNALLY WRAPPED TO THICKNESS AS STATED IN SPECIFICATIONS, ALL EXPOSED DUCTWORK SHALL BE PAINTED, LOW PRESSURE SUPPLY AIR DUCTWORK SHALL BE INTERNALLY LINED DOWNSTREAM OF THE VAV BOX, LOW PRESSURE RETURN AIR DUCTWORK SHALL BE INTERNALLY LINED, EXHAUST DUCTWORK IS NEITHER LINED NOR WRAPPED.
6. PROVIDE ROOM AIR BALANCE TO ACHIEVE POSITIVE (+) OR NEGATIVE (-) AT THE DIFFERENTIAL PRESSURE INDICATED ON THE DRAWINGS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF PENETRATION DETAILS.
8. DUCT SIZES INDICATED ARE SHEET METAL SIZES. WHERE INTERNAL DUCT LINING IS PROVIDED, SHEET METAL SHALL NOT BE INCREASED IN SIZE.
9. ALL EXPOSED DUCT SHALL BE PAINTED.

GENERAL NOTES:

1. WORK INCLUDED IN THE CONTRACT IS DENOTED IN BOLD. EXISTING CONDITIONS TO REMAIN ARE DENOTED LIGHTLY.
2. A DETAILED METHOD OF PROCEDURE IS REQUIRED WHEN A CONSTRUCTION ACTIVITY AFFECTS THE SAFETY OF THE OCCUPANTS, OWNER'S EQUIPMENT OR VALUABLE CONTENTS OR ANY SYSTEM WHICH SUPPORTS THESE SYSTEMS; OR ESSENTIALLY AFFECTS THE BUILDING MANAGEMENT, OPERATIONS OR SECURITY.
3. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF ANY WORK AND SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY DISCREPANCIES FOR RESOLUTION.
4. COORDINATE WORK WITH ALL TRADES.
5. CONTRACTOR IS RESPONSIBLE FOR SECURING AND WEATHERPROOFING ANY ROOF OPENING NOT COMPLETED DURING WORKING HOURS.
6. COORDINATE ALL DUCTWORK AND PIPING WITH EQUIPMENT, STRUCTURE, ETC.

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ISSUED FOR: CONSTRUCTION DOCUMENTS
SHEET TITLE: MECHANICAL LEGENDS & NOTES
SCALE: 1/8" = 1'-0"
SHEET NUMBER
M-001

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AIR HANDLING UNIT SCHEDULE (SEMI-CUSTOM)

COLUMN HEADING NOTES:

NOTE AA: THESE VALUES REFLECT THE EXPECTED OPERATIONAL CONDITIONS AT INITIAL START-UP (FOR INFORMATION ONLY.) ACTUAL VALUES SHALL BE DETERMINED BY TESTING & BALANCING.

NOTE AB: COIL FLOW IS ACTUAL FLOW THROUGH COIL. SYSTEM FLOW IS THE FLOW THROUGH THE CONTROL VALVE. THESE MAY BE DIFFERENT FOR PUMPED COILS.

COMMON NOTES (APPLIES TO ALL AIR HANDLERS):

A. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
B. UNIT HEIGHT DOES NOT INCLUDE HEIGHT OF CURB.
C. PROVIDE BASE RAIL OR CURB HEIGHT TO ACCOMMODATE CONDENSATE DRAIN P-TRAP.
D. PROVIDE SHAFT GROUNDING RINGS FOR EACH BEARING ON MOTORS POWERED THROUGH VARIABLE FREQUENCY DRIVES.
E. PROVIDE FIELD INSTALLED MOTORIZED DAMPERS IN THE OUTSIDE AIR AND EXHAUST AIR DUCT UPSTREAM OF THE UNIT. WIRING FROM MOTORIZED DAMPER TO UNIT CONTROLLER BY TEMPERATURE CONTOLS CONTRACTOR.
F. MINIMUM 6-ROW COOLING COIL.
G. PROVIDE A BLANK OFF PANEL FOR EACH FAN IN A MULTI-FAN SECTION.
H. REFER TO SOUND DATA SCHEDULE FOR SOUND INFORMATION.
I. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

UNIT SPECIFIC REMARKS:

1. REMOTE CONDENSING UNIT
2. DIGITAL SCROLL COMPRESSORS.

DESIG. NAME	DESIG. NO.	AREA SERVED	MFR	MODEL NO.	OUTDOOR OR INDOOR CASING	OUTSIDE AIR CFM MIN.
AHU	1	ENGINEERING BUILDING	TRANE	PSCA	INDOOR	9,600

SUPPLY FAN SECTION

NAME	NO.	ULTIMATE OPERATION AT ELEV CFM	ESP (IN WC)	TSP (IN WC)	OPERATIONAL (NOTE-AA) AT ELEV CFM	ESP (IN WC)	TSP (IN WC)	NO. OF FANS	CONFIG FANS/ ROW	CONFIG ROWS HIGH	WHEEL DIA. (IN)	WHEEL TYPE (AF/BI)	DRIVE (BELT/ DIRECT)	RPM APPROX.	MOTORS EACH FAN REQ'D BHP	EACH FAN MAX POWER	SUM OF MAX POWER ALL FANS	VOLTAGE	PHASE	NO. OF VFDS	VFD BYPASS (YES/NO)	VIBRATION ISOLATOR TYPE
AHU	1	32,000	2.75	4.98	27675	2.25	3.76	2	1	2	30	AF	DIRECT	1669	20.1	25.0	50 HP	480	3	1	No	SEE SPECS

RETURN FAN SECTION

NAME	NO.	ULTIMATE OPERATION AT ELEV CFM	ESP (IN WC)	TSP (IN WC)	OPERATIONAL (NOTE-AA) AT ELEV CFM	ESP (IN WC)	TSP (IN WC)	NO. OF FANS	CONFIG FANS/ ROW	CONFIG ROWS HIGH	WHEEL DIA. (IN)	WHEEL TYPE (AF/BI)	DRIVE (BELT/ DIRECT)	RPM APPROX.	MOTORS EACH FAN REQ'D BHP	EACH FAN MAX POWER	SUM OF MAX POWER ALL FANS	VOLTAGE	PHASE	NO. OF VFDS	VFD BYPASS (YES/ NO)	VIBRATION ISOLATOR TYPE
AHU	1	27,000	1.50	2.11	22675	1.15	1.77	2	1	2	27	AF	DIRECT	1766	9.4	10.0	20 HP	480	3	1	No	SEE SPECS

AIR HANDLING UNIT SCHEDULE (SEMI-CUSTOM)

HEATING COIL SECTION

NAME	NO.	NET FACE AREA (SF)	AT ELEV CFM	AIR P.D. (IN WC)	MBH	EAT °F DB	LAT °F DB	WATER CONDITIONS (NOTE-AB) GPM FROM SYSTEM (NOTE-AB)	COIL FLOW GPM (NOTE-AB)	EWT °F	PROP GLYCOL %	P.D. (FT HD)
AHU	1	67	20,000	0.02	666	31	69	70	140	145	0%	10.80

COOLING COIL SECTION

NAME	NO.	NET FACE AREA (SF)	AT ELEV CFM	AIR P.D. (IN WC)	MBH SENS	MBH TOTAL	EAT °F DB	EAT °F WB	LAT °F DB	LAT °F WB	REFRIG COIL (YES/NO)
AHU	1	63	32000	0.40	1,095	1095	91	60	52	46	Yes

REFRIGERATION SECTION

NAME	NO.	REFRIGERANT TYPE	LOAD PER CIRCUIT (LBS)	NO. OF CIRCUITS	COMPRESSORS NO.	CONTROL STAGES	LOW STG VARIABLE SCROLL (YES/NO)	HOT GAS BYPASS (YES/NO)	VOLTAGE	PHASE	AHRI EFF IEER	SOUND ATTENUATOR DATA
AHU	1	R410A	59.10	2	6	6	Yes	No	480	3	11.4	SEE SOUND ATTENUATOR SCHEDULE

AIR FILTER SECTIONS / UNIT SIZE

NAME	NO.	PRE-FILTER AREA (SF)	MERV-A RATING	AIR P.D. CLEAN (IN WC)	CHANGE OUT (IN WC)	FINAL AREA (SF)	MERV-A RATING	AIR P.D. CLEAN (IN WC)	CHANGE OUT (IN WC)	L (IN)	W (IN)	H (IN)	OPER WEIGHT (LBS)	CONTROL	REMARKS
AHU	1	72	8	0.12	0.63	72	13	0.20	0.65	320	113	117	11,250	SEE SPECS	1, 2

ENERGY RECOVERY VENTILATOR

COMMON NOTES:

A. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
B. UNIT HEIGHT DOES NOT INCLUDE HEIGHT OF CURB.
C. PROVIDE BASE RAIL OR CURB HEIGHT TO ACCOMMODATE CONDENSATE DRAIN P-TRAP.
D. PROVIDE SHAFT GROUNDING RINGS FOR EACH BEARING ON MOTORS POWERED THROUGH VARIABLE FREQUENCY DRIVES.
E. PROVIDE A GRAVITY BACKDRAFT DAMPER ON EACH FAN IN A MULTI-FAN SECTION.
F. REFER TO SOUND DATA SCHEDULE FOR SOUND INFORMATION.
G. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

UNIT SPECIFIC REMARKS:

1. REMOTE CONDENSING UNIT

DESIG. NAME	DESIG. NO.	AREA SERVED	MFR	MODEL NO.	OUTDOOR OR INDOOR CASING	OUTSIDE AIR CFM MIN.	OUTSIDE AIR CFM MIN. OPERATIONAL (NOTE-AA)
ERV	1	SHOP BUILDING	GREENHECK	ERV-20-30L	INDOOR	1,500	1,500

SUPPLY FAN SECTION

NAME	NO.	ULTIMATE OPERATION AT ELEV CFM	ESP (IN WC)	TSP (IN WC)	NO. OF FANS	WHEEL DIA. (IN)	WHEEL TYPE (AF/BI)	DRIVE (BELT/ DIRECT)	RPM APPROX.	MOTORS EACH FAN REQ'D BHP	EACH FAN MAX POWER	SUM OF MAX POWER ALL FANS	VOLTAGE	PHASE	NO. OF VFDS	VFD BYPASS (YES/NO)	VIBRATION ISOLATOR TYPE
ERV	1	1,500	1.50	1.75	1	6	FC	BELT	1735	1.1	1.5	1.5 HP	480	3	0	No	SEE SPECS

EXHAUST FAN SECTION

NAME	NO.	ULTIMATE OPERATION AT ELEV CFM	ESP (IN WC)	TSP (IN WC)	NO. OF FANS	WHEEL DIA. (IN)	WHEEL TYPE (AF/BI)	DRIVE (BELT/ DIRECT)	RPM APPROX.	MOTORS EACH FAN REQ'D BHP	EACH FAN MAX POWER	SUM OF MAX POWER ALL FANS	VOLTAGE	PHASE	NO. OF VFDS	VFD BYPASS (YES/ NO)	VIBRATION ISOLATOR TYPE
ERV	1	1,500	0.50	0.68	1	6	FC	BELT	1274	0.6	1.0	1 HP	480	3	0	No	SEE SPECS

ENERGY RECOVERY VENTILATOR

ENERGY RECOVERY WHEEL OR AIR-TO-AIR HEAT EXCHANGER — HEATING

NAME	NO.	EXHAUST AIR AT ELEV CFM	AIR P.D. (IN WC)	EAT °F DB	EAT °F WB	LAT °F DB	LAT °F WB	OUTSIDE AIR AT ELEV CFM	AIR P.D. (IN WC)	EAT °F DB	EAT °F WB	LAT °F DB	LAT °F WB	MBH HEAT TRANSFER
ERV	1	1500	0.67	70	53	5	5	1500	0.67	-10	-11	56	45	107.7

ENERGY RECOVERY WHEEL OR AIR-TO-AIR HEAT EXCHANGER — COOLING

NAME	NO.	EXHAUST AIR AT ELEV CFM	AIR P.D. (IN WC)	EAT °F DB	EAT °F WB	LAT °F DB	LAT °F WB	OUTSIDE AIR AT ELEV CFM	AIR P.D. (IN WC)	EAT °F DB	EAT °F WB	LAT °F DB	LAT °F WB	MBH HEAT TRANSFER	SOUND ATTENUATOR DATA
ERV	1	1500	0.67	70	57	91	66	1500	0.67	95	68	74	59	50.0	SEE SOUND ATTENUATOR SCHEDULE

AIR FILTER SECTIONS / UNIT SIZE

NAME	NO.	PRE-FILTER AREA (SF)	MERV-A RATING	AIR P.D. CLEAN (IN WC)	CHANGE OUT (IN WC)	FINAL AREA (SF)	MERV-A RATING	AIR P.D. CLEAN (IN WC)	CHANGE OUT (IN WC)	L (IN)	W (IN)	H (IN)	OPER WEIGHT (LBS)	CONTROL	REMARKS
ERV	1	4	8	0.15	0.70	4	13	0.15	0.80	51	62	34	696	SEE SPECS	1

AIR COOLED CONDENSING UNIT SCHEDULE

REMARKS:

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. REFER TO SOUND DATA SCHEDULE FOR SOUND INFORMATION.
3. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.
4. PROVIDE FACTORY-SUPPLIED, FIELD-INSTALLED INTAKE AND DISCHARGE WIND BAFFLES FOR LOW AMBIENT OPERATION OF OUTDOOR UNIT EITHER AS PROVIDED BY THE MANUFACTURER OR SHOP-FABRICATED PER MANUFACTURER'S INSTRUCTIONS.
5. REFER TO ASSOCIATED AHU OR ERV SCHEDULE FOR ADDITIONAL REMARKS APPLICABLE TO OUTDOOR UNITS.
6. CU AND ASSOCIATED AHU SHALL BE MADE BY THE SAME MANUFACTURER.

NAME	NO.	MFR	MODEL	MATCHED SYSTEM COMPONENT	NOMINAL TONS COOL	IEER	TOTAL MBH AT ELEV	AMBIENT AIR TEMP (°F)	LOW AMBIENT AIR TEMP (°F)	REFRIG TYPE	COMPRESSORS TYPE	NUMBER	LOW STG VARIABLE SCROLL (YES/NO)	HOT GAS BYPASS (YES/NO)	SOUND LEVEL (dBA)	SIZE L	SIZE W	SIZE H	OPER WEIGHT (LBS)	VOLTAGE	PHASE	MCA	MOCP	CONTROL	REMARKS
CU	1	TRANE	RAUJD104B	AHU-1	100	11.4	1329.4	105	40	R410A	DIGITAL SCROLL	6	Yes	No	30	228	88	79	6625	480	3	REMARK 1	REMARK 1	SEE SPECS	1-6
CU	2	MITSUBISHI	TURYE0723AN40AN	FCU-1, 2, 3, 4, 5	6	25.6	72.0	0	-6	R410A	INVERTER SCROLL	1	Yes	No	77	29	49	71	644	480	3	17	25	SEE SPECS	1-5

VRF FAN COIL SCHEDULE

REMARKS:

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE UNIT CASING, FILTERS OR COILS.
3. FOR FAN COIL UNITS LOCATED ABOVE CEILINGS, THE MANUFACTURER OR THE CONTRACTOR SHALL PROVIDE SIDE ACCESS REMOVAL FOR AIR FILTER REGARDLESS OF PRODUCT DESIGN AS CLEARANCE FOR BOTTOM ACCESS REMOVAL IS NOT AVAILABLE OR SEVERELY RESTRICTED.
4. REFER TO SOUND DATA SCHEDULE FOR SOUND INFORMATION.
5. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

NAME	NO.	MFR	MODEL	ARRANG.	AREA SERVED	MINIMUM OUTSIDE AIR CFM	FAN DATA CFM AT ELEV	ESP (IN WC) AT ELEV	MOTOR TYPE (ECM/PSC)	POWER	VOLTAGE	PHASE
FCU	1	MITSUBISHI	TPEFYP018MA144A	HORIZONTAL EXPOSED	14A-101	200	550	0.60	DC	2.35 FLA	208	1
FCU	2	MITSUBISHI	TPEFYP018MA144A	HORIZONTAL EXPOSED	14A-103	200	550	0.60	DC	2.35 FLA	208	1
FCU	3	MITSUBISHI	TPEFYP036MA144A	HORIZONTAL EXPOSED	14A-105	475	1200	0.60	DC	3.4 FLA	208	1
FCU	4	MITSUBISHI	TPEFYP015MA144A	HORIZONTAL EXPOSED	14A-104	400	450	0.60	DC	2.3 FLA	208	1
FCU	5	MITSUBISHI	TPEFYP015MA144A	HORIZONTAL CONCEALED	14A-102	225	450	0.60	DC	2.3 FLA	208	1

NAME	NO.	COOLING COIL DATA EAT °F DB	EAT °F WB	LAT °F DB	LAT °F WB	MBH SENS	MBH TOTAL	REFRIG COIL (YES/NO)	AIR P.D. (IN WC) AT ELEV	HEATING COIL DATA EAT °F DB	LAT °F DB	MBH	AIR P.D. (IN WC) AT ELEV
FCU	1	80	61	55	52	15.0	15.0	Yes	0.20	70	100	17.0	0.60
FCU	2	80	61	53	52	15.0	15.0	Yes	0.20	70	100	17.0	0.60
FCU	3	80	61	57	52	26.1	26.1	Yes	0.20	70	96	29.8	0.60
FCU	4	80	61	58	52	10.9	10.9	Yes	0.20	70	95	12.7	0.60
FCU	5	80	61	55	52	10.9	10.9	Yes	0.20	70	99	12.7	0.60

NAME	NO.	FILTER DATA FLAT OR VEE ARRANG	TYPE	AREA (SF)	MERV-A	INCHES THICK	SIZE (INCHES) L	W	H	OPER WT (LBS)	CONTROL	REMARKS
FCU	1	FLAT	PLEATED	1.4	13	2	28	36	10	58	SEE SPECS	1-5
FCU	2	FLAT	PLEATED	1.4	13	2	28	36	10	58	SEE SPECS	1-5
FCU	3	FLAT	PLEATED	1.4	13	2	28	55	11	35	SEE SPECS	1-5
FCU	4	FLAT	PLEATED	1.4	13	2	28	36	12	24	SEE SPECS	1-5
FCU	5	FLAT	PLEATED	1.4	13	2	28	36	12	24	SEE SPECS	1-5

REFRIGERANT BRANCH CONTROLLER SCHEDULE

REMARKS:

1. INSTALL REFRIGERANT PIPING AND CONTROL WIRING BETWEEN BRANCH SELECTOR, CONDENSING UNIT, AND FAN COILS PER MANUFACTURER'S INSTRUCTIONS.
2. COORDINATE WITH ELECTRICAL FOR POWER WIRING. CONNECT REFRIGERANT PIPING PER MANUFACTURER'S INSTRUCTIONS.

NAME	NO.	MFR	MODEL	NUMBER OF BRANCHES	COOLING CAPACITY (BTU/H)	REFRIG TYPE	SIZE (INCHES) L	W	H	ELECTRICAL VOLTAGE	PHASE	CONTROL	REMARKS
BC	1	MITSUBISHI	TCMBG0106SJ11N4	5	83000	R-410A	26	16	10	208	1	SEE SPECS	1, 2

DUCTLESS SPLIT SYSTEM INDOOR UNIT SCHEDULE

REMARKS:

GENERAL: UNITS SUPPLIED ON THE PROJECT SHALL BE THE MOST RECENT SERIES CURRENTLY MANUFACTURED.

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES.
2. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
3. POWER FOR LINE VOLTAGE SOURCE MAY ROUTE THROUGH OUTDOOR UNIT FOR CONTROL AND MAIN SWITCH PURPOSES. MECHANICAL CONTRACTOR SHALL COORDINATE MFR REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
4. REFRIGERANT CHARGE VARIES DEPENDENT UPON SIZE & LENGTH OF RUN OF PIPING.
5. PROVIDE WIRED REMOTE CONTROL PANEL WITH INTEGRAL SPACE TEMPERATURE SENSOR. PROVIDE SETUP PER MANFACTURER'S INSTRUCTIONS AND TEMPERATURE SETPOINTS REQUIRED BY THESE PLANS AND SPECIFICATIONS.
6. PROVIDE CONDENSATE PUMP FOR EACH UNIT.
7. PROVIDE DRAIN PAN LEVEL SENSOR AT UNIT FOR SHUTDOWN UPON OVERFLOW OF CONDENSATE PAN.

NAME	NO.	MFR	MODEL	MOUNTING STYLE	SUPPLY FAN CFM (SL)	FAN SPEED	POWER	SOUND POWER (dBA)	VOLTAGE	PHASE	MCA	MOCP
DX	1	MITSUBISHI	TPKA0301HA70	HIGH WALL	705	LOW	0.36 FLA	42	208	1	REMARK 1	REMARK 1
DX	2	MITSUBISHI	TPKA0301HA70	HIGH WALL	705	LOW	0.36 FLA	42	208	1	REMARK 1	REMARK 1
DX	3	MITSUBISHI	TPKA018HA70	HIGH WALL	360	LOW	0.19 FLA	41	208	1	REMARK 1	REMARK 1

NAME	NO.	COOLING COIL - REFRIGERANT (AHRI) TOTAL MBH (SL)	SENS HEAT RATIO	SENS. MBH (SL)	ENTERING AIR DB (°F)	WB (°F)	SIZE (INCHES) L	W	H	OPER WEIGHT (LBS)	POWER SOURCE COMMENT	REMARKS
DX	1	30.0	0.7	21.0	90	72	12	46	14	46	POWERED BY THE OUTDOOR UNIT	1-7
DX	2	30.0	0.7	21.0	90	72	12	46	14	46	POWERED BY THE OUTDOOR UNIT	1-7
DX	3	18.0	0.7	12.6	90	72	10	36	12	28	POWERED BY THE OUTDOOR UNIT	1-7

DUCTLESS SPLIT SYSTEM OUTDOOR UNIT SCHEDULE

REMARKS:

GENERAL: UNITS SUPPLIED ON THE PROJECT SHALL BE THE MOST RECENT SERIES CURRENTLY MANUFACTURED.

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. PROVIDE FACTORY-SUPPLIED, FIELD-INSTALLED INTAKE AND DISCHARGE WIND BAFFLES FOR LOW AMBIENT OPERATION OF OUTDOOR UNIT EITHER AS PROVIDED BY THE MANUFACTURER OR SHOP-FABRICATED PER MANUFACTURER'S INSTRUCTIONS.
3. REFER TO ASSOCIATED INDOOR UNIT SCHEDULE FOR ADDITIONAL REMARKS APPLICABLE TO OUTDOOR UNITS.

NAME	NO.	MFR	MODEL	MATCHED SYSTEM COMPONENT	OPERATING FUNCTION	COOLING CAPACITY NOMINAL TONS (SL)	TOTAL MBH (SL)	AMBIENT AIR (°F)	LOW AMBIENT (°F)	AHRI SEER	SOUND POWER (dBA)
CU	3	MITSUBISHI	TRUYA0301HA70	DX-1	COOLING ONLY	2.5	30.0	105	-20	19.8	47
CU	4	MITSUBISHI	TRUYA0301HA70	DX-2	COOLING ONLY	2.5	30.0	105	-20	19.8	47
CU	5	MITSUBISHI	TRUYA0181HA70	DX-3	COOLING ONLY	1.5	18.0	105	-20	18.5	48

NAME	NO.	REFRIGERANT TYPE	CHARGE (LBS)	SIZE (INCHES) L	W	H	OPER WEIGHT (LBS)	ELECTRICAL VOLTAGE	PHASE	MCA	MOCP	CONTROL	REMARKS
CU	3	R410A	7.70	14	37	37	151	208	1	REMARK 1	REMARK 1	WALL MTD WIRED REMOTE CONTROLLER	1-3
CU	4	R410A	7.70	14	37	37	151	208	1	REMARK 1	REMARK 1	WALL MTD WIRED REMOTE CONTROLLER	1-3
CU	5	R410A	4.90	11	32	25	99	208	1	REMARK 1	REMARK 1	WALL MTD WIRED REMOTE CONTROLLER	1-3

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SHEET NUMBER
M-002

PUMP SCHEDULE

APPLIES TO ALL:

A. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES.
REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.

REMARKS:

1. PUMPS OPERATING THRU VFDS: UPON SELECTING THE PUMP FOR THE SPECIFIED DUTY POINT, THE SUPPLIER SHALL PROVIDE THE PUMP WITH THE LARGEST IMPELLER SIZE AVAILABLE FOR THE CASING THAT DOES NOT EXCEED THE DUTY POINT MOTOR HP AT THE RIGHT END OF THE CURVE. SUBMITTAL DATA SHALL SHOW ALL IMPELLER CURVES AVAILABLE FOR THE PUMP MODEL. THIS APPLIES TO ALL MANUFACTURERS.
2. UNLESS INDICATED BY PUMP MODEL NUMBER, VARIABLE FREQUENCY DRIVE (VFD) IS REMOTE-MOUNTED RATHER THAN PUMP MOUNTED WHEN REQUIRED.
3. PROVIDE SHAFT GROUNDING RINGS FOR EACH BEARING ON MOTORS POWERED THROUGH VARIABLE FREQUENCY DRIVES.

DESIG.								DESIGN GPM					MOTOR									VIBRATION ISOLATOR TYPE	INLET SIZE (IN.)	OUTLET SIZE (IN.)	SIZE (INCHES)			OPER. WEIGHT LBS.	REMARKS
NAME	NO.	MFR	MODEL	PUMP TYPE	SERVICE	MAX PUMP OPER °F	PROP GLYCOL (%)	MAX FLOW	MIN FLOW	PRESSURE (FT HD)	NPSH (FT HD)	EFF. %	POWER	RPM @ 60 HZ	VOLTAGE	PHASE	VFD	RELAY	STARTER	VFD BYPASS (YES/NO)				L	W	H		
P	1	B&G	E-1510 2BD	END SUCTION	HEATING WATER DISTRIBUTION	200	0%	160	40	90	4.7	72%	7.5 HP	1732	480	3	Yes	No	No	No	SEE SPECS	2.5	2.0	34	15	18	342	1-3
P	2	B&G	E-1510 2BD	END SUCTION	HEATING WATER DISTRIBUTION	200	0%	160	40	90	4.7	72%	7.5 HP	1732	480	3	Yes	No	No	No	SEE SPECS	2.5	2.0	34	15	18	342	1-3
P	3	B&G	E-80 3x3x9.5C	INLINE	AHU-1 HEATING COIL	200	0%	140	140	25	3.4	70%	2 HP	1067	480	3	No	No	Yes	No	SEE SPECS	3.0	3.0	23	12	28	180	

CONDENSING BOILER SCHEDULE (WATER / NATURAL GAS)

NOTE A:

BOILER WATER TEMPERATURES SHOWN ARE FOR PEAK HEATING LOAD DUTY DURING DESIGN WINTER CONDITIONS TO AVOID OVERSIZING TERMINAL HEATING DEVICES SUCH AS CABINET UNIT HEATERS, UNIT HEATERS, BASEBOARD RADIATION, FINNED TUBE RADIATION, RADIANT PANEL HEATERS, DUCT HEATING COILS, AIR TERMINAL BOX REHEAT COILS, FAN TERMINAL HEATING COILS, ETC.

NOTE B:

ENERGY SAVINGS FROM CONDENSING BOILERS SHALL BE ACHIEVED USING AN AGGRESSIVE HOT WATER RESET SCHEDULE.

REMARKS:

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES.
2. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
3. PROVIDE CONDENSATE NEUTRALIZING CONTAINER FOR EACH BOILER WITH CONNECTING PVC PIPING. ROUTE DISCHARGE TO APPROPRIATE DRAIN RECEPTOR FOR DISPOSAL.
4. ELEVATE EACH BOILER SUFFICIENTLY TO ACCOMMODATE MANUFACTURER'S TRAP REQUIREMENTS TO PROVIDE POSITIVE DRAINAGE OF CONDENSATE THROUGH NEUTRALIZER & SLOPE OF PIPING TO DRAIN OUTLET.
5. REFER TO SPECIFICATIONS FOR SEQUENCE OF OPERATION REGARDING HEATING WATER TEMPERATURE RESET BASED UPON OUTSIDE AIR TEMPERATURE.
6. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG.						MBH CAPACITY (130°F EWT)		MBH CAPACITY (90°F EWT)						NATURAL GAS DATA			WATER FLOW CONDITIONS						ELECTRICAL		SIZE (INCHES)					
TYPE	NO.	MFR.	MODEL	SERVICE	GAS MBH INPUT (S.L.)	OUTPUT (S.L.)	OUTPUT AT ELEV	OUTPUT (S.L.)	OUTPUT AT ELEV	LWT HIGH °F	LWT LOW °F	BOILER HP RATING	BOILER RELIEF VALVE (PSIG)	BOILER ASME PRESS (PSIG)	PRESSURE		BTU/CUBIC FOOT	GPM DESIGN	GPM MINIMUM	PROP GLYCOL %	PRESS DROP AT MAX DESIGN GPM (FT WC)	WATER VOLUME (GAL)	BLOWER POWER	VOLTAGE	PHASE	L	W	H	OPER. WEIGHT LBS.	CONTROL	REMARKS
															LOW (IN WC)	HIGH (IN WC)														
B	1	CLEAVER BROOKS	CFC-E 750	HEATING WATER	750	660	625	686	646	160	130	50	75.0	125.0	3.0	14.0	807	160	0	0%	1.0	92.0	0.335 kW	115	1	50	35	78	2065	SEE SPECS	1-6
B	2	CLEAVER BROOKS	CFC-E 750	HEATING WATER	750	660	625	686	646	160	130	50	75.0	125.0	3.0	14.0	807	160	0	0%	1.0	92.0	0.335 kW	115	1	50	35	78	2065	SEE SPECS	1-6

CABINET UNIT HEATER SCHEDULE (HOT WATER)

REMARKS:

1. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. MOTORS SHALL BE PROVIDED W/AUTOMATIC THERMAL OVERLOAD PROTECTION.
3. WATER PRESSURE DROP IS FOR COIL ONLY WITHOUT VALVES OR FITTINGS.
4. QUICK DISCONNECT FAN MOTOR.
5. STANDARD COLOR FINISH AS SELECTED BY ARCHITECT.
6. WHERE REQUIRED, CONTROL VALVES SHALL BE PROVIDED BY THE SECTION 230933 CONTRACTOR.
7. 0.05" REPRESENTS FREE AIR DELIVERY THRU INTEGRAL GRILLES, NO DUCTWORK ATTACHED.
8. TAMPER RESISTANT FASTENERS ON COVERS.
9. INSULATED PANELS.
10. VARIABLE SPEED FAN MOTOR CONTROLLER.
11. ALL DATA BASED UPON FAN MOTOR OPERATING AT HIGH SPEED.
12. HINGED PANEL W/STOP CHAIN (HORIZONTAL INSTALLATIONS ONLY).
13. RECESSING FLANGE.
14. FLOW SHALL NOT BE LOWER THAN 0.5 GPM.
15. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG.				MODEL		PROJECT DESIGN HEATING PARAMETERS									ELECTRICAL MOTOR					FILTER		SIZE (INCHES)			OPER WEIGHT (LBS)	CONTROL VALVE TYPE	REMARKS
NAME	NO.	INSTALLATION STYLE	MFR	TYPE & SIZE	COIL ROWS	ESP (IN WC) AT ELEV	CFM AT ELEV	EWT (°F)	LWT (°F)	GLYCOL %	EAT (°F)	MBH	GPM	MAX WATER P.D. (FT HD)	LAT (°F)	TYPE	NO	POWER TOTAL	VOLTAGE	PHASE	TYPE	MERV	W	H	D			
CUH	1	HORIZONTAL CABINET	TRANE	FFDB080	2	0.05	1000	160	130	0%	60	43.0	3.0	2.3	110	ECM	1	0.216 kW	208	1	1" THROWAWAY	4	56	10	26	164	2-WAY	1-15
CUH	2	HORIZONTAL CABINET	TRANE	FFDB080	2	0.05	1000	160	130	0%	60	43.0	3.0	2.3	110	ECM	1	0.216 kW	208	1	1" THROWAWAY	4	56	10	26	164	2-WAY	1-15
CUH	3	HORIZONTAL CABINET	TRANE	FFDB080	2	0.05	1000	160	130	0%	60	43.0	3.0	2.3	110	ECM	1	0.216 kW	208	1	1" THROWAWAY	4	56	10	26	164	2-WAY	1-15

AIR SEPARATOR SCHEDULE

REMARKS:

1. PROVIDE AUTOMATIC AIR VENT INTEGRAL OR SEPARATELY.
2. ASME CONSTRUCTION.
3. STANDARD VELOCITY MODEL.
4. HIGH VELOCITY MODEL.
5. PROVIDE MANUAL DIRT DRAIN VALVE.

DESIG.						PROP GLYCOL %	WPD (FT HD)	STRAINER (YES/NO)	INLET/ OUTLET SIZE (IN)	PRESSURES		SIZE (INCHES)			OPER WEIGHT (LBS)	REMARKS
NAME	NO.	SERVICE	MANUFACTURER	MODEL NO.	STYLE	GPM				RATED (PSIG)	OPER (PSIG)	L	W	H		
AS	1	HOT WATER	SPIROTHERM	VHT400	HIGH VELOCITY DIRT/AIR MICROBUBBLE	160	0%	5	N/A	4"	150	5	20.6	8.6	45.1	260	1,2,4,5

HYDRONIC EXPANSION TANK SCHEDULE

REMARKS:

1. ASME STAMPED CONSTRUCTION SHALL BE REQUIRED FOR TANKS HAVING A TOTAL VOLUME IN EXCESS OF 5 CUBIC FEET OF WATER, 37 GALLONS.
2. BLADDER SHALL BE COMPATIBLE WITH GLYCOL TYPE AND CONCENTRATION WHERE REQUIRED FOR HYDRONIC SYSTEMS.

DESIG.								TANK				SIZE (INCHES)		WEIGHT (LBS)		
NAME	NO.	SERVICE	TYPE	MANUFACTURER	MODEL	MOUNTING ORIENTATION	SUPPORT METHOD	TOTAL VOL (GAL)	ACCEPT VOL (GAL)	PRE CHARGE (PSIG)	RATED WORK'G PRESS (PSIG)	DI	H	DRY	FLOODED	REMARKS
ET	1	HOT WATER	DIAPHRAGM	AMTROL	EXTROL AX-80V	VERTICAL	FLOOR MOUNTED	44.5	22.6	5	125	24	29	167	541	1

AIR DEVICE SCHEDULE

REMARKS:

GENERAL - APPLIES TO ALL AIR DEVICES: MANUAL VOLUME DAMPERS SHALL BE ACCEPTABLE IN DUCTWORK AT THE BRANCH POINT OF THE RUNOUT DUCT OR IN-LINE TO THE AIR DEVICE BY THE CONTRACTOR INSTALLING DUCTWORK. A DAMPER LOCATED AT THE AIR DEVICE SHALL BE ACCEPTABLE WHEN PERMITTED BY ENGINEER ON A CASE-BY-CASE BASIS OR WHEN THE MANUFACTURER REQUIRES AN INTEGRAL MANUAL VOLUME DAMPER.

1. BLADES PARALLEL WITH LONG DIMENSION, UPTURNED FOR VISION BLOCK.
2. PROVIDE FACTORY PLENUM.
3. THE DIFFUSER SHALL BE PAINTED TO MATCH THE DUCTWORK WHERE INSTALLED ON PAINTED EXPOSED DUCTWORK.

DESIG.	FUNCTION	STYLE	MFR.	MODEL	FRAME STYLE	MODULE SIZE	MATERIAL	FINISH	REMARKS
A	CEILING SUPPLY	PLAQUE FACE FIXED PATTERN, RECTANGULAR DIFFUSER	PRICE	SPD	SURFACE	SEE PLANS	STEEL	WHITE	
B	CEILING RETURN, EXHAUST	MODULAR PERFORATED FACE GRILLE	PRICE	PDDR	SURFACE	SEE PLANS	STEEL	WHITE	
C	SIDEWALL SUPPLY	ADJUSTABLE VANES, DOUBLE DEFLECTION, 3/4" O.C.	PRICE	520	SIDEWALL	SEE PLANS	STEEL	WHITE	3
D	SIDEWALL RETURN, EXHAUST	FIXED ANGLE VANES, 3/4" O.C.	PRICE	530	SIDEWALL	SEE PLANS	STEEL	WHITE	1, 3
E	SIDEWALL SUPPLY	ADJUSTABLE VANES, DOUBLE DEFLECTION, 3/4" O.C.	PRICE	SDG	SIDEWALL	SEE PLANS	STEEL	WHITE	3
F	CEILING SUPPLY	(2) 1" LINEAR SLOTS	PRICE	SDS100	SURFACE	SEE PLANS	ALUMINUM	WHITE	2

FINTUBE RADIATION SCHEDULE

REMARKS:

1. REFER TO DRAWINGS FOR ACTIVE LENGTH OF ELEMENT.
2. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ACCESSORIES NOT LISTED IN THIS SCHEDULE.
3. MINIMUM WATER FLOW RATE FOR INDIVIDUAL SHORT SECTIONS OR SERIES OF CONNECTED SHORT SECTIONS OF ACTIVE ELEMENT WITH A 3/4" TUBE SHALL BE 0.5 GPM. A HIGHER FLOW MAY BE REQUIRED BY THE TOTAL BTUH LOAD SHOWN ON THE PLANS.
4. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG.				ELEMENT						ENCLOSURE				
								TUBE		FINS					
NAME	NO.	MFR.	MODEL	ROWS HIGH	AVG WATER TEMP (°F)	BTUH / LINEAL FOOT (S.L.)	BTUH / LF AT ELEV	SIZE (INCHES)	MATERIAL	SIZE (INCHES)	MATERIAL	SPACE FOR RETURN PIPE (YES/NO)	HEIGHT (INCHES)	DEPTH (INCHES)	DAMPER REQUIRED (YES/NO)	REMARKS
FTR	1	RUNTAL	R2F-2	4	145	550	441	1	COPPER	5	ALUMINUM	Yes	6	3	No	1-4

COIL SCHEDULE (ELECTRIC)

REMARKS:

1. SUPPLIER SHALL REVIEW DRAWINGS TO VERIFY CORRECT COIL SIZE REQUIREMENTS TO DUCTWORK AND PIPING CONNECTIONS TO AVOID INSTALLATION CONFLICTS WITH SURROUNDING OBJECTS.
2. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES.
3. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
4. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG.						DUCT SIZE		APPROX COIL SIZE			AIR P.D. MAX (IN WC)	ELECTRIC COIL CONDITIONS		ELECTRIC COIL CONDITIONS			
NAME	NO.	MFR	MODEL	SERVICE	CFM AT ELEV	WIDTH (IN)	HEIGHT (IN)	WIDTH (IN)	HEIGHT (IN)	AIR VELOCITY (FPM)		POWER	STAGES OR SCR	VOLTAGE	PHASE	CONTROL	REMARKS
EHC	1	GREENHECK	IDHE	SHOP BUILDING	1500	20	14	20	16	680	0.50	20 kW	SCR	480	3	SEE SPECS	1-4

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M-003

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FAN SCHEDULE

GENERAL REMARKS:

A. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
B. PROVIDE SHAFT GROUNDING RINGS FOR EACH BEARING ON MOTORS POWERED THROUGH VARIABLE FREQUENCY DRIVES.
C. FEG = FAN EFFICIENCY GRADE IN ACCORDANCE WITH AMCA 205.
D. FAN E.S.P. INCLUDES DAMPER PRESSURE DROP. INCULDE DAMPER PRESSURE DROP IN SUBMITTAL.
E. REFER TO SOUND DATA SCHEDULE FOR SOUND INFORMATION.
F. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

SPECIFIC REMARKS:

1. TYPE B SPARK RESISTANT CONTRUCTION.
2. SUBMIT COLOR OPTIONS FOR APPROVAL BY ARCHITECT.

DESIG.							WHEEL DIA. (INCHES)	CFM AT ELEV.	E.S.P. (IN. W.C.)	APPROX. RPM	TIP SPEED (FPM)	OUTLET VELOCITY (FPM)	MOTOR									DRIVE TYPE	VIBRATION ISOLATOR TYPE	BACKDRAFT DAMPER (BDD)		THROAT HEIGHT (INCHES)	THROAT WIDTH (INCHES)	SIZE (INCHES)			OPER. WEIGHT (LBS.)	CONTROL	REMARKS
NAME	NO.	MFR	MODEL	FAN TYPE	SERVICE	FAN CLASS							REQ'D BHP	POWER	VOLTAGE	PHASE	ECM (YES/NO)	VFD (YES/NO)	RELAY (YES/NO)	STARTER (YES/NO)	VFD BYPASS (YES/NO)	FEI VALUE			TYPE & LOCATION	AIR PRESS DROP (IN WC)			L	W	H			
DF	1	AIRIUS	Q-50-EC-STD-100-130-X	DESTRATIFICATION	WEST STAIR	I	14.8	1450	0.00	1650			0.00	0.087 kW	120	1	Yes	No	Yes	No	No		DIRECT	SEE SPECS					15	15	24	30	SEE SPECS	2
EF	1	GREENHECK	USF-13	UTILITY SET	GENERAL EXHAUST	I	13.0	1200	0.75	1507	5328	17141	0.29	0.5 HP	120	1	Yes	No	No	No	No		DIRECT	SEE SPECS	MOTORIZED	0.25	14	9	25	19	44	110	SEE SPECS	
EF	2	GREENHECK	USF-18	UTILITY SET	COMBUSTION LAB EXHAUST	II	18.0	3000	1.25	1331	6361	1563	1.09	1.5 HP	480	3	No	Yes	No	Yes	No	1.45	BELT	SEE SPECS	MOTORIZED	0.25	19	14	31	23	50	200	SEE SPECS	1
EF	3	GREENHECK	G-080-VG	CENTRIFUGAL DOWNBLAST	SHOP GENERAL EXHAUST	I	8.0	200	0.30	1180	4054	500	0.06	0.1 HP	120	1	Yes	No	No	No	No		DIRECT	SEE SPECS	GRAVITY	0.25	12	12	19	19	26	30	SEE SPECS	
TF	1	GREENHECK	SQ-100-VG	INLINE	SHOP ELEC TRANSFER FAN	I	11.0	750	0.25	1160		573	0.06	0.1 HP	120	1	Yes	No	No	No	No		DIRECT	SEE SPECS	NONE	0.25	16	16	24	17	17	45	SEE SPECS	
TF	2	GREENHECK	SQ-100-VG	INLINE	ELEVATOR SHAFT COOLING	I	7.0	250	0.25	1000		626	0.05	0.1 HP	120	1	Yes	No	No	No	No		DIRECT	SEE SPECS	NONE	0.25	8	8	14	18	15	36	SEE SPECS	

TERMINAL BOX SCHEDULE (HOT WATER HEAT)

REQUIREMENTS APPLYING TO ALL TERMINAL BOXES:

A. PROVIDE BOX SELECTION TO MEET LAT, DESIGN CFM AND HEATING MBH. FINAL GPM SHALL BE SET DURING BALANCING TO FLOW RATES IN LISTED PRODUCT DATA SUBMITTALS, BUT IN NO CASE SHALL BE LOWER THAN 0.5 GPM.
B. MAXIMUM STATIC PRESSURE IS BASED ON WIDE OPEN UNIT AT MAXIMUM FLOW FOR TERMINAL BOX WITH 2-ROW COIL.
C. HEATING WATER SYSTEM CONTAINS 0% PROPYLENE GLYCOL.
D. 2-ROW HEATING COIL CONDITIONS SHOWN. 1 & 2 ROW HEATING COILS ACCEPTABLE COMPLIANT WITH MBH, WATER FLOW, AIR & WATER PRESSURE DROP REQUIREMENTS & LIMITATIONS.
E. USE OF 3- & 4-ROW COILS MUST BE SPECIFICALLY IDENTIFIED BY THE SUPPLIER & ACCEPTED BY THE ENGINEER FOR EACH LOCATION PROPOSED.
F. TERMINAL BOX MAXIMUM AIR FLOW CAPABILITIES: 6"=450 CFM, 7"=650 CFM, 8"=800 CFM, 9"=1050 CFM, 10"=1350 CFM, 12"=2000 CFM, 14"=3000 CFM, 16"=4000 CFM & 24"x16"=8000 CFM.
G. MINIMUM 2-ROW COILS REQUIRED ON ALL PERIMETER BOXES.
H. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG.		INTERIOR OR PERIMETER ZONE	MFR	MODEL	INLET SIZE (IN.)	AIR PRESS DROP MAX (IN W.C.) (SEA LEVEL)	COOLING DESIGN CFM		HEATING DESIGN CFM AT ELEV	HEATING WATER COIL DATA						MODULATING CONTROL VALVE TYPE	SOUND ATTEN. (Y/N)	REMARKS
TYPE	NO.						MAXIMUM AT ELEV	MINIMUM AT ELEV		EAT °F	LAT °F	MBH	GPM	WATER P.D. MAX (FT WC)	EWT °F			
TB	1-1	PERIMETER	PRICE	SDV	12	0.74	1250	375	375	55	90	11.4	1.8	6.6	140	2-WAY	No	
TB	1-2	PERIMETER	PRICE	SDV	14	0.72	2400	720	720	55	75	12.5	2.0	6.8	140	2-WAY	No	
TB	1-3	PERIMETER	PRICE	SDV	12	0.74	1500	450	630	55	90	19.1	3.0	6.6	140	2-WAY	No	
TB	1-4	PERIMETER	PRICE	SDV	14	0.72	2150	645	645	55	90	19.5	3.2	6.8	140	2-WAY	No	
TB	1-5	INTERIOR	PRICE	SDV	7	0.38	500	150	150	55	80	3.2	0.6	0.8	140	2-WAY	No	
TB	1-6	PERIMETER	PRICE	SDV	14	0.72	2200	660	925	55	75	16.0	2.6	6.8	140	2-WAY	No	
TB	1-7	INTERIOR	PRICE	SDV	9	0.38	750	225	225	55	90	6.8	1.2	2.1	140	2-WAY	No	
TB	2-1	PERIMETER	PRICE	SDV	10	0.59	990	295	460	55	90	13.9	2.2	3.2	140	2-WAY	No	
TB	2-2	INTERIOR	PRICE	SDV	10	0.59	900	270	270	55	80	5.8	1.0	3.2	140	2-WAY	No	
TB	2-3	PERIMETER	PRICE	SDV	12	0.74	1600	480	1600	55	90	48.4	7.8	6.6	140	2-WAY	No	
TB	2-4	PERIMETER	PRICE	SDV	8	0.46	600	180	180	55	75	3.1	0.6	1.3	140	2-WAY	No	
TB	2-5	PERIMETER	PRICE	SDV	8	0.46	600	180	180	55	75	3.1	0.6	1.3	140	2-WAY	No	
TB	2-6	PERIMETER	PRICE	SDV	8	0.46	600	180	180	55	75	3.1	0.6	1.3	140	2-WAY	No	
TB	2-7	PERIMETER	PRICE	SDV	8	0.46	600	180	180	55	75	3.1	0.6	1.3	140	2-WAY	No	
TB	2-8	PERIMETER	PRICE	SDV	8	0.46	575	175	175	55	75	3.0	0.5	1.3	140	2-WAY	No	
TB	2-9	PERIMETER	PRICE	SDV	6	0.39	200	65	115	55	90	3.5	0.6	0.6	140	2-WAY	No	
TB	2-10	PERIMETER	PRICE	SDV	10	0.59	1025	310	460	55	90	13.9	2.2	3.2	140	2-WAY	No	
TB	3-1	PERIMETER	PRICE	SDV	12	0.74	1100	330	740	55	90	22.4	3.6	6.6	140	2-WAY	No	
TB	3-2	PERIMETER	PRICE	SDV	14	0.72	2000	600	2000	55	90	60.6	9.8	6.8	140	2-WAY	No	
TB	3-3	PERIMETER	PRICE	SDV	6	0.39	100	65	65	55	90	2.0	0.5	0.6	140	2-WAY	No	
TB	3-4	PERIMETER	PRICE	SDV	6	0.39	210	65	65	55	90	2.0	0.5	0.6	140	2-WAY	No	
TB	3-5	PERIMETER	PRICE	SDV	14	0.72	1700	510	830	55	75	14.4	2.4	6.8	140	2-WAY	No	
TB	3-6	PERIMETER	PRICE	SDV	6	0.39	175	65	65	55	90	2.0	0.5	0.6	140	2-WAY	No	
TB	3-7	PERIMETER	PRICE	SDV	8	0.46	600	180	180	55	75	3.1	0.6	1.3	140	2-WAY	No	
TB	3-8	PERIMETER	PRICE	SDV	8	0.46	600	180	180	55	75	3.1	0.6	1.3	140	2-WAY	No	
TB	3-9	PERIMETER	PRICE	SDV	7	0.38	500	150	150	55	75	2.6	0.5	0.8	140	2-WAY	No	
TB	3-10	PERIMETER	PRICE	SDV	6	0.39	200	65	65	55	75	1.1	0.5	0.6	140	2-WAY	No	
TB	3-11	PERIMETER	PRICE	SDV	10	0.59	850	255	255	55	90	7.7	1.2	3.2	140	2-WAY	No	
TB	3-12	PERIMETER	PRICE	SDV	7	0.38	400	120	145	55	90	4.4	0.8	0.8	140	2-WAY	No	
TB	3-13	PERIMETER	PRICE	SDV	8	0.46	625	190	460	55	75	8.0	1.2	1.3	140	2-WAY	No	
TB	3-14	PERIMETER	PRICE	SDV	10	0.59	850	255	255	55	90	7.7	1.2	3.2	140	2-WAY	No	
TB	4-1	INTERIOR	PRICE	SDV	7	0.38	500	150	0	55	0	0.0	0.0	0.0	140	2-WAY	No	

LABORATORY AIR VALVE SCHEDULE

REMARKS:

1. PROVIDE BOX SELECTION TO MEET LAT, DESIGN CFM AND HEATING MBH. FINAL GPM SHALL BE SET DURING BALANCING TO FLOW RATES IN LISTED PRODUCT DATA SUBMITTALS, BUT IN NO CASE SHALL BE LOWER THAN 0.5 GPM.
2. REFER TO DUCT HEATING COIL SCHEDULE FOR ASSOCIATED REHEAT COIL.
3. GENERAL EXHAUST BOXES NEED TO BE SHUT OFF BOXES CAPABLE OF DOWN TO ZERO.

BOX DESIG.					INLET SIZE (IN.)	ACTUATOR STANDARD OR FAST ACTING	OCCUPIED MAX		OCCUPIED MINIMUM		UNOCCUPIED		REMARKS
NAME	NO.	MODEL	MANUF.	SERVICE			SUPPLY CFM	EXHAUST CFM	SUPPLY CFM	EXHAUST CFM	SUPPLY CFM	EXHAUST CFM	
SV	1A	AVC6000	ACCUTROL	COMBUSTION SUPPLY	14	FA	2000	0	350	0	350	0	1, 2, 3
SV	1B	AVC6000	ACCUTROL	COMBUSTION SUPPLY	10	FA	850	0	300	0	300	0	1, 2, 3
SV	1C	AVC6000	ACCUTROL	COMBUSTION SUPPLY	8	FA	300	0	300	0	0	0	1, 2, 3
EV	1A	AVC6000	ACCUTROL	211 LARGE HOOD	12	FA	0	1000	0	325	0	325	3
EV	1B	AVC6000	ACCUTROL	211 LARGE HOOD	12	FA	0	1000	0	325	0	325	3
EV	1C	AVC6000	ACCUTROL	COMBUSTION EXHAUST	8	FA	0	200	0	200	0	100	3
EV	1D	AVC6000	ACCUTROL	211 LARGE HOOD	12	FA	0	1000	0	325	0	325	3
Grand total: 7							3150	3200	950	1175	650	1075	

LABORATORY REHEAT COIL SCHEDULE

REMARKS:

1. SUPPLIER SHALL REVIEW DRAWINGS TO VERIFY CORRECT COIL SIZE REQUIREMENTS TO DUCTWORK AND PIPING CONNECTIONS TO AVOID INSTALLATION CONFLICTS WITH SURROUNDING OBJECTS.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS FOR REPLACEMENT COILS IN DUCTWORK & EQUIPMENT TO PROVIDE COIL SUPPLIER WITH SIZE REQUIREMENTS TO AVOID INSTALLATION CONFLICTS.
3. PROVIDE COIL SELECTION TO MEET LAT, REHEAT COIL AIRFLOW CFM, AND HEATING MBH. FINAL GPM SHALL BE SET DURING BALANCING TO FLOW RATES IN LISTED PRODUCT DATA SUBMITTALS.

SERVICE				CFM AT ELEV	COIL SIZE (IN)		AIR VELOCITY (FPM)	MIN. FACE AREA (SF)	VAV MBH	HEATING WATER CONDITIONS						ROWS	UNIT WEIGHT (LBS)	CONTROL VALVE	REMARKS
NAME	NO.	MFR	MODEL		W	H				EAT (°F)	LAT (°F)	AIR P.D. MAX (IN WC)	EWT (°F)	LWT (°F)	PROP GLYCOL %	GPM	WATER P.D. MAX (IN WC)				
SV	1A	GREENHECK	W822424N2	2,000	24	24	500	4.00	64.0	55	90	0.16	145	117	0	4.7	3.3	2	38.00	SEE SPECS	1, 2, 3
SV	1B	GREENHECK	W821212N1	850	16	16	478	1.78	32.2	55	90	0.23	145	133	0	5.4	2.4	2	19.00	SEE SPECS	1, 2, 3
SV	1C	GREENHECK	W821212N1	300	10	10	432	0.69	11.4	55	90	0.10	145	115	0	0.8	0.3	2	14.00	SEE SPECS	1, 2, 3

FAN FILTER UNIT SCHEDULE

REMARKS:

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES.
2. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
3. REFER TO SPECIFICATIONS FOR ALL REQUIRED COMPONENTS, ACCESSORIES AND SEQUENCES OF OPERATION.
4. PROVIDE WITH DUCTED INLET, CONSTANT TORQUE PROGRAM AND ECM MOTOR.

DESIG.					AIRFLOW		AIR FILTER				MOTOR				SOUND LEVEL (dBA)	VIBRATION ISOLATOR TYPE	SIZE (INCHES)			OPER WT (LBS)	CONTROL	REMARKS
NAME	NO.	MFR	MODEL	SERVICE	CFM MAX	CFM 90 FPM	ACCESS METHOD	TYPE (HEPA / ULPA)	ACTIVE AREA (SF)	FAN TYPE	TYPE	MAX POWER	VOLTAGE	PHASE			L	W	H			
FFU	1	PRICE	FFU-HE-2X2	COMBUSTION LAB	330	300	ROOM SIDE REPLACE	HEPA	3	FORWARD CURVED	ECM	140 W	120	1	48	SEE SPECS	24	24	18	53	BAS INTERFACE MODULE	1-4

SOUND ATTENUATOR SCHEDULE

DESIG.	MFR.	MODEL	SYSTEM	SERVICE	SIZE OF ASSEMBLY			CFM AT 6000 FEET	AIR VELOCITY (FPM)	AIR P.D. (IN WC) AT 5400 FEET	DB REDUCTION BY OCTAVE BAND								REMARKS
					LENGTH (IN.)	HEIGHT (IN.)	WIDTH (IN.)				MINIMUM DYNAMIC INSERTION LOSS, dB (NOTE 2)								
											MAXIMUM AIRFLOW GENERATED NOISE, dB (NOTE 3)								
											BAND	1	2	3	4	5	6	7	8
											Hz	63	125	250	500	1000	2000	4000	8000
SA-S-1	VIBRO-ACOUSTICS	RD-UHV-F5	AHU-1	SUPPLY	96	24	66	22,190	2,017	0.20	FORWARD	3	7	17	29	34	24	17	13	1-3
												63	54	45	44	46	49	41	35	
SA-S-2	VIBRO-ACOUSTICS	RD-LV-F5	AHU-1	SUPPLY	48	20	22	1,700	556	0.16	FORWARD	6	10	18	29	34	29	19	13	1-3
												48	38	33	31	30	28	20	22	
SA-R-1	VIBRO-ACOUSTICS	RED-UHV-F9	AHU-1	RETURN	132	22	62	11,235	1,186	0.15	REVERSE	9	19	32	44	41	41	40	26	1-3
												57	43	40	32	38	31	16	17	
SA-R-2	VIBRO-ACOUSTICS	RD-HV-F8	AHU-1	RETURN	96	26	86	16,300	1,050	0.24	REVERSE	8	11	25	44	50	35	23	18	1-3
												59	54	53	54	54	53	42	35	

REMARKS:

1. REFER TO HVAC PLANS FOR FINAL AIRFLOW.
2. MINIMUM DYNAMIC INSERTION LOSS DETERMINED PER ASTM E477-20 IN A NVLAP-ACCREDITED ACOUSTICAL LABORATORY.
3. MAXIMUM SELF GENERATED NOISE DETERMINED PER ASTM E477-20 IN A NVLAP-ACCREDITED ACOUSTICAL LABORATORY.

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR: CONSTRUCTION DOCUMENTS

SHEET TITLE: MECHANCIAL SCHEDULES

SCALE: 1/8" = 1'-0"
SHEET NUMBER

M-004

10/25/2022 1:50:29 PM P:\CU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad

AHU-1

AIR SYSTEM TAG

OUTSIDE AIR VENTILATION CALCULATIONS

ROOM NUMBER	ROOM NAME	PRIMARY	ROOM OCCUPANCY CLASSIFICATON SECONDARY	Code Basis: IMC 2018 ZONE AREA (SF) (Az)	ZONE PRIMARY AIR CFM (Vpz)	PEOPLE OUTSIDE AIR RATE (CFM) (Rp)	AREA OUTSIDE AIR RATE (CFM/SF) (Ra)	OCCUPANT DENSITY #/1000 SF	TOTAL PEOPLE (Pz)	SYSTEM OCCUPANT DIVERSITY (D) = 100% BREATHING ZONE OUTSIDE AIR CFM (Vbz)	ZONE OUTSIDE AIR CFM (Voz)	PRIMARY OUTSIDE AIR FRACTION (Zp)	OUTSIDE AIR SUMMARY PEOPLE OUTSIDE AIR CFM	ROOM OUTSIDE AIR CFM
			ZONE VENTILATION EFFECTIVENESS (Ez) = 0.8											
101	Classroom	EDUCATION	Classrooms (age 9 plus)	903	1,500	10.0	0.12	35	32	424	531	0.354	316	108
102	Space Systems Lab	EDUCATION	Science laboratories	818	2,400	10.0	0.18	25	20	352	440	0.183	205	147
103	Computer Lab	EDUCATION	Computer lab	1,211	2,150	10.0	0.12	25	30	448	560	0.261	303	145
104	Computer Pods	EDUCATION	Computer lab	869	2,200	10.0	0.12	25	22	322	402	0.183	217	104
1-R1	RR	PUBLIC SPACES	Toilet rooms — public	155	0	0.0	0.00	0	0	0	0	0.000	0	0
1-R2	RR	PUBLIC SPACES	Toilet rooms — public	155	0	0.0	0.00	0	0	0	0	0.000	0	0
105	Help Center	OFFICES	Office spaces	224	500	5.0	0.06	5	1	19	24	0.048	6	13
100	Corridor	PUBLIC SPACES	Corridors	1,653	1,800	0.0	0.06	0	0	99	124	0.069	0	99
201	Instrumentation Lab	EDUCATION	Science laboratories	884	990	10.0	0.18	25	22	380	475	0.480	221	159
202	Office	OFFICES	Office spaces	108	300	5.0	0.06	5	1	9	11	0.038	3	6
203	Fluids/Wind Tunnel	EDUCATION	Science laboratories	970	900	10.0	0.18	25	24	417	521	0.579	243	175
204	Office	OFFICES	Office spaces	99	300	5.0	0.06	5	0	8	11	0.035	2	6
2-R1	RR	PUBLIC SPACES	Toilet rooms — public	65	0	0.0	0.00	0	0	0	0	0.000	0	0
206	Office	OFFICES	Office spaces	100	300	5.0	0.06	5	1	9	11	0.035	3	6
208	Office	OFFICES	Office spaces	99	300	5.0	0.06	5	0	8	11	0.035	2	6
2-R2	RR	PUBLIC SPACES	Toilet rooms — public	63	0	0.0	0.00	0	0	0	0	0.000	0	0
210	Office	OFFICES	Office spaces	99	300	5.0	0.06	5	0	8	11	0.035	2	6
212	Office	OFFICES	Office spaces	99	300	5.0	0.06	5	0	8	11	0.035	2	6
214	Office	OFFICES	Office spaces	99	300	5.0	0.06	5	0	8	11	0.035	2	6
216	Office	OFFICES	Office spaces	105	300	5.0	0.06	5	1	9	11	0.037	3	6
218	Huddle	OFFICES	Conference rooms	153	375	5.0	0.06	50	8	47	59	0.158	38	9
2-S1	IT	OFFICES	Office spaces	120	0	5.0	0.06	5	1	10	13	0.000	3	7
211A	Combustion Lab	EDUCATION	Science laboratories	649	2,000	10.0	0.18	25	16	279	349	0.174	162	117
211B	Combustion Lab	EDUCATION	Science laboratories	105	300	10.0	0.18	25	3	45	56	0.188	26	19
211C	Combustion Lab	EDUCATION	Science laboratories	241	850	10.0	0.18	25	6	104	130	0.152	60	43
220	Lab Storage	EDUCATION	Science laboratories	193	200	10.0	0.18	25	5	83	104	0.519	48	35
222	MAE FAC Research	EDUCATION	Science laboratories	463	825	10.0	0.18	25	12	199	249	0.302	116	83
200	Corridor	PUBLIC SPACES	Corridors	1,400	2,000	0.0	0.06	0	0	84	105	0.053	0	84
301	Energy Conversion Lab	EDUCATION	Science laboratories	841	1,100	10.0	0.18	25	21	362	452	0.411	210	151
302	Conference	OFFICES	Conference rooms	781	1,700	5.0	0.06	50	39	242	303	0.178	195	47
3-R1	RR	PUBLIC SPACES	Toilet rooms — public	70	0	0.0	0.00	0	0	0	0	0.000	0	0
304	Office	OFFICES	Office spaces	98	300	5.0	0.06	5	0	8	10	0.035	2	6
306	Office	OFFICES	Office spaces	99	300	5.0	0.06	5	0	8	11	0.035	2	6
14A-1S3	Pre-function	OFFICES	Main entry lobbies	173	175	5.0	0.06	10	2	19	24	0.136	9	10
307	RR	PUBLIC SPACES	Toilet rooms — public	87	100	0.0	0.00	0	0	0	0	0.000	0	0
308	Office	OFFICES	Office spaces	98	300	5.0	0.06	5	0	8	10	0.035	2	6
315	Lab Prep/Storage	EDUCATION	Science laboratories	224	210	10.0	0.18	25	6	96	120	0.573	56	40
310	Office	OFFICES	Office spaces	98	300	5.0	0.06	5	0	8	10	0.035	2	6
317	Elec Workshop	EDUCATION	Wood/metal shops	400	400	10.0	0.18	20	8	152	190	0.475	80	72
312	Huddle	OFFICES	Conference rooms	140	500	5.0	0.06	50	7	43	54	0.109	35	8
319	ECE Capstone	EDUCATION	Classrooms (age 9 plus)	432	625	10.0	0.12	35	15	203	254	0.406	151	52
314	Kitchen	FOOD AND BEVERAGE SERVICES	Kitchens (cooking)	144	200	7.5	0.12	20	3	39	49	0.243	22	17
316	ECE FAC Research 3	EDUCATION	Science laboratories	401	850	10.0	0.18	25	10	172	216	0.254	100	72
318	ECE FAC Research 2	EDUCATION	Science laboratories	403	850	10.0	0.18	25	10	173	217	0.255	101	73
300	Corridor	PUBLIC SPACES	Corridors	1,300	2,000	0.0	0.06	0	0	78	98	0.049	0	78

Project:	Anschutz Engineering Bldg Addtion	Total Supply Air CFM =	31,300	Uncorrected Outside Air Intake, CFM (Vou) =	4,995	< < < < < OA Sum	2,953	2,042
Location:	Colorado Springs, CO	Critical Zone Outside Air Fraction (MAX Zp) =	0.579	System Ventilation Efficiency (Ev) =	0.580	Corrected Outside Air Intake Air, CFM (Vot) =	8,608	Corrected Outside Air as % of Supply Air =	27.5%

ERV-1

AIR SYSTEM TAG

OUTSIDE AIR VENTILATION CALCULATIONS

ROOM NUMBER	ROOM NAME	PRIMARY	ROOM OCCUPANCY CLASSIFICATON SECONDARY	Code Basis: IMC 2018 ZONE AREA (SF) (Az)	ZONE PRIMARY AIR CFM (Vpz)	PEOPLE OUTSIDE AIR RATE (CFM) (Rp)	AREA OUTSIDE AIR RATE (CFM/SF) (Ra)	OCCUPANT DENSITY #/1000 SF	TOTAL PEOPLE (Pz)	SYSTEM OCCUPANT DIVERSITY (D) = 100% BREATHING ZONE OUTSIDE AIR CFM (Vbz)	ZONE OUTSIDE AIR CFM (Voz)	PRIMARY OUTSIDE AIR FRACTION (Zp)	OUTSIDE AIR SUMMARY PEOPLE OUTSIDE AIR CFM	ROOM OUTSIDE AIR CFM
			ZONE VENTILATION EFFECTIVENESS (Ez) = 0.8											
S101	SAE Car Bay	EDUCATION	Wood/metal shops	392	200	10.0	0.18	20	8	149	186	0.931	78	71
S103	Elec Car Bay	EDUCATION	Wood/metal shops	410	200	10.0	0.18	20	8	156	195	0.974	82	74
S105	Shop	EDUCATION	Wood/metal shops	982	475	10.0	0.18	20	20	373	466	0.982	196	177
S108	Tools/Material Storage	RETAIL STORES, SALES FLOORS AND SHOWROOM FLOORS	Storage rooms	221	300	0.0	0.12	0	0	27	33	0.111	0	27
S102	Senior Design Meeting	EDUCATION	Classrooms (age 9 plus)	350	225	10.0	0.12	35	12	165	206	0.914	123	42
S104	Restroom	PUBLIC SPACES	Toilet rooms — public	60	0	0.0	0.00	0	0	0	0	0.000	0	0
S106	Restroom	PUBLIC SPACES	Toilet rooms — public	60	0	0.0	0.00	0	0	0	0	0.000	0	0
COS101	Corridor	PUBLIC SPACES	Corridors	466	150	0.0	0.06	0	0	28	35	0.233	0	28
		0				0.0	0.00	0	0	0	0	0.000	0	0

Project:	Anschutz Engineering Bldg Addtion	Total Supply Air CFM =	1,550	Uncorrected Outside Air Intake, CFM (Vou) =	897	< < < < < OA Sum	479	418
Location:	Colorado Springs, CO	Critical Zone Outside Air Fraction (MAX Zp) =	0.982	System Ventilation Efficiency (Ev) =	0.597	Corrected Outside Air Intake Air, CFM (Vot) =	1,503	Corrected Outside Air as % of Supply Air =	97.0%

UNIT HEATER SCHEDULE (ELECTRIC)

REMARKS:

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. PRODUCT IS SUITABLE FOR INSTALLATION AT ALTITUDES ABOVE 6000 FEET.
3. REFER TO PLANS FOR THERMOSTAT LOCATION, REMOTE OR INTEGRAL. PROVIDE 2-STAGE THERMOSTAT CONTROL WHERE 2-STAGE HEATING ELEMENT IS INDICATED.
4. UNITS PROVIDED WITH INTEGRAL AUTOMATIC RESETTING LIMIT CONTROL FOR OVER-TEMPERATURE CONDITION ON HEATER.

DESIG. NAME	NO.	MFR	MODEL	HEATING CAPACITY POWER	MBH	STAGES	FAN MOTOR AIRFLOW (CFM)	NO.	AIR TEMP EAT (°F)	LAT (°F)	SIZE (INCHES) L	D	H	OPER. WEIGHT (LBS)	ELECTRICAL VOLTAGE	PHASE	MAX MTG. HEIGHT TO BOTTOM (FT.)	CONTROL	REMARKS
EUH	1	TRANE	UHEC-053DACA	5 KW	17.1	1	400	1	40	89	18	7	15	35	480	3	9	SEE SPEC	1,2,3,4
EUH	2	TRANE	UHEC-103DACA	10 KW	34.1	1	700	1	30	86	20	11	13	42	480	3	14	SEE SPEC	1,2,3,4
EUH	3	TRANE	UHEC-103DACA	10 KW	34.1	1	700	1	30	86	20	11	13	42	480	3	14	SEE SPEC	1,2,3,4
EUH	4	TRANE	UHEC-253DACA	25 KW	85.3	1	1800	1	30	85	34	10	29	55	480	3	22	SEE SPEC	1,2,3,4
EUH	5	TRANE	UHEC-253DACA	25 KW	85.3	1	1800	1	30	85	34	10	29	55	480	3	22	SEE SPEC	1,2,3,4
EUH	6	TRANE	UHEC-253DACA	25 KW	85.3	1	1800	1	30	85	34	10	29	55	480	3	22	SEE SPEC	1,2,3,4

UNIT HEATER SCHEDULE (HYDRONIC)

REMARKS:

1. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS, INCLUDING COORDINATION OF VOLTAGE, PHASE, SCCR, WIRE SIZES, AND OVERCURRENT PROTECTIVE DEVICES. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MINIMUM FAULT CURRENT RATING THAT EACH UNIT SHALL EXCEED. UNIT NAMEPLATE SHALL INDICATE THE SHORT CIRCUIT CURRENT RATING.
2. MOTORS TO BE PROVIDED WITH AUTOMATIC THERMAL OVERLOAD OR IMPENDANCE PROTECTION.
3. INTEGRAL FAN GUARD INLET.
4. HORIZONTAL DISCHARGE LOUVERS.
5. FLOW SHALL NOT BE LOWER THAN 0.5 GPM.
6. REFER TO MECHANICAL LEGENDS AND NOTES SHEET FOR PROJECT ELEVATION.

DESIG. NAME	NO.	MFR	MODEL	PROJECT DESIGN HEATING PARAMETERS CFM AT ELEV	EWT (°F)	WATER TEMP DROP (°F)	GLYCOL %	EAT (°F)	MBH	LAT (°F)	GPM	WATER PRESS DROP (FT HD)	ELECTRICAL MOTOR TYPE	POWER	VOLTAGE	PHASE	SIZE (INCHES) LENGTH	WIDTH	HEIGHT	OPER. WEIGHT (LBS)	MAX MTG HEIGHT (FT)	CONTROL VALVE TYPE	REMARKS
UH	1	TRANE	UHSBA25	580	160	20	0%	40	25.0	100	2.5	0.50	ECM	0.025 kW	120	1	6	18	16	25	9	SEE SPECS	1-6
UH	2	TRANE	UHSBA25	580	160	20	0%	40	25.0	100	2.5	0.50	ECM	0.025 kW	120	1	6	18	16	25	9	SEE SPECS	1-6

LOUVER SCHEDULE

REMARKS:

1. PAINT TO MATCH ADJACENT WALL COLOR.
2. PROVIDE GRAVITY BACKDRAFT DAMPER.

DESIG. NAME	NO.	MFR	MODEL	INTAKE OR DISCHARGE	OVERALL SIZE (IN.) L	H	D	FREE AREA (SF)	PEAK AIRFLOW (CFM)	AIR VELOCITIES FACE AREA (FPM)	FREE AREA (FPM)	AIR P.D. AT SEA LEVEL (IN WC)	MATERIAL	REMARKS
WL	1	RUSKIN	ELF375DX	INTAKE	84	58	6	16.92	11000	330	650	0.09	ALUMINUM	1
WL	2	RUSKIN	ELF375DX	INTAKE	84	58	6	16.92	11000	330	650	0.09	ALUMINUM	1
WL	3	RUSKIN	ELF375DX	INTAKE	76	58	6	15.30	10000	330	650	0.09	ALUMINUM	1
WL	4	RUSKIN	ELF375DX	DISCHARGE	96	54	6	18.00	9850	270	550	0.05	ALUMINUM	1
WL	5	RUSKIN	ELF375DX	DISCHARGE	84	60	6	17.50	9550	270	550	0.05	ALUMINUM	1
WL	6	RUSKIN	ELF375DX	DISCHARGE	92	50	6	15.97	8600	270	540	0.05	ALUMINUM	1
WL	7	RUSKIN	ELF375DX	DISCHARGE	48	24	6	4.00	1500	190	380	0.03	ALUMINUM	1, 2
WL	8	RUSKIN	ELF375DX	INTAKE	60	18	6	3.75	1500	200	400	0.03	ALUMINUM	1, 2

EQUIPMENT SOUND DATA SCHEDULE

DESIG. NAME	NO.	INLET NC (Hz) 63	125	250	500	1K	2K	4K	8K	RADIATED NC (Hz) 63	125	250	500	1K	2K	4K	8K	DISCHARGE NC (Hz) 63	125	250	500	1K	2K	4K	8K	SONES	REMARKS
AHU	1									74.5	73.5	73	74	71.5	67	62	57										
CU	1									102	101	100	101	98.5	94	89	84									30	
EF	1	72	73	77	72	66	64	60	55									85	80	75	70	66	64	58	53		
EF	2	88	85	84	80	75	71	66	61									98	89	88	80	78	72	66	61		
EF	3	70	64	54	56	52	48	42	41																	4.3	
ERV	1									80.5	83.2	82.4	79.3	83.7	88.3	82.8	79.7										
TF	1	64	66	63	63	60	54	46	46																	6.2	
TF	2	64	66	63	63	60	54	46	46																	2.7	

DUCT PRESSURE CLASSIFICATION SCHEDULE

DUCT TYPE	MATERIAL	PRESSURE CLASS	REMARKS
MEDIUM PRESSURE SUPPLY	GALVANIZED STEEL	+4"	BETWEEN SYSTEM FAN & TERMINAL BOX
LOW PRESSURE SUPPLY	GALVANIZED STEEL	+2"	BETWEEN TERMINAL BOX & ROOM
MEDIUM PRESSURE EXHAUST	GALVANIZED STEEL	-4"	BETWEEN SYSTEM FAN & TERMINAL BOX
LOW PRESSURE EXHAUST	GALVANIZED STEEL	-2"	BETWEEN TERMINAL BOX & ROOM
EXHAUST STACK AT FAN OUTLET (VERTICAL)	GALVANIZED STEEL	+4"	EPOXY COATED & PAINTED
OUTSIDE AIR DUCTWORK	GALVANIZED STEEL	-2"	
RETURN / TRANSFER AIR	GALVANIZED STEEL	+/-2"	
CANOPY HOOD EXHAUST	GALVANIZED STEEL	-4"	PVC COATED
COMBUSTION AIR	GALVANIZED STEEL	+/-2"	

REMARKS:

1. X.
2. X.

URL

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ISSUED FOR: CONSTRUCTION DOCUMENTS

SHEET TITLE: MECHANCIAL SCHEDULES

SCALE: 1/8" = 1'-0"
SHEET NUMBER

M-005

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Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.5.3.3 [ME113][1]	Fault detection and diagnostics installed with air-cooled unitary DX units or VRF units having economizers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [ME59][2]	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-002
C403.7.1 [ME59][3]	Demand control ventilation provided for spaces >500 ft2 and >15 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-111A
C403.7.2 [ME115][3]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.3 [ME140][3]	Units that provide ventilation air to multiple zones and operate in combination with zone heating and cooling systems do not use heating or heat recovery to warm supply air to a temperature greater than 60°F when representative building loads or outdoor air temperatures indicate that the majority of zones require cooling.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Spec section 230993
C403.7.6 [ME141][3]	HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.4 [ME57][3]	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.5 [ME116][3]	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.11.1 C403.11.2 [ME60][3]	HVAC ducts and plenums insulated in accordance with C403.11.1 and constructed in accordance with C403.11.2, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230700
C403.5, C403.5.1, C403.5.2 [ME62][3]	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** VRF systems with DOAS. **Location on plans/spec:** Refer to Specification Section 230993 for lab building AHU. Shop building is served by a VRF system with DOAS.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.5.3.4 [ME124][1]	Air economizers automatically reduce outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will not reduce cooling energy usage. See Table C403.5.3.3 for applicable device types and climate zones.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993
C403.5.3.5 [ME125][1]	System capable of relieving excess outdoor air during air economizer operation to prevent over pressurizing the building. The relief air outlet located to avoid recirculation into the building.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-104A
C403.5.3.6 [ME126][1]	Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference section C403.7.7 for details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-002, M-104A
C403.6.1 [ME75][2]	Hydronic and multizone HVAC system controls are VAV fans driven by mechanical or electrical variable speed drive per Table C403.4.1.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.6.9 [ME67][2]	VAV fans have static pressure sensors located so controller setpoint <=1.2 w.c..	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Spec section 230993
C403.4.1.3 [ME24][2]	Reset static pressure setpoint for DDC controlled VAV boxes reporting to central controller based on the zones requiring the most pressure.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993
C403.4.3 [ME69][2]	The heating of fluids in hydronic systems that have been previously mechanically cooled, and the cooling of fluids that have been previously mechanically heated are limited in accordance with Sections C403.4.3.1-C403.4.3.3. Single boiler systems >500,000 Btu/h have multistaged or modulating burner.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-003
C403.4.3.1 [ME50][2]	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6][1]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41][2]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.11.3 [ME61][2]	HVAC piping insulation insulated in accordance with Table C403.11.3. Insulation exposed to weather is protected from damage and is provided with shielding from solar radiation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230700
C403.8.1 [ME65][2]	HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. *See the Mechanical Systems list for values.*
C403.8.2 [ME21][2]	HVAC fan motors not oversized beyond allowable limits.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-004
C403.8.3 [ME117][2]	Fans have a fan energy index (FEI) >= 1.00. Variable volume fans will have an FEI >= 0.95.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.3 [ME117][2]	Fans have a fan energy index (FEI) >= 1.00. Variable volume fans will have an FEI >= 0.95.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Single fans with motor nameplate horsepower of = 1 hp or 0.89 kW. **Location on plans/spec:** M-004
C403.8.4 [ME142][2]	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.6 [ME143][2]	Each DX cooling system > 65 kBtu and chiller water/evaporative cooling system with fans > 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.9 [ME144][2]	Large diameter fans where installed shall be tested and labeled in accordance with AMCA 230.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.12.1 [ME71][2]	Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.3 [ME55][2]	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.1 [ME112][2]	Zone isolation devices and controls installed where applicable.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

COM*check* Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 88.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.12.2 C403.12.3 [FO9][1]	Snow/ice melting system and freeze protection systems have sensors and controls configured to limit service for pavement temperature above 50F and outdoor temperature above 40F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

COM*check* Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code:	2021 IECC
Project Title:	UCCS Eng
Location:	Colorado Springs, Colorado
Climate Zone:	5b
Project Type:	New Construction

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Mechanical Systems List

Quantity System Type & Description

1 AHU-1 (Multiple-Zone w/ PerimeterSystem):
Heating: 1 each - Hydronic or Steam Coil, Hot Water, Capacity = 666 kBtu/h
No minimum efficiency requirement applies
Cooling: 1 each - Split System, Capacity = 1095 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 11.40 EER, Required Efficiency = 9.50 EER
Proposed Part Load Efficiency = 11.00 IEER, Required Part Load Efficiency = 11.00 IEER
Fan System: AHU-1 -- Compliance (Brake HP and fan efficiency method) : Passes

Fans:
Return Return, Multi-Zone VAV, 27000 CFM, 20.0 motor nameplate hp, 15.7 design brake hp (17.3 max. BHP), 1.29 fan energy index
Supply Supply, Multi-Zone VAV, 32000 CFM, 50.0 motor nameplate hp, 36.2 design brake hp (44.2 max. BHP), 1.08 fan energy index
Pressure Drop Credits:
Exhaust system serving fume hoods, 0.2542 credit
Particulate filtration credit: MERV 13 through 15, 6.9717 credit
Return and/or exhaust airflow control devices, 3.2680 credit

1 HVAC System (Unknown):
VRF Condensing Unit, Air Cooled Heat Pump
Heating Mode: Capacity = 80 kBtu/h,
Proposed Efficiency = 3.30 COP, Required Efficiency = 3.30 COP
Cooling Mode: Capacity = 72 kBtu/h,
Proposed Efficiency = 11.90 EER, Required Efficiency = 11.00 EER
Proposed Part Load Efficiency = 20.90 IEER, Required Part Load Efficiency = 14.60 IEER
Fan System: None

1 ERV (Multiple-Zone):
Cooling: 1 each - VRF Zone Fan Unit, Capacity = 72 kBtu/h, Air Economizer
No minimum efficiency requirement applies
Fan System: ERV -- Compliance (Brake HP and fan efficiency method) : Passes

Fans:
Supply Supply, Constant Volume, 1500 CFM, 1.5 motor nameplate hp, 1.1 design brake hp (1.1 max. BHP), 90.00 fan energy index
Return Return, Constant Volume, 1500 CFM, 1.0 motor nameplate hp, 0.6 design brake hp (0.6 max. BHP), 90.00 fan energy index

2 Boilers:
Heating: Hot Water Boiler, Capacity 750 kBtu/h, Gas
Proposed Efficiency: 88.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

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SHEET TITLE:
MECHANICAL COMCHECK

SCALE: 1/8" = 1'-0"
SHEET NUMBER
M-006

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Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [FI8][3]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.3.1 [FI27][3]	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-002, M-003, M-004
C403.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-11A
C403.4.1.1 [FI42][3]	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Spec section 230993
C403.4.1.2 [FI38][3]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993
C403.4.1.3 [FI20][3]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Spec section 230993
C403.4.2 [FI39][3]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993
C403.4.2.1, C403.4.2.2 [FI40][3]	Automatic Controls: Setback to 55°F. (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993
C403.4.2.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993
C408.1.1 [FI57][3]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.1 [FI28][3]	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.3.1 [FI10][3]	HVAC and service water heating control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Spec section 230900
C408.2.3.2 [FI32][3]	Economizers have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.4 [FI29][3]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5 [FI7][3]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.1 [FI43][3]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.2 [FI30][3]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.11.3 [ME123][3]	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.11.3.1 and refrigeration compressor systems that comply with C403.11.3.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.7 [EL26][3]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.8 [EL27][3]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.9.1, C405.9.2 [EL28][3]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.10 [EL29][3]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.1.1 [EL30][3]	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.11, C405.11.1 [EL31][3]	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.4.3.3.2 [ME121][3]	Closed-circuit cooling tower within heat pump loop have either automatic bypass valve or lower leakage positive closure dampers. Open-circuit tower within heat pump loop have automatic valve to bypass all heat pump water flow around the tower. Open- or closed-circuit cooling towers used in conjunction with a separate heat exchanger have heat loss by shutting down the circulation pump on the cooling tower loop. Open- or closed circuit cooling towers have a separate heat exchanger to isolate the cooling tower from the heat pump loop, and heat loss is controlled by shutting down the circulation pump on the cooling tower loop.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.5 [ME26][3]	Chilled water plants with multiple chillers have capability to reduce flow automatically through the chiller plant when a chiller is shut down. Boiler plants with multiple boilers have the capability to reduce flow automatically through the boiler plant when a boiler is shut down.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993
C403.6.1 [ME130][3]	Supply air systems serving multiple zones have VAV systems with controls configured to reduce the volume of air that is reheated, recooled or mixed in each zone. See section for details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993
C403.6.2 [ME131][3]	Single-duct VAV systems use terminal devices configured to reduce the supply of primary supply air before reheating or recooling takes place.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.6.3 [ME132][3]	Systems that have 1 warm air duct and 1 cool air duct use terminal devices configured to reduce the flow from one duct to a minimum before mixing of air from the other duct takes place.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.6.4 [ME133][3]	Individual dual-duct or mixing heating and cooling systems with a single fan and with total capacities > 90,000 Btu/h not equipped with air economizers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.6.5 [ME134][3]	Multiple zone HVAC systems have supply air temperature reset controls based on building loads or outside temperatures.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230993

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.6.7 [ME136][3]	Parallel-flow fan-powered VAV air terminals have automatic controls configured to 1) turn off the terminal fan except when space heating is required or where required for ventilation, 2) turn on the terminal fan as the first stage of heating before the heating coil is activated, and 3) during heating for warmup or setback temperature control, either operate the terminal fan and heating coil without primary air or, reverse the terminal damper logic and provide heating from the central air handler by primary air.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.6.8 [ME137][3]	Systems with DDC of individual zones reporting to the control panel configured to reset the static pressure setpoint based on zone requiring the most pressure. The DDC is capable of monitoring zone damper positions or have an alternative method of indicating the need for static pressure. See section for details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Spec section 230993
C403.6.9 [ME138][3]	Static pressure sensors used to control VAV fans located such that the controller setpoint is <= 1.2 inches w.c.. Where this results in one or more sensors being located downstream of major duct splits, not less than one sensor located on each major branch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Spec section 230993
C403.4.1.4 [ME63][3]	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Specification Section 230700
C403.6.6 [ME135][3]	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** Spec section 230993 *See the Mechanical Systems list for values.*
C403.10.5 [ME31][3]	Condenser heat recovery system that can heat water to 85 ºF or provide 60% of peak heat rejection is installed for preheating of service hot water.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Facility operates 24/7.
C403.3.3 [ME35][3]	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2.1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-101A
C408.2.2.2 [ME54][3]	HVAC hydronic heating and cooling coils have means to balance and have pressure test connections.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met. **Location on plans/spec:** M-401 and M-402

1 High Impact (Tier 1) | 2 Medium Impact (Tier 2) | 3 Low Impact (Tier 3)

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SHEET TITLE:
MECHANICAL COMCHECK

SCALE: 1/8" = 1'-0"
SHEET NUMBER
M-007

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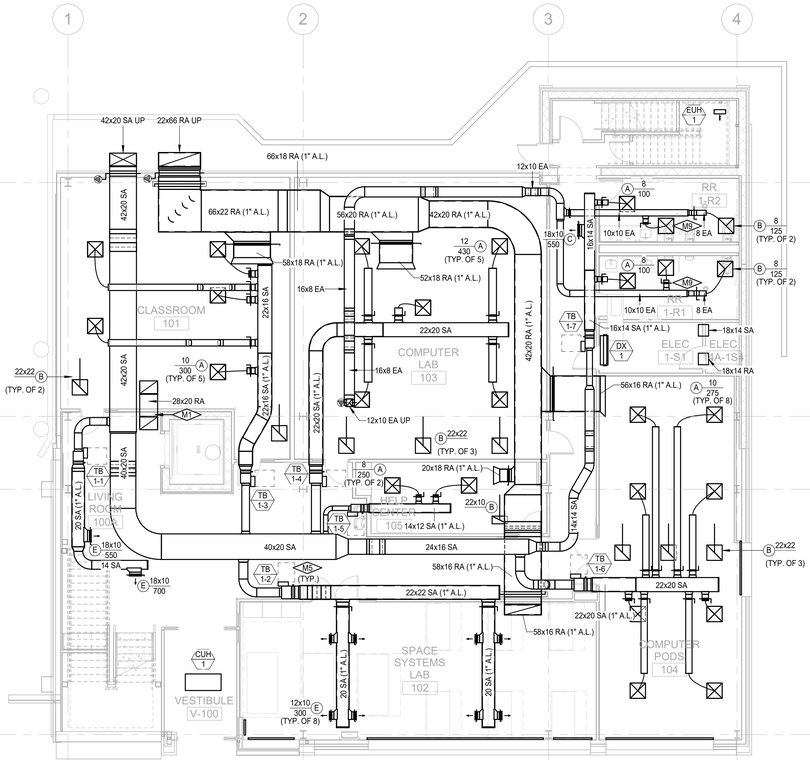

LEVEL 1 HVAC PLAN

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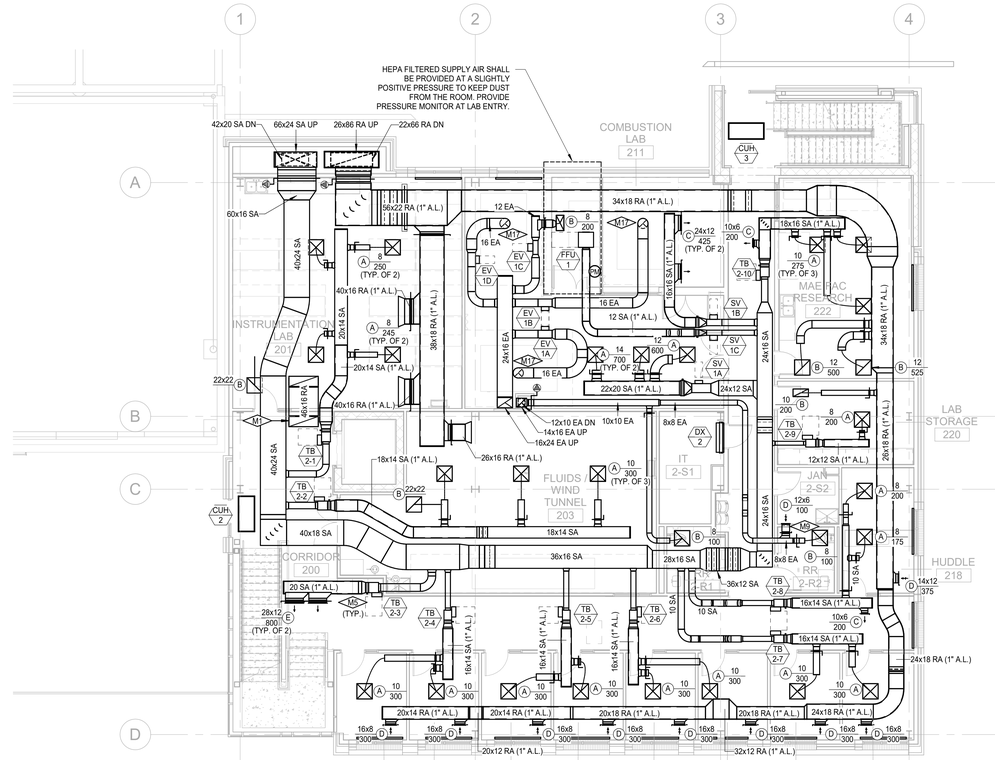

LEVEL 2 HVAC PLAN

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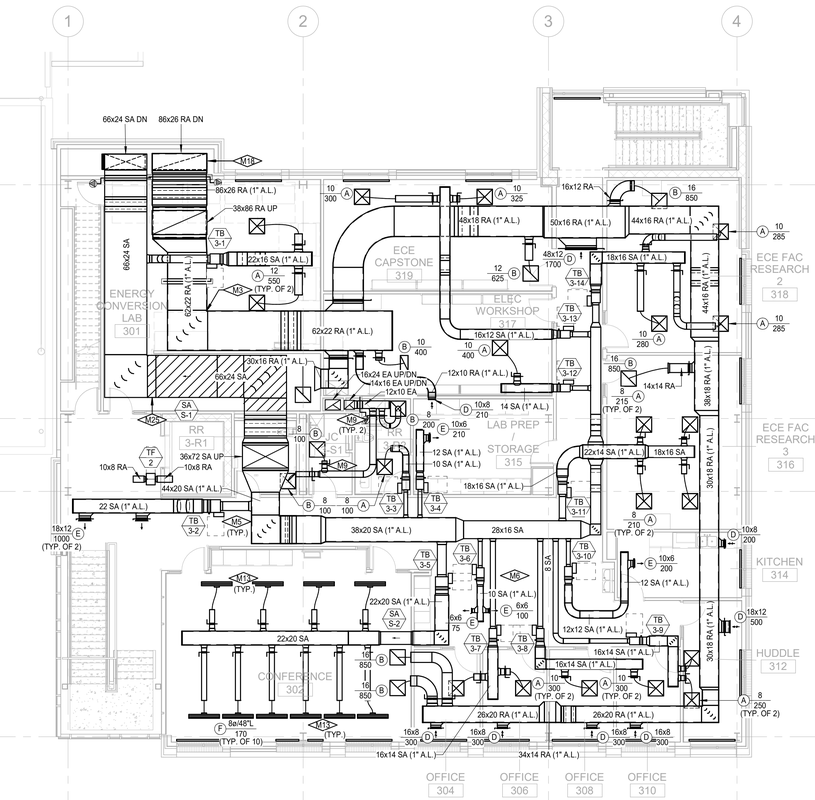

LEVEL 3 HVAC PLAN

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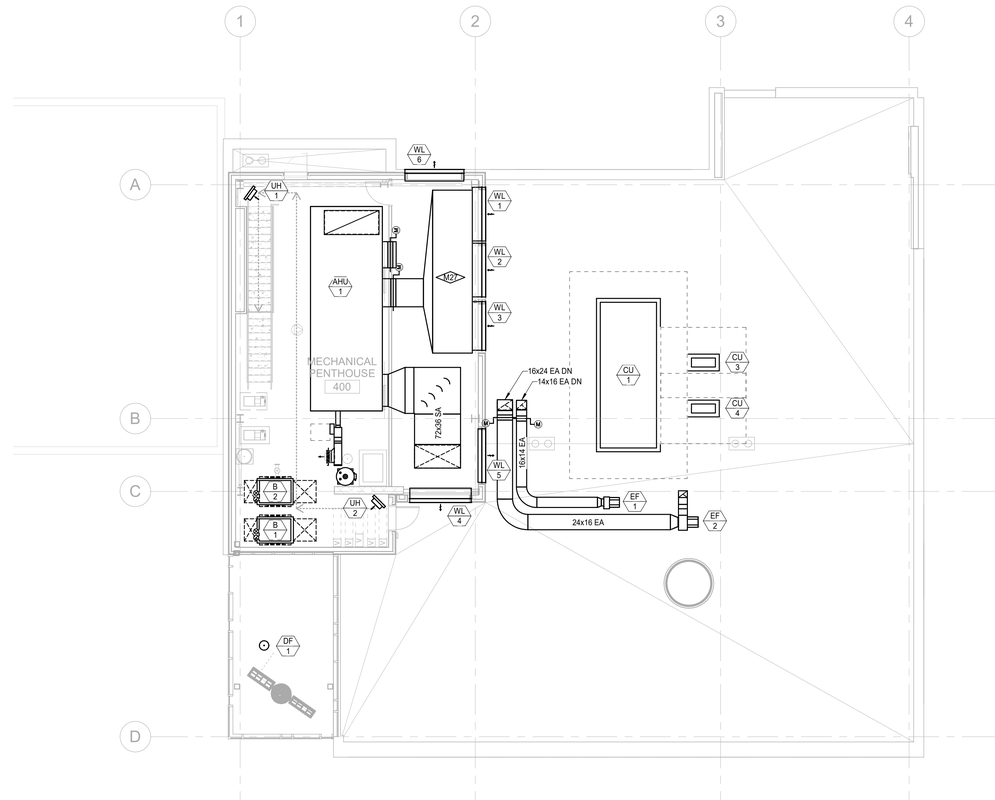

LEVEL 4 HVAC PLAN

SCALE: 1/8" = 1'-0"

KEYNOTES

M1	REFER TO TRANSFER DUCT DETAIL.
M3	PROVIDE ELBOW SOUND ATTENUATOR (SA-R1). RE: SCHEDULE
M5	CEILING TYPE IS SPECIALIZED WOOD SLAT CEILING. ACCESS TO MECHANICAL EQUIPMENT REQUIRES CLOSE COORDINATION BETWEEN ARCHITECT AND MECHANICAL CONTRACTOR.
M6	AREA UNDER SKYLIGHT SHALL BE FREE OF DUCTWORK AND PIPING.
M9	PROVIDE ACCESS PANELS FOR MANUAL VOLUME DAMPERS.
M13	PROVIDE BLANK OFF PANELS TO ACHIEVE THE LOOK OF A SINGLE CONTINUOUS LINEAR DIFFUSER. COORDINATE LENGTH TO ALIGN WITH ACT CEILING.
M17	PROVIDE EXHAUST CANOPY SIZED AT 1000 CFM. CONNECT DUCTWORK PER MANUFACTURER'S INSTRUCTIONS.
M18	SA - R-2 LOCATED IN VERTICAL. RE: M-302.
M25	HATCH INDICATES DUCT LAGGING.
M27	FULL HEIGHT OUTDOOR AIR PLENUM. CONNECT TO LOUVERS AND TRANSITION TO AHU OA OPENING.

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SHEET TITLE:
HVAC PLAN SERIES - LAB BLDG

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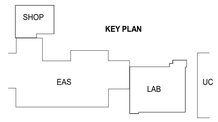
SHEET NUMBER

M-101A



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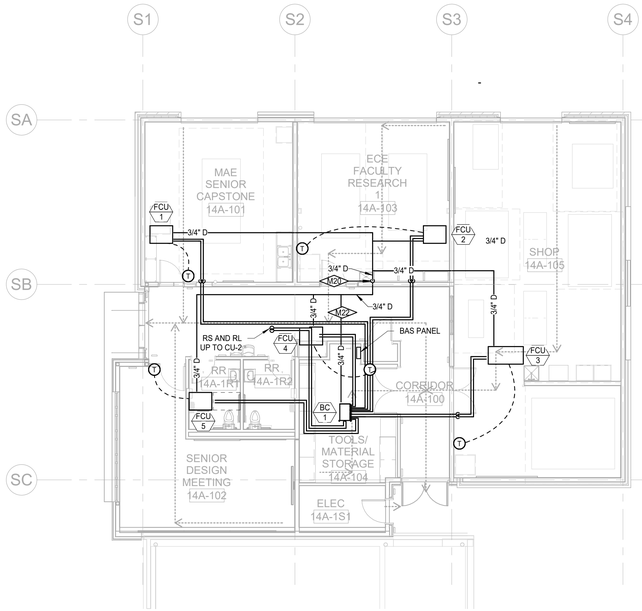
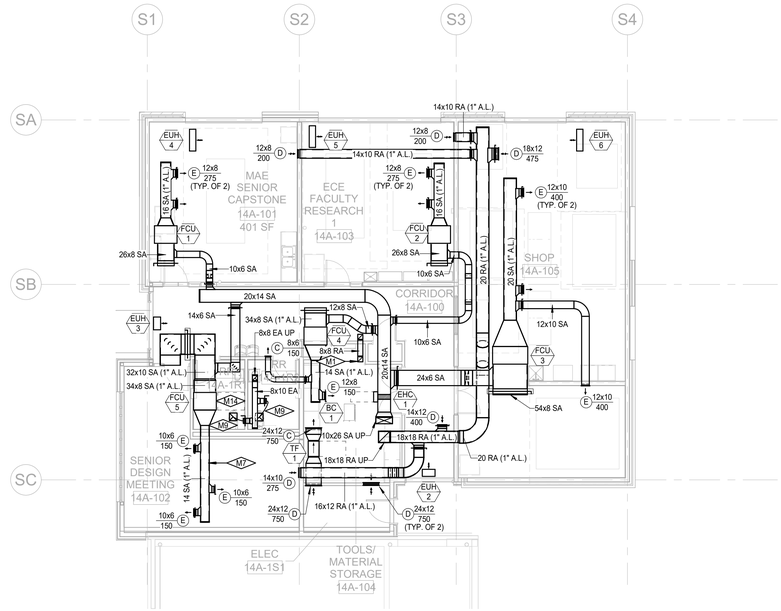
KEYNOTES

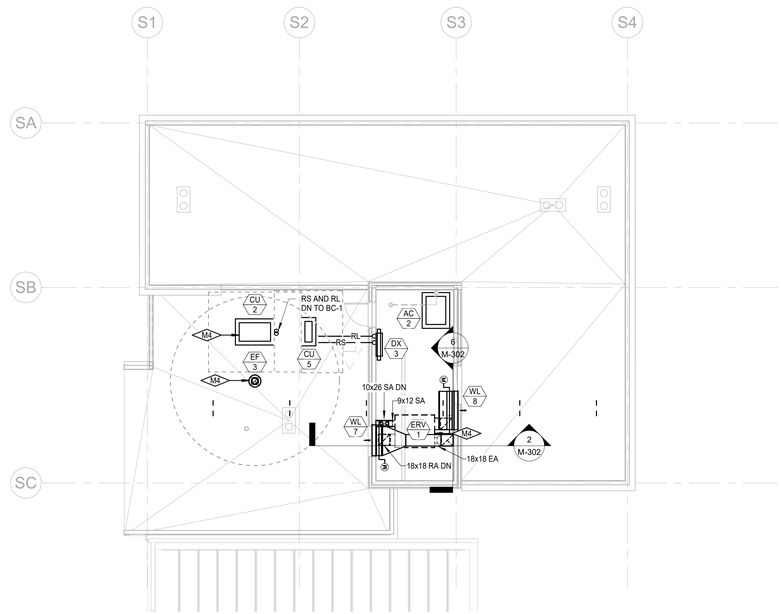
M1	REFER TO TRANSFER DUCT DETAIL.
M4	PROVIDE EQUIPMENT CURB. STRUCTURE CANNOT SUPPORT CONCRETE HOUSEKEEPING PAD IN THIS LOCATION.
M7	DUCT SHALL HAVE INTERNAL LINER. TYPICAL FOR ALL LOW PRESSURE DUCT UNLESS NOTED OTHERWISE.
M9	PROVIDE ACCESS PANELS FOR MANUAL VOLUME DAMPERS.
M14	PROVIDE ACCESS PANEL TO FCU.
M20	3/4" CONDENSATE DRAIN DN TO MOP SINK.
M22	REFRIGERANT PIPE SIZES ARE TO BE DETERMINED BY THE MANUFACTURER BASED ON ACTUAL ROUTE AND LENGTH NEEDED FOR THE SITE. CONTRACTOR TO FIELD VERIFY ROUTE AND LENGTHS REQUIRED AND HAVE MANUFACTURER SIZE PIPING ACCORDINGLY.



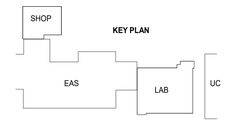
LEVEL 3 HVAC PIPING PLAN - SHOP
SCALE: 1/8" = 1'-0"



LEVEL 3 HVAC PLAN - SHOP
SCALE: 1/8" = 1'-0"



ROOF MECHANICAL PLAN - SHOP
SCALE: 1/8" = 1'-0"



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MECHANICAL PLAN SERIES - SHOP BLDG

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SHEET NUMBER
M-103B

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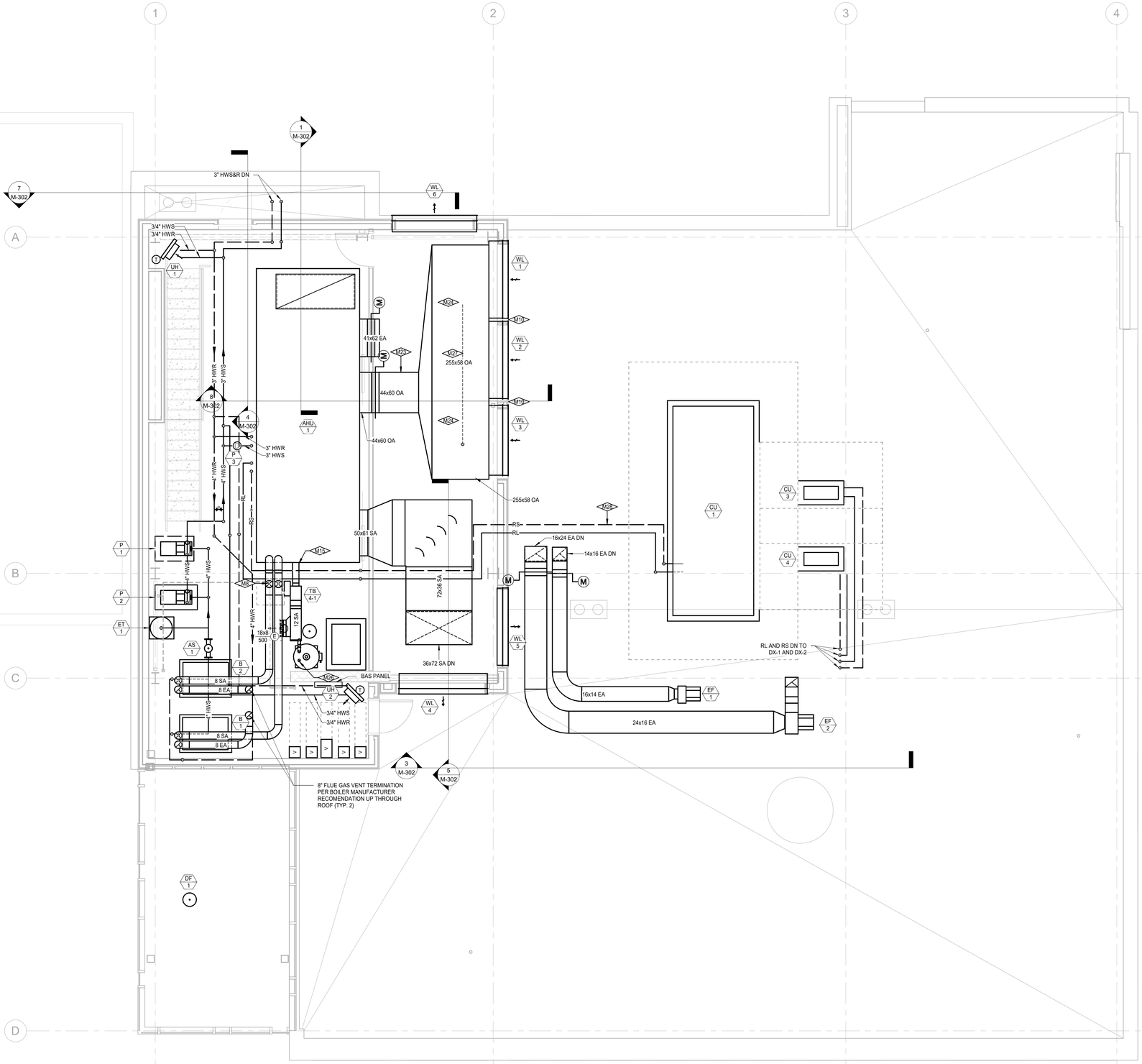
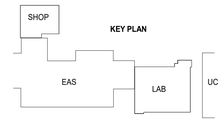
KEYNOTES

M8	8" COMBUSTION AIR INLET PER BOILER MANUFACTURER RECOMENDATION TERMINATE UP THROUGH ROOF (TYP. 2).
M10	COORDINATE WITH STRUCTURE AND LOUVER MANUFACTURER.
M15	COORDINATE 7" DUCT CONNECTION WITH AHU MANUFACTURER.
M23	PROVIDE AIRFLOW MONITORING STATION FOR OUTDOOR AIR IN ACESSIBLE LOCATION.
M24	PROVIDE DUCT DRAIN AND PIPE TO NEAREST FLOOR DRAIN. RE: DETAIL.
M26	PROVIDE 3" COMBUSTION AIR INLET AND 3" FLUE GAS OUTLET UP THROUGH ROOF PER WATER HEATER MANUFACTURER'S INSTRUCTIONS.
M27	FULL HEIGHT OUTDOOR AIR PLENUM. CONNECT TO LOUVERS AND TRANSITION TO AHU OA OPENING.
M28	REFRIGERANT PIPE SIZES ARE TO BE DETERMINED BY THE MANUFACTURER BASED ON ACTUAL ROUTE AND LENGTH NEEDED FOR THE SITE. CONTRACTOR TO FIELD VERIFY ROUTE AND LENGTHS REQUIRED AND HAVE MANUFACTURER SIZE PIPING ACCORDINGLY. REFER TO MANUFACTURER FOR QUANTITY OF REFRIGERANT CIRCUITS AND PIPING RUNS.



ROOF MECHANICAL PLAN - LAB

SCALE: 1/4" = 1'-0"



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MECHANICAL PLAN SERIES - ROOF - LAB BLDG

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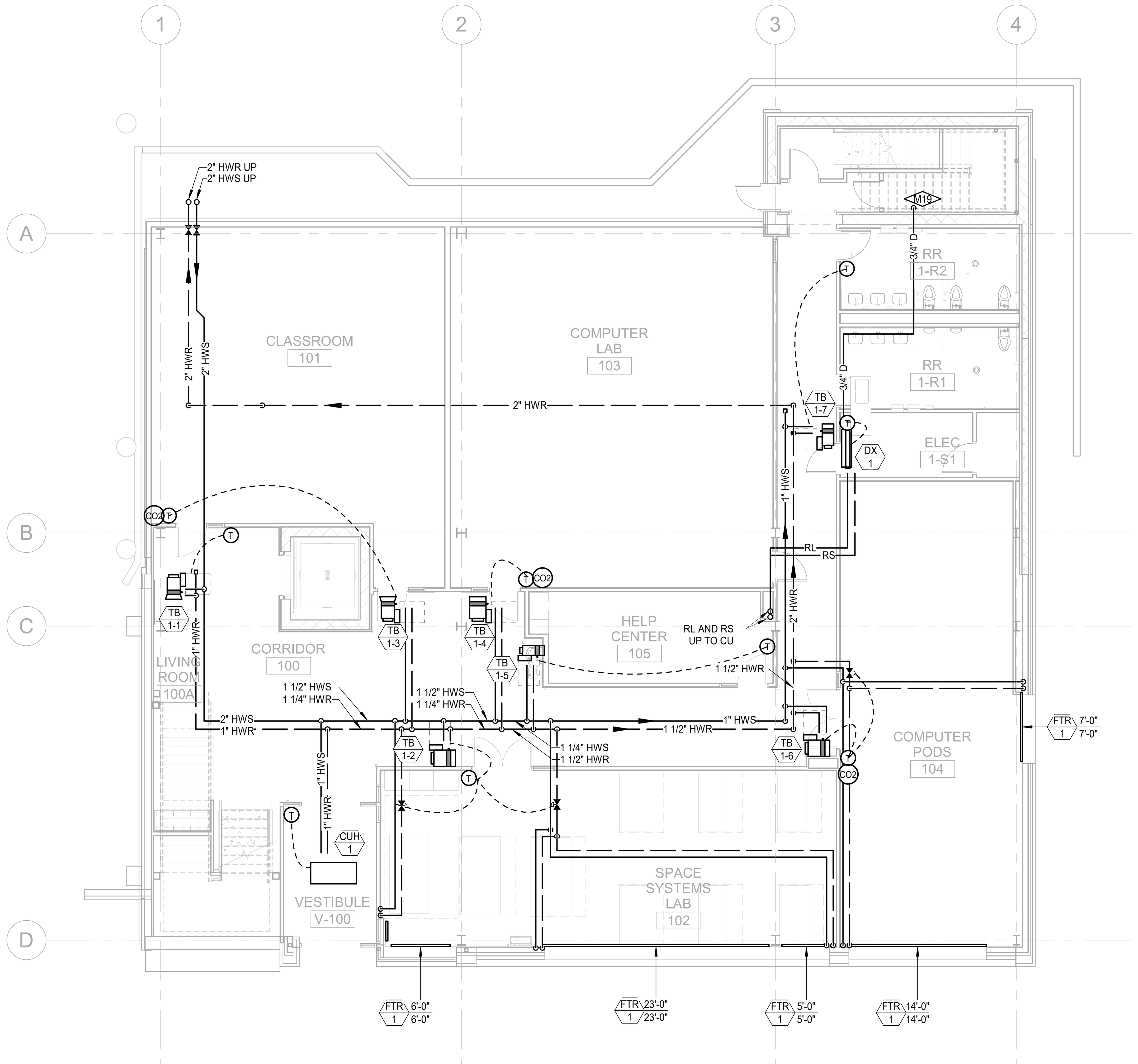
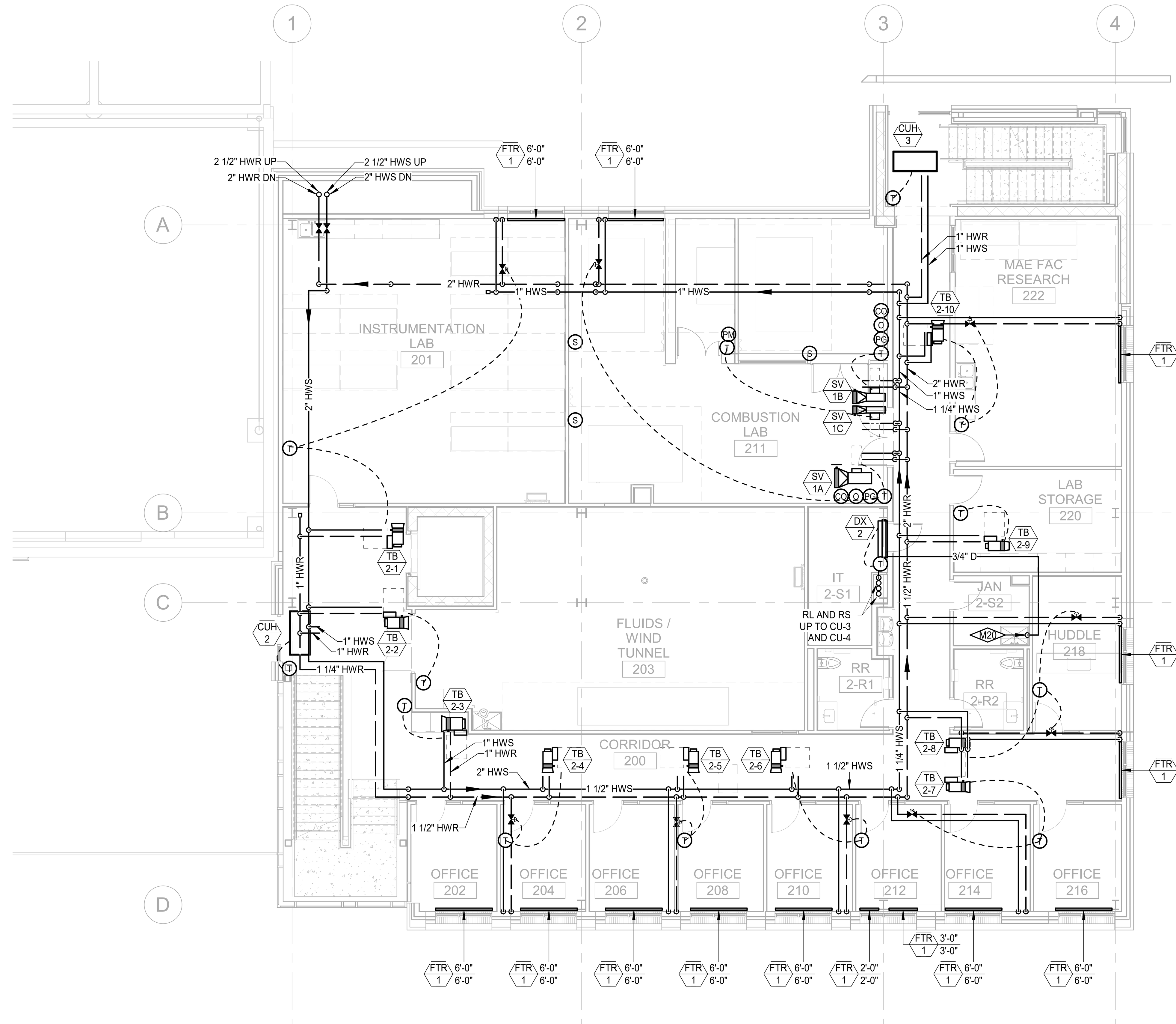


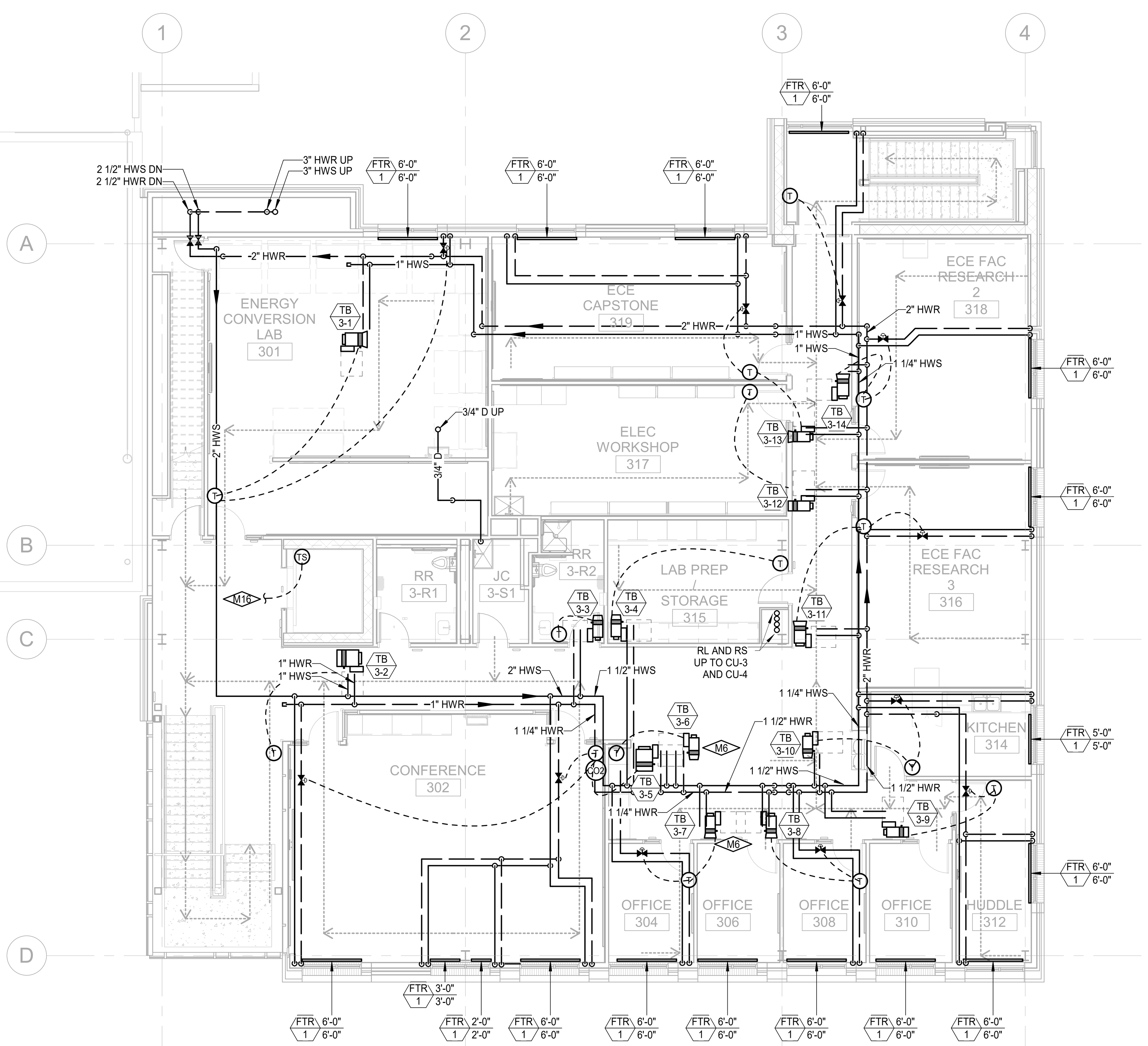
LEVEL 1 HVAC PIPING PLAN

SCALE: 1/8" = 1'-0"



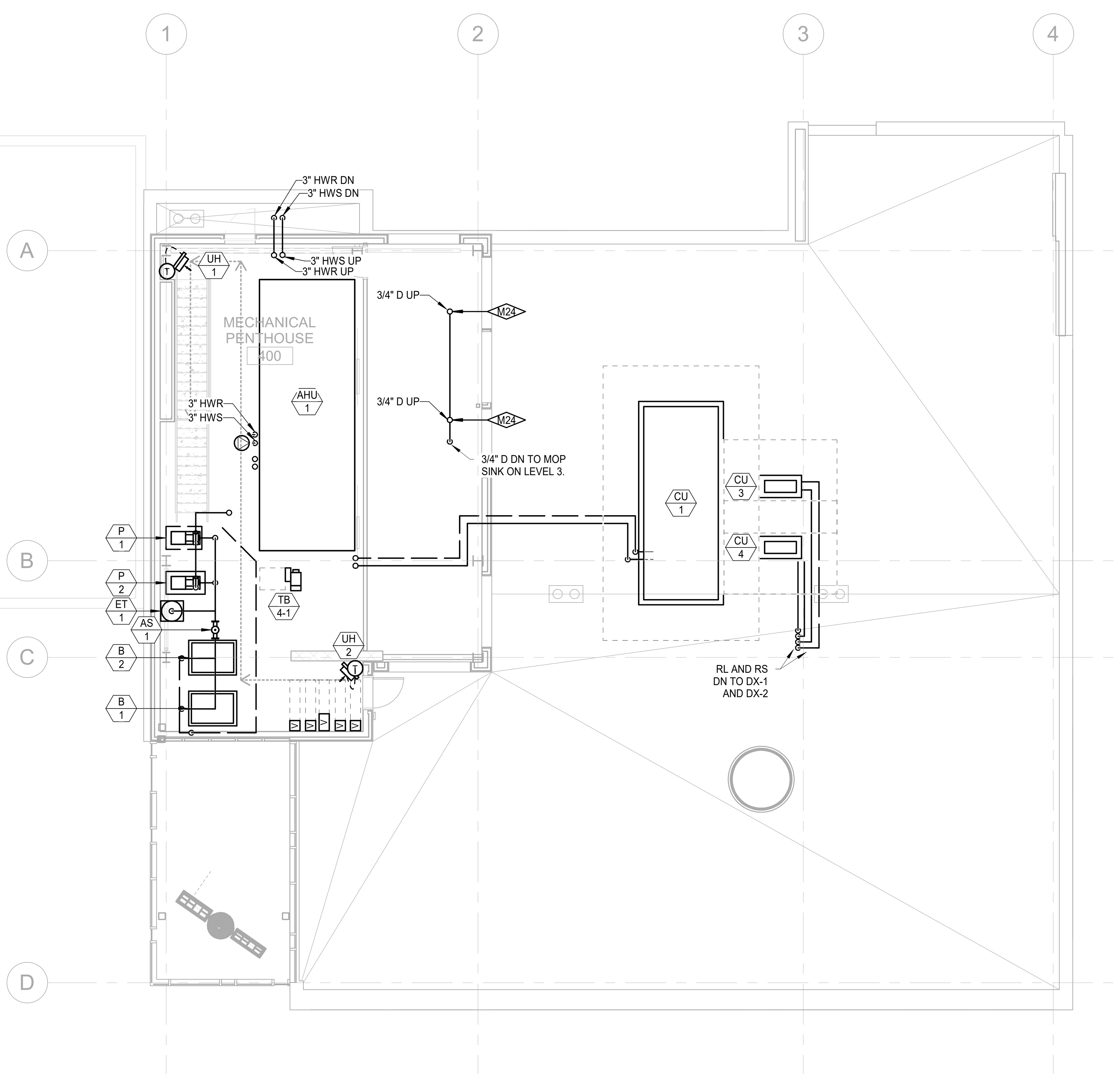
LEVEL 2 HVAC PIPING PLAN

SCALE: 1/8" = 1'-0"



LEVEL 3 HVAC PIPING PLAN

SCALE: 1/8" = 1'-0"

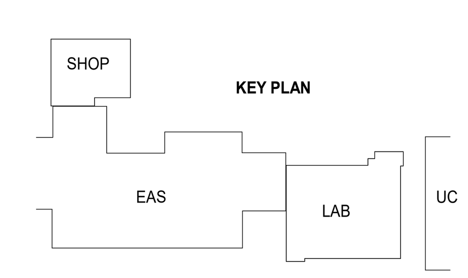


LEVEL 4 HVAC PIPING PLAN

SCALE: 1/8" = 1'-0"

KEYNOTES

M6	AREA UNDER SKYLIGHT SHALL BE FREE OF DUCTWORK AND PIPING.
M16	WIRE TEMPERATURE SENSOR TO TF-2.
M19	3/4" CONDENSATE DRAIN DN TO FLOOR DRAIN.
M20	3/4" CONDENSATE DRAIN DN TO MOP SINK.
M24	PROVIDE DUCT DRAIN AND PIPE TO NEAREST FLOOR DRAIN. RE: DETAIL.



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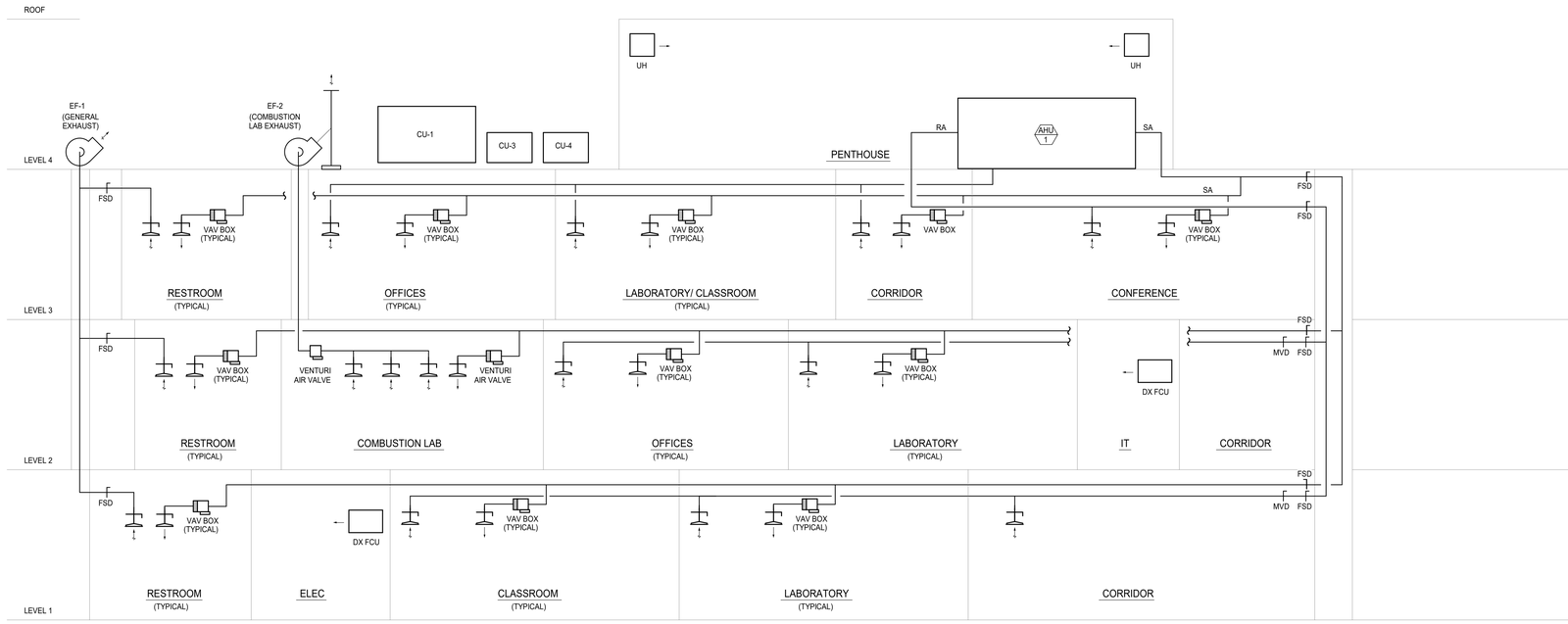

MECHANICAL AIRFLOW DIAGRAM

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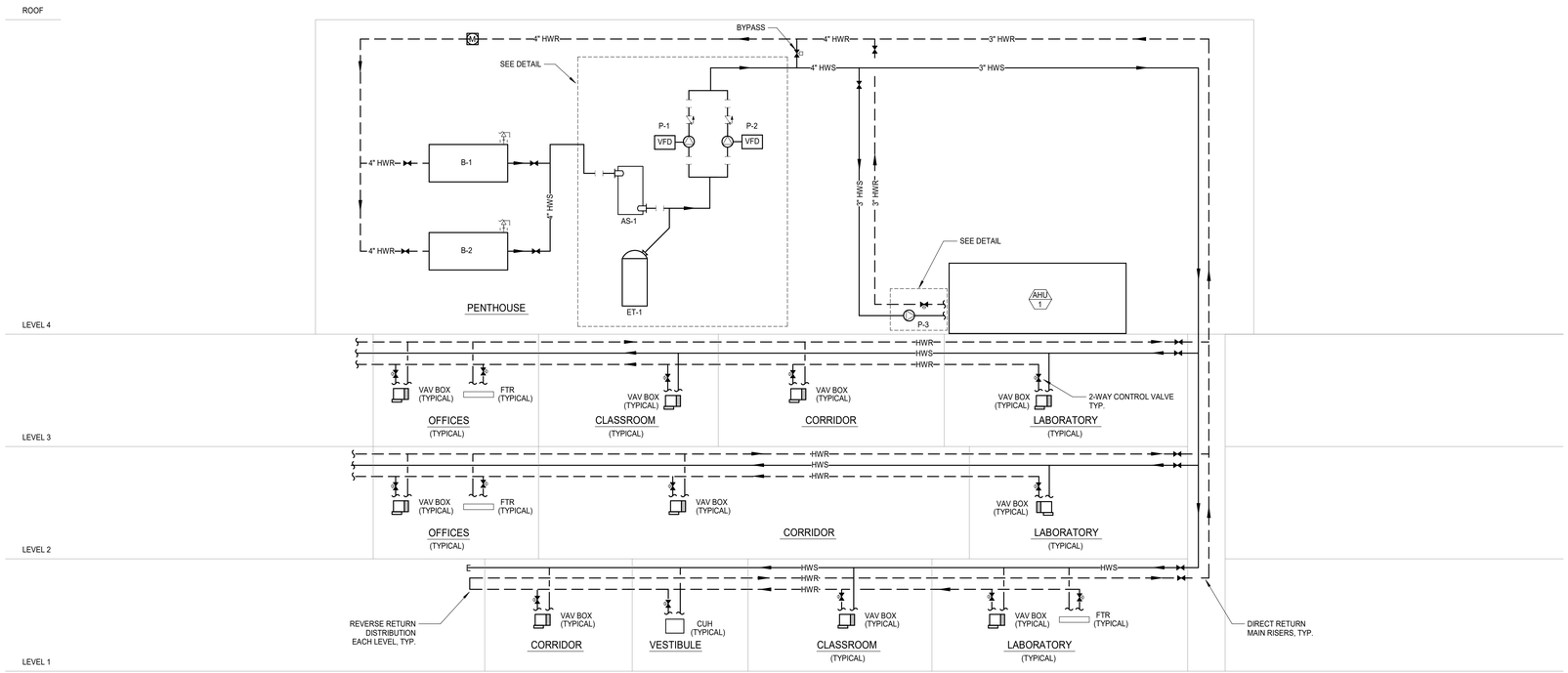

HEATING WATER SYSTEM SCHEMATIC

SCALE: NONE

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M-301

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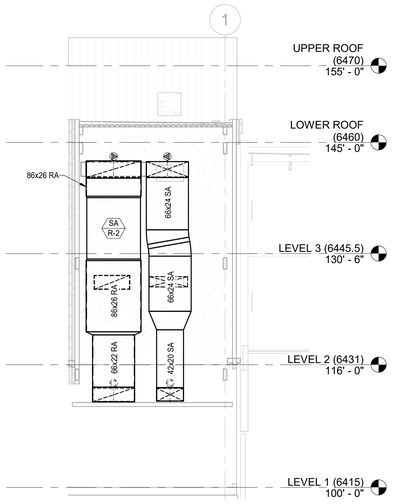
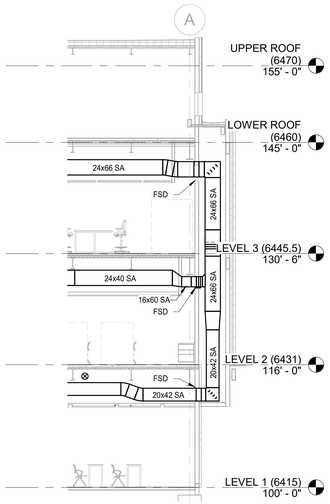
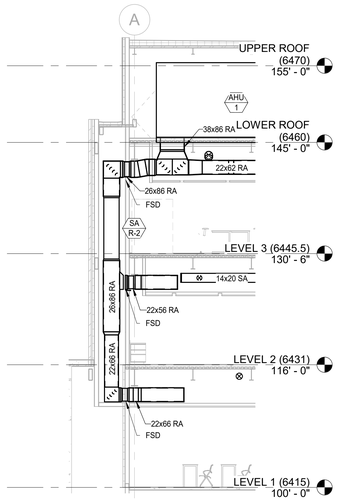


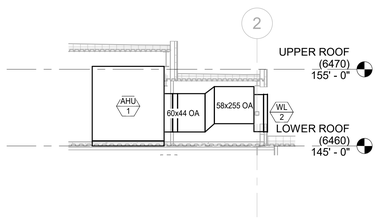
7 M-104A **Shaft Section View**
SCALE: 1/8" = 1'-0"



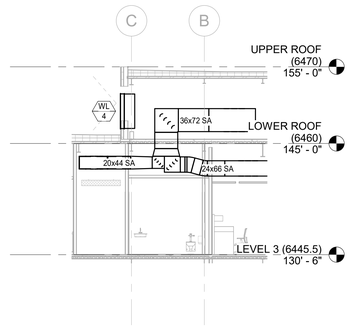
4 M-104A **Mechanical Shaft - Supply Duct Section View**
SCALE: 1/8" = 1'-0"



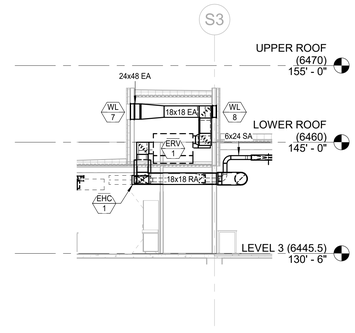
1 M-104A **Mechanical Shaft - Return Duct Section View**
SCALE: 1/8" = 1'-0"



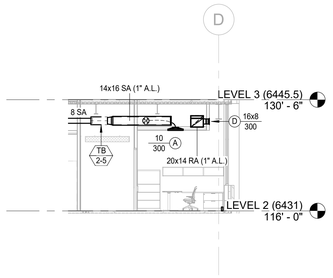
8 M-104A **AHU-1 Section View**
SCALE: 1/8" = 1'-0"



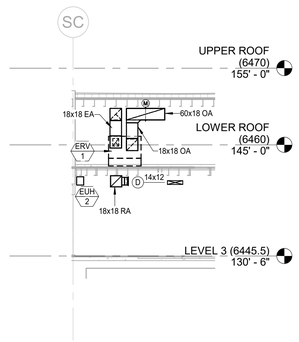
5 M-104A **Level 3 Supply Air Ductwork Section View**
SCALE: 1/8" = 1'-0"



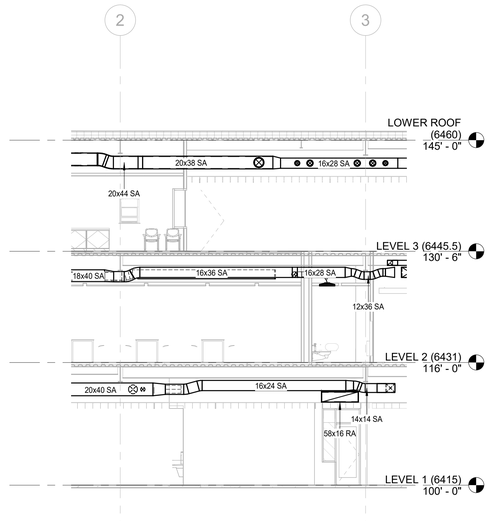
2 M-103B **ERV East/West Section View**
SCALE: 1/8" = 1'-0"



9 **Level 2 Office Section View**
SCALE: 1/8" = 1'-0"



6 M-103B **ERV North/South Section View**
SCALE: 1/8" = 1'-0"



3 M-104A **Supply Main Section View**
SCALE: 1/8" = 1'-0"

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MICHAEL JOSEPH
46424
10/25/2022
PROFESSIONAL ENGINEER
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1420 AUSTIN BLUFFS PKWY
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PROJ. NO. 121091.00
DRAWN: TMT
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APPROVED: AJA
DATE: 10/26/2022

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
MECHANICAL SECTION VIEWS

SCALE: 1/8" = 1'-0"
SHEET NUMBER
M-302

10/25/2022 1:51:00 PM P:\OU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad

Indoor Units:	5 / 1 to 18	
Capacity:	102 / 36 to 108 (141.7%)	
* Connectable capacity is not actual capacity.		
Total Pipe Length:	229.6 / 1759.4	feet
Furthest Actual:	105.0 / 541.0	feet
Furthest Equiv.:	109.6 / 623.0	feet
Furthest IU from BC Actual:	55.0 / 131.0	feet
Furthest IU from BC Equiv.:	55.0 / 131.0	feet
Furthest IU from BC Thru Sub BC Actual:	0.0 / 0.0	feet
Furthest IU from BC Thru Sub BC Equiv.:	0.0 / 0.0	feet

Correction Factors

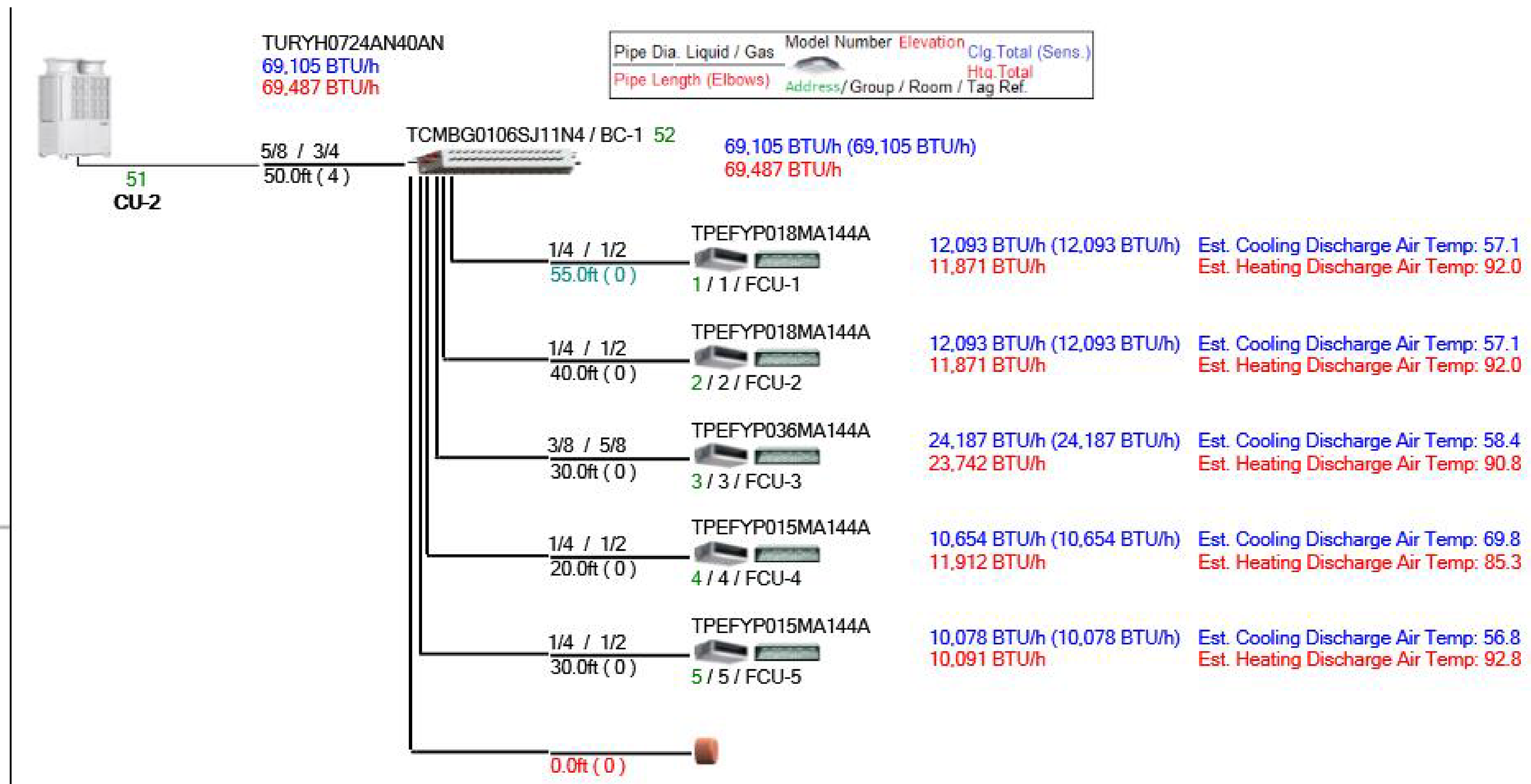
Outdoor Unit Capacity:	1.08	1.01
Temperature:	1.00	0.97
Piping Length:	0.94	0.98
Defrosting:	-	0.95
User Derate:	1.00	1.00
Total Derate:	0.96	0.87

Additional Refrigerant: 16.50 lb
Total Refrigerant Amount: 34.13 lb

Conditions (°F)

Cooling
Indoor DB 80.0 Humidity 35.6% Indoor WB 61.0
Outdoor DB 95.0

Heating
Indoor DB 70.0
Outdoor DB -5.0 Humidity 62.6% Outdoor WB -6.0



NOTE:
REFRIGERANT PIPE SIZES ARE TO BE DETERMINED BY THE MANUFACTURER BASED ON ACTUAL ROUTE AND LENGTH. CONTRACTOR TO VERIFY ROUTE AND LENGTHS REQUIRED PRIOR TO INSTALLATION AND HAVE MANUFACTURER SIZE PIPING ACCORDINGLY.

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ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
VRF INFORMATION

SCALE: 1/8" = 1'-0"
SHEET NUMBER
M-303

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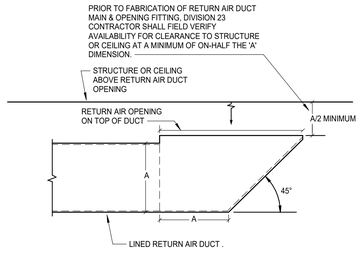
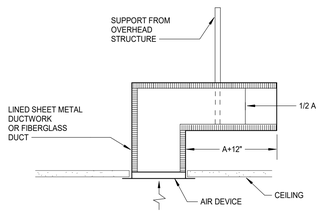
10/25/2022 1:58:54 PM



RETURN AIR DUCT DETAIL

SCALE: NONE

3300-04 04.20.22

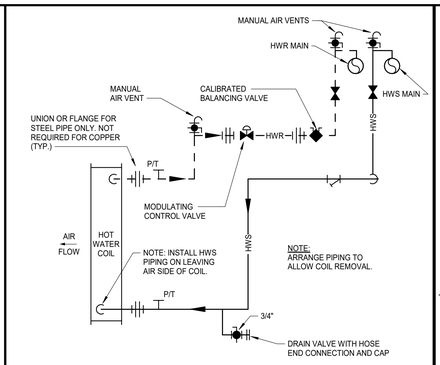


NOTES:
1. PROVIDE ON ALL LAY-IN RETURN AIR DEVICES, UNLESS NOTED OTHERWISE.
2. "A" EQUALS LONGEST DIMENSION OF AIR DEVICE NEK. EXAMPLE: FOR A 22/10 AIR DEVICE, "A" EQUALS 22".

SOUND ELBOW DETAIL

SCALE: NONE

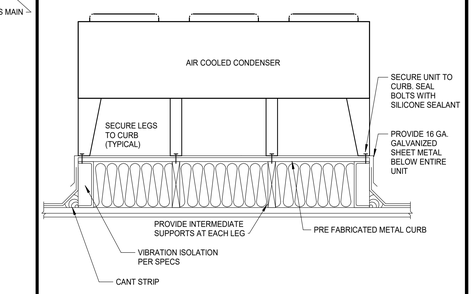
3713-04



HOT WATER REHEAT COIL PIPING DETAIL (2-WAY VALVE, SINGLE COIL)

SCALE: NONE

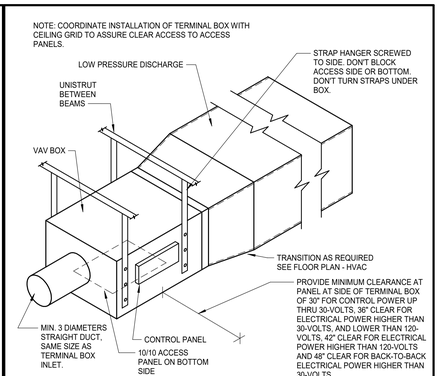
8000-12 1.27.22



AIR COOLED CONDENSER CURB DETAIL

SCALE: NONE

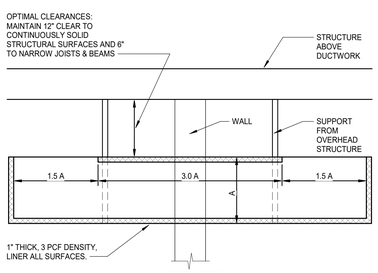
6313-01



TERMINAL BOX DETAIL

SCALE: NONE

8000-42 9.17.21



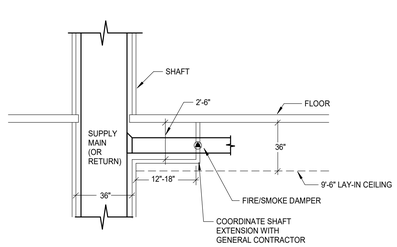
SIDE VIEW

NOTES
1. A = DEPTH OF DUCT SHOWN ON PLANS.
2. DUCT SIZE SHOWN ON PLAN SHALL BE SHEET METAL SIZE OF DUCT FOR THIS DETAIL. AIR WAY SIZE SHALL BE REDUCED BY 2" IN EACH DIRECTION.
3. PROVIDE ONE OPENING IN TOP OF DUCT AT EACH END.
4. SEAL ALL EDGES OF LINER PER SPECIFICATIONS.
5. FIBERGLASS DUCTBOARD IS ACCEPTABLE WHEN CONSTRUCTED PER THE MANUFACTURER'S RECOMMENDATIONS.

TRANSFER AIR DUCT - STRAIGHT

SCALE: NONE

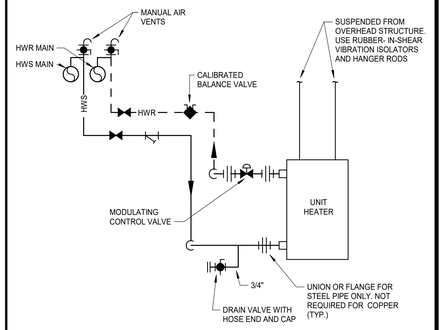
3713-05



TYPICAL SHAFT DUCT TAKE-OFF DETAIL

SCALE: NONE

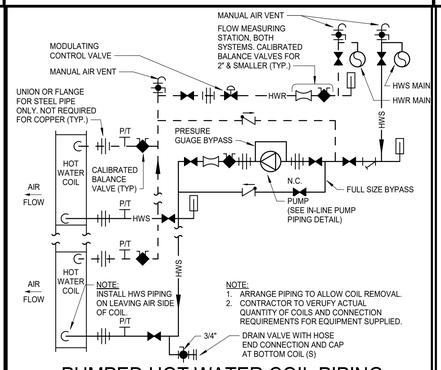
3300-19



UNIT HEATER PIPING DETAIL

SCALE: NONE

8000-11 9.12.19

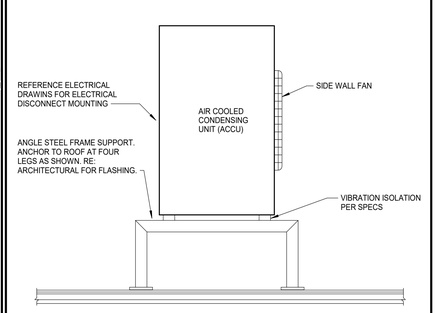


NOTE:
1. ARRANGE PIPING TO ALLOW COIL REMOVAL.
2. CONTRACTOR TO VERIFY ACTUAL QUANTITY OF COILS AND CONNECTION REQUIREMENTS FOR EQUIPMENT SUPPLIED.

PUMPED HOT WATER COIL PIPING DETAIL (2-WAY VALVE, MULTI-COIL)

SCALE: NONE

8000-15a 02.01.22

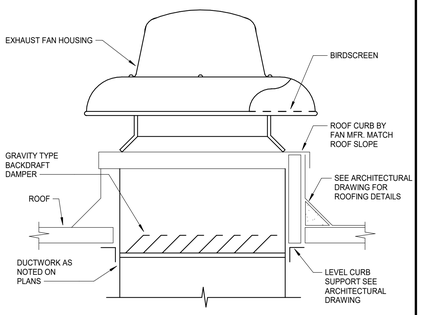


AIR COOLED CONDENSING UNIT CURB DETAIL

SCALE: NONE

(236313)

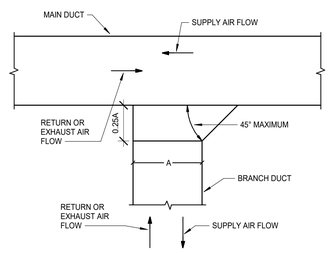
6313-02



ROOF EXHAUST FAN DETAIL

SCALE: NONE

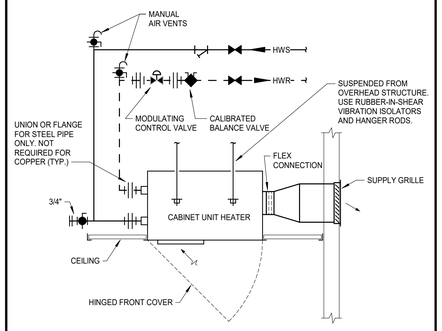
3400-01



DUCT TAKE-OFF DETAIL

SCALE: NONE

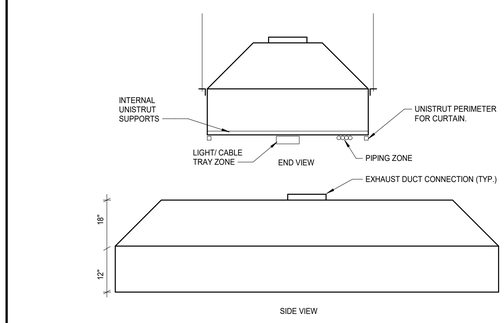
3300-02



CABINET UNIT HEATER DETAIL

SCALE: NONE

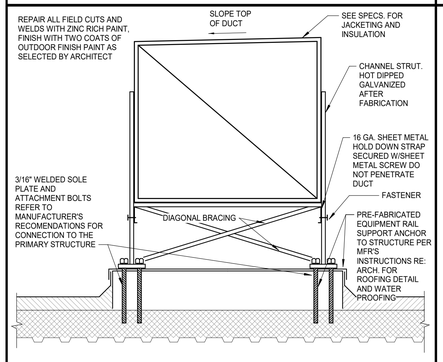
8000-09 9.12.19



DETAIL NOTES:
1. NEW CANOPY HOODS ARE CONTRACTOR SHOP FABRICATED, GALVANIZED STEEL AND PAINTED.
2. THE THREE HOODS ARE 6' X 6'.
3. PROVIDE EXTERNAL BRACING PER SMACNA. BRACING SHALL BE PAINTED TO MATCH THE HOOD.
4. CONSTRUCT HOODS WITH SPLIT JOINTS/ MULTIPLE SECTIONS AS REQUIRED FOR FIT/ ASSEMBLY IN THE LAB SPACE.
5. SEE ARCHITECTURAL DETAILS FOR ADDITIONAL INFORMATION.

CANOPY HOOD DETAIL

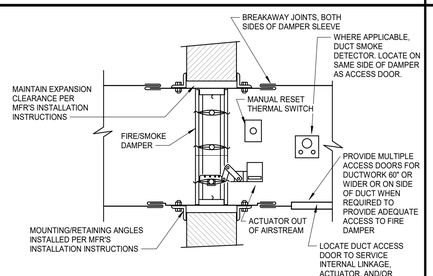
NO SCALE



ROOF DUCT SUPPORT DETAIL, RECTANGULAR

SCALE: NONE

3113-07

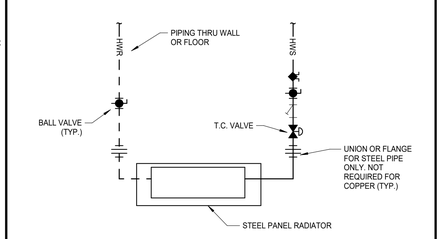


NOTES:
1. INSTALL ASSEMBLY IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. PROVIDE AND INSTALL ADDITIONAL STEEL MULLIONS FOR MULTIPLE FIRE/SMOKE DAMPER ASSEMBLIES.
3. PROVIDE APPROPRIATE DUCT TRANSITIONS BETWEEN SCHEDULED DAMPER SIZE AND INDICATED DUCT SIZE.
4. PROVIDE RED IDENTIFICATION PAINT ON EXTERIOR OF DAMPER SLEEVE.
5. WHERE DAMPER BLADES MUST BE INSTALLED VERTICALLY, PROVIDE SPECIFICALLY LISTED VERTICAL INSTALLATION.

FIRE/SMOKE DAMPER INSTALLATION DETAIL

SCALE: NONE

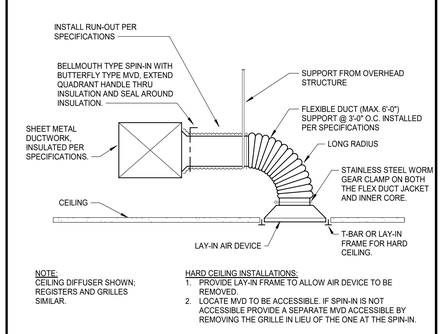
3300-11



FTR PIPING DETAIL

SCALE: NONE

8000-32



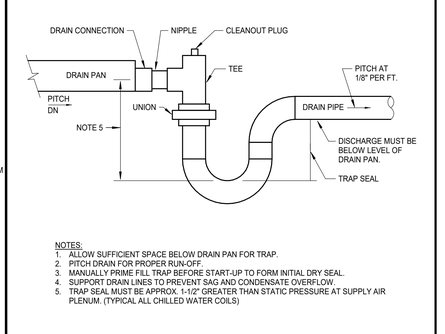
NOTE:
CEILING DIFFUSER SHOWN; REGISTERS AND GRILLES SIMILAR.

HARD CEILING INSTALLATIONS:
1. PROVIDE LAY-IN FRAME TO ALLOW AIR DEVICE TO BE REMOVED.
2. LOCATE MVD TO BE ACCESSIBLE. IF SPIN-IN IS NOT ACCESSIBLE PROVIDE A SEPARATE MVD ACCESSIBLE BY REMOVING THE GRILLE IN LIEU OF THE ONE AT THE SPIN-IN.

ROUND NECK AIR DEVICE DETAIL

SCALE: NONE

3713-08



NOTES:
1. ALLOW SUFFICIENT SPACE BELOW DRAIN PAN FOR TRAP.
2. PITCH DRAIN FOR PROPER RUN-OFF.
3. MANUALLY PRIME FILL TRAP BEFORE START-UP TO FORM INITIAL DRY SEAL.
4. SUPPORT DRAIN LINES TO PREVENT SAG AND CONDENSATE OVERFLOW.
5. TRAP SEAL MUST BE APPROX. 1-1/2" GREATER THAN STATIC PRESSURE AT SUPPLY AIR PLENUM. (TYPICAL ALL CHILLED WATER COILS)

CONDENSATE DRAIN PIPING DETAIL

SCALE: NONE

8000-19

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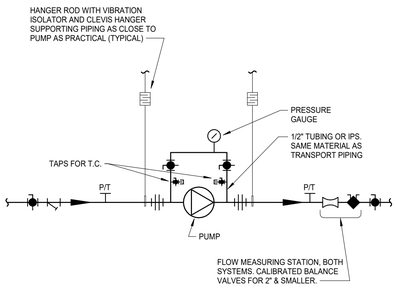
SHEET TITLE:
MECHANICAL DETAILS

SCALE: 1/8" = 1'-0"
SHEET NUMBER

M-401

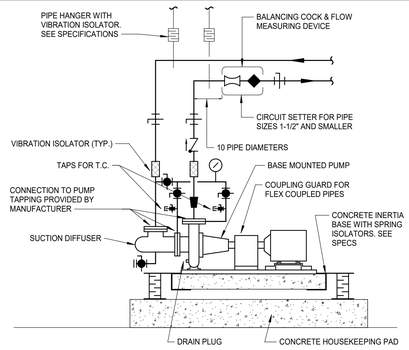
10/25/2022 1:51:01 PM P:\CU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad



IN-LINE PUMP PIPING DETAIL

SCALE: NONE

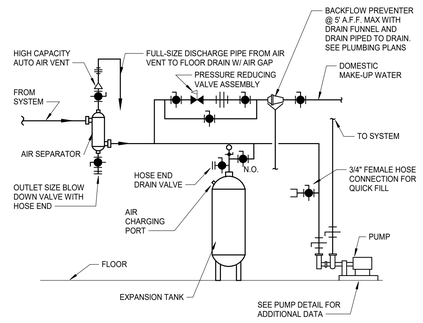
2123-07 9.12.19



END SUCTION PUMP PIPING DETAIL

SCALE: NONE

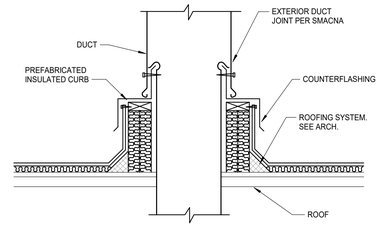
2123-14



EXPANSION TANK DETAIL

SCALE: NONE

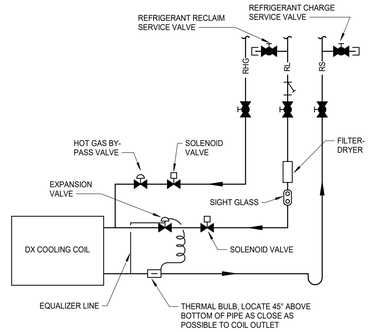
0518-04



DUCT ROOF PENETRATION DETAIL

SCALE: NONE

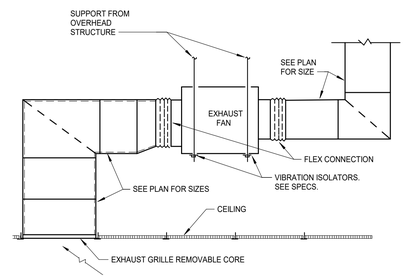
3113-01



DX COIL PIPING DETAIL

SCALE: NONE

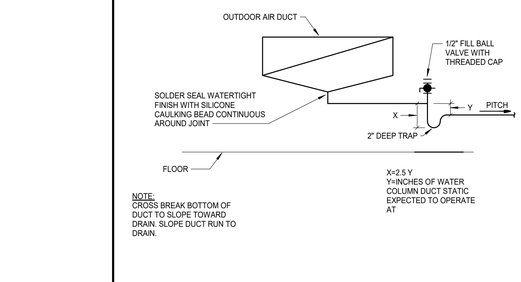
2316-01



IN-LINE EXHAUST FAN DETAIL

SCALE: NONE

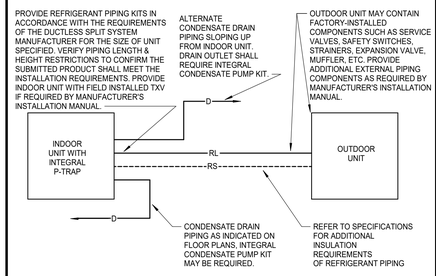
3400-04



DUCT DRAIN DETAIL

SCALE: NONE

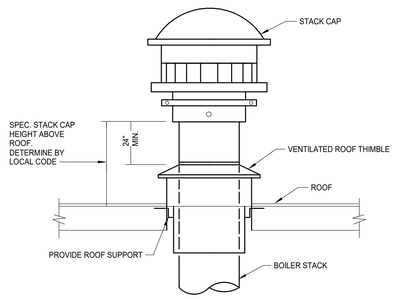
3300-03



DUCTLESS SPLIT SYSTEM PIPING DETAIL

SCALE: NONE

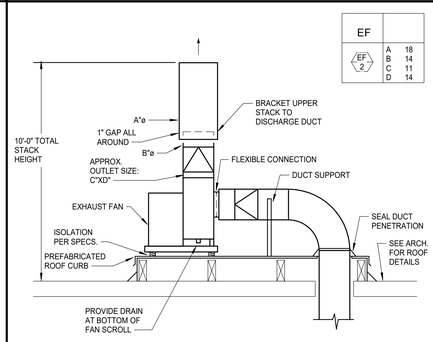
2316-07



BOILER FLUE DETAIL

SCALE: NONE

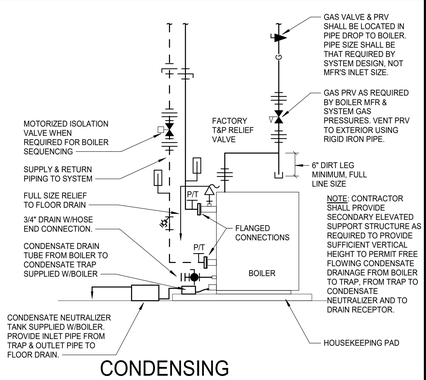
5100-01



ROOF EXHAUST FAN DETAIL

SCALE: NONE

3400-11



CONDENSING BOILER PIPING DETAIL

SCALE: NONE

5200-01

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
MECHANICAL DETAILS

SCALE: 1/8" = 1'-0"
SHEET NUMBER

M-402

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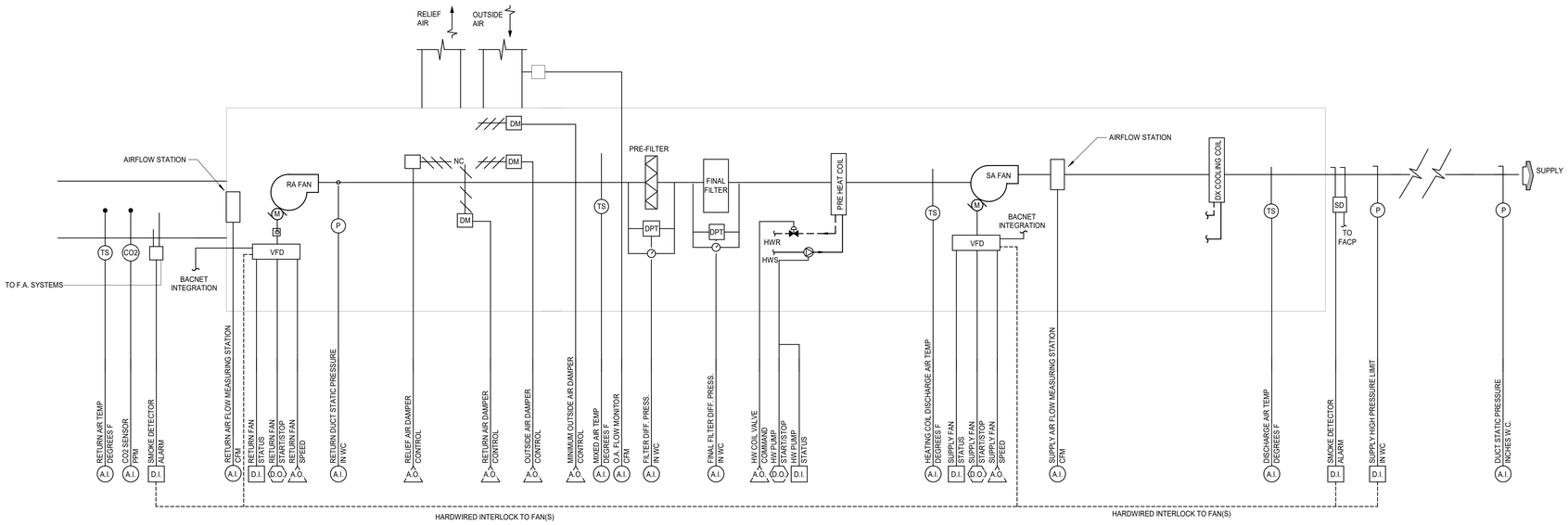

AHU - 1
SCALE: NONE

BAS CONTROL MATRIX

NOTES:

1. IN ADDITION TO THE DDC POINTS LISTED BELOW, THE CONTRACTOR SHALL CAREFULLY REVIEW ALL DRAWINGS, ALL SPECIFICATIONS, AND ALL SEQUENCES OF OPERATION. THE DOCUMENTS ARE ALL INCLUSIVE AND COMPLIMENTARYTO EACH OTHER. THE PROJECT SHALL INCLUDE ANY AND ALL NECESSARY DDC POINTS TO SUPPORT THEREQUIREMENTS OF ALL THE DOCUMENTS.
2. ALWAYS REFER TO DRAWINGS FOR QUANTITY.
3. PROVIDE OPEN PROTOCOL COMMUNICATION WITH FACTORY SUPPLIED CONTROLLER.
4. BAS CONTRACTOR SHALL COORDINATE STATUS LEVEL FOR EACH ALARM POINT WITH THE OWNER TO DETERMINE WHICH ONES REQUIRE IMMEDIATE ATTENTION.
5. IF THERE IS A DISCREPANCY BETWEEN ANY DOCUMENTATION, THE WORST CASE SCENARIO SHALL BE USED FOR BIDDING PURPOSES. ADDITIONAL COSTS WILL NOT BE ALLOWED FOR DISCREPANCIES BETWEEN THE SPECIFICATIONS AND DRAWINGS.

EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
AHU - RF/SF/HW/DX									
CO2 SENSOR, PPM	1			X				X	ALARM WHEN CONDITIONS VARY BY 10% OR MORE FROM SET POINT.
DISCHARGE AIR TEMP, DEGREES F	1			X				X	ALARM ON LOW TEMP
DUCT STATIC PRESSURE, INCHES W.C.	1			X					LOCATE UPSTREAM OF MOST CRITICAL TERMINAL BOX OR BOXES
FILTER DIFF. PRESS., IN WC	1			X					
FINAL FILTER DIFF. PRESS., IN WC	1			X					
HEATING COIL DISCHARGE AIR TEMP, DEGREES F	1			X				X	ALARM ON LOW TEMP
HW COIL VALVE, COMMAND	1				X				
HW PUMP, START/STOP	2		X						
HW PUMP, STATUS	2	X				X			
MINIMUM OUTSIDE AIR DAMPER, CONTROL	1				X				
MIXED AIR TEMP, DEGREES F	1			X					
O.A. FLOW MONITOR, CFM	1			X				X	PLACE FLOW MONITOR ON MINIMUM OUTSIDE AIR WHEN APPLICABLE.
OUTSIDE AIR DAMPER, CONTROL	1				X				
RELIEF AIR DAMPER, CONTROL	1				X				
RETURN AIR DAMPER, CONTROL	1				X				
RETURN AIR FLOW MEASURING STATION, CFM	1			X					
RETURN AIR TEMP, DEGREES F	1			X					
RETURN DUCT STATIC PRESSURE, IN WC	1			X					
RETURN FAN, SPEED	1				X				
RETURN FAN, START/STOP	1		X						
RETURN FAN, STATUS	1	X				X		X	PROVIDE STATUS INDICATION FOR EACH MOTOR IN FAN ARRAY.
SMOKE DETECTOR, ALARM	1	X						X	
SMOKE DETECTOR, ALARM	1	X						X	
SUPPLY AIR FLOW MEASURING STATION, CFM	1			X					
SUPPLY FAN, SPEED	1				X				
SUPPLY FAN, START/STOP	1		X						
SUPPLY FAN, STATUS	1	X				X			PROVIDE STATUS INDICATION FOR EACH MOTOR IN FAN ARRAY.
SUPPLY HIGH PRESSURE LIMIT, IN WC	1	X						X	

DX REFRIGERATION PLANT
CONTROL OF LEAD COMPRESSOR MODULATION, STAGING OF ADDITIONAL COMPRESSORS, CONDENSER FANS, AND ALL APPURTENANCES REQUIRED TO OPERATE REFRIGERATION SYSTEM SHALL BE PROVIDED BY THE ROOFTOP UNIT MANUFACTURER.

REMOTE CONDENSING UNIT
SCALE: NONE

BAS CONTROL MATRIX

NOTES:

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EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
REMOTE CONDENSING UNIT									
DISCHARGE AIR TEMPERATURE SETPOINT, DEGREES F	1				X			X	
DX COOLING, START/STOP	1			X		X	X	X	ALARM AT UNIT FAULT

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ISSUED FOR: CONSTRUCTION DOCUMENTS

SHEET TITLE: MECHANICAL CONTROLS

SCALE: 1/8" = 1'-0"
SHEET NUMBER
M-501

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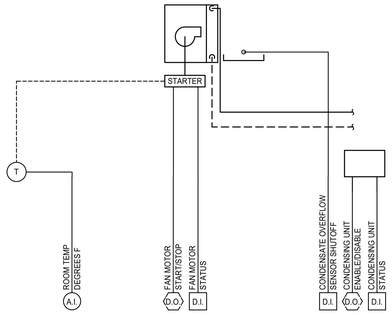

SPLIT SYSTEM - REFRIGERANT COOLING NON-DUCTED

SCALE: NONE

BAS CONTROL MATRIX

NOTES:

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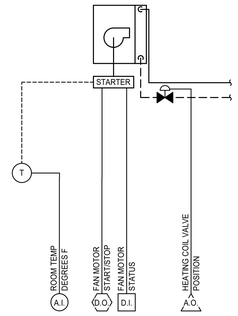
EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
SPLIT SYSTEM - REFRIGERANT COOLING NON-DUCTED									
CONDENSATE OVERFLOW, SENSOR SHUTOFF	2	X				X			
CONDENSING UNIT, ENABLE/DISABLE	2		X						
CONDENSING UNIT, STATUS	2	X				X			
FAN MOTOR, START/STOP	2		X						
FAN MOTOR, STATUS	2	X				X			CURRENT SWITCH
ROOM TEMP, DEGREES F	2			X			X		ALARM ON HIGH TEMP



CABINET UNIT HEATER - HYDRONIC

SCALE: NONE

BAS CONTROL MATRIX

NOTES:

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EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
CABINET UNIT HEATER - HYDRONIC									
FAN MOTOR, START/STOP	NOTE 2		X						
FAN MOTOR, STATUS	NOTE 2	X				X			CURRENT SWITCH
HEATING COIL VALVE, POSITION	NOTE 2				X				
ROOM TEMP, DEGREES F	NOTE 2			X			X		ALARM ON LOW TEMP

FINNED TUBE RADIATION - HYDRONIC

SCALE: NONE

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NOTES:

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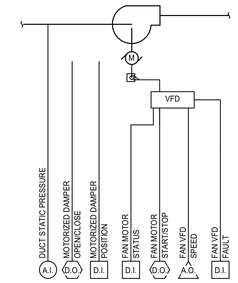
SYSTEM SPECIFIC REMARKS:

1. **PROVIDE SINGLE THERMOSTAT FOR VAV BOX CONTROL AND FTR CONTROL.**

EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
FINNED TUBE RADIATION - HYDRONIC									
HEATING COIL VALVE, POSITION	NOTE 2				X				
ROOM TEMP, DEGREES F	NOTE 2			X					1



EXHAUST FAN - WITH VFD

SCALE: NONE

BAS CONTROL MATRIX

NOTES:

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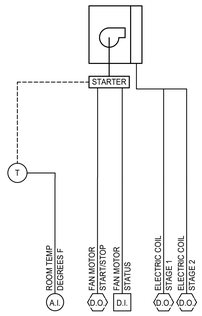
EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
EXHAUST FAN - WITH VFD									
DUCT STATIC PRESSURE	NOTE 2			X					
FAN MOTOR, START/STOP	NOTE 2		X						
FAN MOTOR, STATUS	NOTE 2	X				X			
FAN VFD, FAULT	NOTE 2	X					X		
FAN VFD, SPEED	NOTE 2				X				
MOTORIZED DAMPER, OPEN/CLOSE	NOTE 2		X						
MOTORIZED DAMPER, POSITION	NOTE 2	X				X			TWO END SWITCHES REQUIRED



UNIT HEATER - ELECTRIC

SCALE: NONE

BAS CONTROL MATRIX

NOTES:

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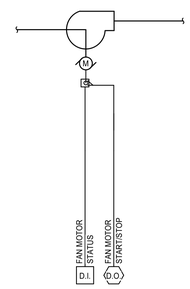
EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
UNIT HEATER - ELECTRIC									
ELECTRIC COIL, STAGE 1	NOTE 2		X						
ELECTRIC COIL, STAGE 2	NOTE 2		X						
FAN MOTOR, START/STOP	NOTE 2		X						
FAN MOTOR, STATUS	NOTE 2	X				X			CURRENT SWITCH
ROOM TEMP, DEGREES F	NOTE 2			X			X		



EXHAUST FAN - WITHOUT VFD

SCALE: NONE

BAS CONTROL MATRIX

NOTES:

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EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
EXHAUST FAN - WITHOUT VFD									
FAN MOTOR, START/STOP	NOTE 2		X						
FAN MOTOR, STATUS	NOTE 2	X				X			

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ISSUED FOR: CONSTRUCTION DOCUMENTS

SHEET TITLE: MECHANICAL CONTROLS

SCALE: 1/8" = 1'-0"
SHEET NUMBER

M-502

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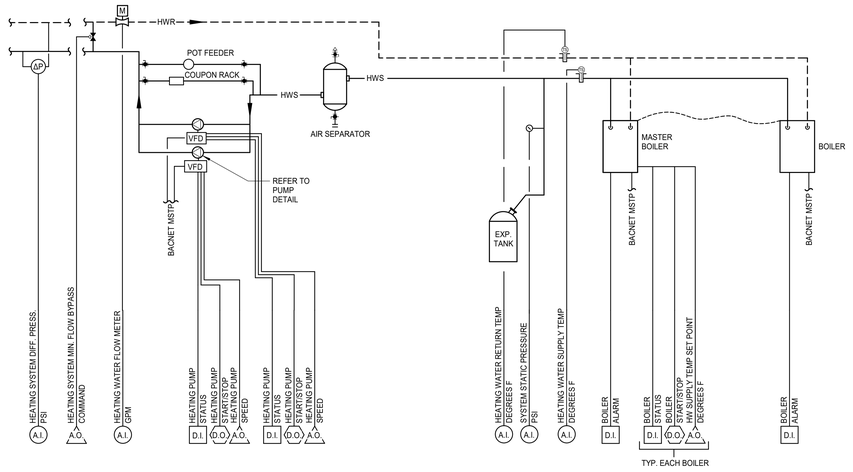

HEATING SYSTEM - BOILER

SCALE: NONE

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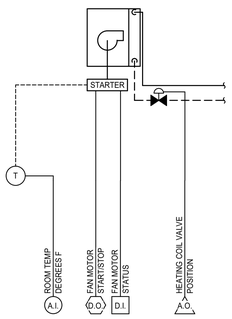
EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
HEATING SYSTEM - PRIMARY/VARIABLE BOILER									
BOILER, ALARM	1	X					X		
BOILER, ALARM	1	X					X		
BOILER, START/STOP	2		X						
BOILER, STATUS	2	X				X			
HEATING PUMP, SPEED	1				X				
HEATING PUMP, SPEED	1				X				
HEATING PUMP, START/STOP	1		X						
HEATING PUMP, START/STOP	1		X						
HEATING PUMP, STATUS	1	X				X			
HEATING PUMP, STATUS	1	X				X			
HEATING SYSTEM DIFF. PRESS., PSI	1			X					
HEATING SYSTEM MIN. FLOW BYPASS, COMMAND	1				X				
HEATING WATER FLOW METER, GPM	1			X					
HEATING WATER RETURN TEMP, DEGREES F	1			X					
HEATING WATER SUPPLY TEMP, DEGREES F	1			X					
HW SUPPLY TEMP SET POINT, DEGREES F	1				X				
SYSTEM STATIC PRESSURE, PSI	1			X					



UNIT HEATER - HYDRONIC

SCALE: NONE

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EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
UNIT HEATER - HYDRONIC									
FAN MOTOR, START/STOP	NOTE 2		X						
FAN MOTOR, STATUS	NOTE 2	X				X			CURRENT SWITCH
HEATING COIL VALVE, POSITION	NOTE 2				X				
ROOM TEMP, DEGREES F	NOTE 2			X			X		

TERMINAL BOX - HYDRONIC

SCALE: NONE

BAS CONTROL MATRIX

NOTES:

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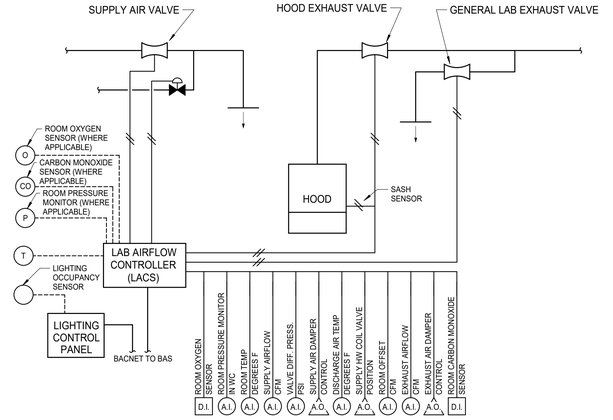
TERMINAL BOX - HYDRONIC									
AIRFLOW VOLUME, CFM	NOTE 2			X					
CARBON DIOXIDE, PPM	NOTE 2			X			X		
DISCHARGE AIR TEMP, DEGREES F	NOTE 2			X					
OCCUPANCY SENSOR OVERRIDE, STATUS	NOTE 2	X				X			
REHEAT CONTROL VALVE, POSITION	NOTE 2				X				
ROOM TEMP, DEGREES F	NOTE 2			X			X		
VAV DAMPER CONTROL, POSITION	NOTE 2				X				
ZONE OVERRIDE, SWITCH	NOTE 2	X							



VAV - LAB AIRFLOW CONTROLLER

SCALE: NONE

BAS CONTROL MATRIX

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EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
VAV - LAB AIRFLOW CONTROLLER									
DISCHARGE AIR TEMP, DEGREES F	NOTE 2			X					
EXHAUST AIR DAMPER, CONTROL	NOTE 2				X				APPLIES TO GENERAL AND/OR HOOD EXHAUST
EXHAUST AIRFLOW, CFM	NOTE 2			X					APPLIES TO GENERAL AND/OR HOOD EXHAUST
ROOM CARBON MONOXIDE, SENSOR	NOTE 2	X					X		
ROOM OFFSET, CFM	NOTE 2			X					SETPOINT ADJUSTMENT, SOFTWARE POINT
ROOM OXYGEN, SENSOR	NOTE 2	X					X		
ROOM PRESSURE MONITOR, IN WC	NOTE 2			X			X		
ROOM TEMP, DEGREES F	NOTE 2			X					ADJUST THROUGH THE BAS
SUPPLY AIR DAMPER, CONTROL	NOTE 2				X				
SUPPLY AIRFLOW, CFM	NOTE 2			X					DEPENDENT ON AIR VALVE MANUFACTURER
SUPPLY HW COIL VALVE, POSITION	NOTE 2				X				
VALVE DIFF. PRESS., PSI	NOTE 2			X			X		DEPENDENT ON AIR VALVE MANUFACTURER

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SHEET TITLE:
MECHANICAL CONTROLS

SCALE: 1/8" = 1'-0"
SHEET NUMBER

M-503

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DX REFRIGERATION PLANT
CONTROL OF LEAD COMPRESSOR MODULATION, STAGING OF ADDITIONAL COMPRESSORS, CONDENSER FANS, AND ALL APPURTENANCES REQUIRED TO OPERATE REFRIGERATION SYSTEM SHALL BE PROVIDED BY THE ROOFTOP UNIT MANUFACTURER.

VRF SYSTEM OUTDOOR HEAT RECOVERY UNIT
SCALE: NONE

BAS CONTROL MATRIX

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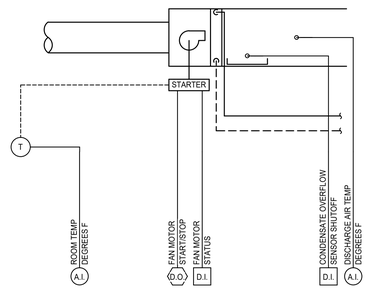
EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
VRF SYSTEM OUTDOOR HEAT RECOVERY UNIT									
VRF SYSTEM, START/STOP	1		X			X	X	X	ALARM AT UNIT FAULT



VRF FAN COIL - REFRIGERANT COOLING DUCTED
SCALE: NONE

BAS CONTROL MATRIX

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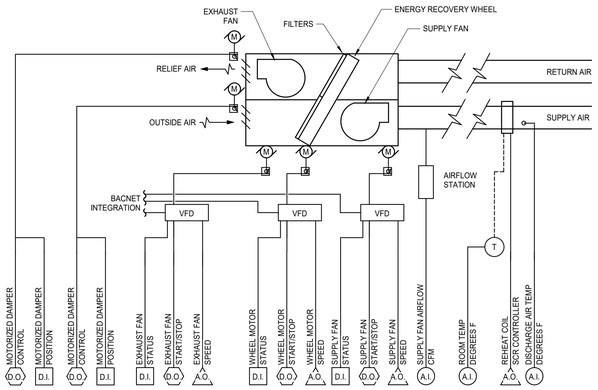
VRF FAN COIL - REFRIGERANT COOLING DUCTED									
CONDENSATE OVERFLOW, SENSOR SHUTOFF	5	X					X		
DISCHARGE AIR TEMP, DEGREES F	5			X					
FAN MOTOR, START/STOP	5		X						
FAN MOTOR, STATUS	5	X				X			
ROOM TEMP, DEGREES F	5			X			X		



ENERGY RECOVERY UNIT WITH ELECTRIC REHEAT COIL DOWNSTREAM
SCALE: NONE

BAS CONTROL MATRIX

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ENERGY RECOVERY UNIT									
DISCHARGE AIR TEMP, DEGREES F	1			X					
EXHAUST FAN, SPEED	1				X				
EXHAUST FAN, START/STOP	1		X						
EXHAUST FAN, STATUS	1	X				X			
MOTORIZED DAMPER, CONTROL	1		X						
MOTORIZED DAMPER, CONTROL	1		X						
MOTORIZED DAMPER, POSITION	1	X							END SWITCH
MOTORIZED DAMPER, POSITION	1	X							END SWITCH
REHEAT COIL, SCR CONTROLLER	1				X				
ROOM TEMP, DEGREES F	1			X			X		
SUPPLY FAN, SPEED	1				X				
SUPPLY FAN, START/STOP	1		X						
SUPPLY FAN, STATUS	1	X				X			
SUPPLY FAN AIRFLOW, CFM	1			X					
WHEEL MOTOR, SPEED	1				X				
WHEEL MOTOR, START/STOP	1		X						
WHEEL MOTOR, STATUS	1	X				X			

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MECHANICAL CONTROLS

SCALE: 1/8" = 1'-0"
SHEET NUMBER
M-504

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BAS CONTROL MATRIX

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EQUIPMENT, SYSTEM, AND POINT	NO. OF UNITS	POINT TYPE: DIGITAL INPUT	DIGITAL OUTPUT	ANALOG INPUT	ANALOG OUTPUT	STATUS	ALARM	NETWORK COMMUNICATIONS	REMARKS
GENERAL									
OUTSIDE AIR HUMIDITY	1			X					CALCULATE WET BULB
OUTSIDE AIR TEMP, DEGREES F	1			X					AVERAGE TWO SENSORS
GENERATOR ROOM									
GENERATOR RUN, STATUS	1	X				X		X	AUXILARY CONTACTS
IT/MDF/IDF & ELECTRICAL ROOM MONITORING									
ROOM TEMP, DEGREES F	NOTE 2			X			X		ALARM ON HIGH TEMP
OUTDOOR/INDOOR PRESSURE REFERENCE									
BLDG STATIC PRESSURE, IN WC	1			X			X		
PLANT AIR COMPRESSOR									
COMPRESSOR MOTOR, STATUS	NOTE 2	X				X			CURRENT TRANSDUCER
ROOM DIFFERENTIAL PRESSURE MONITORS									
DIFF. PRESS., IN WC	1			X			X		ROOM NAME AND NUMBER SHALL BE INDICATED FOR EACH LOCATION. CONFIRM W/ OWNER
UTILITY METERING POINTS									
BUILDING ELECTRIC SUB-METERS	5			X				X	
DOMESTIC WATER METERS	5			X				X	
NATURAL GAS METERS	2			X				X	

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DOMESTIC HOT WATER HEATERS									
CIRCULATING PUMP, START/STOP	NOTE 2		X				X		
CIRCULATING PUMP, STATUS	NOTE 2			X		X			CURRENT TRANSDUCER
COLD WATER TEMP, DEGREES F	NOTE 2			X					
HOT WATER CIRC TEMP, DEGREES F	NOTE 2			X					ONE PER SYSTEM
HOT WATER TEMP, DEGREES F	NOTE 2			X			X		
SUMP PUMPS									
SUMP PUMP, STATUS	NOTE 2	X				X	X	X	
WATER ENTRY WATER DETECTION									
WATER SENSOR, HIGH LEVEL WATER ALARM	1	X					X		

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SCALE:
SHEET NUMBER

M-505

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POWER LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SINGLE RECEPTACLE		ELECTRICAL PANELBOARD, CONTROL PANEL, OR OTHER CABINET AS NOTED
	DUPLEX RECEPTACLE	PM	PLUG MOLD (MULTI-OUTLET ASSEMBLY)
	DOUBLE DUPLEX RECEPTACLE	WM	WIREMOLD (SURFACE RACEWAY)
	DUPLEX RECEPTACLE, HALF SWITCHED		CONDUCTOR CONCEALED
CLG	DUPLEX RECEPTACLE, CEILING MOUNTED	UG	CONDUIT, UNDERGROUND OR CONCEALED IN FLOOR AS ALLOWED PER SPECIFICATIONS
	DUPLEX RECEPTACLE, FLOOR MOUNTED		CONDUIT TURNING DOWN
	DOUBLE DUPLEX RECEPTACLE, FLOOR MOUNTED		CONDUIT TURNING UP
	SPECIAL RECEPTACLE		CONDUIT CAPPED
	SPECIAL RECEPTACLE, FLOOR MOUNTED		GROUND BAR
	JUNCTION BOX, FLOOR OR CEILING MOUNTED		MAIN SWITCHBOARD/DISTRIBUTION CENTER
	JUNCTION BOX, WALL MOUNTED	T	TRANSFORMER
M	MOTOR	CT	CURRENT TRANSFORMER
	DISCONNECT SWITCH (NON-FUSED)	T	THERMOSTAT
	DISCONNECT SWITCH (FUSED)	GANN	GENERATOR ANNUNCIATOR PANEL
	VARIABLE SPEED DRIVE WITH DISCONNECT	A,n	SHADING INDICATES EMERGENCY SYSTEM TEXT INDICATES PANEL AND CIRCUIT DESIGNATION
	ENCLOSED CIRCUIT BREAKER	M	UTILITY METER
S	TOGGLE SWITCH		

LIGHTING LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A B	SHADING INDICATES EM SYSTEM, LOWER CASE SUBSCRIPT INDICATES SWITCHING, UPPER CASE SUBSCRIPT INDICATES LUMINAIRE TYPE (TYP)		PENDANT LUMINAIRE - SINGLE SUSPENSION
	TROFFER - RECESSED		PENDANT LUMINAIRE - MULTIPLE SUSPENSION
	SURFACE LUMINAIRE		WALL MOUNTED LUMINAIRE
	LINEAR LUMINAIRE - RECESSED		IN-WALL LUMINAIRE
A B	FIELD MEASURED LUMINAIRE LENGTH AND SHAPE DENOTED BY LINEWORK SUBSCRIPT IN RECTANGLE INDICATES LUMINAIRE TYPE		POLE LUMINAIRE - ARM MOUNTED
	DOWNLIGHT - RECESSED		POLE LUMINAIRE - POST TOP
	DOWNLIGHT - SURFACE		BOLLARD
	EXIT SIGN - CEILING MOUNTED		TRACK HEAD AND TRACK
	EXIT SIGN - WALL MOUNTED (FLUSH TO WALL)		EXTERIOR STAKE MOUNTED
	EXIT SIGN - WALL MOUNTED (PROJECTS FROM WALL)		EMERGENCY LIGHTING UNIT - WALL MOUNTED
	INDICATES EXIT SIGN FACES - SINGLE OR DOUBLE		EMERGENCY LIGHTING UNIT - CEILING MOUNTED
	INDICATES EXIT SIGN CHEVRONS - LEFT/RIGHT OR BOTH		INDICATES DIRECTIONAL AIMING

CONTROLS LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S_S	SINGLE POLE SWITCH (SUBSCRIPT DENOTES SWITCHING)	S_{VS}	VARIABLE SPEED/SPEED CONTROLLER SWITCH
S_2	TWO POLE SWITCH	S_{EP}	EXPLOSION PROOF SWITCH
S_3	THREE-WAY SWITCH	S_{TO}	THERMAL OVERLOAD SWITCH
S_4	FOUR-WAY SWITCH	S_{MC}	MOMENTARY CONTACT SWITCH
S_K	KEY OPERATED SWITCH	S	COMBINATION SWITCH AND DUPLEX RECEPTACLE
S_M	MANUAL SWITCH, HORSEPOWER RATE	P	PHOTOCELL
S_D	DIMMER SWITCH		PUSH BUTTON
S_H	SWITCH WITH PILOT LIGHT (PILOT LIGHT IS 'ON' WHEN SWITCH IS 'ON')	TC	TIME CLOCK
S_P	SWITCH WITH PILOT LIGHT LOCATOR (CONTINUOUSLY LIGHTED HANDLE)		OCCUPANCY SENSOR - WALL MOUNTED IR=INFRARED, US=ULTRASONIC, DT=DUAL TECHNOLOGY
S_{LV}	LOW VOLTAGE SWITCH		

FIRE ALARM SYSTEM LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL	M	MANUAL PULL STATION
FAPS	FIRE ALARM (NAC) POWER SUPPLY	AIM	ADDRESSABLE INPUT MODULE
FSA	FIRE ALARM SYSTEM ANNUNCIATOR PANEL (GRAPHIC/LED)	AOM	ADDRESSABLE OUTPUT MODULE
FAA	REMOTE ANNUNCIATOR PANEL	H15cd	AUDIO/VISUAL DEVICE (HW/cd=HORN/STROBE COMBINATION S=SPEAKER/STROBE COMBINATION, C=CHIME/STROBE COMBINATION)
GZM	GRAPHIC ZONE MAP	H	AUDIBLE DEVICE (H=HORN, S=SPEAKER, C=CHIME)
RACP	RESCUE ASSISTANCE SYSTEM HEAD END UNIT	15cd	FIRE ALARM STROBE (cd= CANDELA RATING 15, 30, 75, 110)
FSC	FIRE FIGHTER SMOKE CONTROL PANEL	J	EMERGENCY TELEPHONE STATION (J=JACK, H=HANDSET)
FAD	FIRE ALARM DIRECTORY ANNUNCIATOR	RA	RESCUE ASSISTANCE TELEPHONE STATION)
P	SMOKE DETECTOR (P=PHOTOELECTRIC, SB=WITH SOUNDER BASE, BR=BEAM RECEIVER, BT=BEAM TRANSMITTER)		MAGNETIC DOOR HOLD
F	THERMAL DETECTOR F=FIXED TEMPERATURE, R=FIXED TEMPERATURE & RATE OF RISE (TEMP. RATING)		TAMPER SWITCH
UV	FLAME DETECTOR (UV=ULTRAVIOLET, IR=INFRARED)		FLOW DETECTOR SWITCH
	DUCT SMOKE DETECTOR S=SUPPLY, R=RETURN		PRESSURE SWITCH
RTS	DUCT DETECTOR REMOTE INDICATOR ALARM AND TEST	FSD	FIRE/SMOKE DAMPER
	REMOTE INDICATOR LIGHT	CO	CARBON MONOXIDE ALARM/DETECTOR
		CO	CARBON MONOXIDE ALARM/DETECTOR, WALL MOUNTED

REFERENCE SYMBOLS LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	KEY NOTE REFERENCE	1	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE
LPA-#	TYPICAL CIRCUIT NUMBER	E	EXISTING TO REMAIN
TGR	TYPICAL LUMINAIRE TYPE	E	EXISTING TO BE REMOVED
	TYPICAL ROOM REFERENCE (TOP = RM #, BOTTOM = FLR)	E	EXISTING TO BE RELOCATED
MH	MECHANICAL EQUIPMENT REFERENCE	E	EXISTING TO REMAIN - REPLACE DEVICE
LCT	LIGHTING CONTROL / EQUIPMENT REFERENCE	E	EXISTING TO BE REMOVED AND REPLACED

ABBREVIATIONS LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERES	MCP	MOTOR CIRCUIT PROTECTOR
AC	ABOVE COUNTER, MOUNT HORIZONTALLY TO CENTERLINE OF DEVICE, +6" ABOVE COUNTER OR BACK SPLASH	MEC	SEE MECHANICAL EQUIPMENT SCHEDULE
AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	MLO	MAIN LUGS ONLY
ANN	ANNUNCIATOR	MTS	MANUAL TRANSFER SWITCH
ARF	ABOVE RAISED FLOOR	NC	NORMALLY CLOSED
ASSD	AIR SAMPLING SMOKE DETECTION	NIC	NOT IN CONTRACT
ATS	AUTOMATIC TRANSFER SWITCH	NL	NIGHT LIGHT
BFG	BELOW FINISHED GRADE	NO	NORMALLY OPEN
C	CONDUIT	NTS	NOT TO SCALE
CATV	CABLE TELEVISION	OC	ON CENTER
CB	CIRCUIT BREAKER	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CCTV	CLOSED CIRCUIT TELEVISION	OFOI	OWNER FURNISHED, OWNER INSTALLED
(E)	EXISTING	OSWF	ON SITE WORK FORCE
EM	EMERGENCY	PB	PULL BOX
EMDC	EMERGENCY MAIN DISTRIBUTION CENTER	SB	STAND-BY
EP	EXPLOSION PROOF	SDC	SUB-DISTRIBUTION CENTER
EPO	EMERGENCY POWER OFF	TP	TAMPER PROOF
EVO	EMERGENCY VENTILATION ON/OFF	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
EWC	ELECTRIC WATER COOLER	TYP	TYPICAL
FA	FIRE ALARM	UF	UNDER FLOOR
G	GROUND	UG	UNDER GROUND
GCP	GENERATOR CONTROL PANEL	UON	UNLESS OTHERWISE NOTED
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
HOA	HAND OFF AUTOMATIC	V	VOLTS
IG	ISOLATED GROUND	VFD	VARIABLE FREQUENCY DRIVE
MAX	MAXIMUM	W/	WITH
MCB	MAIN CIRCUIT BREAKER	W/O	WITHOUT
MCC	MOTOR CONTROL CENTER	WP	WEATHER PROOF
MDC	MAIN DISTRIBUTION CENTER	XFMR	TRANSFORMER

ONE-LINE DIAGRAM LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DISCONNECT SWITCH	A	PANELBOARD "A"
	DISCONNECT SWITCH, FUSED	PM	EM=ENERGY METER, PM=POWER METER, CM=CIRCUIT MONITOR
	CIRCUIT BREAKER	VS	VOLTMETER TEST SWITCH
	FUSE	AS	AMMETER TEST SWITCH
	GROUND	V	VOLTMETER
#	STEP DOWN TRANSFORMER, ## INDICATES KVA	A	AMMETER
TX ###	K-RATED STEP DOWN TRANSFORMER ## INDICATES KVA, # INDICATES K RATING	XXX	SEE FEEDER/MEC/TRANSFORMER SCHEDULES FOR FEEDER SIZE
	CURRENT TRANSFORMER	G	ENGINE GENERATOR
	POTENTIAL TRANSFORMER		CONTACTOR/RELAY/CAPACITOR (AS NOTED)
OR	SERVICE ENTRANCE TRANSFORMER		TRANSFER SWITCH - ATS=AUTOMATIC, MTS=MANUAL
M	METER	GFI	GROUND FAULT INTERRUPTER
	EQUIPMENT ENCLOSURE	SPD	SURGE PROTECTIVE DEVICE
	SERVICE WEATHERHEAD	ST	SHUNT TRIP
ISCA	SHORT CIRCUIT CURRENT AVAILABLE		TERMINATIONS LB=LOAD BREAK, NLB=NO LOAD BREAK
A B	KIRK KEY INTERLOCK, SUBSCRIPT INDICATES INTERLOCKED GROUP		DRAW-OUT DEVICE
A B	ELECTRICAL INTERLOCK, SUBSCRIPT INDICATES INTERLOCKED GROUP		PLUG-IN DEVICE
A	MECHANICAL INTERLOCK	EO	ELECTRICALLY OPERATED

LIGHTNING PROTECTION SYSTEM LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	AIR TERMINAL		INSPECTION SLEEVE
	GROUND ROD		GROUND ROD WITH INSPECTION SLEEVE
	BOND TO LIGHTNING PROTECTION CONDUCTOR	LC	LIGHTNING PROTECTION CONDUCTOR
		BC	BURIED LIGHTNING PROTECTION CONDUCTOR

LIGHTNING PROTECTION PLAN NOTES:

1. PROVIDE A COMPLETE CLASS II (OR CLASS I) LIGHTNING PROTECTION SYSTEM. REFER TO SPECIFICATIONS FOR ADDITIONAL CRITERIA.
2. PROVIDE UL MASTER LABEL CERTIFICATE FOR THE ENTIRE LIGHTNING PROTECTION SYSTEM. (OR FOR A PARTIAL LIGHTNING PROTECTION SYSTEM USE THE FOLLOWING SENTENCE). PROVIDE UL LETTER OF FINDINGS FOR THE ENTIRE LIGHTNING PROTECTION SYSTEM.
3. TO ELIMINATE DISSIMILAR METAL/GALVANIC REACTIONS, VERIFY COMPATIBILITY OF LIGHTNING PROTECTION CONDUCTORS, CONNECTORS, AIR TERMINALS BASES, ETC. WITH SURFACES TO BE BONDED.
4. TO MAINTAIN THE INTEGRITY/WARRANTY OF THE ROOFING SYSTEM, PROVIDE ALL WORK INVOLVING THE ROOFING SYSTEM BY A LICENSED ROOFING CONTRACTOR. THIS INCLUDES BONDS TO THE ROOF MEMBRANE OR FLASHING, ROOF PENETRATIONS, ROOF PADS, PAVERS, SLIP SHEETS, OR SPECIAL ROOFING MATERIAL ETC.
5. ROUTE ALL LIGHTNING PROTECTION CONDUCTORS (EXPOSED OR INSTALLED IN CONDUIT) EITHER HORIZONTAL OR SLOPING DOWNWARD TOWARD GROUND. MAINTAIN A MINIMUM OF 8" BENDING RADIUS FOR ALL LIGHTNING PROTECTION CONDUCTORS.
6. SECURE ALL LIGHTNING PROTECTION SYSTEM CONDUCTORS TO BUILDING EVERY TWO FEET, MINIMUM.
7. BOND ALL METALLIC OBJECTS WITHIN 6" OF ANY PRIMARY LIGHTNING PROTECTION CONDUCTOR OR EXPOSED DOWNLEAD CONDUCTOR.
8. PROVIDE PARALLEL CONNECTIONS FOR ALL CONDUCTOR TO CONDUCTOR BONDS.
9. PROVIDE TWO HOLE CRIMP CONNECTION FOR BONDING TO EQUIPMENT. PROVIDE STAINLESS STEEL BOLTS, WASHERS, LOCK WASHERS AND NUTS.
10. PROVIDE BURNDY TYPE "GAR" U-BOLT GROUND CLAMP FOR BONDS TO PIPE AND CONDUIT MATERIALS.
11. REMOVE PAINT DOWN TO BARE METAL PRIOR TO ATTACHING BONDING CONNECTORS. REPAINT SURFACE TO MATCH EXISTING AFTER CONNECTION IS MADE.
12. COAT INSIDE OF MECHANICAL AND CRIMP CONNECTORS WITH ANTI-OXIDE COMPOUND PRIOR TO INSTALLATION. PROVIDE LIGHT COAT OF AN ANTI-OXIDE COMPOUND BETWEEN SURFACES TO BE BONDED AND ON ALL MECHANICAL FASTENERS INCLUDING BOLT AND SET SCREW THREADS.
13. PROVIDE PARALLEL EXOTHERMIC WELDS TO BOND DOWN LEAD CONDUCTORS DIRECTLY TO GROUND RODS. WHERE GROUND RODS ARE BONDED DIRECTLY TO THE BURIED GROUND LOOP, PROVIDE T-TYPE EXOTHERMIC WELDS.
14. ALL BONDS BELOW GRADE SHALL BE EXOTHERMIC. NO MECHANICAL TYPE BONDS SHALL BE UTILIZED UNDERGROUND. PROVIDE EXOTHERMIC WELD TO JOIN STRANDED TO SOLID CONDUCTORS.
15. INSTALL GROUND LOOP CONDUCTOR AND/OR GROUND RODS 18" BELOW FINISHED GRADE AND 24" FROM FOUNDATION WALL.

FIRE ALARM PLAN NOTES:

1. FIRE ALARM EQUIPMENT AND DEVICES SHOWN ON THESE DRAWING INDICATE THE INTENT, PERFORMANCE, AND SCOPE OF THE SYSTEM. THE FULL DESIGN OF THE FIRE ALARM SYSTEM SHALL BE DONE BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A SHOP DRAWING SUBMITTAL FOR APPROVAL BY THE LOCAL FIRE DEPARTMENT AND/OR THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL ARRANGE TO HAVE THE FIRE ALARM SYSTEM SUBMITTAL SEALED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER WHO WILL ASSUME THE DUTY OF ENGINEER OF RECORD FOR THE FIRE ALARM SYSTEM DESIGN. THE ELECTRICAL ENGINEER OF RECORD AT CATOR, RUMA & ASSOCIATES, CO. WILL NOT BE RESPONSIBLE FOR SEALING AND SIGNING THE FIRE ALARM SYSTEM SHOP DRAWING SUBMITTAL.
2. WALL OR CEILING MOUNT FIRE ALARM REMOTE INDICATORS ABOVE THE DOOR OF ASSOCIATED ROOMS AS SHOWN.
3. LOCATE SMOKE DETECTORS PER NFPA 72 AND MANUFACTURERS REQUIREMENTS. THE LOCATIONS OF SMOKE DETECTORS ON THE DRAWINGS ARE DIAGRAMMATIC ONLY. DETECTORS SHALL NOT BE PLACED WITHIN 3'-0" OF ANY CEILING MOUNTED HVAC SUPPLY AIR DEVICE.
4. PROVIDE GRAPHIC ZONE MAP/ANNUNCIATORS AND FIRE ALARM CONTROL UNITS AS SHOWN AND REQUIRED. SUBMIT SHOP DRAWINGS AND LOCATIONS TO ENGINEER AND BUILDING/FIRE DEPARTMENT(S) FOR REVIEW PRIOR TO INSTALLATION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. LOCATE ALL CONTROL PANELS AND POWER SUPPLIES IN TELECOM OR ELECTRICAL ROOMS/CLOSETS. VERIFY OTHER LOCATIONS WITH OWNER PRIOR TO INSTALLATION/ROUGH-IN. COORDINATE WITH OTHER TRADES AND DOCUMENT FINAL LOCATIONS IN SUBMITTALS.
6. COORDINATE WITH ELEVATOR CONTRACTOR LOCATIONS OF ALL ELEVATOR EQUIPMENT TO BE CONTROLLED AND MONITORED FOR EMERGENCY CONTROL FUNCTIONS.

LIGHTING PLAN NOTES:

1. REFER TO ARCHITECTURAL ELEVATIONS AND REFLECTED CEILING PLANS FOR EXACT MOUNTING LOCATIONS OF DEVICES AND LUMINAIRES.
2. COORDINATE LUMINAIRE LOCATIONS WITH MECHANICAL PIPING, DUCTWORK, ETC., TO AVOID CONFLICTS. SEE SPECIFICATIONS FOR COORDINATION REQUIREMENTS.
3. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V AND 277V CIRCUIT.
4. CIRCUITS MAY BE COMBINED INTO HOMERUNS OF UP TO SIX (6) CURRENT CARRYING CONDUCTORS, INCLUDING NEUTRALS, UNLESS OTHERWISE INDICATED. WHERE CIRCUITS ARE COMBINED WITHIN A SINGLE CONDUIT, PROVIDE STRIPING FOR FULL LENGTH OF NEUTRAL CONDUCTOR INSULATION TO MATCH THE COLOR CODE OF THE ASSOCIATED PHASE CONDUCTOR. SEE SPECIFICATION FOR COLOR CODES.
5. FIELD COORDINATE EXACT LOCATION OF CEILING MOUNTED OCCUPANCY SENSORS PER MANUFACTURER'S INSTRUCTIONS. OCCUPANCY/VACANCY SENSING DEVICES ARE SHOWN FOR GENERAL DESIGN INTENT ONLY. CONTRACTOR SHALL PROVIDE THE TYPE AND QUANTITY OF OCCUPANCY/VACANCY SENSING DEVICES AS NECESSARY FOR PROPER COVERAGE AND CONTROL OF LUMINAIRES WHERE INDICATED ON THE LIGHTING PLANS. FIELD ADJUSTMENT TO DEVICE LOCATIONS SHALL BE MADE AS REQUIRED TO CAPTURE ALL OCCUPANTS, WHETHER SITTING AT A DESK OR MOVING AROUND THE SPACE. ADDITIONAL DEVICES SHALL BE PROVIDED AND FIELD ADJUSTMENTS SHALL BE MADE AS NECESSARY, AT NO ADDITIONAL COST TO OWNER. CONTRACTOR SHALL PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.

POWER PLAN NOTES:

1. MAKE ALL FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT REQUIRING ELECTRICAL CONNECTION. THIS SHALL INCLUDE BUT NOT BE LIMITED TO ALL MECHANICAL AND OTHER EQUIPMENT INCLUDED IN THIS PROJECT.
2. COORDINATE EXACT REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
3. PROVIDE FUSES SIZED PER EQUIPMENT MANUFACTURER'S REQUIREMENTS.
4. DISCONNECT SWITCH LOCATIONS ARE SHOWN DIAGRAMMATICALLY AND SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS TO SUIT EQUIPMENT AND SPACE. DISCONNECT SWITCHES SHALL BE WITHIN SIGHT OF THE EQUIPMENT THEY SERVE AND MOUNTED AT 6'-3", MAXIMUM, TO TOP OF CABINET. MAINTAIN NEC WORK SPACE REQUIREMENTS.
5. RECEPTACLES INDICATED TO BE MOUNTED ABOVE COUNTER ARE TO BE MOUNTED HORIZONTALLY 6" ABOVE COUNTER UNLESS OTHERWISE NOTED.
6. COORDINATE AND VERIFY EXACT MOUNTING LOCATIONS OF WALL AND FLOOR DEVICES WITH ARCHITECTURAL ELEVATIONS, AND ANY FURNITURE OR SPECIALTY EQUIPMENT SUPPLIER DRAWINGS PRIOR TO ROUGH-IN.
7. ALL DEVICES AND COVERPLATES FED FROM AN EMERGENCY CIRCUIT SHALL BE RED.
8. ALL GENERAL PURPOSE RECEPTACLES IN SHOP AREAS SHALL BE GFI AND MOUNTED AT +42" AFF.
9. NO RECEPTACLES SHALL BE MOUNTED BELOW +18" AFF.
10. PROVIDE ISOLATED GROUND FOR EACH CIRCUIT TO FURNITURE PARTITION AND POWER POLE LOCATIONS.
11. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V CIRCUIT.
12. CIRCUITS MAY BE COMBINED INTO HOMERUNS OF UP TO SIX (6) CURRENT CARRYING CONDUCTORS, INCLUDING NEUTRALS, UNLESS OTHERWISE INDICATED. WHERE CIRCUITS ARE COMBINED WITHIN A SINGLE CONDUIT, PROVIDE STRIPING FOR FULL LENGTH OF NEUTRAL CONDUCTOR INSULATION TO MATCH THE COLOR CODE OF THE ASSOCIATED PHASE CONDUCTOR. SEE SPECIFICATION FOR COLOR CODES.
13. GFCI RECEPTACLES ARE NOT GENERALLY SHOWN ON DRAWINGS. ALL RECEPTACLE OUTLETS LOCATED IN TOILET ROOMS, SHOWER ROOMS, GARAGES, SERVICE BAYS, ROOFTOPS, OUTDOOR LOCATIONS, MECHANICAL ROOMS, WITHIN 6 FEET OF A SINK, AT ELECTRIC WATER COOLERS, OR OTHER WET LOCATIONS SHALL BE PROVIDED WITH GFCI PROTECTION PER NEC ARTICLE 210 AND NEC SECTION 422.5. PROVIDE GFCI RECEPTACLES IN ELEVATOR PITS, HOISTWAYS, MACHINE ROOMS, CONTROL SPACES, AND CONTROL ROOMS PER NEC SECTION 620.85. ADDITIONAL GFCI PROTECTION TO BE PROVIDED AS INDICATED. WHERE GFCI DEVICES ARE REQUIRED AND/OR SHOWN BUT ARE NOT ACCESSIBLE WHEN EQUIPMENT IS INSTALLED, I.E. VENDING MACHINES, ETC., PROVIDE BLANK FACE GFCI DEVICE AND COVERPLATE AHEAD OF INACCESSIBLE RECEPTACLES. MOUNT ADJACENT TO EQUIPMENT AT SWITCH HEIGHT UNLESS OTHERWISE SHOWN.
14. 120V POWER HAS BEEN SHOWN ON DRAWINGS TO J-BOXES IDENTIFIED FOR BAS CONTROLS, DAMPER ACTUATORS AND OTHER MISCELLANEOUS POWER TO OPERATE MECHANICAL CONTROLS AND DEVICES. COORDINATE ALL 120V REQUIREMENTS WITH MECHANICAL CONTROLS AND EQUIPMENT AND MAKE ALL CONNECTIONS REQUIRED TO THESE OR OTHER 120V MECHANICAL CIRCUITS AS REQUIRED. DO NOT CONNECT THESE LOADS TO OTHER CIRCUITS WITH LOADS OTHER THAN THOSE IDENTIFIED HERE.
15. ALL OUTDOOR AND ROOFTOP RECEPTACLES SHALL BE OUTDOOR RATED AND SHALL HAVE A WEATHERPROOF IN USE COVER.

GENERAL NOTES:

1. PROTECT STRUCTURE AND OWNER EQUIPMENT FROM DAMAGE. IMMEDIATELY REPLACE OR REPAIR, TO ORIGINAL CONDITION, DAMAGE CAUSED BY THE CONTRACTOR WHETHER EQUIPMENT APPEARS TO BE CURRENTLY IN USE OR NOT, UNLESS WRITTEN AUTHORIZATION FROM THE OWNER INDICATED OTHERWISE. PREPARE LISTING OF ALL EXISTING DAMAGED ITEMS AND SUBMIT TO OWNER PRIOR TO BEGINNING WORK.
2. INSTALL CONDUIT CONCEALED IN FINISHED AREAS UNLESS OTHERWISE NOTED. PAINT EXPOSED CONDUIT TO MATCH EXISTING FINISHES WITHIN THE SURROUNDING AREA.
3. DO NOT ROUTE CONDUIT WITHIN STRUCTURAL OR TOPPING SLABS OF FLOORS UNLESS SPECIFICALLY NOTED OTHERWISE AND WRITTEN APPROVAL IS OBTAINED FROM THE STRUCTURAL ENGINEER.
4. FIRE SEAL ALL FIRE RATED WALL AND FLOOR PENETRATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS.
5. COORDINATE EXACT REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN AND ORDERING MATERIALS OR EQUIPMENT.
6. A DETAILED WRITTEN METHOD OF PROCEDURE IS REQUIRED WHEN A CONSTRUCTION ACTIVITY OR AN OUTAGE AFFECTS THE SAFETY OF OCCUPANTS, TELEPHONE/DATA/FIRE ALARM EQUIPMENT OR COMPONENTS OF ANY SYSTEM WHICH SUPPORTS THIS EQUIPMENT OR ESSENTIALLY AFFECTS THE BUILDING MANAGEMENT, OPERATIONS OR SECURITY. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7. EXISTING INFORMATION SHOWN ON THE DRAWINGS HAS BEEN TAKEN FROM OWNER FURNISHED DRAWINGS AND/OR LIMITED FIELD OBSERVATIONS. CATOR, RUMA & ASSOCIATES IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY INFORMATION OR THE ADEQUACY, SAFETY AND CONFORMANCE TO CURRENT PREVAILING CODES OF ANY WORK SHOWN AS EXISTING ON THESE DRAWINGS.
8. FIELD LOCATE EXISTING UNDERGROUND PUBLIC AND OWNER UTILITIES OF ALL TRADES AND BUILDING GROUNDING/LIGHTNING PROTECTION SYSTEMS PRIOR TO ANY EXCAVATION. REPLACE OR REPAIR DAMAGED UTILITIES AND GROUNDING/LIGHTNING PROTECTION SYSTEMS TO ORIGINAL CONDITION.
9. PROVIDE SEPARATE INSULATED GROUNDING CONDUCTOR IN ALL FEEDER, HOMERUN AND BRANCH CIRCUITS.

ONE-LINE DIAGRAM NOTES:

1. PANELBOARDS INDICATED ON ONE LINE DIAGRAMS DO NOT SHOW ALL BRANCH CIRCUITS. REFER TO PANELBOARD SCHEDULE(S).
2. EQUIPMENT SHOWN SHADED REPRESENTS STAND-BY POWERED SERVICES.
3. PROVIDE CONTINUOUS #10 INSULATED COPPER CONDUCTOR FOR BONDING THE EQUIPMENT GROUNDING TERMINAL BUSSES OF THE NORMAL AND ESSENTIAL BRANCH CIRCUIT PANELBOARDS SERVING THE SAME INDIVIDUAL PATIENT VICINITY.
4. PANEL NAMING LEGEND "1234"
   - A. N=NORMAL, S=STANDBY, E=EMERGENCY, EQ=EQUIPMENT, C=CRITICAL, LS=LIFE SAFETY
   - B. H=277/480V, L=120/208V, LCP-LIGHTING CONTROL PANEL.
   - C. FLOOR DESIGNATION (B=BASEMENT, 1=1ST FLOOR ,ETC.)
   - D. PANELBOARD DESIGNATION (LENGTH AS REQUIRED) ARBITRARY A,B,C, DESIGNATION PER FLOOR. USE K FOR KITCHEN, ETC.
5. ADJUSTABLE BREAKERS SHALL BE SOLID STATE TRIP. CIRCUIT BREAKER TRIP FUNCTIONS:
   L=LONG TIME
   S=SHORT TIME
   I=INSTANTANEOUS
   G=GROUND FAULT
   Z=ZONE SELECT INTERLOCK
   A=GROUND FAULT ALARM ONLY
6. COORDINATE MOUNTING, CONDUIT, WIRE, AND OCPD SIZE FOR SPD'S WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

SITE PLAN NOTES:

1. FEEDERS SHOWN ON SITE PLAN ARE DIAGRAMMATIC AND REPRESENT A PRELIMINARY SUGGESTED ROUTING. ACTUAL ROUTING SHALL BE SUBMITTED AND ACCEPTED PRIOR TO INSTALLATION.
2. COORDINATE UTILITY/OWNER REQUIREMENTS AND PROVIDE INSTALLATION IF NECESSARY FOR ALL UTILITY/OWNER PROVIDED EQUIPMENT. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION WITH UTILITY COORDINATION. COORDINATE WITH ARCHITECT/ENGINEER LOCATION OF TRANSFORMERS, PADS, CONNECTION CABINETS, METER SOCKETS/METERS, ETC. AS REQUIRED BY UTILITY/OWNER.
3. EXTERIOR LIGHTING, POLE BASES, AND OTHER ELECTRICAL EQUIPMENT AND/OR DEVICES ARE SHOWN DIAGRAMMATICALLY AND ARE NOT NECESSARILY SHOWN TO SCALE. IF DIMENSIONS ARE NOT INDICATED ON PLAN DRAWING, SUBMIT PROPOSED SPACINGS AND LOCATIONS WITH DIMENSIONS FOR ACCEPTANCE PRIOR TO INSTALLATION.
4. EXTERIOR LIGHTING INCLUDING: LIGHT POLE MOUNTED EQUIPMENT; WALL MOUNTED OR UNDER CANOPIES AT BUILDING ENTRANCES/EXITS; SIGNS; LOW LEVEL BOLLARDS AND LANDSCAPE LIGHTING; ETC. SHALL BE CONNECTED TO LIGHTING CONTROL ZONE INDICATED IN LIGHTING CONTROL MATRIX UNLESS OTHERWISE SHOWN.
5. PROVIDE LIGHTNING PROTECTION SYSTEM, SEE SPECIFICATION FOR DESIGN AND CONSTRUCTION REQUIREMENTS.

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 2

SHEET TITLE:
ELECTRICAL LEGENDS & NOTES

SCALE: 1/8" = 1'-0"
SHEET NUMBER
1E-001

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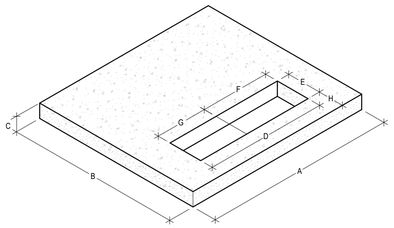
KVA	75-150	300-500	750-1000	1500	2000-2500
A	79"	84"	100"	114"	125"
B	56"	73"	91"	99"	107"
C	6"	6"	8"	8"	8"
D	52"	52"	52"	59"	70"
E	16"	16"	16"	16"	16"
F	23"	23"	23"	27"	32"
G	29"	29"	29"	32"	38"
H	6"	6"	6"	6"	6"

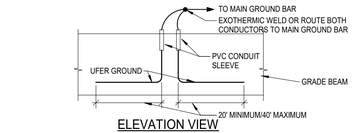
NOTES:

1. COORDINATE EXACT SIZE WITH EQUIPMENT PROVIDED.
2. CHAMFER EDGES.
3. PROVIDE REINFORCING BARS, TIED TO FRAME, AND PROVIDE ANCHOR BOLTS.
4. PROVIDE PORTLAND CEMENT CONFORMING TO ASTMC 150 4000 PSI.

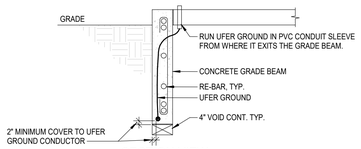


TRANSFORMER PAD DETAIL

NO SCALE



ELEVATION VIEW



SECTION VIEW

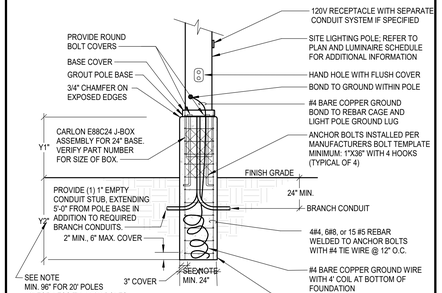
NOTES:

1. INSTALL 20' MINIMUM/40' MAXIMUM UFER GROUND CONDUCTOR IN EACH DIRECTION. PROVIDE BARE COPPER CONDUCTOR SIZED PER NEC TABLE 250-94 OR AS INDICATED ON THE DRAWINGS (#4 AWG SHALL BE THE MINIMUM SIZE).
2. ROUTE UFER GROUND CONDUCTOR, THROUGH PVC CONDUIT SLEEVE.
3. AVOID CONTACT WITH RE-BAR IN CONCRETE. DO NOT TIE DIRECTLY TO RE-BAR, USE SEPARATOR APPROVED BY STRUCTURAL.
4. COORDINATE ACTUAL UFER GROUND CONDUCTOR INSTALLATION WITH STRUCTURAL.

UFER GROUND DETAIL

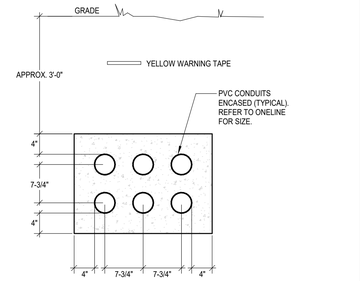
NO SCALE

NOTE:
VERIFY POLE BASE DESIGN, INCLUDING DEPTH, DIAMETER, CONCRETE STRENGTH MIX, AND REINFORCEMENT WITH THE PROJECT SOILS REPORTS. PROVIDE SHOP DRAWINGS, STAMPED BY A REGISTERED STRUCTURAL ENGINEER, INDICATING DESIGN OF ANCHOR BOLTS AND CONCRETE POLE BASE TO MEET MAST/ARM CONFIGURATION, LUMINAIRE PROFILE, AND LOCAL WIND /SOIL LOADING REQUIREMENTS. POLE BASE DETAILS SHOWN BELOW ARE INCLUDED TO SHOW REQUIREMENTS, NOT STRUCTURAL DESIGN.



POLE BASE DETAIL - RAISED WITH ACESS BOX

NO SCALE

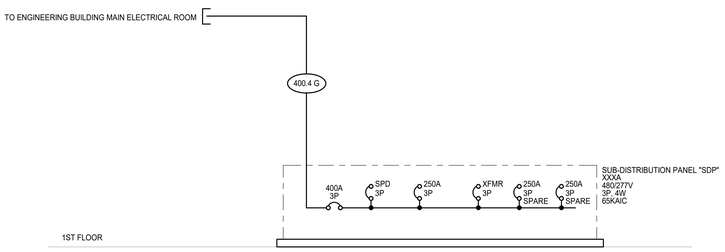


DUCT BANK DETAIL

NO SCALE

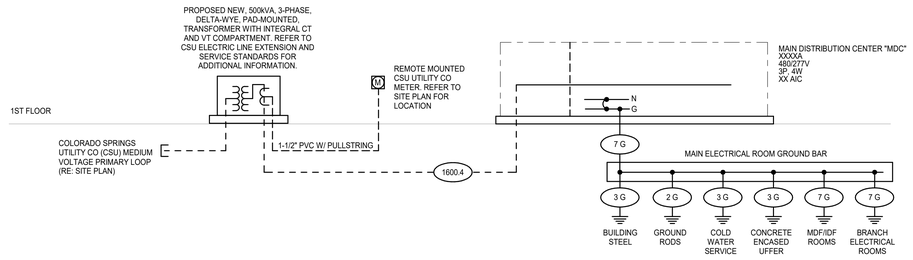
FEEDER SCHEDULE

KEY	CONDUCTORS	°C
2 G	1 # 6 G	3/4
3 G	1 # 4 G	3/4
7 G	1 # 3/0 G	3/4
100.4 G	4 # 1 , 1 # 8 G	1 1/2
200.4 G	4 # 3/0 , 1 # 6 G	2 1/2
400.4 G	2 [4 # 3/0 , 1 # 3 G	2 1/2]
600.4 G	2 [4 # 350 , 1 # 1 G	3]
1000.4	3 [4 # 500	3 1/2]
1200.4	4 [4 # 350	3]
1200.4 G	4 [4 # 350 , 1 # 3/0 G	3]
1600.4	5 [4 # 500	3 1/2]
MEC	SEE MECHL EQUIPMENT SCHEDULE	
SPD	SEE MANUFACTURER DOCUMENTATION	
XFMR	SEE TRANSFORMER SCHEDULE	



ELECTRICAL ONE-LINE DIAGRAM - SHOP BUILDING

SCALE: 1/8" = 1'-0"



ELECTRICAL ONE-LINE DIAGRAM - LAB BUILDING

SCALE: 1/8" = 1'-0"

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
PACKAGE 2

SHEET TITLE:
ELECTRICAL ONE-LINE DIAGRAM AND DETAILS

SCALE: 1/8" = 1'-0"
SHEET NUMBER

1E-011

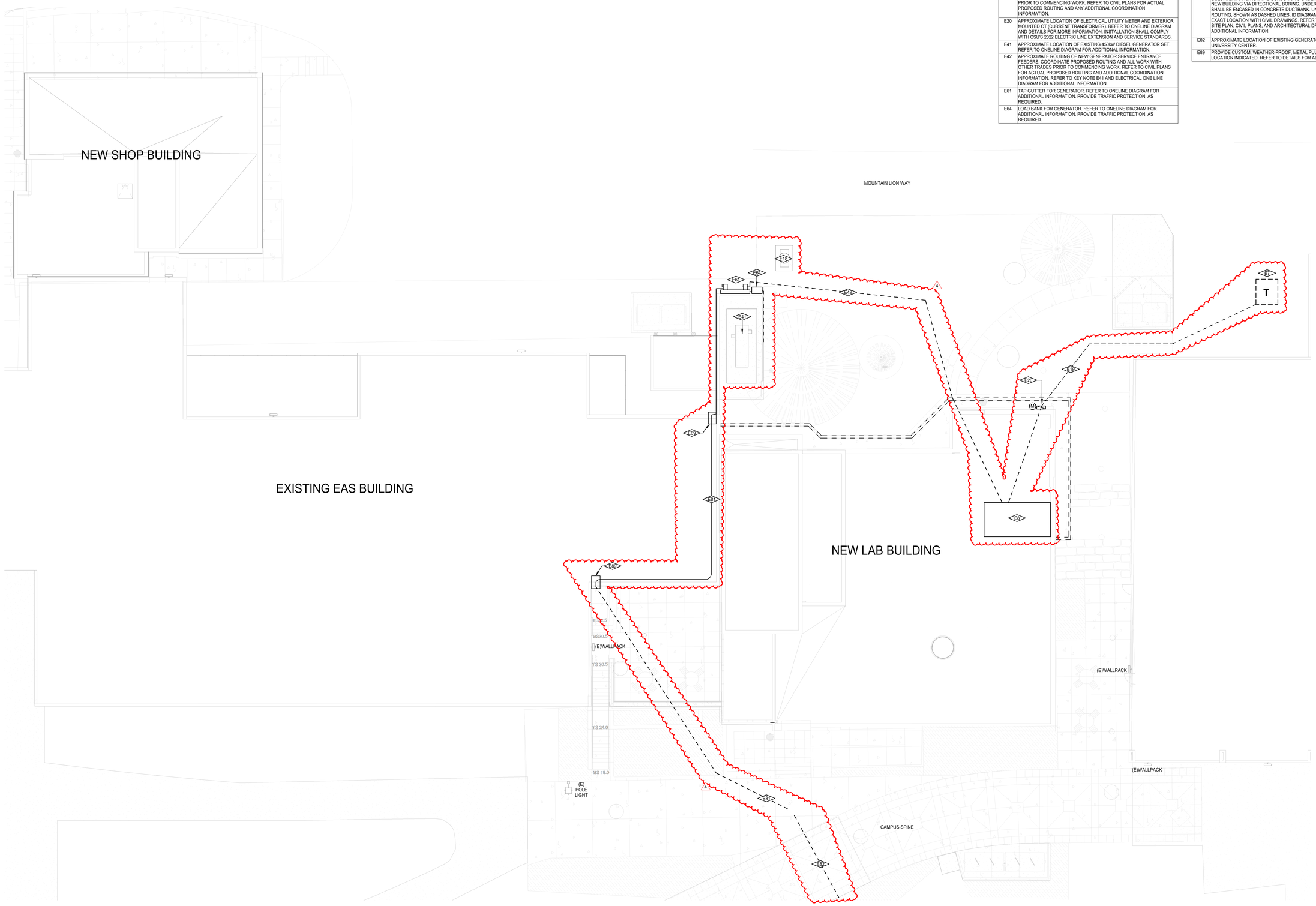
9/6/2022 1:10:57 PM P:\CU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad

KEYNOTES

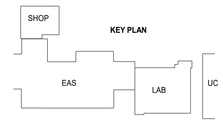
E7	APPROXIMATE LOCATION EXISTING PAD-MOUNTED UTILITY CO TRANFORMER. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
E8	APPROXIMATE LOCATION OF ELECTRICAL SERVICE ENTRANCE. REFER TO LEVEL ONE POWER PLANS FOR ADDITIONAL INFORMATION.
E18	APPROXIMATE LOCATION OF EXISTING UTILITY CO UNDERGROUND MEDIUM VOLTAGE SWITCH.
E19	APPROXIMATE ROUTING OF ELECTRICAL SERVICE ENTRANCE FEEDERS. COORDINATE ALL WORK WITH UTILITY COMPANY AND OTHER TRADES PRIOR TO COMMENCING WORK. REFER TO CIVIL PLANS FOR ACTUAL PROPOSED ROUTING AND ANY ADDITIONAL COORDINATION INFORMATION.
E20	APPROXIMATE LOCATION OF ELECTRICAL UTILITY METER AND EXTERIOR MOUNTED CT (CURRENT TRANSFORMER). REFER TO ONELINE DIAGRAM AND DETAILS FOR MORE INFORMATION. INSTALLATION SHALL COMPLY WITH CSU'S 2022 ELECTRIC LINE EXTENSION AND SERVICE STANDARDS.
E41	APPROXIMATE LOCATION OF EXISTING 450kW DIESEL GENERATOR SET. REFER TO ONELINE DIAGRAM FOR ADDITIONAL INFORMATION.
E42	APPROXIMATE ROUTING OF NEW GENERATOR SERVICE ENTRANCE FEEDERS. COORDINATE PROPOSED ROUTING AND ALL WORK WITH OTHER TRADES PRIOR TO COMMENCING WORK. REFER TO CIVIL PLANS FOR ACTUAL PROPOSED ROUTING AND ADDITIONAL COORDINATION INFORMATION. REFER TO KEY NOTE E41 AND ELECTRICAL ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
E61	TAP GUTTER FOR GENERATOR. REFER TO ONELINE DIAGRAM FOR ADDITIONAL INFORMATION. PROVIDE TRAFFIC PROTECTION, AS REQUIRED.
E64	LOAD BANK FOR GENERATOR. REFER TO ONELINE DIAGRAM FOR ADDITIONAL INFORMATION. PROVIDE TRAFFIC PROTECTION, AS REQUIRED.

KEYNOTES

E81	REFER TO SITE PLAN FOR THE PROPOSED RE-ROUTING OF EXISTING GENERATOR FEEDERS; FROM NEW GENERATOR DISTRIBUTION GUTTER AT THE BACK OF THE EXISTING GENERATOR ENCLOSURE, ROUTE SURFACE MOUNTED CONDUIT ALONG THE EXTERIOR OF THE GENERATOR ENCLOSURE, TRANSITION UP THE SIDE OF THE WALL OF THE EXISTING ENGINEERING APPLIED SCIENCES (EAS) BUILDING, OVER THE PARAPET AND ONTO THE ROOF. ROUTE FEEDERS ALONG THE INSIDE EDGE OF THE PARAPET TO CONCEAL CONDUITS FROM VIEW. RUN CONDUITS ACROSS THE ROOF AND TRANSITION INTO VERTICAL CHASE (ARCHITECTURAL COLUMN). TRANSITION THE CONDUITS TO UNDERGROUND AND ROUTE TO NEW BUILDING VIA DIRECTIONAL BORING. UNDERGROUND FEEDERS SHALL BE ENCASED IN CONCRETE DUCTBANK. UNDERGROUND FEEDER ROUTING, SHOWN AS DASHED LINES, ID DIAGRAMATIC. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS. REFER TO ONE LINE DIAGRAM, SITE PLAN, CIVIL PLANS, AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
E82	APPROXIMATE LOCATION OF EXISTING GENERATOR FEEDERS FOR THE UNIVERSITY CENTER.
E89	PROVIDE CUSTOM, WEATHER-PROOF, METAL PULL-BOX, ON ROOF, AT LOCATION INDICATED. REFER TO DETAILS FOR ADDITIONAL INFORMATION.



ELECTRICAL SITE PLAN
SCALE: 1" = 10'-0"



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SHEET TITLE:
ELECTRICAL SITE PLAN

SCALE: As indicated
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1E-100

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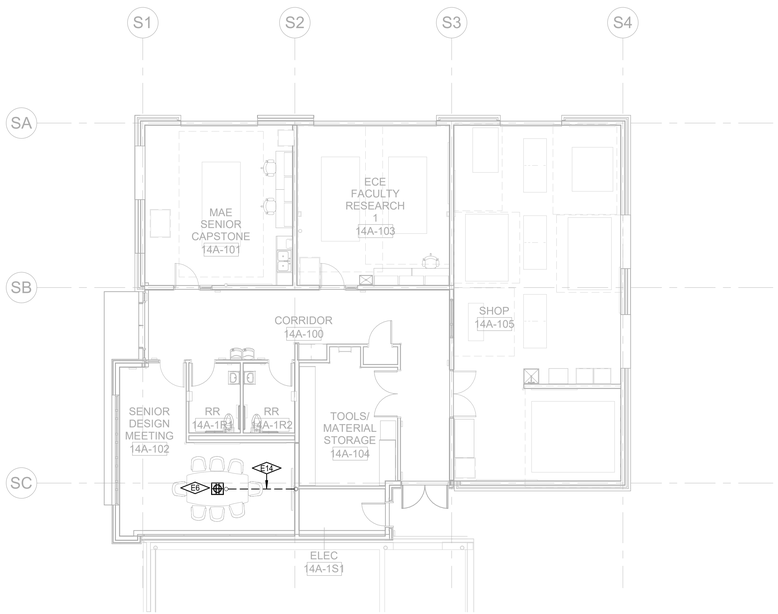
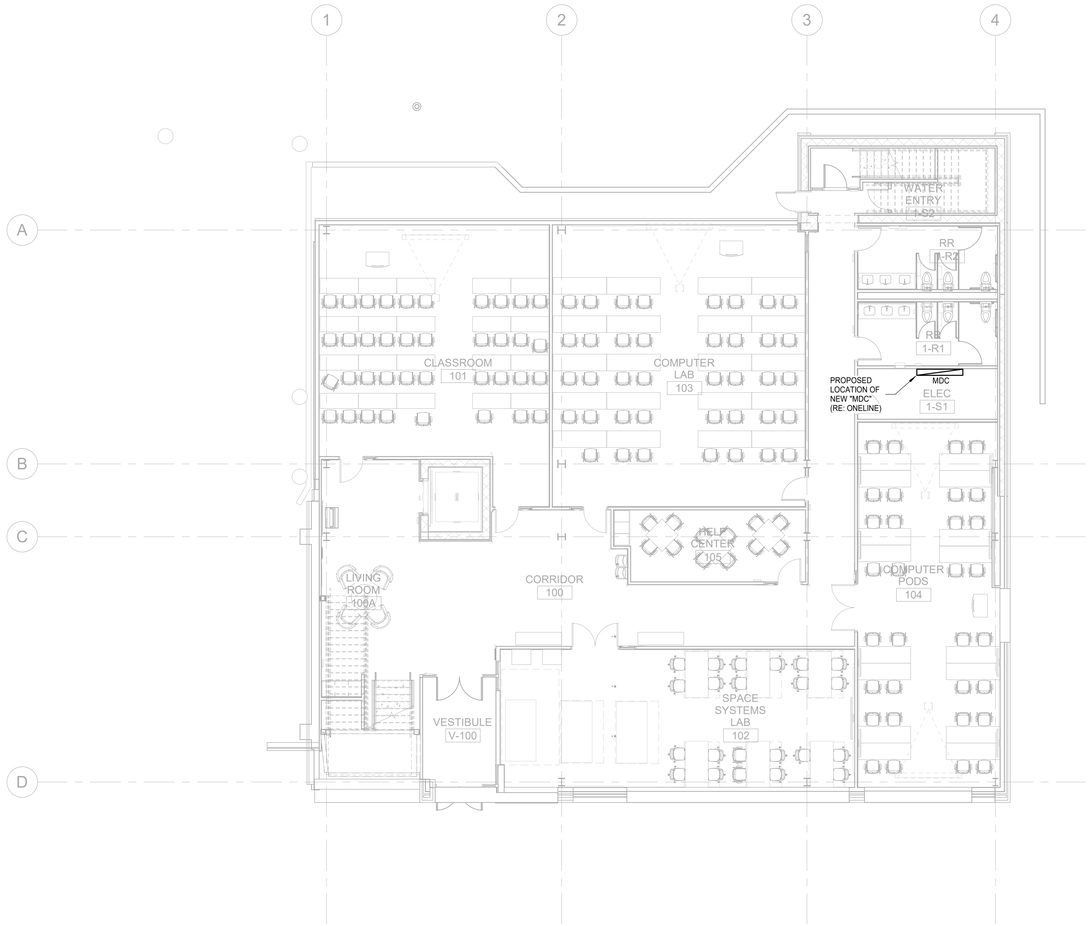
KEYNOTES	
E6	PROVIDE LEGRAND #EFB6-OG-E OR EQUAL COMBINATION POWER/DATA/AV FLOOR BOX. PROVIDE MINIMUM (2) DUPLEX RECEPTACLES. REFER TO TECHNOLOGY PLANS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. PRIOR TO WORK, COORDINATE EXACT LOCATION WITH ARCHITECT.
E14	PROVIDE (1) 1-1/2"C WITH PULLSTRING FROM FLOOR BOX LOCATION TO WALL FOR IT/AV CONNECTION. VERIFY EXACT LOCATION, CONDUIT SIZE, AND STUB-UP LOCATION PRIOR TO WORK.



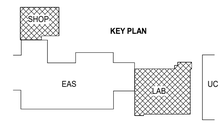
LEVEL 3 POWER PLAN - SHOP BUILDING

SCALE: 1/8" = 1'-0"



LEVEL 1 POWER PLAN - LAB BUILDING

SCALE: 1/8" = 1'-0"



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SHEET TITLE:
POWER PLAN SERIES

SCALE: 1/8" = 1'-0"
SHEET NUMBER
1E-111

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POWER LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SINGLE RECEPTACLE		ELECTRICAL PANELBOARD, CONTROL PANEL, OR OTHER CABINET AS NOTED
	DUPLEX RECEPTACLE	PM	PLUG MOLD (MULTI-OUTLET ASSEMBLY)
	DOUBLE DUPLEX RECEPTACLE	WM	WIREMOLD (SURFACE RACEWAY)
	DUPLEX RECEPTACLE, HALF SWITCHED		CONDUIT CONCEALED
CLG	DUPLEX RECEPTACLE, CEILING MOUNTED	UG	CONDUIT, UNDERGROUND OR CONCEALED IN FLOOR AS ALLOWED PER SPECIFICATIONS
	DUPLEX RECEPTACLE, FLOOR MOUNTED		CONDUIT TURNING DOWN
	DOUBLE DUPLEX RECEPTACLE, FLOOR MOUNTED		CONDUIT TURNING UP
	SPECIAL RECEPTACLE		CONDUIT CAPPED
	SPECIAL RECEPTACLE, FLOOR MOUNTED		GROUND BAR
	JUNCTION BOX, FLOOR OR CEILING MOUNTED		MAIN SWITCHBOARD/DISTRIBUTION CENTER
	JUNCTION BOX, WALL MOUNTED	T	TRANSFORMER
M	MOTOR	CT	CURRENT TRANSFORMER
	DISCONNECT SWITCH (NON-FUSED)	T	THERMOSTAT
	DISCONNECT SWITCH (FUSED)	GANN	GENERATOR ANNUNCIATOR PANEL
	VARIABLE SPEED DRIVE WITH DISCONNECT	A,1	SHADING INDICATES EMERGENCY SYSTEM TEXT INDICATES PANEL AND CIRCUIT DESIGNATION
	ENCLOSED CIRCUIT BREAKER	M	UTILITY METER
S	TOGGLE SWITCH		

LIGHTING LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A B	SHADING INDICATES EM SYSTEM, LOWER CASE SUBSCRIPT INDICATES SWITCHING, UPPER CASE SUBSCRIPT INDICATES LUMINAIRE TYPE (TYP.)		PENDANT LUMINAIRE - SINGLE SUSPENSION
	TROFFER - RECESSED		PENDANT LUMINAIRE - MULTIPLE SUSPENSION
	SURFACE LUMINAIRE		WALL MOUNTED LUMINAIRE
	LINEAR LUMINAIRE - RECESSED		IN-WALL LUMINAIRE
A B	FIELD MEASURED LUMINAIRE LENGTH AND SHAPE DENOTED BY LINEWORK SUBSCRIPT IN RECTANGLE INDICATES LUMINAIRE TYPE		POLE LUMINAIRE - ARM MOUNTED
	DOWNLIGHT - RECESSED		POLE LUMINAIRE - POST TOP
	DOWNLIGHT - SURFACE		BOLLARD
	EXIT SIGN - CEILING MOUNTED		TRACK HEAD AND TRACK
	EXIT SIGN - WALL MOUNTED (FLUSH TO WALL)		EXTERIOR STAKE MOUNTED
	EXIT SIGN - WALL MOUNTED (PROJECTS FROM WALL)		EMERGENCY LIGHTING UNIT - WALL MOUNTED
	INDICATES EXIT SIGN FACES - SINGLE OR DOUBLE		EMERGENCY LIGHTING UNIT - CEILING MOUNTED
	INDICATES EXIT SIGN CHEVRONS - LEFT/RIGHT OR BOTH		INDICATES DIRECTIONAL AIMING

CONTROLS LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
S_S	SINGLE POLE SWITCH (SUBSCRIPT DENOTES SWITCHING)	S_{VS}	VARIABLE SPEED/SPEED CONTROLLER SWITCH
S_2	TWO POLE SWITCH	S_{EP}	EXPLOSION PROOF SWITCH
S_3	THREE-WAY SWITCH	S_{TO}	THERMAL OVERLOAD SWITCH
S_4	FOUR-WAY SWITCH	S_{MC}	MOMENTARY CONTACT SWITCH
S_K	KEY OPERATED SWITCH	S	COMBINATION SWITCH AND DUPLEX RECEPTACLE
S_M	MANUAL SWITCH, HORSEPOWER RATE	P	PHOTOCELL
S_D	DIMMER SWITCH		PUSH BUTTON
S_H	SWITCH WITH PILOT LIGHT (PILOT LIGHT IS 'ON' WHEN SWITCH IS 'ON')	TC	TIME CLOCK
S_P	SWITCH WITH PILOT LIGHT LOCATOR (CONTINUOUSLY LIGHTED HANDLE)		OCCUPANCY SENSOR - WALL MOUNTED IR=INFRARED, US=ULTRASONIC, DT=DUAL TECHNOLOGY
S_{LV}	LOW VOLTAGE SWITCH		

FIRE ALARM SYSTEM LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL	M	MANUAL PULL STATION
FAPS	FIRE ALARM (NAC) POWER SUPPLY	AIM	ADDRESSABLE INPUT MODULE
FSA	FIRE ALARM SYSTEM ANNUNCIATOR PANEL (GRAPHIC/LED)	AOM	ADDRESSABLE OUTPUT MODULE
FAA	REMOTE ANNUNCIATOR PANEL	H15cd	AUDIO/VISUAL DEVICE (HW/cd=HORN/STROBE COMBINATION S=SPEAKER/STROBE COMBINATION, C=CHIME/STROBE COMBINATION)
GZM	GRAPHIC ZONE MAP	H	AUDIBLE DEVICE (H=HORN, S=SPEAKER, C=CHIME)
RACP	RESCUE ASSISTANCE SYSTEM HEAD END UNIT	15cd	FIRE ALARM STROBE (cd= CANDELA RATING 15, 30, 75, 110)
FSC	FIRE FIGHTER SMOKE CONTROL PANEL	J	EMERGENCY TELEPHONE STATION (J=JACK, H=HANDSET)
FAD	FIRE ALARM DIRECTORY ANNUNCIATOR	RA	RESCUE ASSISTANCE TELEPHONE STATION)
P	SMOKE DETECTOR (P=PHOTOELECTRIC, SB=WITH SOUNDER BASE, BR=BEAM RECEIVER, BT=BEAM TRANSMITTER)		MAGNETIC DOOR HOLD
F	THERMAL DETECTOR F=FIXED TEMPERATURE, R=FIXED TEMPERATURE & RATE OF RISE (TEMP. RATING)		TAMPER SWITCH
UV	FLAME DETECTOR (UV=ULTRAVIOLET, IR=INFRARED)		FLOW DETECTOR SWITCH
	DUCT SMOKE DETECTOR S=SUPPLY, R=RETURN	S,R	PRESSURE SWITCH
RTS	DUCT DETECTOR REMOTE INDICATOR ALARM AND TEST	FSD	FIRE/SMOKE DAMPER
	REMOTE INDICATOR LIGHT	CO	CARBON MONOXIDE ALARM/DETECTOR
		CO	CARBON MONOXIDE ALARM/DETECTOR, WALL MOUNTED

REFERENCE SYMBOLS LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	KEY NOTE REFERENCE	1	KITCHEN/OWNER/MEDICAL EQUIPMENT REFERENCE
LPA-#	TYPICAL CIRCUIT NUMBER	E	EXISTING TO REMAIN
TGR	TYPICAL LUMINAIRE TYPE	E	EXISTING TO BE REMOVED
	TYPICAL ROOM REFERENCE (TOP = RM #, BOTTOM = FLR)	E	EXISTING TO BE RELOCATED
MH	MECHANICAL EQUIPMENT REFERENCE	E	EXISTING TO REMAIN - REPLACE DEVICE
LCT	LIGHTING CONTROL / EQUIPMENT REFERENCE	E	EXISTING TO BE REMOVED AND REPLACED

ABBREVIATIONS LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERES	MCP	MOTOR CIRCUIT PROTECTOR
AC	ABOVE COUNTER, MOUNT HORIZONTALLY TO CENTERLINE OF DEVICE, +6" ABOVE COUNTER OR BACK SPLASH	MEC	SEE MECHANICAL EQUIPMENT SCHEDULE
AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	MLO	MAIN LUGS ONLY
ANN	ANNUNCIATOR	MTS	MANUAL TRANSFER SWITCH
ARF	ABOVE RAISED FLOOR	NC	NORMALLY CLOSED
ASSD	AIR SAMPLING SMOKE DETECTION	NIC	NOT IN CONTRACT
ATS	AUTOMATIC TRANSFER SWITCH	NL	NIGHT LIGHT
BFG	BELOW FINISHED GRADE	NO	NORMALLY OPEN
C	CONDUIT	NTS	NOT TO SCALE
CATV	CABLE TELEVISION	OC	ON CENTER
CB	CIRCUIT BREAKER	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CCTV	CLOSED CIRCUIT TELEVISION	OFOI	OWNER FURNISHED, OWNER INSTALLED
(E)	EXISTING	OSWF	ON SITE WORK FORCE
EM	EMERGENCY	PB	PULL BOX
EMDC	EMERGENCY MAIN DISTRIBUTION CENTER	SB	STAND-BY
EP	EXPLOSION PROOF	SDC	SUB-DISTRIBUTION CENTER
EPO	EMERGENCY POWER OFF	TP	TAMPER PROOF
EVO	EMERGENCY VENTILATION ON/OFF	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
EWC	ELECTRIC WATER COOLER	TYP	TYPICAL
FA	FIRE ALARM	UF	UNDER FLOOR
G	GROUND	UG	UNDER GROUND
GCP	GENERATOR CONTROL PANEL	UON	UNLESS OTHERWISE NOTED
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UPS	UNINTERRUPTIBLE POWER SUPPLY
HOA	HAND OFF AUTOMATIC	V	VOLTS
IG	ISOLATED GROUND	VFD	VARIABLE FREQUENCY DRIVE
MAX	MAXIMUM	W/	WITH
MCB	MAIN CIRCUIT BREAKER	W/O	WITHOUT
MCC	MOTOR CONTROL CENTER	WP	WEATHER PROOF
MDC	MAIN DISTRIBUTION CENTER	XFMR	TRANSFORMER

ONE-LINE DIAGRAM LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DISCONNECT SWITCH	A	PANELBOARD "A"
	DISCONNECT SWITCH, FUSED	PM	EM=ENERGY METER, PM=POWER METER, CM=CIRCUIT MONITOR
	CIRCUIT BREAKER	VS	VOLTMETER TEST SWITCH
	FUSE	AS	AMMETER TEST SWITCH
	GROUND	V	VOLTMETER
T TK ##	STEP DOWN TRANSFORMER, ## INDICATES KVA K-RATED STEP DOWN TRANSFORMER ## INDICATES KVA, # INDICATES K RATING	XXX	SEE FEEDER/MEC/TRANSFORMER SCHEDULES FOR FEEDER SIZE
	CURRENT TRANSFORMER	G	ENGINE GENERATOR
	POTENTIAL TRANSFORMER		CONTACTOR/RELAY/CAPACITOR (AS NOTED)
OR	SERVICE ENTRANCE TRANSFORMER		TRANSFER SWITCH - ATS=AUTOMATIC, MTS=MANUAL
M	METER	GFI	GROUND FAULT INTERRUPTER
	EQUIPMENT ENCLOSURE	SPD	SURGE PROTECTIVE DEVICE
	SERVICE WEATHERHEAD	ST	SHUNT TRIP
SCA	SHORT CIRCUIT CURRENT AVAILABLE		TERMINATIONS LB=LOAD BREAK, NLB=NO LOAD BREAK
A	KIRK KEY INTERLOCK, SUBSCRIPT INDICATES INTERLOCKED GROUP		DRAW-OUT DEVICE
A	ELECTRICAL INTERLOCK, SUBSCRIPT INDICATES INTERLOCKED GROUP		PLUG-IN DEVICE
A	MECHANICAL INTERLOCK	EO	ELECTRICALLY OPERATED

LIGHTNING PROTECTION SYSTEM LEGEND
(Not all symbols listed below are used on these drawings)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	AIR TERMINAL		INSPECTION SLEEVE
	GROUND ROD		GROUND ROD WITH INSPECTION SLEEVE
	BOND TO LIGHTNING PROTECTION CONDUCTOR		LIGHTNING PROTECTION CONDUCTOR
			BURIED LIGHTNING PROTECTION CONDUCTOR

LIGHTNING PROTECTION PLAN NOTES:

1. PROVIDE A COMPLETE CLASS II (OR CLASS I) LIGHTNING PROTECTION SYSTEM. REFER TO SPECIFICATIONS FOR ADDITIONAL CRITERIA.
2. PROVIDE UL MASTER LABEL CERTIFICATE FOR THE ENTIRE LIGHTNING PROTECTION SYSTEM. (OR FOR A PARTIAL LIGHTNING PROTECTION SYSTEM USE THE FOLLOWING SENTENCE). PROVIDE UL LETTER OF FINDINGS FOR THE ENTIRE LIGHTNING PROTECTION SYSTEM.
3. TO ELIMINATE DISSIMILAR METAL/GALVANIC REACTIONS, VERIFY COMPATIBILITY OF LIGHTNING PROTECTION CONDUCTORS, CONNECTORS, AIR TERMINALS BASES, ETC. WITH SURFACES TO BE BONDED.
4. TO MAINTAIN THE INTEGRITY/WARRANTY OF THE ROOFING SYSTEM, PROVIDE ALL WORK INVOLVING THE ROOFING SYSTEM BY A LICENSED ROOFING CONTRACTOR. THIS INCLUDES BONDS TO THE ROOF MEMBRANE OR FLASHING, ROOF PENETRATIONS, ROOF PADS, PAVERS, SLIP SHEETS, OR SPECIAL ROOFING MATERIAL ETC.
5. ROUTE ALL LIGHTNING PROTECTION CONDUCTORS (EXPOSED OR INSTALLED IN CONDUIT) EITHER HORIZONTAL OR SLOPING DOWNWARD TOWARD GROUND. MAINTAIN A MINIMUM OF 8" BENDING RADIUS FOR ALL LIGHTNING PROTECTION CONDUCTORS.
6. SECURE ALL LIGHTNING PROTECTION SYSTEM CONDUCTORS TO BUILDING EVERY TWO FEET, MINIMUM.
7. BOND ALL METALLIC OBJECTS WITHIN 6" OF ANY PRIMARY LIGHTNING PROTECTION CONDUCTOR OR EXPOSED DOWNLEAD CONDUCTOR.
8. PROVIDE PARALLEL CONNECTIONS FOR ALL CONDUCTOR TO CONDUCTOR BONDS.
9. PROVIDE TWO HOLE CRIMP CONNECTION FOR BONDING TO EQUIPMENT. PROVIDE STAINLESS STEEL BOLTS, WASHERS, LOCK WASHERS AND NUTS.
10. PROVIDE BURNDY TYPE "GAR" U-BOLT GROUND CLAMP FOR BONDS TO PIPE AND CONDUIT MATERIALS.
11. REMOVE PAINT DOWN TO BARE METAL PRIOR TO ATTACHING BONDING CONNECTORS. REPAINT SURFACE TO MATCH EXISTING AFTER CONNECTION IS MADE.
12. COAT INSIDE OF MECHANICAL AND CRIMP CONNECTORS WITH ANTI-OXIDE COMPOUND PRIOR TO INSTALLATION. PROVIDE LIGHT COAT OF AN ANTI-OXIDE COMPOUND BETWEEN SURFACES TO BE BONDED AND ON ALL MECHANICAL FASTENERS INCLUDING BOLT AND SET SCREW THREADS.
13. PROVIDE PARALLEL EXOTHERMIC WELDS TO BOND DOWN LEAD CONDUCTORS DIRECTLY TO GROUND RODS. WHERE GROUND RODS ARE BONDED DIRECTLY TO THE BURIED GROUND LOOP, PROVIDE T-TYPE EXOTHERMIC WELDS.
14. ALL BONDS BELOW GRADE SHALL BE EXOTHERMIC. NO MECHANICAL TYPE BONDS SHALL BE UTILIZED UNDERGROUND. PROVIDE EXOTHERMIC WELD TO JOIN STRANDED TO SOLID CONDUCTORS.
15. INSTALL GROUND LOOP CONDUCTOR AND/OR GROUND RODS 18" BELOW FINISHED GRADE AND 24" FROM FOUNDATION WALL.

FIRE ALARM PLAN NOTES:

1. FIRE ALARM EQUIPMENT AND DEVICES SHOWN ON THESE DRAWING INDICATE THE INTENT, PERFORMANCE, AND SCOPE OF THE SYSTEM. THE FULL DESIGN OF THE FIRE ALARM SYSTEM SHALL BE DONE BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A SHOP DRAWING SUBMITTAL FOR APPROVAL BY THE LOCAL FIRE DEPARTMENT AND/OR THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL ARRANGE TO HAVE THE FIRE ALARM SYSTEM SUBMITTAL SEALED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER WHO WILL ASSUME THE DUTY OF ENGINEER OF RECORD FOR THE FIRE ALARM SYSTEM DESIGN. THE ELECTRICAL ENGINEER OF RECORD AT CATOR, RUMA & ASSOCIATES, CO. WILL NOT BE RESPONSIBLE FOR SEALING AND SIGNING THE FIRE ALARM SYSTEM SHOP DRAWING SUBMITTAL.
2. WALL OR CEILING MOUNT FIRE ALARM REMOTE INDICATORS ABOVE THE DOOR OF ASSOCIATED ROOMS AS SHOWN.
3. LOCATE SMOKE DETECTORS PER NFPA 72 AND MANUFACTURERS REQUIREMENTS. THE LOCATIONS OF SMOKE DETECTORS ON THE DRAWINGS ARE DIAGRAMMATIC ONLY. DETECTORS SHALL NOT BE PLACED WITHIN 3'-0" OF ANY CEILING MOUNTED HVAC SUPPLY AIR DEVICE.
4. PROVIDE GRAPHIC ZONE MAP / ANNUNCIATORS AND FIRE ALARM CONTROL UNITS AS SHOWN AND REQUIRED. SUBMIT SHOP DRAWINGS AND LOCATIONS TO ENGINEER AND BUILDING/FIRE DEPARTMENT(S) FOR REVIEW PRIOR TO INSTALLATION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. LOCATE ALL CONTROL PANELS AND POWER SUPPLIES IN TELECOM OR ELECTRICAL ROOMS/CLOSETS. VERIFY OTHER LOCATIONS WITH OWNER PRIOR TO INSTALLATION/ROUGH-IN. COORDINATE WITH OTHER TRADES AND DOCUMENT FINAL LOCATIONS IN SUBMITTALS.
6. COORDINATE WITH ELEVATOR CONTRACTOR LOCATIONS OF ALL ELEVATOR EQUIPMENT TO BE CONTROLLED AND MONITORED FOR EMERGENCY CONTROL FUNCTIONS.
7. REFER TO UCCS CONSTRUCTION STANDARDS FOR ADDITIONAL NOTES ON SYSTEM REQUIREMENTS.

LIGHTING PLAN NOTES:

1. REFER TO ARCHITECTURAL ELEVATIONS AND REFLECTED CEILING PLANS FOR EXACT MOUNTING LOCATIONS OF DEVICES AND LUMINAIRES.
2. COORDINATE LUMINAIRE LOCATIONS WITH MECHANICAL PIPING, DUCTWORK, ETC., TO AVOID CONFLICTS. SEE SPECIFICATIONS FOR COORDINATION REQUIREMENTS.
3. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V AND 277V CIRCUIT.
4. CIRCUITS MAY BE COMBINED INTO HOMERUNS OF UP TO SIX (6) CURRENT CARRYING CONDUCTORS, INCLUDING NEUTRALS, UNLESS OTHERWISE INDICATED. WHERE CIRCUITS ARE COMBINED WITHIN A SINGLE CONDUIT, PROVIDE STRIPING FOR FULL LENGTH OF NEUTRAL CONDUCTOR INSULATION TO MATCH THE COLOR CODE OF THE ASSOCIATED PHASE CONDUCTOR. SEE SPECIFICATION FOR COLOR CODES.
5. FIELD COORDINATE EXACT LOCATION OF CEILING MOUNTED OCCUPANCY SENSORS PER MANUFACTURER'S INSTRUCTIONS. OCCUPANCY/VACANCY SENSING DEVICES ARE SHOWN FOR GENERAL DESIGN INTENT ONLY. CONTRACTOR SHALL PROVIDE THE TYPE AND QUANTITY OF OCCUPANCY/VACANCY SENSING DEVICES AS NECESSARY FOR PROPER COVERAGE AND CONTROL OF LUMINAIRES WHERE INDICATED ON THE LIGHTING PLANS. FIELD ADJUSTMENT TO DEVICE LOCATIONS SHALL BE MADE AS REQUIRED TO CAPTURE ALL OCCUPANTS, WHETHER SITTING AT A DESK OR MOVING AROUND THE SPACE. ADDITIONAL DEVICES SHALL BE PROVIDED AND FIELD ADJUSTMENTS SHALL BE MADE AS NECESSARY, AT NO ADDITIONAL COST TO OWNER. CONTRACTOR SHALL PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.

POWER PLAN NOTES:

1. MAKE ALL FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT REQUIRING ELECTRICAL CONNECTION. THIS SHALL INCLUDE BUT NOT BE LIMITED TO ALL MECHANICAL AND OTHER EQUIPMENT INCLUDED IN THIS PROJECT.
2. COORDINATE EXACT REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
3. PROVIDE FUSES SIZED PER EQUIPMENT MANUFACTURER'S REQUIREMENTS.
4. DISCONNECT SWITCH LOCATIONS ARE SHOWN DIAGRAMMATICALLY AND SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS TO SUIT EQUIPMENT AND SPACE. DISCONNECT SWITCHES SHALL BE WITHIN SIGHT OF THE EQUIPMENT THEY SERVE AND MOUNTED AT 6'-3", MAXIMUM, TO TOP OF CABINET. MAINTAIN NEC WORK SPACE REQUIREMENTS.
5. RECEPTACLES INDICATED TO BE MOUNTED ABOVE COUNTER ARE TO BE MOUNTED HORIZONTALLY 6" ABOVE COUNTER UNLESS OTHERWISE NOTED.
6. COORDINATE AND VERIFY EXACT MOUNTING LOCATIONS OF WALL AND FLOOR DEVICES WITH ARCHITECTURAL ELEVATIONS, AND ANY FURNITURE OR SPECIALTY EQUIPMENT SUPPLIER DRAWINGS PRIOR TO ROUGH-IN.
7. ALL DEVICES AND COVERPLATES FED FROM AN EMERGENCY CIRCUIT SHALL BE RED.
8. ALL GENERAL PURPOSE RECEPTACLES IN SHOP AREAS SHALL BE GFI AND MOUNTED AT +42" AFF.
9. NO RECEPTACLES SHALL BE MOUNTED BELOW +18" AFF.
10. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH 120V CIRCUIT.
11. CIRCUITS MAY BE COMBINED INTO HOMERUNS OF UP TO SIX (6) CURRENT CARRYING CONDUCTORS, INCLUDING NEUTRALS, UNLESS OTHERWISE INDICATED. WHERE CIRCUITS ARE COMBINED WITHIN A SINGLE CONDUIT, PROVIDE STRIPING FOR FULL LENGTH OF NEUTRAL CONDUCTOR INSULATION TO MATCH THE COLOR CODE OF THE ASSOCIATED PHASE CONDUCTOR. SEE SPECIFICATION FOR COLOR CODES.
12. GFCI RECEPTACLES ARE NOT GENERALLY SHOWN ON DRAWINGS, ALL RECEPTACLE OUTLETS LOCATED IN TOILET ROOMS, SHOWER ROOMS, GARAGES, SERVICE BAYS, ROOFTOPS, OUTDOOR LOCATIONS, MECHANICAL ROOMS, WITHIN 6 FEET OF A SINK, AT ELECTRIC WATER COOLERS, OR OTHER WET LOCATIONS SHALL BE PROVIDED WITH GFCI PROTECTION PER NEC ARTICLE 210 AND NEC SECTION 422.5. PROVIDE GFCI RECEPTACLES IN ELEVATOR PITS, HOISTWAYS, MACHINE ROOMS, CONTROL SPACES, AND CONTROL ROOMS PER NEC SECTION 620.85. ADDITIONAL GFCI PROTECTION TO BE PROVIDED AS INDICATED. WHERE GFCI DEVICES ARE REQUIRED AND/OR SHOWN BUT ARE NOT ACCESSIBLE WHEN EQUIPMENT IS INSTALLED, I.E. VENDING MACHINES, ETC., PROVIDE BLANK FACE GFCI DEVICE AND COVERPLATE AHEAD OF INACCESSIBLE RECEPTACLES. MOUNT ADJACENT TO EQUIPMENT AT SWITCH HEIGHT UNLESS OTHERWISE SHOWN.
13. 120V POWER HAS BEEN SHOWN ON DRAWINGS TO J-BOXES IDENTIFIED FOR BAS CONTROLS, DAMPER ACTUATORS AND OTHER MISCELLANEOUS POWER TO OPERATE MECHANICAL CONTROLS AND DEVICES. COORDINATE ALL 120V REQUIREMENTS WITH MECHANICAL CONTROLS AND EQUIPMENT AND MAKE ALL CONNECTIONS REQUIRED TO THESE OR OTHER 120V MECHANICAL CIRCUITS AS REQUIRED. DO NOT CONNECT THESE LOADS TO OTHER CIRCUITS WITH LOADS OTHER THAN THOSE IDENTIFIED HERE.
14. ALL OUTDOOR AND ROOFTOP RECEPTACLES SHALL BE OUTDOOR RATED AND SHALL HAVE A WEATHERPROOF IN USE COVER.
15. ALL 15- AND 20-AMPERE, 125-AND 250V-VOLT NONLOCKING-TYPE RECEPTACLES IN THE AREAS SPECIFIED IN 406.12(1) THROUGH (8) SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES. ARTICLE 406.12, 2020 NEC.

GENERAL NOTES:

1. PROTECT STRUCTURE AND OWNER EQUIPMENT FROM DAMAGE. IMMEDIATELY REPLACE OR REPAIR, TO ORIGINAL CONDITION, DAMAGE CAUSED BY THE CONTRACTOR WHETHER EQUIPMENT APPEARS TO BE CURRENTLY IN USE OR NOT, UNLESS WRITTEN AUTHORIZATION FROM THE OWNER INDICATED OTHERWISE. PREPARE LISTING OF ALL EXISTING DAMAGED ITEMS AND SUBMIT TO OWNER PRIOR TO BEGINNING WORK.
2. INSTALL CONDUIT CONCEALED IN FINISHED AREAS UNLESS OTHERWISE NOTED. PAINT EXPOSED CONDUIT TO MATCH EXISTING FINISHES WITHIN THE SURROUNDING AREA.
3. DO NOT ROUTE CONDUIT WITHIN STRUCTURAL OR TOPPING SLABS OF FLOORS UNLESS SPECIFICALLY NOTED OTHERWISE AND WRITTEN APPROVAL IS OBTAINED FROM THE STRUCTURAL ENGINEER.
4. FIRE SEAL ALL FIRE RATED WALL AND FLOOR PENETRATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALLS.
5. COORDINATE EXACT REQUIREMENTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN AND ORDERING MATERIALS OR EQUIPMENT.
6. A DETAILED WRITTEN METHOD OF PROCEDURE IS REQUIRED WHEN A CONSTRUCTION ACTIVITY OR AN OUTAGE AFFECTS THE SAFETY OF OCCUPANTS, TELEPHONE/DATA/FIRE ALARM EQUIPMENT OR COMPONENTS OF ANY SYSTEM WHICH SUPPORTS THIS EQUIPMENT OR ESSENTIALLY AFFECTS THE BUILDING MANAGEMENT, OPERATIONS OR SECURITY. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
7. EXISTING INFORMATION SHOWN ON THE DRAWINGS HAS BEEN TAKEN FROM OWNER FURNISHED DRAWINGS AND/OR LIMITED FIELD OBSERVATIONS. CATOR, RUMA & ASSOCIATES IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY INFORMATION OR THE ADEQUACY, SAFETY AND CONFORMANCE TO CURRENT PREVAILING CODES OF ANY WORK SHOWN AS EXISTING ON THESE DRAWINGS.
8. FIELD LOCATE EXISTING UNDERGROUND PUBLIC AND OWNER UTILITIES OF ALL TRADES AND BUILDING GROUNDING/LIGHTNING PROTECTION SYSTEMS PRIOR TO ANY EXCAVATION. REPLACE OR REPAIR DAMAGED UTILITIES AND GROUNDING/LIGHTNING PROTECTION SYSTEMS TO ORIGINAL CONDITION.
9. PROVIDE SEPARATE INSULATED GROUNDING CONDUCTOR IN ALL FEEDER, HOMERUN AND BRANCH CIRCUITS.

ONE-LINE DIAGRAM NOTES:

1. PANELBOARDS INDICATED ON ONE LINE DIAGRAMS DO NOT SHOW ALL BRANCH CIRCUITS. REFER TO PANELBOARD SCHEDULE(S).
2. EQUIPMENT SHOWN SHADED REPRESENTS STAND-BY POWERED SERVICES.
3. PROVIDE CONTINUOUS #10 INSULATED COPPER CONDUCTOR FOR BONDING THE EQUIPMENT GROUNDING TERMINAL BUSSES OF THE NORMAL AND ESSENTIAL BRANCH CIRCUIT PANELBOARDS SERVING THE SAME INDIVIDUAL PATIENT VICINITY.
4. PANEL NAMING LEGEND "1234"
   A. E=EMERGENCY, H=277/480V, L=120/208V, LCP-LIGHTING CONTROL PANEL,
   B. FLOOR DESIGNATION (B=BASEMENT, 1=1ST FLOOR ,ETC.)
   C. PANELBOARD DESIGNATION (LENGTH AS REQUIRED) ARBITRARY A,B,C, DESIGNATION PER FLOOR. USE K FOR KITCHEN, ETC.
5. ADJUSTABLE BREAKERS SHALL BE SOLID STATE TRIP. CIRCUIT BREAKER TRIP FUNCTIONS:
   L=LONG TIME
   S=SHORT TIME
   I=INSTANTANEOUS
   G=GROUND FAULT
6. COORDINATE MOUNTING, CONDUIT, WIRE, AND OCPD SIZE FOR SPD'S WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

SITE PLAN NOTES:

1. FEEDERS SHOWN ON SITE PLAN ARE DIAGRAMMATIC AND REPRESENT A PRELIMINARY SUGGESTED ROUTING. ACTUAL ROUTING SHALL BE SUBMITTED AND ACCEPTED PRIOR TO INSTALLATION.
2. COORDINATE UTILITY/OWNER REQUIREMENTS AND PROVIDE INSTALLATION IF NECESSARY FOR ALL UTILITY/OWNER PROVIDED EQUIPMENT. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION WITH UTILITY COORDINATION. COORDINATE WITH ARCHITECT/ENGINEER LOCATION OF TRANSFORMERS, PADS, CONNECTION CABINETS, METER SOCKETS/METERS, ETC. AS REQUIRED BY UTILITY/OWNER.
3. EXTERIOR LIGHTING, POLE BASES, AND OTHER ELECTRICAL EQUIPMENT AND/OR DEVICES ARE SHOWN DIAGRAMMATICALLY AND ARE NOT NECESSARILY SHOWN TO SCALE. IF DIMENSIONS ARE NOT INDICATED ON PLAN DRAWING, SUBMIT PROPOSED SPACINGS AND LOCATIONS WITH DIMENSIONS FOR ACCEPTANCE PRIOR TO INSTALLATION.
4. EXTERIOR LIGHTING INCLUDING: LIGHT POLE MOUNTED EQUIPMENT; WALL MOUNTED OR UNDER CANOPIES AT BUILDING ENTRANCES/EXITS; SIGNS; LOW LEVEL BOLLARDS AND LANDSCAPE LIGHTING; ETC. SHALL BE CONNECTED TO LIGHTING CONTROL ZONE INDICATED IN LIGHTING CONTROL MATRIX UNLESS OTHERWISE SHOWN.
5. PROVIDE LIGHTNING PROTECTION SYSTEM, SEE SPECIFICATION FOR DESIGN AND CONSTRUCTION REQUIREMENTS.

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ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
ELECTRICAL LEGENDS & NOTES

SCALE: 1/8" = 1'-0"
SHEET NUMBER
E-001

10/25/2022 1:32:03 PM P:\CU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad

MECHANICAL EQUIPMENT SCHEDULE

COMMON NOTES:

A. PRIOR TO WORK, VERIFY ELECTRICAL REQUIREMENTS (VOLTAGE, AMPERAGE, RECOMMENDED OCPD, CONDUCTORS, AND DISCONNECT) FOR EACH PIECE OF EQUIPMENT.
B. PRIOR TO WORK, VERIFY EXACT LOCATION FOR EACH PIECE OF EQUIPMENT.
C. COORDINATE AND PROVIDE ALL FIELD CONNECTIONS AS REQUIRED.
D. COORDINATE 120V POWER CONNECTIONS TO DAMPERS AND OTHER CONTROL CIRCUITS. GROUP EQUIPMENT CONTROL CIRCUITS SUCH THAT FAILURE OF ONE CONTROL CIRCUIT DOES NOT AFFECT OPERATION OF OTHER EQUIPMENT. FOR EXAMPLE, DO NOT CONNECT A DAMPER ASSOCIATED WITH ONE AIR HANDLING UNIT TO THE SAME BRANCH CIRCUIT AS DAMPERS ASSOCIATED WITH A DIFFERENT AIR HANDLING UNIT.
E. FEEDERS, BREAKERS, DISCONNECTS, AND FUSING APPLIES TO FIELD-INSTALLED AND/OR FACTORY-INSTALLED EQUIPMENT.
F. COORDINATE LOCATION OF VFD(S) AND WORKING SPACE CLEARANCES. IF INSTALLED REMOTE FROM EQUIPMENT, PROVIDE CIRCUIT CONNECTION FROM VFD TO MOTOR(S).
G. WHERE MULTIPLE MOTORS ARE SERVED BY A SINGLE VFD, COORDINATE FIELD-WIRING REQUIREMENTS WITH EQUIPMENT VENDOR.

SPECIFIC REMARKS:

1. PROVIDE EQUIPMENT WITH INTEGRAL DISCONNECT SWITCH AND FUSING AS INDICATED.
2. INSTALL VFD(S) INCLUDING INTEGRAL DISCONNECT SWITCH AND FUSING AS INDICATED. VFD'S FURNISHED WITH THE EQUIPMENT.
3. PROVIDE CONNECTION TO FACTORY-FURNISHED LIGHTS AND RECEPTACLE(S).
4. PROVIDE EXPLOSIONPROOF WIRING AND DISCONNECT SWITCH.
5. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT.
6. FUSE PER EQUIPMENT NAMEPLATE. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES FOUND IN THE FIELD.

KEY	#	ITEM	HP	FLA	LOAD	EQ LOAD (VA)	VOLTAGE	FEEDERS WIRE	FEEDERS GROUND	FEEDERS CONDUIT	PROTECTION BREAKER	PROTECTION DISCONNECT	PROTECTION FUSE	Notes
AC	1	AIR COMPRESSOR	7.5	0 A	0 VA	9145 VA	480 V/ 3ph	3#12	#12G	3/4"	20 A	30 A	20 A	
AC	2	AIR COMPRESSOR	7.5	0 A	0 VA	9145 VA	480 V/ 3ph	3#12	#12G	3/4"	20 A	30 A	20 A	
AHU	RF	AIR HANDLER UNIT	50	0 A	0 VA	54040 VA	480 V/ 3ph	3#3	#6G	1-1/4"	125 A	200 A	110 A	
AHU	SF	AIR HANDLER UNIT	10	0 A	0 VA	11639 VA	480 V/ 3ph	3#12	#12G	3/4"	25 A	30 A	25 A	
B	1	BOILER	0	0 A	355 VA	355 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
B	2	BOILER	0	0 A	355 VA	355 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
CU	1	CONDENSING UNIT	0	167 A	0 VA	139007 VA	480 V/ 3ph	3-4/0	#4G	2-1/2"	225 A	400 A	225 A	
CU	2	CONDENSING UNIT	0	17 A	0 VA	14134 VA	480 V/ 3ph	3#10	#10G	3/4"	25 A	30 A	25 A	
CU	3	CONDENSING UNIT	0	18 A	0 VA	3744 VA	208 V/ 1ph	2#10	#10G	3/4"	25 A	30 A		
CU	4	CONDENSING UNIT	0	18 A	0 VA	3744 VA	208 V/ 1ph	2#10	#10G	3/4"	25 A	30 A		
CU	5	CONDENSING UNIT	0	18 A	0 VA	3744 VA	208 V/ 1ph	2#10	#10G	3/4"	25 A	30 A		
CUH	1	CABINET UNIT HEATER	0	0 A	216 VA	216 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S	15 A	
CUH	2	CABINET UNIT HEATER	0	0 A	216 VA	216 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S	15 A	
CUH	3	CABINET UNIT HEATER	0	0 A	216 VA	216 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S	15 A	
DCP	1	DOMESTIC CIRC PUMP	0.167	0 A	0 VA	528 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
DF	1	DESTRATIFICATION FAN	0	1 A	180 VA	305 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A			
DX	1	DUCTLESS SPLIT INDOOR UNIT	0	0 A	150 VA	150 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S		
DX	2	DUCTLESS SPLIT INDOOR UNIT	0	0 A	150 VA	150 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S		
DX	3	AIR COMPRESSOR	7.5	0 A	0 VA	9152 VA	208 V/ 1ph	2#6	#8G	1-1/4"	80 A	100 A		
EF	1	EXHAUST FAN	0.5	0 A	0 VA	1176 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
EF	2	EXHAUST FAN	0	3 A	0 VA	2494 VA	480 V/ 3ph	3#12	#12G	3/4"	15 A	30 A	5 A	
EF	3	EXHAUST FAN	0.125	1 A	0 VA	562 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
EHC	1	ELECTRIC CABINET UNIT HEATER	0	0 A	20000 VA	20000 VA	480 V/ 3ph	3#8	#10G	3/4"	35 A	60 A	35 A	
ELEV	1	ELEVATOR	0	20 A	0 VA	16628 VA	480 V/ 3ph	4#10	#10G	1/2	30	30 A	25 A	
ERV	1	ENERGY RECOVERY UNIT	1.5	0 A	0 VA	2494 VA	480 V/ 3ph	3#12	#12G	3/4"	15 A	30 A	5 A	
ESP	1	ELEVATOR SUMP PUMP	0.5	0 A	0 VA	1176 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
EUH	1	ELECTRIC UNIT HEATER	0	0 A	5000 VA	5000 VA	480 V/ 3ph	3#12	#12G	3/4"	15 A	30 A	10 A	
EUH	2	ELECTRIC CABINET UNIT HEATER	0	0 A	10000 VA	10000 VA	480 V/ 3ph	3#12	#12G	3/4"	20 A	30 A	20 A	
EUH	3	ELECTRIC CABINET UNIT HEATER	0	0 A	10000 VA	10000 VA	480 V/ 3ph	3#12	#12G	3/4"	20 A	30 A	20 A	
EUH	4	ELECTRIC UNIT HEATER	0	0 A	25000 VA	25000 VA	480 V/ 3ph	3#8	#10G	3/4"	40 A	60 A	40 A	
EUH	5	ELECTRIC UNIT HEATER	0	0 A	25000 VA	25000 VA	480 V/ 3ph	3#8	#10G	3/4"	40 A	60 A	40 A	
EUH	6	ELECTRIC UNIT HEATER	0	0 A	25000 VA	25000 VA	480 V/ 3ph	3#8	#10G	3/4"	40 A	60 A	40 A	
EWC		ELECTRIC WATER COOLER	0	0 A	425 VA	425 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A			
FCU	1	FAN COIL UNIT	0	2 A	0 VA	489 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S		
FCU	2	FAN COIL UNIT	0	2 A	0 VA	489 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S		
FCU	3	FAN COIL UNIT	0	4 A	0 VA	884 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S		
FCU	4	FAN COIL UNIT	0	3 A	0 VA	599 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S		
FCU	5	FAN COIL UNIT	0	3 A	0 VA	599 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	S		
FFU	1	FAN FILTER UNIT	0	5 A	0 VA	600 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
MD		MOTORIZED DAMPER	0	0 A	200 VA	200 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A			
P	1	PUMP	7.5	0 A	0 VA	9145 VA	480 V/ 3ph	3#12	#12G	3/4"	20 A	30 A	20 A	
P	2	PUMP	7.5	0 A	0 VA	9145 VA	480 V/ 3ph	3#12	#12G	3/4"	20 A	30 A	20 A	
P	3	PUMP	2	0 A	0 VA	2827 VA	480 V/ 3ph	3#12	#12G	3/4"	15 A	30 A	6 A	
TF	1	TRANSFER FAN	0.25	0 A	0 VA	696 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
TF	2	TRANSFER FAN	0.125	0 A	0 VA	396 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
UH	2	UNIT HEATER	0	0 A	250 VA	250 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		
WH	1	WATER HEATER	0	5 A	0 VA	624 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	S		

GENERAL EQUIPMENT SCHEDULE

COMMON NOTES:

A. PRIOR TO WORK, VERIFY ELECTRICAL REQUIREMENTS (VOLTAGE, AMPERAGE, RECOMMENDED OCPD, CONDUCTORS, AND DISCONNECT) FOR EACH PIECE OF EQUIPMENT.
B. PRIOR TO WORK, VERIFY EXACT LOCATION FOR EACH PIECE OF EQUIPMENT WITH ARCHITECT AND/OR OWNER.

SPECIFIC REMARKS:

1. EQUIPMENT PROVIDED BY OWNER. VERFIY CONNECTION REQUIREMENTS AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. FUSE EQUIPMENT AS PER NAMEPLATE.
3. EQUIPMENT TO SHUT DOWN WHEN SHOP E.P.O. IS ACTIVATED.

KEY	#	ITEM	HP	FLA	LOAD	EQ LOAD (VA)	VOLTAGE	FEEDERS WIRE	FEEDERS GROUND	FEEDERS CONDUIT	PROTECTION BREAKER	PROTECTION DISCONNECT	PROTECTION FUSE	REMARKS
CBT		COMBUSTION STATION	0	0 A	8000 VA	8000 VA	208 V/ 3ph	3#10	#10G	3/4"	30 A	NEMA L15-30		1
CH01		EV BATTERY CHARGER	0	0 A	10000 VA	10000 VA	208 V/ 1ph	2#4	#8G	1-1/4"	70 A	NEMA 14-50		
CH02		BATTERY CHARGING STATION	0	0 A	1000 VA	1000 VA	208 V/ 1ph	2#12	#12G	3/4"	20 A	NEMA 6-50		
CHLLR		WATER JET CHILLER	0	11 A	0 VA	9145 VA	480 V/ 3ph	3#12	#12G	3/4"	15 A	30 A	15 A	3
DLS-01		DYE LASER SYSTEM	0	0 A	4000 VA	4000 VA	208 V/ 1ph	2#10	#10G	3/4"	25 A	NEMA 6-30		
HD		HAND DRYER	0	0 A	1500 VA	1500 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A			
LAT-01		CNC LATHE	0	0 A	4605 VA	4605 VA	208 V/ 3ph	3#12	#12G	3/4"	20 A	NEMA L15-30		3
LAT-02		LATHE	0	0 A	4605 VA	4605 VA	208 V/ 3ph	3#12	#12G	3/4"	20 A	NEMA L15-20		3
MIL-01		MILL	0	18 A	0 VA	6485 VA	208 V/ 3ph	3#10	#10G	3/4"	25 A	NEMA L15-30		3
MIL-02		MILL	0	14 A	0 VA	5044 VA	208 V/ 3ph	3#12	#12G	3/4"	20 A	NEMA L15-20		3
PWR-01		POWER LAB STATION	0	11 A	0 VA	3963 VA	208 V/ 3ph	3#12	#12G	3/4"	15 A	NEMA L15-20		
SAW-01		DROP SAW	0	14 A	180 VA	1860 VA	120 V/ 1ph	2#12	#12G	3/4"	20 A	NEMA L5-20		3
VT		VIBRATION TABLE	0	0 A	10380 VA	10380 VA	480 V/ 3ph	3#12	#12G	3/4"	20 A	30 A	20 A	2
WJT-01		WATER JET	0	38 A	0 VA	31593 VA	480 V/ 3ph	3#6	#10G	1"	50 A	60 A	50 A	2
WT		WIND TUNNEL	0	32 A	0 VA	11529 VA	208 V/ 3ph	3#8	#10G	1"	40 A	60 A	40 A	2

LIGHTING CONTROL MATRIX

COMMON NOTES:

A. NOT ALL SPACE NAMES ARE LISTED FOR EACH LIGHTING CONTROL TYPE. REFER TO PLANS FOR ALL SPACES TO BE CONTROLLED.
B. SPACES MAY CONTAIN MULTIPLE ZONES OF CONTROL. REFER TO PLANS FOR QUANTITY OF ZONES, SWITCHES, ETC.
C. PROVIDE THE QUANTITY OF SENSORS AS REQUIRED FOR FULL COVERAGE OF THE SPACE. DEVICES SHOWN ON PLAN ARE FOR DESIGN INTENT ONLY AND DO NOT NECESSARILY REFLECT THE EXACT QUANTITY REQUIRED FOR FULL COVERAGE.
D. WHERE A SINGLE SWITCH/DIMMER IS DENOTED WITH MULTIPLE SWITCH LEGS, DESIGN INTENT IS A SINGLE-GANG DEVICE WITH MULTIPLE-MODE CONTROL.
E. ALL NON-NETWORKED SPACES WITH SENSORS SHALL BE PROVIDED WITH MANUAL 'OFF' MEANS.
F. WHERE NETWORKED SPACES HAVE NO MANUAL 'OFF' MEANS WITHIN SPACE, PROVIDE LABELED MEANS OF SHUTOFF AT CONTROLLER LOCATION FOR NO MORE THAN 5,000 SQUARE FEET.
G. PROVIDE SEPARATE CONTROL ZONES FOR NO MORE THAN 600 SQUARE FEET PER PLANS. REDUCE LEVELS BY 80% IN EACH ZONE AFTER DESIGNATED UNOCCUPIED DELAY.

SPECIFIC REMARKS:

1. TIME SCHEDULE ON FROM _6AM-10PM__. OCCUPANCY SENSOR OVERRIDE AFTER-HOURS.
2. PROVIDE CONTROL OF RECEPTACLES IN THIS ROOM PER 2021 IECC C405. RECEPTACLES WILL BE HALF SWITCHED, WITH THE TOP PORTION BEING CONTROLLED BY THE ROOM OCCUPANCY/VACANCY SENSOR. REFER TO POWER PLANS FOR THE NUMBER OF CIRCUITS TO BE CONTROLLED.
3. REDUCE LEVELS BY 30% FROM MIDNIGHT TO 6AM.
4. PHOTOCELL CONTROL WITH SHUTOFF FROM _10PM-6AM__ .

KEY:

ON / OFF — M = MANUAL (SWITCH), A = AUTOMATIC (SENSOR), T = TIME SCHEDULE, P = EXTERIOR PHOTOCELL, #% = CONTROL TO #% LIGHT LEVEL
CONTROL — 0-10V DIMMING, ELV DIMMING, STEP DIMMING, DMX CONTROL
OCC / VAC — DT = DUAL TECHNOLOGY, PIR = PASSIVE INFRARED, CLG = CEILING MOUNT, WALL = WALL CORNER MOUNT, SW = INTEGRAL TO WALL SWITCH
DAYLIGHT — CALIBRATE BOTTOM LIMIT OF DAYLIGHT SENSOR TO DENOTED FOOTCANDLE LEVEL AT HEIGHT LISTED
INTERFACE — AV = ALLOW OVERRIDE BY A/V SYSTEM, BAS = COMMUNICATE OCCUPIED/UNOCCUPIED STATE TO BAS, VAV = TIE SENSOR RELAY DIRECTLY TO VAV BOX IN ROOM
NETWORK — X = CONNECT ZONE TO CENTRAL LIGHTING CONTROL SYSTEM
EMERGENCY — X = PROVIDE AUTOMATIC LOAD CONTROL RELAYS (ALCR) FOR LUMINAIRES ON EMERGENCY CIRCUIT, PROVIDE TEST SWITCH IF NOT INTEGRAL TO RELAY

TYPE	SPACE	ON	OFF	CONTROL	OCCUPANCY / VACANCY SENSOR TECH	MOUNT	DELAY (MIN.)	DAYLIGHT SENSOR TARGET LEVEL (FC)	MEASURED HEIGHT (IN.)	INTERFACE	NETWORK	EMERGENCY	REMARKS
LC1	CORRIDOR	T	T	0-10V	DT	CLG	20				X	X	1
LC1a	CORRIDOR WITH DL	T	T	0-10V	DT	CLG	20	20	0		X	X	1
LC2	RESTROOM	A	A		DT	CLG	20						
LC3	TOILET	A	A		PIR	SW							
LC4	STAIR	A 100%	A 50%	0-10V	DT	CLG	20				X	X	
LC4a	MAIN STAIR	T	T	0-10V	DT	CLG	20	20	0		X	X	1
LC5	MEPT	M	M										
LC5a	MEPT EXTERIOR	M	T				120					X	
LC6	STORAGE	M	A		PIR	CLG	5						
LC7	CUSTODIAL	A	A		PIR	SW	10						
LC8	PRIVATE OFFICE	M	A	0-10V	DT	SW	5						2
LC9	CONFERENCE ROOM	M	A	0-10V	DT	CLG	20					X	2
LC11	SITE	T	T	0-10V							X	X	3
LC12	FACADE & LANDSCAPE	P	T								X		4
LC13	CLASSROOM	M	A	0-10V	DT	CLG	20						2
LC14	KITCHEN	A	A	0-10V	PIR	SW	10					X	
LC15	ELEVATOR PIT	M	M									X	
LC16	CLASSROOM WITH DL	M	A	0-10V	DT	CLG	20	30	24		X	X	2
LC17	CONFERENCE ROOM WITH DL	M	A	0-10V	DT	CLG	20	20	24		X	X	2

LUMINAIRE SCHEDULE

COMMON NOTES:

A. CATALOG NUMBER REFERS TO FIRST NAME LISTED UNDER MANUFACTURER PER LUMINAIRE TYPE. REMAINING MANUFACTURERS LISTED ARE CONSIDERED TO BE EQUIVALENT PRODUCTS FOR THIS PROJECT AND SHALL MEET ALL CRITERIA LISTED INCLUDING THAT CALLED FOR BY THE SPECIFIC LUMINAIRE CATALOG NUMBER. CATALOG NUMBERS DO NOT NECESSARILY REPRESENT COMPLETE CATALOG NUMBERS. ALL ITEMS LISTED IN THE DESCRIPTION SHALL BE PROVIDED.
B. REFER TO LIGHTING SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
C. PROVIDE UNIT PRICING FOR ALL LUMINAIRES BY TYPE AND SUBMIT WITH BID FORM.
D. PROVIDE AN EMERGENCY BALLAST TEST SWITCH FOR RECESSED DOWNLIGHTS ON CEILING ADJACENT TO LUMINAIRE.
E. PROVIDE FLICKER FREE LED DRIVERS MEETING IEEE 1789.
F. ALL FIXTURES TO HAVE A CRI INDEX OF 90, ACHEIVE A UGR RATING OF <19, AND MUST BE DIMMABLE. CONTRACTOR SHALL PROVIDE SUPPLEMENTAL COMPLIANCE DOCUMENTATION, AS REQUIRED, WITH SUBMITTALS.

SPECIFIC REMARKS:

1. VERIFY EXACT MOUNTING HEIGHT WITH ARCHITECT AND PROVIDE APPROPRIATE SUSPENSION LENGTH.
2. LUMINAIRE IS CAMPUS STANDARD. NO SUBSTITUTIONS ALLOWED.
3. CONFIRM CANOPY MOUNTING REQUIREMENTS. ENSURE DRIVER IS LOCATED IN AN ACCESSIBLE LOCATION.
4. CUSTOM LUMINAIRE TO BE SUSPENDED FROM STRUCTURE. VERIFY MOUNTING REQUIREMENTS PRIOR TO WORK OR BID.
5. LUMINAIRE TO BE INSTALLED VERTICALLY. CONFIRM MOUNTING LOCATION AND REQUIRED DIMENSIONS WITH ARCHITECT.
6. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING DETAILS.

TYPE	DESCRIPTION	LAMP COLOR	LAMP LUMENS	BALLAST/DRIVER CRI	DIM LEVEL	VOLTAGE	APPARENT LOAD	MANUFACTURER	CATALOG SERIES	FINISH	MOUNTING	REMARKS
D1	4" RECESSED LED DOWNLIGHT; 0-10V DIMMING, 3500K, 1500 LUMENS, SEMI SPECULAR CLEAR	3500	1500	90+	10%	277 V	15 VA	HALO PRESCOLITE INTENSE	HC4 LFR SD4DR	STD	RECESS	
D1W	SAME AS TYPE "D1" EXCEPT WET LOCATION RATED	3500	1500	90+	10%	277 V	15 VA	HALO PRESCOLITE INTENSE	HC4 LFR SD4DR	STD	RECESS	
D2	2" ADJUSTABLE RECESSED LED DOWNLIGHT; 0-10V DIMMING, 3500K, 1500 LUMENS, SEMI SPECULAR CLEAR	3500	900	90+	10%	277 V	15 VA	JUNO ALPHABET LIGHTING INTENSE	2LEDTRIM 624 XS2	STD	RECESS	
EB1	CAMPUS STANDARD LED BOLLARD; 8" ROUND EXTRUDED ALUMINUM SHAFT, HIGH-IMPACT CLEAR ACRYLIC LENS AND WELDED FLAT TOP CAP, IP66 RATED, EXPECTED LIFE OF 100,000 HOURS	3000	947	90+	N/A	277 V	28 VA	KIM	VRB1	BLACK	BOLLARD	2, $1350 ALLOWANCE
EM1	EMERGENCY EGRESS BATTERY FIXTURE; ARCHITECTURAL RECTILINEAR DESIGN, 0-10V DIMMING, INTEGRAL EMERGENCY BATTERY, FORWARD THROW OPTIC, WET LOCATION RATED, M-VOLT, 90 CRI	3000	1200	90+	10%	277 V	10 VA	LITHONIA HUBBELL PERFORMANCE IN LIGHTING	WDGE1 RWL1 SH2	BLACK	WALL	
EP4	4' SURFACE MOUNTED EXPLOSION PROOF LED FIXTURE; FACTORY SEALED, CORROSION RESISTANT, ALUMINUM ALLOY, CLASS 1 DIV. 1 RATED, WET LOCATION RATED, 0-10V DIMMING DRIVER	3500	5000	90+	10%	277 V	37 VA	HOLOPHANE RED SKY LIGHTING LIGHT LOGIX	HXPL BLK LLEX	STD	PENDANT	
ER1	4' SURFACE MOUNTED EXTERIOR RECESSED LED STRIP LIGHT, 300 LUMENS /FT, MVOLT, FROSTED CLEAR ACRYLIC LENS, 0-10V DIMMING	3000	300/FT	90+	10%	277 V	17 VA	HYDREL INSIGHT ALW	HLF501 ME LP3	BLACK	SURFACE	3
ES1	EXTERIOR RECESSED LED, LINE VOLTAGE, STEP/WALL LIGHT, DIECAST ALUMINUM HOUSING, WET LOCATION RATED, DIMMABLE, 3000K, 1500 LUMENS	3000	1500	90+	10%	277 V	15 VA	KUZCO BEGA PERFORMANCE IN LIGHTING	NEWPORT 33054 IN3	BLACK	RECESSED	
EW1	EXTERIOR WALL MOUNTED ARCHITECTURAL AREA LIGHT, FULL CUT OFF, WET LOCATION RATED, 3000K, 90+ CRI, 0-10V DIMMING, EMERGENCY BATTERY	3000	1200	90+	10%	277 V	10 VA	LITHONIA HUBBELL PERFORMANCE IN LIGHTING	WDGE2 RWL1 SH2	BLACK	WALL	
EW3	EXTERIOR WALL MOUNTED ARCHITECTURAL AREA LIGHT, FULL CUT OFF, WET LOCATION RATED, 3000K, 90+ CRI, 0-10V DIMMING, EMERGENCY BATTERY	3000	750	90+	10%	277 V	4 VA	LITHONIA HUBBELL PERFORMANCE IN LIGHTING	WDGE1 RWL1 SH2	BLACK	WALL	
EW5	DECORATIVE EXTERIOR WALL MOUNTED ARCHITECTURAL SCONCE, FULL CUT OFF, WET LOCATION RATED, 3000K, 90+ CRI, 0-10V DIMMING, BLACK FINISH	3000	3435	90+	10%	277 V	44 VA	WAC OR AS APPROVED BY ARCHITECT	DC-WD06	BLACK		
I	15" SUSPENDED ROUND LED HIGH BAY, DIE CAST ALUMINUM HOUSING, UNVIERSAL VOLTAGE, 0-10V DIMMING, IMPACT RESISTANT, GASTKETED AND SEALED, WET LOCATION RATED	3500	14444	90+	10%	277 V	101 VA	COLUMBIA DAYBRITE	CRN HCY	STD	PENDANT	
L4	4' RECESSED LINEAR LED WITH 4" APERATURE, 0-10V DIMMING, 90+ CRI, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	32 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
L4A	SAME AS TYPE "L4" EXCEPT WITH ASYMETRIC DISTRIBUTION	3500	800/FT	90+	10%	277 V	32 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
L6	6' RECESSED LINEAR LED WITH 4" APERATURE, 0-10V DIMMING, 90+ CRI, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	48 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
L6A	SAME AS TYPE "L6" EXCEPT WITH ASYMETRIC DISTRIBUTION	3500	800/FT	90+	10%	277 V	48 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
L7	7' RECESSED LINEAR LED WITH 4" APERATURE, 0-10V DIMMING, 90+ CRI, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	56 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
L8	8' RECESSED LINEAR LED WITH 4" APERATURE, 0-10V DIMMING, 90+ CRI, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	64 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
L10	10' RECESSED LINEAR LED WITH 4" APERATURE, 0-10V DIMMING, 90+ CRI, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	600/FT	90+	10%	277 V	80 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
L12	12' RECESSED LINEAR LED WITH 4" APERATURE, 0-10V DIMMING, 90+ CRI, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	96 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
L16A	16.5' RECESSED LINEAR LED WITH 4" APERATURE AND ASYMETRIC DISTRIBUTION 0-10V DIMMING, 90+ CRI, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS,	3500	800/FT	90+	10%	277 V	132 VA	MARK ARCH LIGHTING FINELITE ALW	SL4L HP4 LP3	STD	RECESSED	5,6
M	12' TOTAL LENGTH, 4' SECTION LINEAR LED "Z-SHAPED" FIXTURE WITH 2" APERATURE, 0-10V DIMMING, STANDARD DIFFUSER, ADJUSTABLE AIR-CRAFT CABLES, ALLUMINUM HOUSING, 90+ CRI	3500	400/FT	90+	10%	277 V	112 VA	CORONET FLUXWERX AXIS	JOINT LN1 STFC	BLACK	PENDANT	1,4
P4	4' LINEAR SUSPENDED LINEAR LED PENDANT WITH 4" APERATURE, 0-10V DIMMING, 90+ CRI, ADJUSTABLE AIR CRAFT CABLES, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	600/FT	90+	10%	277 V	24 VA	MARK ARCH LIGHTING FINELITE ALW	S4LD HP4 LP3	STD	PENDANT	1
P4(EM)	SAME AS TYPE "P4" EXCEPT WITH EMERGENCY BATTERY	3500	600/FT	90+	10%	277 V	24 VA	MARK ARCH LIGHTING FINELITE ALW	S4LD HP4 LP3	STD	PENDANT	
P5	5' LINEAR SUSPENDED LED PENDANT WITH 4" APERATURE, 0-10V DIMMING, 90+ CRI, ADJUSTABLE AIR CRAFT CABLES, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	600/FT	90+	10%	277 V	29 VA	MARK ARCH LIGHTING FINELITE ALW	S4LD HP4 LP3	STD	PENDANT	1
P8	8' LINEAR SUSPENDED LINEAR DIRECT/INDIRECT LED PENDANT WITH 4" APERATURE	3500	800D/FT 600i/FT	90+	10%	277 V	97 VA	MARK ARCH LIGHTING FINELITE ALW	S4LID HP4 HB3	STD	PENDANT	1
R4	4' RECESSED LINEAR LED WITH 6" APERATURE, 0-10V DIMMING, 90+ CRI, ADJUSTABLE AIR CRAFT CABLES, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	32 VA	MARK ARCH LIGHTING FINELITE ALW	SL6L HP6 LP5RT	STD	RECESSED	
R6	6' RECESSED LINEAR LED WITH 6" APERATURE, 0-10V DIMMING, 90+ CRI, ADJUSTABLE AIR CRAFT CABLES, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	48 VA	MARK ARCH LIGHTING FINELITE ALW	SL6L HP6 LP5RT	STD	RECESSED	
R8	8' RECESSED LINEAR LED WITH 6" APERATURE, 0-10V DIMMING, 90+ CRI, ADJUSTABLE AIR CRAFT CABLES, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	64 VA	MARK ARCH LIGHTING FINELITE ALW	SL6L HP6 LP5RT	STD	RECESSED	
R10	10' RECESSED LINEAR LED WITH 6" APERATURE, 0-10V DIMMING, 90+ CRI, ADJUSTABLE AIR CRAFT CABLES, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	80 VA	MARK ARCH LIGHTING FINELITE ALW	SL6L HP6 LP5RT	STD	RECESSED	5
R12	12' RECESSED LINEAR LED WITH 6" APERATURE, 0-10V DIMMING, 90+ CRI, ADJUSTABLE AIR CRAFT CABLES, UNIVERSAL VOLTAGE, 70% LUMEN MAINTANENCE AT 237,000 HOURS	3500	800/FT	90+	10%	277 V	96 VA	MARK ARCH LIGHTING FINELITE ALW	SL6L HP6 LP5RT	STD	RECESSED	5
S4	4' LINEAR, SURFACE MOUNTED, LED STRIPLIGHT, 4100 LUMENS, 3500K, 0 - 10V DIMMING	3500	4100	90+	10%	277 V	35 VA	LITHONIA COLUMBIA INDUSTRIAL LIGHTING PRODUCTS	CSS CSL4 SS4	STD	SURFACE	
T22	ARCHITECTURAL RECESSED 2'X2' LED LUMINAIRE WITH FACETED LENS, 0-10V DIMMING, 3000 LUMENS, 3500K, 90+CRI	3500	3000	90+	10%	277 V	31 VA	FOCAL POINT FINELITE LEDALITE	FACETTA HPR 42SS	STD	RECESSED	
VM1	84"x42" BACK-LIT LED GLASS MIRROR, 0-10V DIMMING, 3500K, 90+ CRI, UNIVERSAL VOLTAGE	3500	CUSTOM	90+	10%	277 V	42 VA	SCOTT ARCHITECTURAL LIGHTING PARIS MIRROR MATRIX MIRRORS	SM030 VERAX L03	STD	WALL	
VM2	30"x48" BACK-LIT LED GLASS MIRROR, 0-10V DIMMING, 3500K, 90+ CRI, UNIVERSAL VOLTAGE	3500	CUSTOM	90+	10%	277 V	81 VA	SCOTT ARCHITECTURAL LIGHTING TERON LIGHTING MATRIX MIRRORS	SM010 8300K L01	STD	WALL	
VM3	24"x40" BACK-LIT LED GLASS MIRROR, 0-10V DIMMING, 3500K, 90+ CRI, UNIVERSAL VOLTAGE	3500	CUSTOM	90+	10%	277 V	81 VA	SCOTT ARCHITECTURAL LIGHTING TERON LIGHTING MATRIX MIRRORS	SM010 8300K L01	STD	WALL	
W1	SAME AS TYPE "R4" EXCEPT WALL MOUNTED VERSION	3500	800/FT	90+	10%	277 V	48 VA	MARK ARCH LIGHTING FINELITE ALW	SNLED MPS4 SS4	STD	SURFACE	
W4	SAME AS TYPE "S4" EXCEPT WALL MOUNTED	3500	4100	90+	10%	277 V	35 VA	LITHONIA COLUMBIA INDUSTRIAL LIGHTING PRODUCTS	CSS CSL4 SS4	STD	SURFACE	
X1	SINGLE FACE LED EDGELIT EXIT SIGN, AC ONLY	N/A	N/A	N/A	N/A	277 V	4 VA	LITHONIA EXITRONIX	EDG1 900 SERIES	STD	SURFACE	
X1B	SINGLE FACE LED EDGELIT EXIT SIGN, BATTERY	N/A	N/A	N/A	N/A	277 V	4 VA	LITHONIA EXITRONIX	EDG1 900 SERIES	STD	SURFACE	
X2	DOUBLE FACE LED EDGELIT EXIT SIGN	N/A	N/A	N/A	N/A	277 V	4 VA	LITHONIA EXITRONIX	EDG1 900 SERIES	STD	SURFACE	
X3	SAME AS TYPE "X1" EXCEPT STEM MOUNTED	N/A	N/A	N/A	N/A	277 V	4 VA	LITHONIA EXITRONIX	EDG1 900 SERIES	STD	PENDANT	
X4	THERMOPLASTIC LED EXIT SIGN, EXTERIOR RATED, WHITE HOUSING WITH GREEN LETTERS	N/A	N/A	N/A	N/A	277 V	4 VA	LITHONIA EXITRONIX EELP	WLTE GVEX SPWLEX	STD	SURFACE	

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ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

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CHECKED: MJH/JAH
APPROVED: JAH
DATE: 10/26/2022

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
ELECTRICAL SCHEDULES

SCALE:
SHEET NUMBER
E-002

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COMcheck Software Version 4.1.5.5

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Anschutz Engineering Center
Project Type: Addition

Construction Site:
1420 Austin Bluffs Pkwy
Colorado Springs, CO 80918

Owner/Agent:
UCCS
1420 Austin Bluffs Pkwy
Colorado Springs, CO 80918

Designer/Contractor:
Matt Hutchison
Cator Ruma and Associates
896 Tabor Street
Lakewood, CO
303-462-6200 x8869
mhutchison@catorruma.com

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Common Space Types:Laboratory For Medical/Industrial/Research	20580	1.45	29841
2-Common Space Types:Workshop	3438	1.14	3919
		Total Allowed Watts =	33760

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Common Space Types:Laboratory For Medical/Industrial/Research				
LED: D1: Other:	1	33	15	495
LED: D1W: Other:	1	1	15	15
LED: D2: Other:	1	3	15	45
LED: EP4: Other:	1	16	37	592
LED: L4: Other:	1	3	32	96
LED: L4A: Other:	1	2	32	64
LED: L6: Other:	1	2	48	96
LED: L6A: Other:	1	1	48	48
LED: L7: Other:	1	1	56	56
LED: L8: Other:	1	2	64	128
LED: L10: Other:	1	2	80	160
LED: L12: Other:	1	1	96	96
LED: L16A: Other:	1	1	132	132
LED: M: Other:	1	27	112	3024
LED: P4: Other:	1	28	24	672
LED: P5: Other:	1	21	29	609
LED: P8: Other:	1	22	97	2134
LED: R4: Other:	1	59	32	1888
LED: R6: Other:	1	45	48	2160
LED: R8: Other:	1	8	64	512

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
LED: R10: Other:	1	2	80	160
LED: R12: Other:	1	1	96	96
LED: S4: Other:	1	17	35	595
LED: T22: Other:	1	6	31	186
LED: T24: Other:	1	2	38	76
LED: UC4: Other:	1	4	9	36
LED: VM1: Other:	1	4	42	168
LED: VM2: Other:	1	4	81	324
LED: W4: Other:	1	20	35	700
LED: X1: Other:	1	27	4	108
LED: X2: Other:	1	1	4	4
LED: X3: Other:	1	2	4	8
LED: X4: Other:	1	1	4	4
2-Common Space Types:Workshop				
LED copy 1: D1: Other:	1	2	15	30
LED copy 1: I: Other:	1	24	101	2424
LED copy 1: P4: Other:	1	4	49	196
LED copy 1: P4(EM): Other:	1	4	49	196
LED copy 1: R4: Other:	1	5	32	160
LED copy 1: S4: Other:	1	10	35	350
LED copy 1: VM2: Other:	1	2	81	162
LED copy 1: W4: Other:	1	1	35	35
LED copy 1: X1: Other:	1	2	4	8
			Total Proposed Watts =	19048

Interior Lighting PASSES: Design 44% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in *COMcheck* Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

Matthew J. Hutchison

Digitally signed by Matthew J. Hutchison
DN: C=US, E=mhutchison@catorruma.com, CN=Matthew J. Hutchison
Date: 2022.10.24 11:02:24-06'00'

COMcheck Software Version 4.1.5.5

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% were addressed directly in the *COMcheck* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Automatic-on controls are allowed in corridors, stairways, restrooms, primary building entrance areas and lobbies, and areas where manual-on controls could impact safety or security.
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.2.2, C405.2.2.1, C405.2.2.2 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Lighting that is related to means of egress in stairways, ramps, corridors, or emergency routes.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3, C405.2.3.1, C405.2.3.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.2.4 [EL26][1]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.2.4 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.3 [EL6][1]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.6 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.7 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.8.2, C405.8.2.1 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.9 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][1]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.4.1 [FI18][1]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.1 [FI16][1]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
COMcheck

SCALE:
SHEET NUMBER

E-003

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TRANSFORMER SCHEDULE

NOTES:

1. **OVERCURRENT PROTECTION IS SIZED PER NEC 450.3.**
2. **ALL CONDUCTORS ARE COPPER. SEE PLANS FOR INCREASED CONDUCTOR SIZES DUE TO VOLTAGE DROP, ETC.**
3. **SECONDARY BONDING AND GROUNDING CONDUCTORS ARE SIZED PER NEC 250.66 AND 250.102.**
4. **DIMENSIONS, WEIGHTS & BTUH OUTPUT SHOWN ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS MAY VARY FROM MANUFACTURER TO MANUFACTURER.**
5. **FOR K-RATED TRANSFORMERS, PROVIDE PARALLEL NEUTRAL CONDUCTORS LUGS AT TRANSFORMERS, LOW VOLTAGE PANELBOARD, DISCONNECTS AND/OR LOAD.**
6. **CONDUIT 40% FILL RATIO IS BASED ON EMT.**

	PRIMARY						SECONDARY					GEC		DIMENSIONS					
KEY	PRI FLA 480V	SEC FLA 208V	CB	SWITCH	FUSE	CONDUCTORS	°C	CB	SWITCH	FUSE	CONDUCTORS	°C	CNDTRS	°C	HIGH	WIDE	DEEP	WEIGHT	BTUH OTPT	NOTE
T30	36.1	83.3	45 A 3 P	60 A 3 P	FRS-R- 45	3 # 6 , 1 # 10 G	1	100 A 3 P	100 A 3 P	FRN-R- 100	4 # 1 , 1 # 6 G	1-1/2	1 # 6	3/4	30.00	20.13	16.00	370	5753	
T112.5	135.3	312.3	175 A 3 P	200 A 3 P	FRS-R- 175	3 # 2/0 , 1 # 6 G	2	400 A 3 P	400 A 3 P	FRN-R- 400	2 [4 # 3/0 , 1 # 2 G	2]	1 # 1/0	3/4	39.25	30.00	24.00	725	14168	
T225	270.6	624.5	350 A 3 P	400 A 3 P	FRS-R- 350	3 # 500 , 1 # 3 G	3	750 A 3 P	800 A 3 P	KRP-C- 750	2 [4 # 500 , 1 # 2/0 G	3]	1 # 2/0	3/4	62.25	35.00	30.50	1800	23157	

FAULT CURRENT CALCULATIONS *(UTILIZES THE BUSSMAN CALCULATION METHOD AND TABLES)*

CONTRACTORS ARE RESPONSIBLE FOR ACTUAL FEEDER DISTANCES AND FIELD CONDITIONS IN PROJECT BID AND SCOPE.

Description	Voltage	Ph	Length (FT)	# of Run(s)	"C" value	Transformer KVA	Transformer %Z	Transformer Prim. Voltage	Transformer Sec. Voltage	Available Fault Current (ISC)
At 500 kVA Utility Co Trans										33400
At "MDC"	480	3	115	3	26706					28479
At Elevator	480	3	73	1	981					3297
At "HL1A"	480	3	8	1	5906					25003
At Transfer switch "ATS-EM"	480	3	15	1	7292					23514
At "EMH1"	480	3	5	1	7292					22223
At T30kVA	480	3	8	1	7292					21514
Thru T30kVA						30	3.2	480	208	2479
At "EML1"	208	3	10	1	7292					2411
At T225kVA	480	3	8	1	22185					27463
Thru 225kVA						225	3.2	480	208	14935
At "LL1A"	208	3	6	2	22185					14688
At "LL2A"	208	3	20	2	12843					13413
At "LL2B"	208	3	15	1	5906					10451
At "LL3A"	208	3	30	2	12843					11866
At "LL3B"	208	3	81	1	12843					7314
At "PMDP"	480	3	125	2	19703					21484
At "HMPH"	480	3	8	1	7292					19802
At T30kVA	480	3	10	1	7292					18037
Thru T30kVA						30	3.2	480	208	2452
At "LMPH"	208	3	10	1	7292					2385
At "AHU-01"	480	3	32	1	12843					18009

EXISTING 500kVA TRANSFORMER LOAD SUMMARY

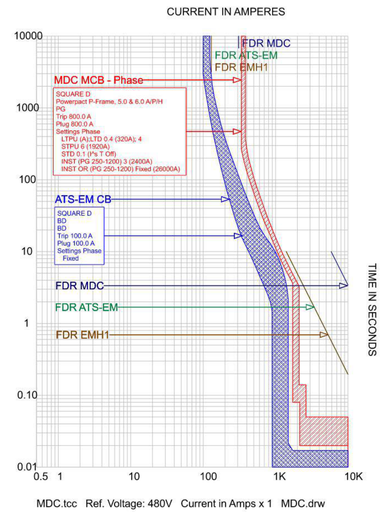
SERVICE ENTRANCE TRANSFORMER	500	KVA
EXISTING PEAK DEMAND	256.72	KVA
NEC DEMAND FACTOR	x 125%	
NEC CORRECTED PEAK DEMAND LOAD	320.9	KVA
NEW LOAD ADDED	474.77	KVA
NEW TOTAL BUILDING LOAD	795.67	KVA

FEEDER SCHEDULE

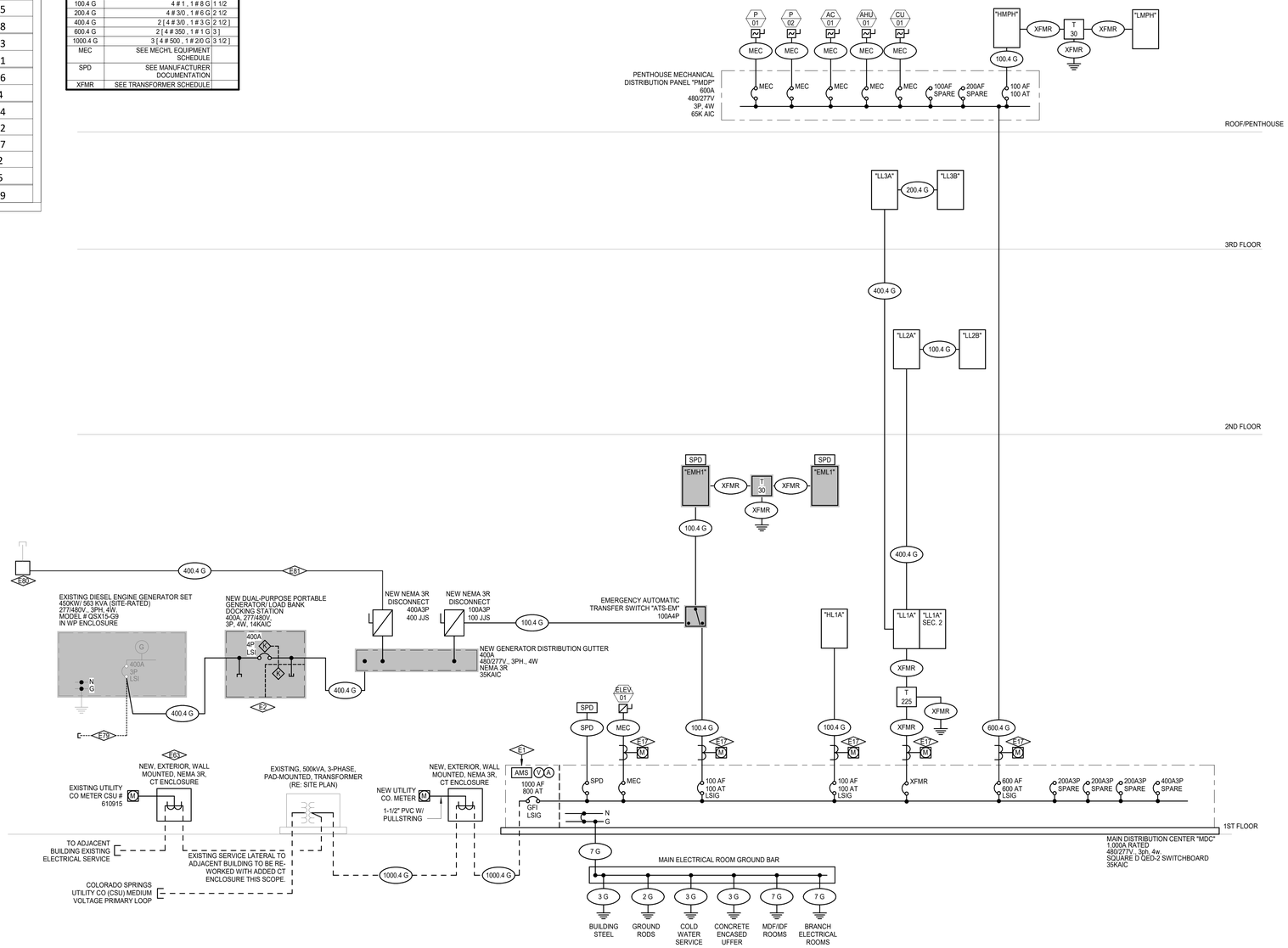
KEY	CONDUCTORS	°C
2 G	1 # 6 G	3/4
3 G	1 # 4 G	3/4
7 G	1 # 3/0 G	3/4
100.4 G	4 # 1 , 1 # 8 G	1 1/2
200.4 G	4 # 3/0 , 1 # 6 G	2 1/2
400.4 G	2 [4 # 3/0 , 1 # 3 G	2 1/2]
600.4 G	2 [4 # 350 , 1 # 1 G	3]
1000.4 G	3 [4 # 500 , 1 # 2/0 G	3 1/2]
MEC	SEE MECH'L EQUIPMENT SCHEDULE	
SPD	SEE MANUFACTURER DOCUMENTATION	
XFMR	SEE TRANSFORMER SCHEDULE	

KEYNOTES

E1	PROVIDE AN ALTERNATE MAINTENANCE SWITCH AS PER NEC 240.87. WHEN THE SWITCH IS SET IN THE MAINTENANCE MODE, AN INDICATOR LIGHT SHALL BE ILLUMINATED AND THE SHORT-TIME DELAY SETTING OF THE MAIN CIRCUIT BREAKER SHALL BE TEMPORARILY REDUCED.
E2	PORTABLE GENERATOR CAMLOCK TERMINATIONS LOCATED BEHIND KIRK-KEYED ACCESS DOOR ON DOCKING STATION. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
E17	TYPICAL FOR END USE METER(S). PROVIDE DIGITAL DATA LOGGING POWER METERING FOR LOADS INDICATED. AS PER THE 2021 IECC. INTEGRATE POWER METERING WITH BAS SYSTEM. PROVIDE eGAUGE OR APPROVED EQUAL. CT SHALL BE WITHIN 2% ACCURACY.
E63	CONTRACTOR TO WORK WITH COLORADO SPRINGS UTILITIES (CSU) AND THE UNIVERSITY OF COLORADO, COLORADO SPRINGS (UCCS) FACILITIES TO RE-WORK THE EXISTING METERING, CURRENTLY WITHIN THE SECONDARY CABINET OF THE EXISTING TRANSFORMER FOR THE ADJACENT BUILDING (BERGER HALL). METERING EQUIPMENT IS TO BE REMOVED FROM EXISTING TRANSFORMER SECONDARY AND BE PROVIDED IN NEW, EXTERIOR, MOUNTED WALL, NEMA 3R, CT ENCLOSURE. COORDINATE EXACT LOCATION OF NEW CT ENCLOSURE WITH UCCS FACILITIES AND CSU.
E79	DISCONNECT AND REMOVE EXISTING GENERATOR FEEDERS FROM GENERATOR LOCATION TO LOCATION OF NEW VAULT (RE: SITE PLAN); (2) 3" CONDUITS AND (1) 1" CONDUIT THAT SERVE THE UNIVERSITY CENTER.
E80	PROVIDE NEW TAP BOX TO INTERCEPT AND CONNECT TO EXISTING GENERTOR FEEDERS THAT SERVE THE UNIVERSITY CENTER. FIELD VERIFY EXACT LOCATION OF CONDUITS, QUANTITY OF CONDUITS, AND SIZE OF CONDUITS PRIOR TO WORK. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES IDENTIFIED IN THE FIELD.
E81	REFER TO SITE PLAN FOR THE PROPOSED RE-ROUTING OF EXISTING GENERATOR FEEDERS, FROM NEW GENERATOR DISTRIBUTION GUTTER AT THE BACK OF THE EXISTING GENERATOR ENCLOSURE, ROUTE SURFACE MOUNTED CONDUIT ALONG THE EXTERIOR OF THE GENERATOR ENCLOSURE, TRANSITION UP THE SIDE OF THE WALL OF THE EXISTING ENGINEERING APPLIED SCIENCES (EAS) BUILDING, OVER THE PARAPET AND ONTO THE ROOF. ROUTE FEEDERS ALONG THE INSIDE EDGE OF THE PARAPET TO CONCEAL CONDUITS FROM VIEW. RUN CONDUITS ACROSS THE ROOF AND TRANSITION INTO VERTICAL CHASE (ARCHITECTURAL COLUMN). TRANSITION THE CONDUITS TO UNDERGROUND AND ROUTE TO NEW BUILDING VIA DIRECTIONAL BORING. UNDERGROUND FEEDERS SHALL BE ENCASED IN CONCRETE DUCTBANK. UNDERGROUND FEEDER ROUTING, SHOWN AS DASHED LINES, ID DIAGRAMATIC. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS. REFER TO ONE LINE DIAGRAM, SITE PLAN, CIVIL PLANS, AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.



MDC.tcc Ref. Voltage: 480V Current in Amps x 1 MDC.drw



ELECTRICAL ONE-LINE DIAGRAM - LAB BUILDING

SCALE: NONE

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ISSUED FOR: CONSTRUCTION DOCUMENTS

SHEET TITLE: ELECTRICAL ONE-LINE DIAGRAM

SCALE: As indicated
SHEET NUMBER

E-011

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Panel SDP

Location: ELEC S108 | **Voltage:** 480/277 Wye | **A.I.C. Rating:** 18000
Supply From: | **Phase:** 3 | **Mains Type:** MCB
Mounting: Surface | **Wire:** 4 | **Bus Rating:** 400 A
Enclosure: Type 1 | **MCB Rating:** 400 A

Circuit Notes:
1. REFER TO ONELINE DIAGRAM FOR OVERCURRENT DEVICE SIZE.

Note	Circ...	Load	Type	Trip	Po...	A	B	C	Po...	Trip	Type	Load	Circ...	Note
	1	SURGE PROTECTOR DEVICE (SPD)	--	0 A	3	0 VA	6667 VA		3	40 A	M	ECH-1 ELECTRIC COIL HEATER	2	
1	3						0 VA	6667 VA					4	
	5							0 VA 6667 VA					6	
	7		Spare; M; L	250 A	3	16087...	3048 VA		3	20 A	M	AC-2 AIR COMPRESSOR	8	
	9	PANEL "HS1"					17672...	3048 VA					10	
	11							15457... 3048 VA					12	
	13	PANEL "LS1" VIA T112.5	Spare; C; R; G; M	175 A	3	31277...	0 VA		1	20 A	--	SPARE	14	
	15					30329...	0 VA		1	20 A	--	SPARE	16	
	17							19371... 0 VA	1	20 A	--	SPARE	18	
	19	EUH-5 ELECTRIC UNIT HEATER	M	40 A	3	8333 VA	0 VA		1	20 A	--	SPARE	20	
	21						8333 VA	0 VA	1	20 A	--	SPARE	22	
	23							8333 VA 0 VA	1	20 A	--	SPARE	24	
	25	EUH-6 ELECTRIC UNIT HEATER	M	40 A	3	8333 VA	0 VA		1	20 A	--	SPARE	26	
	27						8333 VA	0 VA	1	20 A	--	SPARE	28	
	29							8333 VA 0 VA	1	20 A	--	SPARE	30	
	31	EUH-7 ELECTRIC UNIT HEATER	M	40 A	3	8333 VA	0 VA		1	20 A	--	SPARE	32	
	33						8333 VA	0 VA	1	20 A	--	SPARE	34	
	35							8333 VA 0 VA	1	20 A	--	SPARE	36	
	37	WJT-01 WATERJET	M	50 A	3	10531...	0 VA		1	20 A	--	SPARE	38	
	39						10531...	0 VA	1	20 A	--	SPARE	40	
	41							10531... 0 VA	1	20 A	--	SPARE	42	
				Total Load:		92609 VA	93247 VA	80074 VA						
				Total Amps:		341 A	344 A	289 A						
				Phase Balance:		1 % A-B	19 % B-C	18 % C-A						

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	3443 VA	125.00%	4303 VA	**Power Factor:**	1
R	Receptacle	42339 VA	61.81%	26169 VA		
M	Motor	198724 VA	103.97%	206622 VA	**Total Connected Load:**	265930 VA
C	Continuous	21000 VA	125.00%	26250 VA	**Total Connected Current:**	320 A
G	General	425 VA	100.00%	425 VA		
K	Kitchen	0 VA	0.00%	0 VA	**Total Demand Load:**	263770 VA
E	Existing	0 VA	0.00%	0 VA	**Total Demand Current:**	317 A
O	Other	0 VA	0.00%	0 VA		

Panel HS1

Location: ELEC S108 | **Voltage:** 480/277 Wye | **A.I.C. Rating:** 18000
Supply From: SDP | **Phase:** 3 | **Mains Type:** MLO
Mounting: Surface | **Wire:** 4 | **Bus Rating:** 100 A
Enclosure: Type 1

Circuit Notes:
1. PROVIDE BRANCH CIRCUIT LEVEL METERING.

Note	Circ...	Load	Type	Trip	Po...	A	B	C	Po...	Trip	Type	Load	Circ...	Note
	1	EUH-1 ELECTRIC UNIT HEATER	M	20 A	3	3333 VA	3333 VA		3	20 A	M	EUH-4 ELECTRIC UNIT HEATER	2	
	3							3333 VA 3333 VA					4	
	5							3333 VA 3333 VA					6	
	7	ERV-1 ENERGY RECOVERY UNIT	M	15 A	3	831 VA	0 VA		1	20 A	--	SPARE	8	
	9						831 VA	0 VA	1	20 A	--	SPARE	10	
	11							831 VA 0 VA	1	20 A	--	SPARE	12	
	13	CU-2 CONDENSING UNIT	M	20 A	3	4711 VA	0 VA		1	20 A	--	SPARE	14	
	15						4711 VA	0 VA	1	20 A	--	SPARE	16	
	17							4711 VA 0 VA	1	20 A	--	SPARE	18	
1	19	L-NW SHOP	L	20 A	1	829 VA	0 VA		1	20 A	--	SPARE	20	
1	21	L-SAE/SHP/WRK SHP	L	20 A	1		2414 VA	0 VA	1	20 A	--	SPARE	22	
1	23	L-EXTERIOR LIGHTS	L	20 A	1			199 VA 0 VA	1	20 A	--	SPARE	24	
	25	SPARE	--	20 A	1	0 VA	0 VA		1	20 A	--	SPARE	26	
	27	SPARE	--	20 A	1		0 VA	0 VA	1	20 A	--	SPARE	28	
	29	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	30	
	31	SPARE	--	20 A	1	0 VA	0 VA		1	20 A	--	SPARE	32	
	33	SPARE	--	20 A	1		0 VA	0 VA	1	20 A	--	SPARE	34	
	35	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	36	
	37	SPARE	--	20 A	1	0 VA	3048 VA						38	
	39	SPARE	--	20 A	1		0 VA	3048 VA	3	20 A	M	CHILLER WATER JET CHILLER	40	1
	41	SPARE	--	20 A	1			0 VA 3048 VA					42	
				Total Load:		16087 VA	17672 VA	15457 VA						
				Total Amps:		58 A	64 A	56 A						
				Phase Balance:		10 % A-B	15 % B-C	5 % C-A						

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	3443 VA	125.00%	4303 VA	**Power Factor:**	1
R	Receptacle	0 VA	0.00%	0 VA		
M	Motor	45773 VA	107.72%	49306 VA	**Total Connected Load:**	49216 VA
C	Continuous	0 VA	0.00%	0 VA	**Total Connected Current:**	59 A
G	General	0 VA	0.00%	0 VA		
K	Kitchen	0 VA	0.00%	0 VA	**Total Demand Load:**	53610 VA
E	Existing	0 VA	0.00%	0 VA	**Total Demand Current:**	64 A
O	Other	0 VA	0.00%	0 VA		

General Notes:

Panel LS1

Location: ELEC S108 | **Voltage:** 120/208 Wye | **A.I.C. Rating:** 10000
Supply From: T112.5 | **Phase:** 3 | **Mains Type:** MCB
Mounting: Surface | **Wire:** 4 | **Bus Rating:** 400 A
Enclosure: Type 1 | **MCB Rating:** 400 A

Circuit Notes:
1. PROVIDE GFCI CIRCUIT BREAKER

Note	Circ...	Load	Type	Trip	Po...	A	B	C	Po...	Trip	Type	Load	Circ...	Note
	1	CONF. RM TV	R	20 A	1	300 VA	360 VA		1	20 A	R	ROOF SERVICE RECEP	2	
	3	CONF. RM RECEP	R	20 A	1			900 VA 2162 VA					4	
	5	CONF. RM RECEP	R	20 A	1				540 VA	2162 VA	3	25 A R SHOP MILL 01	6	
	7	REC TOOLS/ MTRL S106	R	20 A	1	180 VA	2162 VA						8	
1	9	CORRIDOR 100 EWC	G	20 A	1			425 VA 1681 VA					10	
	11	CORRIDOR 100 RECEP	R	20 A	1				540 VA	1681 VA	3	20 A R SHOP MILL 02	12	
	13	RESTROOM SINK VALVE	R	20 A	1	360 VA	1681 VA						14	
	15	EF-3 EXHAUST FAN-3	M	20 A	1			562 VA 1535 VA					16	
	17	SR CAP. RECEP	R	20 A	1				360 VA	1535 VA	3	25 A R SHOP LATHE LAT-01	18	
	19	SR CAP. RECEP	R	20 A	1	360 VA	1535 VA						20	
	21	SR CAP. RECEP	R	20 A	1			360 VA 1535 VA					22	
	23	SR CAP. RECEP	R	20 A	1				180 VA	1535 VA	3	20 A R SHOP LATHE LAT-02	24	
	25	SR CAP. CLG. RECEP	R	20 A	1	180 VA	1535 VA						26	
	27	SR CAP. CLG. RECEP	R	20 A	1			180 VA 1860 VA			1	20 A R SHOP SAW	28	
	29	SR CAP. QUAD RECEP	R	20 A	1				360 VA	180 VA	1	20 A R SHOP RECEP	30	
	31	SR CAP. QUAD RECEP	R	20 A	1	360 VA	180 VA				1	20 A R SHOP RECEP	32	
	33	SR CAP. CTR. RECEP	R	20 A	1			180 VA 180 VA			1	20 A R SHOP OH DOOR	34	
	35								1000 VA	180 VA	1	20 A R SHOP CLG. RECEP	36	
	37	SHOP 14A-105 BUS	R; M	20 A	3	1000 VA	250 VA				1	20 A R BAS / TEMP CNTRL PNL	38	
	39							1000 VA 696 VA			1	20 A M TF-1 (TRANSFER FAN 1)	40	
	41	R ELEC CAR BAY S103	R	20 A	1				180 VA	180 VA	1	20 A R SHOP RECEP	42	
	43	R ELEC CAR BAY S103	R	20 A	1	180 VA	360 VA				1	20 A R SHOP RECEP	44	
	45	R ELEC CAR BAY S103	R	20 A	1			180 VA 180 VA			1	20 A R SHOP RECEP	46	
	47	R ELEC CAR BAY S103	R	20 A	1				180 VA	1380 VA	1	20 A R WATER JET FILTER	48	
	49	R ELEC CAR BAY S103	R	20 A	1	180 VA	1380 VA				1	20 A R WATER JET PUMP	50	
	51	R ELEC CAR BAY S103	R	20 A	1			360 VA 1620 VA			1	20 A R WATER JET CTRLR	52	
	53	R ELEC CAR BAY S103	R	20 A	1				180 VA	180 VA	1	20 A R SHOP RECEP	54	
	55	FACULTY RESEARCH EV CHARGER	C	50 A	2	5000 VA	360 VA				1	20 A R TELE BD QUAD	56	
	57						5000 VA	540 VA			1	20 A R EXTR REC CAPSTONE	58	
	59	FACULTY RESEARCH EV CHARGER	C	50 A	2				5000 VA	180 VA	1	20 A R CORD REEL RECEPT	60	
	61					5000 VA	180 VA				1	20 A R GANTRY CRANE	62	
	63	SAE CAR BAY BATTERY CHARGER	C	50 A	2			500 VA 360 VA			1	20 A R CONF ROOM FLR BOX	64	
	65								500 VA	70 VA	1	20 A R IRRIGATN HEAT TRACE	66	
	67	PENTHOUSE LOUVERS	R	20 A	1	400 VA	180 VA				1	20 A R AIR COMP CNTRL PNL	68	
	69	FAN COIL UNIT (FCU-1)	M	15 A	2			244 VA 900 VA			1	20 A R ELEC DR HARDWARE	70	
	71								244 VA	244 VA			72	
	73	FAN COIL UNIT (FCU-3)	M	15 A	2	442 VA	244 VA				2	15 A M FAN COIL UNIT (FCU-2)	74	
	75							442 VA 300 VA					76	
	77	FAN COIL UNIT (FCU-5)	M	15 A	2				300 VA	300 VA	2	15 A M FAN COIL UNIT (FCU-4)	78	
	79					300 VA	6448 VA						80	
	81	SPARE	--	20 A	1			0 VA 6448 VA			2	25 A M SPLIT SYSTEM (CU-5/DX-3)	82	
	83	SPARE	--	20 A	1				0 VA	0 VA	1	20 A -- SPARE	84	
	85	R-WATER ENTRY	R	20 A	1	180 VA	0 VA				1	20 A -- SPARE	86	
	87	SPARE	--	20 A	1			0 VA 0 VA			1	20 A -- SPARE	88	
	89	SPARE	--	20 A	1				0 VA	0 VA	1	20 A -- SPARE	90	
	91	SPARE	--	20 A	1	0 VA	0 VA				1	20 A -- SPARE	92	
	93	SPARE	--	20 A	1			0 VA 0 VA			1	20 A -- SPARE	94	
	95	SPARE	--	20 A	1				0 VA	0 VA	1	20 A -- SPARE	96	
	97	SPARE	--	20 A	1	0 VA	0 VA				1	20 A -- SPARE	98	
	99	SPARE	--	20 A	1			0 VA 0 VA			1	20 A -- SPARE	100	
	101	SPARE	--	20 A	1				0 VA	0 VA	1	20 A -- SPARE	102	
	103	SPARE	--	20 A	1	0 VA	0 VA				1	20 A -- SPARE	104	
	105	SPARE	--	20 A	1			0 VA 0 VA			1	20 A -- SPARE	106	
	107	SPARE	--	20 A	1				0 VA	0 VA	1	20 A -- SPARE	108	
	109	SPARE	--	20 A	1	0 VA	0 VA				1	20 A -- SPARE	110	
	111	SPARE	--	20 A	1			0 VA 0 VA			1	20 A -- SPARE	112	
	113	SPARE	--	20 A	1				0 VA	0 VA	1	20 A -- SPARE	114	
	115	SPARE	--	20 A	1	0 VA	0 VA				1	20 A -- SPARE	116	
	117	SPARE	--	20 A	1			0 VA 0 VA			1	20 A -- SPARE	118	
	119	SPARE	--	20 A	1				0 VA	0 VA	1	20 A -- SPARE	120	
	121	SPARE	--	20 A	1	0 VA	0 VA				1	20 A -- SPARE	122	
	123	SPARE	--	20 A	1			0 VA 0 VA			1	20 A -- SPARE	124	
	125	SPARE	--	20 A	1				0 VA	0 VA	1	20 A -- SPARE	126	
				Total Load:		31277 VA	30329 VA	19371 VA						
				Total Amps:		275 A	267 A	161 A						
				Phase Balance:		3 % A-B	65 % B-C	70 % C-A						

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	0 VA	0.00%	0 VA	**Power Factor:**	1
R	Receptacle	42339 VA	61.81%	26169 VA		
M	Motor	17213 VA	113.29%	19501 VA	**Total Connected Load:**	80977 VA
C	Continuous	21000 VA	125.00%	26250 VA	**Total Connected Current:**	225 A
G	General	425 VA	100.00%	425 VA		
K	Kitchen	0 VA	0.00%	0 VA	**Total Demand Load:**	72346 VA
E	Existing	0 VA	0.00%	0 VA	**Total Demand Current:**	201 A
O	Other	0 VA	0.00%	0 VA		

TRANSFORMER SCHEDULE

NOTES:
1. **OVERCURRENT PROTECTION IS SIZED PER NEC 450.3.**
2. **ALL CONDUCTORS ARE COPPER. SEE PLANS FOR INCREASED CONDUCTOR SIZES DUE TO VOLTAGE DROP, ETC.**
3. **SECONDARY BONDING AND GROUNDING CONDUCTORS ARE SIZED PER NEC 250.66 AND 250.102.**
4. **DIMENSIONS, WEIGHTS & BTUH OUTPUT SHOWN ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS MAY VARY FROM MANUFACTURER TO MANUFACTURER.**
5. **FOR K-RATED TRANSFORMERS, PROVIDE PARALLEL NEUTRAL CONDUCTORS LUGS AT TRANSFORMERS, LOW VOLTAGE PANELBOARD, DISCONNECTS AND/OR LOAD.**
6. **CONDUIT 40% FILL RATIO IS BASED ON EMT.**

			PRIMARY				SECONDARY				GEC		DIMENSIONS					
KEY	PRI FLA 480V	SEC FLA 208V	CB	SWITCH	FUSE	CONDUCTORS	°C	CB	SWITCH	FUSE	CONDUCTORS	°C	CNDTRS	°C	HIGH	WIDE	DEEP	WEIGHT	BTUH OTPT	NOTE
T30	36.1	83.3	45 A 3 P	60 A 3 P	FRS-R- 45	3 # 6 , 1 # 10 G	1	100 A 3 P	100 A 3 P	FRN-R- 100	4 # 1 , 1 # 6 G	1-1/2	1 # 6	3/4	30.00	20.13	16.00	370	5753	
T112.5	135.3	312.3	175 A 3 P	200 A 3 P	FRS-R- 175	3 # 2/0 , 1 # 6 G	2	400 A 3 P	400 A 3 P	FRN-R- 400	2 [4 # 3/0 , 1 # 2 G	2]	1 # 1/0	3/4	39.25	30.00	24.00	725	14168	
T225	270.6	624.5	350 A 3 P	400 A 3 P	FRS-R- 350	3 # 500 , 1 # 3 G	3	750 A 3 P	800 A 3 P	KRP-C- 750	2 [4 # 500 , 1 # 2/0 G	3]	1 # 2/0	3/4	62.25	35.00	30.50	1800	23157	

FEEDER SCHEDULE

KEY	CONDUCTORS	°C
2 G	1 # 6 G	3/4
3 G	1 # 4 G	3/4
7 G	1 # 3/0 G	3/4
100.4 G	4 # 1 , 1 # 8 G	1 1/2
200.4 G	4 # 3/0 , 1 # 6 G	2 1/2
400.4 G	2 [4 # 3/0 , 1 # 3 G	2 1/2]
600.4 G	2 [4 # 350 , 1 # 1 G	3]
1000.4 G	3 [4 # 500 , 1 # 2/0 G	3 1/2]
MEC	SEE MECH'L EQUIPMENT SCHEDULE	
SPD	SEE MANUFACTURER DOCUMENTATION	
XFMR	SEE TRANSFORMER SCHEDULE	

FAULT CURRENT CALCULATIONS *(UTILIZES THE BUSSMAN CALCULATION METHOD AND TABLES)*

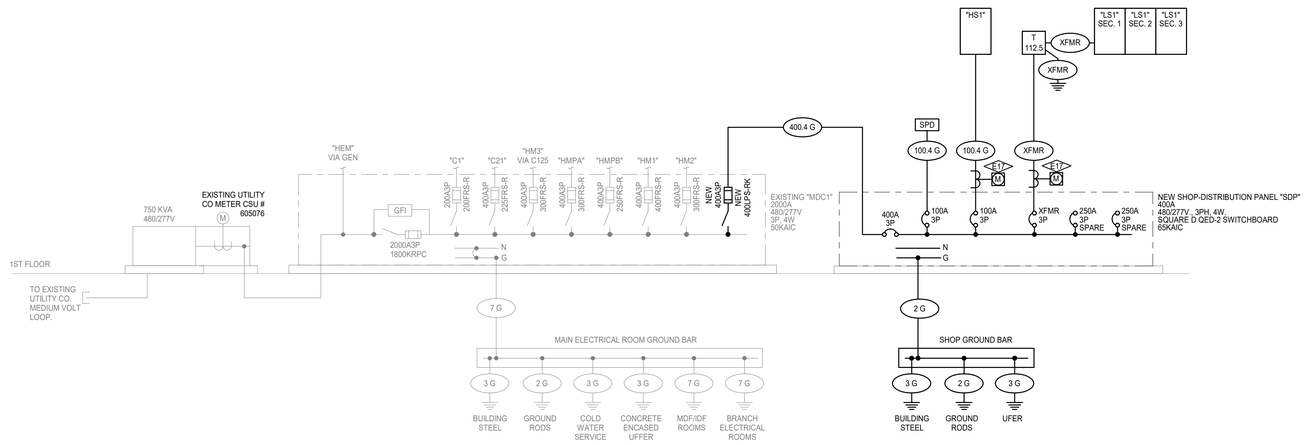
CONTRACTORS ARE RESPONSIBLE FOR ACTUAL FEEDER DISTANCES AND FIELD CONDITIONS IN PROJECT BID AND SCOPE.

Description	Voltage	Ph	Length (FT)	# of Run(s)	"C" value	Transformer KVA	Transformer %Z	Transformer Prim. Voltage	Transformer Sec. Voltage	Available Fault Current (ISC)
At 750 kVA Utility Co Trans										16900
At Extg "MDC1"	480	3	30	6	26706					16709
At New "SDP"	480	3	55	2	12843					14801
At New "HS1"	480	3	2	1	5906					14538
At T112.5kVA	480	3	10	1	10755					13863
Thru T112.5kVA						112.5	3.1	480	208	7668
At New "LS1"	208	3	6	2	12843					7555
At "CU-2"	480	3	22	1	617					3833

EXISTING "MDC1" LOAD SUMMARY

SERVICE ENTRANCE TRANSFORMER	750 KVA
EXISTING PEAK DEMAND	394.44 KVA
NEC DEMAND FACTOR	x 125%
NEC CORRECTED PEAK DEMAND LOAD	591.66 KVA
NEW LOAD ADDED	250.78 KVA
NEW TOTAL BUILDING LOAD	842.44 KVA
NEW TOTAL BUILDING LOAD (AMPS)	1013.3 AMPS

1013.3 AMPS ON 1800 AVAILABLE



ELECTRICAL ONE-LINE DIAGRAM - SHOP BUILDING

SCALE: NONE

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ISSUED FOR: CONSTRUCTION DOCUMENTS

SHEET TITLE: ELECTRICAL ONE-LINE DIAGRAM SHOP

SCALE: As indicated
SHEET NUMBER

E-012

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KEYNOTES

E7	APPROXIMATE LOCATION EXISTING PAD-MOUNTED UTILITY CO TRANFORMER. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
E8	APPROXIMATE LOCATION OF ELECTRICAL SERVICE ENTRANCE. REFER TO LEVEL ONE POWER PLANS FOR ADDITIONAL INFORMATION.
E18	APPROXIMATE LOCATION OF EXISTING UTILITY CO UNDERGROUND MEDIUM VOLTAGE SWITCH.
E19	APPROXIMATE ROUTING OF ELECTRICAL SERVICE ENTRANCE FEEDERS. COORDINATE ALL WORK WITH UTILITY COMPANY AND OTHER TRADES PRIOR TO COMMENCING WORK. REFER TO CIVIL PLANS FOR ACTUAL PROPOSED ROUTING AND ANY ADDITIONAL COORDINATION INFORMATION.
E20	APPROXIMATE LOCATION OF ELECTRICAL UTILITY METER AND EXTERIOR MOUNTED CT (CURRENT TRANSFORMER). REFER TO ONELINE DIAGRAM AND DETAILS FOR MORE INFORMATION. INSTALLATION SHALL COMPLY WITH CSU'S 2022 ELECTRIC LINE EXTENSION AND SERVICE STANDARDS.
E21	PROVIDE WP., WR., GFCI PROTECTED DUPLEX WITH IN-USE COVER. PROVIDE LEVITON CAT. No. 001-05980-UCL OR APPROVED EQUAL. COORDINATE CONDUIT ROUTING WITH CIVIL ENGINEER PRIOR TO WORK.
E24	PROVIDE (1) 2" CONDUIT (FUTURE PV) AND (1) 1" CONDUIT (LIGHTS AND RECEPTACLES) WITH PULLSTRING FROM MAIN ELECTRICAL ROOM TO BIKE SHELTER. COORDINATE EXACT ROUTING WITH CIVIL ENGINEER AND COLORADO SPRINGS UTILITIES PRIOR TO BID. CAP AND LABEL CONDUITS AS PER SPECIFICATIONS.
E41	APPROXIMATE LOCATION OF EXISTING 450kW DIESEL GENERATOR SET. REFER TO ONELINE DIAGRAM FOR ADDITIONAL INFORMATION.
E42	APPROXIMATE ROUTING OF NEW GENERATOR SERVICE ENTRANCE FEEDERS. COORDINATE PROPOSED ROUTING AND ALL WORK WITH OTHER TRADES PRIOR TO COMMENCING WORK. REFER TO CIVIL PLANS FOR ACTUAL PROPOSED ROUTING AND ADDITIONAL COORDINATION INFORMATION. REFER TO KEY NOTE E41 AND ELECTRICAL ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.

KEYNOTES

E45	EXISTING WALL PACK TO BE REMOVED. CLEAN AND RETURN FIXTURE TO UCCS FACILITIES. CAP AND LABEL EXISTING JUNCTION BOX IN ACCORDANCE WITH SPECIFICATIONS. ENSURE CIRCUIT CONTINUITY OF ADJACENT FIXTURES IS MAINTAINED THROUGH WORK.
E61	TAP GUTTER FOR GENERATOR. REFER TO ONELINE DIAGRAM FOR ADDITIONAL INFORMATION. PROVIDE TRAFFIC PROTECTION, AS REQUIRED.
E62	APPROXIMATE LOCATION OF EAS BUILDING MAIN ELECTRICAL ROOM. REFER TO SHOP ELECTRICAL ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
E64	LOAD BANK FOR GENERATOR. REFER TO ONELINE DIAGRAM FOR ADDITIONAL INFORMATION. PROVIDE TRAFFIC PROTECTION, AS REQUIRED.
E75	PROVIDE MANUAL CONTROL FUNCTION WITH 2-HOUR TIMER. SWITCH SHALL BE WET LOCATION RATED AND PROVIDED WITH IN-USE COVER.
E81	REFER TO SITE PLAN FOR THE PROPOSED RE-ROUTING OF EXISTING GENERATOR FEEDERS. FROM NEW GENERATOR DISTRIBUTION GUTTER AT THE BACK OF THE EXISTING GENERATOR ENCLOSURE, ROUTE SURFACE MOUNTED CONDUIT ALONG THE EXTERIOR OF THE GENERATOR ENCLOSURE, TRANSITION UP THE SIDE OF THE WALL OF THE EXISTING ENGINEERING APPLIED SCIENCES (EAS) BUILDING, OVER THE PARAPET AND ONTO THE ROOF. ROUTE FEEDERS ALONG THE INSIDE EDGE OF THE PARAPET TO CONCEAL CONDUITS FROM VIEW. RUN CONDUITS ACROSS THE ROOF AND TRANSITION INTO VERTICAL CHASE (ARCHITECTURAL COLUMN). TRANSITION THE CONDUITS TO UNDERGROUND AND ROUTE TO NEW BUILDING VIA DIRECTIONAL BORING. UNDERGROUND FEEDERS SHALL BE ENCASED IN CONCRETE DUCTBANK. UNDERGROUND FEEDER ROUTING, SHOWN AS DASHED LINES, ID DIAGRAMATIC. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS. REFER TO ONE LINE DIAGRAM, SITE PLAN, CIVIL PLANS, AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
E82	APPROXIMATE LOCATION OF EXISTING GENERATOR FEEDERS FOR THE UNIVERSITY CENTER.
E89	PROVIDE CUSTOM, WEATHER-PROOF, METAL PULL-BOX, ON ROOF, AT LOCATION INDICATED. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
E90	LUMINAIRE FOR CUSTOM SIGNAGE. REFER TO LIGHITNG PLANS AND KEYNOTE E77 FOR ADDITIONAL INFORMATION. REFER TO ARCHITECTURAL DETAILS FOR MOUNTING AND ADDITIONAL INFORMATION.

NEW SHOP BUILDING

EXISTING EAS BUILDING

NEW LAB BUILDING

ELECTRICAL SITE PLAN
SCALE: 1" = 10'-0"

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SHEET TITLE:
ELECTRICAL SITE PLAN

SCALE: 1" = 10'-0"
SHEET NUMBER
E-100

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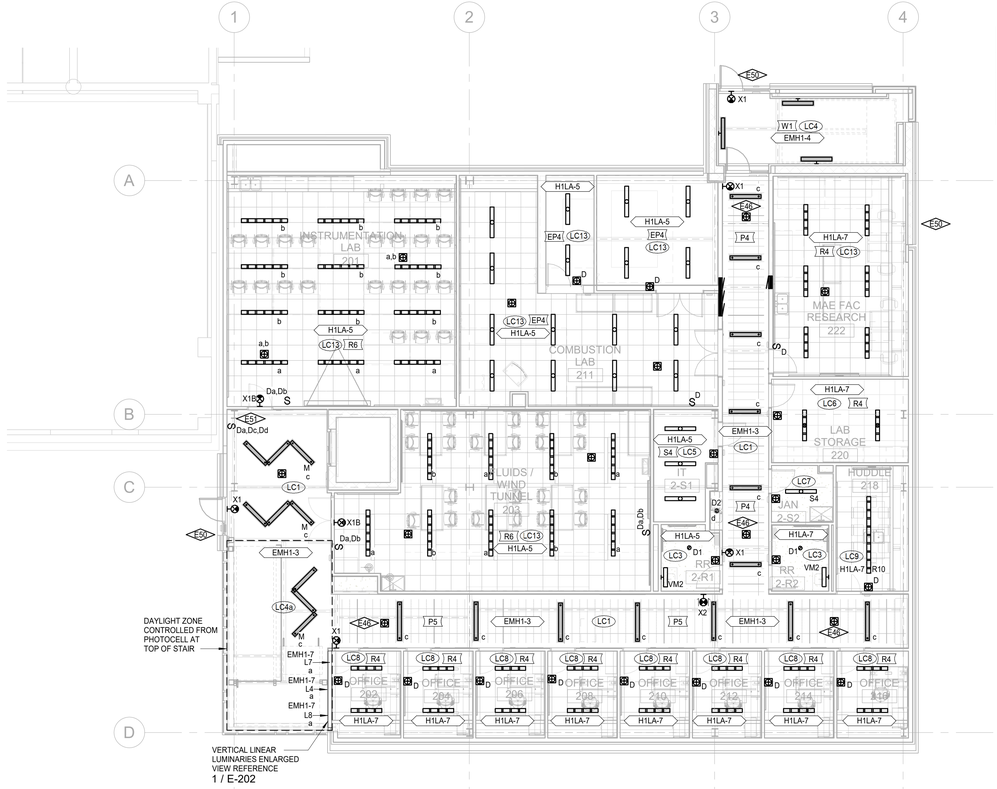
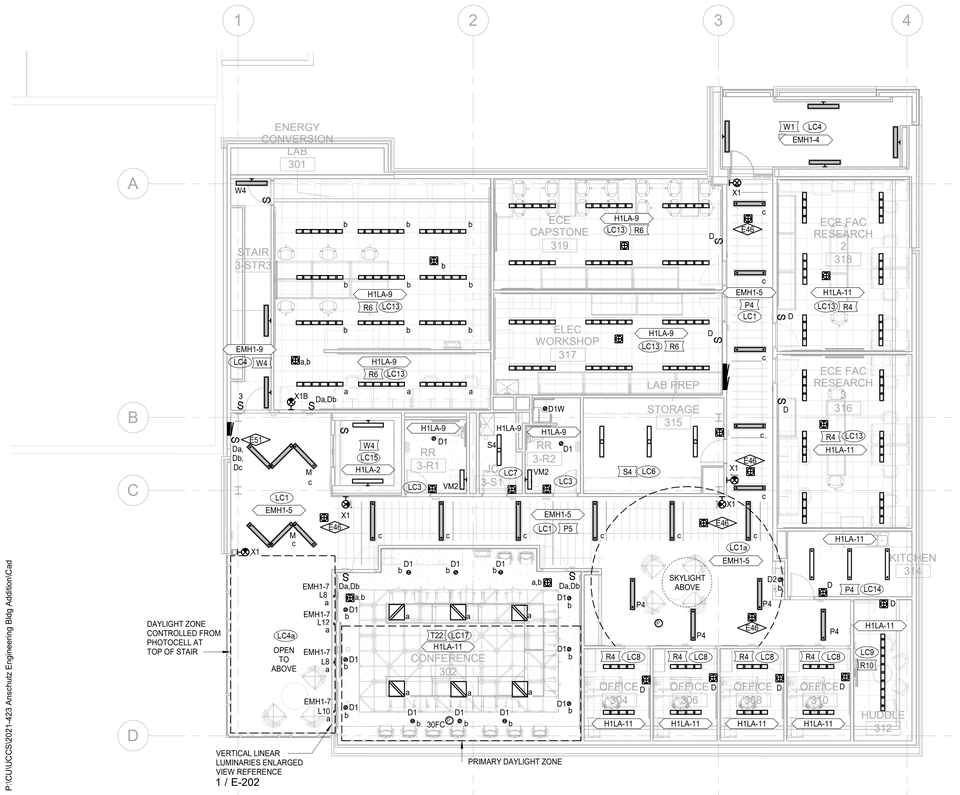
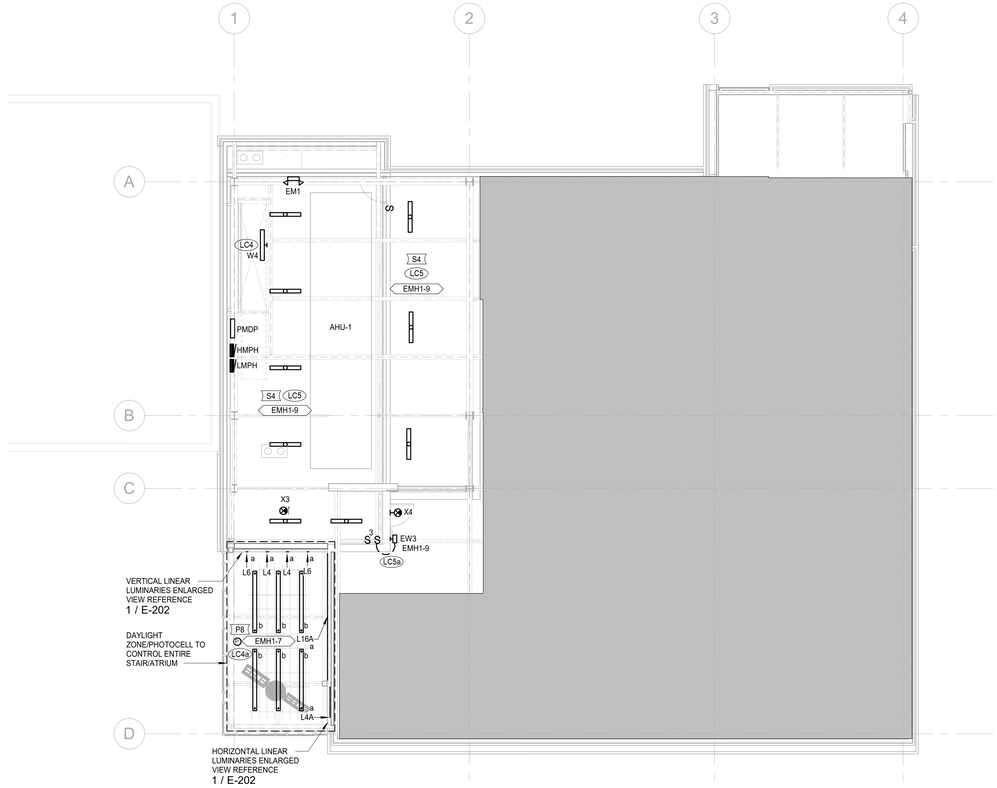
LEVEL 1 LIGHTING PLAN
SCALE: 1/8" = 1'-0"



LEVEL 2 LIGHTING PLAN
SCALE: 1/8" = 1'-0"



LEVEL 3 LIGHTING PLAN
SCALE: 1/8" = 1'-0"



LEVEL 4 LIGHTING PLAN
SCALE: 1/8" = 1'-0"

KEYNOTES

E46	TYPICAL, OCCUPANCY SENSOR TO BE STEM MOUNTED. COORDINATE ELEVATION IN-FIELD.
E50	REFER TO SITE ELECTRICAL PLAN FOR BUILDING MOUNTED EXTERIOR LIGHTING THIS AREA.
E51	PROVIDE RECESSED LIGHTING CONTROL KEYPAD AT LOCATION SHOWN.
E77	PROVIDE 277V CONNECTION AND A DIMMABLE, 24-HOUR PROGRAMMABLE, CONTROL FUNCTION FOR SIGN LIGHT.

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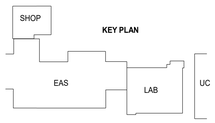
SHEET TITLE: LIGHTING PLAN SERIES - LAB BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER
E-101A



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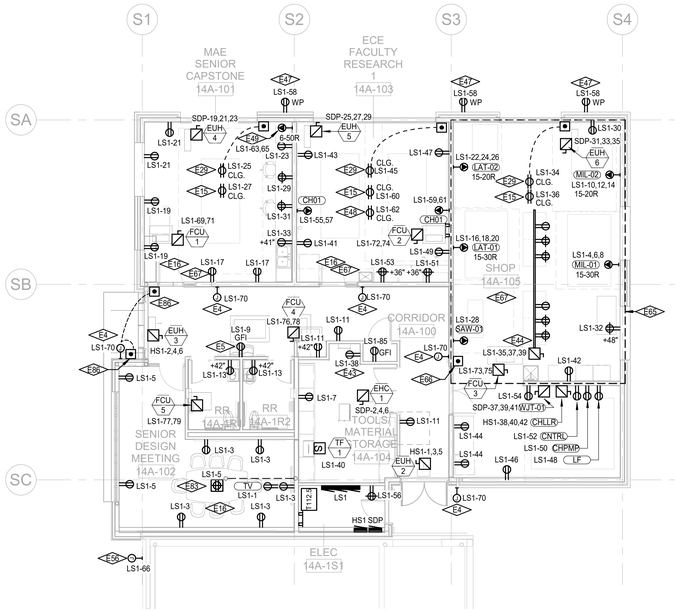
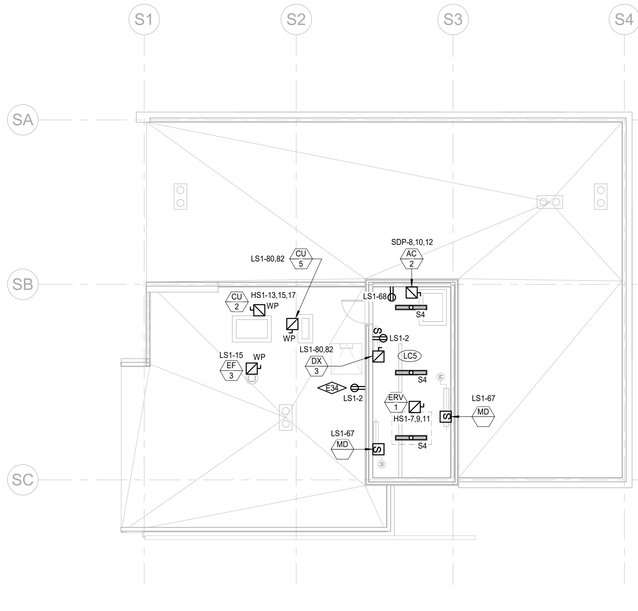


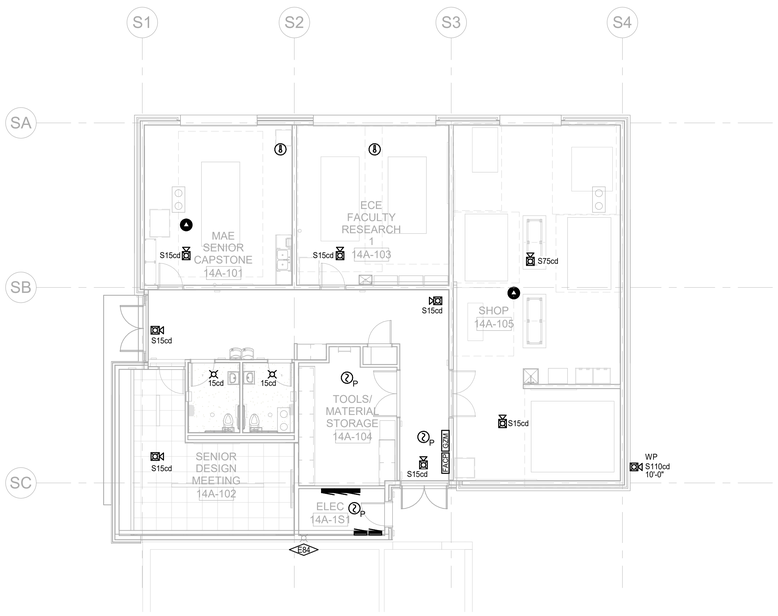
LEVEL 3 POWER PLAN

SCALE: 1/8" = 1'-0"



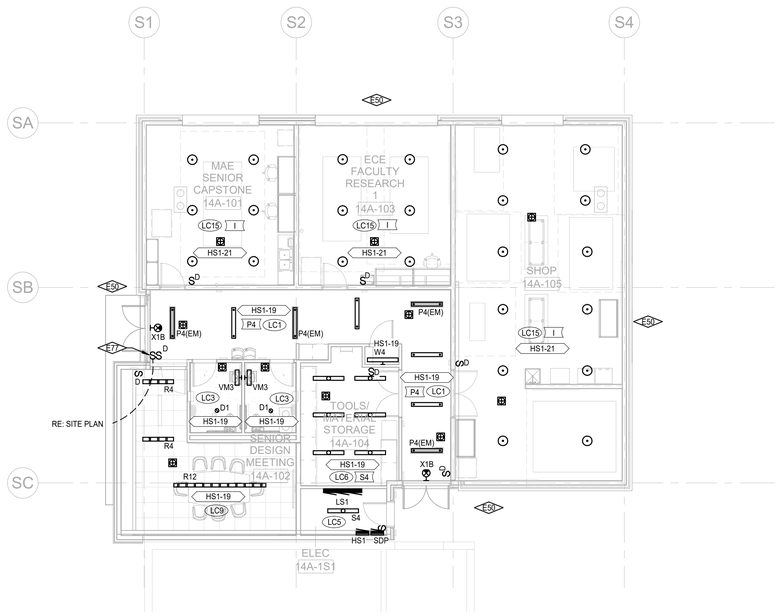
ROOF ELECTRICAL PLAN - SHOP

SCALE: 1/8" = 1'-0"



LEVEL 3 FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"



LEVEL 3 LIGHTING PLAN

SCALE: 1/8" = 1'-0"

KEYNOTES

E4	PROVIDE 120V CONNECTION FOR CARD READER ACCESS CONTROL SYSTEM AND / OR ELECTRIFIED DOOR HARDWARE REQUIRING 120V CONNECTION. COORDINATE EXACT LOCATION, ROUGH-IN, AND ALL INSTALLATION REQUIREMENTS PRIOR TO WORK OR BID. REFER TO TECHNOLOGY DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND SCOPE.
E5	PROVIDE 120V CONNECTION FOR ELECTRIC WATER COOLER "EWC". VERIFY EXACT LOCATION, ROUGH-IN, AND ALL INSTALLATION REQUIREMENTS PRIOR TO WORK OR BID.
E15	PROVIDE 120V CONNECTION AT CEILING FOR CORD REEL. PROVIDE HUBBLE CAT. No. "HBL5969VBLK" OR APPROVED EQUAL.
E16	ALL RECEPTACLES THIS ROOM SHALL BE CONTROLLED. TOP RECEPTACLE TO BE CONTROLLED WITH LIGHTING OCCUPANCY SENSOR.
E29	PROVIDE 120V CONNECTION FOR OVER HEAD DOOR MOTOR. COORDINATE EXACT LOCATION PRIOR TO ROUGH-IN. PROVIDE LOW VOLTAGE CONTROL.
E34	PROVIDE 120V GFCI PROTECTED SERVICE RECEPTACLE. COORDINATE EXACT LOCATION OF RECEPTACLE IN FIELD. RECEPTALCE SHALL BE WITHIN 25' OF MECHANICAL EQUIPMENT, NOTIFY ENGINEER IMMEDIATELY OF ANY DESCREPANCIES.
E43	PROVIDE 120V CONNECTION FOR BAS / TEMPERATURE CONTROL PANEL. VERIFY EXACT LOCATION WITH MECHANICAL PLANS AND CONTROLS CONTRACTOR PRIOR TO ROUGH-IN.
E44	PROVIDE 208V., 3-PHASE, 60 AMP CONNECTION FOR STARLINE OVERHEAD BUS.
E47	WP., WR., GFI PROTECTED DUPLEX WITH IN-USE COVER. PROVIDE EATON # W1U1B1 OR APPROVED EQUAL.
E48	PROVIDE 120V, 20A, CONNECTION FOR GANTRY CRANE. VERIFY EXACT LOCATION, CONNECTION AND CONTROL REQUIREMENTS PRIOR TO WORK.
E49	PROVIDE 208V., 1-PH, CONNECTION FOR BATTERY CHARGING STATION. CONFIRM LOCATION AND NEMA CONFIRGURATION PRIOR TO BID.
E50	REFER TO SITE ELECTRICAL PLAN FOR BUILDING MOUNTED EXTERIOR LIGHTING THIS AREA.
E56	PROVIDE 120V CONNECTION FOR IRRIGATION HEAT TRACE. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
E65	ALL ELECTRICAL EQUIPMENT AND INSTALLATIONS IN THIS ROOM SHALL COMPLY WITH NEC 501 FOR CLASS 3, DIVISION 1 LOCATIONS.
E66	PROVIDE EMERGENCY POWER OFF (EPO) PUSH-BUTTON SWITCH TO SHUNT POWER FOR ALL EQUIPMENT THIS ROOM. COORDINATE EXACT LOCATION AND SYSTEM REQUIREMENTS PRIOR TO WORK OR BID.
E67	ALL RECEPTALCES WITHIN THIS ROOM SHALL BE MOUNTED AT MINIMUM 36" AND BE GFCI PROTECTED.
E77	PROVIDE 277V CONNECTION AND A DIMMABLE, 24-HOUR PROGRAMMABLE, CONTROL FUNCTION FOR SIGN LIGHT.
E83	PROVIDE RECESSED MOUNTED LEGRAND EVOLUTION SERIES #8AT OR EQUAL COMBINATION POWER/DATA/AV POKE THRU DEVICE. PROVIDE MINIMUM (2) DUPLEX RECEPTACLES. REFER TO TECHNOLOGY PLANS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. PRIOR TO WORK, COORDINATE EXACT LOCATION AND FINISH WITH ARCHITECT.
E84	DISCONNECT AND RELOCATE EXISTING WALL MOUNTED FIRE ALARM DEVICE. COORDINATE RELOCATION WITH UCCS PROJECT MANAGER AND FIRE DEPARTMENT PRIOR TO WORK.
E86	PROVIDE JUNCTION BOX FOR L.V. ADA PUSH-BUTTON DOOR OPENER. COORDINATE EXACT LOCATION WITH DOOR HARDWARE PRIOR TO WORK.

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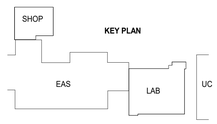
SHEET TITLE:
ELECTRICAL PLAN
SERIES - SHOP BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER

E-103B



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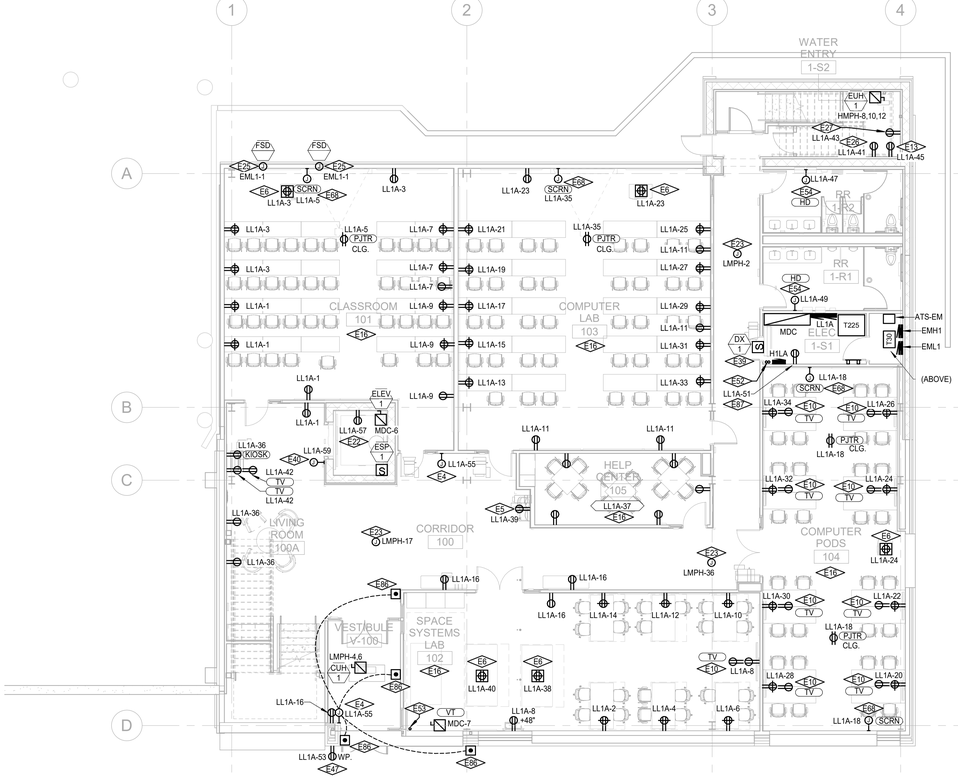
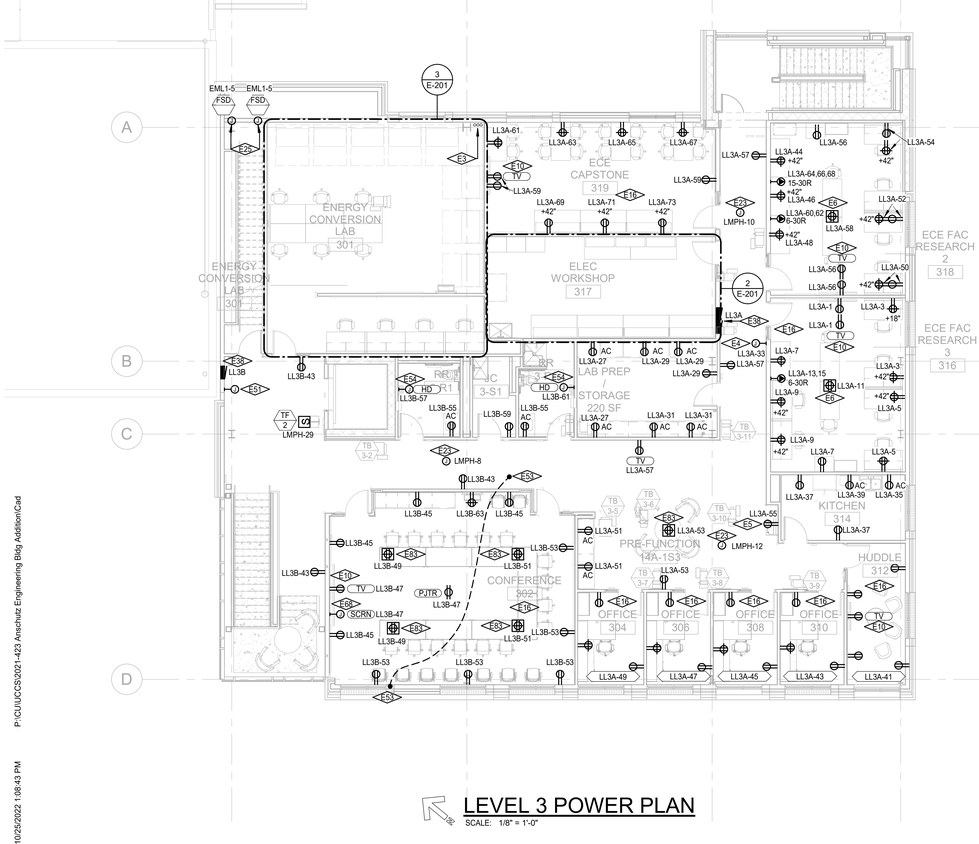


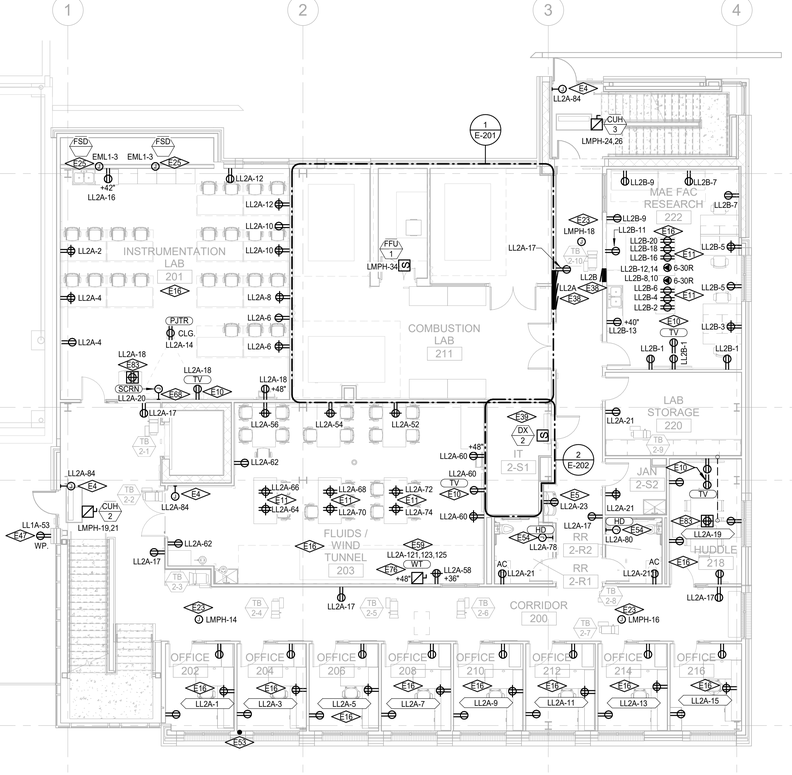
LEVEL 1 POWER PLAN

SCALE: 1/8" = 1'-0"



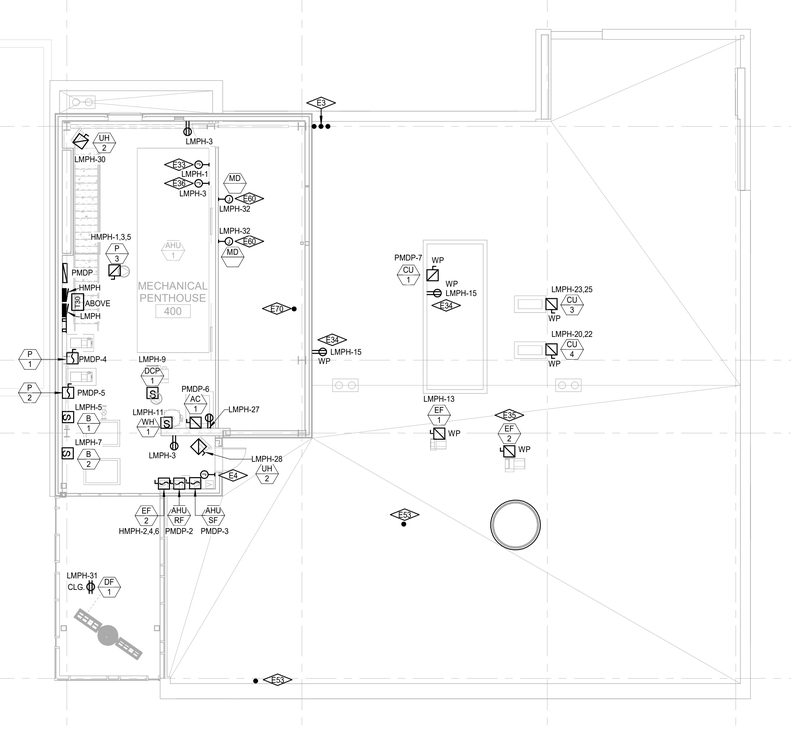
LEVEL 3 POWER PLAN

SCALE: 1/8" = 1'-0"



LEVEL 2 POWER PLAN

SCALE: 1/8" = 1'-0"



LEVEL 4 POWER PLAN

SCALE: 1/8" = 1'-0"

KEYNOTES

E3	PROVIDE (3) 3" CONDUITS FROM THIS LOCATION TO THE ROOF. STUB UP AT 24" ABOVE ROOF DECK. PROVIDE NEMA 4 TAPBOX AT ROOF. PROVIDE PULL BOX ON WALL WITHIN LAB. COORDINATE EXACT LOCATION, CONDUIT ROUTING, AND CONDUIT SIZE PRIOR TO WORK.
E4	PROVIDE 120V CONNECTION FOR CARD READER ACCESS CONTROL SYSTEM AND / OR ELECTRIFIED DOOR HARDWARE REQUIRING 120V CONNECTION. COORDINATE EXACT LOCATION, ROUGH-IN, AND ALL INSTALLATION REQUIREMENTS PRIOR TO WORK OR BID. REFER TO TECHNOLOGY DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND SCOPE.
E5	PROVIDE 120V CONNECTION FOR ELECTRIC WATER COOLER "EWC". VERIFY EXACT LOCATION, ROUGH-IN, AND ALL INSTALLATION REQUIREMENTS PRIOR TO WORK OR BID.
E6	PROVIDE LEGRAND #EF86-OG-E OR EQUAL COMBINATION POWER/DATA/AV FLOOR BOX. PROVIDE MINIMUM (2) DUPLEX RECEPTACLES. REFER TO TECHNOLOGY PLANS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. PRIOR TO WORK, COORDINATE EXACT LOCATION WITH ARCHITECT.
E10	PROVIDE 120V CONNECTION FOR DIGITAL DISPLAY. VERIFY EXACT MOUNTING HEIGHT WITH TECHNOLOGY AND ARCHITECTURAL DRAWINGS. PROVIDE CONTROL FUNCTION AS NEEDED.
E11	CEILING SERVICE PANEL WITH RECEPTACLES AS SHOWN. PROVIDE PG LIFELINK #CP24X24CPRS6W OR APPROVED EQUAL. ENSURE ALL DEVICES ARE OF TWIST LOCK TYPE. COORDINATE AND CONFIRM QUANTITY AND REQUIRED NEMA CONFIGURATION(S) PRIOR TO BID.
E13	PROVIDE 120V CONNECTION FOR REMOTE READ METER. REFER TO PLUMBING DRAWINGS FOR EXACT REQUIREMENTS.
E16	ALL RECEPTACLES THIS ROOM SHALL BE CONTROLLED. TOP RECEPTACLE TO BE CONTROLLED WITH LIGHTING OCCUPANCY SENSOR.
E22	PROVIDE 120V DEDICATED, GFCI PROTECTED, DUPLEX RECEPTALCE IN ELEVATOR PIT. COORDINATE EXACT LOCATION IN FIELD WITH ELEVATOR SHOP DRAWINGS.
E23	PROVIDE 120V CONNECTION FOR TERMINAL BOX "TB" POWER. CONNECT UP TO SIX (6) TB BOXES PER CIRCUIT.
E25	PROVIDE 120V CONNECTION FOR FIRE / SMOKE DAMPER. COORDINATE EXACT LOCATION AND CONNECTION REQUIREMENTS PRIOR TO WORK.
E26	PROVIDE 120V CONNECTION FOR IRRIGATION CONTROLLER.
E27	PROVIDE 120V CONNECTION FOR MAIN WATER FLOW AND TAMPER SWITCHES. COORDINATE EXACT LOCATION AND INSTALLATION REQUIREMENTS WITH MECHANICAL AND PLUMBING PLANS.
E33	120V CONNECTION FOR AHU LIGHTS. COORDINATE EXACT LOCATION PRIOR TO ROUGH-IN.
E34	PROVIDE 120V GFCI PROTECTED SERVICE RECEPTACLE. COORDINATE EXACT LOCATION OF RECEPTACLE IN FIELD. RECEPTALCE SHALL BE WITHIN 25' OF MECHANICAL EQUIPMENT, NOTIFY ENGINEER IMMEDIATELY OF ANY DESCREPANCIES.
E35	INTERLOCK LOCAL DISCONNECT WITH REMOTE VFD. VFD SHALL SHUT DOWN WHEN DISCONNECT IS IN OFF POSITION.
E36	PROVIDE 120V CIRCUIT TO CONVENIENCE OUTLET INTEGRAL TO EQUIPMENT. COORDINATE FINAL REQUIREMENTS WITH EQUIPMENT VENTOR.
E38	PROVIDE (4) ADDITIONAL CONDUIT PATHWAYS TO ABOVE ACCESSIBLE CEILING AND INTO ADJACENT CORRIDOR AS OUTLINED IN THE UCCS CONSTRUCTION STANDARDS.
E39	PROVIDE INTERCONNECTION TO OUTDOOR DUCTLESS SPLIT SYSTEM UNIT. INDOOR UNIT TO BE POWERED FROM OUTDOOR UNIT. REFER TO MANUFACTURER REQUIREMENTS
E40	PROVIDE 120V CONNECTION FOR ELEVATOR CONTROL PANEL LIGHTS AND FAN.
E47	WP., WR., GFI PROTECTED DUPLEX WITH IN-USE COVER. PROVIDE EATON # W1U1B1 OR APPROVED EQUAL.
E51	PROVIDE RECESSED LIGHTING CONTROL KEYPAD AT LOCATION SHOWN.
E52	PROVIDE (3) 2" CONDUITS FROM 6" BELOW CEILING TO PENTHOUSE FOR FUTURE GENERATOR. PROVIDE PULLSTRING AND CAP AND LABEL AS PER SPECIFICATIONS.
E53	PROVIDE (1) 2" CONDUIT WITH PULLSTRING FROM 6" BELOW CEILING TO ROOF FOR OFCI ANTENNA. CONFIRM CONDUIT SIZE, STUB-UP POINT WITHIN LAB AND STUB-UP POINT AT ROOF LEVEL PRIOR TO WORK OR BID.
E54	PROVIDE 120V CONNECTION FOR HAND DRYER.
E59	PROVIDE 480V., 3-PHASE, 4-WIRE CONNECTION FOR OFCI WIND TUNNEL. CUT SHEET / NAME PLATE DATA HAS NOT BEEN PROVIDED AND CONNECTION REQUIREMENTS/CHARACTERISTICS ARE SUBJECT TO CHANGE UNTIL 100% CONSTRUCTION DOCUMENTS HAVE BEEN ISSUED.
E60	120V CONNECTION FOR MOTORIZED LOUVERS. COORDINATE EXACT LOCATION AND CONNECTION REQUIREMENTS PRIOR TO WORK OR BID. REFER TO MECHANICAL PLANS FOR ADDITIONAL INFORMATION.
E68	120V CONNECTION FOR MOTORIZED SCREEN. VERIFY EXACT LOCATION, ROUGH-IN, AND CONTROL REQUIREMENTS PRIOR TO WORK OR BID. REFER TO TECHNOLOGY DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL WORK.
E70	PROPOSED LOCATION, ON PENTHOUSE ROOF. FOR ESE (EARLY STREAMER EMISSION): LIGHTNING ARRESTOR. COORDINATE EXACT LOCATION. SYSTEM REQUIREMENTS (INCLUDING BUT NOT LIMITED TO; QUANTITY OF DOWN DOWN CONDUCTORS, GROUNDING PATH, BONDING OF SYSTEM GROUNDS, TESTWELLS, ETC) PRIOR TO WORK OR BID. REFER TO LIGHTNING PROTECTION SHOP DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL SCOPE AND NOTES.
E76	PROVIDE 15' FLEXIBLE CORD AND NEMA 15-50R RECEPTACLE FOR CONNECTION TO EXISTING WIND TUNNEL. VERIFY REQUIRED NEMA CONFIGURATION AND CORD LENGTH PRIOR TO WORK. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCPREPANCIES.
E83	PROVIDE RECESSED MOUNTED LEGRAND EVOLUTION SERIES #8AT OR EQUAL COMBINATION POWER/DATA/AV POKE THRU DEVICE. PROVIDE MINIMUM (2) DUPLEX RECEPTACLES. REFER TO TECHNOLOGY PLANS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. PRIOR TO WORK, COORDINATE EXACT LOCATION AND FINISH WITH ARCHITECT.
E86	PROVIDE JUNCTION BOX FOR L.V. ADA PUSH-BUTTON DOOR OPENER. COORDINATE EXACT LOCATION WITH DOOR HARDWARE PRIOR TO WORK.
E87	PROVIDE 120V CONNECTION FOR METERING EQUIPMENT. COORDINATE EXACT LOCATION AND LEAVE WALL SPACE FOR FUTURE PV EQUIPMENT.

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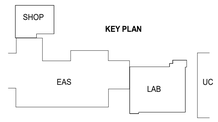
ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
POWER PLAN SERIES - LAB BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER

E-111A

KEY PLAN



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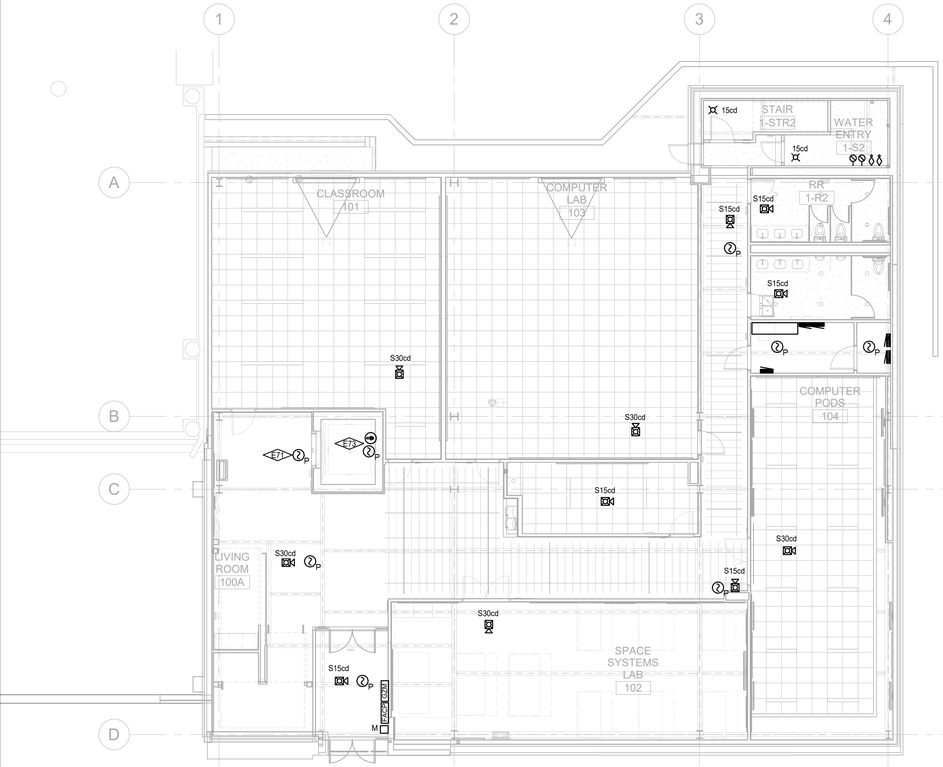
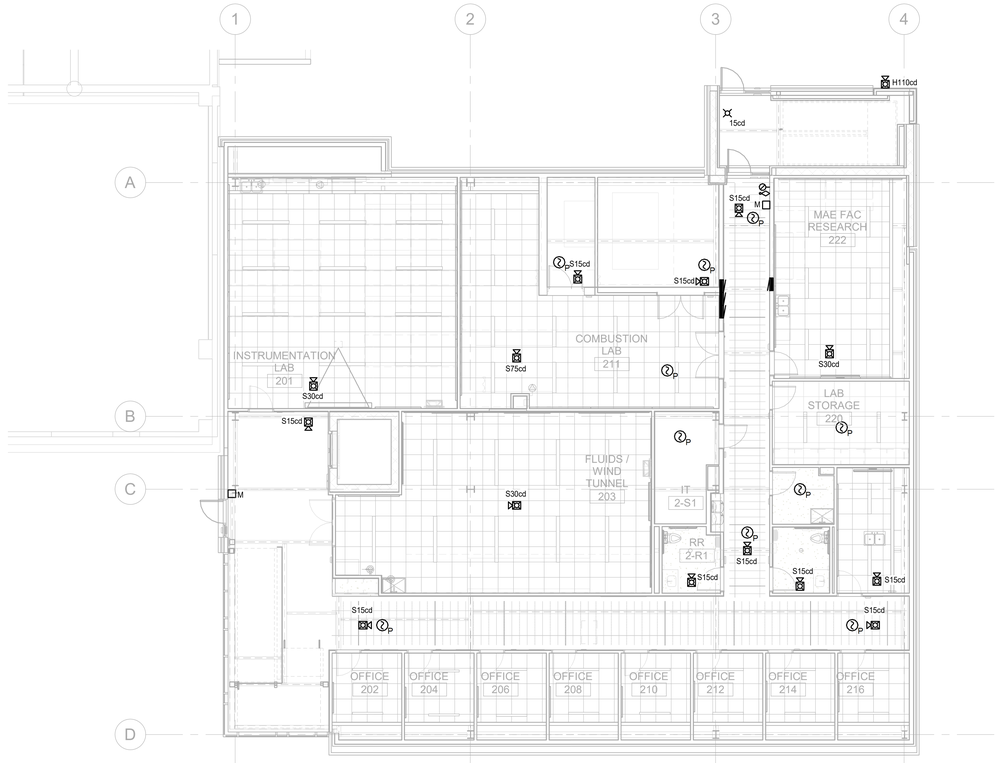


LEVEL 1 FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"

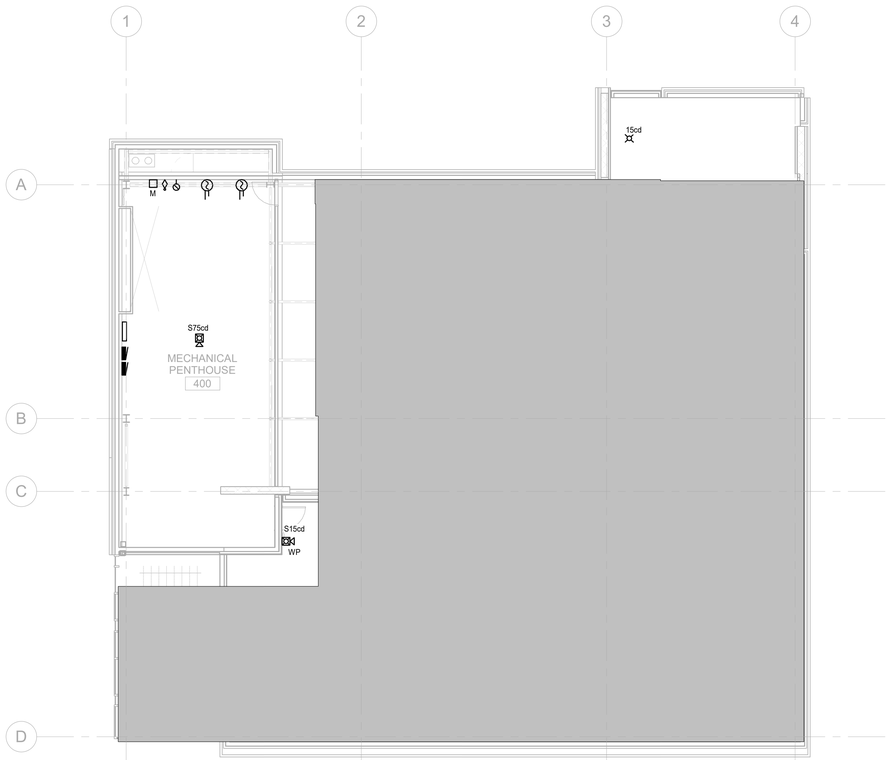


LEVEL 2 FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"

LEVEL 3 FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"



LEVEL 4 FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"

KEYNOTES

E71	ACTIVATION OF SMOKE DETECTOR SHALL INITIATE ELEVATOR RECALL.
E72	PROVIDE (4) ADDRESSIBLE OUTPUT MODULE(S) FOR ELEVATOR EMERGENCY FUNCTIONS (ELEVATOR PRIMARY RECALL, ELEVATOR ALTERNATE RECALL, ELEVATOR SHUNT TRIP, AND ELEVATOR F.F. HAT LAMP). PROVIDE ADDRESSIBLE INPUT MODULE FOR ELEVATOR POWER SUPERVISION.
E73	PROVIDE REMOTE HEAT DETECTOR AND AIR SAMPLING TYPE SMOKE DETECTOR. LOCATE BASE STATION IN ELECTRICAL ROOM.
E74	ACTIVATION OF THE SMOKE DETECTOR SHALL INITIATE ELEVATOR EMERGENCY FUNCTIONS. ACTIVATION OF THE HEAT DETECTOR SHALL INITIATE ELEVATOR SHUNT TRIP. THE HEAT DETECTOR SHALL BE LOCATED WITHIN 24" OF THE SPRINKLER HEAD AND BE OF LOWER TEMPERATURE AND HIGHER RTI OF THE SPRINKLER HEAD. COORDINATE WITH FIRE PROTECTION VENDOR.

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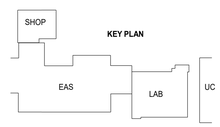
ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
FIRE ALARM PLAN
SERIES - LAB BLDG

SCALE: 1/8" = 1'-0"
SHEET NUMBER

E-121A



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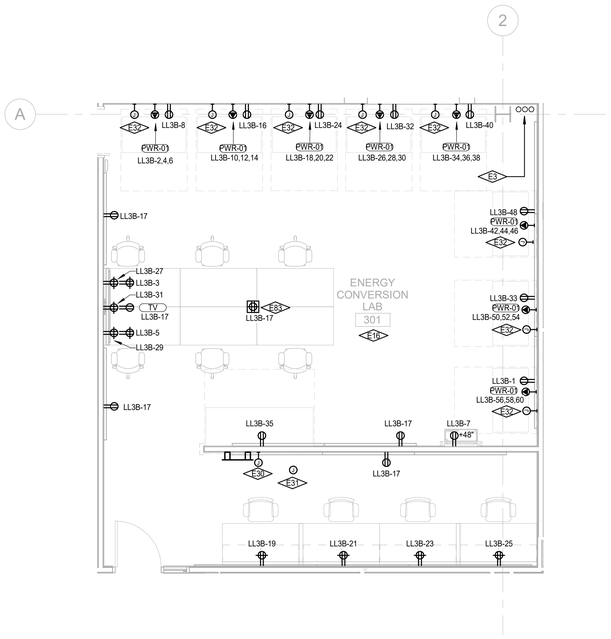
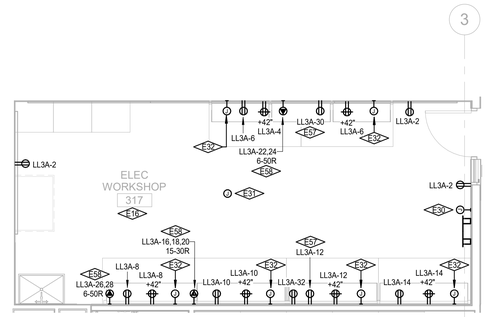


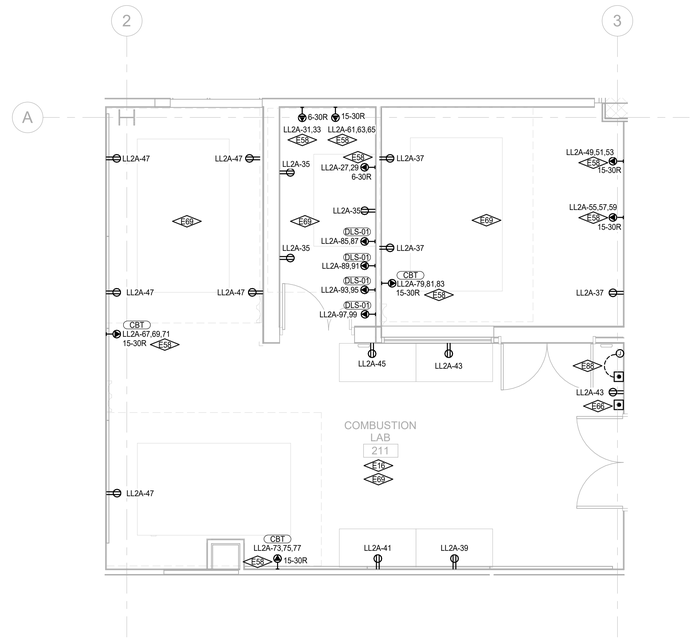
LEVEL 3 POWER PLAN - ENERGY CONVERSION LAB

SCALE: 1/4" = 1'-0"



LEVEL 3 POWER PLAN - ELECTRICAL WORKSHOP

SCALE: 1/4" = 1'-0"



LEVEL 2 POWER PLAN - COMBUSTION LAB

SCALE: 1/4" = 1'-0"

KEYNOTES	
E3	PROVIDE (3) 3" CONDUITS FROM THIS LOCATION TO THE ROOF. STUB UP AT 24" ABOVE ROOF DECK. PROVIDE NEMA 4 TAPBOX AT ROOF. PROVIDE PULL BOX ON WALL WITHIN LAB. COORDINATE EXACT LOCATION, CONDUIT ROUTING, AND CONDUIT SIZE PRIOR TO WORK.
E16	ALL RECEPTACLES THIS ROOM SHALL BE CONTROLLED. TOP RECEPTACLE TO BE CONTROLLED WITH LIGHTING OCCUPANCY SENSOR.
E30	PROVIDE JUNCTION BOX WITH GROMMET ABOVE GROUND BAR. PROVIDE #10cu GROUND IN 3/4" CONDUIT FROM THIS LOCATION TO JUNCTION BOX ABOVE CEILING (RE: KEYNOTE E31). REFER TO GROUNDING RISER DETAIL AND SPECIFICATIONS FOR ADDIITIONAL INFORMATION.
E31	PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING (OR MOUNTED TO STRUCTURE IN OPEN CEILING SPACES) AND 3/4" CONDUIT WITH #10CU GROUND TO EACH JUNCTION BOX AT EACH LAB STATION / TABLE THIS ROOM (RE: KEYNOTE E32)
E32	PROVIDE JUNCTION BOX WITH GROMMET FOR CONNECTING EQUIPMENT GROUND TO ESD GROUNDING EQUIPMENT. REFER TO KEYNOTE E30 AND E31 FOR ADDITIONAL INFORMATION.
E57	PROVIDE 120V CONNECTION FOR SOLDERING STATION.
E58	EQUIPMENT CONNECTION SPECIFICS ARE NOT DEFINED AS CUTSHEET HAS NOT BEEN PROVIDED. DIRECTION IS TO PROVIDE A 208V., 1-PHASE AND/OR 3-PHASE CONNECTION AT LOCATION INDICATED. NEMA CONFIGURATION AND BREAKER SIZE ARE ASSUMPTIONS AND SUBJECT TO CHANGE.
E66	PROVIDE EMERGENCY POWER OFF (EPO) PUSH-BUTTON SWITCH TO SHUNT POWER FOR ALL EQUIPMENT THIS ROOM. COORDINATE EXACT LOCATION AND SYSTEM REQUIREMENTS PRIOR TO WORK OR BID.
E69	ALL ELECTIRCAL EQUIPMENT AND INSTALLATIONS IN THE IDENTIFIED AREA SHALL COMPLY WITH NEC 501 FOR CLASS I, DIVISION 2 LOCATIONS. ENSURE CONDUIT SEALS, EXPLOSION PROOF BOXES / FITTINGS, RATED LUMINAIRES, ETC. ARE PROVIDED AS REQUIRED.
E83	PROVIDE RECESSED MOUNTED LEGRAND EVOLUTION SERIES #8AT OR EQUAL COMBINATION POWER/DATA/AV POKE THRU DEVICE. PROVIDE MINIMUM (2) DUPLEX RECEPTACLES. REFER TO TECHNOLOGY PLANS FOR ADDITIONAL INFORMATION AND REQUIREMENTS. PRIOR TO WORK, COORDINATE EXACT LOCATION AND FINISH WITH ARCHITECT.
E88	PROVIDE 120V CONNECTION FOR GAS VALVE SHUT-OFF SOLENOID. PROVIDE EPO SWITCH. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO WORK.

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SHEET TITLE:
ENLARGED ELECTRICAL PLANS

SCALE: 1/4" = 1'-0"
SHEET NUMBER
E-201

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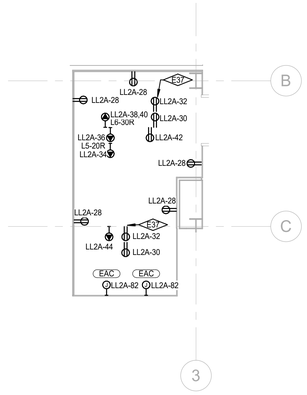
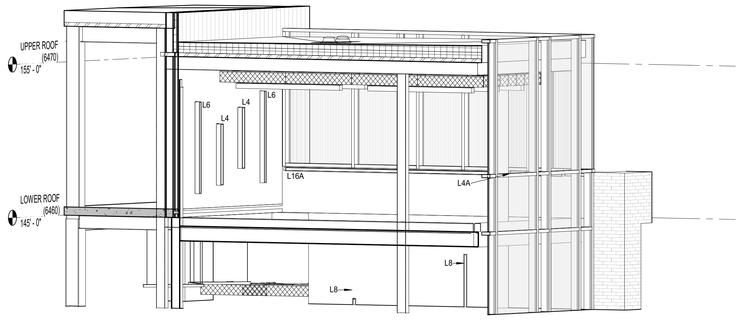
KEYNOTES

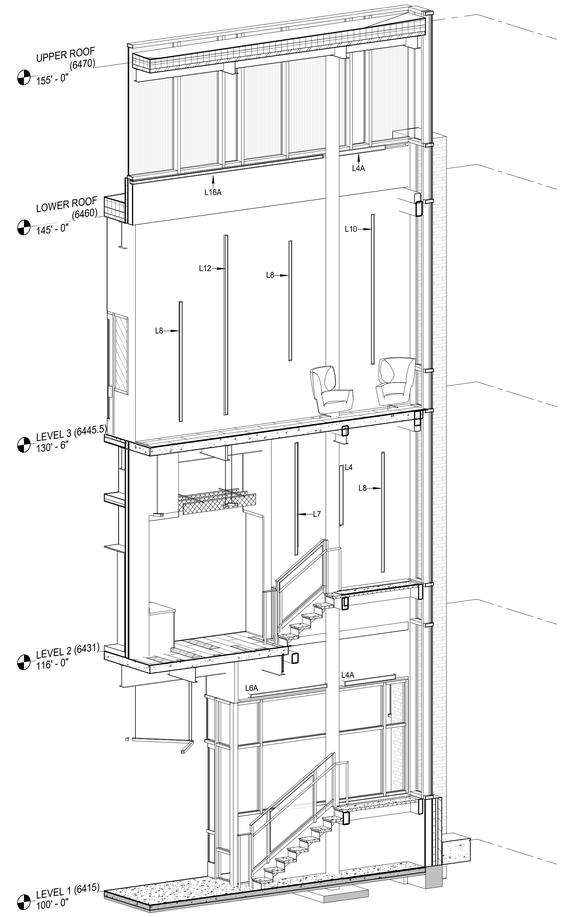
E37	PROVIDE QUAD OUTLET BOX WITH TWO (2) DEDICATED CIRCUITS AS INDICATED.



IT 2-S1 ENLARGED POWER PLAN
SCALE: 1/4" = 1'-0"



VERTICAL LIGHTING WALL - EAST
SCALE:



VERTICAL LIGHTING WALL
SCALE:

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SHEET TITLE:
ENLARGED ELECTRICAL PLANS

SCALE: 1/4" = 1'-0"
SHEET NUMBER
E-202

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MDC

Location: ELEC 106
Supply From:
Mounting: Surface
Volts: 480/277 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 35000
Mains Type: MCB
Bus Rating: 1200 A
MCB Rating: 1000 A

Circuit Notes:

Load	Type	A	B	C	Note
SURGE PROTECTIVE DEVICE (SPD)	--	0 VA			
PANEL "LL1A" VIA T112.5	Spare; R; G; M	77480 VA	72624 VA	74248 VA	
PANEL "HL1A"	Spare; L	2386 VA	3115 VA	2959 VA	
PMDP	Spare; R; G; ...	88550 VA	86510 VA	87047 VA	
ATS-EM	Spare; G; L	3638 VA	3181 VA	1439 VA	
ELEVATOR	M	5543 VA	5543 VA	5543 VA	
VIBRATION TABLE (VBT-01)	M	3460 VA	3460 VA	3460 VA	
Refer to one-line diagram for space, spare, and circuit breaker quantities.		181057 VA	174433 VA	174696 VA	
		654 A	630 A	631 A	
		4	0	4	
		% A-B	% B-C	% C-A	

Load Type		Connected Load	Demand Factor	Demand Load	Switchboard Totals	
L	Lighting	16097 VA	125.00%	20122 VA	Power Factor:	
R	Receptacle	198203 VA	52.52%	104102 VA		
M	Motor	310075 VA	111.21%	344826 VA	Total Connected Load:	530185 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	638 A
G	General	5810 VA	100.00%	5810 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	474860 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	571 A
O	Other	0 VA	0.00%	0 VA		

General Notes:

Panel H1LA

Location: ELEC 106
Supply From: MDC
Mounting: Surface
Enclosure: Type 1
Voltage: 480/277 Wye
Phase: 3
Wire: 4
A.I.C. Rating: 35000
Mains Type: MLO
Bus Rating: 100 A
MCB Rating: 100 A

Circuit Notes:

Note	Circ...	Load	Type	Trip	Po...	A	B	C	Po...	Trip	Type	Load	Circ...	Note
	1	L-1ST FL LIGHTS - S.	L	20 A	1	1233 VA 140 VA			1	20 A	L	L-ELEVATOR SHAFT	2	
	3	L-1ST FL LIGHTS - N.	L	20 A	1		1613 VA 0 VA		1	20 A	--	SPARE	4	
	5	L-2ND FL LIGHTS - N.	L	20 A	1			1809 VA 0 VA	1	20 A	--	SPARE	6	
	7	L-2ND FL LIGHTS - S.	L	20 A	1	979 VA 0 VA			1	20 A	--	SPARE	8	
	9	L-3RD FL LIGHTS - N.	L	20 A	1		1502 VA 0 VA		1	20 A	--	SPARE	10	
	11	L-3RD FL LIGHTS - S.	L	20 A	1			1151 VA 0 VA	1	20 A	--	SPARE	12	
	13	L-BIKE SHELTER LTS	L	20 A	1	35 VA 0 VA			1	20 A	--	SPARE	14	
	15	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	16	
	17	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	18	
	19	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	20	
	21	SPACE	--	--	1		-- --		1	--	--	SPACE	22	
	23	SPACE	--	--	1			-- --	1	--	--	SPACE	24	
	25	SPACE	--	--	1	-- --			1	--	--	SPACE	26	
	27	SPACE	--	--	1		-- --		1	--	--	SPACE	28	
	29	SPACE	--	--	1			-- --	1	--	--	SPACE	30	
	31	SPACE	--	--	1	-- --			1	--	--	SPACE	32	
	33	SPACE	--	--	1		-- --		1	--	--	SPACE	34	
	35	SPACE	--	--	1			-- --	1	--	--	SPACE	36	
	37	SPACE	--	--	1	-- --			1	--	--	SPACE	38	
	39	SPACE	--	--	1		-- --		1	--	--	SPACE	40	
	41	SPACE	--	--	1			-- --	1	--	--	SPACE	42	
				Total Load:		2386 VA	3115 VA	2959 VA						
				Total Amps:		9 A	12 A	11 A						
				Phase Balance:		34 % A-B	5 % B-C	28 % C-A						

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	8460 VA	125.00%	10575 VA	Power Factor:	1
R	Receptacle	0 VA	0.00%	0 VA		
M	Motor	0 VA	0.00%	0 VA	Total Connected Load:	8460 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	10 A
G	General	0 VA	0.00%	0 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	10575 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	13 A
O	Other	0 VA	0.00%	0 VA		

Panel LL1A

Location: ELEC 106
Supply From: T225
Mounting: Surface
Enclosure: Type 1
Voltage: 120/208 Wye
Phase: 3
Wire: 4
A.I.C. Rating: 22000
Mains Type: MCB
Bus Rating: 600 A
MCB Rating: 600 A

Circuit Notes:
1. PROVIDE GFCI BREAKER

Note	Circ...	Load	Type	Trip	Po...	A	B	C	Po...	Trip	Type	Load	Circ...	Note
	1	CLASS 101 - N. RCPTS	R	20 A	1	720 VA 360 VA			1	20 A	R	SPACE LAB - W QUAD	2	
	3	CLASS 101 - N.E. RCPTS	R	20 A	1		720 VA 360 VA		1	20 A	R	SPACE LAB - W QUAD	4	
	5	CLASS 101 - SCRN/PROJ	R	20 A	1			691 VA 360 VA	1	20 A	R	SPACE LAB - W QUAD	6	
	7	CLASS 101 - S. RCPTS	R	20 A	1	540 VA 540 VA			1	20 A	R	SPACE LAB - TV/CONV	8	
	9	CLASS 101 - S. RCPTS	R	20 A	1		540 VA 360 VA		1	20 A	R	SPACE LAB - E QUAD	10	
	11	COMP LAB 103 - CONV	R	20 A	1			720 VA 360 VA	1	20 A	R	SPACE LAB - E QUAD	12	
	13	COMP LAB 103 - N. DED	R	20 A	1	1300 VA 360 VA			1	20 A	R	SPACE LAB - E QUAD	14	
	15	COMP LAB 103 - N. DED	R	20 A	1		1300 VA 720 VA		1	20 A	R	CORRIDOR CONV	16	
	17	COMP LAB 103 - N. DED	R	20 A	1			1300 VA 1092 VA	1	20 A	R	COMP POD 104 - DISP	18	
	19	COMP LAB 103 - N. DED	R	20 A	1	1300 VA 540 VA			1	20 A	R	COMP POD 104-S RCPT	20	
	21	COMP LAB 103 - N. DED	R	20 A	1		1300 VA 540 VA		1	20 A	R	COMP POD 104-S RCPT	22	
	23	COMP LAB 103 - E....	R	20 A	1			360 VA 720 VA	1	20 A	R	COMP POD 104-S RCPT	24	
	25	COMP LAB 103 - S. DED	R	20 A	1	1300 VA 540 VA			1	20 A	R	COMP POD 104-S RCPT	26	
	27	COMP LAB 103 - S. DED	R	20 A	1		1300 VA 540 VA		1	20 A	R	COMP POD 104-N RCPT	28	
	29	COMP LAB 103 - S. DED	R	20 A	1			1300 VA 540 VA	1	20 A	R	COMP POD 104-N RCPT	30	
	31	COMP LAB 103 - S. DED	R	20 A	1	1300 VA 540 VA			1	20 A	R	COMP POD 104-N RCPT	32	
	33	COMP LAB 103 - S. DED	R	20 A	1		1300 VA 540 VA		1	20 A	R	COMP POD 104-N RCPT	34	
	35	COMP LAB PROJ/SCRN	R	20 A	1			691 VA 540 VA	1	20 A	R	KIOSK, CONV	36	
	37	HELP CENTER 105	R	20 A	1	900 VA 360 VA			1	20 A	R	FLR REC SYS LAB 102	38	
1	39	ELEC WTR COOLER	R	20 A	1		425 VA 360 VA		1	20 A	R	FLR REC SYS LAB 102	40	
1	41	IRRIGATION CONTROL	R	20 A	1			180 VA 360 VA	1	20 A	R	LOBBY TV'S	42	
1	43	TAMPER/FLO MONITOR	R	20 A	1	180 VA 0 VA			1	20 A	--	SPARE	44	
1	45	WATER METER READ	R	20 A	1		180 VA 0 VA		1	20 A	--	SPARE	46	
	47	HAND DRYER RR 110	R	20 A	1			1500 VA 0 VA	1	20 A	--	SPARE	48	
	49	HAND DRYER RR 108	R	20 A	1	1500 VA 0 VA			1	20 A	--	SPARE	50	
	51	METERING 120V DED.	R	20 A	1		180 VA 0 VA		1	20 A	--	SPARE	52	
	53	R-EXTERIOR	R	20 A	1			360 VA 0 VA	1	20 A	--	SPARE	54	
	55	ELEC DR HARDWARE	R	20 A	1	360 VA 0 VA			1	20 A	--	SPARE	56	
	57	R-ELEVATOR PIT	R	20 A	1		180 VA 0 VA		1	20 A	--	SPARE	58	
	59	ELEVATOR CNTRL PNL	R	20 A	1			180 VA 0 VA	1	20 A	--	SPARE	60	
1	61	BIKE SHELTER RCPT	R	20 A	1	180 VA 0 VA			1	20 A	--	SPARE	62	
1	63	BIKE SHELTER RCPT	R	20 A	1		180 VA 0 VA		1	20 A	--	SPARE	64	
	65	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	66	
	67	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	68	
	69	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	70	
	71	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	72	
	73	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	74	
	75	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	76	
	77	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	78	
	79					29471... 35189...							80	
	81	PANEL LL3A	Spare; R; M	400 A	3		29286... 32313...		3	400 A	Spare; R; G; M	PANEL LL2A	82	
	83							28476... 34518...					84	
				Total Load:		77480 VA	72624 VA	74248 VA						
				Total Amps:		648 A	605 A	621 A						
				Phase Balance:		7 % A-B	3 % B-C	4 % C-A						

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	0 VA	0.00%	0 VA	Power Factor:	1
R	Receptacle	196348 VA	52.55%	103174 VA		
M	Motor	27954 VA	110.31%	30836 VA	Total Connected Load:	224352 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	623 A
G	General	50 VA	100.00%	50 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	134060 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	372 A
O	Other	0 VA	0.00%	0 VA		

Panel LL2A

Location: Space 300M
Supply From: LL1A
Mounting: Recessed
Enclosure: Type 1
Voltage: 120/208 Wye
Phase: 3
Wire: 4
A.I.C. Rating: 22000
Mains Type: MLO
Bus Rating: 400 A

Circuit Notes:
1. PROVIDE GFCI BREAKER.

Note	Circ...	Load	Type	Trip	Po...	A	B	C	Po...	Trip	Type	Load	Circ...	Note
	1	R OFFICE 202	R	20 A	1	720 VA 500 VA			1	20 A	R	INST. LAB - TABLE	2	
	3	R OFFICE 204	R	20 A	1		720 VA 680 VA		1	20 A	R	INST. LAB - TABLE	4	
	5	R OFFICE 206	R	20 A	1			720 VA 680 VA	1	20 A	R	INST. LAB - TABLE	6	
	7	R OFFICE 208	R	20 A	1	720 VA 500 VA			1	20 A	R	INST. LAB - TABLE	8	
	9	R OFFICE 210	R	20 A	1		720 VA 680 VA		1	20 A	R	INST. LAB - TABLE	10	
	11	R OFFICE 212	R	20 A	1			720 VA 680 VA	1	20 A	R	INST. LAB - TABLE	12	
	13	R OFFICE 214	R	20 A	1	720 VA 366 VA			1	20 A	R	INST. LAB PROJECTOR	14	
	15	R OFFICE 216	R	20 A	1		720 VA 180 VA		1	20 A	R	INST. LAB AC GFI DED	16	
	17	CORRIDOR CONV	R	20 A	1			1080 VA 880 VA	1	20 A	R	INST. LAB TEACH WALL	18	
	19	HUDDLE 218 RCPTS	R	20 A	1	1280 VA 250 VA			1	20 A	R	INST. LAB SCREEN	20	
1	21	RR/EWC/JAN/STORAGE	R	20 A	1		720 VA 0 VA		1	20 A	--	SPARE	22	
1	23	HALLWAY EWC	R	20 A	1			425 VA 0 VA	1	20 A	--	SPARE	24	
	25	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	26	
	27	R COMBUSTION LAB 211 NEMA 6-30R	R	30 A	2		90 VA 900 VA		1	20 A	R	IT 207 CONV RCPTS	28	
	29							90 VA 720 VA	1	20 A	R	IT 207 RACK DUPLEX	30	
	31	R COMBUSTION LAB 211 NEMA 6-30R	R	30 A	2	90 VA 720 VA			1	20 A	R	IT 207 RACK DUPLEX	32	
	33						90 VA 180 VA		1	20 A	R	IT RACK L5-20R	34	
	35	COMBUSTION LAB...	R	20 A	1			540 VA 180 VA	1	20 A	R	IT RACK L5-20R	36	
	37	COMBUSTION LAB...	R	20 A	1	540 VA 0 VA			2	30 A	R	IT RACK L6-30R	38	
	39	COMBUSTION LAB 211	R	20 A	1		180 VA 0 VA						40	
	41	COMBUSTION LAB 211	R	20 A	1			180 VA 360 VA	1	20 A	R	IT 207 RACK DUPLEX	42	
	43	COMBUSTION LAB 211	R	20 A	1	360 VA 180 VA			1	20 A	R	IT RACK L5-20R	44	
	45	COMBUSTION LAB 211	R	20 A	1		180 VA 0 VA		1	20 A	--	SPARE	46	
	47	COMB CONV LAB 211	R	20 A	1			900 VA 0 VA	1	20 A	--	SPARE	48	
	49					2000 VA 0 VA			1	20 A	--	SPARE	50	
	51	R COMBUSTION LAB 211 NEMA 15-30	R	30 A	3		2000 VA 360 VA		1	20 A	R	FLUIDS E. RECEPT	52	
	53							2000 VA 360 VA	1	20 A	R	FLUIDS E. RECEPT 203	54	
	55					2000 VA 360 VA			1	20 A	R	FLUIDS E. RECEPT	56	
	57	R COMBUSTION LAB 211 NEMA 15-30	R	30 A	3		2000 VA 180 VA		1	20 A	R	WIND TUNNEL CPU	58	
	59							2000 VA 540 VA	1	20 A	R	FLUIDS 203 S. RECEPTS	60	
	61	R COMBUSTION LAB 211 NEMA 15-30	R	30 A	3	2000 VA 360 VA			1	20 A	R	FLUIDS / WIND CONV	62	
	63						2000 VA 180 VA		1	20 A	R	FLUIDS CLG QUAD	64	
	65							2000 VA 180 VA	1	20 A	R	FLUIDS CLG QUAD	66	
	67	COMBUSTION STATION "CBT" NEMA 15-30	R	30 A	3	2667 VA 180 VA			1	20 A	R	FLUIDS CLG QUAD	68	
	69						2667 VA 180 VA		1	20 A	R	FLUIDS CLG QUAD	70	
	71							2667 VA 180 VA	1	20 A	R	FLUIDS CLG QUAD	72	
	73	COMBUSTION STATION "CBT" NEMA 15-30	R	30 A	3	2667 VA 180 VA			1	20 A	R	FLUIDS CLG QUAD	74	
	75						2667 VA 0 VA		1	20 A	--	SPARE	76	
	77							2667 VA 1500 VA	1	20 A	R	HAND DRYER RR 205	78	
	79	COMBUSTION STATION "CBT" NEMA 15-30	R	30 A	3	2667 VA 1500 VA			1	20 A	R	HAND DRYER RR 205	80	
	81						2667 VA 360 VA		1	20 A	R	ACCESS CONTROL	82	
	83							2667 VA 540 VA	1	20 A	R	ELEC DR HARDWARE	84	
	85	DLS-01 DYE LASER SYSTEM	M	30 A	2	2000 VA 0 VA			1	20 A	--	SPARE	86	
	87						2000 VA 0 VA		1	20 A	--	SPARE	88	
	89	DLS-01 DYE LASER SYSTEM	M	30 A	2			2000 VA 0 VA	1	20 A	--	SPARE	90	
	91					2000 VA 0 VA			1	20 A	--	SPARE	92	
	93	DLS-01 DYE LASER SYSTEM	M	30 A	2		2000 VA 0 VA		1	20 A	--	SPARE	94	
	95							2000 VA 0 VA	1	20 A	--	SPARE	96	
	97	DLS-01 DYE LASER SYSTEM	M	30 A	2	2000 VA 0 VA			1	20 A	--	SPARE	98	
	99						2000 VA 0 VA		1	20 A	--	SPARE	100	
	101	COMB RM GAS SHUT...	G	20 A	1			50 VA 0 VA	1	20 A	--	SPARE	102	
	103	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	104	
	105	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	106	
	107	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	108	
	109	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	110	
	111	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	112	
	113	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	114	
	115	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	116	
	117	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	118	
	119	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	120	
	121					3843 VA 1820 VA							122	
	123	M FLUIDS / WIND TUNNEL 203	M	40 A	3		3843 VA 1170 VA		3	100 A	Spare; R	PANEL "LL2B"	124	
	125							3843 VA 1170 VA					126	
				Total Load:		35189 VA	32313 VA	34518 VA						
				Total Amps:		296 A	269 A	290 A						
				Phase Balance:		10 % A-B	8 % B-C	2 % C-A						

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	0 VA	0.00%	0 VA	Power Factor:	1
R	Receptacle	74441 VA	56.72%	42220 VA		
M	Motor	27529 VA	110.47%	30411 VA	Total Connected Load:	102020 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	283 A
G	General	50 VA	100.00%	50 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	72681 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	202 A
O	Other	0 VA	0.00%	0 VA		

General Notes:

Panel LL2B

Location: Space 300M
Supply From: LL2A
Mounting: Recessed
Enclosure: Type 1
Voltage: 120/208 Wye
Phase: 3
Wire: 4
A.I.C. Rating: 22000
Mains Type: MLO
Bus Rating: 100 A
MCB Rating: 100 A

Circuit Notes:

Note	Circ...	Load	Type	Trip	Po...	A	B	C	Po...	Trip	Type	Load	Circ...	Note
	1	MAE FAC 224 - W. RCPT	R	20 A	1	740 VA 180 VA			1	20 A	R	MAE FAC 224 CLG RCPT	2	
	3	MAE FAC 224 - S. QUAD	R	20 A	1		360 VA 180 VA		1	20 A	R	MAE FAC 224 CLG RCPT	4	
	5	MAE FAC 224 - S. QUAD	R	20 A	1			540 VA 180 VA	1	20 A	R	MAE FAC 224 CLG RCPT	6	
	7	MAE FAC 224 - E. CONV	R	20 A	1	360 VA 90 VA			2	30 A	R	MAE FAC 224 CLG RCPT NEMA 6-30R	8	
	9	MAE FAC 224 - NE CONV	R	20 A	1		360 VA 90 VA						10	
	11	MAE FAC 224 - N. CONV	R	20 A	1			180 VA 90 VA	2	30 A	R	MAE FAC 224 CLG RCPT NEMA 6-30R	12	
	13	MAE FAC 224 - AC GFI	R	20 A	1	180 VA 90 VA							14	
	15	SPARE	--	20 A	1		0 VA 180 VA		1	20 A	R	MAE FAC 224 CLG RCPT	16	
	17	SPARE	--	20 A	1			0 VA 180 VA	1	20 A	R	MAE FAC 224 CLG RCPT	18	
	19	SPARE	--	20 A	1	0 VA 180 VA			1	20 A	R	MAE FAC 224 CLG RCPT	20	
	21	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	22	
	23	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	24	
	25	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	26	
	27	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	28	
	29	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	30	
	31	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	32	
	33	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	34	
	35	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	36	
	37	SPARE	--	20 A	1	0 VA 0 VA			1	20 A	--	SPARE	38	
	39	SPARE	--	20 A	1		0 VA 0 VA		1	20 A	--	SPARE	40	
	41	SPARE	--	20 A	1			0 VA 0 VA	1	20 A	--	SPARE	42	
				Total Load:		1820 VA	1170 VA	1170 VA						
				Total Amps:		15 A	10 A	10 A						
				Phase Balance:		56 % A-B	0 % B-C	56 % C-A						

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	0 VA	0.00%	0 VA	Power Factor:	1
R	Receptacle	4160 VA	100.00%	4160 VA		
M	Motor	0 VA	0.00%	0 VA	Total Connected Load:	4160 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	12 A
G	General	0 VA	0.00%	0 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	4160 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	12 A
O	Other	0 VA	0.00%	0 VA		

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ELECTRICAL PANEL SCHEDULES

SCALE:
SHEET NUMBER

E-301

10/25/2022 1:49:25 PM P:\CU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad

Switchboard PMDP

Location: MECHANICAL PENTHOUS... **Volts:** 480/277 Wye **A.I.C. Rating:** 35000
Supply From: MDC **Phases:** 3 **Mains Type:** MLO
Mounting: Surface **Wires:** 4 **Bus Rating:** 600 A

Circuit Notes:

Load	Type	A	B	C	Note
PANEL "HMPH"	Spare; R; G; ...	11176 VA	9136 VA	9673 VA	
AIR HANDLING UNIT- RETURN FANS (AHU-1)	M	18013 VA	18013 VA	18013 VA	
AIR HANDLING UNIT- SUPPLY FANS (AHU-1)	M	3880 VA	3880 VA	3880 VA	
PUMP #1 (P-1)	M	3048 VA	3048 VA	3048 VA	1
PUMP #2 (P-2)	M	3048 VA	3048 VA	3048 VA	1
AIR COMPRESSOR (AC-1)	M	3048 VA	3048 VA	3048 VA	
CONDENSING UNIT #1 (CU-1)	M	46336 VA	46336 VA	46336 VA	
Refer to one-line diagram for space, spare, and circuit breaker quantities.		88550 VA	86510 VA	87047 VA	
		320 A	312 A	315 A	
		2	1	2	
		% A-B	% B-C	% C-A	

Load Type		Connected Load	Demand Factor	Demand Load	Switchboard Totals	
L	Lighting	100 VA	125.00%	125 VA	Power Factor:	
R	Receptacle	1855 VA	100.00%	1855 VA		
M	Motor	255113 VA	113.62%	289865 VA	Total Connected Load:	262108 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	315 A
G	General	5040 VA	100.00%	5040 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	296885 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	357 A
O	Other	0 VA	0.00%	0 VA		

General Notes:

Panel EMH1

Location: ELEC 14A-1S4 **Voltage:** 480/277 Wye **A.I.C. Rating:** 35000
Supply From: ATS-EM **Phase:** 3 **Mains Type:** MLO
Mounting: Surface **Wire:** 4 **Bus Rating:** 100 A
Enclosure: Type 1 **MCB Rating:** 100 A

Circuit Notes:
1. PROVIDE BRANCH CIRCUIT METERING FOR EXTERIOR LIGHTS.

Note	Circ...	Load	Type	Trip	Po...	A		B		C		Po...	Trip	Type	Load	Circ...	Note
	1	L-1ST FLR HALLWAY	L	20 A	1	1839 VA	115 VA					1	20 A	L	L-MAIN ELEC RM	2	
	3	L-2ND FLR HALLWAY	L	20 A	1			1389 VA	1075 VA			1	20 A	L	L-S.E. STAIRS	4	
	5	L-3RD FLR HALLWAY	L	20 A	1					1094 VA	105 VA	1	20 A	L	L	6	
	7	L-MAIN STAIRS	L	20 A	1	1443 VA	0 VA					1	20 A	--	SPARE	8	
	9	L-MECH PENTHOUSE	L	20 A	1			477 VA	0 VA			1	20 A	--	SPARE	10	
	11	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	12	
	13	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	14	
	15	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	16	
	17	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	18	
	19	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	20	
	21	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	22	
	23	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	24	
	25	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	26	
	27	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	28	
	29	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	30	
	31	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	32	
	33	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	34	
	35	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	36	
	37					0 VA	240 VA									38	
1	39	SURGE PROTECTIVE DEVICE	--	0 A	3			0 VA	240 VA			3	45 A	Spare; G	PANEL EML1 VIA T30	40	
	41									0 VA	240 VA					42	
					Total Load:	3638 VA		3181 VA		1439 VA							
					Total Amps:	14 A		12 A		5 A							
					Phase Balance:	13 % A-B		140 % B-C		171 % C-A							

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	7537 VA	125.00%	9422 VA	Power Factor:	1
R	Receptacle	0 VA	0.00%	0 VA		
M	Motor	0 VA	0.00%	0 VA	Total Connected Load:	8257 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	10 A
G	General	720 VA	100.00%	720 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	10142 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	12 A
O	Other	0 VA	0.00%	0 VA		

Panel EML1

Location: **Voltage:** 120/208 Wye **A.I.C. Rating:** 10000
Supply From: T30 **Phase:** 3 **Mains Type:** MCB
Mounting: Surface **Wire:** 4 **Bus Rating:** 100 A
Enclosure: Type 1 **MCB Rating:** 100 A

Circuit Notes:

Note	Circ...	Load	Type	Trip	Po...	A		B		C		Po...	Trip	Type	Load	Circ...	Note
	1	1ST FLR FIRE/SMOKE	G	20 A	1	240 VA	0 VA					1	20 A	--	SPARE	2	
	3	2ND FLR FIRE/SMOKE	G	20 A	1			240 VA	0 VA			1	20 A	--	SPARE	4	
	5	3RD FLR FIRE/SMOKE	G	20 A	1					240 VA	0 VA	1	20 A	--	SPARE	6	
	7	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	8	
	9	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	10	
	11	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	12	
	13	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	14	
	15	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	16	
	17	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	18	
	19	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	20	
	21	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	22	
	23	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	24	
	25	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	26	
	27	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	28	
	29	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	30	
					Total Load:	240 VA		240 VA		240 VA							
					Total Amps:	2 A		2 A		2 A							
					Phase Balance:	0 % A-B		0 % B-C		0 % C-A							

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	0 VA	0.00%	0 VA	Power Factor:	1
R	Receptacle	0 VA	0.00%	0 VA		
M	Motor	0 VA	0.00%	0 VA	Total Connected Load:	720 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	2 A
G	General	720 VA	100.00%	720 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	720 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	2 A
O	Other	0 VA	0.00%	0 VA		

Panel HMPH

Location: MECHANICAL PENTHOUS... **Voltage:** 480/277 Wye **A.I.C. Rating:** 35000
Supply From: PMDP **Phase:** 3 **Mains Type:** MLO
Mounting: Surface **Wire:** 4 **Bus Rating:** 100 A
Enclosure: Type 1

Circuit Notes:
1. REFER TO EQUIPMENT SCHEDULES FOR OVERCURRENT PROTECTION SIZE.

Note	Circ...	Load	Type	Trip	Po...	A		B		C		Po...	Trip	Type	Load	Circ...	Note
	1					942 VA	831 VA									2	
1	3	PUMP #3 (P-3)	M	15 A	3			942 VA	831 VA			3	15 A	M	EXHAUST FAN #2 (EF-2)	4	1
	5									942 VA	831 VA					6	
	7	SPARE	--	20 A	1	0 VA	1667 VA									8	
	9	SPARE	--	20 A	1			0 VA	1667 VA			3	20 A	M	ELECTRIC UNIT HEATER #1 (EUH-1)	10	
	11	SPARE	--	20 A	1					0 VA	1667 VA					12	
	13	SPACE	--	--	1	--	--					1	--	--	SPACE	14	
	15	SPACE	--	--	1			--	--			1	--	--	SPACE	16	
	17	SPACE	--	--	1					--	--	1	--	--	SPACE	18	
	19	SPACE	--	--	1	--	--					1	--	--	SPACE	20	
	21	SPACE	--	--	1			--	--			1	--	--	SPACE	22	
	23	SPACE	--	--	1					--	--	1	--	--	SPACE	24	
	25	SPACE	--	--	1	--	--					1	--	--	SPACE	26	
	27	SPACE	--	--	1			--	--			1	--	--	SPACE	28	
	29	SPACE	--	--	1					--	--	1	--	--	SPACE	30	
	31	SPACE	--	--	1	--	--					1	--	--	SPACE	32	
	33	SPACE	--	--	1			--	--			1	--	--	SPACE	34	
	35	SPACE	--	--	1					--	--	1	--	--	SPACE	36	
	37					7736 VA	0 VA					1	20 A	--	SPARE	38	
	39	PANEL LMPH VIA T30	Spare; R; G; M; L	45 A	3			5696 VA	0 VA			1	20 A	--	SPARE	40	
	41									6233 VA	0 VA	1	20 A	--	SPARE	42	
					Total Load:	11176 VA		9136 VA		9673 VA							
					Total Amps:	41 A		33 A		35 A							
					Phase Balance:	23 % A-B		7 % B-C		15 % C-A							

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	100 VA	125.00%	125 VA	Power Factor:	1
R	Receptacle	1855 VA	100.00%	1855 VA		
M	Motor	22991 VA	105.44%	24241 VA	Total Connected Load:	29986 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	36 A
G	General	5040 VA	100.00%	5040 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	31261 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	38 A
O	Other	0 VA	0.00%	0 VA		

General Notes:

Panel LL3A

Location: Space 300I **Voltage:** 120/208 Wye **A.I.C. Rating:** 22000
Supply From: LL1A **Phase:** 3 **Mains Type:** MLO
Mounting: Recessed **Wire:** 4 **Bus Rating:** 400 A
Enclosure: Type 1

Circuit Notes:
1. PROVIDE GFCI CIRCUIT BREAKER

Note	Circ...	Load	Type	Trip	Po...	A		B		C		Po...	Trip	Type	Load	Circ...	Note
	1	FAC RSRCH3 RECP	R	20 A	1	380 VA	540 VA					1	20 A	R	WORKSHOP RECP	2	
	3	FAC RSRCH3 RECP	R	20 A	1			720 VA	360 VA			1	20 A	R	WORKSHOP N RECP	4	
	5	FAC RSRCH3 RECP	R	20 A	1					720 VA	540 VA	1	20 A	R	WORKSHOP N RECP	6	
	7	FAC RSRCH3 RECP	R	20 A	1	360 VA	540 VA					1	20 A	R	WORKSHOP S RECP	8	
	9	FAC RSRCH3 RECP	R	20 A	1			720 VA	540 VA			1	20 A	R	WORKSHOP S RECP	10	
	11	FAC RSRCH3 FLR RCPT	R	20 A	1					180 VA	540 VA	1	20 A	R	WORKSHOP S RECP	12	
	13	FAC RSRCH3 NEMA 15-30R	R	30 A	2	0 VA	540 VA					1	20 A	R	WORKSHOP S RECP	14	
	15							0 VA	1667 VA							16	
	17	SPARE	--	20 A	1					0 VA	1667 VA	3	30 A	R	R ELEC WORKSHOP 311 NEMA 15-30R	18	
	19	SPARE	--	20 A	1	0 VA	1667 VA									20	
	21	SPARE	--	20 A	1			0 VA	2500 VA			2	50 A	R	R ELEC WORKSHOP 311 NEMA 6-50R	22	
	23	SPARE	--	20 A	1					0 VA	2500 VA					24	
	25	SPARE	--	20 A	1	0 VA	2500 VA					2	50 A	R	R ELEC WORKSHOP 311 NEMA 6-50R	26	
	27	LAB PREP COUNTER	R	20 A	1			360 VA	2500 VA							28	
	29	LAB PREP COUNTER	R	20 A	1					540 VA	1500 VA	1	20 A	R	WORKSHOP SOLDER	30	
	31	LAB PREP COUNTER	R	20 A	1	360 VA	1500 VA					1	20 A	R	WORKSHOP SOLDER	32	
	33	ELEC DR HARDWARE	R	20 A	1			180 VA	0 VA			1	20 A	--	SPARE	34	
1	35	KITCHEN AC DED RCPT	R	20 A	1					425 VA	0 VA	1	20 A	--	SPARE	36	
1	37	KITCHEN RECEP	R	20 A	1	605 VA	0 VA					1	20 A	--	SPARE	38	
1	39	KITCHEN CNTR RECEP	R	20 A	1			425 VA	0 VA			1	20 A	--	SPARE	40	
	41	OFFICE 312 RECEP	R	20 A	1					900 VA	0 VA	1	20 A	--	SPARE	42	
	43	OFFICE 310 RECEP	R	20 A	1	540 VA	180 VA					1	20 A	R	FAC. RSRCH 2 RECEP	44	
	45	OFFICE 308 RECEP	R	20 A	1			540 VA	180 VA			1	20 A	R	FAC. RSRCH 2 RECEP	46	
	47	OFFICE 306 RECEP	R	20 A	1					540 VA	180 VA	1	20 A	R	FAC. RSRCH 2 RECEP	48	
	49	OFFICE 304 RECEP	R	20 A	1	540 VA	720 VA					1	20 A	R	FAC. RSRCH 2 RECEP	50	
	51	PRE-FCN CTR RECP	R	20 A	1			360 VA	720 VA			1	20 A	R	FAC. RSRCH 2 RECEP	52	
	53	PRE-FUNCTION RECEP	R	20 A	1					360 VA	540 VA	1	20 A	R	FAC. RSRCH 2 RECEP	54	
1	55	CORRIDOR EWC	M	20 A	1	425 VA	560 VA					1	20 A	R	FAC. RSRCH 2 RECEP	56	
	57	CORRIDOR RECEP	R	20 A	1			540 VA	180 VA			1	20 A	R	FAC RSRCH 2 FLR RECP	58	
	59	CAPSTONE RECEP	R	20 A	1					540 VA	0 VA	2	30 A	R	R ECE FAC RESEARCH 2 NEMA 6-30R	60	
	61	CAPSTONE W RECEP	R	20 A	1	360 VA	0 VA									62	
	63	CAPSTONE N RECEP	R	20 A	1			360 VA	1667 VA							64	
	65	CAPSTONE N RECEP	R	20 A	1					360 VA	1667 VA	3	30 A	R	R ECE FAC RESEARCH 2 NEMA 15-30R	66	
	67	CAPSTONE N RECEP	R	20 A	1	360 VA	1667 VA									68	
	69	CAPSTONE S RECEP	R	20 A	1			180 VA	0 VA			1	20 A	--	SPARE	70	
	71	CAPSTONE S RECEP	R	20 A	1					180 VA	0 VA	1	20 A	--	SPARE	72	
	73	CAPSTONE S RECEP	R	20 A	1	180 VA	0 VA					1	20 A	--	SPARE	74	
	75	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	76	
	77	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	78	
	79	SPARE	--	20 A	1	0 VA	14948...									80	
	81	SPARE	--	20 A	1			0 VA	14588...			3	200 A	Spare; R	PANEL LL3B	82	
	83	SPARE	--	20 A	1					0 VA	14598...					84	
					Total Load:	29471 VA		29286 VA		28476 VA							
					Total Amps:	247 A		245 A		237 A							
					Phase Balance:	1 % A-B		3 % B-C		4 % C-A							

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	0 VA	0.00%	0 VA	Power Factor:	1
R	Receptacle	86808 VA	55.76%	48404 VA		
M	Motor	425 VA	125.00%	531 VA	Total Connected Load:	87233 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	242 A
G	General	0 VA	0.00%	0 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	48935 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	136 A
O	Other	0 VA	0.00%	0 VA		

General Notes:

Panel LMPH

Location: MECHANICAL PENTHOUS... **Voltage:** 120/208 Wye **A.I.C. Rating:** 10000
Supply From: T30 **Phase:** 3 **Mains Type:** MCB
Mounting: Surface **Wire:** 4 **Bus Rating:** 100 A
Enclosure: Type 1 **MCB Rating:** 100 A

Circuit Notes:

Note	Circ...	Load	Type	Trip	Po...	A		B		C		Po...	Trip	Type	Load	Circ...	Note
	1	L- AHU LIGHTS	L	20 A	1	100 VA	240 VA					1	20 A	G	1ST FLR SE TB (2)	2	
	3	R- AHU INTEGRAL...	R	20 A	1			610 VA	108 VA			2	20 A	M	1ST FLR "CUH-1" CABINET UNIT HEATER	4	
	5	BOILER #1	M	20 A	1					355 VA	108 VA					6	
	7	BOILER #2	M	20 A	1	355 VA	600 VA					1	20 A	G	3RD FLR NW TB (5)	8	
	9	DOM. CIRC PUMP (DCP)	M	20 A	1			528 VA	480 VA			1	20 A	G	3RD FLR E TB (4)	10	
	11	WATER HEATER (WH-1)	M	20 A	1					624 VA	600 VA	1	20 A	G	3RD FLR S TB (5)	12	
	13	EXHAUST FAN #1 (EF-1)	M	20 A	1	1176 VA	600 VA					1	20 A	G	2ND FLR E TB (4)	14	
	15	SERVICE RECEPTACLE	R	20 A	1			360 VA	600 VA			1	20 A	G	2ND FLR S TB (4)	16	
	17	1ST FLR NW TB (5)	G	20 A	1					600 VA	720 VA	1	20 A	G	2ND NW TB/ETB/LTB (6)	18	
	19	2ND FLR "CUH-2" CABINET UNIT HEATER	M	20 A	2	108 VA	1872 VA					2	20 A	M	CU-4 CONDENSING UNIT	20	
	21							108 VA	1872 VA							22	
	23	CU-3 CONDENSING UNIT	M	20 A	2					1872 VA	108 VA	2	20 A	M	CUH-3 CABINET UNIT HEATER	24	
	25					1872 VA	108 VA									26	
	27	AIR COMP. CNTRL PNL	R	20 A	1			180 VA	250 VA			1	20 A	M	UNIT HEATER (UH-2)	28	
	29	TRANSFER FAN 2, TF-2	M	20 A	1					396 VA	250 VA	1	20 A	M	UNIT HEATER (UH-2)	30	
	31	DESTRAT FAN "DF-1"	R	20 A	1	305 VA	400 VA					1	20 A	R	R MECH PENTHOUSE	32	
	33	SPARE	--	20 A	1			0 VA	600 VA			1	20 A	M	FAN FILTER UNIT	34	
	35	SPARE	--	20 A	1					0 VA	600 VA	1	20 A	G	1ST FLR SW TB	36	
	37	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	38	
	39	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	40	
	41	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	42	
	43	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	44	
	45	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	46	
	47	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	48	
	49	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	50	
	51	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	52	
	53	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	54	
	55	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	56	
	57	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	58	
	59	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	60	
					Total Load:	7736 VA		5696 VA		6233 VA							
					Total Amps:	65 A		47 A		53 A							
					Phase Balance:	37 % A-B		11 % B-C		24 % C-A							

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	100 VA	125.00%	125 VA	Power Factor:	1
R	Receptacle	1855 VA	100.00%	1855 VA		
M	Motor	12670 VA	107.39%	13606 VA	Total Connected Load:	19665 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	55 A
G	General	5040 VA	100.00%	5040 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	20626 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	57 A
O	Other	0 VA	0.00%	0 VA		

Panel LL3B

Location: Space 300I **Voltage:** 120/208 Wye **A.I.C. Rating:** 10000
Supply From: LL3A **Phase:** 3 **Mains Type:** MLO
Mounting: Recessed **Wire:** 4 **Bus Rating:** 200 A
Enclosure: Type 1

Circuit Notes:

Note	Circ...	Load	Type	Trip	Po...	A		B		C		Po...	Trip	Type	Load	Circ...	Note
	1	EC LAB RECEP E WALL	R	20 A	1	180 VA	1321 VA									2	
	3	EC LAB RECEP W WALL	R	20 A	1			180 VA	1321 VA			3	20 A	R	EC LAB POWER STATION 1A	4	
	5	EC LAB RECEP W WALL	R	20 A	1					180 VA	1321 VA					6	
	7	EC LAB WALL COMP.	R	20 A	1	180 VA	180 VA					1	20 A	R	EC LAB RECEP N WALL	8	
	9	SPARE	--	20 A	1			0 VA	1321 VA							10	
	11	SPARE	--	20 A	1					0 VA	1321 VA	3	20 A	R	EC LAB POWER STATION 1B	12	
	13	SPARE	--	20 A	1	0 VA	1321 VA									14	
	15	SPARE	--	20 A	1			0 VA	180 VA			1	20 A	R	EC LAB RECEP N WALL	16	
	17	EC LAB GEN RECEPS	R	20 A	1					1080 VA	1321 VA					18	
	19	EC LAB RECEP S WALL	R	20 A	1	360 VA	1321 VA					3	20 A	R	EC LAB POWER STATION 1C	20	
	21	EC LAB RECEP S WALL	R	20 A	1			360 VA	1321 VA							22	
	23	EC LAB RECEP S WALL	R	20 A	1					360 VA	180 VA	1	20 A	R	EC LAB RECEP N WALL	24	
	25	EC LAB RECEP S WALL	R	20 A	1	360 VA	1321 VA									26	
	27	EC LAB RECEP W WALL	R	20 A	1			180 VA	1321 VA			3	20 A	R	EC LAB POWER STATION 1D	28	
	29	EC LAB RECEP W WALL	R	20 A	1					180 VA	1321 VA					30	
	31	EC LAB RECEP W WALL	R	20 A	1	180 VA	180 VA					1	20 A	R	EC LAB RECEP N WALL	32	
	33	EC LAB RECEP E WALL	R	20 A	1			180 VA	1321 VA							34	
	35	EC LAB CHARGING...	R	20 A	1					180 VA	1321 VA	3	20 A	R	EC LAB POWER STATION 1E	36	
	37	SPARE	--	20 A	1	0 VA	1321 VA									38	
	39	SPARE	--	20 A	1			0 VA	180 VA			1	20 A	R	EC LAB RECEP N WALL	40	
	41	SPARE	--	20 A	1					0 VA	1321 VA					42	
	43	3RD FLR CORRIDOR	R	20 A	1	540 VA	1321 VA					3	20 A	R	EC LAB POWER STATION 1F	44	
	45	CONFERENCE RECEP	R	20 A	1			720 VA	1321 VA							46	
	47	CONFERENCE TV/PROJ	R	20 A	1					610 VA	180 VA	1	20 A	R	EC LAB RECEP E WALL	48	
	49	CONF. FLR RECEP	R	20 A	1	360 VA	1321 VA									50	
	51	CONF. FLR RECEP	R	20 A	1			360 VA	1321 VA			3	20 A	R	EC LAB POWER STATION 1G	52	
	53	CONFERENCE RECEP	R	20 A	1					900 VA	1321 VA					54	
	55	RR COUNTER RECEP	R	20 A	1	360 VA	1321 VA									56	
	57	HAND DRYER RR 303	R	20 A	1			1500 VA	1321 VA			3	20 A	R	EC LAB POWER STATION 1H	58	
	59	JANITOR CLOSET RECP	R	20 A	1					180 VA	1321 VA					60	
	61	HAND DRYER RR 307	R	20 A	1	1500 VA	0 VA					1	20 A	--	SPARE	62	
	63	CONF RM WALL STATN	R	20 A	1			180 VA	0 VA			1	20 A	--	SPARE	64	
	65	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	66	
	67	SPARE	--	20 A	1	0 VA	0 VA					1	20 A	--	SPARE	68	
	69	SPARE	--	20 A	1			0 VA	0 VA			1	20 A	--	SPARE	70	
	71	SPARE	--	20 A	1					0 VA	0 VA	1	20 A	--	SPARE	72	
					Total Load:	14948 VA		14588 VA		14598 VA							
					Total Amps:	125 A		122 A		122 A							
					Phase Balance:	2 % A-B		0 % B-C		2 % C-A							

Load Type		Connected Load	Demand Factor	Demand Load	Panel Totals	
L	Lighting	0 VA	0.00%	0 VA	Power Factor:	1
R	Receptacle	44133 VA	61.33%	27067 VA		
M	Motor	0 VA	0.00%	0 VA	Total Connected Load:	44133 VA
C	Continuous	0 VA	0.00%	0 VA	Total Connected Current:	123 A
G	General	0 VA	0.00%	0 VA		
K	Kitchen	0 VA	0.00%	0 VA	Total Demand Load:	27067 VA
E	Existing	0 VA	0.00%	0 VA	Total Demand Current:	75 A
O	Other	0 VA	0.00%	0 VA		

General Notes:

OZ ARCHITECTURE
3003 Larimer Street
Denver, Colorado 80205
phone 303.861.5704
www.ozarch.com

COLORADO REGISTERED PROFESSIONAL ENGINEER
40442
10/25/2022
Electrical

CATOR | RUMA & ASSOCIATES, CO.
896 Tabor Street, Lakewood, CO 80401
(303) 232-6200 ▪ www.catorruma.com

ANSCHUTZ ENGINEERING CENTER
1420 AUSTIN BLUFFS PKWY
COLORADO SPRINGS, CO 80918

PROJ. NO. 121091.00
DRAWN: MJH
CHECKED: MJH/JAH
APPROVED: JAH
DATE: 10/26/2022

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ANSCHUTZ ENGINEERING CENTER
ISSUED FOR:
CONSTRUCTION DOCUMENTS

SHEET TITLE:
ELECTRICAL PANEL SCHEDULES

SCALE:
SHEET NUMBER
E-302

P:\CU\UCCS\2021-423 Anschutz Engineering Bldg Addition\Cad
10/25/2022 1:49:28 PM

LAB BUILDING GROUND BAR RISER
NO SCALE

TER/TR GROUND BAR DETAIL
NO SCALE

NOTES:
1. GROUND BAR MATERIAL SHALL BE COPPER.
2. PROVIDE GROUND BAR SPLICE KIT(S) OR ADDITIONAL GROUND BAR AS NECESSARY TO ACCOMMODATE THE QUANTITY OF CONNECTIONS REQUIRED.
3. GROUND BAR SHALL MEET TIA-607-C REQUIRMENTS AND BISCI RECOMMENDATIONS.
4. PROVIDE NVENT/ERICO #TGBA16L08P OR EQUIVALENT.

NOTE:
PROVIDE LAMACOID NAMEPLATE WITH 1/2" HIGH WHITE CORE LETTERS READING "MAIN GROUND BAR". MOUNT ON WALL ABOVE GROUND BAR. NOT ALL CONNECTIONS ARE SHOWN.

MAIN GROUND BAR DETAIL
NO SCALE

TRANSFORMER MOUNTING DETAIL
NO SCALE
NOTE: SEE SPECIFICATIONS FOR ADDITIONAL SUPPORT, SEISMIC AND OTHER REQUIREMENTS.

TRANSFORMER MOUNTING DETAIL
NO SCALE
NOTE: SEE SPECIFICATIONS FOR ADDITIONAL SUPPORT, SEISMIC AND OTHER REQUIREMENTS.

TYPICAL TRANSFORMER RACKING DETAIL
NO SCALE

- EACH VERTICAL STRUT LEG WILL HOLD 6,263 LBS. (12 GAUGE BACK-TO-BACK 1-5/8" STRUT)
- EACH 48" HORIZONTAL STRUT RUN WILL HOLD 2,405 LBS. UNIFORM LOAD. (12 GAUGE BACK-TO-BACK 1-5/8" STRUT)

NOTES:
1. CARD ACCESS SYSTEM COMPONENTS, LAYOUT, WIRING AND OPERATION SHALL MATCH EXISTING.
2. CONTRACTOR SHALL VERIFY WIRING WITH MANUFACTURERS VENDOR PRIOR TO ROUGH-IN.
3. PROVIDE COMPLETE INSTALLATION INCLUDING, BUT NOT LIMITED TO, CARD READER, (PUSHBUTTON or MOTION SENSOR) & CONTROLLER PER SPECIFICATIONS. CONTRACTOR SHALL RETAIN THE VENDOR/MANUFACTURER LISTED IN THE SPECIFICATIONS TO PROGRAM THE SYSTEM, PROVIDE ACCESS CONTROL DRAWINGS AND PROVIDE RECORD DRAWINGS.

CARD ACCESS DETAIL
NO SCALE

MAIN DISTRIBUTION CENTER COMPARTMENT NAMEPLATE DETAIL
SCALE: FULL

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.
2. REWORD NAMEPLATE FOR FIELD CONDITIONS.

TRANSFORMER NAMEPLATE DETAIL
SCALE: FULL

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.
2. REWORD NAMEPLATE FOR FIELD CONDITIONS.

MAIN DISTRIBUTION CENTER NAMEPLATE DETAIL
SCALE: FULL

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.
2. REWORD NAMEPLATE FOR FIELD CONDITIONS.
3. AMP RATING SHALL INDICATE BUS RATING.

SUB-DISTRIBUTION CENTER AND BRANCH PANELBOARD NAMEPLATE DETAIL
SCALE: FULL

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.
2. REWORD NAMEPLATE FOR FIELD CONDITIONS.
3. AMP RATING SHALL INDICATE BUS RATING.

UTILIZATION EQUIPMENT NAMEPLATE DETAIL
SCALE: FULL

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.
2. REWORD NAMEPLATE FOR FIELD CONDITIONS.
3. HP SHALL INDICATE HORSEPOWER.

EXPLOSION PROOF LUMINAIRE MOUNTING DETAIL
NO SCALE
NOTE: SEE SPECIFICATIONS FOR ADDITIONAL SUPPORT, SEISMIC AND OTHER REQUIREMENTS.

GROUND CONDUCTOR TAG DETAIL
NO SCALE

ALL GROUNDING WORK DONE UNDER THIS CONTRACT SHALL INCLUDE THE FOLLOWING UNLESS SPECIFICALLY EXCLUDED:

A. TAG ALL GROUNDING ELECTRODE CONDUCTORS AND ASSOCIATED BONDING CONDUCTORS AT THEIR POINT OF ATTACHMENT TO GROUND BUS AND GROUNDING ELECTRODE (WHERE POSSIBLE) WITH A ROUND WHITE CORE. GREEN PHENOLIC NAMEPLATE AS SHOWN IN DETAIL 'A'.

B. IDENTIFY ABOVE REFERENCED CONDUCTORS WITH 6" BAND OF GREEN TAPE AT EACH END AND AT 10'INTERVALS WHERE RUN EXPOSED. STENCIL CONDUITS CONTAINING THESE CONDUCTORS "MAIN GROUND" IN GREEN KROY LETTERS. 1/2" DIAMETER OF CONDUIT IN HEIGHT.

C. SHOW GROUNDING ELECTRODE SYSTEM CONNECTIONS BY IDENTIFYING (ON THE RECORD DRAWING MARK-UPS) WHERE (ROOM NO. AND/OR NAME) AND TO WHAT (ROD, WATER PIPE, GROUND BUS, ETC.) THEY TERMINATE.

SERVICE ENTRANCE LABEL SECONDARY NAME PLATE DETAIL MAX AVAILABLE FAULT CURRENT
SCALE: FULL

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL NAMEPLATE INFORMATION.

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COLORADO REGISTERED PROFESSIONAL ENGINEER 40442 10/25/2022
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PROJ. NO. 121091.00
DRAWN: MJH
CHECKED: MJH/JAH
APPROVED: JAH
DATE: 10/26/2022

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ISSUED FOR: CONSTRUCTION DOCUMENTS
SHEET TITLE: ELECTRICAL DETAILS
SCALE: 1/8" = 1'-0"
SHEET NUMBER
E-401

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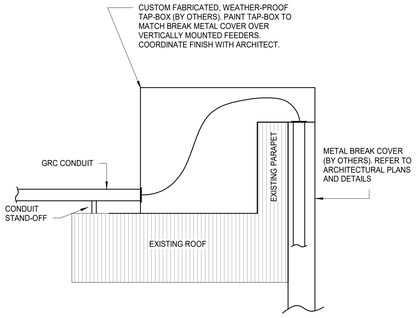
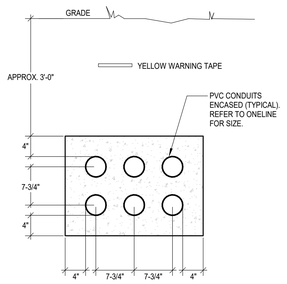


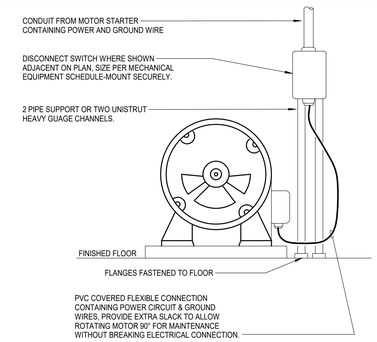
CUSTOM ROOF MOUNTED PULL-BOX DETAIL

NO SCALE



DUCT BANK DETAIL

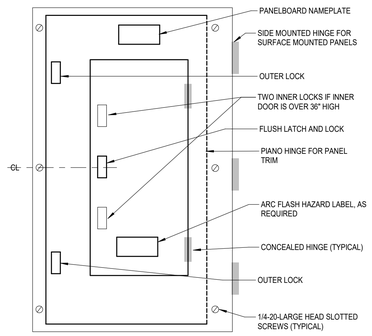
NO SCALE



CONNECTION TO FLOOR MOUNTED MOTORS

NO SCALE

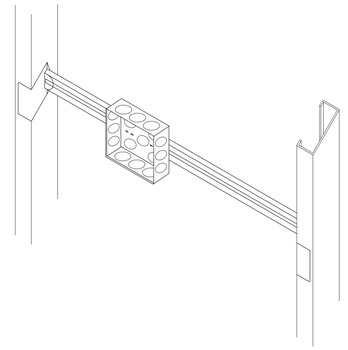
NOTE: SEE SPECIFICATIONS FOR ADDITIONAL SUPPORT, SEISMIC AND OTHER REQUIREMENTS.



DOOR-IN-DOOR PANEL FRONT

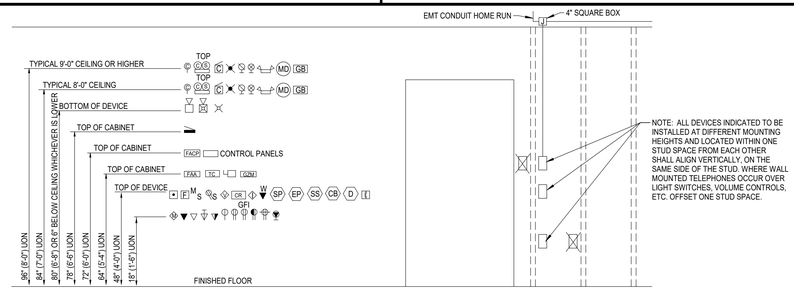
NO SCALE

NOTES:
1. ALL BOLTS SHALL HAVE LARGE (3/8") ROUND HEAD. NO WASHERS ALLOWED
2. TYPICAL FOR ALL 120/208V AND 277/480V BRANCH PANELBOARDS.



OUTLET BOX SUPPORT DETAIL

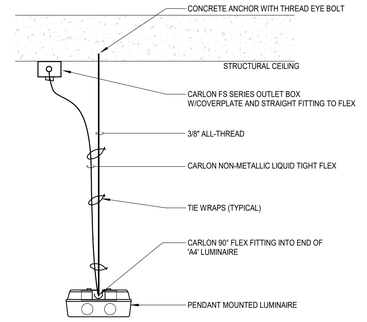
NO SCALE



TYPICAL DEVICE MOUNTING HEIGHTS

NO SCALE

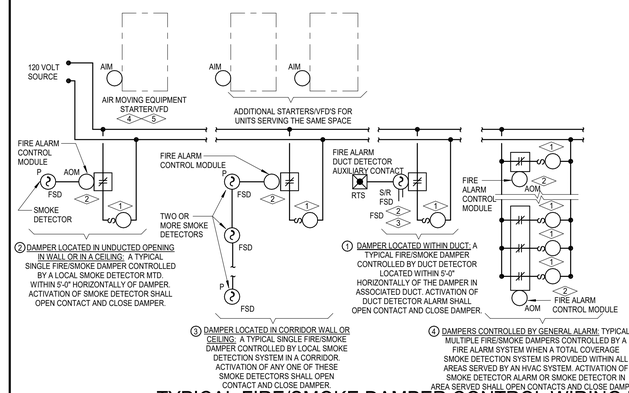
NOTES:
1. HEIGHTS SHOWN ARE TYPICAL TO CENTERLINE OF BOX UNLESS NOTED OTHERWISE.
2. WHERE EVER DEVICES ARE INDICATED TO BE ABOVE DOORS, DEVICE SHALL BE CENTERED BETWEEN TOP OF DOOR TRIM AND CEILING LINE.
3. MOUNTING HEIGHTS SHOWN ON ARCHITECTURAL ELEVATIONS SHALL GOVERN OVER THOSE SHOWN ABOVE.
4. DEVICE MOUNTING HEIGHTS SHALL BE PER MOST CURRENT VERSION OF GOVERNING CODES AND STANDARDS NEC, IBC, NFPA, ADA, ETC. WHERE DESCREPANCIES BECOME EVIDENT CONSULT THE ARCHITECT AND ENGINEER OF RECORD.



PENDANT LUMINAIRE MOUNTING DETAIL

NO SCALE

NOTE: SEE SPECIFICATIONS FOR ADDITIONAL SUPPORT, SEISMIC AND OTHER REQUIREMENTS.



TYPICAL FIRE/SMOKE DAMPER CONTROL WIRING DIAGRAM

NO SCALE

TYPICAL FIRE/SMOKE DAMPER GENERAL NOTES:

1. SEE MECHANICAL PLAN DRAWING FOR ACTUAL LOCATION AND QUANTITIES OF DAMPERS.
2. PROVIDE CONTROL MODULE AT EACH FSD DETECTOR DEVICE AS REQUIRED.

TYPICAL FIRE/SMOKE DAMPER DETAIL NOTES:

1. ELECTRIC/PNEUMATIC SWITCH OR ELECTRIC DAMPER OPERATOR(TYPICAL). EP SWITCH PROVIDED WITH DAMPEROPERATOR. PROVIDE LOCAL DISCONNECT.
2. CONNECT CONTROL MODULES AND DETECTORS TO FACP FOR ALARM AND ANNUNCIATION SEPARATE FROM DAMPER CONTROL WIRING.
3. COORDINATE AND PROVIDE CEILING/WALL ACCESS DOORS TO DUCT DETECTORS WHERE REQUIRED.
4. PROVIDE CLOSURE OF ALL ASSOCIATED FIRE/SMOKE DAMPERS ON AIR MOVING EQUIPMENT SHUTDOWN. PROVIDE MONITOR MODULE AT EACH UNIT RELATED TO THE DAMPERS TO MONITOR RUN STATUS OF UNIT VIA AUXILIARY CONTACTS IN STARTER/VFD. PROVIDE CONDUIT, WIRING AND CONNECTIONS.
5. COORDINATE AND PROGRAM AIR MOVING EQUIPMENT SHUTDOWN TO AHU'S UPON CLOSURE OF AN ASSOCIATED FIRE/SMOKE DAMPER WHERE NOTED ON MECHANICAL DRAWINGS AND/OR IN SPECIFICATIONS.

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ISSUED FOR:
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SHEET TITLE:
ELECTRICAL DETAILS

SCALE: 1/8" = 1'-0"
SHEET NUMBER
E-402

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TA/TE STANDARD ABREVIATIONS

ID	DESCRIPTION
ADA-##	AUDIO DISTRIBUTION AMPLIFIER
AMP(X)-##	AUDIO AMPLIFIER
ANT-##	ANTENNA
APB(X)-##	AUDIO PATCH BAY
CAM(x)-##	CAMERA
AV(X)-##	AV WALL PLATE. "X" DENOTES THE NUMBER OF GANGS. "##" DENOTES INSTANCE ID
CPU-##	COMPUTER
CCU-##	CAMERA CONTROL UNIT
CSP-##	CONTROL SYSTEM PROCESSOR
DSP(X)-##	DIGITAL SIGNAL PROCESSOR.
DVC(X)-##	DIGITAL VOLUME CONTROL
FOR-##	FIBER OPTIC RECEIVER
FOT-##	FIBER OPTIC TRANSMITTER
FOX-##	FIBER OPTIC TRANSCEIVER
JB(X)-##	JUNCTION BOX. "X" DENOTES THE TYPE DEFINED IN THE BOX SCHEDULE
KVM-##	KEYBOARD VIDEO MOUSE TRAY (RACK MOUNT)
MAP-##	WIRELESS MICROPHONE ACCESS POINT
MIC-XX	MICROPHONE.
MIX(X)-##	AUDIO MIX PLATE.
MON(X)-33	VIDEO MONITOR. "XX" DENOTES SIZE OF SCREEN.
PAC(-##)	CHIEF PAC BACK BOX. USE OF "##" OPTIONAL.
PC-##	PRODUCTION COMMUNICATIONS WALL PLATE
PCMS-##	PRODUCTION COMMUNICATIONS MASTER STATION
PCPS-##	PRODUCTION COMMUNICATONS POWER SUPPLY
PCS-##	PRODUCTION COMMUNICATIONS SPEAKER STATION
PDU-##	POWER DISTRUBUTION UNIT/STRIP
PROJ(X)-##	VIDEO PROJECTOR. "X" DENOTES TYPE.
RCP-##	CAMERA REMOTE CONTROL PANEL
RK(X)-##	EQUIPMENT RACK. USE "X" IF YOU HAVE MULTIPLE RACK TYPE/SIZE.
SPK(X)-##	LOUDSPEAKER. "X" DENOTES THE TYPE. "##" DENOTES THE INSTANCE
TP(X)-##	TOUCH PANEL. "X" DENOTES SIZE.
TV-##	TELEVISION WALL PLATE
TV(XX)-##	TELEVISION. "XX" DENOTES SIZE OF TV.
UPS(X)-##	UNINTERRUPTIBLE POWER SUPPLY.
VC(XX)-##	VOLUME CONTROL. USE "XX" TO DENOTE TYPE
VDA-##	VIDEO DISTRIBUTION AMPLIFIER
VID(XX)-##	VIDEO PROJECTOR PLATE
VPB(X)-##	VIDEO PATCH BAY
WAP-##	WIRELESS ACCESS POINT
WLESS-RX-##	WIRELESS MICROPHONE RECEIVER
WTL-##	WITNESS TIMER LIGHT
WW(X)-##	WIREWAY. USE "X" IF MORE THAN ONE WIREWAY TYPE/SIZE.

PROJECT CABLE TYPES SCHEDULE

ID	SIGNAL	MAKE	NON PLENUM	PLENUM	NOTES
A	AUDIO	WEST PENN	454	D25454	LINE LEVEL AUDIO
A	AUDIO	WEST PENN	455	-	IN-RACK CONFORMABLE LINE LEVEL AUDIO
C	CONTROL	WEST PENN	77350	D25350	MEDIA CONTROL CABLE
D	DATA	WEST PENN	D2404	D252404	DATA/RS-232/422/485
DM	DIGITAL MEDIA	CRESTRON	DM-CBL-8G-NP	DM-CBL-8G-P	CRESTRON DIGITAL MEDIA CABLE
DX	DX LINK	WEST PENN	4246AF	254246AF	AMD DX LINK CABLE
E	CONTROL	WEST PENN	291	25291B	RELAY/CONTACT CLOSURE
F1	RF RG-6	WEST PENN	841	25841	75Ω CATV/SATELLITE DROP
F2	RF RG-11	WEST PENN	821	25821	75Ω CATV/SATELLITE TRUNK
H1	RF RG-58A/U	WEST PENN	812	25812	<25' 50Ω ANTENNA FOR WIRELESS SYSTEMS
H2	RF RG-8X/U	WEST PENN	807X	N/A	>25' OR <100' 50Ω ANTENNA FOR WIRELESS SYSTEMS
H3	RF RG-213/U	WEST PENN	810	25810	>100' 50Ω ANTENNA FOR WIRELESS SYSTEMS
I	RG-58A/U	WEST PENN	812	25812	50Ω FOR ASSISTIVE LISTENING SYSTEMS
L1	1G LAN	WEST PENN	4246	254246	ETHERNET/CAT 6 (1G) U/UTP
L2	10G LAN	WEST PENN	4246A	254246A	ETHERNET/CAT 6A (10G) U/UTP
L3	10G LAN	WEST PENN	4246AF	254246AF	ETHERNET/CAT 6A SHIELDED (10G) F/UTP
M	MICROPHONE	WEST PENN	454	D25454	MICROPHONE LEVEL AUDIO
M	MICROPHONE	WEST PENN	455	-	IN-RACK CONFORMABLE MICROPHONE LEVEL AUDIO
P	POWER 18# 2C	WEST PENN	224	25224B	LOW VOLTAGE POWER
S1	SPEAKER 10#/ 2C	WEST PENN	C210	25210	>150' 8Ω LOUDSPEAKER/SUBWOOFER
S2	SPEAKER 12#/ 2C	WEST PENN	227	25227B	>25' OR <150' 8Ω LOUDSPEAKER
S3	SPEAKER 16#/ 2C	WEST PENN	225	25225B	<500' 70V LOUDSPEAKER
S4	SPEAKER 12#/ 4C	WEST PENN	248	25248B	>25' OR <150' 8Ω BIAMP LOUDSPEAKER
U1	F/UTP	WEST PENN	4246AF	254246AF	2K HD HDBase-T
U2	F/UTP	BELDEN	2183R	2183P	4K UHD HDBase-T
X1	COM	BELDEN	8762	N/A	<500' PRODUCTION COMMUNICATIONS
X2	COM	BELDEN	8760	N/A	>500' PRODUCTION COMMUNICATIONS
XT	EXTRON XTP	EXTRON	XPT DTP 24	XTP DTP 24P	XTP DIGITAL DISTRIBUTION
Y	FIBER	TBD	TBD	TBD	FIBER OPTIC - RE: TN SPECIFICATIONS
Z	DIG AUDIO	WEST PENN	DA2401	DA252401	AES/EBU DIGITAL AUDIO

CABLE NOTES

1. NOT ALL ACCEPTABLE CABLES LISTED ABOVE MAY BE EMPLOYED IN THE SYSTEM.
2. INSULATION DIELECTRIC AND JACKET SHALL BE APPROPRIATE TO INSTALLATION CODE REQUIREMENTS.
3. INSTALL IN METALLIC CONDUIT, WIRE-WAY, OR FLEXIBLE CONDUIT, UNLESS OTHERWISE NOTED OR INSTRUCTED.
4. NO SPLICES OR INTERMEDIATE CONNECTION POINTS ARE PERMITTED UNLESS SPECIFICALLY CALLED FOR IN THE SPECIFICATION OR DRAWINGS.
5. NO SUBSTITUTIONS ARE ALLOWABLE WITHOUT SPECIFIC WRITTEN APPROVAL.
6. ALL CABLE FOR A GIVEN WIRING CATEGORY SHALL BE CONSISTENT UNLESS SPECIFIED OTHERWISE; (I.E. IF WEST PENN (X)45 IS CHOSEN FOR FIXED LINE LEVEL WIRING, ALL FIXED LINE LEVEL WIRING SHALL BE DONE WITH THIS CABLE).
7. CABLES WITH WIRE SHIELDS, BRAID OR WOUND, MUST USE ALL THE WIRE CONDUCTORS FOR SHIELD TERMINATION, AND NOT JUST A DRAIN WIRE OR SOME OF THE SHIELD STRANDS. CONNECTIONS NOT FOLLOWING THIS REQUIREMENT WILL BE REJECTED.
8. FOIL SHIELDED CABLES ONLY PROVIDED WITH A DRAIN WIRE MUST USE THE DRAIN WIRE FOR SHIELD TERMINATION.
9. MOLDED CABLE/CONNECTORS ARE NOT ACCEPTABLE FOR AUDIO, VIDEO, OR CONTROL CIRCUITS WHEN SPECIFICALLY IDENTIFIED (PATCH CORDS) FOR COMPUTER SIGNAL INTERCONNECTION, OR FOR AC POWER CORDS.
10. ALL EQUIPMENT MUST BE PROVIDED WITH SIGNAL AND/OR CONTROL CABLING, WHETHER OR NOT SPECIFICALLY SHOWN ON THE CONDUIT AND WIRING DRAWINGS.
11. THE MALE END OF ALL PORTABLE CABLES SHALL BE SUPPLIED WITH RIP-TIE ORINGINAL CABLE WRAP OR APPROVED EQUAL.

PROJECT CABLE CONNECTOR SCHEDULE

ID	TYPE	MAKE	CABLE MOUNT	CHASSIS MOUNT	NOTES
XLRf	XLR FEMALE	NEUTRIK	NC3FD-L-1-B	NC3FD-L-1-B	LINE/MIC LEVEL AUDIO
XLRm	XLR MALE	NEUTRIK	NC3MD-L-1-B	NC3MD-L-1-B	LINE/MIC LEVEL AUDIO
XLRfx	XLR FEMALE	NEUTRIK	NC3FXX-EMC	NC3FDX-EMC-SPEC	RF HOSTILE ENVIRONMENT
XLRmx	XLR MALE	NEUTRIK	NC3MXX-EMC	N/A	RF HOSTILE ENVIRONMENT
TSf	1/4" PHONE FEMALE	NEUTRIK	NJFC6-B	NJ3FP6C-B	1/4" TIP SLEEVE
TRSf	1/4" PHONE FEMALE	NEUTRIK	NJFC6-B	NJ3FP6C-B	1/4" TIP RING SLEEVE
TSm	1/4" PHONE MALE	NEUTRIK	NP2X-B	N/A	1/4" TIP SLEEVE
TRSm	1/4" PHONE MALE	NEUTRIK	NP3X-B	N/A	1/4" TIP RING SLEEVE
mTRS	3.5" MINI	SWITCHCRAFT	35HDBAU	N/A	3.5MM (1/8") MINI STEREO AUDIO
NL2	SPEAKON 2	NEUTRIK	NL2FC	NL2MP	2C LOUDSPEAKER
NL4...	SPEAKON 4	NEUTRIK	NL4FC	NL4MP	4C LOUDSPEAKER
NL8	SPEAKON 8	NEUTRIK	NL8FC	NL8MP	8C LOUDSPEAKER
RCAf	RCA FEMALE	NEUTRIK	N/A	NF2D-B-(#)	UNBAL AUDIO, "#" = COLOR
RCAm	RCA MALE	NEUTRIK	NF2C-B2	N/A	UNBAL AUDIO
RCAf	RCA FEMALE	CANARE	N/A	RJ-BCJRU	75Ω VIDEO, COLOR MATCH INSULATOR
RCAm	RCA MALE	LIBERTY	CM-RGB25-RCA	N/A	75Ω VIDEO, 25 AWG SOLID
RCAm	RCA MALE	LIBERTY	CM-RG59C-RCA	N/A	75Ω VIDEO, RG-59, SUB "P" FOR "C" FOR PLENUM
RCAm	RCA MALE	LIBERTY	CM-RG6C-RCA	N/A	75Ω VIDEO, RG-6, SUB "P" FOR "C" FOR PLENUM
F	F FEMALE	CANARE	N/A	FJ-JR	75OCATV, PROVIDE ISO BUSHING
F	F MALE	LIBERTY	CM-RG59C-F	N/A	75Ω CATV, RG-59, SUB "P" FOR "C" FOR PLENUM
F	F MALE	LIBERTY	CM-RG6C-F	N/A	75Ω CATV, RG-6 CUB "P" FOR "C" FOR PLENUM
RJ45	RJ45	PANDUIT	SP588-C	CJ688TP (##)	TX6 PLUS, "##" = JACK COLOR
EC	ETHERCON	NEUTRIK	NE8MC6-MO	NE8FDV-Y110-B	CATEGORY 6 DATA (STP OR UTP)
EC	ETHERCON	NEUTRIK	NE8MX6-B(-T)	NE8FDX-Y6-B	CATEGORY 6 DATA (STP OR UTP)
PC	POWERCON 20A	NEUTRIK	NAC3FCA	NA3MPA-1	POWER
W3	W3 MASS	WHIRLWIND	W3IRP	W3CRP	122 PIN, 40 CHANNEL AUDIO
W4	W4 MASS	WHIRLWIND	W4IRP	W4CRP	176 PIN, 58 CHANNEL AUDIO
W5	W5 MICRO MASS	WHIRLWIND	W5IRP	W5CRP	48 PIN, 16 CHANNEL AUDIO
W6	W5 MICRO MASS	WHIRLWIND	W6IRP	W6CRP	84 PIN, 28 CHANNEL AUDIO
DM	DIGITAL MEDIA	CRESTRON	DM-8G-CONN-WG	-	CRESTRON DIGITAL MEDIA CABLE MOUNT
DM	DIGITAL MEDIA	NEUTRIK	-	NE8FDY-C6-B	CRESTRON DIGITAL MEDIA CHASSIS MOUNT
DX	DX LINK	PANDUIT	SPS688-C	CJS6X88TGY	TX6 PLUS SHEILDED, UNKEYED
XT	EXTRON XTP	EXTRON	XTP DTP 24 PLUG	XTP DTP 24 JACK	EXTRON XTP

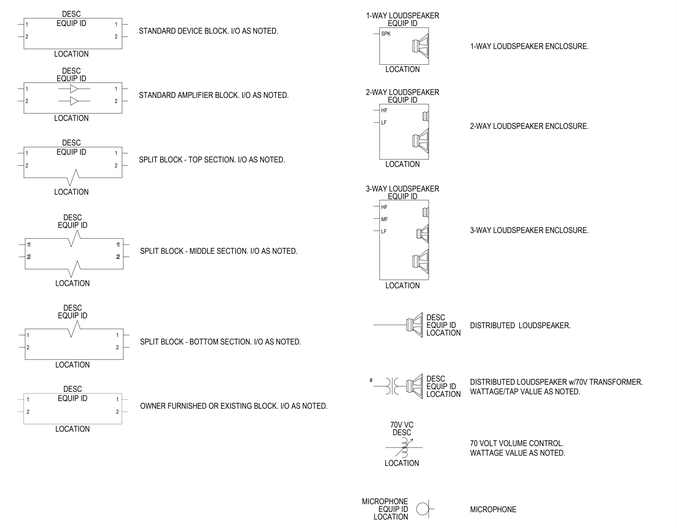
CONNECTOR NOTES

1. NOT ALL ACCEPTABLE CONNECTORS LISTED ABOVE MAY BE EMPLOYED IN THE SYSTEM.
2. EMPLOY ONLY NEW FIRST QUALITY CONNECTORS, ASSEMBLED,WIRED, AND INSTALLED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
3. DO NOT MOUNT CONNECTORS IN INACCESSIBLE LOCATIONS, OR EMPLOY TO SPLICE CABLES.
4. CONNECTORS SHALL TYPICALLY BE KEYED TO PREVENT MIS-INSERTION, AND INCLUDE STRAIN RELIEF MECHANISMS THAT FIRMLY GRIP THE CABLE JACKET.
5. ALL AUDIO, VIDEO, AND CONTROL CONNECTORS NOT A PART OF MANUFACTURED EQUIPMENT (BNC, XLR, PHONO, VIDEO PATCH, CARD EDGE, MULTIPIN, SPADE LUG ETC.) SHALL HAVE GOLD PLATED CONTACTS. ONLY EXCEPTIONS SHALL BE 1/4" PHONE JACKS, AUDIO PATCH PLUGS, AND LOUDSPEAKER CONNECTORS.
6. ALL XLR CONNECTORS, PER IEC-268 STANDARD, WITHIN EQUIPMENT OR OUT, SHALL BE WIRED PIN 2 HOT (HIGH), PIN 3 LOW, AND PIN 1 SCREEN (SHIELD). AT NO TIME CONNECT THE XLR CASE OR BODY TO PIN 1 ON A CONNECTOR NOT PART OF EQUIPMENT CONSTRUCTED OF METAL SHELLS AND BODIES AND NON-HYDROSCOPIC DIELECTRIC.

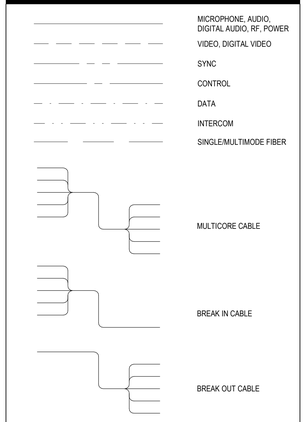
SHEET INDEX

ID	DESCRIPTION	REV
TA-001	AUDIOVISUAL COVER SHEET	
TA-101	LEVEL 1 FLOOR PLAN & RCP - AUDIOVISUAL	
TA-102	LEVEL 2 FLOOR PLAN & RCP - AUDIOVISUAL	
TA-103A	LEVEL 3 FLOOR PLAN & RCP - LAB BLDG - AUDIOVISUAL	
TA-103B	LEVEL 3 FLOOR PLAN & RCP - SHOP BLDG - AUDIOVISUAL	
TA-401	AUDIOVISUAL ENLARGED DRAWINGS	
TA-410	AUDIOVISUAL ELEVATIONS	
TA-411	AUDIOVISUAL ELEVATIONS	
TA-412	AUDIOVISUAL ELEVATIONS	
TA-413	AUDIOVISUAL ELEVATIONS	
TA-501	AUDIOVISUAL DETAILS	
TA-502	AUDIOVISUAL DETAILS	
TA-601	AUDIOVISUAL FUNCTIONAL DIAGRAMS	
TA-602	AUDIOVISUAL FUNCTIONAL DIAGRAMS	
TA-603	AUDIOVISUAL FUNCTIONAL DIAGRAMS	
TA-604	AUDIOVISUAL FUNCTIONAL DIAGRAMS	

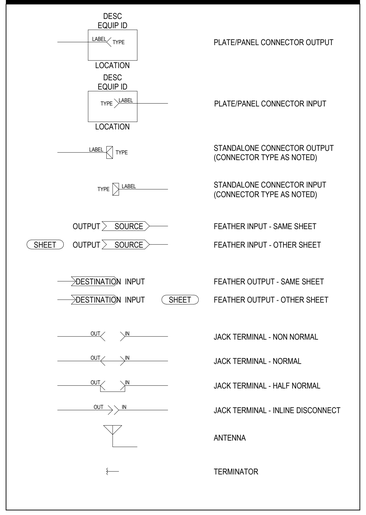
SCHEMATIC DEVICE LEGEND



WIRE TYPES LEGEND



CONNECTORS & JACKS LEGEND



AV BACK BOX SCHEDULE

GENERAL ID	QTY	BOX MAKE	BOX MODEL	KNOCKOUTS	BOX DEPTH	BOX HEIGHT	BOX WIDTH	NOTES
AV1	9	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
AV2	2	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
AV3	1	WIEGMANN	SC080804NK		0' - 4"	0' - 8"	0' - 8"	
AV4	3	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
AV5	1	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
CAM	6	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
JB	1	RACO	233 w/768	(1) 3/4" on bottom, (1) 3/4" on side	0' - 2 1/8"	0' - 4"	0' - 4"	
KP1	10	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
MIC	19	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
OCC	12	RACO	233 w/768	(1) 3/4" on bottom, (1) 3/4" on side	0' - 2 1/8"	0' - 4"	0' - 4"	
PAC	20	CHIEF	PAC526F(X)P2	(4) 1/2"-1"-1 1/4" CKOs on top/bottom, (2) 1/2"-1"-1 1/4" CKOs on sides. (3) Handy-box KO on top/bottom & one side.	0' - 3 29/32"	0' - 9"	1' - 2 1/4"	
PROJ	2	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
SW	1	RACO	233 w/768	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	
TP7	1	RACO	233 w/769	(2) 1/2", (2) 3/4", (8) 1"	0' - 2 1/8"	0' - 4"	0' - 4"	

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SHEET TITLE:
AUDIOVISUAL COVER SHEET

SCALE: As indicated
SHEET NUMBER

TA-001

10/25/2022 7:46:52 PM BIM 360://121091.00 Anschutz Engineering Center/K2 UCCS Engineering Expansion_R21_T.rvt

TA SHEET NOTES

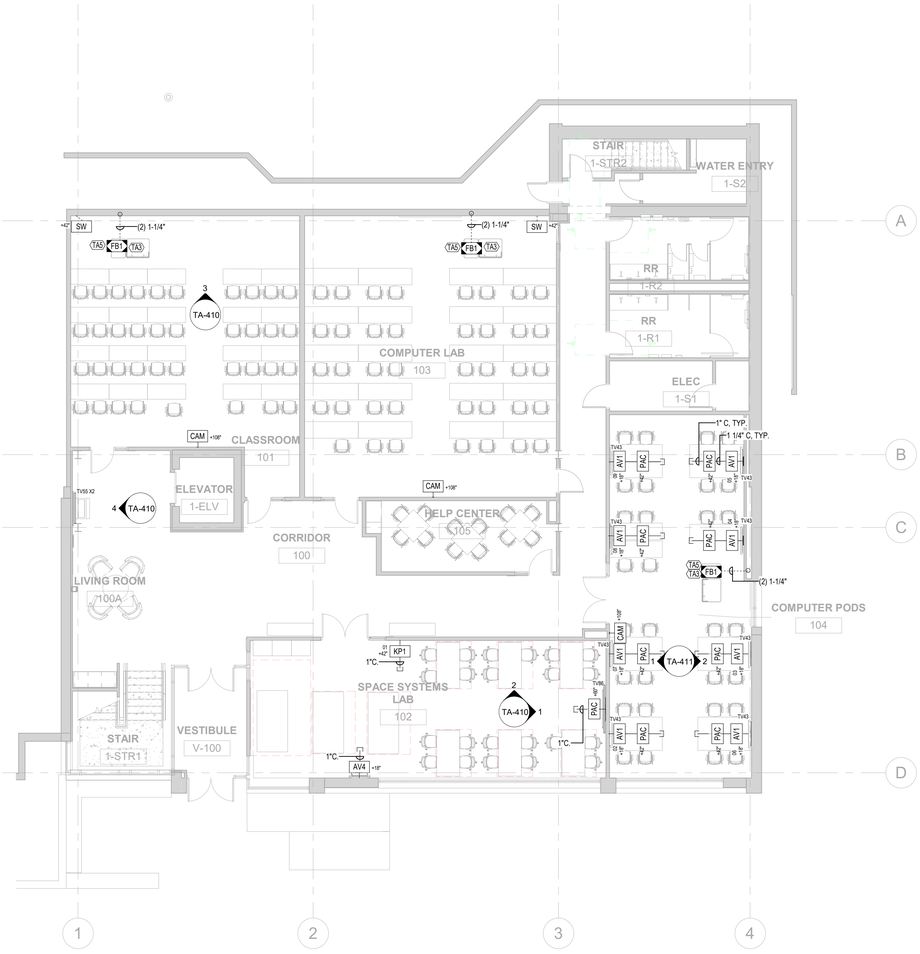
1. STRUCTURED CABLING SCOPE QUANTITIES AND LOCATIONS ARE DEFINED ON **TA###** REFER TO TN DRAWINGS FOR DATA HOME RUN DESTINATIONS.

KEYNOTE LEGEND

ID	DESCRIPTION
TA1	RECESSED, CEILING-MOUNT, MOTORIZED PROJECTION SCREEN.
TA2	CEILING MOUNTED PROJECTOR.
TA3	LECTERN WITH INTEGRATED EQUIPMENT RACK.
TA5	6-GANG COMBINATION FLOOR BOX - AV / DATA/ POWER.
TA7	OCCUPANCY SENSOR, SUSPENDED JUNCTION BOX FROM DECK VIA 1" C., MOUNT SENSOR LEVEL WITH BOTTOM OF LIGHT FIXTURES.

2 LEVEL 1 REFLECTED CEILING PLAN - AUDIOVISUAL

1/8" = 1'-0"



1 LEVEL 1 FLOOR PLAN - AUDIOVISUAL

1/8" = 1'-0"

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SHEET TITLE:
LEVEL 1 FLOOR PLAN & RCP - AUDIOVISUAL

SCALE: As indicated
SHEET NUMBER

TA-101

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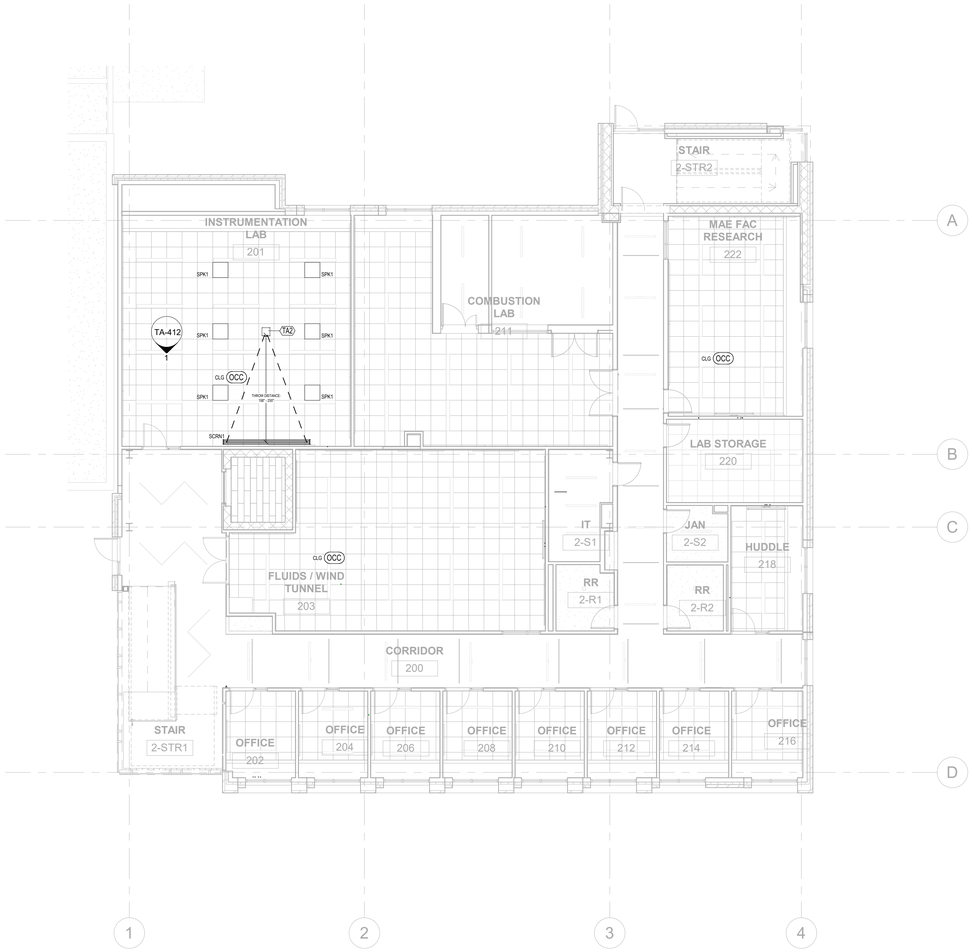
TA SHEET NOTES

1. STRUCTURED CABLING SCOPE QUANTITIES AND LOCATIONS ARE DEFINED ON **TA###** REFER TO TN DRAWINGS FOR DATA HOME RUN DESTINATIONS.

KEYNOTE LEGEND

ID	DESCRIPTION
TA2	CEILING MOUNTED PROJECTOR.



2 LEVEL 2 REFLECTED CEILING PLAN - AUDIOVISUAL

1/8" = 1'-0"

1 LEVEL 2 FLOOR PLAN - AUDIOVISUAL

1/8" = 1'-0"

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SHEET TITLE:
LEVEL 2 FLOOR PLAN & RCP - AUDIOVISUAL

SCALE: As indicated
SHEET NUMBER

TA-102

10/25/2022 7:47:02 PM
BIM 360://121091.00 Anschutz Engineering Center/K2 UCCS Engineering Expansion_R21_T.rvt

TA SHEET NOTES

1. STRUCTURED CABLING SCOPE QUANTITIES AND LOCATIONS ARE DEFINED ON **TA###** REFER TO TN DRAWINGS FOR DATA HOME RUN DESTINATIONS.

KEYNOTE LEGEND

ID	DESCRIPTION
TA6	AV EQUIPMENT RACK MOUNTED IN CABINET.
TA8	8" COMBINATION POKE-THU DEVICE - AV / DATA / POWER.

2 LEVEL 3 REFLECTED CEILING PLAN - AUDIOVISUAL
1/8" = 1'-0"

1 LEVEL 3 FLOOR PLAN - AUDIOVISUAL
1/8" = 1'-0"

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SHEET TITLE:
LEVEL 3 FLOOR PLAN & RCP - LAB BLDG - AUDIOVISUAL
SCALE: As indicated
SHEET NUMBER
TA-103A

10/25/2022 7:47:07 PM BIM 360://121091.00 Anschutz Engineering Center/K2 UCCS Engineering Expansion_R21_T.rvt

TA SHEET NOTES

1. STRUCTURED CABLING SCOPE QUANTITIES AND LOCATIONS ARE DEFINED ON **TA###** REFER TO TN DRAWINGS FOR DATA HOME RUN DESTINATIONS.

KEYNOTE LEGEND

ID	DESCRIPTION
TA5	6-GANG COMBINATION FLOOR BOX - AV / DATA/ POWER.

2 LEVEL 3 SHOP BUILDING REFLECTED CEILING PLAN - AUDIOVISUAL

1/8" = 1'-0"

1 LEVEL 3 FLOOR PLAN - SHOP AUDIOVISUAL

1/8" = 1'-0"

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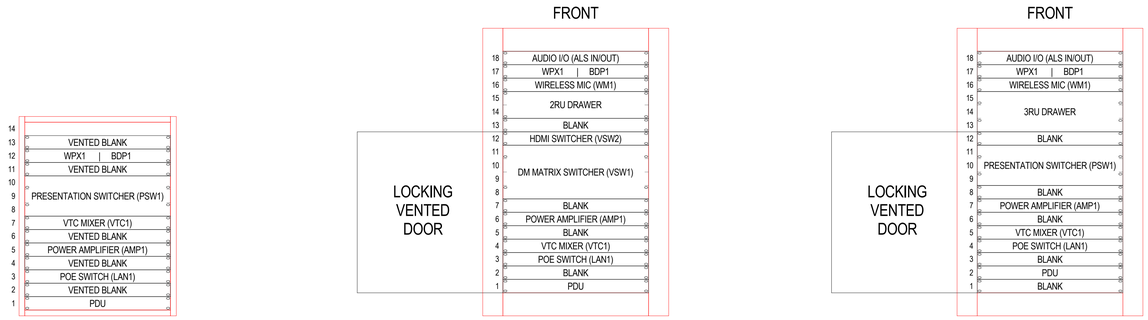
SHEET TITLE:
LEVEL 3 FLOOR PLAN & RCP - SHOP BLDG - AUDIOVISUAL

SCALE: As indicated
SHEET NUMBER

TA-103B

10/25/2022 7:47:08 PM BIM 360://121091.00 Anschutz Engineering Center/K2 UCCS Engineering Expansion_R21_T.rvt



1 AUDIOVISUAL RACK ELEVATIONS

1 1/2" = 1'-0"

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REVISIONS:

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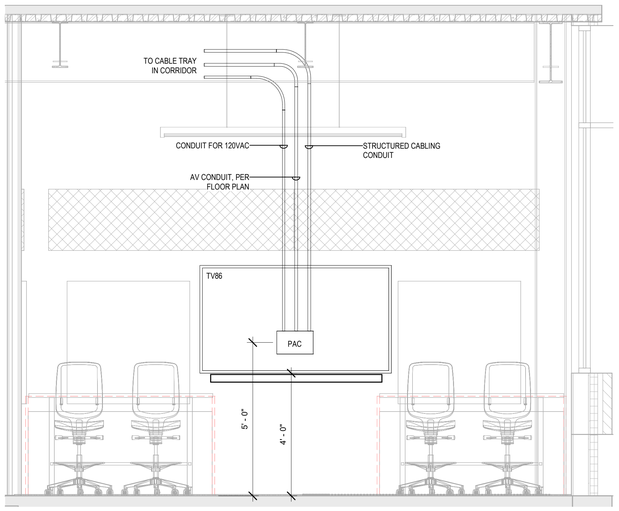
SHEET TITLE:
AUDIOVISUAL ENLARGED DRAWINGS

SCALE: 1 1/2" = 1'-0"
SHEET NUMBER

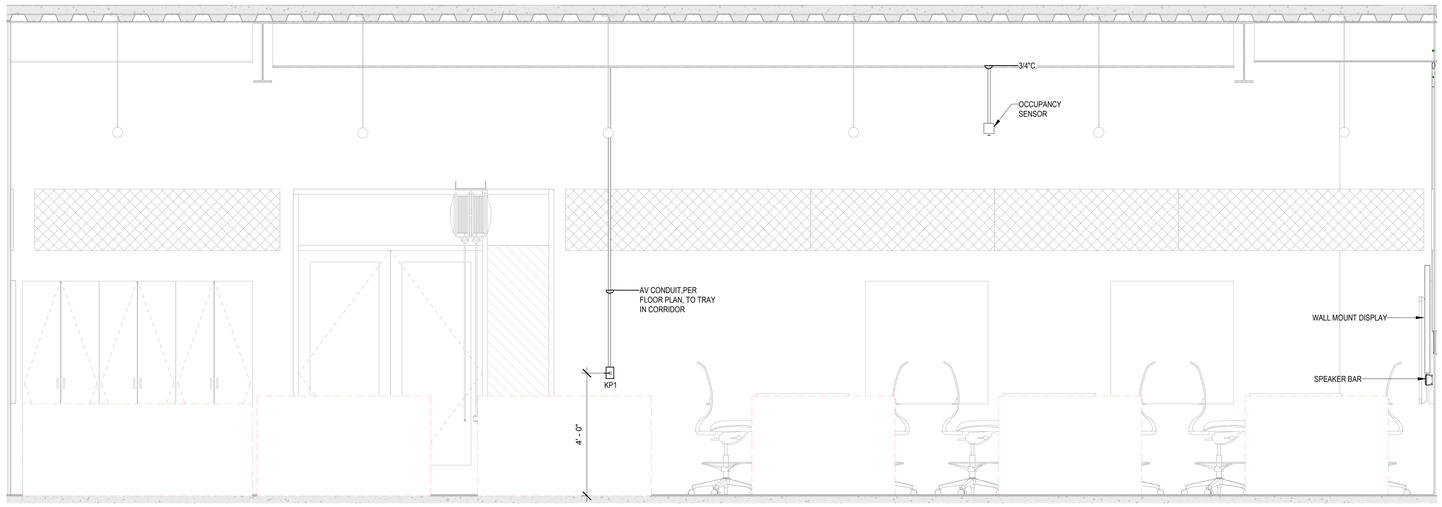
TA-401

10/25/2022 7:47:09 PM BIM 360://121091.00 Anschutz Engineering Center/K2 UCCS Engineering Expansion_R21_T.rvt



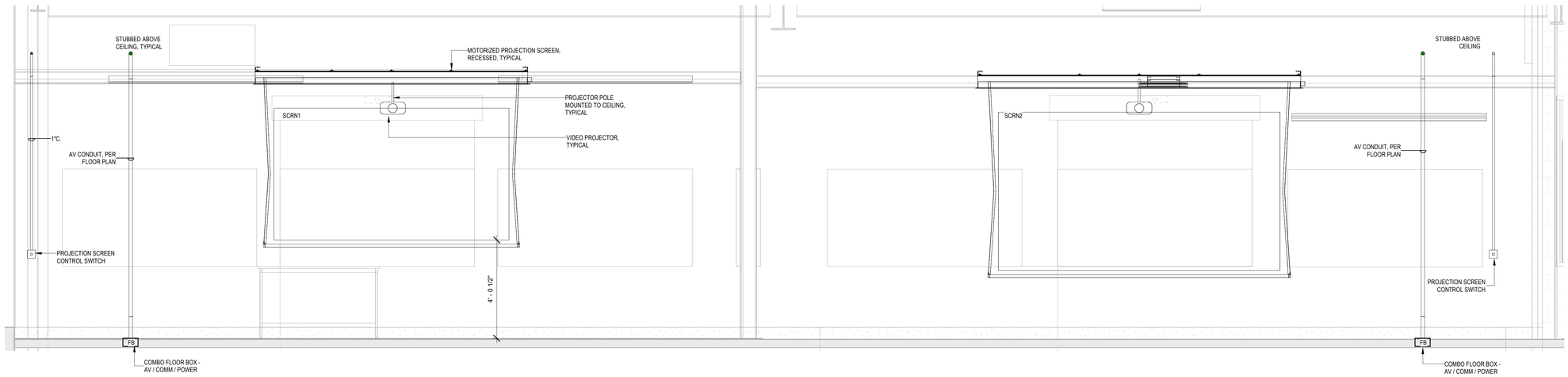
1 LEVEL 1 - SPACE SYSTEMS 102 - EAST ELEVATION

1/2" = 1'-0"



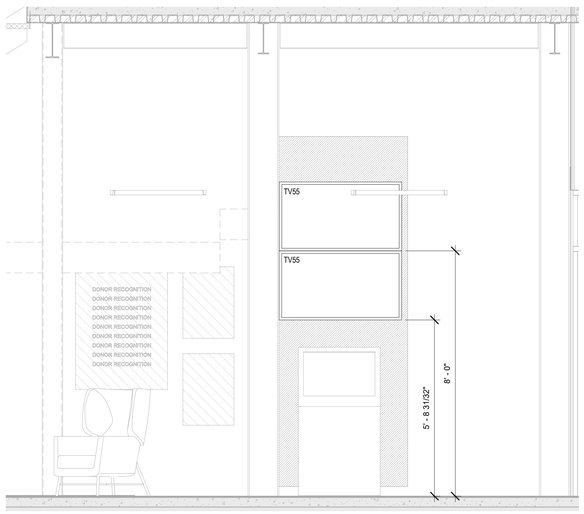
2 LEVEL 1 - SPACE SYSTEMS 102 - NORTH ELEVATION

1/2" = 1'-0"



3 LEVEL 1 - CLASSROOM 101 & 102 - NORTH ELEVATION

1/2" = 1'-0"



4 LEVEL 1 - LIVING ROOM 100A - WEST ELEVATION

1/2" = 1'-0"

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SCALE: 1/2" = 1'-0"
SHEET NUMBER
TA-410

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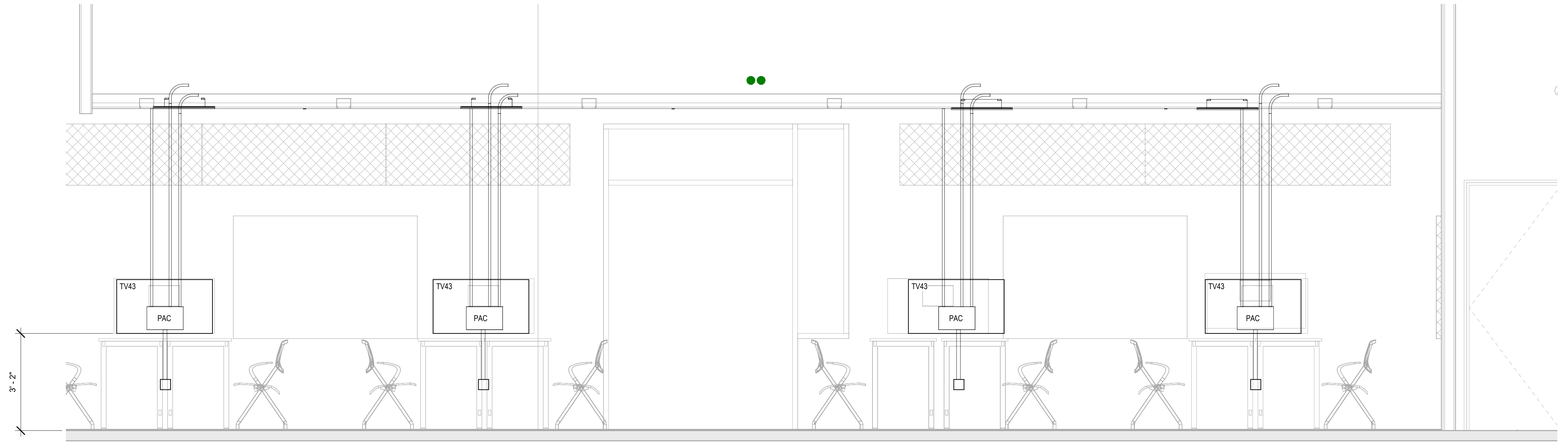
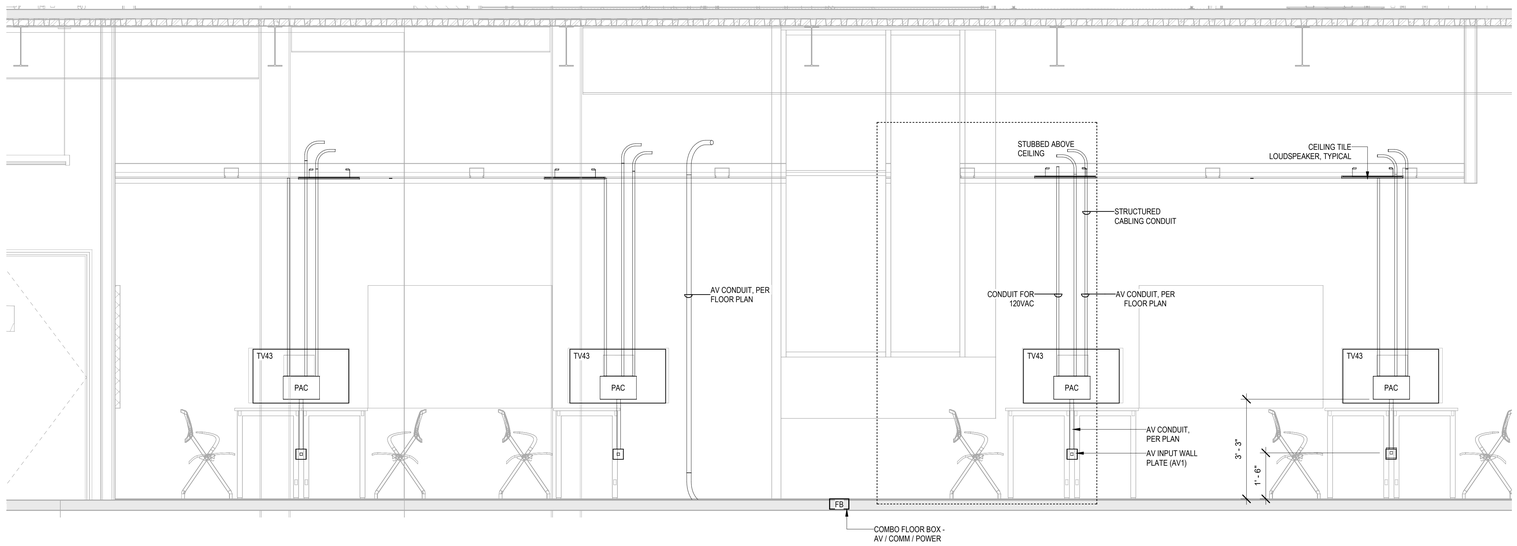


1 LEVEL 1 - COMPUTER PODS 104 - WEST ELEVATION

1/2" = 1'-0"



2 LEVEL 1 - COMPUTER PODS 104 - EAST ELEVATION

1/2" = 1'-0"

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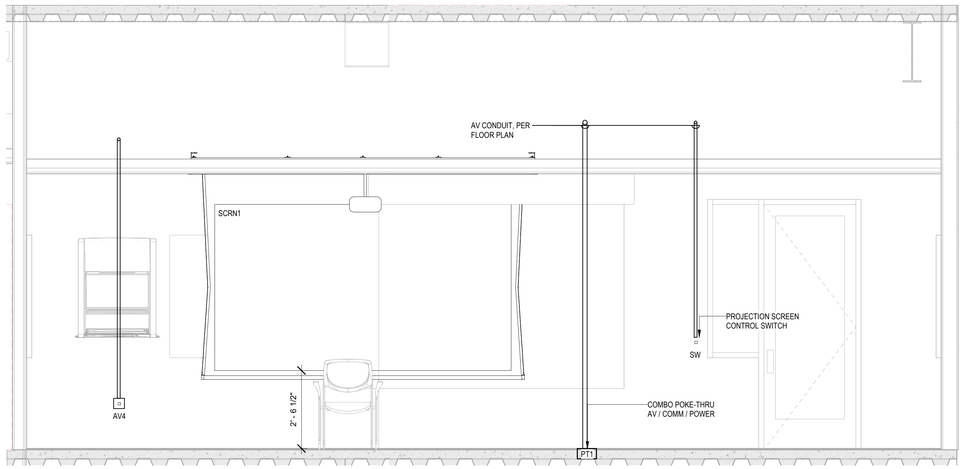
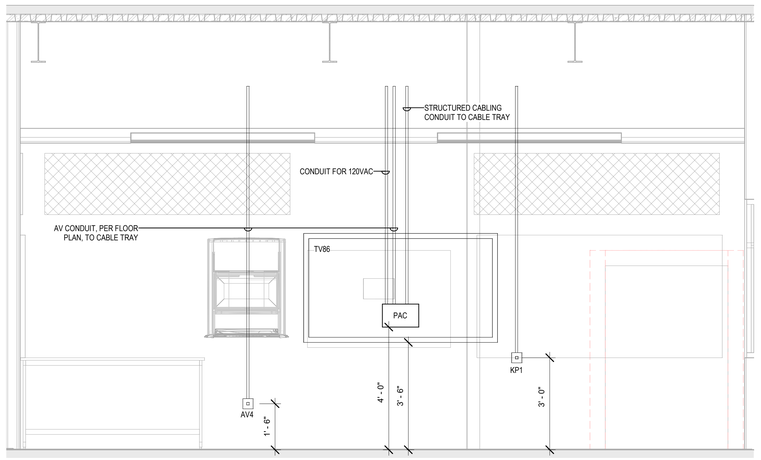
SCALE: 1/2" = 1'-0"
SHEET NUMBER
TA-411

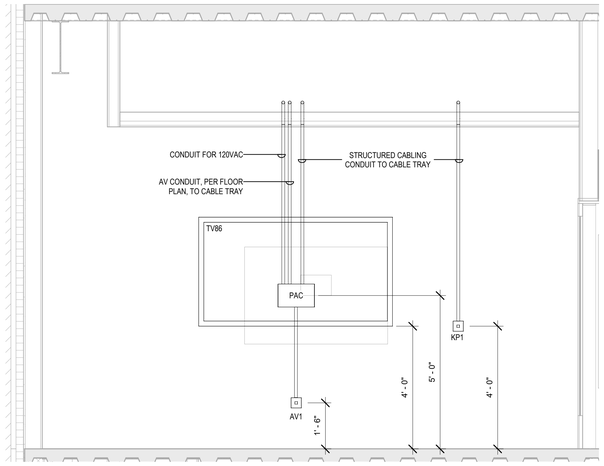
10/25/2022 7:47:11 PM BIM 360://121091.00 Anschutz Engineering Center/K2 UCCS Engineering Expansion_R21_T.rvt



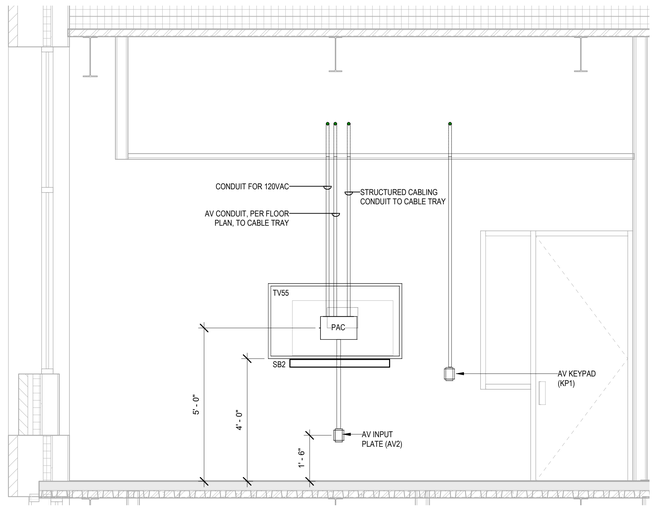
1 LEVEL 2 - INSTRUMENTATION LAB 201 - SOUTH ELEVATION
1/2" = 1'-0"



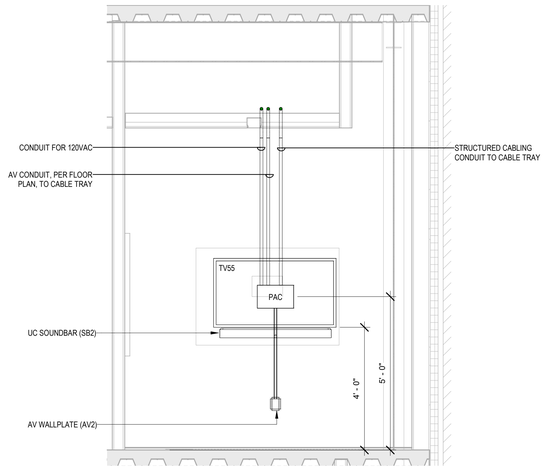
2 LEVEL 2 - FLUIDS / WIND TUNNEL 203 - EAST ELEVATION
1/2" = 1'-0"



4 TYPICA MAE FAC RESEARCH - DISPLAY WALL ELEVATION
1/2" = 1'-0"



5 LEVEL 3 - HUDDLE 312 - WEST ELEVATION
1/2" = 1'-0"



6 LEVEL 2 - HUDDLE 218 - NORTH ELEVATION
1/2" = 1'-0"

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SHEET NUMBER
TA-412

10/25/2022 7:47:14 PM
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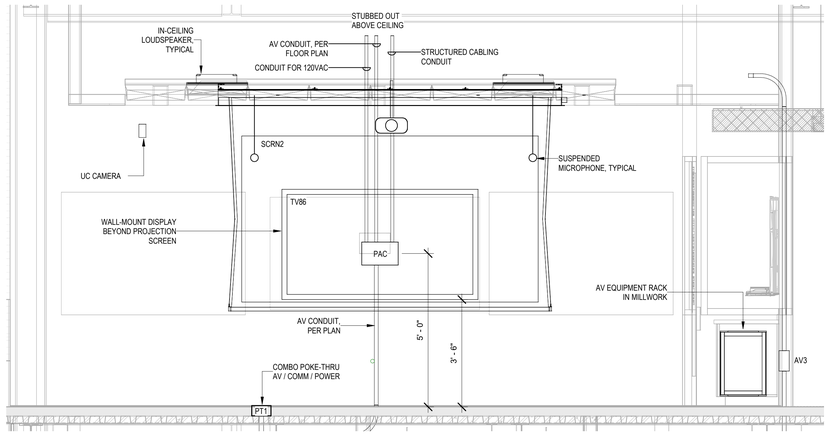
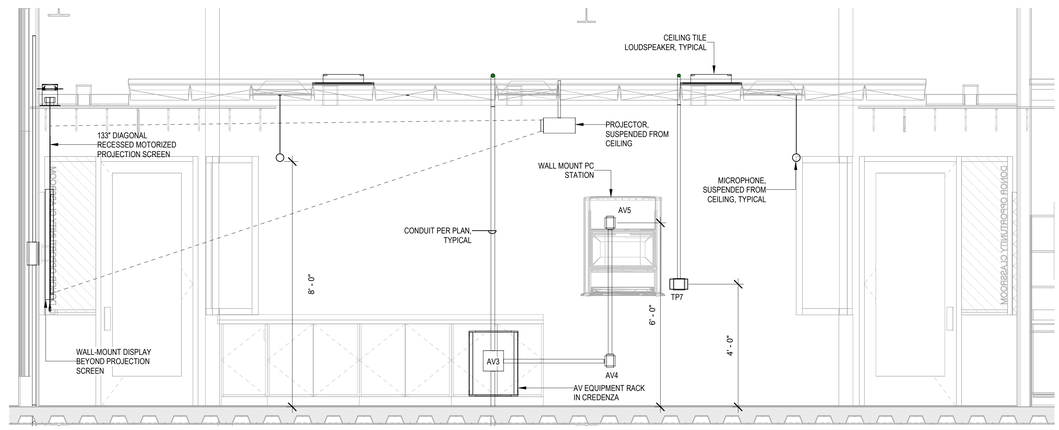


1 LEVEL 3 - CONFERENCE ROOM 302 - WEST ELEVATION

1/2" = 1'-0"



2 LEVEL 3 - CONFERENCE ROOM 302 - NORTH ELEVATION

1/2" = 1'-0"

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AUDIOVISUAL ELEVATIONS

SCALE: 1/2" = 1'-0"
SHEET NUMBER

TA-413

10/25/2022 7:47:15 PM
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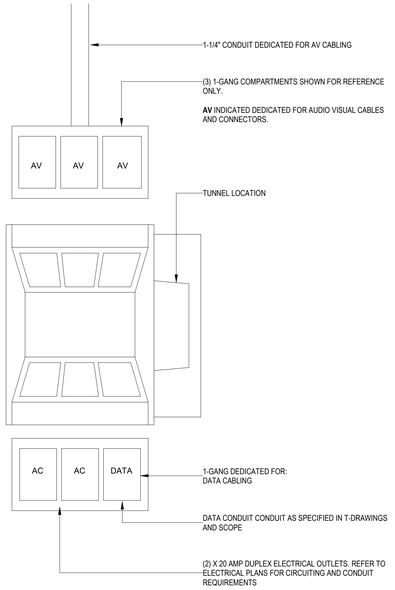


GENERAL NOTES

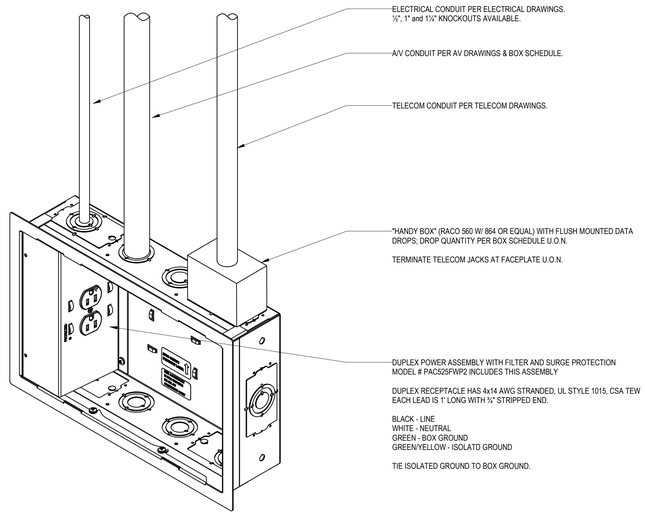
A. ALL LOW VOLTAGE CONDUITS TO BE ROUTED TO NEAREST ACCESSIBLE CEILING SPACE / CABLE TRAY. USE MOST DIRECT ROUTE POSSIBLE. PROVIDE FIRESTOPPING AS REQUIRED FOR ALL PENETRATIONS.

B. ALL LOW VOLTAGE CONDUITS TO BE SUPPLIED WITH NYLON BUSHING AND PULL STRING.

C. PROVIDE CLEAR PERMANENT MARKING WITHIN UNFINISHED PORTION OF FLOOR BOX TO IDENTIFY WHETHER GANG IS RESERVED FOR AV, IT OR POWER

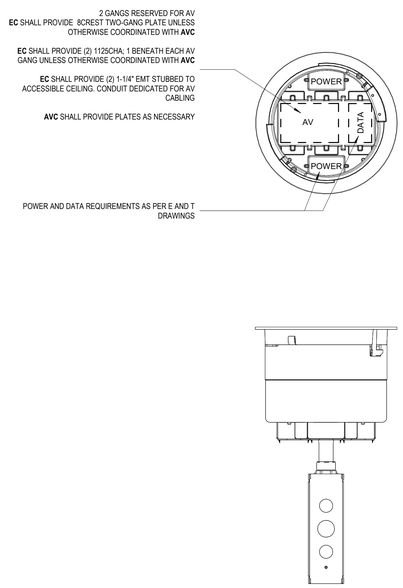
1 WIREMOLD EFB6S-OG FLOOR BOX COORDINATION DIAGRAM (FB1)

NTS



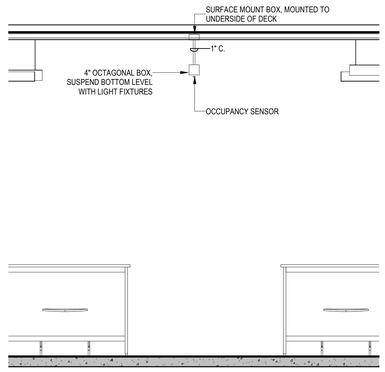
3 CHIEF PAC525FWP2 TV BACKBOX DETAIL

1 : 3



2 WIREMOLD EVOLUTION 8AT POKE-THRU COORDINATION DIAGRAM (PT1)

NTS



4 OCC HANGING CONDUIT MOUNT

NTS

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PROJ. NO. 121091.00
DRAWN: K2
CHECKED: EA
APPROVED: KH
DATE: 10/26/2022
REVISIONS:

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SHEET TITLE:
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SCALE: As indicated
SHEET NUMBER

TA-501

10/25/2022 7:47:16 PM
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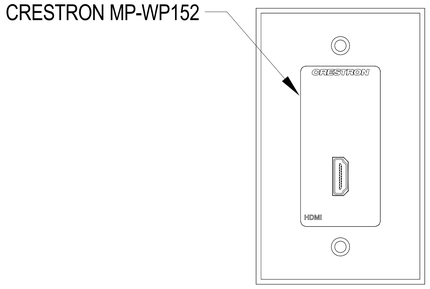
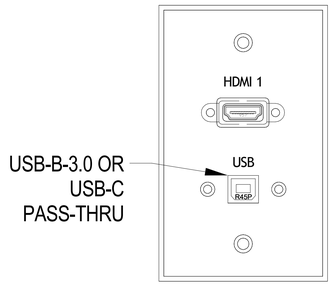
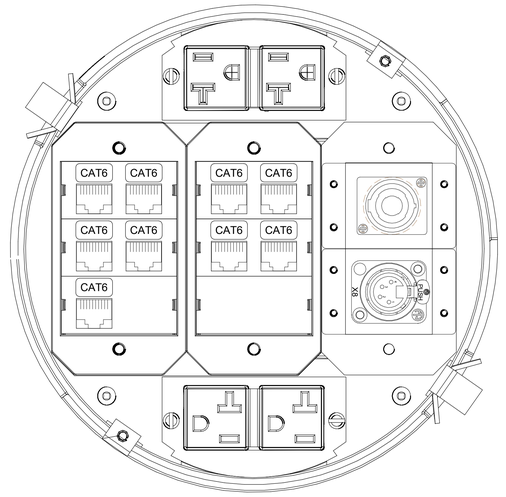


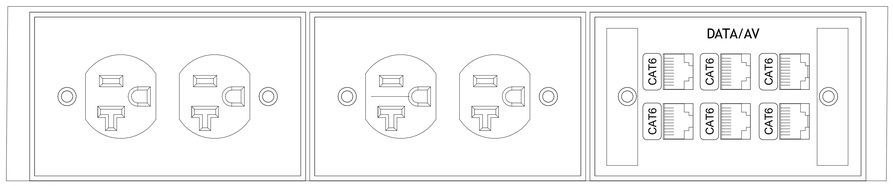
1 HDMI PASS-THRU WALL PLATE [AV1]
SCALE: 6" = 1'-0"

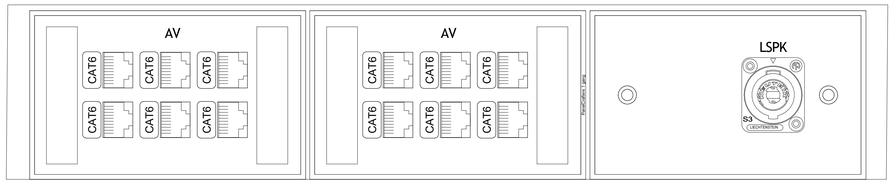


2 HDMI + USB PASS-THRU WALL PLATE [AV2]
SCALE: 6" = 1'-0"

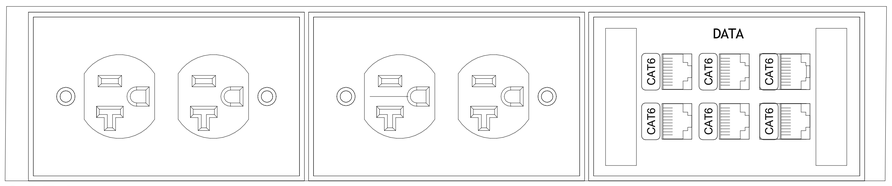


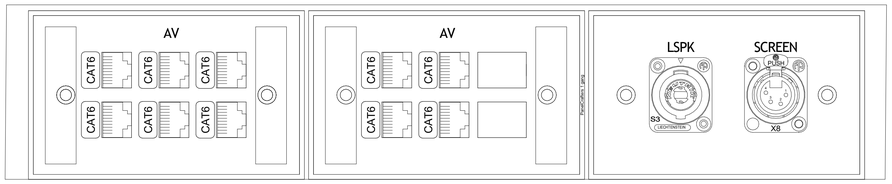
3 8" POKE-THRU DEVICE - [PT1]
SCALE: 6" = 1'-0"





4 6-GANG FLOOR BOX [FB1] - COMPUTER PODS 104
SCALE: 6" = 1'-0"





5 6-GANG FLOOR BOX - [FB1] - CLASSROOM 101 & 103
SCALE: 6" = 1'-0"

6 1RU AUDIO I/O PANEL - ASSISTED LISTENING
SCALE: 6" = 1'-0"

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SCALE: 12" = 1'-0"
SHEET NUMBER
TA-502

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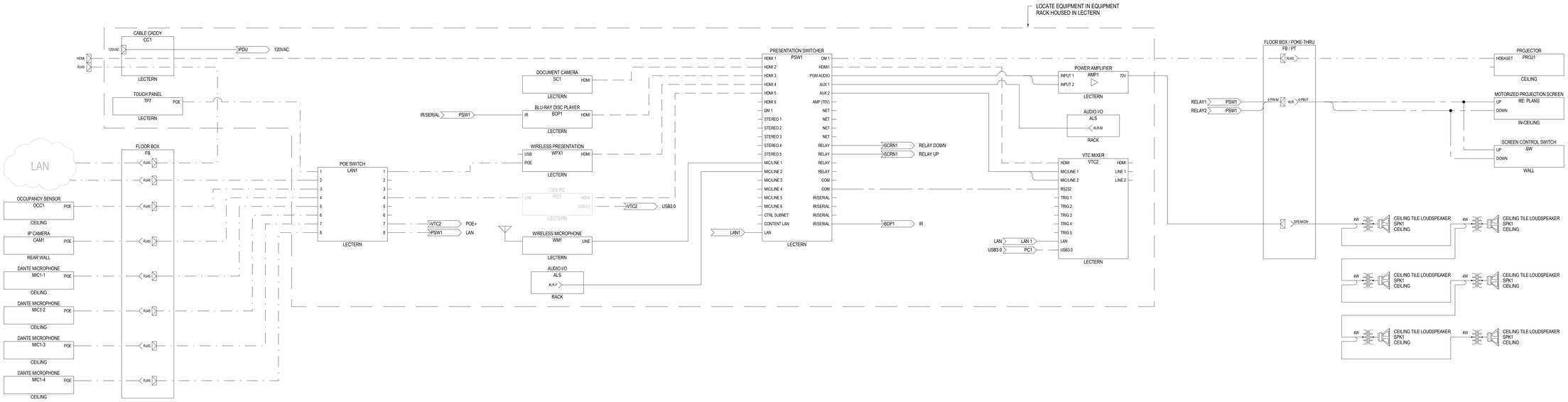
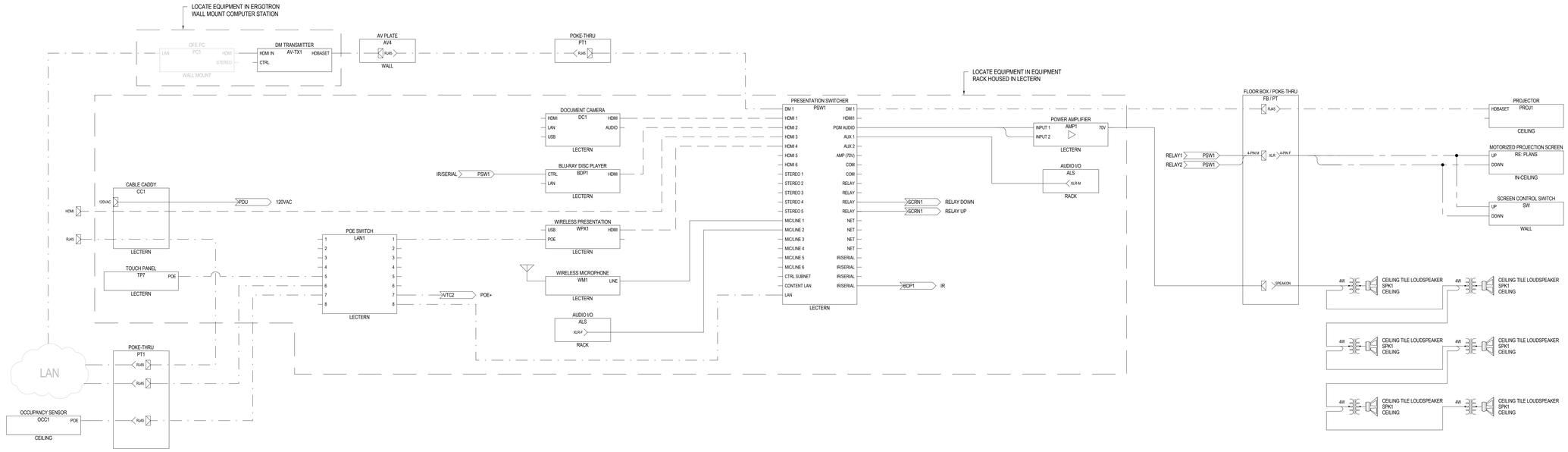


1 STANDARD CLASSROOM AV FUNCTIONAL DIAGRAM - HYFLEX

SCALE: NTS

DIAGRAM NOTES:

1. FUNCTIONAL DIAGRAM APPLIES TO:
   CLASSROOM 101
   CLASSROOM 103
   INSTRUMENTATION 201
2. REFER TO REFLECTED CEILING PLANS FOR LOUDSPEAKER QUANTITY.



2 INSTRUMENTATION 201 AV FUNCTIONAL DIAGRAM

SCALE: NTS

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SHEET TITLE:
AUDIOVISUAL FUNCTIONAL DIAGRAMS

SCALE: NTS
SHEET NUMBER

TA-601

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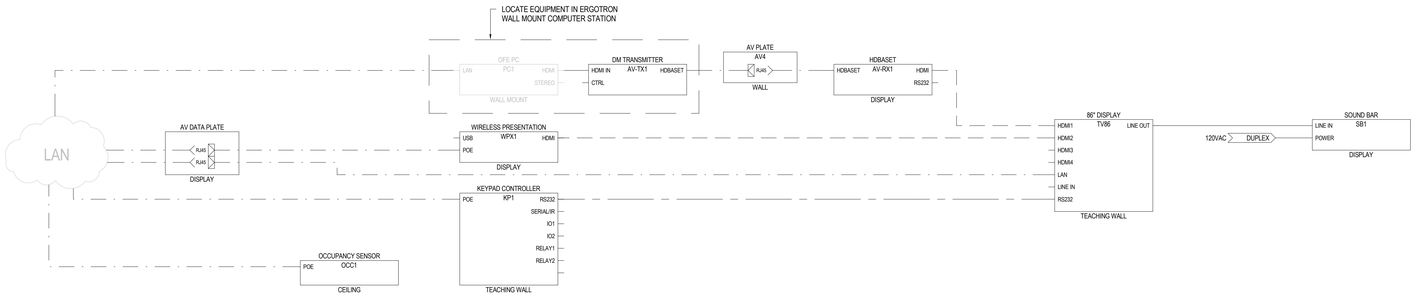
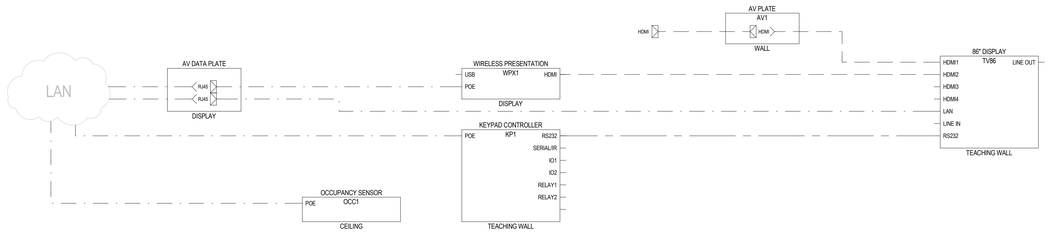


1 TYPICAL LAB CLASSROOM AV FUNCTIONAL DIAGRAM
SCALE: NTS

DIAGRAM NOTES:

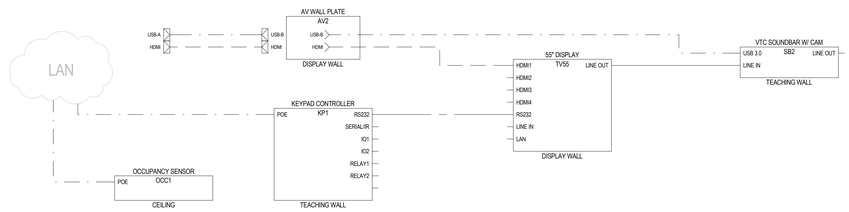
1. FUNCTIONAL DIAGRAM APPLIES TO:
   SPACE SYSTEMS 102
   FLUID / WIND 203
   ENERGY CONVERSION 301



2 TYPICAL MEETING ROOM AV FUNCTIONAL DIAGRAM
SCALE: NTS

DIAGRAM NOTES:

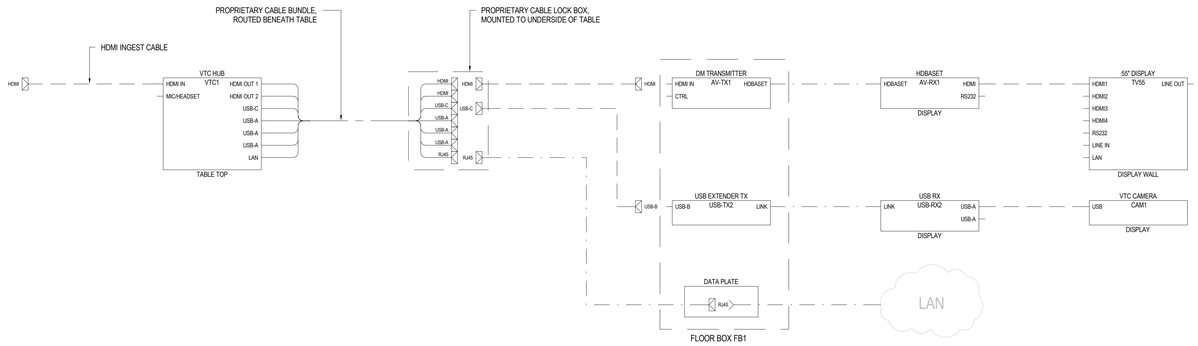
1. FUNCTIONAL DIAGRAM APPLIES TO:
   FAC MAE RESEARCH 222
   ECE FAC RESEARCH 316
   ECE FAC RESEARCH 318
   ECE CAPSTONE 319



3 TYPICAL HUDDLE ROOM AV FUNCTIONAL DIAGRAM
SCALE: NTS

DIAGRAM NOTES:

1. FUNCTIONAL DIAGRAM APPLIES TO:
   HUDDLE 218
   HUDDLE 312



4 TYPICAL TEAMS ROOM AV FUNCTIONAL DIAGRAM
SCALE: NTS

DIAGRAM NOTES:

1. FUNCTIONAL DIAGRAM APPLIES TO:
   SENIOR DESIGN MEETING 14A-102

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SHEET TITLE:
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SCALE: NTS
SHEET NUMBER
TA-602

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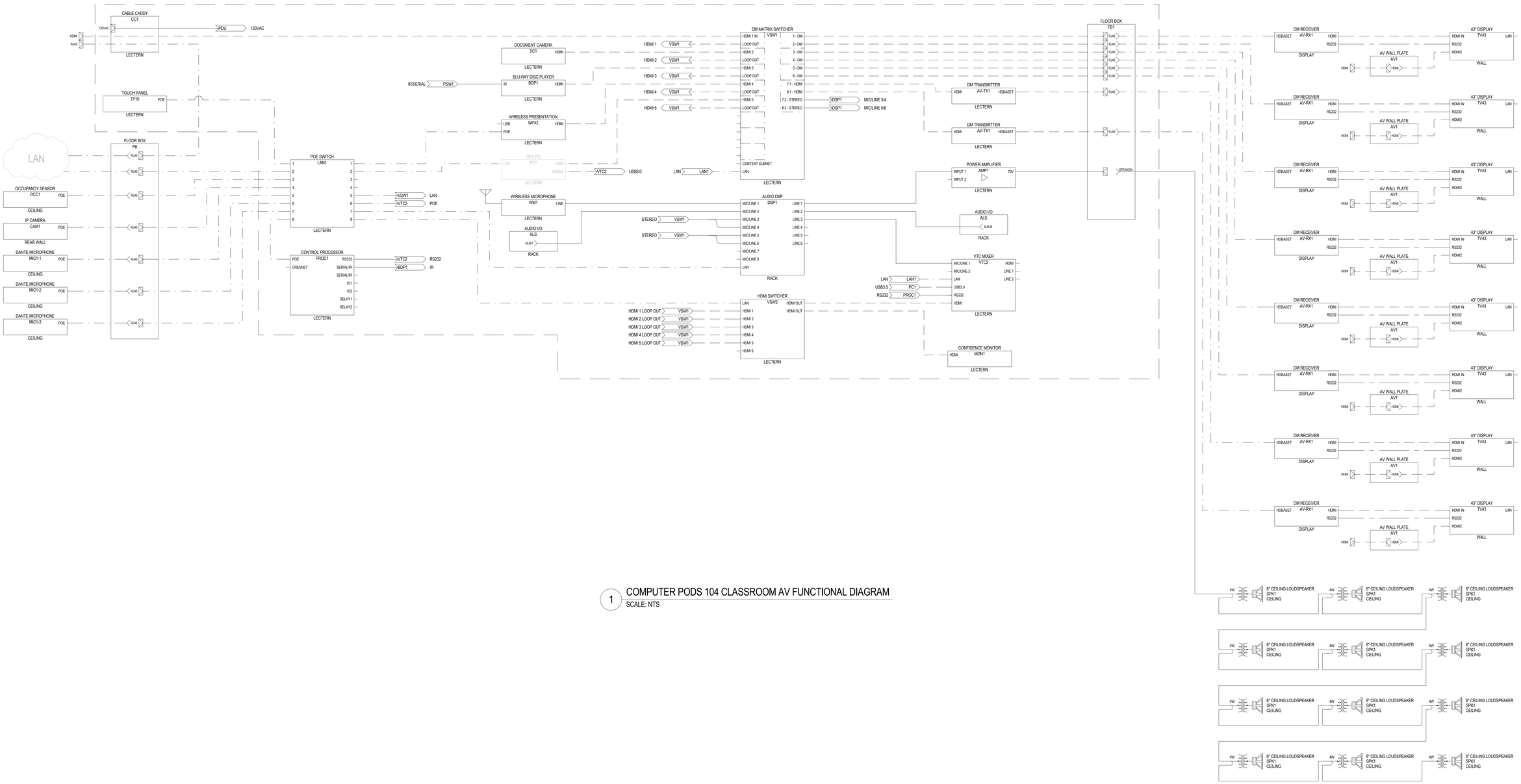

1 COMPUTER PODS 104 CLASSROOM AV FUNCTIONAL DIAGRAM

SCALE: NTS

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AUDIOVISUAL FUNCTIONAL DIAGRAMS

SCALE: NTS
SHEET NUMBER

TA-603

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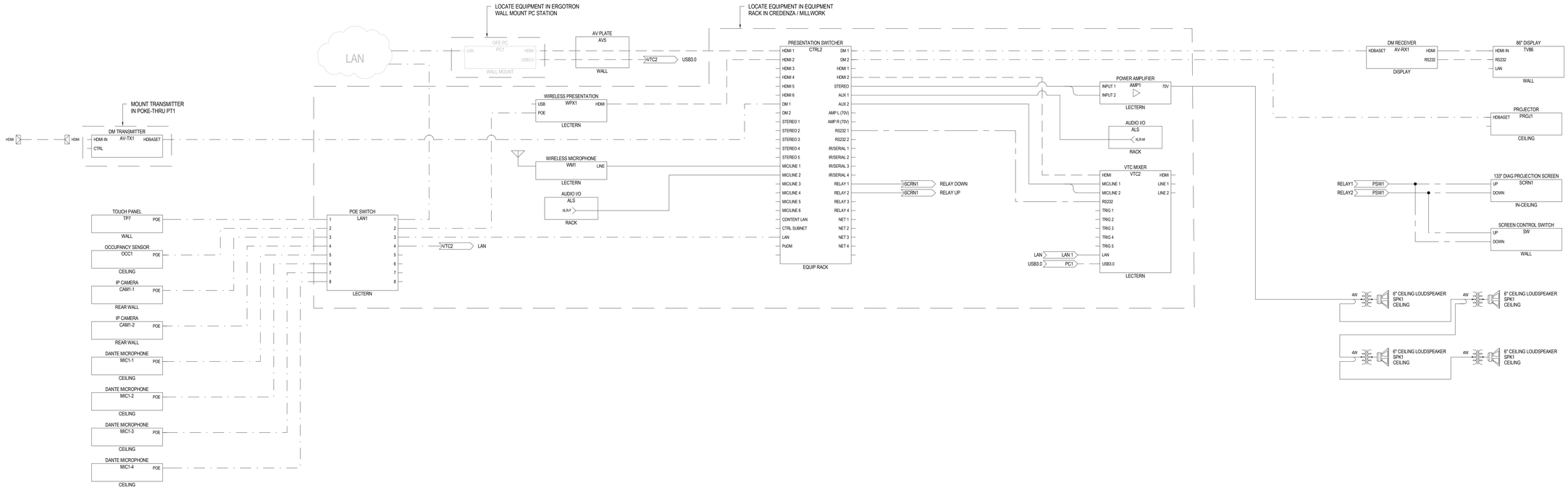

1 CONFERENCE ROOM 302 AV FUNCTIONAL DIAGRAM
SCALE: NTS

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SHEET TITLE:
AUDIOVISUAL FUNCTIONAL DIAGRAMS

SCALE: NTS
SHEET NUMBER
TA-604

10/25/2022 7:47:24 PM
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INFRASTRUCTURE LEGEND

MOUNT ABBREVIATIONS

FORMAT:
[OPTIONAL PREFIX] [OPTIONAL MEASUREMENT] [OPTIONAL SUFFIX]

EXAMPLES

SW BOX/DEVICE MOUNTED AT PROJECT SWITCH HEIGHT
CLG BOX/DEVICE MOUNTED AT PROJECT CEILING HEIGHT
+80" WALL MOUNT; 80" AFF TO BOTTOM OF EQUIPMENT.
P+96"U PENDANT MOUNT; 96" AFF TO UNDERSIDE OF EQUIPMENT

PREFIXES

NOT SPECIFIED	WALL
CLG	CEILING
DSK	DESK
FLR	FLOOR
M	MULLION
P	PENDANT
PED	PEDESTAL
PER	PARAPET

MEASUREMENTS

NOT SPECIFIED	PROJECT OUTLET HEIGHT
AC	ABOVE COUNTER HEIGHT
C	COUNTER HEIGHT
SW	PROJECT SWITCH HEIGHT
+##"	##" ABOVE FINISHED FLOOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE

SUFFIXES

NOT SPECIFIED	MEASURE TO BOTTOM OF BOX OR EQUIPMENT
OC	MEASURE TO CENTER OF BOX OR EQUIPMENT
T	MEASURE TO TOP OF BOX OR EQUIPMENT

INFRASTRUCTURE SYMBOL

WALL-MOUNTED DEVICE CALLOUT
- SEE BACK BOX SCHEDULE FOR SPECIFIC DEVICE AND BOX DETAILS

CEILING-MOUNTED DEVICE CALLOUT
- SEE BACK BOX SCHEDULE FOR SPECIFIC DEVICE AND BOX DETAILS

FLOOR BOX DEVICE CALLOUT
- SEE BACK BOX SCHEDULE FOR SPECIFIC DEVICE AND BOX DETAILS

WALL-MOUNTED CABLE TV DROP. OUTLET HEIGHT (UON)
- SEE BACK BOX SCHEDULE FOR SPECIFIC BACK BOX DETAILS

DEVICE/BACKBOX SCHEDULE KEY LEGEND

XXX = DEVICE/BOX DESIGNATION TAG
= INSTANCE ID
++ = MOUNT HEIGHT/ABBREVIATION (IF NOT NOTED IN / OR AT VARIANCE WITH BOX SCHEDULE)
(E) = EXISTING DEVICE/BACKBOX
PT = POKE THROUGH

CONDUIT SYMBOLOGY

POINT-TO-POINT EMT **CHASE**
1" EMT CALLOUT SHOWN

EMT **STUB** TO ACCESSIBLE AREA ABOVE CEILING

EMT **HOMERUN** TO DESTINATION "DEST"

EMT **TURN DOWN** TO DESTINATION "DEST"

EMT **TURN UP** TO DESTINATION "DEST"

CONDUIT SCHEDULE REFERENCE FOR "XX" GROUP

FREE AIR LOW VOLTAGE CABLING. INSTALLED OVERHEAD AND SUPPORTED 5'-0" O.C. USING J-HOOKS UON. JACKET TO BE PLENUM RATED AS REQUIRED.

UNDERGROUND / UNDERFLOOR CONDUIT. EMT PVC CONDUITAS LOCATION REQUIRES. ALL UNDERGROUND CONDUIT TO SCH 80 AND USE FIBERGLASS LONG SWEEP ELBOWS UON.

POINT-TO-POINT **CONDUIT SLEEVE / CHASE**.
2" UON BY CALLOUT.

POINT-TO-POINT **FIRESTOP SLEEVE / CHASE**.
4" CALLOUT SHOWN

IN-PLACE CONDUIT CALLOUT WITH CABLE FILL
Q_{EMT} = EMT QUANTITY
S = EMT SIZE
Q_{CBL} = CABLE QUANTITY
T = CABLE TYPE (BASED ON CABLE SCHEDULE)

EXAMPLE =

1	1-1/4"	1	A, 2 12
4	1"	2	P1

J-HOOK SYMBOLOGY

POINT TO POINT **J-HOOK INFRASTRUCTURE PATHWAY**. 4 "J-HOOKS INSTALLED OVERHEAD 5'-0" O.C. UON. DENOTES SUGGESTED / COORDINATED PATHWAY FOR J-HOOKS. FINAL ROUTING TO BE FIELD COORDINATED AS NEEDED.

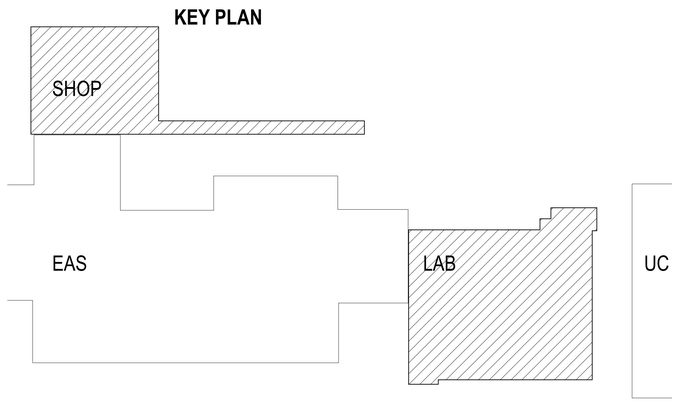
TELECOMMUNICATIONS SYMBOLS LEGEND

SYMBOL	TYPE	HEIGHT	ROUGH-IN	BOX INFORMATION	CABLING INFORMATION
◀#	DATA	+18" AFF UON	4-11/16" S BOX w/ 1" EMT STUB	RACO 260 w/ 837 MUD RING (FLUSH MOUNT) RACO 260 w/ 856 EXPOSED WORK COVER (SURFACE MOUNT)	CAT6, # INDICATES DROP COUNT
◁#	VOICE	+18" AFF UON	4-11/16" S BOX w/ 1 GANG MUD RING AND 1" EMT STUB	RACO 260 w/ 837 MUD RING (FLUSH MOUNT) RACO 260 w/ 856 EXPOSED WORK COVER (SURFACE MOUNT)	CAT6, # INDICATES DROP COUNT
◀#	DATA/VOICE	+18" AFF UON	4-11/16" S BOX w/ 1 GANG MUD RING AND 1" EMT STUB	RACO 260 w/ 837 MUD RING (FLUSH MOUNT) RACO 260 w/ 856 EXPOSED WORK COVER (SURFACE MOUNT)	CAT6, # INDICATES DROP COUNT
◀#	DATA	FLOOR	AS NOTED	AS SPECIFIED	CAT6, # INDICATES DROP COUNT
WAP	WIRELESS ACCESS POINT	+84" AFF UON	4 11/16" SQUARE,1" STUB	RACO 260 w/ 837 MUD RING (FLUSH MOUNT) RACO 260 w/ 856 EXPOSED WORK COVER (SURFACE MOUNT)	TWO CAT 6A
WAP	WIRELESS ACCESS POINT	CEILING	PER DETAIL	PER DETAIL	TWO CAT 6A
	CABLE TRAY	ABOVE ACCESSIBLE CEILING UON	12" X 4" UON	N/A	N/A
	CABLING SLEEVE	ABOVE ACCESSIBLE CEILING UON	AS NOTED	N/A	N/A

SECURITY SYMBOLS LEGEND

SYMBOL	DEVICE	HEIGHT	ROUGH IN
	SINGLE SENSOR BULLET OR DOME CAMERA	WALL, ARM, ETC. MOUNTED: HEIGHT IS NOTED ON PLANS. SEE SCHEDULE FOR ADDITIONAL INFORMATION.	3/4" C. ROUTED BACK TO NEAREST J-HOOK OR ACCESSIBLE CEILING UON.
	SINGLE SENSOR BULLET OR DOME CAMERA	CEILING, PENDANT, OR PARAPET: SEE SCHEDULE FOR ADDITIONAL INFORMATION	
DCH	DUAL SENSOR MULTIDIRECTIONAL CAMERA	WALL, ARM, ETC. MOUNTED: HEIGHT IS NOTED ON PLANS. SEE SCHEDULE FOR ADDITIONAL INFORMATION.	
DCH	DUAL SENSOR MULTIDIRECTIONAL CAMERA	CEILING, PENDANT, OR PARAPET: SEE SCHEDULE FOR ADDITIONAL INFORMATION	
	180° PANORAMIC CAMERA	WALL, ARM, PENDANT, PARAPET, ETC. HEIGHT IS NOTED ON PLANS. SEE SCHEDULE FOR ADDITIONAL INFORMATION.	
	180° PANORAMIC CAMERA	CEILING, PENDANT, OR PARAPET: SEE SCHEDULE FOR ADDITIONAL INFORMATION	
	180° - 360° MULTI-SENSOR CAMERA	WALL, ARM, ETC: HEIGHT IS NOTED ON PLANS. SEE SCHEDULE FOR ADDITIONAL INFORMATION.	
	180° - 360° MULTI-SENSOR CAMERA	CEILING, PENDANT, OR PARAPET: SEE SCHEDULE FOR ADDITIONAL INFORMATION	
PB	PANIC / DURESS BUTTON	UNDER DESK MOUNTED, UON NOTED ON PLANS	
DR	DOOR RELEASE BUTTON	UNDER DESK MOUNTED, UON NOTED ON PLANS	
KP	KEYPAD	WALL OR ARM MOUNTED AT 48" TO TOB UON. REFER HARDWARE DETAILS FOR ELEVATION	
BR	BIOMETRIC READER	WALL OR ARM MOUNTED AT 48" TO TOB UON. REFER HARDWARE DETAILS FOR ELEVATION	
EL	ELECTRIC LOCK	REFER TO DOOR HARDWARE DETAILS FOR MOUNTING AND INSTALLATION INFORMATION	
CR	INTEGRATED CARD READER	REFER TO DOOR HARDWARE DETAILS FOR MOUNTING AND INSTALLATION INFORMATION	
CR	CARD READER	WALL OR ARM MOUNTED AT 48" TO TOB UON. REFER HARDWARE DETAILS FOR ELEVATION	
DS	DOOR POSITION SWITCH	REFER TO DOOR HARDWARE DETAILS FOR MOUNTING AND INSTALLATION INFORMATION	
DC	DOOR CONTACT	REFER TO DOOR HARDWARE DETAILS FOR MOUNTING AND INSTALLATION INFORMATION	
TC	OVERHEAD DOOR TRACK CONTACT	REFER TO DOOR HARDWARE DETAILS FOR MOUNTING AND INSTALLATION INFORMATION	
OD	OVERHEAD DOOR CONTACT	REFER TO DOOR HARDWARE DETAILS FOR MOUNTING AND INSTALLATION INFORMATION	
RX	REQUEST TO EXIT (BUTTON / MOTION)	REFER TO DOOR HARDWARE DETAILS FOR MOUNTING AND INSTALLATION INFORMATION	

KEY PLAN



SHEET INDEX

ID	DESCRIPTION	ISSUED	REV
TN-001	TECHNOLOGY LEGEND	✓	
TN-003	TELECOMMUNICATIONS RISER DIAGRAMS	✓	
TN-004	TELECOMMUNICATIONS PATHWAYS AND SPACES DIAGRAM	✓	
TN-100	TECHNOLOGY SITE PLAN	✓	
TN-101	TECHNOLOGY LEVEL 1 FLOOR PLAN & RCP	✓	
TN-102	TECHNOLOGY LEVEL 2 FLOOR PLAN & RCP	✓	
TN-103A	TECHNOLOGY LEVEL 3 FLOOR PLAN & RCP - LAB BLDG	✓	
TN-103B	TECHNOLOGY LEVEL 3 FLOOR PLAN & RCP - SHOP BLDG	✓	
TN-104	TECHNOLOGY LOWER ROOF FLOOR PLAN	✓	
TN-401	TECHNOLOGY ENLARGED DRAWINGS	✓	
TN-501	TELECOMMUNICATIONS DIAGRAMS	✓	
TN-502	TELECOMMUNICATIONS DIAGRAMS	✓	
TN-601	ELECTRONIC SECURITY FUNCTIONAL DIAGRAMS	✓	
TN-611	ELECTRONIC SECURITY DOOR DIAGRAMS	✓	
TN-612	ELECTRONIC SECURITY CAMERA DIAGRAMS	✓	

GENERAL NOTES

DIVISION 27 TECHNOLOGY GENERAL NOTES:

A. PRIOR TO INSTALLATION, CONTRACTOR SHALL REVIEW THE COMPLETE SET OF CONSTRUCTION DOCUMENTS FOR CONFLICTS WITH OTHER TRADES. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ALL WORK WITH OTHER TRADES TO AVOID CONFLICTS DURING INSTALLATION. CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS IN EQUIPMENT LOCATION AND ROUTING AS NECCESSARY AT NO ADDITIONAL COST TO THE OWNER.

B. CONTRACTOR SHALL REVIEW ALL DRAWINGS ASSOCIATED WITH THIS PROJECT. WORK ASSOCIATED WITH THE TELECOM CONTRACTOR'S TRADE MAY BE SHOWN ON OTHER DRAWINGS. ANY ADDITIONAL COST RESULTING FROM THE FAILURE TO INCLUDE THESE ITEMS SHOWN ON THE OTHER DRAWINGS WILL BE INCURRED BY THE CONTRACTOR.

C. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE CONSULTANT MAY ALLOW OTHER METHODS AND MATERIALS NOT REFLECTED HEREIN. THE CONTRACTOR SHALL REQUEST IN WRITING ANY DEVIATIONS FROM THE STANDARDS PROVIDED BEFORE BEGINNING THE PROJECT.

D. WORK SHALL BE PERFORMED IN A PROFESSIONAL MANNER IN ACCORDANCE WITH INSTALLATION STANDARDS TO THE SATISFACTION OF THE ARCHITECT, CONSULTANT, AND OWNER.

E. WORK, MATERIALS, AND EQUIPMENT SHALL CONFORM TO THE CURRENTLY ADOPTED EDITION OF ALL AUTHORITIES HAVING JURISDICTION (AHJ).

F. SYSTEM COMPONENTS SHALL BE LISTED OR LABELED BY UL OR OTHER NATIONALLY RECOGNIZED TESTING LABORATORIES (NRTL) AS ALLOWED BY THE AUTHORITY HAVING JURISDICTION (AHJ).

G. WHERE AN APPARENT DISCREPANCY EXISTS BETWEEN THE REQUIREMENTS OF THE GENERAL NOTES AND INFORMATION PORTRAYED IN THE DRAWINGS, THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF THE GREATER QUALITY OR QUANTITY.

H. CONTRACTOR TO INCLUDE IN BASE BID ALL COSTS REQUIRED FOR PERMITS AND INSPECTIONS.

I. DUE TO FIELD CONDITIONS, THE CONTRACTOR MAY NEED TO INSTALL THE WORK INDICATED IN A MANNER DIFFERENT FROM WHAT IS SHOWN. MINOR CHANGES THAT DO NOT REQUIRE COORDINATION WITH OTHER TRADES SHALL NOT REQUIRE APPROVAL. LARGER CHANGES INVOLVING COORDINATION WITH OTHER TRADES SHALL BE SUBJECT TO APPROVAL THROUGH THE RFI PROCESS.

J. ANY DEVIATION OR EXCEPTIONS FROM THE DRAWINGS AND SPECIFICATIONS REQUIRES WRITTEN APPROVAL. IF UNAUTHORIZED CHANGES ARE FOUND, THE CONTRACTOR MAY BE RESPONSIBLE FOR REMOVING THE UNAUTHORIZED WORK AND REINSTALLING THE SYSTEM(S) PER THE CONTRACT DRAWINGS AND SPECIFICATIONS AT NO ADDITIONAL COST TO THE OWNER. THIS SHALL INCLUDE ANY ADDITIONAL WORK BY OTHER TRADES SUCH AS CUTTING, PATCHING, PAINTING, AND REPAIRS.

K. CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY CUT AND PATCH EXISTING CONSTRUCTION AS REQUIRED TO INSTALL NEW TECHNOLOGY WORK. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP AND FINISH AS THE EXISTING WORK AND SHALL ACCURATELY MATCH ALL SURROUNDING WORK TO THE SATISFACTION OF THE ARCHITECT.

L. ALL PENETRATIONS IN FIRE RESISTIVE FLOORS OR WALLS SHALL BE PROTECTED BY MATERIALS AND I NSTALLATION PROCEDURES THAT CONFORM TO UL LISTING FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS".

DIVISION 26 COORDINATED GENERAL NOTES:

A. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL REVIEW THE COMPLETE SET OF TECHNOLOGY CONSTRUCTION DOCUMENTS FOR CONFLICTS WITH OTHER TRADES.

B. VERIFY EXACT LOCATION OF ALL TECHNOLOGY BOXES AND RACEWAYS WITH ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS PRIOR TO INSTALLATION WITH RESPECT TO MILLWORK, FURNISHINGS, FURNITURE, EQUIPMENT, AND LOCAL ELECTRICAL DEVICE HEIGHTS.

C. RACEWAY SYSTEMS ARE SHOWN DIAGRAMMATICALLY. ACTUAL LOCATION AND ROUTING SHALL BE COORDINATED TO SUIT FIELD CONDITIONS.

D. DIFFERING CONDITIONS AND RACEWAY REQUIREMENTS SPECIFIED WITHIN ELECTRICAL SCOPE SHALL TAKE PRECEDENCE OVER TECHNOLOGY GENERAL NOTES.

E. RACEWAYS SHALL BE CONCEALED UNLESS SPECIFICALLY CALLED OUT AS EXPOSED OR IN OPEN CEILING AREAS.

F. EXPOSED RACEWAYS SHALL BE ROUTED OUT OF PUBLIC VIEW AS MUCH AS POSSIBLE.

G. EXPOSED RACEWAYS SHALL BE PAINTED TO MATCH ADJACENT SURFACES

H. RACEWAYS SHALL BE RUN PARALLEL WITH, OR AT RIGHT ANGLES TO WALLS.

I. CONTRACTOR SHALL PROVIDE A PULL BOX AFTER EVERY 180 DEGREES OF ACCUMULATED BENDS. PULL BOXES MAY NOT BE USED AS A TURNING POINT.

J. PULL BOXES SHALL BE PLACED IN STRAIGHT SECTIONS OF CONDUIT EVERY 100 FT.

K. PULL BOXES SHALL BE PLACED IN STRAIGHT SECTIONS OF UNDERGROUND CONDUIT (PVC OR HDPE) EVERY 600 FT.

L. CONDUIT FITTINGS TO BE INSULATED THROAT TYPE.

M. CONDUITS TO BE SUPPLIED WITH NYLON PULL STRING.

N. CONDUIT STUBS TO BE SUPPLIED WITH PLASTIC BUSHINGS.

O. CONDUIT PENETRATIONS FOR EXTERIOR BOXES SHALL BE SEALED FROM THE ELEMENTS.

DIVISION 28 ELECTRONIC SAFETY AND SECURITY GENERAL NOTES:

A. PRIOR TO INSTALLATION, CONTRACTOR SHALL REVIEW THE COMPLETE SET OF CONSTRUCTION DOCUMENTS FOR CONFLICTS WITH OTHER TRADES. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ALL WORK WITH OTHER TRADES TO AVOID CONFLICTS DURING INSTALLATION. CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS IN EQUIPMENT LOCATION AND ROUTING AS NECCESSARY AT NO ADDITIONAL COST TO THE OWNER.

B. CONTRACTOR SHALL REVIEW ALL DRAWINGS ASSOCIATED WITH THIS PROJECT. WORK ASSOCIATED WITH THE ELECTRONIC SAFETY AND SECURITY CONTRACTOR'S TRADE MAY BE SHOWN ON OTHER DRAWINGS. ANY ADDITIONAL COST RESULTING FROM THE FAILURE TO INCLUDE THESE ITEMS SHOWN ON THE OTHER DRAWINGS WILL BE INCURRED BY THE CONTRACTOR.

C. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE CONSULTANT MAY ALLOW OTHER METHODS AND MATERIALS NOT REFLECTED HEREIN. THE CONTRACTOR SHALL REQUEST IN WRITING ANY DEVIATIONS FROM THE STANDARDS PROVIDED BEFORE BEGINNING THE PROJECT.

D. WORK SHALL BE PERFORMED IN A PROFESSIONAL MANNER IN ACCORDANCE WITH INSTALLATION STANDARDS TO THE SATISFACTION OF THE ARCHITECT, CONSULTANT, AND OWNER.

E. WORK, MATERIALS, AND EQUIPMENT SHALL CONFORM TO THE CURRENTLY ADOPTED EDITION OF ALL AUTHORITIES HAVING JURISDICTION (AHJ).

F. SYSTEM COMPONENTS SHALL BE LISTED OR LABELED BY UL OR OTHER NATIONALLY RECOGNIZED TESTING LABORATORIES (NRTL) AS ALLOWED BY THE AUTHORITY HAVING JURISIDICTION (AHJ).

G. WHERE AN APPARENT DISCREPANCY EXISTS BETWEEN THE REQUIREMENTS OF THE GENERAL NOTES AND INFORMATION PORTRAYED IN THE DRAWINGS, THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF THE GREATER QUALITY OR QUANTITY.

H. CONTRACTOR TO INCLUDE IN BASE BID ALL COSTS REQUIRED FOR PERMITS AND INSPECTIONS.

I. DUE TO FIELD CONDITIONS, THE CONTRACTOR MAY NEED TO INSTALL THE WORK INDICATED IN A MANNER DIFFERENT FROM WHAT IS SHOWN. MINOR CHANGES THAT DO NOT REQUIRE COORDINATION WITH OTHER TRADES SHALL NOT REQUIRE APPROVAL. LARGER CHANGES INVOLVING COORDINATION WITH OTHER TRADES SHALL BE SUBJECT TO APPROVAL THROUGH THE RFI PROCESS.

J. ANY DEVIATION OR EXCEPTIONS FROM THE DRAWINGS AND SPECIFICATIONS REQUIRES WRITTEN APPROVAL. IF UNAUTHORIZED WORK AND REINSTALLING THE SYSTEM(S) PER THE CONTRACT DRAWINGS AND SPECIFICATIONS AT NO ADDITIONAL COST TO THE OWNER. THIS SHALL INCLUDE ANY ADDITIONAL WORK BY OTHER TRADES SUCH AS CUTTING, PATCHING, PAINTING, AND REPAIRS.

K. CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY CUT AND PATCH EXISTING CONSTRUCTION AS REQUIRED TO INSTALL NEW ELECTRONIC SAFETY AND SECURITY WORK. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP AND FINISH AS THE EXISTING WORK AND SHALL ACCURATELY MATCH ALL SURROUNDING WORK TO THE SATISFACTION OF THE ARCHITECT.

L. ALL PENETRATIONS IN FIRE RESISTIVE FLOORS OR WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION PROCEDURES THAT CONFORM TO UL LISTING FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS".

M. VERIFY DEVICE COLOR AND MOUNTING ORIENTATION (VERTICAL AND HORIZONTAL) WITH ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS AND SPECIFICATIONS PRIOR TO ORDERING ANY EQUIPMENT.

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RECOMMENDED INSTALLATION RESPONSIBILITY MATRIX

	OWNER		GENERAL CONTRACTOR (GC)		ELECTRICAL CONTRACTOR (EC)		AUDIO VISUAL CONTRACTOR (AV)		STRUCTURED CABLING CONTRACTOR (SC)		SECURITY CONTRACTOR (ESS)	
AUDIO VISUAL (AV) SYSTEMS	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL
CONDUIT ROUGH-IN, FLOOR BOXES, STANDARD J-BOXES					●	●						
SPECIALTY AV BACKBOXES						●	●					
ELECTRICAL POWER (120V)					●	●						
GROUNDING					●	●						
NETWORK CABLING									●	●		
SYSTEM CABLING (INCLUDING AV SPECIFIC NETWORK CABLING, PATCH PANELS AND PATCH CORDS)									●	●		
HARDWARE/EQUIPMENT (PASSIVE/ACTIVE EQUIPMENT INCL. AV-SPECIFIC NETWORK SWITCHES, RACKS)							●	●				
OWNER FURNISHED EQUIPMENT (OFE)	●							●				
DSP PROGRAMMING							●	●				
CONTROL SYSTEM PROGRAMMING							●	●				
TELECOM SYSTEMS - INSIDE PLANT	OWNER		GC		EC		AV		SC		ESS	
CONDUIT ROUGH-IN, FLOOR BOXES, STANDARD J-BOXES					●	●						
ELECTRICAL POWER (120V)					●	●						
PATHWAYS (WIRE BASKET TRAY, J-HOOK PATHWAY)					●	●						
SLEEVES (WHEN SHOWN ON SHEETS)									●	●		
STRUCTURED CABLING									●	●		
RACKS, CABINETS, CABLE RUNWAY									●	●		
TELECOMMUNICATIONS BONDING BUSBARS AND BONDING CONDUCTOR									●	●		
EQUIPMENT ROOM (PLYWOOD BACKBOARDS)			●	●								
TELECOM SYSTEMS - ACTIVE NETWORK	OWNER		GC		EC		AV		SC		ESS	
PATCH CABLES (PATCH PANEL SIDE)	●	●										
PATCH CABLES (OUTLET SIDE)	●	●										
RACK SCREWS		●							●			
NETWORK ELECTRONICS	●	●										
WIRELESS ACCESS POINTS (WAPs)	●	●										
SPECIAL SYSTEMS - CUSTOMER-OWNED OUTSIDE	OWNER		GC		EC		AV		SC		ESS	
UNDERGROUND CONDUIT, HAND HOLES, MAINTENANCE HOLES, VAULTS, DUCT BANKS					●	●						
OSP CABLING									●	●		
INNERDUCT (PVC, HDPE, FABRIC MESH)					●	●						
SECURITY SYSTEMS - ACCESS	OWNER		GC		EC		AV		SC		ESS	
CONDUIT ROUGH-IN, STANDARD J-BOXES					●	●						
ELECTRICAL POWER (120V)					●	●						
LOW VOLTAGE POWER SUPPLIES	●					X						●
CABLING PATHWAYS									●	●		
SECURITY SYSTEMS CABLING											●	●
SECURITY SYSTEMS HARDWARE/EQUIPMENT											●	●
DOOR/LOCKING HARDWARE			●	●								
SECURITY SYSTEMS - VIDEO	OWNER		GC		EC		AV		SC		ESS	
CONDUIT ROUGH-IN, STANDARD J-BOXES					●	●						
DISTRIBUTED ANTENNA SYSTEM (DAS) - LIFE SAFETY (NOT DESIGNED K2)	OWNER		GC		EC		AV		SC		ESS	
DRAWINGS												
SUPPORTING CONDUITS/PATHWAYS					●	●						
SUPPORTING ELECTRICAL					●	●						
SYSTEM CABLING												
HARDWARE/EQUIPMENT												

GENERAL NOTES

A.	RESPONSIBILITIES INDICATED IN THE MATRIX ABOVE ARE RECOMMENDATIONS ONLY AND ARE PROVIDED AS A COURTESY. THE PRIME CONTRACT HOLDER IS ULTIMATELY RESPONSIBLE FOR ALL ITEMS IN THE CONTRACT DOCUMENTS NOT INDICATED AS BEING PROVIDED OWNER.
B.	THIS MATRIX IS NOT INTENDED TO BE EXHAUSTIVE, WHERE SCOPE DISCREPANCIES OR DEFICIENCIES EXIST, PROVIDE WRITTEN NOTIFICATION TO THE DESIGN TEAM FOR CLARIFICATION.
C.	SCOPE DELINEATION MAY BE REVISED DURING THE CONSTRUCTION PROCESS ON THIS PROJECT. ANY SUBSEQUENT DOCUMENTATION ISSUED THAT MODIFIES A CONTRACTOR'S RESPONSIBILITES SHALL SUPERSEDE INFORMATION PROVIDED HEREIN.
D.	CABLING INCLUDES TERMINATIONS, FACEPLATES, PATCH PANELS AND ALL OTHER ASSOCIATED EQUIPMENT FOR A COMPLETE AND OPERABLE SYSTEM.
E.	SUPPORTING CONDUITS/PATHWAYS INCLUDES BUT IS NOT LIMITED TO CONDUIT, BUSHINGS CABLE TRAY , SURFACE MOUNT RACEWAY AND ASSOCIATED ELEMENTS. FOR AREAS NOT SUPPORTED CABLE TRAY, CONTRACTOR RESPONSIBLE FOR CABLES TO THOSE AREAS SHALL PROVIDE J-HOOKS PER SPECIFICATIONS. ANY PENETRATIONS INTO FIRE-RATED BARRIERS SHALL BE APPROPRIATELY FIRE STOPPED.
F.	"X" DENOTES ELECTRICAL CONTRACTOR TO PROVIDE FINAL 120V CONNECTION.

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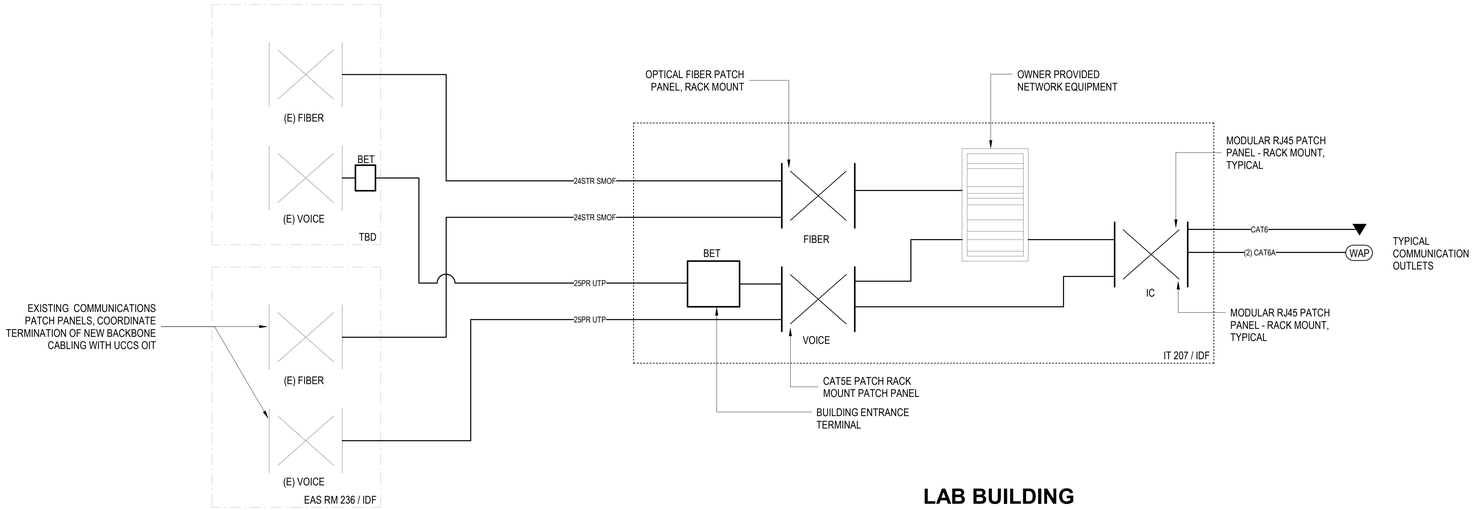
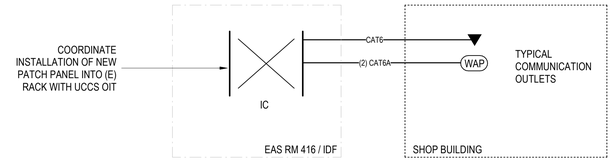


LAB BUILDING



SHOP BUILDING

1 TELECOMMUNICATIONS RISER DIAGRAM

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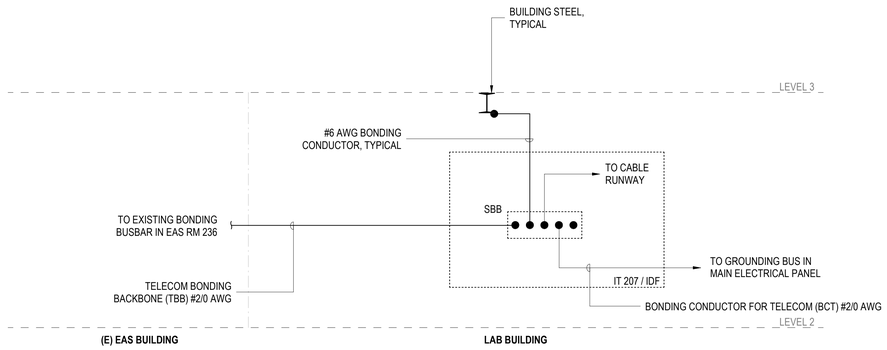

2 TELECOMMUNICATIONS BONDING DIAGRAM

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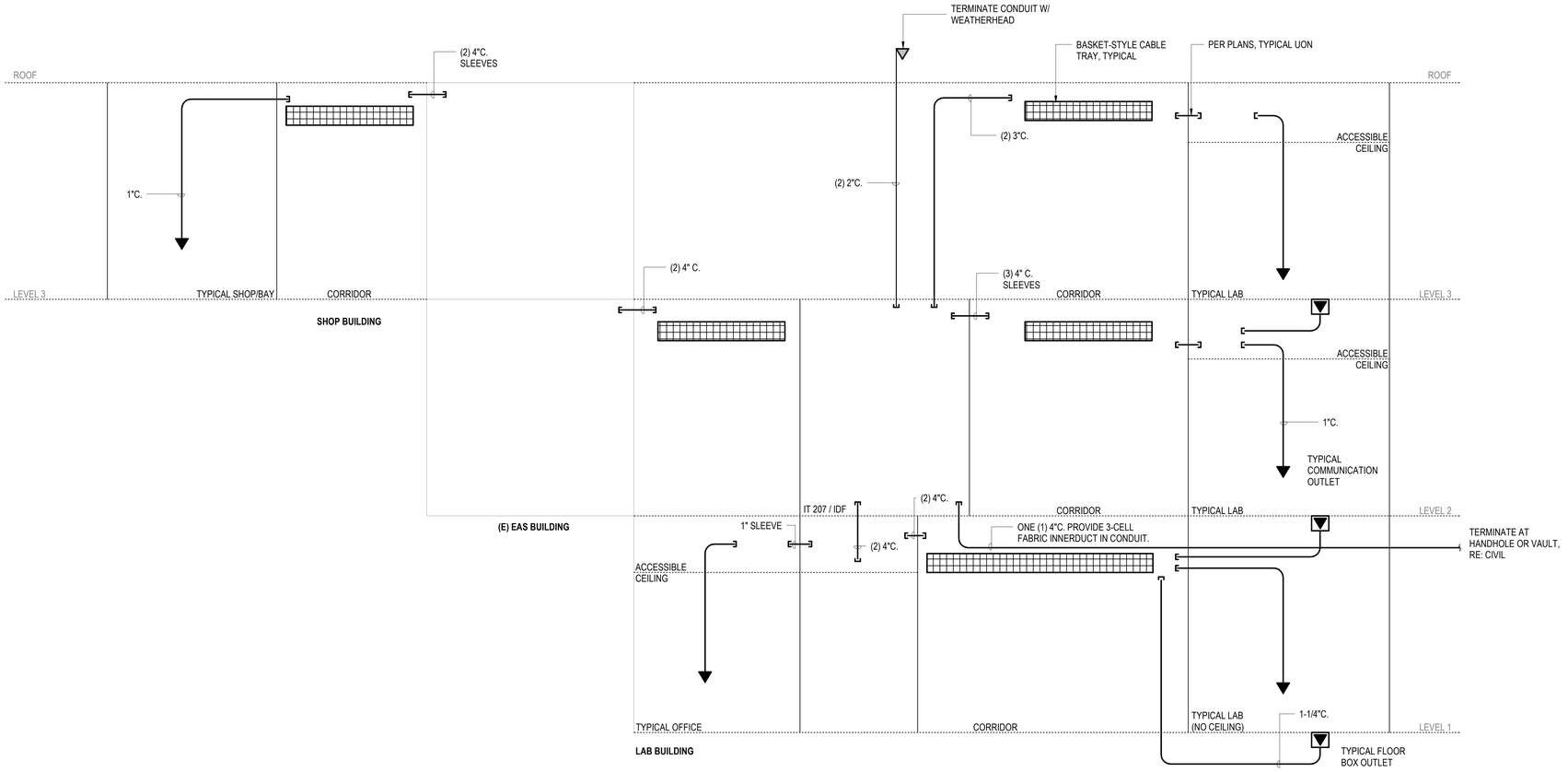

1 TELECOMMUNICATIONS PATHWAYS AND SPACES DIAGRAM
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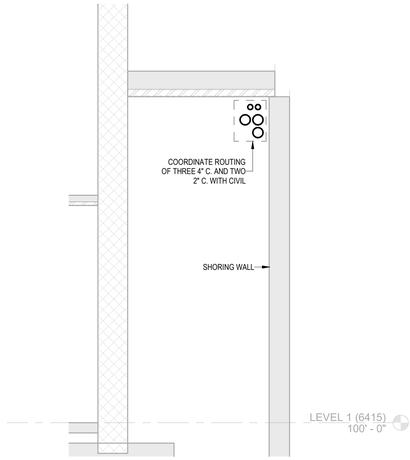
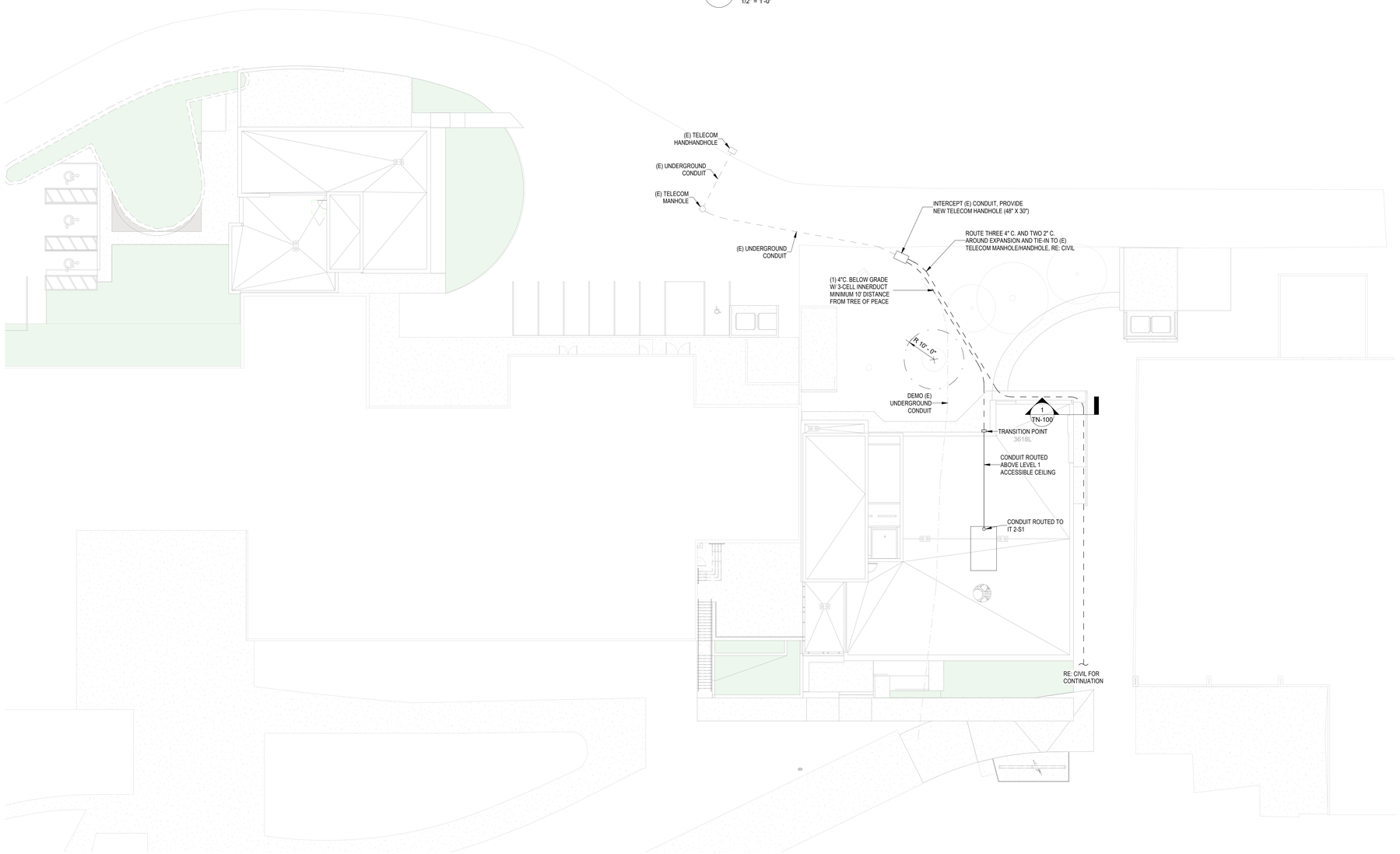
SITE PLAN NOTES

1. TELECOM SITE PLAN IS DIGRAMMATIC IN NATURE - FIELD VERIFY ALL EXISTING CONDUIT, MANHOLES, HANDHOLES, AND VAULTS. REFER TO CIVIL UTILITY PLANS FOR EXACT ROUTING AND HANDHOLE/MANHOLE/VAULT LOCATIONS.
2. COORDINATE EXCAVATION AND DEMOLITION OF EXISTING CONDUIT AND CABLING WITH UCCS IT TO MINIMIZE CAMPUS COMMUNICATIONS SERVICE INTERRUPTIONS.
3. PRIOR TO EXCAVATION AND DEMOLITION OF CONDUIT AND CABLING, CONFIRM WITH UCCS IT THAT CABLING IS DISCONNECTED OR SEVERED TO PREVENT DAMAGE TO ENTRANCE TERMINALS AND SPLICE CASES.
4. COORDINATE INCOMING COMMUNICATIONS LINES WITH UCCS OIT FOR ROUTING, CABLING SIZE, AND TERMINATIONS.



1 SHORING WALL SECTION
1/2" = 1'-0"



2 TECHNOLOGY SITE PLAN
1/16" = 1'-0"

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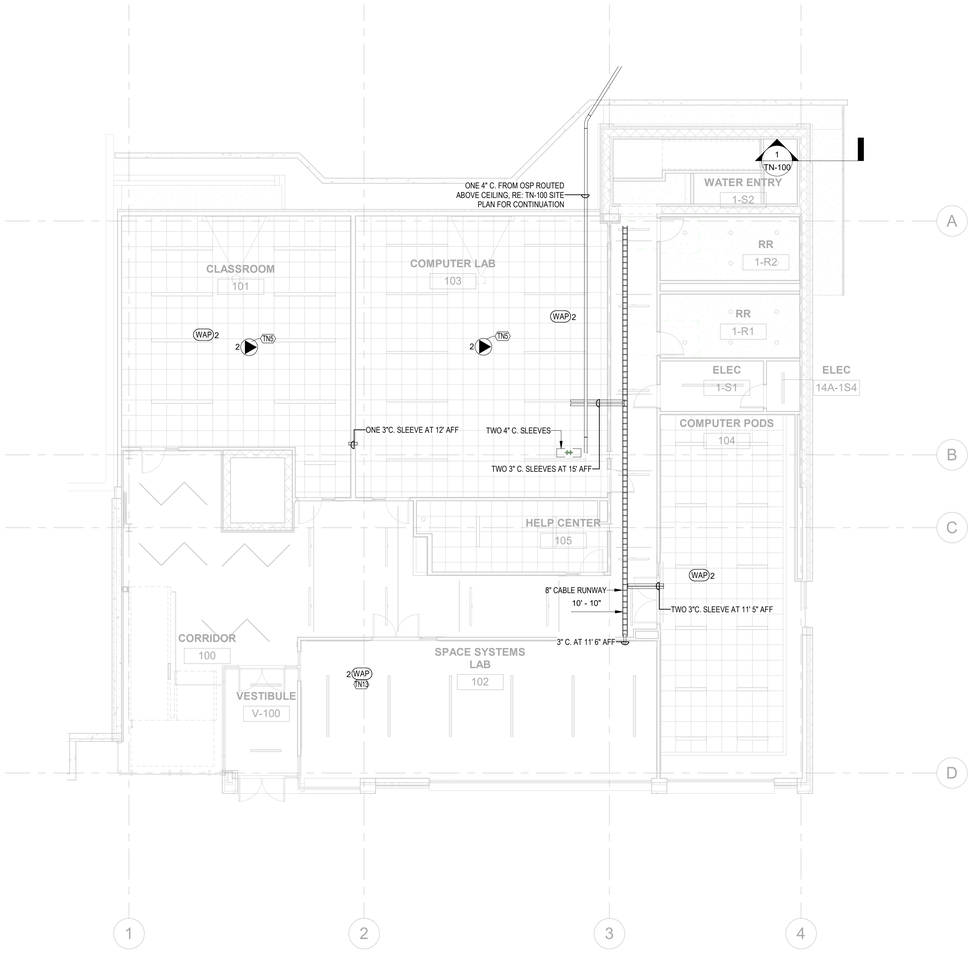
TN SHEET NOTES

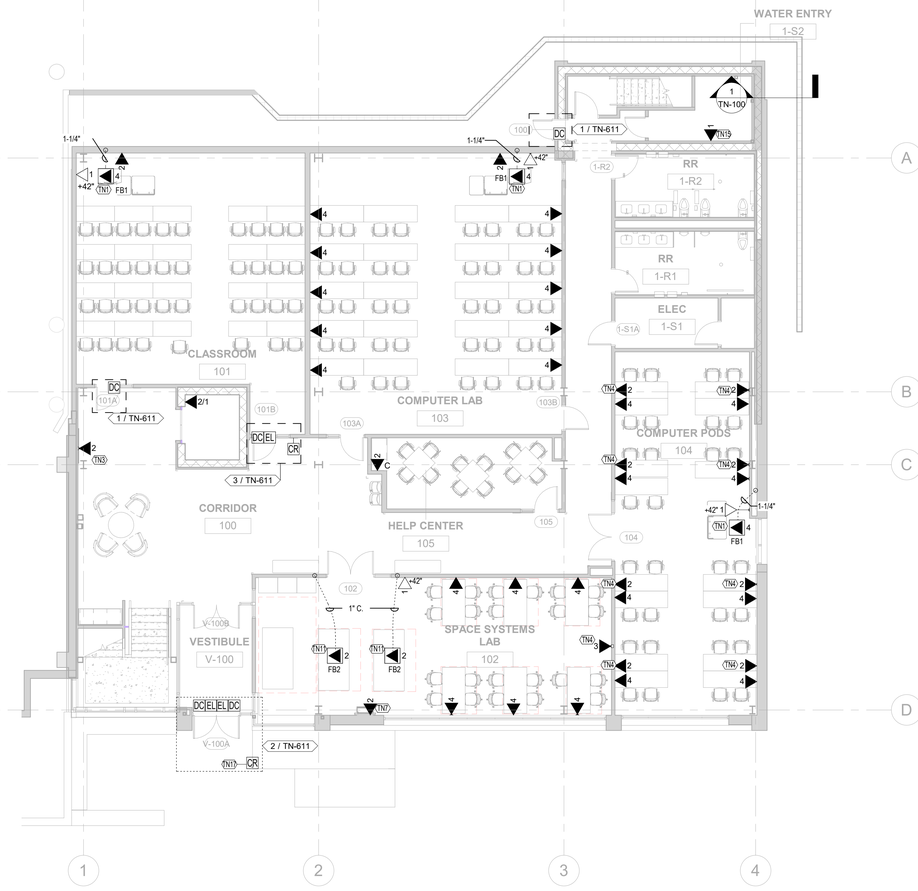
1. PROVIDE (1) 2" SLEEVE FROM CORRIDOR TO CEILING SPACE IN EACH OFFICE / LAB / CLASSROOM, UON. PROVIDE FIRESTOPPING AS REQUIRED. PROVIDE NYLON BUSHING AT TERMINATIONS.
2. PROVDE J-HOOKS FROM TERMINATION OF CONDUIT STUB-UP AND SLEEVES TO CABLE TRAY.

KEYNOTE LEGEND

ID	DESCRIPTION
TN1	6-GANG COMBINATION FLOOR BOX - AV / DATA/ POWER. REFER TO TA SET FOR FURTHER INFORMATION.
TN3	DATA OUTLET FOR DIGITAL SIGNAGE KIOSK DISPLAY.
TN4	MOUNT DATA OUTLET INSIDE TV BACK BOX, REFER TO TA SHEETS FOR FURTHER INFORMATION.
TN5	MOUNT DATA OUTLET IN PROJECTOR MOUNT PLATE.
TN7	WALL MOUNT PC STATION. MOUNT DATA OUTLET AT 18" AFF.
TN11	4-GANG COMBINATION FLOOR BOX - POWER / DATA.
TN13	SEE DETAIL 6 TN-501 FOR HANGING CONDUIT MOUNT.
TN15	PROVIDE ONE CAT6 DROP FOR WATER METER. FIELD COORDINATE LOCATION.
TN17	MOUNT CARD READER TO PEDESTAL. FIELD COORDINATE LOCATION. ROUTE 1" BELOW GRADE, STUB UP TO ACCESSIBLE CEILING.



2 LEVEL 1 REFLECTED CEILING PLAN - TECHNOLOGY
1/8" = 1'-0"



1 LEVEL 1 FLOOR PLAN - TECHNOLOGY
1/8" = 1'-0"

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TECHNOLOGY LEVEL 1 FLOOR PLAN & RCP

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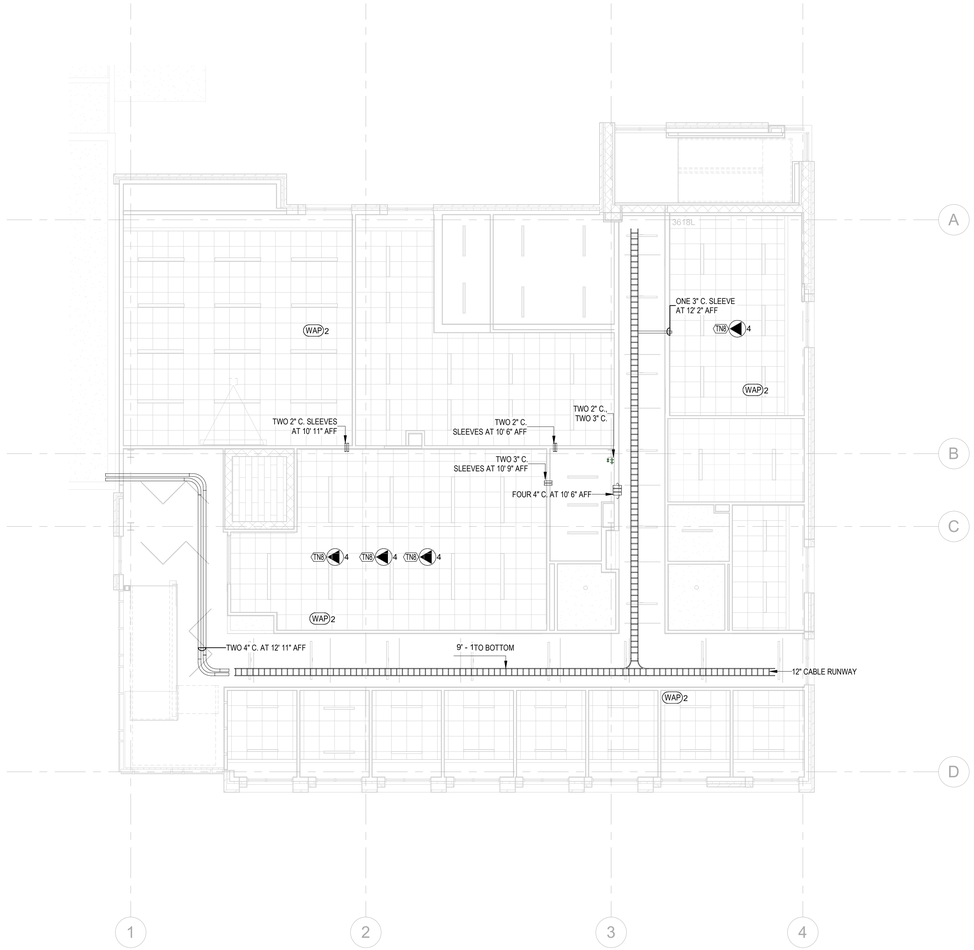
TN SHEET NOTES

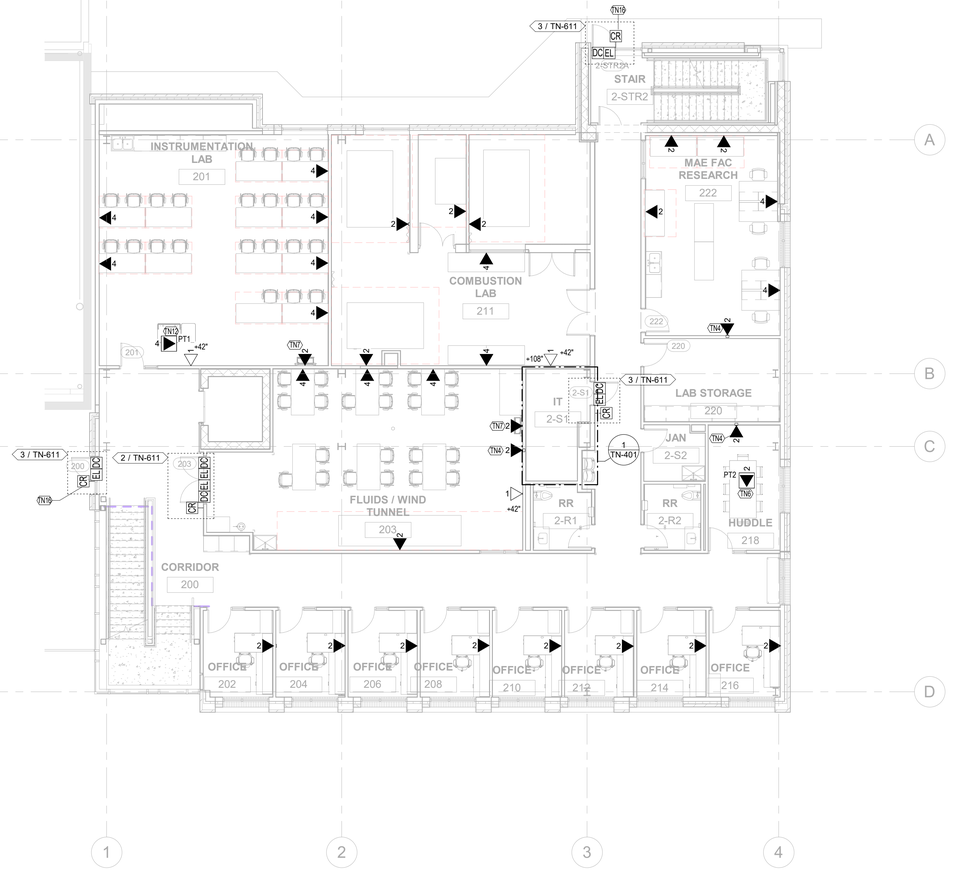
1. PROVIDE (1) 2" SLEEVE FROM CORRIDOR TO CEILING SPACE IN EACH OFFICE / LAB / CLASSROOM, UON. PROVIDE FIRESTOPPING AS REQUIRED. PROVIDE NYLON BUSHING AT TERMINATIONS.
2. PROVDE J-HOOKS FROM TERMINATION OF CONDUIT STUB-UP AND SLEEVES TO CABLE TRAY.

KEYNOTE LEGEND

ID	DESCRIPTION
TN4	MOUNT DATA OUTLET INSIDE TV BACK BOX, REFER TO TA SHEETS FOR FURTHER INFORMATION.
TN6	6" COMBINATION POKE-THRU DEVICE - POWER / DATA.
TN7	WALL MOUNT PC STATION. MOUNT DATA OUTLET AT 18" AFF.
TN8	INSTALL DATA OUTLETS IN CEILING SERVICE PANEL, FIELD COORDINATE LOCATION.
TN12	8" COMBINATION POKE-THRU DEVICE - AV / POWER / DATA. REFER TO TA SET FOR FURTHER INFORMATION.
TN16	MULLION MOUNT CARD READER.



2 LEVEL 2 REFLECTED CEILING PLAN - TECHNOLOGY
1/8" = 1'-0"



1 LEVEL 2 FLOOR PLAN - TECHNOLOGY
1/8" = 1'-0"

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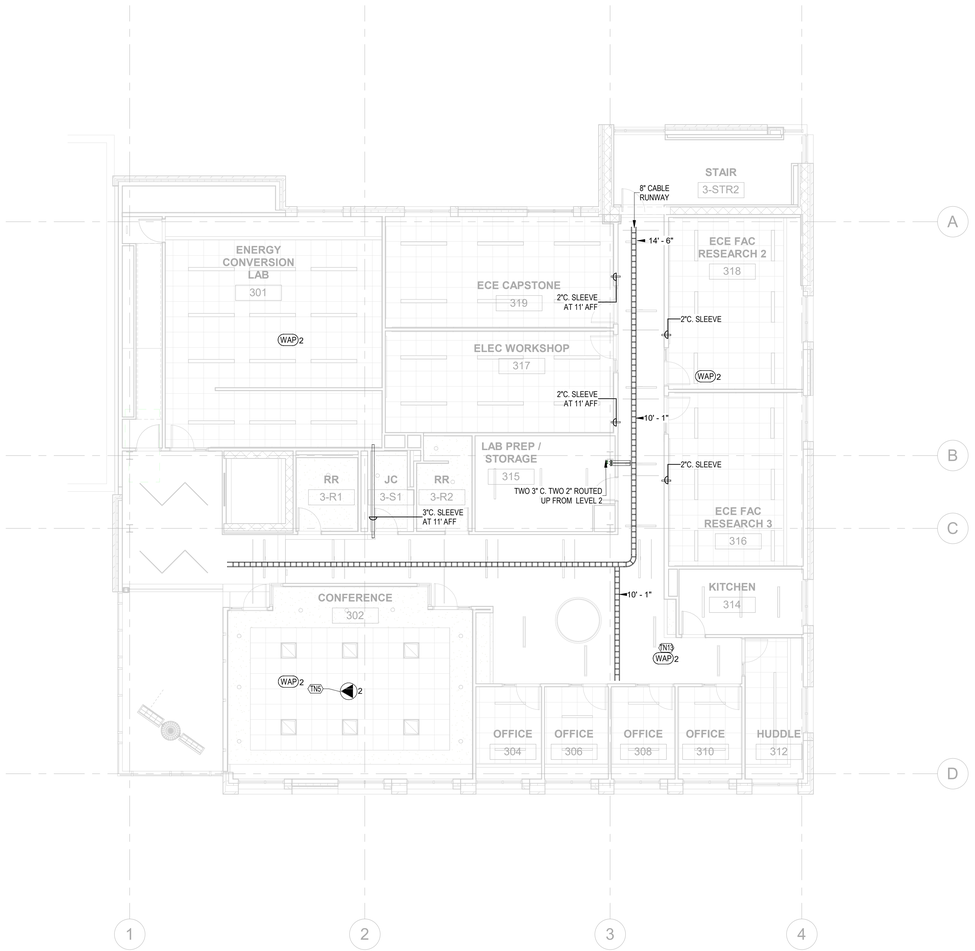
TN SHEET NOTES

1. PROVIDE (1) 2" SLEEVE FROM CORRIDOR TO CEILING SPACE IN EACH OFFICE / LAB / CLASSROOM, UON. PROVIDE FIRESTOPPING AS REQUIRED. PROVIDE NYLON BUSHING AT TERMINATIONS.
2. PROVDE J-HOOKS FROM TERMINATION OF CONDUIT STUB-UP AND SLEEVES TO CABLE TRAY.

KEYNOTE LEGEND

ID	DESCRIPTION
TN4	MOUNT DATA OUTLET INSIDE TV BACK BOX, REFER TO TA SHEETS FOR FURTHER INFORMATION.
TN5	MOUNT DATA OUTLET IN PROJECTOR MOUNT PLATE.
TN6	6" COMBINATION POKE-THRU DEVICE - POWER / DATA.
TN7	WALL MOUNT PC STATION. MOUNT DATA OUTLET AT 18" AFF.
TN10	AV EQUIPMENT RACK LOCATION - MOUNT DATA OUTLET IN REAR OF CABINET.
TN13	SEE DETAIL 6 TN-501 FOR HANGING CONDUIT MOUNT.



2 LEVEL 3 REFLECTED CEILING PLAN - TECHNOLOGY

1/8" = 1'-0"

1 LEVEL 3 FLOOR PLAN - TECHNOLOGY

1/8" = 1'-0"

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TN-103A

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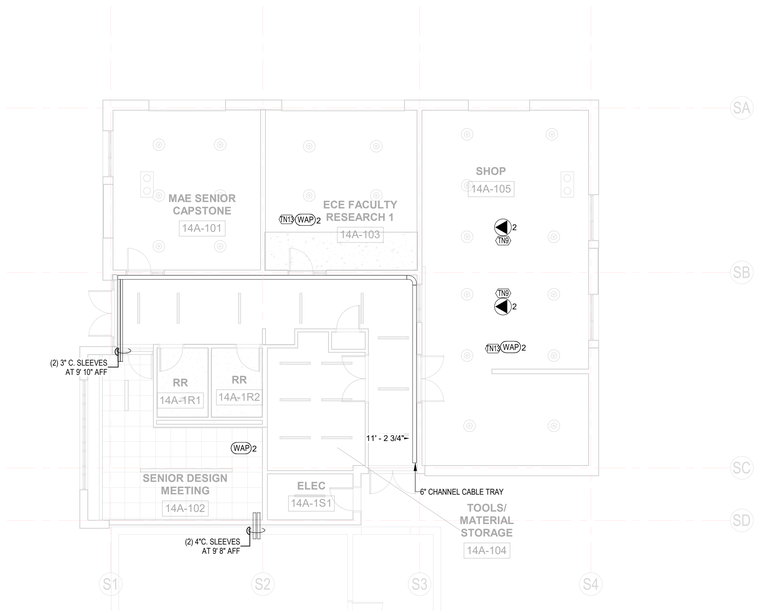
TN SHEET NOTES

1. PROVIDE (1) 2" SLEEVE FROM CORRIDOR TO CEILING SPACE IN EACH OFFICE / LAB / CLASSROOM, UON. PROVIDE FIRESTOPPING AS REQUIRED. PROVIDE NYLON BUSHING AT TERMINATIONS.
2. PROVDE J-HOOKS FROM TERMINATION OF CONDUIT STUB-UP AND SLEEVES TO CABLE TRAY.

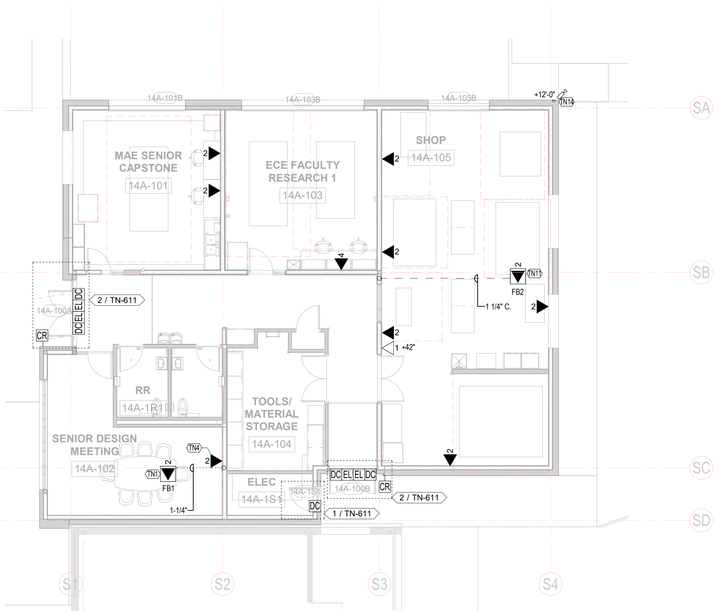
KEYNOTE LEGEND

ID	DESCRIPTION
TN1	6-GANG COMBINATION FLOOR BOX - AV / DATA/ POWER. REFER TO TA SET FOR FURTHER INFORMATION.
TN4	MOUNT DATA OUTLET INSIDE TV BACK BOX, REFER TO TA SHEETS FOR FURTHER INFORMATION.
TN9	INSTALL DATA OUTLETS IN SUSPENDED SERVICE RAIL, FIELD COORDINATE LOCATION.
TN11	4-GANG COMBINATION FLOOR BOX - POWER / DATA.
TN13	SEE DETAIL 6 TN-501 FOR HANGING CONDUIT MOUNT.
TN14	PROVIDE CAMERA ROUGH-IN ONLY WITH PULL STRING.



2 LEVEL 3 SHOP BUILDING REFLECTED CEILING PLAN - TECHNOLOGY

1/8" = 1'-0"



1 LEVEL 3 SHOP BUILDING FLOOR PLAN - TECHNOLOGY

1/8" = 1'-0"

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SHEET TITLE:
TECHNOLOGY LEVEL 3 FLOOR PLAN & RCP - SHOP BLDG

SCALE: As indicated
SHEET NUMBER

TN-103B

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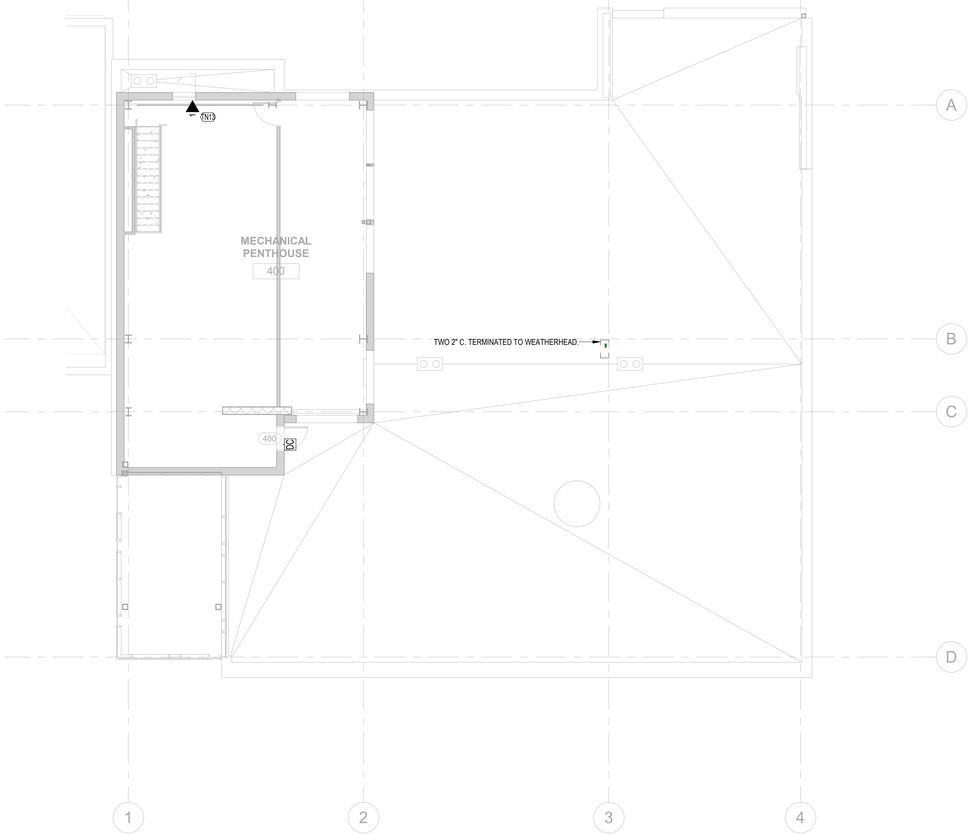
TN SHEET NOTES

1. PROVIDE (1) 2" SLEEVE FROM CORRIDOR TO CEILING SPACE IN EACH OFFICE / LAB / CLASSROOM, UON. PROVIDE FIRESTOPPING AS REQUIRED. PROVIDE NYLON BUSHING AT TERMINATIONS.
2. PROVDE J-HOOKS FROM TERMINATION OF CONDUIT STUB-UP AND SLEEVES TO CABLE TRAY.

KEYNOTE LEGEND

ID	DESCRIPTION
TN13	SEE DETAIL 6 TN-501 FOR HANGING CONDUIT MOUNT.



1 LOWER ROOF FLOOR PLAN - TECHNOLOGY
1/8" = 1'-0"

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SHEET TITLE:
TECHNOLOGY LOWER ROOF FLOOR PLAN

SCALE: As indicated
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TN-104

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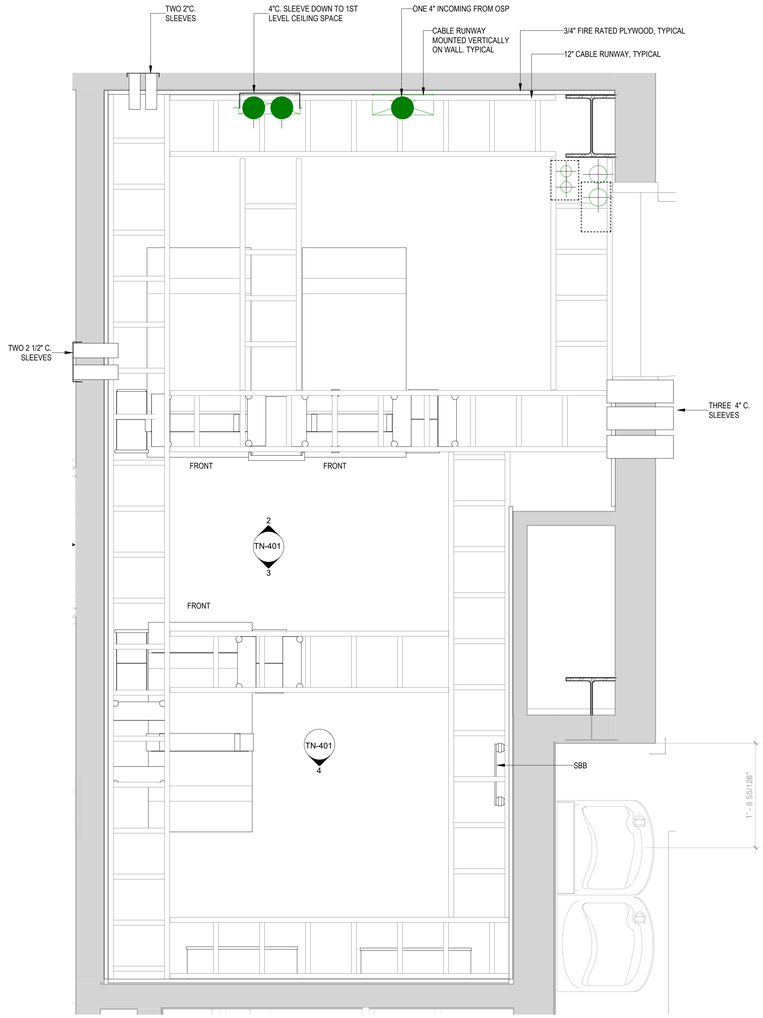
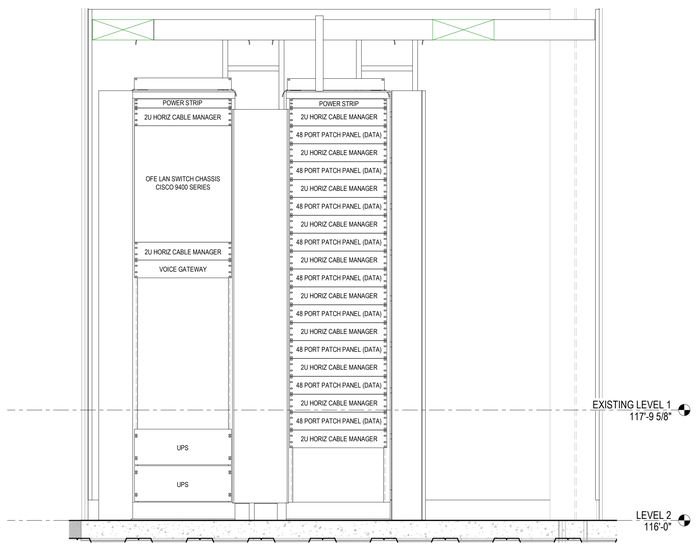
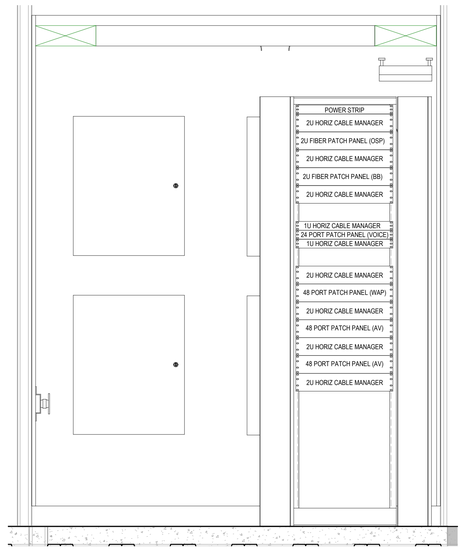


1 ENLARGED PLAN IT 2-S1
1" = 1'-0"

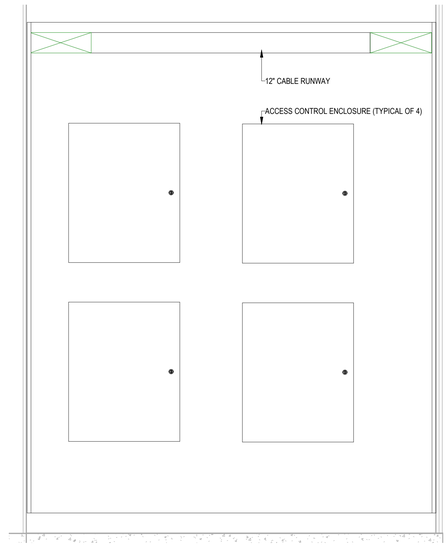
DROP COUNT LAB BDG		
DATA QTY	VOICE QTY	DEVICE
62	0	AV
335	7	DATA
4	0	SECURITY
28	0	WAP



2 IT 2-S1 RACK ELEVATION - NORTH
1" = 1'-0"



3 IT 2-S1 RACK ELEVATION - SOUTH
1" = 1'-0"



4 IT 2-S1 ACCESS CONTROL ELEVATION
1" = 1'-0"

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SHEET TITLE:
TECHNOLOGY ENLARGED DRAWINGS

SCALE: 1" = 1'-0"
SHEET NUMBER
TN-401

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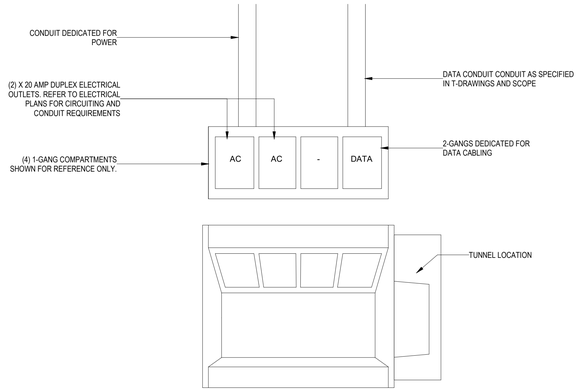


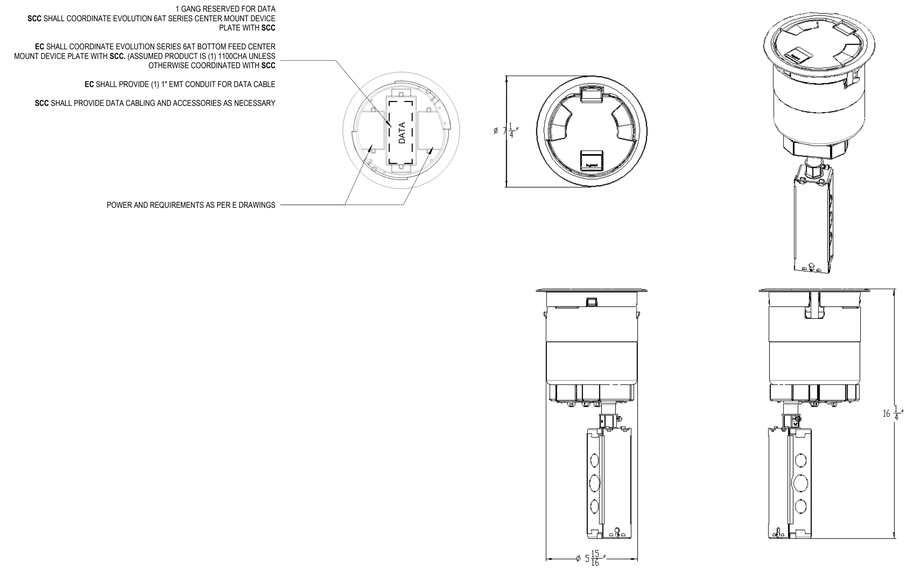
GENERAL NOTES

A. ALL LOW VOLTAGE CONDUITS TO BE ROUTED TO NEAREST ACCESSIBLE CEILING SPACE / CABLE TRAY. USE MOST DIRECT ROUTE POSSIBLE. PROVIDE FIRESTOPPING AS REQUIRED FOR ALL PENETRATIONS.

B. ALL LOW VOLTAGE CONDUITS TO BE SUPPLIED WITH NYLON BUSHING AND PULL STRING.

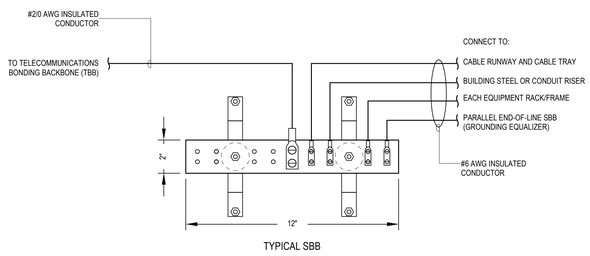
C. PROVIDE CLEAR PERMANENT MARKING WITHIN UNFINISHED PORTION OF FLOOR BOX TO IDENTIFY WHETHER GANG IS RESERVED FOR AV, IT OR POWER

1 WIREMOLD EFB45S-OG FLOOR BOX COORDINATION DIAGRAM (FB2)
NTS



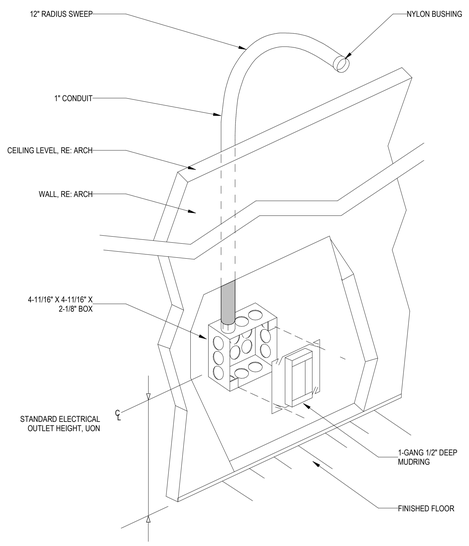
2 WIREMOLD EVOLUTION 6AT POKE-THRU COORDINATION DIAGRAM (PT2)
NTS

TYPICAL BUSBAR - ISOMETRIC

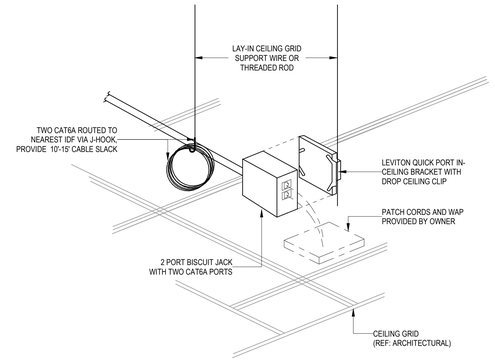


TYPICAL SBB

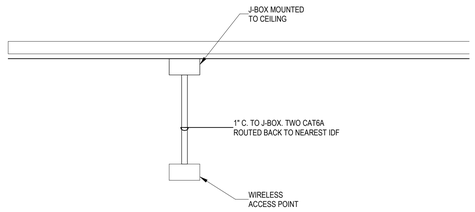
3 TELECOMMUNICATIONS BONDING BUSBAR DIAGRAM
NTS



4 TYPICAL COMMS OUTLET BOX DIAGRAM
NTS



5 WIRELESS ACCESS POINT - ACCESSIBLE CEILING
NTS



6 HANGING CONDUIT MOUNT - ACCESS POINT
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TELECOMMUNICATIONS DIAGRAMS

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TN-501

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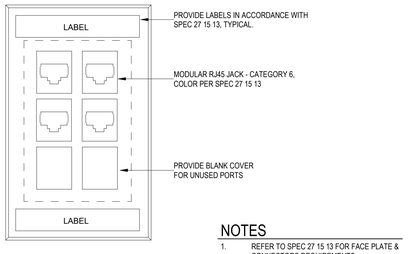
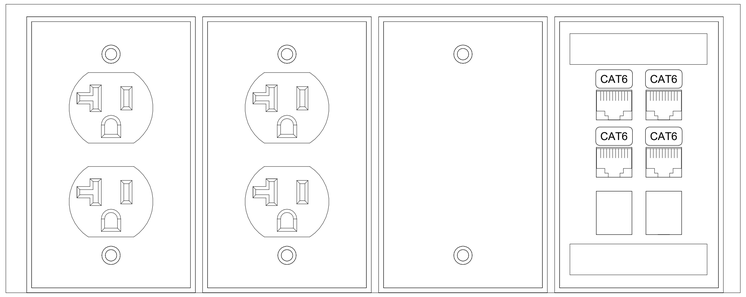


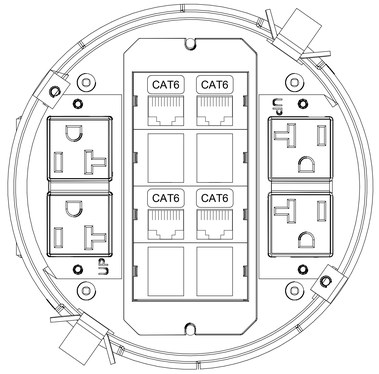
NOTES

1. REFER TO SPEC 27 15 13 FOR FACE PLATE & CONNECTORS REQUIREMENTS.

1 TYPICAL COMMUNICATIONS WALL PLATE
NTS



2 4-GANG FLOOR BOX [FB2] - DATA + POWER
SCALE: 6" = 1'-0"



3 6" POKE-THRU DEVICE [PT2] - DATA + POWER
SCALE: 6" = 1'-0"

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TELECOMMUNICATIONS DIAGRAMS

SCALE: 12" = 1'-0"
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TN-502

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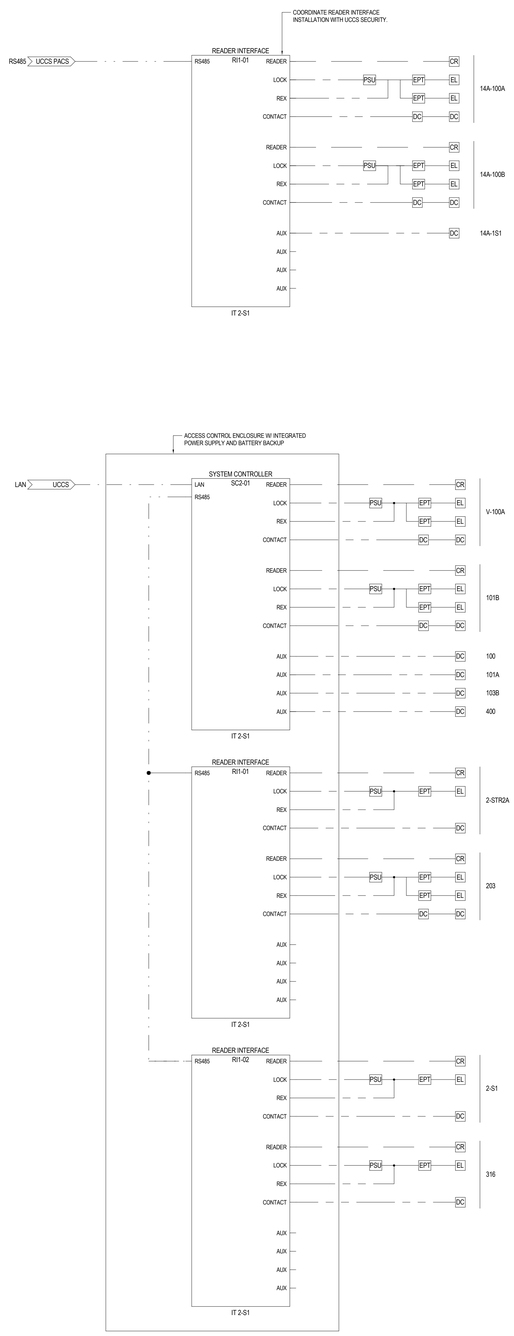

1 ELECTRONIC SECURITY FUNCTIONAL DIAGRAM
NTS

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SHEET TITLE:
ELECTRONIC SECURITY FUNCTIONAL DIAGRAMS

SCALE: NTS
SHEET NUMBER
TN-601

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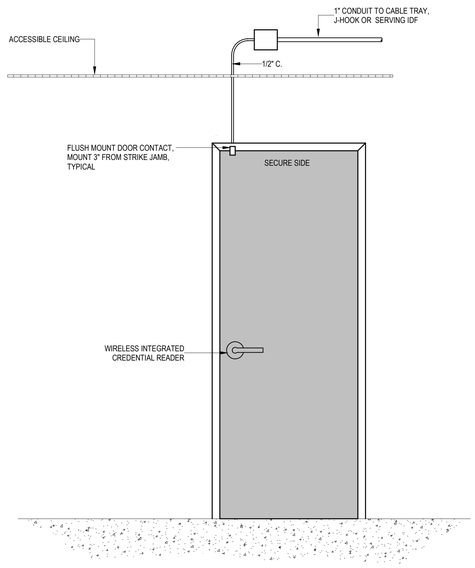
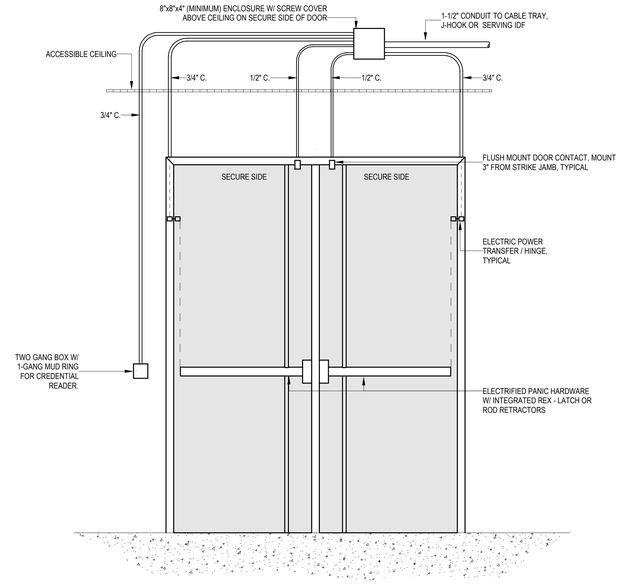
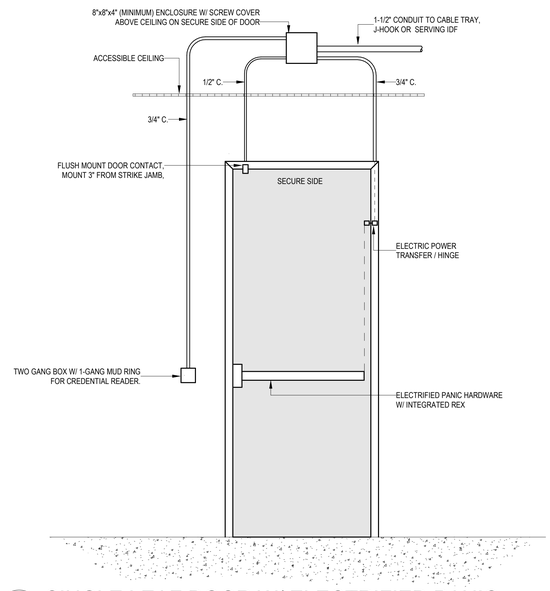


1 SINGLE LEAF DOOR W/ DOOR POSITION SWITCH
N.T.S.



NOTES:
1. IN AREAS OPEN TO STRUCTURE OR WITH DECORATIVE CEILINGS, RELOCATE 8"X8" JUNCTION BOX TO NEAREST CONCEALED ACCESSIBLE CEILING.
2. DOOR HARDWARE POWER SUPPLIES ARE LOCATED REMOTELY IN TELECOM ROOM

2 DOUBLE LEAF DOOR W/ ELECTRIFIED PANIC
NTS



NOTES:
1. IN AREAS OPEN TO STRUCTURE OR WITH DECORATIVE CEILINGS, RELOCATE 8"X8" JUNCTION BOX TO NEAREST CONCEALED ACCESSIBLE CEILING.
2. DOOR HARDWARE POWER SUPPLIES ARE LOCATED REMOTELY IN TELECOM ROOM

3 SINGLE LEAF DOOR W/ ELECTRIFIED PANIC
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ELECTRONIC SECURITY DOOR DIAGRAMS

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TN-611

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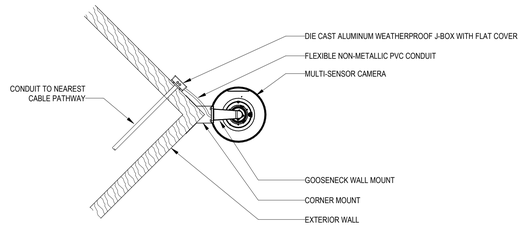
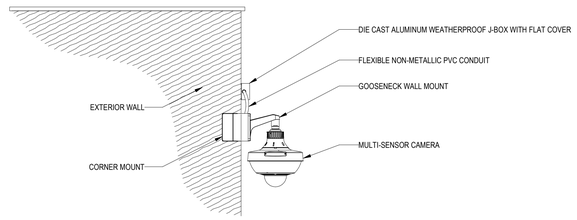


TOP ELEVATION



SIDE ELEVATION

1 EXTERIOR CAMERA CORNER WALL MOUNT - TYPICAL ROUGH-IN
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TN-612

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