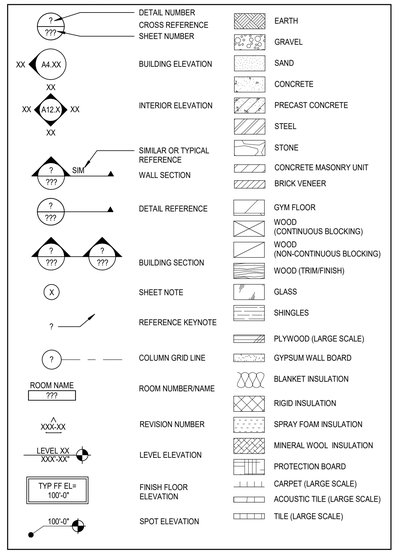
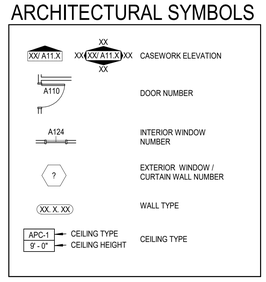
		GFA	GROSS FLOOR AREA	SCH	SHOWER CURTAIN HOOK
		GL	GLUE LAMINATED	SCR	SHOWER CURTAIN ROD
A/E	ARCHITECT/ENGINEER	GL	GLASS	SCT	STRUCTURAL CLAY TILE
AB	AIR BARRIER	GMP	GUARANTEED MAXIMUM PRICE	SD	SOAP DISPENSER
ABS	ASBESTOS	GR	GUARD RAIL	SECY	SECRETARY
ACC	ADA ACCESSIBLE	GR	GRADE	SF	SQUARE FEET
ACR	ACRYLIC	GRS	GALVANIZED RIGID STEEL	SG	SPANDREL GLASS
ACT	ACOUSTIC CEILING TILE	GWB	GYPSUM WALL BOARD	SG	SPECIALTY GLASS
AD	ACCESS DOOR	GYP	GYPSUM	SGL	SINGLE
ADJ	ADJUSTABLE			SGV	SINGLE GAS VALVE
ADJT	ADJACENT	HC	HOLLOW CORE	SH	SHOWER
ADMIN	ADMINISTRATION	HD	HAND DRYER	SHM	SECURITY HOLLOW METAL
AEC	AUTOMATED EXTERNAL DEFIBRILLATORS	HDF	HIGH DENSITY FIBERBOARD	SLNT	SEALANT
AL	ALUMINUM	HDR	HEADER	SM	SHEET METAL
ALUM	ALUMINUM	HDWD	HARDWOOD	SND	SANITARY NAPKIN DISPOSAL
AP	ACCESS PANEL	HDWR	HARDWARE	SNV	SANITARY NAPKIN VENDOR
APC	ACOUSTIC PANEL CEILING	HM	HOLLOW METAL	SO	SENSOR OPERATED
ASPH	ASPHALT	HR	HOUR	SPL	SOUND PRESSURE LEVEL
AUTO	AUTOMATIC	HR	HANDRAIL	SQ	SQUARE
AVG	AVERAGE	HS	HARDWARE SET	SR	SURFACE MOUNTED ELECTRICAL RACEWAY
AWP	ACOUSTIC WALL PANEL	HSS	HOLLOW STRUCTURAL SHAPE	SS	SOLID SURFACE
		HVAC	HEATING VENTILATING AND AIR CONDITIONING	SSA	STORM SHELTER AREA
B.O.	BOTTOM OF			SSM	SOLID SURFACE
BCS	BABY CHANGING STATION	IAW	IN ACCORDANCE WITH	SSS	STAINLESS STEEL SHELF
BD	BOARD	ID	INSIDE DIAMETER	SST	STAINLESS STEEL
BLK	BLOCK	IF	INSIDE FACE	ST	STONE
BLKG	BLOCKING	IIP	INSULATED INFILL PANEL GLASS	ST	STAIR
BLKHD	BULKHEAD	IJ	ISOLATION JOINT	STAG'D	STAGGERED
BM(S)	BEAM(S)	IJS	IN JOIST SPACE	STC	SOUND TRANSMISSION CLASS
BOT	BOTTOM	INC	INCLUDE(ING)	STGR	STRINGER
BRDG	BRIDGING	INSUL	INSULATION	SUBFL	SUBFLOOR
BRG	BEARING			SUL	SULPHUR
BRKT	BRACKET	JAN	JANITOR	SURF	SURFACE
BT	BATHTUB	JBE	JOIST BEARING ELEVATION	SUSP	SUSPENDED
BTWN	BETWEEN	JBX	JUNCTION BOX	SVF	SHEET VINYL FLOORING
		JCT	JUNCTION	SVF	SERVICE FIXTURE
CAB	CABINET	JFB	JOINT FILLER BOARD	SVG	SERVICE FIXTURE GROUP
CBD	CHALKBOARD	JST	JOIST		
CER	CERAMIC	JT	JOINT	T	TREAD
CF	CUBIC FEET			T&G	TONGUE AND GROOVE
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	KCJ	KEYED CONSTRUCTION JOINT	T.O.	TOP OF
CFMF	COLD-FORMED METAL FRAMING	KD	KNOCKDOWN	TAN	TANGENT
CG	CLEAR FLOAT GLASS	KH	KITCHEN HOOD	TB	TOWEL BAR
CGD	CORNER GUARD	KIT	KITCHEN	TBD	TACK BOARD
CI	CAST IRON			TCP	TOILET COMPARTMENT PARTITION
CIG	CLEAR INSULATING GLASS	L	ANGLE	TERR	TERRAZZO
CIP	CAST IN PLACE	LAB	LABORATORY	TFG	TINTED FLOAT GLASS
CJ	CONTROL JOINT	LAM	LAMINATED	TG	TEMPERED GLASS
CJA	CONTROL JOINT ABOVE	LAV	LAVATORY	TH	THRESHOLD
CLO	CLOSET	LBR	LUMBER	THK	THICK(NESS)
CLR	CLEAR	LDG	LOADING	TI	TENANT IMPROVEMENT
CMU	CONCRETE MASONRY UNIT	LF	LINEAR FOOT	TIG	TINTED INSULATING GLASS
COL	COLUMN	LG	LENGTH (LONG)	TMR	TILT MIRROR UNIT
COM	COMMON	LG	LAMINATED GLASS	TOIL	TOILET
COMB	COMBINATION	LIN	LINEAR	TOP	TOP OF PAVING
COMM	COMMUNICATIONS	LINO	LINOLEUM	TRANS	TRANSVERSE
COMPR	COMPRESSIBLE	LKR	LOCKER	TT	TERRAZZO TILE
CONF	CONFERENCE	LOC	LOCATION	TTD	TOILET TISSUE DISPENSER
CONFIG	CONFIGURATION	LONG	LONGITUDINAL	TTG	TINTED TEMPERED FLOAT GLASS
CORR	CORRIDOR	LSC	LIFE SAFETY CODE	TTIG	TINTED TEMPERED INSULATING GLASS
CP	COVER PLATE	LTG	LIGHTING	TW	TACK WALL
CPT	CARPET	LV	LOUVER		
CR	CHAIR RAIL	LVT	LUXURY VINYL TILE	UL	UNDERWRITERS LABORATORIES
CS	COUNTERSINK			UR	URINAL
CSTJ	CONSTRUCTION JOINT	MAG	MAGNETIC	US	UTILITY SHELF
CSWK	CASEWORK	MAINT	MAINTENANCE	UTIL	UTILITY
CT	CERAMIC TILE	MAN	MANUAL		
CTG	CLEAR TEMPERED FLOAT GLASS	MAS	MASONRY	VB	VAPOR BARRIER
CTIG	CLEAR TEMPERED INSULATING GLASS	MATL	MATERIAL	VB	VINYL BASE
CU	COPPER	MB	MOP BASIN	VCB	VENTED COVE BASE
CU	COMBINATION UNIT	MBD	MARKER BOARD	VF	VINYL FLOOR
CV	CONDOM VENDOR	MBH	MOP/BROOM HOLDER	VOC	VOLITILE ORGANIC COMPOUND
CY	CUBIC YARD	MC	MEDICINE CABINET	VOL	VOLUME
CYL	CYLINDER	MEMB	MEMBRANE	VP	VENEER PLASTER
		MH	MANHOLE	VT	VINYL TILE
DB	DECIBEL	MR/S	MIRROR WITH SHELF	VWC	VINYL WALL COVERING
DBL	DOUBLE	MTD	MOUNTED		
DC	DUST COLLECTOR	MTG	MOUNTING	W	WIDE
DEPR	DEPRESS(ION)(ED)	MUL	MULLION	WB	WALL BASE
DEPT	DEPARTMENT			WC	WATER CLOSET
DET	DETENTION	NC	NOISE CRITERIA	WC	WALL COVERING
DF	DRINKING FOUNTAIN	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	WCL	WATER CLOSET/LAVATORY COMBINATION
DG	DOOR GRILLE	NOM	NOMINAL	WD	WOOD
DIAG	DIAGONAL			WDF	WOOD FLOORING
DPFG	DAMPROOFING	O to O	OUT TO OUT	WDW	WINDOW
DR	DOOR	OA	OVERALL	WG	POLISHED WIRE GLASS
DSN	DOWNSPOUT NOZZLE	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED	WI	WROUGHT IRON
DW	DISHWASHER	OFF	OFFICE	WOM	WALK OFF MAT
DWL(S)	DOWEL(S)	OFOI	OWNER FURNISHED OWNER INSTALLED	WR	WASTE RECEPTACLE
DWR	DRAWER	OH	OPPOSITE HAND	WRB	WEATHER RESISTANT BARRIER
		OPG(S)	OPENING(S)	WW	WARM WHITE
EB	EXPANSION BOLT	OSHA	OPERATIONAL SAFETY AND HEALTH ADMINISTRATION	WWF	WELDED WIRE FABRIC
EE	EACH END	OTB	OPEN TO BELOW		
EEW	EMERGENCY EYE WASH	OVFL	OVERFLOW	YD	YARD
EEWS	EMERGENCY EYE WASH SHOWER				
EFF	EFFICIENCY	P	PAINT		
EJ	EXPANSION JOINT	PAN B	PANIC BOLT		
ELAS	ELASTOMERIC	PB	PARTICLE BOARD		
ELEV	ELEVATOR	PC	PRECAST CONCRETE		
EMER	EMERGENCY	PCD	PAPER CUP DISPENSER		
ENCL	ENCLOSURE	PCT	PORCELAIN CERAMIC TILE		
ENTR	ENTRANCE	PD	PANIC DEVICE		
ERF	EPOXY RESIN FLOORING	PERF	PERFORATED		
EUI	ENERGY USE INTENSITY	PERP	PERPENDICULAR		
EW	EACH WAY	PG	PATTERN GLASS		
EWC	ELECTRIC WATER COOLER	PIC	PORTABLE INSTRUMENT CONNECTION		
EXP	EXPANSION	PIG	PATTERN INSULATING GLASS		
EXP	EXPOSED	PL	PLATE		
		PL	PROPERTY LINE		
F	FABRIC	PL	PLASTIC LAMINATE		
F.O.	FACE OF	PLAM	PLASTIC LAMINATE		
FAB	FABRICATE(D)	PLBG	PLUMBING		
FB	FACE BRICK	PR	PAIR		
FD	FLOOR DRAIN	PREFAB	PREFABRICATED		
FDN	FOUNDATION	PROJ	PROJECT(OR) (ION)		
FE	FIRE EXTINGUISHER	PS	PROJECTION SCREEN		
FEC	FIRE EXTINGUISHER CABINET	PT	POINT		
FF	FINISH FLOOR	PT	POINT OF TANGENCY		
FH	FIRE HYDRANT	PTD	PAPER TOWEL DISPENSER		
FHC	FIRE HOSE CABINET	PTD/R	COMBINATION TOWEL DISPENSER/RECEPTACLE		
FIG	FIGURE	PTN	PARTITION		
FIX	FIXTURE	PVC	POLYVINYL CHLORIDE		
FLASH	FLASHING	PWL	SOUND POWER LEVEL		
FLEX	FLEXIBLE				
FLG	FLOORING	QGV	QUAD GAS VALVE		
FLM	FULL LENGTH MIRROR	QT	QUARRY TILE		
FLUOR	FLUORESCENT	QTR RND	QUARTER ROUND		
FO	FINISH OPENING				
FOC	FACE OF CONCRETE	R	RISER		
FOF	FACE OF FINISH	RAD	RADIUS		
FOM	FACE OF MASONRY	RB	RUBBER BASE		
FOS	FACE OF STUD	RC	REMOTE CONTROL		
FOW	FACE OF WALL	RCP	REFLECTED CEILING PLAN		
FP	FIREPROOFING	RD	ROOF DRAIN		
FR	FIRE RESISTANT	REF	REFERENCE		
FRP	FIBERGLASS REINFORCED PANEL	REFL	REFLECTED		
FRT	FIRE RESISTANCE TREATED	REM	REMOVABLE		
FS	FLOOR SINK	RESIL	RESILIENT		
FSS	FOLDING SHOWER SEAT	RF	RESILIENT FLOORING		
FTG	FOOTING	RF	RUBBER FLOOR		
FVC	FIRE VALVE CABINET	RFM	RECESSED FLOOR MAT		
FWC	FABRIC WALL COVERING	RH	ROBE HOOK		
		RI&C	ROUGH IN AND CONNECT		
G	GROUT				
GA	GAUGE	S	SINK		
GAL	GALLON	SAT	SPRAYED ACOUSTIC TREATMENT		
GALV	GALVANIZED	SAW	SOUND ABSORBING WALL UNITS		
GB	GRAB BAR	SB	SPLASH BLOCK		
GD	GARBAGE DISPOSAL	SC	SOLID CORE		
GEN	GENERAL	SC	SHOWER CURTAIN		
		SCD	SEAT COVER DISPENSER		

GENERAL SYMBOLS



ARCHITECTURAL SYMBOLS



PROJECT DESCRIPTION

THE PROJECT SCOPE CONSISTS OF SELECT DEMOLITION OF EXISTING WALLS, CEILING, LAB CASEWORK, LAB GAS & ELECTRICAL SYSTEMS. ENLARGEMENT OF LAB ALCOVE P15-9460E. INSTALLATION OF NEW CEILING AND LIGHT FIXTURES IT IS ASSUMED ALL OTHER EXISTING LIGHTING TO REMAIN UNMODIFIED. INSTALLATION OF NEW FUME EXTRACTION ARM IN LAB ALCOVE P15-9460F. INSTALLATION OF NEW LAB SINK AND CASEWORK IN P15-9460F. INSTALLATION OF NEW PARTITIONS IN PROCEDURE P15-9261. MODIFY EXISTING POWER LOCATIONS TO ACCOMMODATE REMOVED ITEMS & NEW EQUIPMENT. MODIFY EXISTING HVAC & PLUMBING SYSTEMS TO ACCOMMODATE REMOVED ITEMS & NEW EQUIPMENT. MODIFY EXISTING FIRE SUPRESSION AS REQUIRED.

DEFERRED SUBMITTALS

FIRE SUPRESSION SPRINKLER SYSTEMS
FIRE ALARM

PROJECT TEAM

CLIENT:	CU ANSCHUTZ 1945 N. WHEELING ST AURORA, CO 80045 CONTACT: STEPHANIE MENKE 303.483.1594 STEPHANIE.MENKE@CUANSCHUTZ.EDU
ARCHITECT:	DLR GROUP 1400 LAWRENCE ST. SUITE 1000 DENVER, CO 80202 CONTACT: NICK KREITLER 720.370.1291 NKREITLER@DLRGROUP.COM
MECHANICAL PLUMBING ENGINEER:	DLR GROUP 1400 LAWRENCE ST. SUITE 1000 DENVER, CO 80202 CONTACT: DAVID ANDERSON 602.794.2022 DANDERSON@DLRGROUP.COM
ELECTRICAL ENGINEER:	DLR GROUP 1400 LAWRENCE ST. SUITE 1000 DENVER, CO 80202 CONTACT: GORDON ZIMMERMAN 303.218.6577 GZIMMERMAN@DLRGROUP.COM

PROJECT LOCATION

UNIVERSITY OF COLORADO, DENVER | ANSCHUTZ MEDICAL CAMPUS

R2 9TH FLOOR PHYSIOLOGY MOVE

PN 23-145834
12700 E 19TH AVE
AURORA, CO 80045

COMBINED CONTRACT

INDEX OF DRAWINGS

DLR GROUP

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NICHOLAS JAMES KREITLER
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ARCHITECT

CU DENVER | ANSCHUTZ - 9TH FLOOR PHYSIOLOGY MOVE
12700 E 19TH AVE
AURORA, CO 80045

CONSTRUCTION DOCUMENTS
12/18/2023
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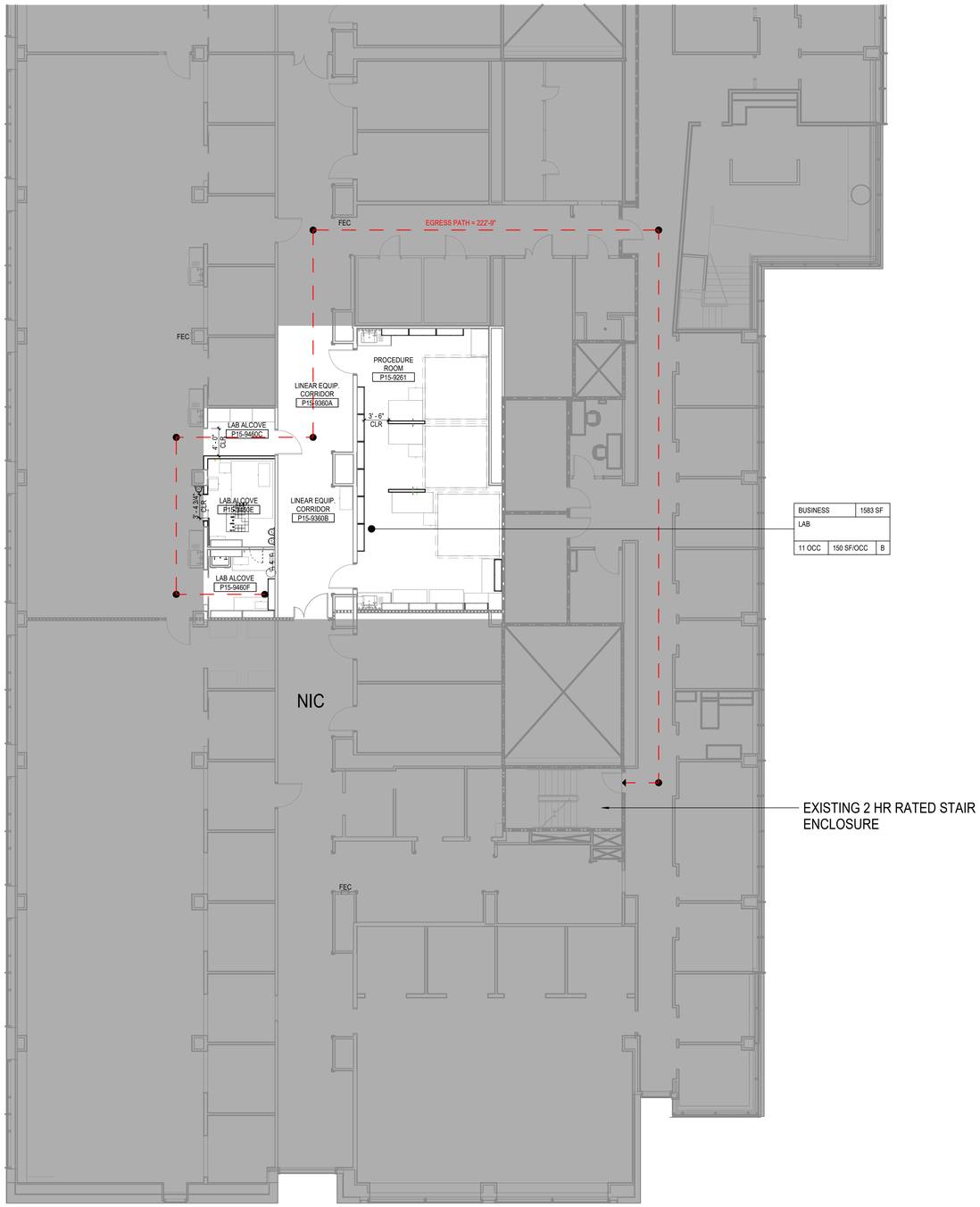
37-24103-00

COVER SHEET

G0.1



NORTH

CODE PLAN, LEVEL 9

SCALE: 1/8" = 1'-0"

PROJECT DESCRIPTION

THE PROJECT SCOPE CONSISTS OF SELECT DEMOLITION OF EXISTING WALLS, CEILING, LAB CASEWORK, LAB GAS & ELECTRICAL SYSTEMS. ENLARGEMENT OF LAB ALCOVE P15-9460E. INSTALLATION OF NEW CEILING AND LIGHT FIXTURES IT IS ASSUMED ALL OTHER EXISTING LIGHTING TO REMAIN UNMODIFIED. INSTALLATION OF NEW FUME EXTRACTION ARM IN LAB ALCOVE P15-9460F. INSTALLATION OF NEW LAB SINK AND CASEWORK IN P15-9460F. INSTALLATION OF NEW PARTITIONS IN PROCEDURE P15-9261. MODIFY EXISTING POWER LOCATIONS TO ACCOMMODATE REMOVED ITEMS & NEW EQUIPMENT. MODIFY EXISTING HVAC & PLUMBING SYSTEMS TO ACCOMMODATE REMOVED ITEMS & NEW EQUIPMENT. THERE WILL BE NO CHANGE IN OCCUPANCY COUNT AND EXISTING EXITING WILL REMAIN.

APPLICABLE CODES

ACCESSIBILITY
2017 ICC/ANSI 117.1 ACCESSIBLE AND USEABLE BUILDINGS AND FACILITIES

INTERNATIONAL BUILDING CODE
2021 IBC INTERNATIONAL BUILDING CODE AND STATE AMENDEMNTS
2021 IEBC INTERNATIONAL EXISTING BUILDING CODE
2021 IMC INTERNATIONAL MECHANICAL CODE
2021 IPC INTERNATIONAL PLUMBING CODE
2021 IECC INTERNATIONAL ENERGY CONSERVATION CODE
2021 IFC INTERNATIONAL FIRE CODE

NATIONAL FIRE PROTECTION CODE
2021 NFPA 13 STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS
2023 NFPA 70 NATIONAL ELECTRIC CODE
2021 NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE
2021 NFPA 101 LIFE SAFETY CODE

CH. 3 OCCUPANCY CLASSIFICATION AND USE

OCCUPANCY CLASSIFICATION AND USE REMAINS UNCHANGED

CH. 5 BUILDING AREA

MAIN BUILDING (EXISTING BUILDING AREA) EXISTING BUILDING. NO CHANGE IN AREA PROPOSED.

RENOVATED AREA: 1381 SF

CH. 6 CONSTRUCTION TYPE

TYPE I-A (EXISTING BUILDING) NO CHANGES, IN CONSTRUCTION TYPE

CH. 9 FIRE PROTECTION SYSTEMS

BUILDING IS FULLY SPRINKLERED IN ACCORDANCE WITH 903.2 AND 903.3.1.1 AUTOMATIC SPRINKLER SYSTEM PER NFPA-13 TO BE MODIFIED AS REQUIRED.

CH.10 MEANS OF EGRESS AND OCCUPANT LOAD

OCCUPANCY LOAD REMAINS UNCHANGED, MEANS OF EGRESS REMAINS UNCHANGED.
EXIT TRAVEL DISTANCE
B OCCUPANCY - 300'-0"

CH. 11 ACCESSIBILITY

SPACES WITHIN EMPLOYEE WORK AREAS SHALL ONLY BE REQUIERD TO COMPLY WITH SECTION 907.5.3.1, 1009 AND 1104.3.1. NEW CONSTRUCTION TO BE DESIGNED AND CONSTRUCTED SO THAT INDIVIDUALS WITH DISABILITIES CAN APPROACH, ENTER AND EXIT THE WORK AREA.

1104.3.1 EMPLOYEE WORK AREAS EXCEPTION 1: COMMON USE PATHS LOCATED WITHIN WORK AREAS THAT ARE LESS THAN 1,000 SF IN SIZE AND DEFINED BY PERMANENTLY INSTALLED PARTITIONS, COUNTERS, CASEWORK OR FURNISHINGS, SHALL NOT BE REQUIED TO BE ACCESSIBLE ROUTES.

LEGEND - CODE FLOOR PLANS

Area name	XXXX SF	
Space Function		
XXX OCC	XXX SF/OCC	G

OCCUPANT LOAD TAG (GROSS)
- SEE PATTERN FOR APPLIED LOAD FACTOR

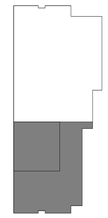
MAX TRAVEL = Length — EXIT ACCESS TRAVEL DISTANCE

MAX CP = Length — COMMON PATH OF EGRESS TRAVEL DISTANCE

SEPARATION LEGEND

HOURLY RATING
1 = 1 HOUR
2 = 2 HOUR
SP = SMOKE PARTITION

KEY PLAN



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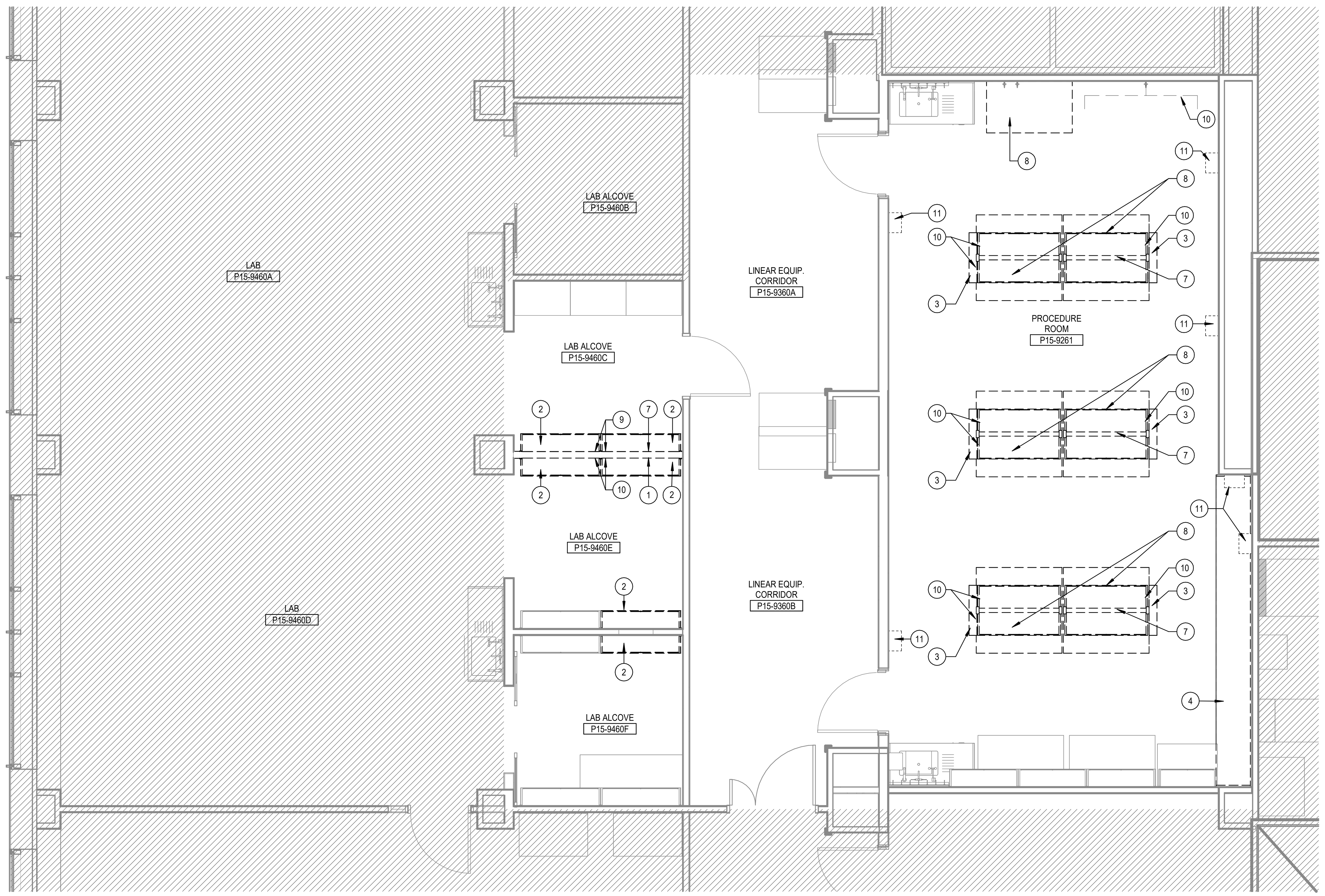
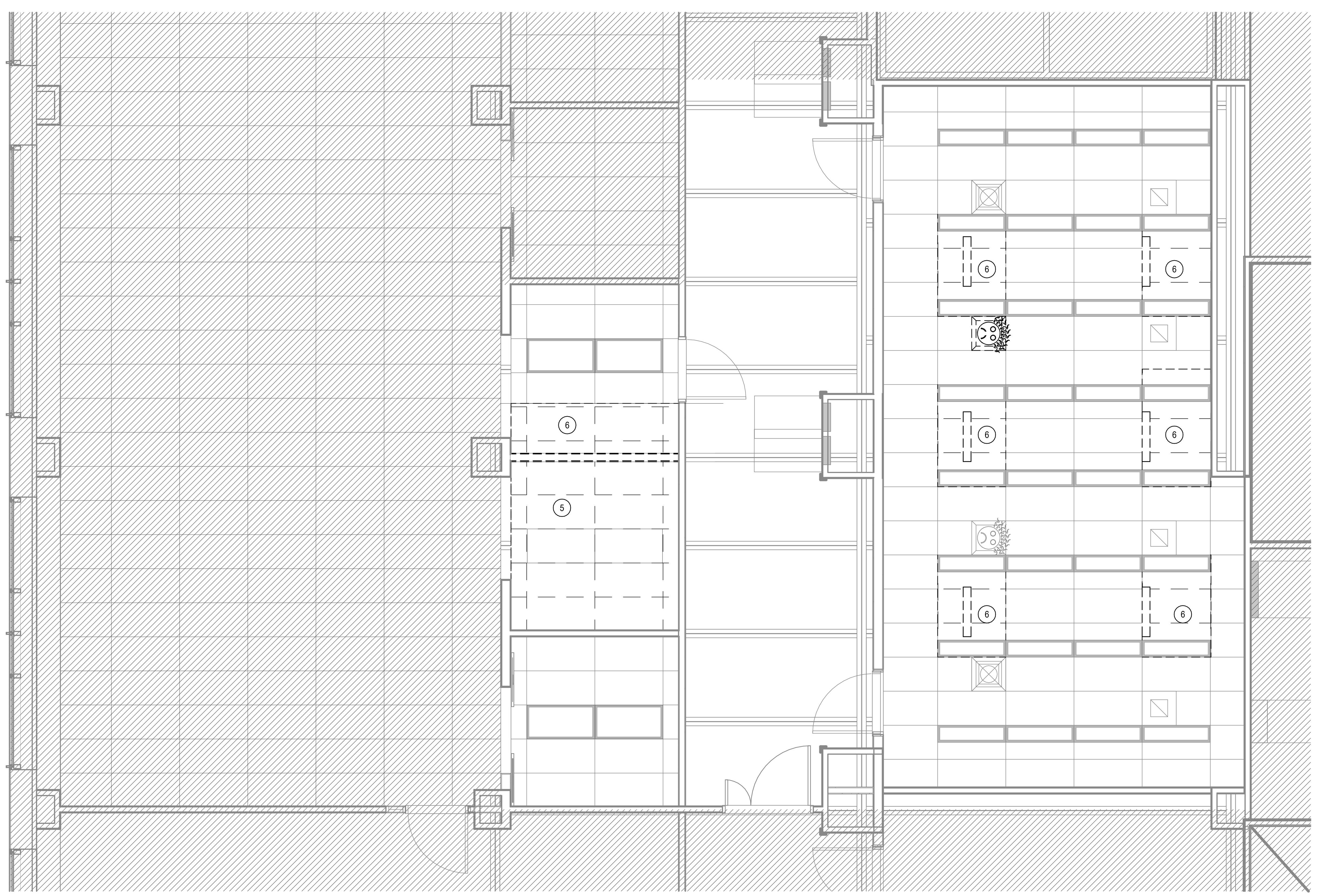
CODE PLAN - LEVEL 9

CP1.9



ENLARGED DEMOLITION PLAN

SCALE: 1/4" = 1'-0"



ENLARGED DEMO REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"

DEMOLITION GENERAL NOTES

DEMOLITION NOTES APPLY TO ALL DEMOLITION SHEETS.

THE CONTRACTOR SHALL:

A. COORDINATE ALL DEMOLITION AND PHASING EFFORTS WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH THE OWNER'S REPRESENTATIVE. IN ALL CASES, PROVISIONS SHALL BE MADE FOR USER'S SAFETY.
B. COORDINATE ANY DISRUPTION OF UTILITY SERVICES WITH THE OWNER AND AS SPECIFIED.
C. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WITHIN THE EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSURE TO ISOLATE ANY DEMOLITION/CONSTRUCTION WORK FROM THE GENERAL PUBLIC AND AS DEEMED NECESSARY BY THE OWNER AND CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH THE OWNER AND MAINTAIN MEANS OF EGRESS THROUGHOUT THE WORK.
D. MAINTAIN A SECURE, WEATHER-TIGHT ENCLOSURE AT ALL TIMES.
E. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
F. REMOVE IN THEIR ENTIRETY ALL EXISTING WALLS, DOORS, MILLWORK, PLUMBING FIXTURES, CEILINGS, SOFFITS, MARKERBOARDS, AND OTHER ITEMS, AS REQUIRED TO EXECUTE THE DEMOLITION/CONSTRUCTION WORK DESCRIBED BY THE DRAWINGS.
G. THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
H. PROVIDE PROTECTION FOR ALL EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO ANY DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS CONTRACT.
I. REPAIR OR REPLACE ITEMS THAT ARE DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH AND/OR CONDITION.
J. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
K. VERIFY AND MAINTAIN THE LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF THEIR SERVICE.
L. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR RE-ROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, AND OTHER ITEMS, AS REQUIRED TO MAINTAIN FIRE-RESISTANCE-RATED SEPARATIONS. FINISH AS REQUIRED FOR NEW OR EXISTING ADJACENT SURFACES.
M. CAP ALL DISCONNECTED MECHANICAL PIPING LINES WITHIN THE WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
N. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.
O. WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED, PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 1'-0" BEYOND DEMOLITION.

(#) SHEET NOTES

1	REMOVE EXISTING WALL. SALVAGE EXISTING WALL MOUNTED RACEWAY FOR REINSTALLATION IN NEW CONSTRUCTION. COORDINATE WITH ELECTRICAL DEMOLITION PLANS.
2	REMOVE EXISTING WALL MOUNTED SHELVING AND SALVAGE FOR RE-INSTALLATION IN NEW CONSTRUCTION. PATCH AND REPAIR WALL FOR NEW FINISH.
3	REMOVE EXISTING SERVICE CHASE AND SUPPORT STRUCTURE. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR UTILITIES. COORDINATE WITH CU ANSCHUTZ OFFICE OF INFORMATION TECHNOLOGY FOR ITEMS TO BE SALVAGED AND RELOCATED.
4	REMOVE EXISTING WALL MOUNTED COUNTERTOP AND SUPPORTS. RETURN TO OWNER'S STORAGE. PATCH AND REPAIR WALL FOR NEW FINISH.
5	REMOVE EXISTING ACT GRID AND TILES, LIGHT FIXTURE.COORDINATE WITH PLUMBING, HVAC, AND ELECTRICAL DEMOLITION PLANS.
6	REMOVE PORTION OF EXISTING ACT GRID AND TILES.
7	EXISTING RACEWAY AND TASK LIGHTING TO BE REMOVED. COORDINATE WITH ELECTRICAL DEMOLITION PLANS.
8	MOVE AND STORE EXISTING MOVEABLE CASEWORK, TABLES, AND WALL MOUNTED SHELVING UNITS FOR RE-USE PER OWNER'S INSTRUCTION, OR AS REQUIRED FOR NEW WORK. COORDINATE WITH OWNER.
9	REMOVE EXISTING GAS SERVICE FIXTURE/VALVE. REFER TO PLUMBING DRAWINGS FOR EXTENT OF DEMOLITION.
10	EXISTING GAS VALVE TO BE RELOCATED IN NEW WALL. REFER TO RENOVATION PLAN FOR LOCATIONS. REFER TO PLUMBING DRAWINGS FOR MORE INFORMATION.
11	REMOVE EXISTING WALL MOUNTED LOCK BOXES AND RETURN TO OWNER'S STORAGE. PATCH AND REPAIR WALL FOR NEW FINISH.

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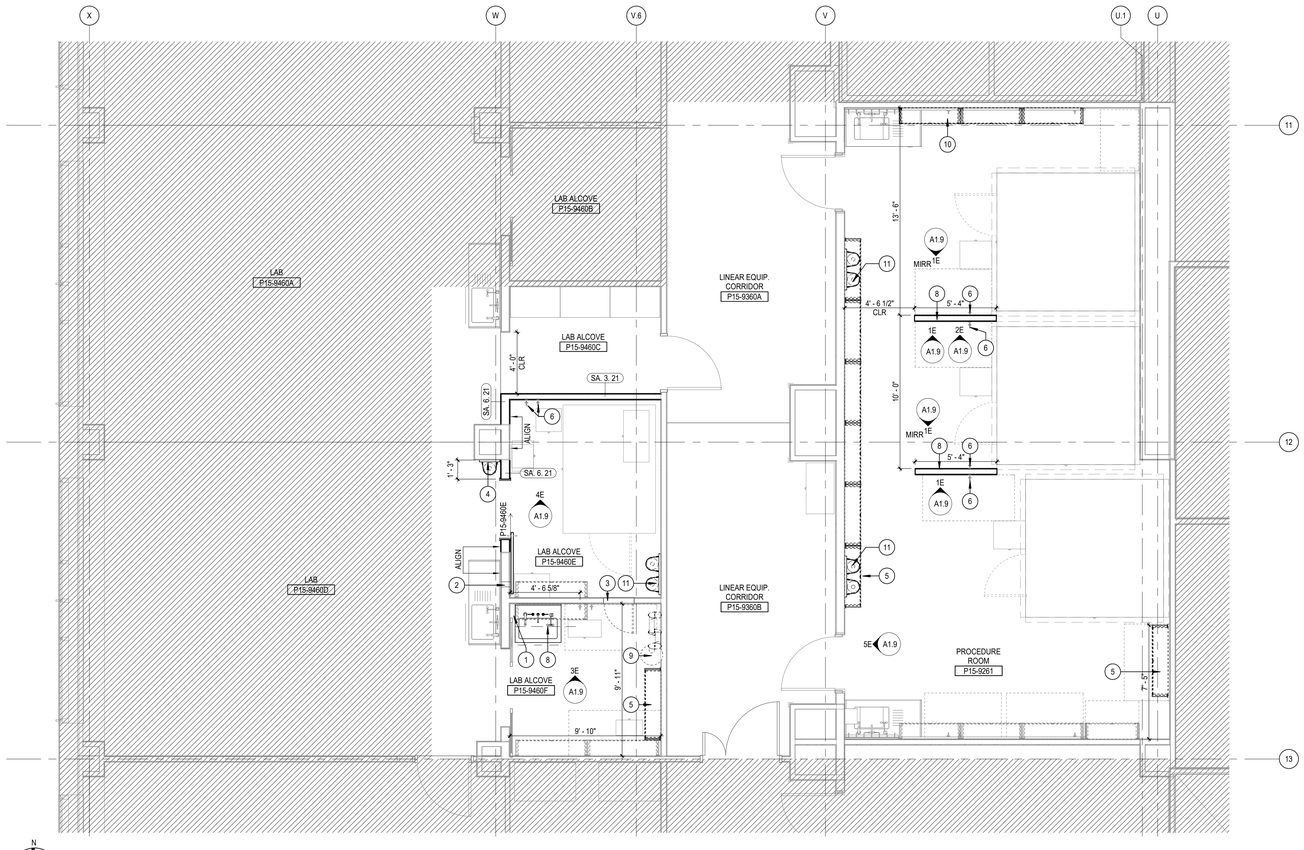
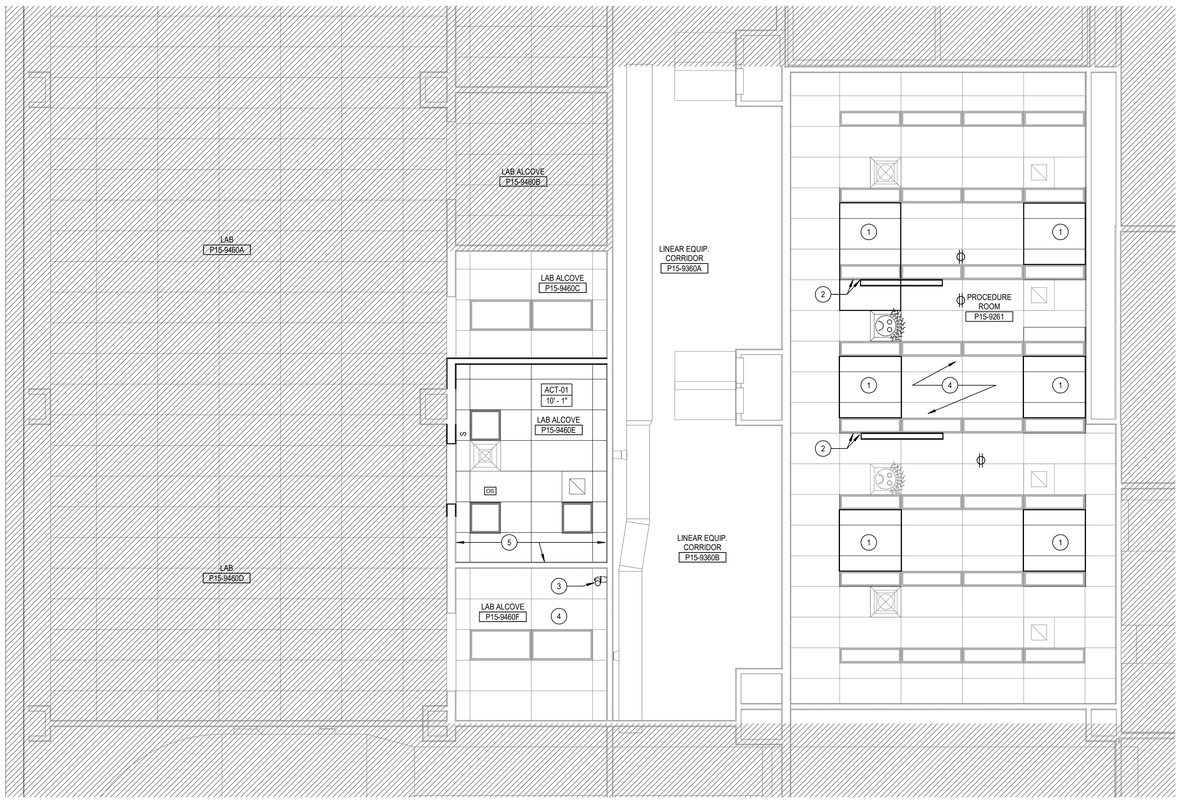
DEMOLITION PLAN AND REFLECTED CEILING PLAN - LEVEL 9

AD1.9



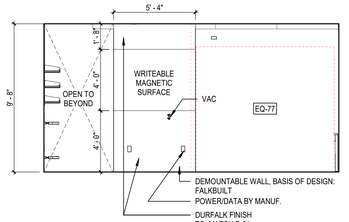
ENLARGED FLOOR PLAN

SCALE: 1/4" = 1'-0"



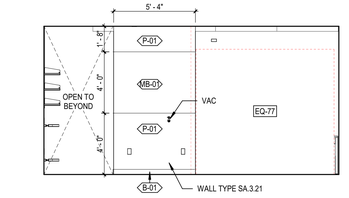
ENLARGED REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"



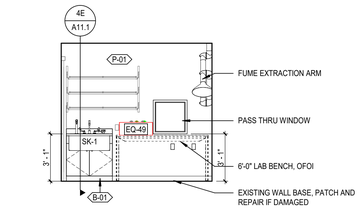
1E / A1.9 PARTITION ELEVATION - BASE BID

SCALE: 1/4" = 1'-0"



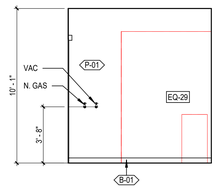
2E / A1.9 PARTITION ELEVATION - DEDUCT ALTERNATE

SCALE: 1/4" = 1'-0"



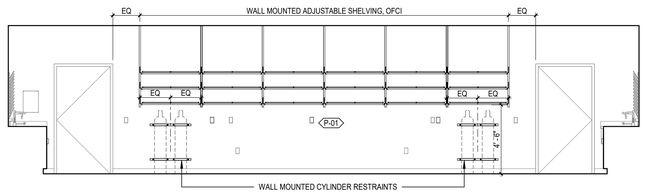
3E / A1.9 NORTH ELEVATION - LAB ALCOVE P15-9460F

SCALE: 1/4" = 1'-0"



4E / A1.9 NORTH ELEVATION - LAB ALCOVE P15-9460E

SCALE: 1/4" = 1'-0"



5E / A1.9 WEST ELEVATION - PROCEDURE ROOM P15-9261

SCALE: 1/4" = 1'-0"

GENERAL ARCHITECTURAL NOTES

1. PARTITION TYPES SHALL BE DESIGNATED ON FLOOR PLANS
2. FURNISH AND INSTALL FIRE-TREATED WOOD BLOCKING OR METAL BACKING PLATE IN METAL STUD PARTITIONS FOR THE PROPER ANCHORAGE OF ALL WALL ATTACHED ITEMS; I.E. TOILET ACCESSORIES, CASEWORK, MILLWORK, WALL-MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, AND OTHER WALL ATTACHED ITEMS.
3. GYPSUM BOARD SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE SHOWN ON DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
4. PROVIDE SEISMIC BRACING FIG FOR SUSPENDED CEILINGS OR AS SHOWN ON THE DRAWINGS.

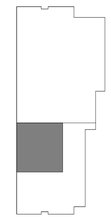
FLOOR PLAN NOTES

1 HOLD NEW LAB CASEWORK 4" FROM EXISTING WALL FOR EXISTING SLIDING DOOR.
2 PATCH AND REPAIR WALL TO ENSURE NO OPENINGS REMAIN.
3 PASS THRU SPECIMEN WINDOW. BASIS OF DESIGN: TERRA UNIVERSAL MODEL NUMBER 1704-82A, CFCI.
4 PROVIDE WALL MOUNTED SINGLE CYLINDER RESTRAINT.
5 REINSTALL SALVAGED WALL STANDARDS AND SHELVING. INSTALL WALL STANDARDS AND SHELVING FROM OWNER'S STOCK AS NEEDED. COORDINATE WITH OWNER ON AVAILABILITY AND SIZING. INSTALL BLOCKING IN WALL AS REQUIRED.
6 LAB GAS FIXTURE AT WALL MOUNTED 44" AFF. RE: PLUMBING FOR TYPE AND ROUTING INFORMATION.
8 DEMOUNTABLE WALL SYSTEM. BASIS OF DESIGN: FALKBUILT WITH INFECTION CONTROL FILLERS.
9 FUME EXTRACTOR ARM. BASIS OF DESIGN: NEDERMAN BENCHTOP EXTRACTION ARM FX2 75 ORIGINAL. WALL MOUNTED. PROVIDE BLOCKING IN WALL AS REQUIRED.
10 OWNER PROVIDED OWNER INSTALLED SHELVING ON EXISTING WALL STANDARDS.
11 PROVIDE WALL MOUNTED DOUBLE CYLINDER RESTRAINT.

RCP NOTES

1 INFILL CEILING WITH ACT TILE AND GRID TO MATCH EXISTING.
2 ALIGN EDGE OF NEW PARTITION TO EDGE OF EXISTING CEILING GRID.
3 FUME EXTRACTOR ARM. COORDINATE FINAL LOCATION PLACEMENT WITH OWNER.
4 CEILINGS TO BE REMOVED FOR EXTENT OF OVERHEAD WORK AND REPLACED IN KIND.
5 EXTEND GWB 6" ABOVE NEW CEILING.

KEY PLAN



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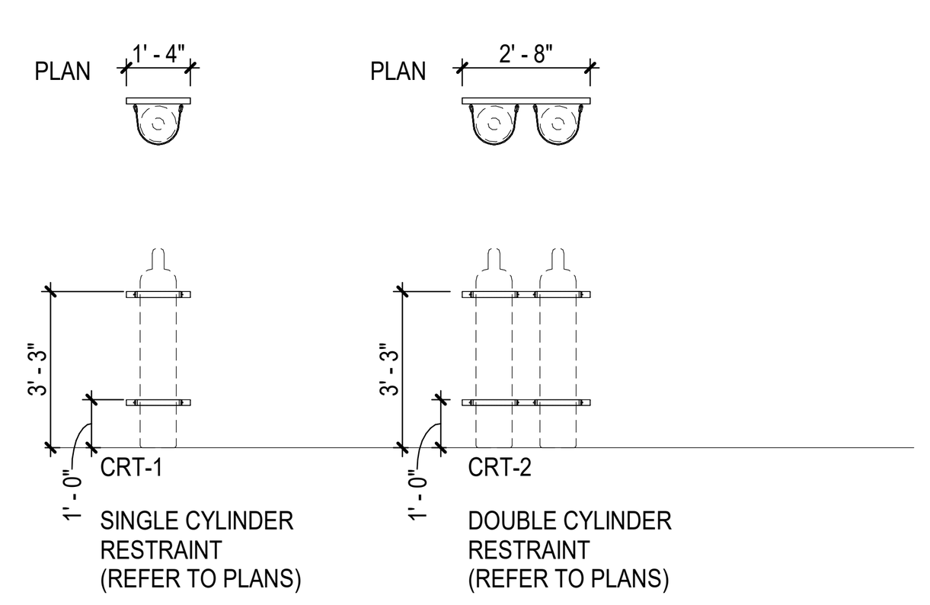
FLOOR PLAN AND REFLECTED CEILING PLAN - LEVEL 9

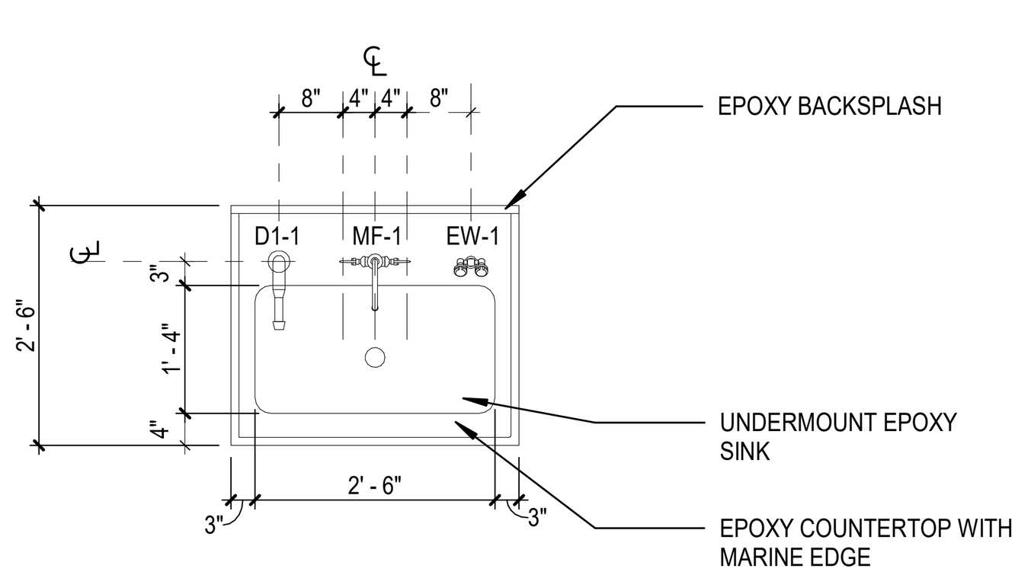
A1.9

A B C D E F

1 2 3 4

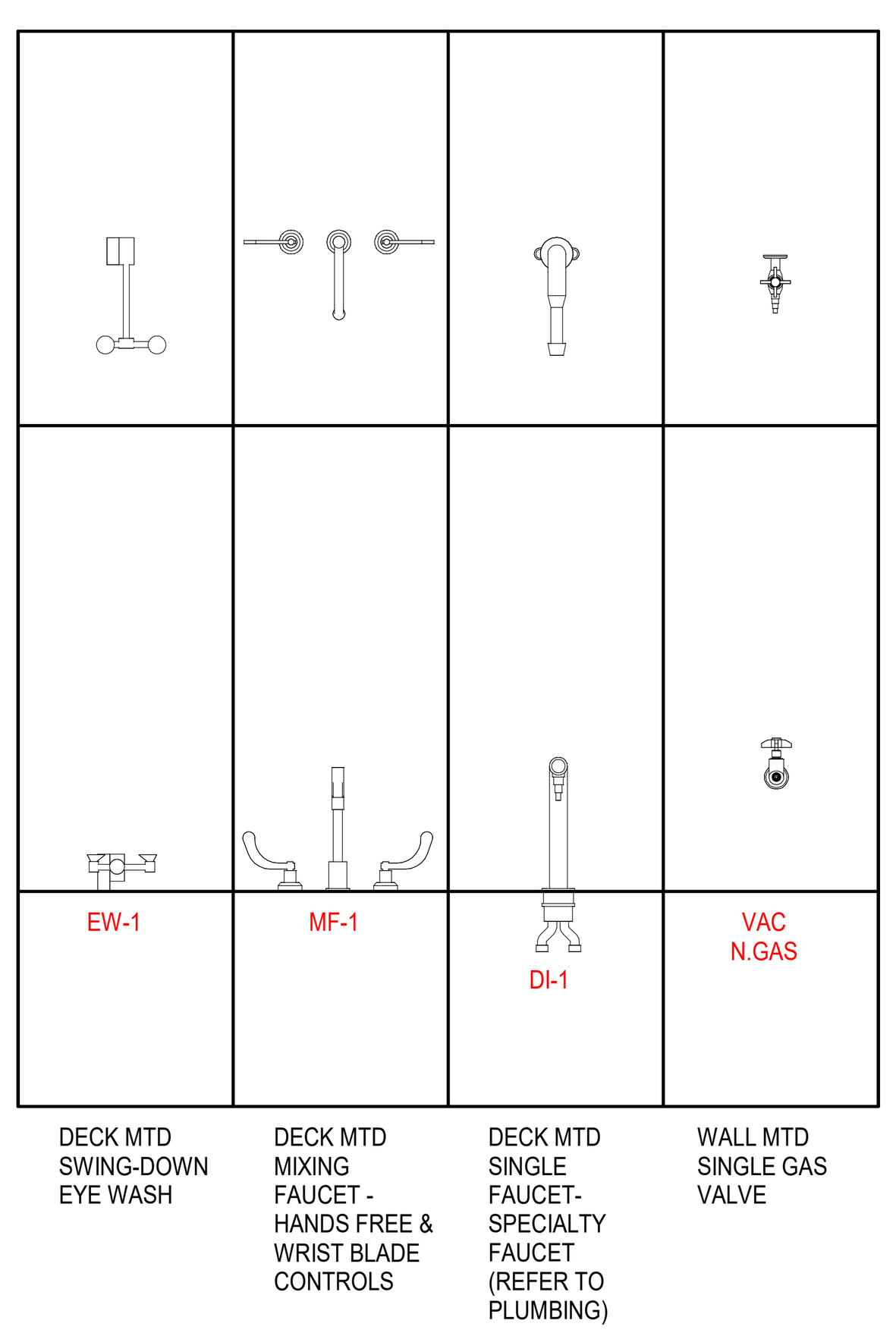
ACCESSORIES

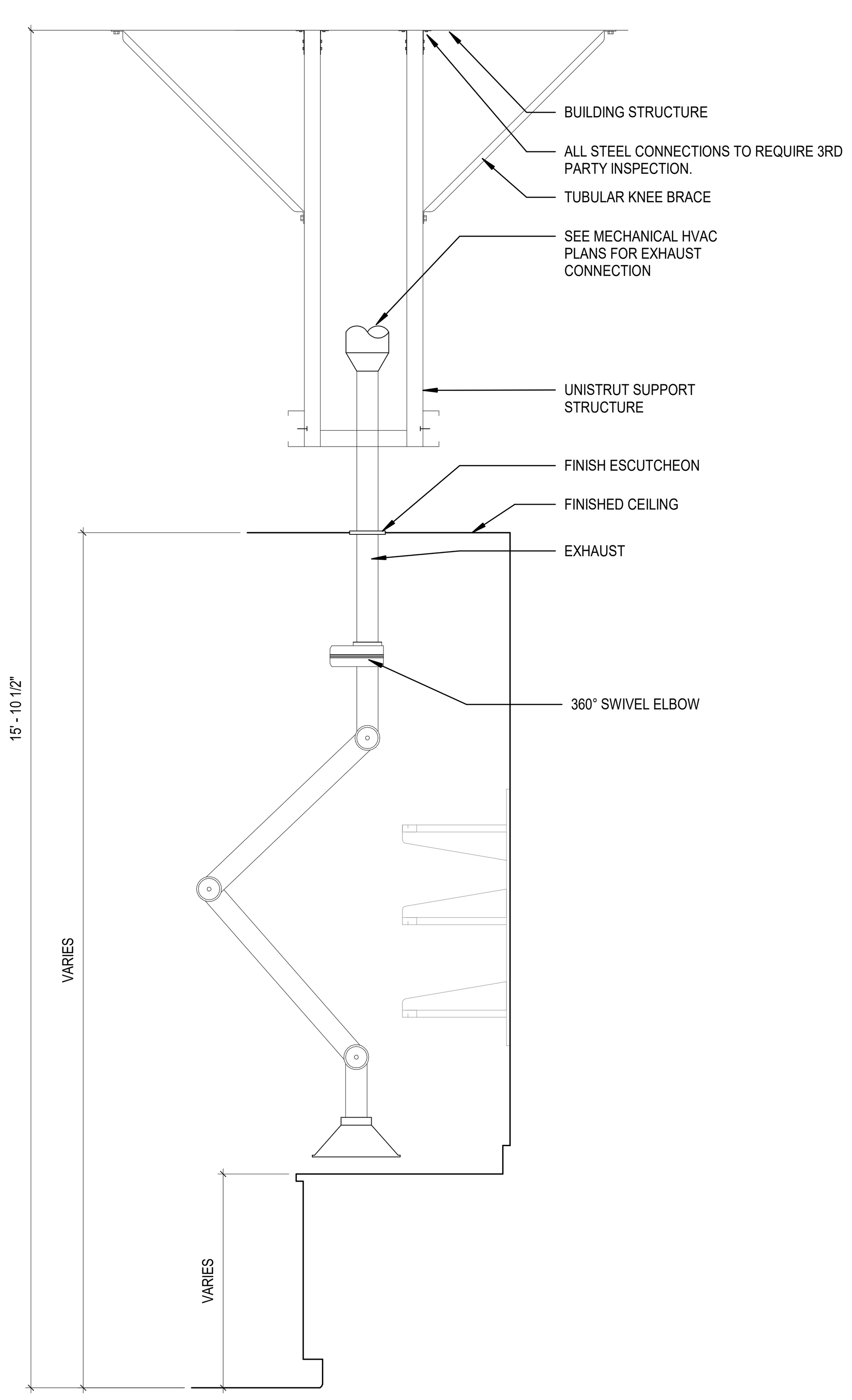




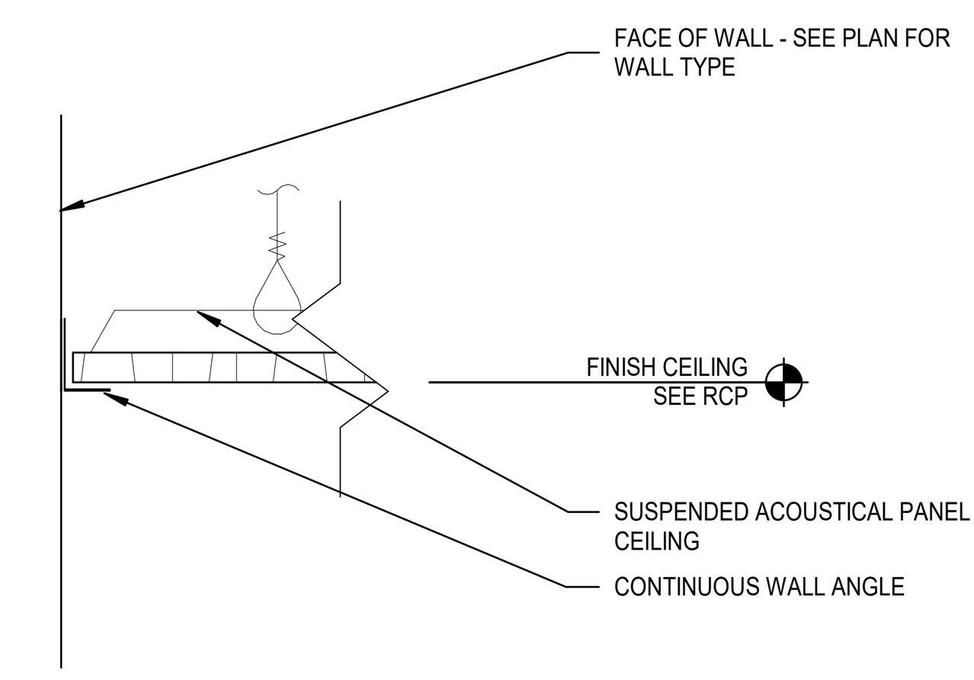
TYPICAL SINK LAYOUT

LABORATORY FIXTURE LEGEND

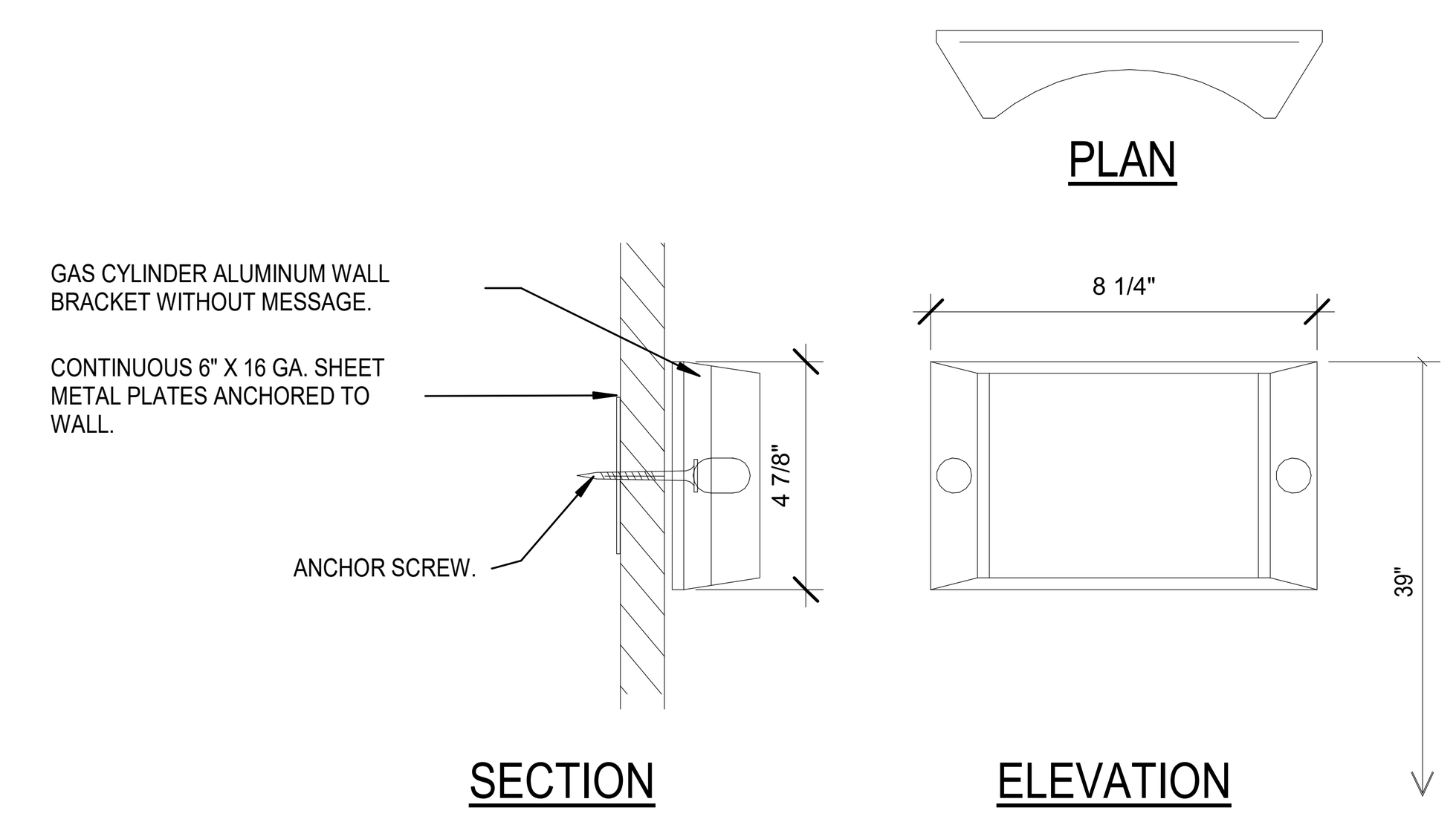




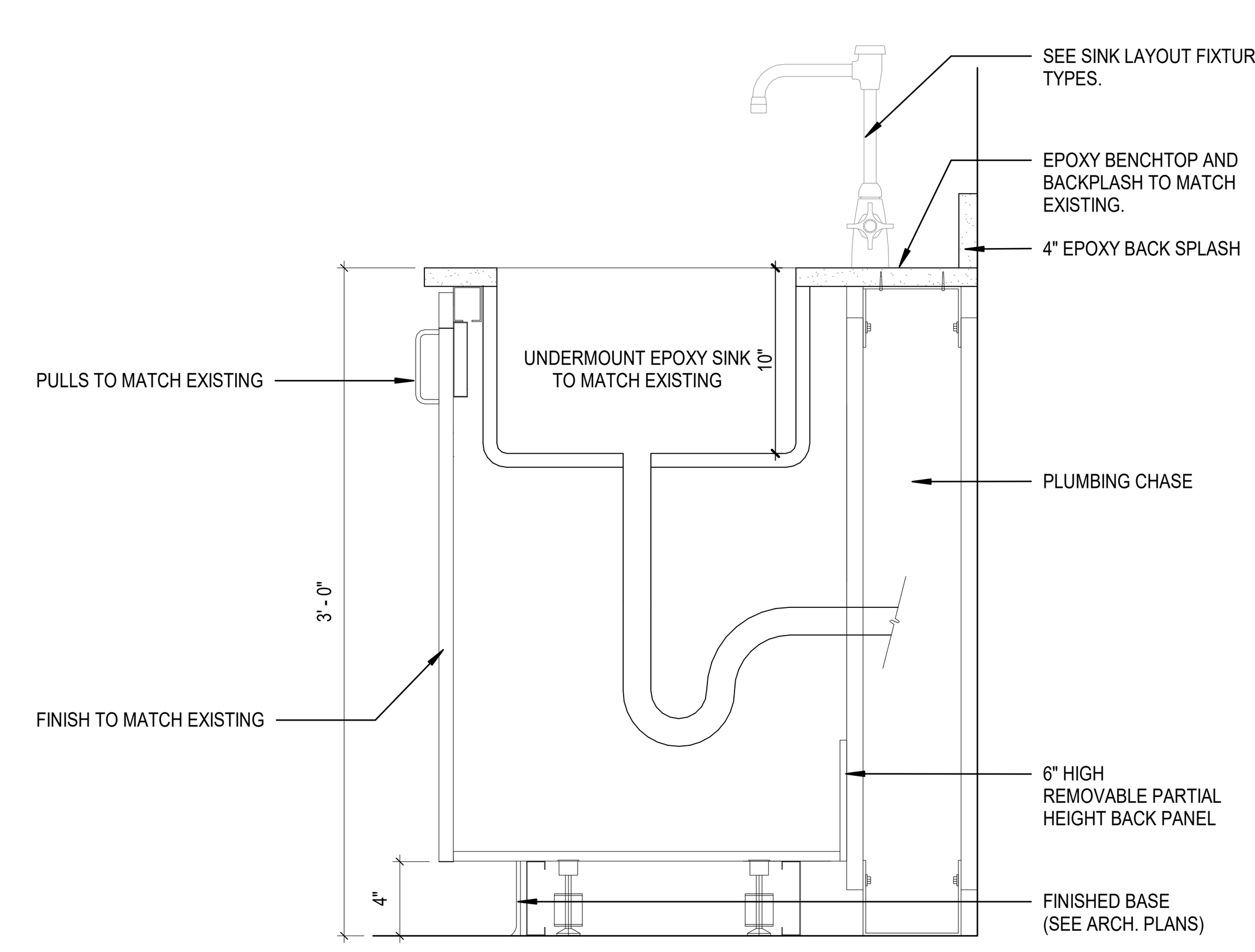
2D A11.1 LAB - SNORKEL
SCALE: 3/4" = 1'-0"



2E A11.1 APC PERIMETER @ WALL TILE
SCALE: 3" = 1'-0"



3E A11.1 GAS CYLINDER DETAIL
SCALE: 3" = 1'-0"



4E A11.1 LAB - CASEWORK SECTION DETAIL
SCALE: 1 1/2" = 1'-0"

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INTERIOR DETAILS

A11.1

Autodesk Docs://37-24103-00 CU Anschutz - PN 23-145834_R2 9th Fl/37-24103-00 CU Anschutz - PN 23-145834_R2 9th Fl_ARCH.rvt
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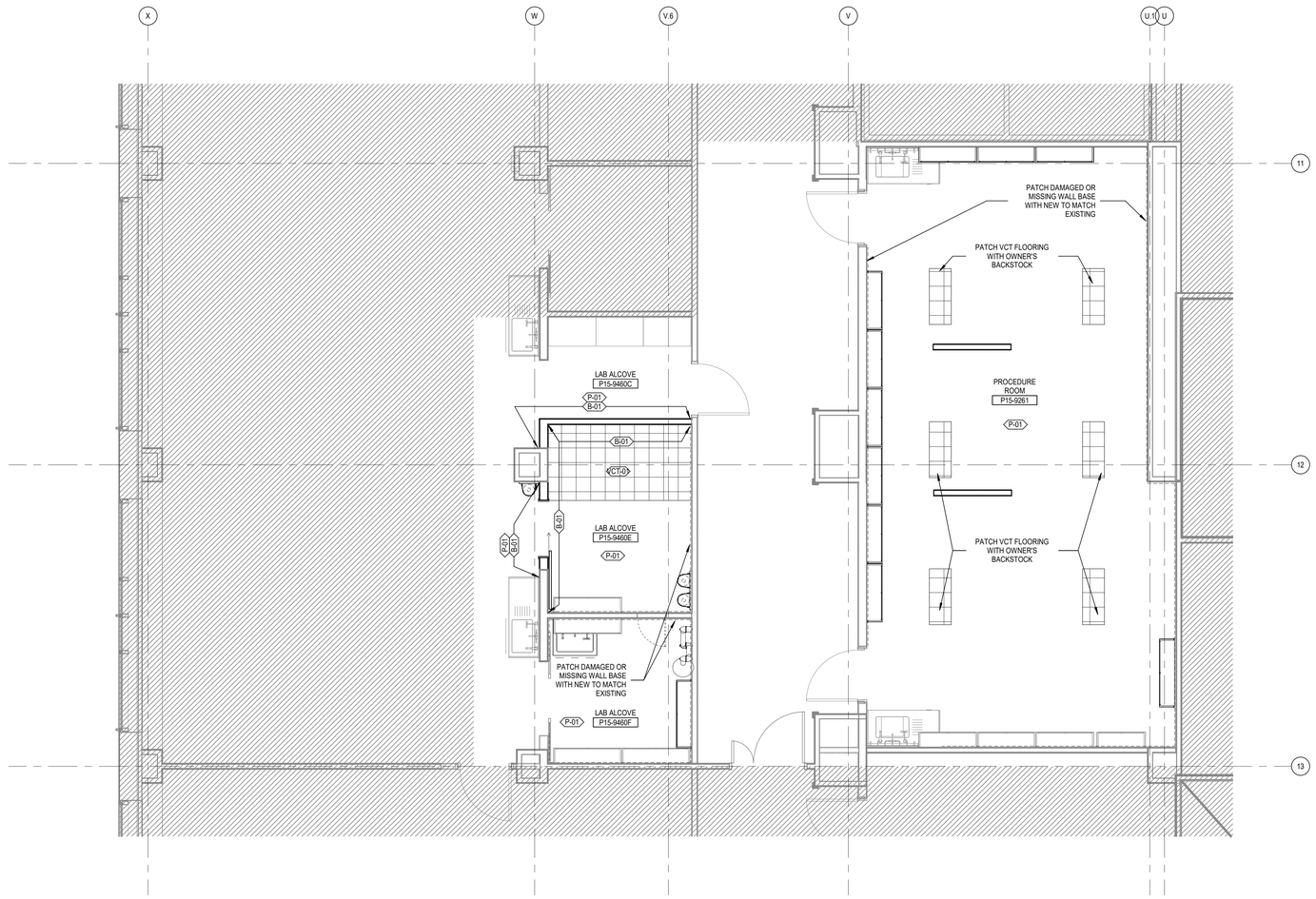

N

FINISH FLOOR PLAN

SCALE: 1/4" = 1'-0"

FINISH SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	PRODUCT	COLOR/FINISH	SIZE	COMMENTS
095100 ACOUSTIC CEILING TILE						
ACT-01	LAB CEILING TILE	ARMSTRONG	ULTIMA HEALTH ZONE	WHITE	24" X 48" X 3/4"	TO MATCH EXISTING
096500 RESILIENT FLOORING						
B-01	RESILIENT BASE	JOHNSONITE		#31 ZEPHYR	4"	TO MATCH EXISTING
096500 VINYL COMPOSITION TILE						
VCT-01	VINYL COMPOSITION TILE	ARMSTRONG	IMPERIAL TEXTURE	TO MATCH EXISTING		
099000 PAINTING						
P-01	WALL PAINT	SHERWIN WILLIAMS	LOW VOC, PREMIUM PAINT	TO MATCH EXISTING		
101100 INFORMATION SPECIALTIES						
MB-01	MARKER BOARD	DEKO MARKERBOARDS	MARKERBOARD	DIAMOND	REFER TO ELEVATIONS	

INTERIOR FINISH PLAN GENERAL NOTES

A. INTERIOR FINISH PLAN GENERAL NOTES APPLY TO ALL INTERIOR FINISH PLAN SHEETS.
B. FOR FLOOR TILE PRODUCTS, ADJUST LAYOUT AS NECESSARY TO AVOID USING CUT WIDTHS THAT EQUAL LESS THEN ONE-HALF OF A TILE AT ROOM PERIMETER.
C. PATCH AND PAINT ALL EXISTING WALLS AS REQUIRED. ALL NEW WALLS TO BE PAINTED P-01.

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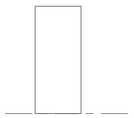
FINISH FLOOR PLAN AND SCHEDULE - LEVEL 9

A12.9

DOOR AND FRAME SCHEDULE

NUMBER	PANEL NO. OF PANELS	PANEL WIDTH	PANEL HEIGHT	PANEL THICKNESS	PANEL MATERIAL	PANEL TYPE	FRAME MATERIAL	FRAME TYPE	FIRE RATING	HARDWARE SET	DETAILS HEAD	DETAILS JAMB LEFT	DETAILS JAMB RIGHT	DETAILS SILL	COMMENTS
P15-9460E	1	4' - 0"	8' - 0"	1 3/4"	WD	F	ALUM	1	N/A	H1	3B/A8.1	3C/A8.1	3C/A8.1	-	BASIS OF DESIGN: AD SYSTEMS EXAM SLIDER

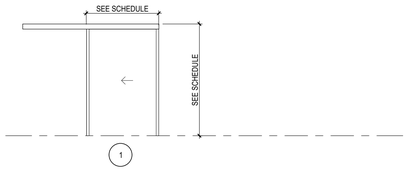


F

FLUSH WD PANEL

*FINISH TO MATCH ADJACENT DOOR PANELS

DOOR PANEL TYPES



SLIDING BARN DOOR

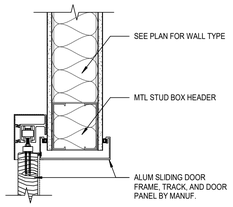
INTERIOR FRAME TYPES

DOOR HARDWARE SETS

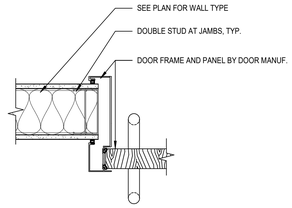
H1 - OFFICE
HARDWARE BY DOOR MANUF.

1	EA	MORTISE DEADBOLT CYLINDER AND THUMBTURN
1	SET	LADDER PULLS
1	EA	SMALL FORMAT INTERCHANGEABLE CORE

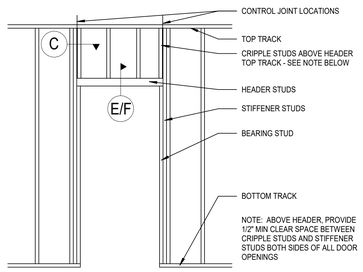
FINISH: 626



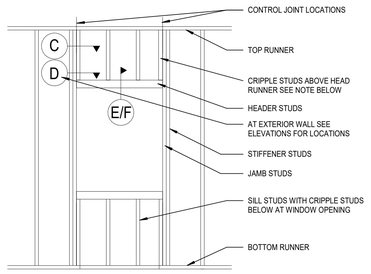
3B A8.1 DOOR HEAD SECTION DTL
SCALE: 1 1/2" = 1'-0"



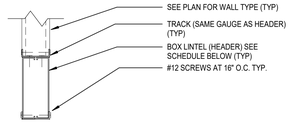
3C A8.1 DOOR JAMB DTL
SCALE: 1 1/2" = 1'-0"



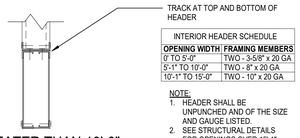
A TYP METAL STUD FRAMING AT DOOR OPENING
NO SCALE



B TYP. METAL STUD FRAMING AT FRAME OPENING
NO SCALE



E SPAN UP TO 10'-0"



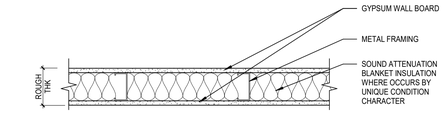
INTERIOR HEADER SCHEDULE

OPENING WIDTH	FRAMING MEMBERS
0' TO 5'-0"	TWO - 3-5/8" x 20 GA
5'-1" TO 10'-0"	TWO - 8" x 20 GA
10'-1" TO 15'-0"	TWO - 10" x 20 GA

NOTE:
1. HEADER SHALL BE UNPUNCHED AND OF THE SIZE AND GAUGE LISTED.
2. SEE STRUCTURAL DETAILS FOR OPENINGS OVER 15'-1".

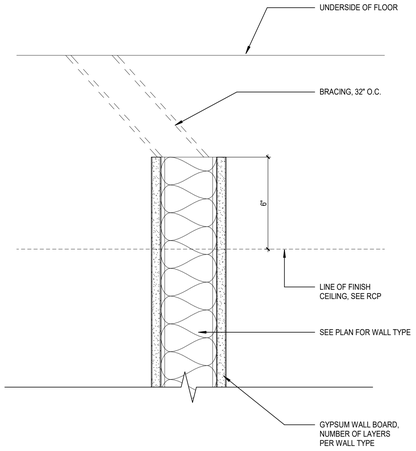
F SPAN GREATER THAN 10'-0"

5B A8.1 METAL STUD OPENINGS AND CONTROL JOINTS
SCALE: 1 1/2" = 1'-0"

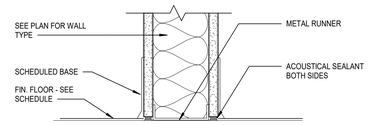


S_-_-2_ NON-RATED STUD PARTITION

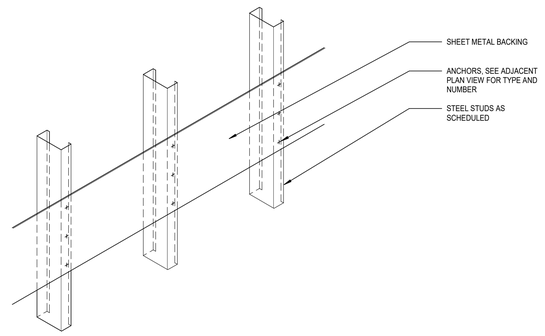
MARK			ROUGH THICKNESS	FIRE/SMOKE RATING	FIRE/SMOKE TESTED ASSEMBLIES	COMMENTS
SA	3	21	4 7/8"	NR	NA	
SA	6	21	7 1/4"	NR	NA	

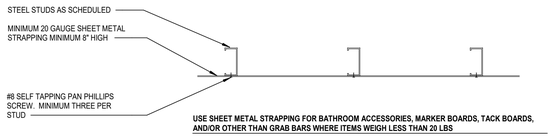


2E A8.1 T.O. WALL DETAIL
SCALE: 3" = 1'-0"



3E A8.1 B.O. WALL DETAIL
SCALE: 3" = 1'-0"





5E A8.1 TYPICAL BLOCKING IN FRAME WALLS
SCALE: 1 1/2" = 1'-0"

PARTITION TYPES DESCRIPTIONS

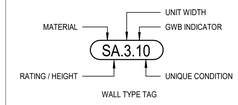
MATERIAL DESCRIPTION
S = STEEL (METAL STUDS)

RATING / HEIGHT
A = 6" ABOVE CEILING

UNIT WIDTH / CONFIGURATION
F = FURRING STRIPS / CHANNELS
1 = 1 5/8" METAL
2 = 2 1/2" METAL / 1 1/2" WOOD
3 = 3 5/8" METAL
4 = 4" METAL / 3 1/2 WOOD / 3 5/8" CMU
6 = 6" METAL / 5 1/2" WOOD / 5 5/8" CMU / 6" CONC
8 = 8" METAL / 7 1/4" WOOD / 7 5/8" CMU / 8" CONC

GYPSUM WALLBOARD INDICATOR
(NOT INCLUDING SHAFT LINER)
0 = NO GWB
1 = ONE LAYER, TAG SIDE
2 = ONE LAYER, EACH SIDE

UNIQUE CONDITION (SEE SCHEDULE)
0 = NO UNIQUE CONDITION
1 = SOUND ATTENUATION BLANKET



WALL TYPE TAG

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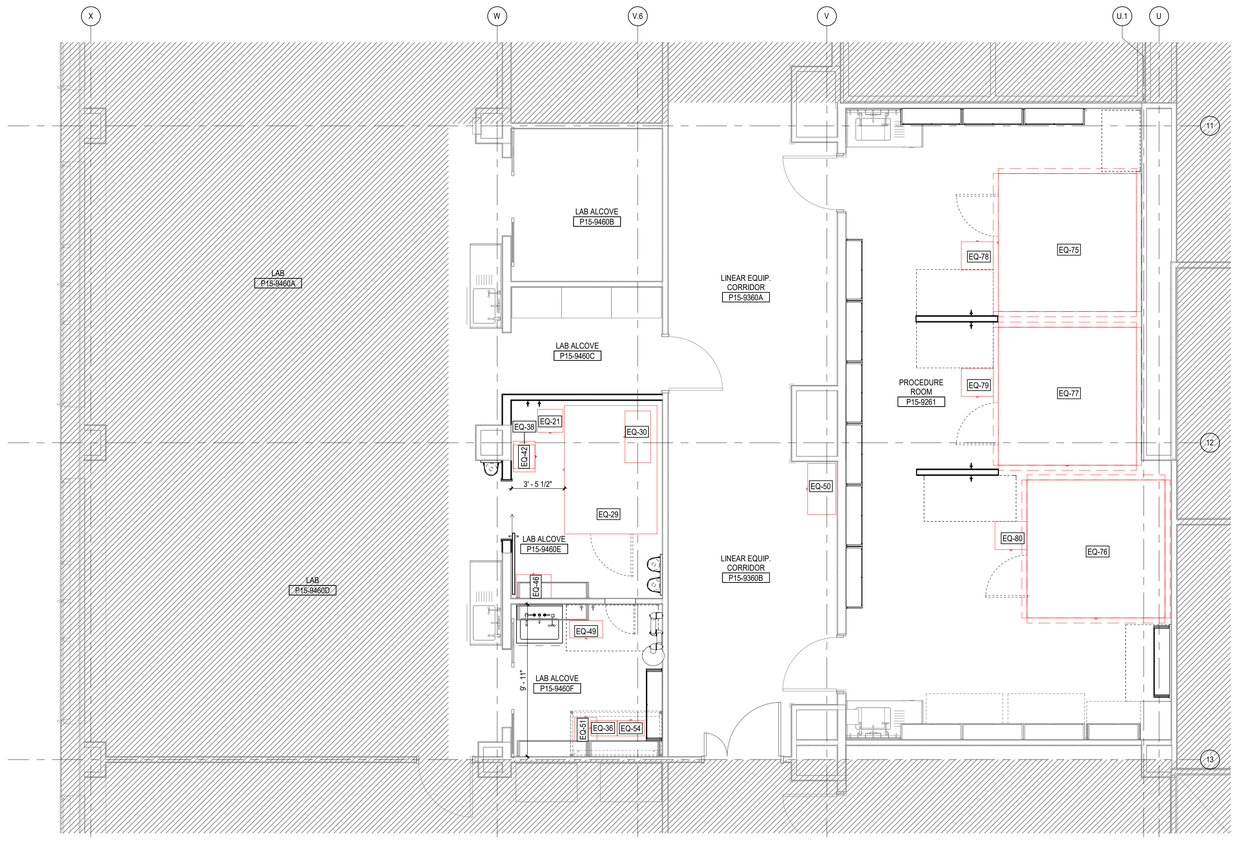
PARTITION TYPES, DOOR SCHEDULE, AND DETAILS

A8.1



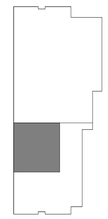
ENLARGED EQUIPMENT FLOOR PLAN

SCALE: 1/4" = 1'-0"

LABORATORY EQUIPMENT SCHEDULE

EQUIPMENT IDENTIFICATION					DIMENSIONS IN INCHES			CLEARANCE (IN) IF REQUIRED					
ID	INSTALLED BY (OWNER OR CONTRACTOR)	EQUIPMENT NAME	MANUFACTURER	MODEL	WIDTH	DEPTH	HEIGHT	FRONT	REAR	LEFT	RIGHT	TOP	COMMENTS
EQ-21	OFOI	sound cart			20"	18"	46 1/2"	0"	0"	0"	0"	0"	
EQ-29	OFOI	Sound booth	ETS-Lindgren		100 1/2"	72 1/2"	103"	0"	0"	0"	0"	0"	
EQ-30	OFOI	Temporal bone cart	Rubbermaid		40 1/2"	20"	38"	0"	0"	0"	0"	0"	
EQ-36	OFOI	microscope	olypus optical		12"	20 1/2"	26"	0"	0"	0"	0"	0"	
EQ-38	OFOI	custom sound booth			24"	17"	30"	0"	0"	0"	0"	0"	
EQ-42	OFOI	custom metal rig			18 1/2"	17"	22"	0"	0"	0"	0"	0"	
EQ-46	OFOI	tool box	husky		27 1/2"	18 1/2"	38"	0"	0"	0"	0"	0"	
EQ-49	OFOI	toolbox	westward		26"	13 1/2"	10"	0"	0"	0"	0"	0"	
EQ-50	OFOI	freezer	danby		40"	22"	33"	0"	0"	0"	0"	0"	
EQ-51	OFOI	refrigerator	avanti		17 1/2"	18 1/2"	33"	0"	0"	0"	0"	0"	
EQ-54	OFOI	axio	Zeiss	ts4773	21"	12"	21"	0"	0"	0"	0"	0"	
EQ-75	OFOI	sound booth	ETS-Lindgren		108"	108"	98"	4"	4"	4"	4"	18"	
EQ-76	OFOI	sound booth	ETS-Lindgren		108"	108"	98"	4"	4"	4"	4"	18"	
EQ-77	OFOI	sound booth	ETS-Lindgren		108"	108"	98"	4"	4"	4"	4"	18"	
EQ-78	OFOI	AV rack			25"	22"	75"	0"	0"	0"	0"	0"	
EQ-79	OFOI	AV rack			25"	22"	75"	0"	0"	0"	0"	0"	
EQ-80	OFOI	AV rack			25"	22"	75"	0"	0"	0"	0"	0"	

KEY PLAN



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ENLARGED
EQUIPMENT PLAN
AND SCHEDULE -
LEVEL 9

QL1.9

ABBREVIATIONS

#	NUMBER
&	AND
(D)	DEMOLISHED
(E)	EXISTING
(R)	RELOCATED
@	AT
°C	DEGREES CELSIUS
°F	DEGREES FAHRENHEIT
Ø	PHASE
Ø	DIAMETER
A	COMPRESSED AIR
A	AMPERE
A	AMP
A/C	AIR CONDITIONING(ER)
A/E	ARCHITECT/ENGINEER
AABC	ASSOCIATED AIR BALANCE COUNCIL
AAP	ALARM ANNUNCIATOR PANEL
AAP	AREA ALARM PANEL
AAV	AUTOMATIC AIR VENT
AAV	AIR ADMITTANCE VALVE
AB	ANCHOR BOLT
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
AC	ALTERNATING CURRENT
AC	ACOUSTIC CEILING
ACC	AIR COOLED CONDENSER
ACC	ACCESSIBLE
ACCU	AIR COOLED CONDENSING UNIT
ACM	ALUMINUM COMPOSITE MATERIAL
ACST	ACOUSTIC
AD	AREA DRAIN
AD	ACCESS DOOR
ADDN	ADDITION OR ADDITIONAL
ADJ	ADJUSTABLE
ADJT	ADJACENT, ADJOINING
ADMIN	ADMINISTRATION
ADO	AUTOMATIC DOOR OPENER
AF	AIR FILTER
AFC	ABOVE FINISHED COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGF	AIR GAP FITTING
AHJ	AUTHORITY HAVING JURISDICTION
AHRI	AIR-CONDITIONING HEATING AND REFRIGERATION INSTITUTE
AHU	AIR HANDLING UNIT
AI	AREA INLET
AI	ANALOG INPUT
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMBA	AMERICAN BOILER MANUFACTURERS ASSOCIATION
AMP	AMPERE
ANCH	ANCHOR
AP	ACCESS PANEL
APC	ACOUSTIC PANEL CEILING
APPROX	APPROXIMATE
AR	ACID RESISTING
AR	ARGON
ARCH	ARCHITECTURAL
AS	AIR SEPARATOR
ASB	ASBESTOS
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPH	ASPHALT
AUTO	AUTOMATIC
AV	AUDIO-VIDEO, AUDIO-VISUAL
AV	ACID VENT
AV	AIR VENT
AVG	AVERAGE
AW	ACID WASTE
AWG	AMERICAN WIRE GAUGE
AWP	ACOUSTIC WALL PANEL
B	BOILER
B to B	BACK TO BACK
BAS	BUILDING AUTOMATION SYSTEM
BAT	BATTERY
BBO	BOILER BLOW OFF
BC	BALANCING COCK
BC	BARE COPPER
BCMU	BURNISHED CONCRETE MASONRY UNIT
BD	BOARD
BDD	BACK DRAFT DAMPER
BET	BETWEEN
BF	BOILER FEED
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BFR	BELOW FLOOR
BFV	BUTTERFLY VALVE
BHP	BREAK HORSEPOWER
BI	BACKWARD INCLINED (FAN IMPELLER/WHEEL)
BKR	BREAKER
BL	BUILDING LINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BM	BENCH MARK
BM(S)	BEAM(S)
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOF	BOTTOM OF FOOTING
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BPIP	BOILER PLANT INSTRUMENTATION PANEL
BRDG	BRIDGING
BRG	BEARING
BRKT	BRACKET
BSMT	BASEMENT
BT	BATHTUB
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BUR	BUILT UP ROOFING
BV	BALL VALVE
C	CONDUIT
C	CONDENSER WATER
CA	COMBUSTION AIR
CANT	CANTILEVER
CAP	CAPACITY
CAS	CASING
CBD	COUNTER-BALANCED DAMPER
CBD	CHALKBOARD
CC	COOLING COIL
CCR	CONTROL CONTRACTOR
CCTV	CLOSED CIRCUIT TELEVISION
CD	CONDENSATE DRAIN
CD	CEILING DIFFUSER
CD	CONSTRUCTION DOCUMENTS
CDA	CLEAN DRY AIR (COMPRESSED AIR)
CDF	COMBINATION DRINKING FOUNTAIN & BOTTLE FILLING STATION
CE	COVER ELEVATION
CEM	CEMENT
CENT	CENTRIFUGAL
CER	CERAMIC
CF	CUBIC FEET
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CG	CORNER GUARD
CH	CHILLER
CH	CHANNEL
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CI	CURB INLET
CIP	CAST IN PLACE
CIP	CAST IRON PIPE
CIRC	CIRCULATING
CJ	CONTROL JOINT
CJ	CONSTRUCTION JOINT
CJA	CONTROL JOINT ABOVE
CKT	CIRCUIT
CKT BK	CIRCUIT BREAKER
CL	CENTER LINE
CL	CIRCUIT LINE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR
CM	CEILING MOUNTED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CO	CARBON MONOXIDE
CO	CONDUIT ONLY
CO2	CARBON DIOXIDE
COL	COLUMN
COMB	COMBINATION
COMM	COMMUNICATIONS
COMP	COMPRESSOR UNIT
COMP	COMPOSITE
COMPR	COMPRESSIBLE
CONC	CONCRETE
COND	CONDENSATE
CONF	CONFERENCE
CONFIG	CONFIGURATION
CONN(S)	CONNECTION(S)
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACT(OR)
CONV	CONVECTOR
COOR	COORDINATE
COORD	COORDINATE
CP	CONDENSATE PUMP
CP	COVER PLATE
CPS	CYCLES PER SECOND
CPT	CARPET
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CORROSION RESISTANT
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CS	COUNTERSINK
CS	COMBINATION SEWER
CS	CARBON STEEL
CSK	COUNTERSUNK
CSMU	CALCIUM SILICATE MASONRY UNIT
CSP	COMBINATION STANDPIPE
CSWK	CASEWORK
CT	COOLING TOWER
CT	CERAMIC TILE
CT	CURRENT TRANSFORMER
CTL	CONTROL
CTR	CENTER
CU	COPPER
CU	CONDENSING UNIT
CU	CUBIC
CU	COMBINATION UNIT
CUH	CABINET UNIT HEATER
CW	COLD WATER
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWV	COMBINATION WASTE AND VENT
CY	CUBIC YARD
CYL	CYLINDER
D	DRAIN
D	DIFFUSER
D	DEPTH
D	DATA
d	PENNY (NAIL 10D)
DB	DECIBEL
DB	DRY BULB
DBA	DECIBELS A
DBL	DOUBLE
DC	DIRECT CURRENT
DC	DUST COLLECTOR
DCJ	DUMMY CONTROL JOINT
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DEMO	DEMOLISH OR DEMOLITION
DEPR	DEPRESS(ION)(ED)
DEPT	DEPARTMENT
DET	DETAIL
DET	DETENTION
DF	DRINKING FOUNTAIN
DFR	DIESEL FUEL RETURN
DFS	DIESEL FUEL SUPPLY
DFU	DRAINAGE FIXTURE UNIT
DFV	DIESEL FUEL VENT
DG	DOOR GRILLE
DH	DUCT HEATER
DHU	DEHUMIDIFICATION UNIT
DI	DEIONIZED WATER
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIC	DISCHARGE
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISC SW	DISCONNECT SWITCH
DISCH	DISCHARGE
DISTR	DISTRIBUTION
DIV	SPECIFICATION DIVISION
DL	DRUM LOUVER
DL	DEAD LOAD
DM	DAMPER MOTOR
DMPR	DAMPER
DN	DOWN
DO or "	DITTO
DOAS	DEDICATED OUTDOOR AIR SYSTEM UNIT
DOE	DEPARTMENT OF ENERGY
DP	DIFFERENTIAL PRESSURE
DPFG	DAMPROFFING
DPI	DIFFERENTIAL PRESSURE INDICATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
DR	DOOR
DR	DRAIN
DS	DISTILLED WATER
DS	DOWNSPOUT
DSN	DOWNSPOUT NOZZLE
DSP	DRY STANDPIPE
DSPR	DRY SPRINKLER PIPING
DSPR	DRY SPRINKLER PIPE
DSTB	DISTRIBUTED
DTL	DETAIL
DTR	DUCT THRU ROOF
DW	DISHWASHER
DWBP	DOMESTIC WATER BOOSTER PUMP
DWDI	DOUBLE WIDTH DOUBLE INLET
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
DWR	DRAWER
DWRP	DOMESTIC WATER RECIRCULATING PUMP
DX	DIRECT EXPANSION
DXS	DOUBLE EXTRA STRONG
E	EAST
EA	EACH
EA	EXHAUST AIR
EA	EACH FACE
EAT	ENTERING AIR TEMPERATURE
EB	ELECTRIC BASEBOARD RADIATION
EB	EXPANSION BOLT
EBH	ELECTRIC BASIN HEATER
EC	ELECTRICAL CONTRACTOR
ECON	ECONOMIZER
ECS	EMERGENCY COMMUNICATION SYSTEM
EDH	ELECTRIC DUCT HEATER
EE	EACH END
EER	ENERGY EFFICIENCY RATIO
EEW	EMERGENCY EYE WASH
EEWS	EMERGENCY EYE WASH SHOWER
EF	EXHAUST FAN
EF	EACH FACE
EFF	EFFICIENCY
EG	EXHAUST AIR GRILLE
EH	ELECTRICAL HEATER
EIFS	EXTEROR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELAS	ELASTOMERIC
ELEC	ELECTRICAL(AL)
ELEV	ELEVATOR
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EMD	ESTIMATED MAXIMUM DEMAND
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EMV	EMERGENCY MIXING VALVE
ENCL	ENCLOSURE
ENT	ENTERING
ENTR	ENTRANCE
EOMD	END OF MAIN DRIP
EP	ELECTRO-PNEUMATIC
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ER	EXISTING (TO BE) RELOCATED
ER	EXHAUST REGISTER
ERA	ENERGY RECOVERY AIR
ERF	EPOXY RESIN FLOORING
ES	EMERGENCY SHOWER
ES	EXTRA STRONG
ESP	EXTERNAL STATIC PRESSURE
EST	ESTIMATE
ET	EXPANSION TANK
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXP	EXPOSED
EXPL	EXPLOSION
EXT	EXTERIOR
F	FAHRENHEIT
F	FIRELINE
F	FURNACE
F	FACE
F	FIRE SERVICE
FA	FIRE ALARM
FA	FACE
FA	FRESH AIR
FAA	FIRE ALARM ANNUNCIATOR
FAB	FABRICATE(D)
FACP	FIRE ALARM CONTROL PANEL
FB	FACE BRICK
FC	FLUID COOLER
FCMU	FLUTED CONCRETE MASONRY UNIT
FCO	FLOOR CLEAN OUT
FCU	FAN COIL UNIT
FCV	FLOW CONTROL VALVE
FCW	FILTERED COLD WATER
FD	FLOOR DRAIN
FD	FIRE DAMPER
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDNDR	FOUNDATION DRAIN
FDR	FEEDER
FDV	FIRE DEPARTMENT VALVE
FDVC	FIRE DEPARTMENT VALVE CABINET
FE	FIRE EXTINGUISHER
FEA	FUME HOOD EXHAUST AIR
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FH	FIRE HYDRANT
FH	FILTER HOUSING
FHC	FIRE HOSE CABINET
FIG	FIGURE
FIN	FINISHED
FIX	FIXTURE
FL	FLOOR
FLA	FULL LOAD AMPS
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG	FLOORING
FLM	FULL LENGTH MIRROR
FLUOR	FLUORESCENT
FM	FIRE MAIN
FM	FORCE MAIN
FM	FACTORY MUTUAL
FMCS	FACILITIES MANAGMENT CONTROL SYSTEM
FME	FLOW MEASURING EQUIPMENT
FNPT	FEMALE NPT
FO	FINISH OPENING
FO	FACE OF
FOC	FACE OF CONCRETE
FOF	FUEL OIL FILL
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOS	FACE OF STUD
FOV	FUEL OIL VENT
FOW	FACE OF WALL
FP	FIRE PUMP
FP	FIREPROOFING
FPB	FAN POWERED VAV TERMINAL
FPD	FIRE PUMP DISCHARGE
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FR	FIRE RESISTANT
FR	FIRE RESISTIVE
FR	FRAME
FRP	FIBERGLASS REINFORCED PANEL
FS	FLOW SWITCH
FS	FLOOR SINK
FSD	FIRE SMOKE DAMPER
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FT	FIN TUBE
FT	FLOW TRANSMITTER
FTG	FOOTING
FURN	FURNISH(ED)
FUT	FUTURE
FV	FIELD VERIFY
FV	FACE VELOCITY
FVC	FIRE VALVE CABINET
FWC	FABRIC WALL COVERING
G	GRILLE
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAD BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT
GCO	GRADE CLEAN OUT
GD	GARBAGE DISPOSAL
GEA	GREASE EXHAUST AIR
GEN	GENERATOR
GEN	GENERAL
GFA	GROSS FLOOR AREA
GFCMU	GROUND-FACE CONCRETE MASONRY UNIT
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFRC	GLASS FIBER REINFORCED CONCRETE
GHR	GLYCOL-WATER HEATING RETURN
GHS	GLYCOL-WATER HEATING SUPPLY
GI	GALVANIZED IRON
GL	GLUE LAMINATED
GL	GLASS
GMU	GLASS MASONRY UNIT
GND	GROUND
GOVT	GOVERNMENT
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GUARD RAIL
GR	GRADE
GR	GRILLE
GRC	GLASS REINFORCED CONCRETE
GRC	GALVANIZED RIGID CONDUIT
GRC	GLASS REINFORCED CONCRETE
GRD	GRILLES, REGISTERS AND DIFFUSERS
GRGP	GLASS REINFORCED GYPSUM PLASTER
GRS	GALVANIZED RIGID STEEL
GRV	GRAVITY VENTILATOR
GS	GASOLINE
GV	GATE VALVE
GV	GREASE VENT
GVBF	GREASE VENT BELOW FLOOR
GW	GREASE WASTE
GWB	GYPSUM WALL BOARD
GWR	GEOTHERMAL WATER RETURN
GWS	GEOTHERMAL WATER SUPPLY
GYP	GYPSUM
H	HEIGHT
H1E	HOOK ONE END
H2	HYDROGEN
HB	HOSE BIB
HC	HEATING COIL
HC	HOLLOW CORE
HC	HANDICAP
HCB	HANDICAP BENCH
HCR	HOT/CHILLED WATER RETURN
HCS	HOT/CHILLED WATER SUPPLY
HCW	HARD COLD WATER
HD	HAND DRYER
HDBD	HARDBOARD
HDCP	HANDICAP
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HE	HELIUM
HEV	HOSE END VALVE
HGR	HANGER
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HOA	HAND-OFF-AUTOMATIC
HORIZ	HORIZONTAL
HP	HORSE POWER
HP	HEAT PUMP
HP	HIGH PRESSURE
HPC	HIGH PRESSURE STEAM CONDENSATE
HPNG	HIGH PRESSURE NATURAL GAS
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HRO	HOT REVERSE OSMOSIS
HROC	HOT REVERSE OSMOSIS RECIRCULATION
HRWR	HEAT RECOVERY WATER RETURN
HRWS	HEAT RECOVERY WATER SUPPLY
HS	HEADSTUD
HSPF	HEAT SEASONAL PERFORMANCE FACTOR
HSTR	HIGH STRENGTH
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HTWR	HIGH TEMPERATURE HOT WATER RETURN
HTWS	HIGH TEMPERATURE HOT WATER SUPPLY
HUM	HUMIDIFIER
HV	HEATING VENTILATING UNIT
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER RECIRCULATING
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ (FREQUENCY)
i.e.	THAT IS
IAQ	INDOOR AIR QUALITY
IAW	IN ACCORDANCE WITH
IB	INFRARED BURNER
IBC	INTERNATIONAL BUILDING CODE
IC	INTERCOM
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IECC	INTERNATIONAL ENERGY CONSERVATION CODE
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IF	INSIDE FACE
IG	ISOLATED GROUND
IH	INTAKE HOOD
IJ	ISOLATION JOINT
IJS	IN JOIST SPACE
IMC	INTERNATIONAL MECHANICAL CODE
IMC	INTERMEDIATE METAL CONDUIT
IN	INCH
IN HG	INCHES OF MERCURY (PRESSURE)
IN WC	INCHES OF WATER COLUMN (PRESSURE)
INC	INCLUDE(ING)
INSUL	INSULATION
INT	INTERIOR
IP	IRON PIPE
IPC	INTERNATIONAL PLUMBING CODE
IPS	IRON PIPE SIZE
IW	INDIRECT WASTE
JAN	JANITOR
JB	JUNCTION BOX
JCT	JUNCTION
JFB	JOINT FILLER BOARD
JST	JOIST
JT	JOINT
KCJ	KEYED CONSTRUCTION JOINT
KCP	KEENE'S CEMENT PLASTER
KD	KNOCKDOWN
KH	KITCHEN HOOD
KHE	KITCHEN HOOD EXHAUST FAN
KHS	KITCHEN HOOD SUPPLY FAN
KIT	KITCHEN
KO	KNOCKOUT
KS	KITCHEN SINK
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
L	ANGLE
LA	LABRATORY COMPRESSED AIR
LAB	LABORATORY
LAM	LAMINATED
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB(S)	POUND(S)
LBR	LUMBER
LDG	LOADING
LF	LINEAR FOOT
LG	LENGTH (LONG)
LIN	LINEAR
LINO	LINOLEUM
LKR	LOCKER
LL	LIVE LOAD
LLH	LONG LENGTH HORIZONTAL
LLV	LONG LENGTH VERTICAL
LN2	LIQUID NITROGEN
LO2	LIQUID OXYGEN
LOC	LOCATION
LONG	LONGITUDINAL
LPG	LIQUIFIED PETROLEUM GAS (PROPANE)
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LR	LIVING ROOM
LS	LAWN SPRINKLER
LSC	LIFE SAFETY CODE
LT	LIGHT
LTD	LINED TRANSFER DUCT
LTG	LIGHTING
LV	LOUVER
LV	LABORATORY VACUUM
LVG	LEAVING
LW	LONG WAY
LWT	LEAVING WATER TEMPERATURE
M	THOUSAND
MA	MIXED AIR
MA	MAKE-UP AIR
MA	MEDICAL COMPRESSED AIR
MAC	MACHINE
MAG	MAGNETIC
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MAU	MAKEUP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MB	MACHINE BOLT
MBD	MARKER BOARD
MBH	THOUSAND BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MC	MEDICINE CABINET
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCM	METAL COMPOSITE MATERIAL
MD	MOTORIZED DAMPER
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MFRG	MANUFACTURING
MG	MOTOR GENERATOR
MH	MANHOLE
MH	METAL HALIDE
MH	MOP HOLDER
MIN	MINIMUM
MISC	MISCELLANEOUS
MISC	MISCELLANEOUS
ML	MOTORIZED LOUVER
MLDG	MOLDING
MLO	MAIN LUGS ONLY
MLWK	MILLWORK
MO	MASONRY OPENING
MOCP	MAXIMUM OVERCURRENT PROTECTION
MPG	MEDIUM PRESSURE GAS
MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
MR	MIRROR
MR/S	MIRROR WITH SHELF
MS	MAGNETIC STARTER
MS	MOP SINK
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MTWR	MEDIUM TEMP HOT WATER RETURN
MTWS	MEDIUM TEMP HOT WATER SUPPLY
MUL	MULLION
MV	MEDICAL VACUUM
MV	MERCURY VAPOR
MW	MARKER WALL
N	NITROGEN
N	NORTH
N2	LABORATORY NITROGEN
N2O	NITROUS OXIDE
N20	NITROUS OXIDE
N/A	NOT APPLICABLE
NA	NOT APPLICABLE
NAT	NATURAL
NC	NORMALLY CLOSED
NC	NOISE CRITERIA
NC	NURSE CALL
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN.
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO	NUMBER
NO2	NITROGEN DIOXIDE
NOM	NOMINAL
NRS	NON RISING STEM
NS	NEUTRAL SENSOR
NTS	NOT TO SCALE
NV	NITROGEN VENT
O2	OXYGEN
O to O	OUT TO OUT
O&M	OPERATION AND MAINTENANCE
OA	OUTSIDE AIR
OBSC	OBSCURE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OF	OUTSIDE FACE
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OWNER FURNISHED OWNER INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OSD	OVERFLOW STORM DRAIN
OTCS	OPEN TO CEILING SPACE
OV	OIL VENT
OVFL	OVERFLOW
OVHD	OVERHEAD
OW	OIL WASTE
P	POLE(S)
P	PUMP
P/T	PRESSURE/TEMPERATURE TEST PORT
PA	PUBLIC ADDRESS
PAN B	PANIC BOLT
PAR	PARALLEL
PB	PULL BOX
PB	PUSH BUTTON
PB	PARTICLE BOARD
PBS	PUSH BUTTON STATION
PC	PRECAST CONCRETE
PC	PUMPED CONDENSATE
PCD	PAPER CUP DISPENSER
PCF	POUNDS PER CUBIC FOOT
PCT	PORCELAIN CERAMIC TILE
PCV	PRESSURE CONTROL VALVE
PCWP	PROCESS COOLING WATER PUMP
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP
PD	PUMP DISCHARGE
PDI	PLUMBING & DRAINAGE INSTITUTE
PENT	PENTHOUSE
PERF	PERFORATED
PERP	PERPENDICULAR
PF	POWER FACTOR
PG	PRESSURE GAUGE
PG	PROPANE GAS
PH	PHASE
PHC	PRE-HEAT COIL
PI	POINT OF INTERSECTION
PI	PRESSURE INDICATOR
PIC	PORTABLE INSTRUMENT CONNECTION
PIV	POST INDICATOR VALVE
PL	PLATE
PL	PLACE(S)
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD

GENERAL FIRE PROTECTION NOTES

1.1 GENERAL NOTES

A. ALL FIRE PROTECTION WORK PERFORMED SHALL COMPLY WITH ALL CODES, LAWS AND GOVERNING BODIES. IF THE DRAWINGS AND/OR SPECIFICATIONS ARE MORE RESTRICTIVE OR EXCEED THE GOVERNING CODE REQUIREMENTS, THESE DRAWINGS AND SPECIFICATIONS SHALL GOVERN.

B. THE SPRINKLER DESIGN SHALL BE COORDINATED WITH ALL OTHER ASPECTS OF THE BUILDING. TO THAT END, THE SPRINKLER CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND CIVIL DRAWINGS.

1. REFER TO THE ARCHITECTURAL DRAWINGS FOR BUILDING ELEVATIONS, CEILING DETAILS, PARTITIONS, AND OCCUPANCIES.
2. REFER TO STRUCTURAL TO COORDINATE PIPING LAYOUT WITH STRUCTURAL ELEMENTS OF THE BUILDING.
3. REFER TO THE PLUMBING AND MECHANICAL DRAWINGS TO ASSESS THE CONGESTION ABOVE THE CEILINGS. THE SPRINKLER CONTRACTOR SHALL SPECIFICALLY BE CONSCIOUS OF
    a. THE HORIZONTAL MECHANICAL UNITS HAVE BEEN LOCATED IN AREAS THAT ALLOW FOR EASY REMOVAL OF THE FILTER AND EASY ACCESS TO THE EQUIPMENT UNIT ACCESS PANELS. THIS ACCESS SPACE HAS BEEN DESIGNATED BY THE DASHED LINE AREAS ADJACENT TO THE UNITS. LEAVE ENOUGH SPACE FOR SERVICE PERSONNEL TO PERFORM MAINTENANCE OR REPAIR. PROVIDE SUFFICIENT ROOM TO MAKE WATER, ELECTRICAL AND DUCT CONNECTIONS.
    b. IF ANY SPRINKLER PIPING IS RUN WITHIN THE DESIGNATED EQUIPMENT SERVICE / ACCESS AREAS, THE PIPE SHALL BE REMOVED AND RE-ROUTED SO IT IS NOT WITHIN THE SERVICE / ACCESS AREA.
    c. ALLOW ADEQUATE ROOM BELOW THE MECHANICAL UNIT FOR A CONDENSATE TRAP. DO NOT LOCATE ANY PIPING SYSTEMS BELOW ANY SUSPENDED MECHANICAL.
4. REFER TO THE ELECTRICAL DRAWINGS FOR THE INTERFACE BETWEEN THE FIRE SPRINKLER AND ALARM SYSTEMS.
5. PROVIDE PROTECTION ABOVE AND BELOW CEILINGS WHEN/WHERE COMBUSTIBLE MATERIALS ARE LOCATED WITHIN THE CEILING PLENUM.
6. PROVIDE HEAVY DUTY PROTECTIVE GUARDS FOR SPRINKLER HEADS IN ALL EXPOSED AREAS SUBJECT TO ABUSE .
7. PER NFPA 13, FIRE SPRINKLER PIPING SHALL BY SUPPORTED BY AN INDEPENDENT PIPE HANGER SYSTEM. FIRE SPRINKLER PIPING NOT BE SUPPORTED FROM OTHER PIPING, CONDUIT, OR DUCTWORK HANGING SYSTEMS.
8. WHERE CEILINGS ARE TO BE INSTALLED, SPRINKLER PIPING SHALL BE INSTALLED WITHIN THE CEILING PLENUM UNLESS NOTED OTHERWISE ON THE DRAWINGS. WRITTEN AUTHORIZATION SHALL BE OBTAINED FROM THE ARCHITECT PRIOR TO EXPOSING ANY PIPING IN ANY ROOM WHICH HAS A SUSPENDED CEILING.

1.2 FIRE PROTECTION DEMOLITION SHEET NOTES

A. REMOVE EXISTING SPRINKER HEADS AND PIPING THIS ROOM.

B. REMOVE EXISTING SPRINKLER HEAD(S) IN THIS ROOM. REMOVE ALL RELATED PIPING BACK TO MAIN AND CAP.

C. REMOVE SPRINKLER PIPING TO THIS LOCATION TO ALLOW GENERAL CONTRACTOR TO PERFORM HIS DEMOLITION WORK.

PROJECT INFORMATION

- PROJECT LOCATION: BOULDER, CO.
- PROJECT ALTITUDE: 5,400 FT. ASL (APPROX.)

APPLICABLE CODES

- 2021 IBC - INTERNATIONAL BUILDING CODE
- 2021 IEBC - INTERNATIONAL EXISTING BUILDING CODE
- 2021 IMC - INTERNATIONAL MECHANICAL CODE
- 2021 IECC - INTERNATIONAL ENERGY CONSERVATION CODE
- 2021 NEC - NATIONAL ELECTRIC CODE
- 2021 IPC - NATIONAL PLUMBING CODE
- 2021 IFC - INTERNATIONAL FIRE CODE
- NFPA - NATIONAL FIRE PROTECTION ASSOCIATION

FIRE PROTECTION SYMBOLS

DESCRIPTION
ALARM VALVE, WET
ALARM VALVE, DRY
FIRE DEPARTMENT CONNECTION
PENDENT SPRINKLER HEAD - WET
PENDENT SPRINKLER HEAD - DRY
CONCEALED SPRINKLER HEAD - WET
CONCEALED SPRINKLER HEAD - DRY
RECESSED SPRINKLER HEAD - WET
RECESSED SPRINKLER HEAD - DRY
UPRIGHT SPRINKLER HEAD - WET
UPRIGHT SPRINKLER HEAD - DRY
SIDEWALL SPRINKLER HEAD - WET
SIDEWALL SPRINKLER HEAD - DRY
SIDEWALL SPRINKLER HEAD - EXTENDED COVERAGE - WET
SIDEWALL SPRINKLER HEAD - EXTENDED COVERAGE - DRY
FLOW SWITCH
PRESSURE SWITCH
OS&Y VALVE
OS&Y VALVE (INDICATING)

PIPING ANNOTATIONS

DESCRIPTION
EXISTING TO REMAIN - (E) or EXIST
ITEM TO BE DEMOLISHED - (D) or DEMO
PIPE SIZE TAG (DIAMETER WITH SYSTEM NAME)
ABOVE GROUND PIPING
BELOW GROUND PIPING
PIPE SLOPE
PIPE INVERT ELEVATION
MECHANICAL EQUIPMENT TAG
MECHANICAL EQUIPMENT CLEARANCE

PIPING VALVES AND FITTINGS

DESCRIPTION
PIPE DROP
PIPE RISE
PIPE TEE DOWN
PIPE TEE UP
CONCENTRIC REDUCER
ECCENTRIC REDUCER
PIPE CAP
PIPE ALIGNMENT GUIDE
PIPE ANCHOR
FLOW DIRECTION
EXPANSION JOINT
FLEXIBLE CONNECTION
UNION
DIRECTION OF PIPE PITCH
AQUASTAT
EXPANSION LOOP
BALANCING VALVE
BALANCING VALVE W/ METERING POINTS
BALL VALVE
BUTTERFLY VALVE
CHECK VALVE
STEAM TRAP
GATE VALVE
CIRCUIT SETTER
MANUAL AIR VENT
AUTOMATIC AIR VENT
PLUG VALVE
PRESSURE GAUGE
SOLENOID VALVE
ANGLE VALVE
AUTOMATIC CONTROL VALVE 2-WAY
AUTOMATIC CONTROL VALVE 3-WAY
AUTOMATIC FLOW CONTROL VALVE
STRAINER
PRESSURE AND TEMPERATURE TEST PORT
THERMOMETER
PRESSURE REDUCING VALVE (WATER SYSTEMS) PRESSURE REGULATING VALVE (GAS SYSTEMS)
RELIEF VALVE
FLOW MEASURING DEVICE
BACKFLOW PREVENTER
UNION

GENERAL SYMBOLS

- POINT OF DISCONNECT - DEMOLITION REMOVED FROM EXISTING
- POINT OF CONNECTION - NEW CONNECTS TO EXISTING
- AREA NOT IN CONTRACT

SHEET INDEX

FP0.1	FIRE PROTECTION SYMBOLS & ABBREVIATIONS
FP1.1	LEVEL 09 - FIRE PROTECTION PLAN

NOTE

ALL NOTES ON THIS SHEET ARE APPLICABLE TO ALL OTHER SHEETS IN THIS SET.

THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE APPLICABLE IN THIS SET OF DRAWINGS.

DLRGROUP
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COLORADO LICENSED PROFESSIONAL ENGINEER
DAVID ANDERSON
44076
12-18-2023
EXP. 10/31/2025

CU DENVER | ANSCHUTZ - 9TH FLOOR
PHYSIOLOGY MOVE

12700 E 19TH AVE
AURORA, CO 80045

CONSTRUCTION DOCUMENTS
12/18/2023
REVISIONS

PN 23-14584
37-24103-00

FIRE PROTECTION SYMBOLS & ABBREVIATIONS

FP0.1

A | B | C | D | E | F

1

2

3

4

5

LEVEL 9 - ENLARGED FIRE PROTECTION PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A REFERENCE SHEET FP0.1 FOR SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

SHEET NOTES

- F1 REVISE FIRE SPRINKLER HEADS ABOVE NEW SOUND BOOTHS. COORDINATE WITH NEW CEILING ELEVATION.
- F2 REVISE FIRE SPRINKLER HEADS IN NEW ROOM LAYOUT.
- F3 EXISTING FIRE SPRINKLER LAYOUT TO REMAIN.
- F4 REVISE FIRE SPRINKLE HEADS TO ACCOMMODATE PARTITION WALLS.

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COLORADO LICENSED PROFESSIONAL ENGINEER 44076 12-18-2023
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LEVEL 09 - FIRE PROTECTION PLAN

FP1.1

ABBREVIATIONS

#	NUMBER
&	AND
(D)	DEMOLISHED
(E)	EXISTING
(R)	RELOCATED
@	AT
°C	DEGREES CELSIUS
°F	DEGREES FAHRENHEIT
Ø	PHASE
Ø	DIAMETER
A	COMPRESSED AIR
A	AMPERE
A	AMP
A/C	AIR CONDITIONING(ER)
A/E	ARCHITECT/ENGINEER
AABC	ASSOCIATED AIR BALANCE COUNCIL
AAP	ALARM ANNUNCIATOR PANEL
AAP	AREA ALARM PANEL
AAV	AUTOMATIC AIR VENT
AAV	AIR ADMITTANCE VALVE
AB	ANCHOR BOLT
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
AC	ALTERNATING CURRENT
AC	ACOUSTIC CEILING
ACC	AIR COOLED CONDENSER
ACC	ACCESSIBLE
ACCU	AIR COOLED CONDENSING UNIT
ACM	ALUMINUM COMPOSITE MATERIAL
ACST	ACOUSTIC
AD	AREA DRAIN
AD	ACCESS DOOR
ADDN	ADDITION OR ADDITIONAL
ADJ	ADJUSTABLE
ADJT	ADJACENT, ADJOINING
ADMIN	ADMINISTRATION
ADO	AUTOMATIC DOOR OPENER
AF	AIR FILTER
AFC	ABOVE FINISHED COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGF	AIR GAP FITTING
AHJ	AUTHORITY HAVING JURISDICTION
AHRI	AIR-CONDITIONING HEATING AND REFRIGERATION INSTITUTE
AHU	AIR HANDLING UNIT
AI	AREA INLET
AI	ANALOG INPUT
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMBA	AMERICAN BOILER MANUFACTURERS ASSOCIATION
AMP	AMPERE
ANCH	ANCHOR
AP	ACCESS PANEL
APC	ACOUSTIC PANEL CEILING
APPROX	APPROXIMATE
AR	ACID RESISTING
AR	ARGON
ARCH	ARCHITECTURAL
AS	AIR SEPARATOR
ASB	ASBESTOS
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPH	ASPHALT
AUTO	AUTOMATIC
AV	AUDIO-VIDEO, AUDIO-VISUAL
AV	ACID VENT
AV	AIR VENT
AVG	AVERAGE
AW	ACID WASTE
AWG	AMERICAN WIRE GAUGE
AWP	ACOUSTIC WALL PANEL
B	BOILER
B to B	BACK TO BACK
BAS	BUILDING AUTOMATION SYSTEM
BAT	BATTERY
BBO	BOILER BLOW OFF
BC	BALANCING COCK
BC	BARE COPPER
BCMU	BURNISHED CONCRETE MASONRY UNIT
BD	BOARD
BDD	BACK DRAFT DAMPER
BET	BETWEEN
BF	BOILER FEED
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BFR	BELOW FLOOR
BFV	BUTTERFLY VALVE
BHP	BREAK HORSEPOWER
BI	BACKWARD INCLINED (FAN IMPELLER/WHEEL)
BKR	BREAKER
BL	BUILDING LINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BM	BENCH MARK
BM(S)	BEAM(S)
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOF	BOTTOM OF FOOTING
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BPIP	BOILER PLANT INSTRUMENTATION PANEL
BRDG	BRIDGING
BRG	BEARING
BRKT	BRACKET
BSMT	BASEMENT
BT	BATHTUB
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BUR	BUILT UP ROOFING
BV	BALL VALVE
C	CONDUIT
C	CONDENSER WATER
CA	COMBUSTION AIR
CANT	CANTILEVER
CAP	CAPACITY
CAS	CASING
CBD	COUNTER-BALANCED DAMPER
CBD	CHALKBOARD
CC	COOLING COIL
CCR	CONTROL CONTRACTOR
CCTV	CLOSED CIRCUIT TELEVISION
CD	CONDENSATE DRAIN
CD	CEILING DIFFUSER
CD	CONSTRUCTION DOCUMENTS
CDA	CLEAN DRY AIR (COMPRESSED AIR)
CDF	COMBINATION DRINKING FOUNTAIN & BOTTLE FILLING STATION
CE	COVER ELEVATION
CEM	CEMENT
CENT	CENTRIFUGAL
CER	CERAMIC
CF	CUBIC FEET
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CG	CORNER GUARD
CH	CHILLER
CH	CHANNEL
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CI	CURB INLET
CIP	CAST IN PLACE
CIP	CAST IRON PIPE
CIRC	CIRCULATING
CJ	CONTROL JOINT
CJ	CONSTRUCTION JOINT
CJA	CONTROL JOINT ABOVE
CKT	CIRCUIT
CKT BK	CIRCUIT BREAKER
CL	CENTER LINE
CL	CIRCUIT LINE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR
CM	CEILING MOUNTED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CO	CARBON MONOXIDE
CO	CONDUIT ONLY
CO2	CARBON DIOXIDE
COL	COLUMN
COMB	COMBINATION
COMM	COMMUNICATIONS
COMP	COMPRESSOR UNIT
COMP	COMPOSITE
COMPR	COMPRESSIBLE
CONC	CONCRETE
COND	CONDENSATE
CONF	CONFERENCE
CONFIG	CONFIGURATION
CONN(S)	CONNECTION(S)
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACT(OR)
CONV	CONVECTOR
COOR	COORDINATE
COORD	COORDINATE
CP	CONDENSATE PUMP
CP	COVER PLATE
CPS	CYCLES PER SECOND
CPT	CARPET
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CORROSION RESISTANT
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CS	COUNTERSINK
CS	COMBINATION SEWER
CS	CARBON STEEL
CSK	COUNTERSUNK
CSMU	CALCIUM SILICATE MASONRY UNIT
CSP	COMBINATION STANDPIPE
CSWK	CASEWORK
CT	COOLING TOWER
CT	CERAMIC TILE
CT	CURRENT TRANSFORMER
CTL	CONTROL
CTR	CENTER
CU	COPPER
CU	CONDENSING UNIT
CU	CUBIC
CU	COMBINATION UNIT
CUH	CABINET UNIT HEATER
CW	COLD WATER
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWV	COMBINATION WASTE AND VENT
CY	CUBIC YARD
CYL	CYLINDER
D	DRAIN
D	DIFFUSER
D	DEPTH
D	DATA
d	PENNY (NAIL 10D)
DB	DECIBEL
DB	DRY BULB
DBA	DECIBELS A
DBL	DOUBLE
DC	DIRECT CURRENT
DC	DUST COLLECTOR
DCJ	DUMMY CONTROL JOINT
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DEMO	DEMOLISH OR DEMOLITION
DEPR	DEPRESS(ION)(ED)
DEPT	DEPARTMENT
DET	DETAIL
DET	DETENTION
DF	DRINKING FOUNTAIN
DFR	DIESEL FUEL RETURN
DFS	DIESEL FUEL SUPPLY
DFU	DRAINAGE FIXTURE UNIT
DFV	DIESEL FUEL VENT
DG	DOOR GRILLE
DH	DUCT HEATER
DHU	DEHUMIDIFICATION UNIT
DI	DEIONIZED WATER
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIC	DISCHARGE
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISC SW	DISCONNECT SWITCH
DISCH	DISCHARGE
DISTR	DISTRIBUTION
DIV	SPECIFICATION DIVISION
DL	DRUM LOUVER
DL	DEAD LOAD
DM	DAMPER MOTOR
DMPR	DAMPER
DN	DOWN
DO or "	DITTO
DOAS	DEDICATED OUTDOOR AIR SYSTEM UNIT
DOE	DEPARTMENT OF ENERGY
DP	DIFFERENTIAL PRESSURE
DPFG	DAMPROFFING
DPI	DIFFERENTIAL PRESSURE INDICATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
DR	DOOR
DR	DRAIN
DS	DISTILLED WATER
DS	DOWNSPOUT
DSN	DOWNSPOUT NOZZLE
DSP	DRY STANDPIPE
DSPR	DRY SPRINKLER PIPING
DSPR	DRY SPRINKLER PIPE
DSTB	DISTRIBUTED
DTL	DETAIL
DTR	DUCT THRU ROOF
DW	DISHWASHER
DWBP	DOMESTIC WATER BOOSTER PUMP
DWDI	DOUBLE WIDTH DOUBLE INLET
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
DWR	DRAWER
DWRP	DOMESTIC WATER RECIRCULATING PUMP
DX	DIRECT EXPANSION
DXS	DOUBLE EXTRA STRONG
E	EAST
EA	EACH
EA	EXHAUST AIR
EA	EACH FACE
EAT	ENTERING AIR TEMPERATURE
EB	ELECTRIC BASEBOARD RADIATION
EB	EXPANSION BOLT
EBH	ELECTRIC BASIN HEATER
EC	ELECTRICAL CONTRACTOR
ECON	ECONOMIZER
ECS	EMERGENCY COMMUNICATION SYSTEM
EDH	ELECTRIC DUCT HEATER
EE	EACH END
EER	ENERGY EFFICIENCY RATIO
EEW	EMERGENCY EYE WASH
EEWS	EMERGENCY EYE WASH SHOWER
EF	EXHAUST FAN
EF	EACH FACE
EFF	EFFICIENCY
EG	EXHAUST AIR GRILLE
EH	ELECTRICAL HEATER
EIFS	EXTEROR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELAS	ELASTOMERIC
ELEC	ELECTRICAL(AL)
ELEV	ELEVATOR
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EMD	ESTIMATED MAXIMUM DEMAND
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EMV	EMERGENCY MIXING VALVE
ENCL	ENCLOSURE
ENT	ENTERING
ENTR	ENTRANCE
EOMD	END OF MAIN DRIP
EP	ELECTRO-PNEUMATIC
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ER	EXISTING (TO BE) RELOCATED
ER	EXHAUST REGISTER
ERA	ENERGY RECOVERY AIR
ERF	EPOXY RESIN FLOORING
ES	EMERGENCY SHOWER
ES	EXTRA STRONG
ESP	EXTERNAL STATIC PRESSURE
EST	ESTIMATE
ET	EXPANSION TANK
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXP	EXPOSED
EXPL	EXPLOSION
EXT	EXTERIOR
F	FAHRENHEIT
F	FIRELINE
F	FURNACE
F	FACE
F	FIRE SERVICE
FA	FIRE ALARM
FA	FACE
FA	FRESH AIR
FAA	FIRE ALARM ANNUNCIATOR
FAB	FABRICATE(D)
FACP	FIRE ALARM CONTROL PANEL
FB	FACE BRICK
FC	FLUID COOLER
FCMU	FLUTED CONCRETE MASONRY UNIT
FCO	FLOOR CLEAN OUT
FCU	FAN COIL UNIT
FCV	FLOW CONTROL VALVE
FCW	FILTERED COLD WATER
FD	FLOOR DRAIN
FD	FIRE DAMPER
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDNDR	FOUNDATION DRAIN
FDR	FEEDER
FDV	FIRE DEPARTMENT VALVE
FDVC	FIRE DEPARTMENT VALVE CABINET
FE	FIRE EXTINGUISHER
FEA	FUME HOOD EXHAUST AIR
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FH	FIRE HYDRANT
FH	FILTER HOUSING
FHC	FIRE HOSE CABINET
FIG	FIGURE
FIN	FINISHED
FIX	FIXTURE
FL	FLOOR
FLA	FULL LOAD AMPS
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG	FLOORING
FLM	FULL LENGTH MIRROR
FLUOR	FLUORESCENT
FM	FIRE MAIN
FM	FORCE MAIN
FM	FACTORY MUTUAL
FMCS	FACILITIES MANAGMENT CONTROL SYSTEM
FME	FLOW MEASURING EQUIPMENT
FNPT	FEMALE NPT
FO	FINISH OPENING
FO	FACE OF
FOC	FACE OF CONCRETE
FOF	FUEL OIL FILL
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOS	FACE OF STUD
FOV	FUEL OIL VENT
FOW	FACE OF WALL
FP	FIRE PUMP
FP	FIREPROOFING
FPB	FAN POWERED VAV TERMINAL
FPD	FIRE PUMP DISCHARGE
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FR	FIRE RESISTANT
FR	FIRE RESISTIVE
FR	FRAME
FRP	FIBERGLASS REINFORCED PANEL
FS	FLOW SWITCH
FS	FLOOR SINK
FSD	FIRE SMOKE DAMPER
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FT	FIN TUBE
FT	FLOW TRANSMITTER
FTG	FOOTING
FURN	FURNISH(ED)
FUT	FUTURE
FV	FIELD VERIFY
FV	FACE VELOCITY
FVC	FIRE VALVE CABINET
FWC	FABRIC WALL COVERING
G	GRILLE
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAD BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT
GCO	GRADE CLEAN OUT
GD	GARBAGE DISPOSAL
GEA	GREASE EXHAUST AIR
GEN	GENERATOR
GEN	GENERAL
GFA	GROSS FLOOR AREA
GFCMU	GROUND-FACE CONCRETE MASONRY UNIT
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFRC	GLASS FIBER REINFORCED CONCRETE
GHR	GLYCOL-WATER HEATING RETURN
GHS	GLYCOL-WATER HEATING SUPPLY
GI	GALVANIZED IRON
GL	GLUE LAMINATED
GL	GLASS
GMU	GLASS MASONRY UNIT
GND	GROUND
GOVT	GOVERNMENT
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GUARD RAIL
GR	GRADE
GR	GRILLE
GRC	GLASS REINFORCED CONCRETE
GRC	GALVANIZED RIGID CONDUIT
GRC	GLASS REINFORCED CONCRETE
GRD	GRILLES, REGISTERS AND DIFFUSERS
GRGP	GLASS REINFORCED GYPSUM PLASTER
GRS	GALVANIZED RIGID STEEL
GRV	GRAVITY VENTILATOR
GS	GASOLINE
GV	GATE VALVE
GV	GREASE VENT
GVBF	GREASE VENT BELOW FLOOR
GW	GREASE WASTE
GWB	GYPSUM WALL BOARD
GWR	GEOTHERMAL WATER RETURN
GWS	GEOTHERMAL WATER SUPPLY
GYP	GYPSUM
H	HEIGHT
H1E	HOOK ONE END
H2	HYDROGEN
HB	HOSE BIB
HC	HEATING COIL
HC	HOLLOW CORE
HC	HANDICAP
HCB	HANDICAP BENCH
HCR	HOT/CHILLED WATER RETURN
HCS	HOT/CHILLED WATER SUPPLY
HCW	HARD COLD WATER
HD	HAND DRYER
HDBD	HARDBOARD
HDCP	HANDICAP
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HE	HELIUM
HEV	HOSE END VALVE
HGR	HANGER
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HOA	HAND-OFF-AUTOMATIC
HORIZ	HORIZONTAL
HP	HORSE POWER
HP	HEAT PUMP
HP	HIGH PRESSURE
HPC	HIGH PRESSURE STEAM CONDENSATE
HPNG	HIGH PRESSURE NATURAL GAS
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HRO	HOT REVERSE OSMOSIS
HROC	HOT REVERSE OSMOSIS RECIRCULATION
HRWR	HEAT RECOVERY WATER RETURN
HRWS	HEAT RECOVERY WATER SUPPLY
HS	HEADSTUD
HSPF	HEAT SEASONAL PERFORMANCE FACTOR
HSTR	HIGH STRENGTH
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HTWR	HIGH TEMPERATURE HOT WATER RETURN
HTWS	HIGH TEMPERATURE HOT WATER SUPPLY
HUM	HUMIDIFIER
HV	HEATING VENTILATING UNIT
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER RECIRCULATING
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ (FREQUENCY)
i.e.	THAT IS
IAQ	INDOOR AIR QUALITY
IAW	IN ACCORDANCE WITH
IB	INFRARED BURNER
IBC	INTERNATIONAL BUILDING CODE
IC	INTERCOM
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IECC	INTERNATIONAL ENERGY CONSERVATION CODE
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IF	INSIDE FACE
IG	ISOLATED GROUND
IH	INTAKE HOOD
IJ	ISOLATION JOINT
IJS	IN JOIST SPACE
IMC	INTERNATIONAL MECHANICAL CODE
IMC	INTERMEDIATE METAL CONDUIT
IN	INCH
IN HG	INCHES OF MERCURY (PRESSURE)
IN WC	INCHES OF WATER COLUMN (PRESSURE)
INC	INCLUDE(ING)
INSUL	INSULATION
INT	INTERIOR
IP	IRON PIPE
IPC	INTERNATIONAL PLUMBING CODE
IPS	IRON PIPE SIZE
IW	INDIRECT WASTE
JAN	JANITOR
JB	JUNCTION BOX
JCT	JUNCTION
JFB	JOINT FILLER BOARD
JST	JOIST
JT	JOINT
KCJ	KEYED CONSTRUCTION JOINT
KCP	KEENE'S CEMENT PLASTER
KD	KNOCKDOWN
KH	KITCHEN HOOD
KHE	KITCHEN HOOD EXHAUST FAN
KHS	KITCHEN HOOD SUPPLY FAN
KIT	KITCHEN
KO	KNOCKOUT
KS	KITCHEN SINK
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
L	ANGLE
LA	LABRATORY COMPRESSED AIR
LAB	LABORATORY
LAM	LAMINATED
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB(S)	POUND(S)
LBR	LUMBER
LDG	LOADING
LF	LINEAR FOOT
LG	LENGTH (LONG)
LIN	LINEAR
LINO	LINOLEUM
LKR	LOCKER
LL	LIVE LOAD
LLH	LONG LENGTH HORIZONTAL
LLV	LONG LENGTH VERTICAL
LN2	LIQUID NITROGEN
LO2	LIQUID OXYGEN
LOC	LOCATION
LONG	LONGITUDINAL
LPG	LIQUIFIED PETROLEUM GAS (PROPANE)
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LR	LIVING ROOM
LS	LAWN SPRINKLER
LSC	LIFE SAFETY CODE
LT	LIGHT
LTD	LINED TRANSFER DUCT
LTG	LIGHTING
LV	LOUVER
LV	LABORATORY VACUUM
LVG	LEAVING
LW	LONG WAY
LWT	LEAVING WATER TEMPERATURE
M	THOUSAND
MA	MIXED AIR
MA	MAKE-UP AIR
MA	MEDICAL COMPRESSED AIR
MAC	MACHINE
MAG	MAGNETIC
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MAU	MAKEUP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MB	MACHINE BOLT
MBD	MARKER BOARD
MBH	THOUSAND BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MC	MEDICINE CABINET
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCM	METAL COMPOSITE MATERIAL
MD	MOTORIZED DAMPER
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MFRG	MANUFACTURING
MG	MOTOR GENERATOR
MH	MANHOLE
MH	METAL HALIDE
MH	MOP HOLDER
MIN	MINIMUM
MISC	MISCELLANEOUS
MISC	MISCELLANEOUS
ML	MOTORIZED LOUVER
MLDG	MOLDING
MLO	MAIN LUGS ONLY
MLWK	MILLWORK
MO	MASONRY OPENING
MOCP	MAXIMUM OVERCURRENT PROTECTION
MPG	MEDIUM PRESSURE GAS
MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
MR	MIRROR
MR/S	MIRROR WITH SHELF
MS	MAGNETIC STARTER
MS	MOP SINK
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MTWR	MEDIUM TEMP HOT WATER RETURN
MTWS	MEDIUM TEMP HOT WATER SUPPLY
MUL	MULLION
MV	MEDICAL VACUUM
MV	MERCURY VAPOR
MW	MARKER WALL
N	NITROGEN
N	NORTH
N2	LABORATORY NITROGEN
N2O	NITROUS OXIDE
N20	NITROUS OXIDE
N/A	NOT APPLICABLE
NA	NOT APPLICABLE
NAT	NATURAL
NC	NORMALLY CLOSED
NC	NOISE CRITERIA
NC	NURSE CALL
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN.
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO	NUMBER
NO2	NITROGEN DIOXIDE
NOM	NOMINAL
NRS	NON RISING STEM
NS	NEUTRAL SENSOR
NTS	NOT TO SCALE
NV	NITROGEN VENT
O2	OXYGEN
O to O	OUT TO OUT
O&M	OPERATION AND MAINTENANCE
OA	OUTSIDE AIR
OBSC	OBSCURE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OF	OUTSIDE FACE
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OWNER FURNISHED OWNER INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OSD	OVERFLOW STORM DRAIN
OTCS	OPEN TO CEILING SPACE
OV	OIL VENT
OVFL	OVERFLOW
OVHD	OVERHEAD
OW	OIL WASTE
P	POLE(S)
P	PUMP
P/T	PRESSURE/TEMPERATURE TEST PORT
PA	PUBLIC ADDRESS
PAN B	PANIC BOLT
PAR	PARALLEL
PB	PULL BOX
PB	PUSH BUTTON
PB	PARTICLE BOARD
PBS	PUSH BUTTON STATION
PC	PRECAST CONCRETE
PC	PUMPED CONDENSATE
PCD	PAPER CUP DISPENSER
PCF	POUNDS PER CUBIC FOOT
PCT	PORCELAIN CERAMIC TILE
PCV	PRESSURE CONTROL VALVE
PCWP	PROCESS COOLING WATER PUMP
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP
PD	PUMP DISCHARGE
PDI	PLUMBING & DRAINAGE INSTITUTE
PENT	PENTHOUSE
PERF	PERFORATED
PERP	PERPENDICULAR
PF	POWER FACTOR
PG	PRESSURE GAUGE
PG	PROPANE GAS
PH	PHASE
PHC	PRE-HEAT COIL
PI	POINT OF INTERSECTION
PI	PRESSURE INDICATOR
PIC	PORTABLE INSTRUMENT CONNECTION
PIV	POST INDICATOR VALVE
PL	PLATE
PL	PLACE(S)
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD

GENERAL PLUMBING NOTES

1.1 GENERAL PLUMBING NOTES

A. THESE NOTES SHALL BE GENERALLY APPLIED TO ALL PLUMBING DRAWINGS. AS THEY ARE GENERAL IN NATURE, THEY MAY NOT BE SPECIFICALLY CALLED OUT ON THE PLANS. REFERENCE THE INDIVIDUAL DRAWINGS AS WELL AS DIVISION 22 SPECIFICATIONS FOR ADDITIONAL CONTRACTUAL REQUIREMENTS.

B. SHOULD ANY CONFLICT OCCUR BETWEEN ANY PORTIONS OF THE CONTRACT DOCUMENTS (DRAWINGS AND SPECIFICATIONS), THE CONTRACTOR IS DEEMED TO HAVE BASED THEIR BID/PRICE ON THE MORE EXPENSIVE MATERIAL, EQUIPMENT, PRODUCT OR WORK, UNLESS THEY HAVE REQUESTED AND OBTAINED A WRITTEN CLARIFICATION OR DECISION IN REGARD TO THE CONFLICT FROM THE ARCHITECT/ENGINEER.

C. DRAWINGS AND MEASUREMENTS:

1. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL SCOPE OF THE WORK I.E., ARRANGEMENT OF SYSTEMS AND EQUIPMENT, EXCEPT WHEN THEY HAVE BEEN SPECIFICALLY DIMENSIONED OR DETAILED.
2. PLUMBING PLANS ARE INTENDED TO SHOW SIZE, CAPACITY, APPROXIMATE LOCATION, DIRECTION, AND GENERAL RELATIONSHIP OF ONE WORK TRADE TO ANOTHER.
3. COORDINATION: THE PLUMBING DESIGN SHALL BE COORDINATED WITH ALL OTHER ASPECTS OF THE BUILDING. TO THAT END, THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND CIVIL DRAWINGS WHERE AVAILABLE, AS WELL AS PHYSICALLY OBSERVING FIELD CONDITIONS BEFORE PERFORMING ANY WORK. EXTRAS WILL NOT BE PAID TO MOVE PIPING DUE TO CONFLICTS ARISING FROM LACK OF COORDINATION.
   a. REFER TO THE ARCHITECTURAL DRAWINGS FOR BUILDING ELEVATIONS, CEILING DETAILS, PARTITIONS, AND OCCUPANCIES.
   b. REFER TO STRUCTURAL DRAWINGS TO COORDINATE PIPING LAYOUT WITH STRUCTURAL ELEMENTS OF THE BUILDING.
   c. REFER TO THE FIRE PROTECTION DRAWINGS (WHEN AVAILABLE) AND MECHANICAL DRAWINGS TO ASSESS THE CONGESTION ABOVE CEILINGS. THE PLUMBING CONTRACTOR SHALL SPECIFICALLY BE CONSCIOUS OF ANY HORIZONTAL MECHANICAL EQUIPMENT LOCATIONS AS WELL AS THEIR CLEAR SERVICE SPACE REQUIREMENTS IN ADDITION TO ANY DUCTWORK OR HYDRONIC PIPING.
   d. CONTRACT DRAWINGS SHALL ONLY SERVE TO SHOW THE GENERAL ARRANGEMENT OF EQUIPMENT AND STRUCTURE. SUCH DRAWINGS SHALL NOT BE CONSIDERED A SUBSTITUTE FOR FIELD VERIFICATION OF CONDITIONS. COORDINATION SHALL OCCUR PRIOR TO FABRICATION, PURCHASE, AND/OR INSTALLATION OF ALL WORK. DISCUSS, COORDINATE AND COOPERATE WITH OTHER TRADES AND COORDINATE THE WORK WITH THEIRS. COORDINATE CEILING CAVITY SPACE CAREFULLY WITH OTHER TRADES. BRING ANY CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER.
   e. AS THE DRAWINGS ARE OF SMALL SCALE, IT IS NOT POSSIBLE TO SHOW ALL NECESSARY OFFSETS, FITTINGS, AND ACCESSORIES. OBTAIN EXACT LOCATIONS, FIELD MEASUREMENTS, ETC., AT THE SITE PRIOR TO THE FABRICATION OF ANY MATERIAL OR ORDERING OF EQUIPMENT.
4. THE DESIGN (DRAWINGS AND SPECIFICATIONS) ARE BASED ON THE CHARACTERISTICS OF THE EQUIPMENT SCHEDULED / SPECIFIED. ALL CHANGES REQUIRED BY THE USE OF OTHER MANUFACTURERS (INCLUDING MANUFACTURERS THAT ARE LISTED IN THE SPECIFICATIONS) SHALL BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
   a. THESE CHANGES SHALL INCLUDE, BUT NOT BE LIMITED TO REVISIONS TO FOUNDATIONS, ELECTRICAL CHANGES, SPACE REQUIRED FOR PLACEMENT OF EQUIPMENT, EQUIPMENT BASES, PIPING, CONTROLS, WIRING, WALL OR BUILDING OPENINGS, SERVICE ACCESS REQUIREMENTS, PIPING AND STRUCTURAL MODIFICATIONS.

D. REFER TO THE CODE PLANS FOR FIRE AND/OR SMOKE CONSTRUCTION RATINGS. MAINTAIN INDICATED FIRE AND/OR SMOKE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE AND DUCT PENETRATIONS. SEAL PIPE AND DUCT PENETRATIONS WITH FIRESTOP MATERIALS. REFER TO DIVISION 07 SECTIONS PENETRATION FIRESTOPPING AND JOINT FIRESTOPPING FOR THROUGH-PENETRATION FIRESTOP ASSEMBLY PRODUCT SPECIFICATIONS. INSTALLATION OF FIRESTOP MATERIALS IS SPECIFIED AS WORK OF DIVISION 22.

E. WORK SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE APPLICABLE CODES, LOCAL AMENDMENTS, LAWS AND GOVERNING BODIES. WHERE THE PLANS AND/OR SPECIFICATIONS EXCEED THE GOVERNING CODE REQUIREMENTS, THE PLANS AND SPECIFICATIONS WILL GOVERN.

F. PROVIDE COORDINATION DRAWINGS WHERE REQUIRED BY THE SPECIFICATIONS. RFIs RELATED TO COORDINATION ITEMS WILL NOT BE REVIEWED UNLESS COORDINATION DRAWINGS HAVE BEEN SUBMITTED.

G. REFER TO THE PLUMBING FIXTURE SCHEDULE FOR NON-ACCESSIBLE PLUMBING FIXTURE MOUNTING HEIGHTS. COORDINATE WITH THE ARCHITECTURAL PLANS FOR THE MOUNTING HEIGHT OF ACCESSIBLE PLUMBING FIXTURES.

H. ALL MATERIALS EXPOSED WITHIN AN AIR PLENUM SHALL BE NONCOMBUSTIBLE OR HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPMENT INDEX OF NOT MORE THAN 50.

I. WHERE LOCATIONS OF ANY EXISTING UTILITY SERVICES ARE SHOWN, THEY SHALL BE CONSIDERED AS "APPROXIMATE". EXACT LOCATIONS OF ANY EXISTING UTILITY SERVICES SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO BEGINNING ANY CONSTRUCTION OR EXCAVATION. COORDINATE UTILITY SERVICE CONNECTION POINTS WITH EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES. COMPLY WITH REQUIREMENTS OF GOVERNING REGULATIONS, FRANCHISED SERVICE COMPANIES, AND CONTROLLING AGENCIES. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL BEAR ALL COSTS ASSOCIATED WITH DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION.

J. EQUIPMENT LOCATION AND ACCESS

1. LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN ACCESSIBLE LOCATIONS. EQUIPMENT SHALL INCLUDE BUT NOT BE LIMITED TO WATER HEATERS, WATER CONDITIONING EQUIPMENT, VALVES, TRAPS, CLEANOUTS, MOTORS, CONTROLLERS, AND LOW POINT DRAIN LOCATIONS. MINOR DEVIATIONS FROM THE CONTRACT DRAWINGS MAY BE ALLOWED TO PROVIDE BETTER ACCESSIBILITY UNDER THE CONDITION THE CHANGES ARE REVIEWED & APPROVED BY THE ARCHITECT/ENGINEER PRIOR TO MAKING THE CHANGE.
2. INACCESSIBLE INSTALLATION: WHERE THE ENGINEER DETERMINES THAT THE CONTRACTOR HAS INSTALLED EQUIPMENT SUCH THAT IT IS NOT CONVENIENTLY ACCESSIBLE FOR OPERATION AND/OR MAINTENANCE, THE EQUIPMENT WILL BE REMOVED AND REINSTALLED OR REMEDIAL ACTION SHALL BE PERFORMED AS SO AS TO MAKE THE INSTALLATION CONVENIENTLY ACCESSIBLE AT NO ADDITIONAL COST TO THE OWNER. THE TERM "CONVENIENTLY ACCESSIBLE" IS DEFINED AS CAPABLE OF BEING REACHED WITHOUT THE USE OF LADDERS, OR WITHOUT CLIMBING OR CRAWLING UNDER OR OVER OBSTACLES SUCH AS ELECTRICAL CONDUIT, MOTORS, FANS, PUMPS, BELT GUARDS, TRANSFORMERS, HIGH VOLTAGE LINES, PIPING, AND DUCTWORK.
   a. EXCEPTION: ACCESSING VALVES FROM A LADDER IS ACCEPTABLE WHEN INSTALLED AS OUTLINED IN OTHER PARAGRAPHS OF THESE NOTES. ACCESSING POINT-OF-USE WATER HEATER(S) THAT ARE LOCATED ABOVE A CEILING WHERE INDICATED AND DETAILED ON THE DRAWINGS.

K. PIPE RUNS SHALL BE INSTALLED TO AVOID INTERFERENCE WITH OTHER WORK/TRADES. INSTALL PIPING AT RIGHT ANGLES TO OR PARALLEL WITH BUILDING WALLS OR COLUMN CENTER LINES. DIAGONAL PIPING RUNS ARE PROHIBITED UNLESS SPECIFICALLY INDICATED OTHERWISE. LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER. SPACE PIPING INCLUDING ANY INSULATION TO PROVIDE A 1-INCH MINIMUM CLEARANCE BETWEEN ADJACENT PIPING OR OTHER SURFACES. SPACE PIPING TO PERMIT VALVE SERVICING OR REPLACEMENT.

L. IN AREAS WHERE PIPING IS INSTALLED ABOVE A CEILING AND THERE IS CONGESTED CEILING SPACE, INSTALL THE PIPING AS HIGH AS POSSIBLE WHILE GIVING CONSIDERATION OF OTHER TRADES AND THE SERVICEABILITY OF THE SYSTEMS. WHERE VALVES ARE SHOWN, THEY SHALL BE INSTALLED NO MORE THAN 18-INCHES ABOVE THE CEILINGS. IF IT IS NECESSARY TO INSTALL OFFSET(S) IN THE PIPING SO THE VALVES ARE INSTALLED NO MORE THAN 18-INCHES ABOVE THE CEILINGS, INSTALL A DRAIN VALVE WITH HOSE END CONNECTION FOR EACH SYSTEM ADJACENT TO THE ISOLATION VALVE(S). IF THERE IS AN OFFSET UP ON THE OUTLET SIDE OF THE ISOLATION VALVE(S), THEN PROVIDE A SECOND DRAIN VALVE AT THAT LOCATION.

M. IN AREAS WHERE PIPING IS EXPOSED, INSTALL THE PIPING AS HIGH AS POSSIBLE. IF PRACTICABLE, INSTALL PIPING TIGHT TO STRUCTURE AND/OR STACKED ALONG AND TIGHT TO WALLS.

N. PLUMBING EQUIPMENT, PIPING, OR ACCESSORIES SHOULD NOT BE LOCATED WITHIN ELECTRICAL EQUIPMENT ROOMS UNLESS INDICATED ON THE DRAWINGS. WHERE PIPING AND EQUIPMENT ARE INDICATED TO BE INSTALLED WITHIN ELECTRICAL EQUIPMENT ROOMS, MAINTAIN THE ELECTRICAL CODE REQUIRED WORKING AND DEDICATED SPACES.

O. PLUMBING EQUIPMENT, PIPING, OR ACCESSORIES NOT USED IN CONNECTION WITH THE OPERATION OF THE ELEVATOR SHALL NOT BE INSTALLED IN ANY HOSTWAY, MACHINERY SPACE, MACHINE ROOM, CONTROL SPACE OR CONTROL ROOM.

P. PLUMBING EQUIPMENT, PIPING, OR ACCESSORIES SHALL NOT PASS THRU OR OVER ANY SERVER (COMM / IT) ROOMS.

Q. RUN CW, HW AND HWC LINES FULL SIZE THE ENTIRE LENGTH OF THE PLUMBING CHASE. BRANCH OFF TO INDIVIDUAL PLUMBING FIXTURES WITH PIPE SIZES AS SHOWN ON THE PLUMBING FIXTURE CONNECTION SCHEDULE. REFER TO PLUMBING RISER / ISOMETRIC DIAGRAMS FOR PIPING SIZES NOT SHOWN ON THE PLANS OR PLUMBING FIXTURE CONNECTION SCHEDULE.

R. INSTALL HANGERS FOR METALLIC PIPE AND TUBING NOT TO EXCEED THE MAXIMUM HORIZONTAL AND VERTICAL SPACING AND MINIMUM HANGER ROD DIAMETERS TO COMPLY WITH THE APPLICABLE CODES, MSS SP-58 STANDARD PRACTICE FOR PIPE HANGERS AND SUPPORTS, LOCALLY ENFORCED CODES AND AHJ REQUIREMENTS, WHICHEVER ARE MOST STRINGENT. WHERE CONFLICTS ARISE BETWEEN THE PLUMBING CODE REQUIREMENTS, MSS SP-58 AND THE PROJECT SPECIFICATIONS, THE MOST RESTRICTIVE OR THE REQUIREMENT THAT SPECIFIES SUPPORTS WITH HIGHEST LOAD RATING OR SHORTEST HANGER SPACING SHALL APPLY.

1. WHERE HANGER SPACING DOES NOT CORRESPOND WITH JOIST OR RIB SPACING, USE STRUCTURAL STEEL CHANNELS SECURED DIRECTLY TO JOIST AND RIB STRUCTURE TO MEET THE REQUIRED HANGER SPACING. THEN, SUSPEND THE EQUIPMENT AND PIPING FROM THE CHANNELS. HOLES WILL NOT BE DRILLED OR BURNED IN STRUCTURAL STEEL WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
2. PROVIDE ADDITIONAL SUPPORTS AT VALVES, STRAINERS, INLINE PUMPS AND OTHER HEAVY COMPONENTS. PROVIDE SUPPORT WITHIN ONE FOOT OF EACH PIPE ELBOW.
3. INSTALL HANGERS FOR PLASTIC, FRP OR GLASS PIPING WITH THE MAXIMUM HORIZONTAL SPACING AND MINIMUM ROD DIAMETERS, TO COMPLY WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, LOCALLY ENFORCED CODES, AND AUTHORITIES HAVING JURISDICTION REQUIREMENTS, WHICHEVER ARE MOST STRINGENT.
4. SUPPORT VERTICAL RUNS OF PLASTIC, FRP OR GLASS PIPING TO COMPLY WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, LOCALLY ENFORCED CODES, AND AUTHORITIES HAVING JURISDICTION REQUIREMENTS, WHICHEVER ARE MOST STRINGENT.
5. THE USE OF CHAINS, WIRE, CABLE OR STRAP HANGERS ARE NOT ALLOWED FOR PIPE SUPPORTS.
6. REFER TO GENERAL SEISMIC NOTES FOR ADDITIONAL REQUIREMENTS FOR PROJECTS SUBJECTED TO SEISMIC DESIGN REQUIREMENTS.

S. PROVIDE SHUT OFF VALVES FOR ALL BRANCH WATER PIPING WHERE THE BRANCH CONNECTS TO THE MAIN AS SHOWN. LOCATE / ORIENT THE VALVES TO PERMIT PROPER OPERATION AND ACCESS FOR MAINTENANCE. GENERALLY, LOCATE VALVE STEMS IN OVERHEAD PIPING IN HORIZONTAL POSITION. PROVIDE A UNION ADJACENT TO ONE END OF ALL THREADED END VALVES. AS A RULE, THE VALVES SHALL BE INSTALLED NO MORE THAN 18-INCHES ABOVE AN ACCESSIBLE CEILING. IF THE CEILING IS NOT ACCESSIBLE, PROVIDE A MINIMUM 18" X 18" SIZE LOCKABLE ACCESS PANEL TO ACCESS TO SERVICE AND/OR REPLACE THE VALVES.

1. ANY BRANCH PIPING FROM MAIN SERVING MORE THAN ONE PLUMBING FIXTURE SHALL HAVE SHUT-OFF VALVES.

T. SANITARY DRAINAGE PIPING SHALL SLOPED IN ACCORDANCE WITH THE TABLE BELOW FROM THE 2021 INTERNATIONAL PLUMBING CODE.

PIPE SIZE (IN)	[ICC 2021] MINIMUM SLOPE (INCH PER LF)
< = 2.5	1/4
3 TO 6	1/8
> = 8	1/16

U. GREASE WASTE DRAINAGE PIPING UPSTREAM OF A GREASE INTERCEPTOR SHALL SLOPE AT NOT LESS THAN 1/4 INCH PER FOOT.

V. CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY OR ONTO GRADE. CONDENSATE DRAINS FROM ALL COOLING COILS AND EVAPORATORS SHALL BE CONVEYED FROM THE DRAIN PAN OUTLET TO A DRYWELL AS SHOWN ON THE PLANS.

W. EACH PLUMBING VENT SHALL TERMINATE NOT LESS THAN 10 FEET FROM, OR NOT LESS THAN 3-FEET ABOVE, AN OPENABLE WINDOW, DOOR, OPENING, AIR INTAKE, OR VENT SHAFT, OR NOT LESS THAN 3-FEET IN EVERY DIRECTION FROM A LOT LINE, ALLEY AND STREET EXCEPTED. WHEN INSTALLED ABOVE THE ROOF, THE PLUMBING VENTS SHALL BE LOCATED 3-FEET ABOVE A FLAT ROOF WHERE HEAVY SNOWFALL IS ANTICIPATED. FOR HOSPITAL APPLICATIONS, PLUMBING VENT PIPING SHALL TERMINATE NOT LESS THAN TWENTY-FIVE (25) FEET FROM ANY AIR INTAKE OR VENT SHAFT.

X. PROVIDE CLEANOUTS (FLOOR OR WALL AS REQUIRED) EVERY 100', AT AGGREGATE CHANGES IN DIRECTION IN EXCESS OF 45°, AT THE END OF ALL SANITARY AND STORM DRAIN RUNS, AND AT THE BASE OF ALL SEWER AND STORM DRAIN STACKS. PROVIDE WHETHER INDICATED ON PLANS OR NOT BASED ON ACTUAL FIELD ROUTING.

Y. CLEANOUTS SHALL NOT BE LOCATED ABOVE CEILINGS FOR WASTE SYSTEMS. IN AREAS REQUIRING WASTE DRAIN PIPING UNDER SUPPORTED STRUCTURAL FLOOR SLABS, THE CLEANOUTS SHALL BE ACCESSED AT LEAST 6-INCHES ABOVE THE FLOOD LEVEL OF THE HIGHEST FIXTURE SERVED. CLEANOUT RISER(S) SHALL BE PROPERLY PLUGGED AND PAINTED TO MATCH THE ADJACENT SURFACE.

44 M4.3 SCIENCE COUNTER SINK DETAIL
NO SCALE

Z. PROVIDE A BARRIER TYPE FLOOR DRAIN TRAP SEAL PROTECTION DEVICE (AS DEFINED BY THE ASSE 1072 STANDARD) EQUAL TO 'SURESEAL' BRAND.

AA. WATER HAMMER ARRESTORS WILL BE INSTALLED IN WATER PIPING ACCORDING TO PDI-WH 201. WATER HAMMER ARRESTERS SHALL BE INSTALLED WITH INLET ISOLATION VALVES TO ALLOW FOR MAINTENANCE.

BB. THE DETAILS SHOWN ON THE DETAIL SHEETS APPLY TO ALL PLUMBING PLAN SHEETS. THE DETAILS ARE TO BE FOLLOWED FOR THE INSTALLATION OF ALL COMPONENTS AND EQUIPMENT SHOWN.

PROJECT INFORMATION

- PROJECT LOCATION: AURORA, CO
- PROJECT ALTITUDE: 5,400 FT. ASL (APPROX.)

APPLICABLE CODES

- 2021 IBC - INTERNATIONAL BUILDING CODE
- 2021 IEBC - INTERNATIONAL EXISTING BUILDING CODE
- 2021 IMC - INTERNATIONAL MECHANICAL CODE
- 2021 IECC - INTERNATIONAL ENERGY CONSERVATION CODE
- 2021 NEC - NATIONAL ELECTRIC CODE
- 2021 IPC - INTERNATIONAL PLUMBING CODE
- 2021 IFC - INTERNATIONAL FIRE CODE
- NFPA - NATIONAL FIRE PROTECTION ASSOCIATION

PLUMBING SYMBOLS

DESCRIPTION
DOMESTIC COLD WATER (LINETYPE)
DOMESTIC HOT WATER (LINETYPE)
DOMESTIC HOT WATER RECIRC (LINETYPE)
LAB NITROGEN VENT
ACID VENT
GREASE VENT
OIL VENT
INDIRECT WASTE
SANITARY VENT
CLEAN OUT
WALL CLEAN OUT
FLOOR CLEAN OUT
GRADE CLEAN OUT (DOUBLE CLEAN OUT)
FLOOR DRAIN / FLOOR SINK
ROOF DRAIN / OVERFLOW DRAIN
DOWNSPOUT NOZZLE
WALL HYDRANT
HOSE BIBB
WATER HAMMER ARRESTER
ANESTHESIA EVACUATOR
MEDICAL COMPRESSED AIR OUTLET
DEIONIZED WATER OUTLET
DISTILLED WATER OUTLET
NATURAL GAS OUTLET
NITROGEN OUTLET
NITROUS OXIDE OUTLET
OXYGEN OUTLET
VACUUM INLET
RISER TAG
ROOF DRAIN TAG
PLUMBING FIXTURE TAG

PIPING ANNOTATIONS

DESCRIPTION
EXISTING TO REMAIN - (E) or EXIST
ITEM TO BE DEMOLISHED - (D) or DEMO
PIPE SIZE TAG (DIAMETER WITH SYSTEM NAME)
ABOVE GROUND PIPING
BELOW GROUND PIPING
PIPE SLOPE
PIPE INVERT ELEVATION
MECHANICAL EQUIPMENT TAG
MECHANICAL EQUIPMENT CLEARANCE

PIPING VALVES AND FITTINGS

DESCRIPTION
PIPE DROP
PIPE RISE
PIPE TEE DOWN
PIPE TEE UP
CONCENTRIC REDUCER
ECCENTRIC REDUCER
PIPE CAP
PIPE ALIGNMENT GUIDE
PIPE ANCHOR
FLOW DIRECTION
EXPANSION JOINT
FLEXIBLE CONNECTION
UNION
DIRECTION OF PIPE PITCH
AQUASTAT
EXPANSION LOOP
BALANCING VALVE
BALANCING VALVE W/ METERING POINTS
BALL VALVE
BUTTERFLY VALVE
CHECK VALVE
STEAM TRAP
GATE VALVE
CIRCUIT SETTER
MANUAL AIR VENT
AUTOMATIC AIR VENT
PLUG VALVE
PRESSURE GAUGE
SOLENOID VALVE
ANGLE VALVE
AUTOMATIC CONTROL VALVE 2-WAY
AUTOMATIC CONTROL VALVE 3-WAY
AUTOMATIC FLOW CONTROL VALVE
STRAINER
PRESSURE AND TEMPERATURE TEST PORT
THERMOMETER
PRESSURE REDUCING VALVE (WATER SYSTEMS)
PRESSURE REGULATING VALVE (GAS SYSTEMS)
RELIEF VALVE
FLOW MEASURING DEVICE
BACKFLOW PREVENTER
UNION

GENERAL SYMBOLS

POINT OF DISCONNECT - DEMOLITION REMOVED FROM EXISTING
POINT OF CONNECTION - NEW CONNECTS TO EXISTING
AREA NOT IN CONTRACT

SHEET INDEX

P0.1	PLUMBING GENERAL NOTES & SYMBOLS
PD2.1	LEVEL 09 - PLUMBING DEMOLITION PLAN
P2.1	LEVEL 09 - PLUMBING PLAN
P6.1	PLUMBING SCHEDULES

NOTE
ALL NOTES ON THIS SHEET ARE APPLICABLE TO ALL OTHER SHEETS IN THIS SET.
THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE APPLICABLE IN THIS SET OF DRAWINGS.

DLRGROUP

DAVID ANDERSON
44076
12-18-2023
EXP. 10/31/2025

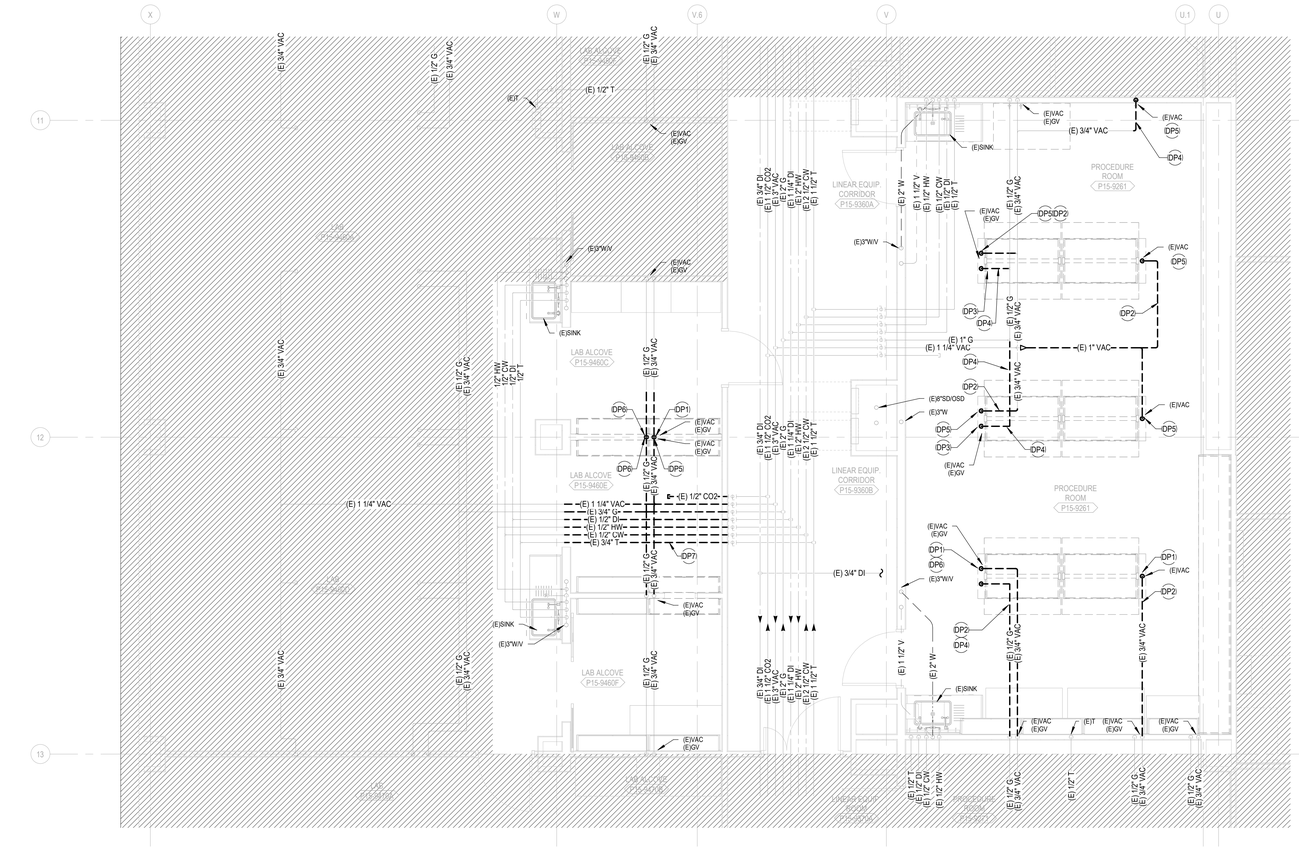
CU DENVER | ANSCHUTZ - 9TH FLOOR
PHYSIOLOGY MOVE

12700 E 19TH AVE
AURORA, CO 80045

CONSTRUCTION DOCUMENTS
12/18/2023
REVISIONS

PN 23-14584
37-24103-00

PLUMBING GENERAL NOTES & SYMBOLS



N

LEVEL 9 - ENLARGED PLUMBING DEMOLITION PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES

A EXISTING INFORMATION FROM RECORD SET 08/29/08, PLUMBING LEVEL 9.

B CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS, INCLUDING; PIPING SIZE, LOCATION, ELEVATION, ROUTING.

C CONTRACTOR TO VERIFY EXISTING VALVES TO BE REUSED ARE IN GOOD WORKING CONDITION. IF VALVES ARE NOT IN GOOD WORKING ORDER NOTIFY ENGINEER AND REPLACE WITH NEW VALVE OF MATCHING STYLE AND SPECIFICATION.

SHEET NOTES

DP1 REMOVE EXISTING VAC INLET VALVE.

DP2 REMOVE EXISTING VAC PIPING IN CEILING AS SHOWN. CAP AT MAIN.

DP3 REMOVE EXISTING GAS OUTLET VALVE.

DP4 REMOVE EXISTING GAS PIPING IN CEILING AS SHOWN. CAP AT MAIN.

DP5 REMOVE EXISTING VAC INLET VALVE, REFER TO NEW PLANS FOR VALVE RE-INSTALLATION.

DP6 REMOVE EXISTING GAS OUTLET VALVE, REFER TO NEW PLANS FOR VALVE RE-INSTALLATION.

DP7 REMOVE EXISTING SERVICES (T,CW,HW,DI,G,VAC,CO2) IN CEILING SPACE, PRESERVE FOR REUSE IN NEW PHASE, REFER TO NEW WORK FOR NEW ELEVATION.

DLRGROUP

CU DENVER | ANSCHUTZ - 9TH FLOOR PHYSIOLOGY MOVE

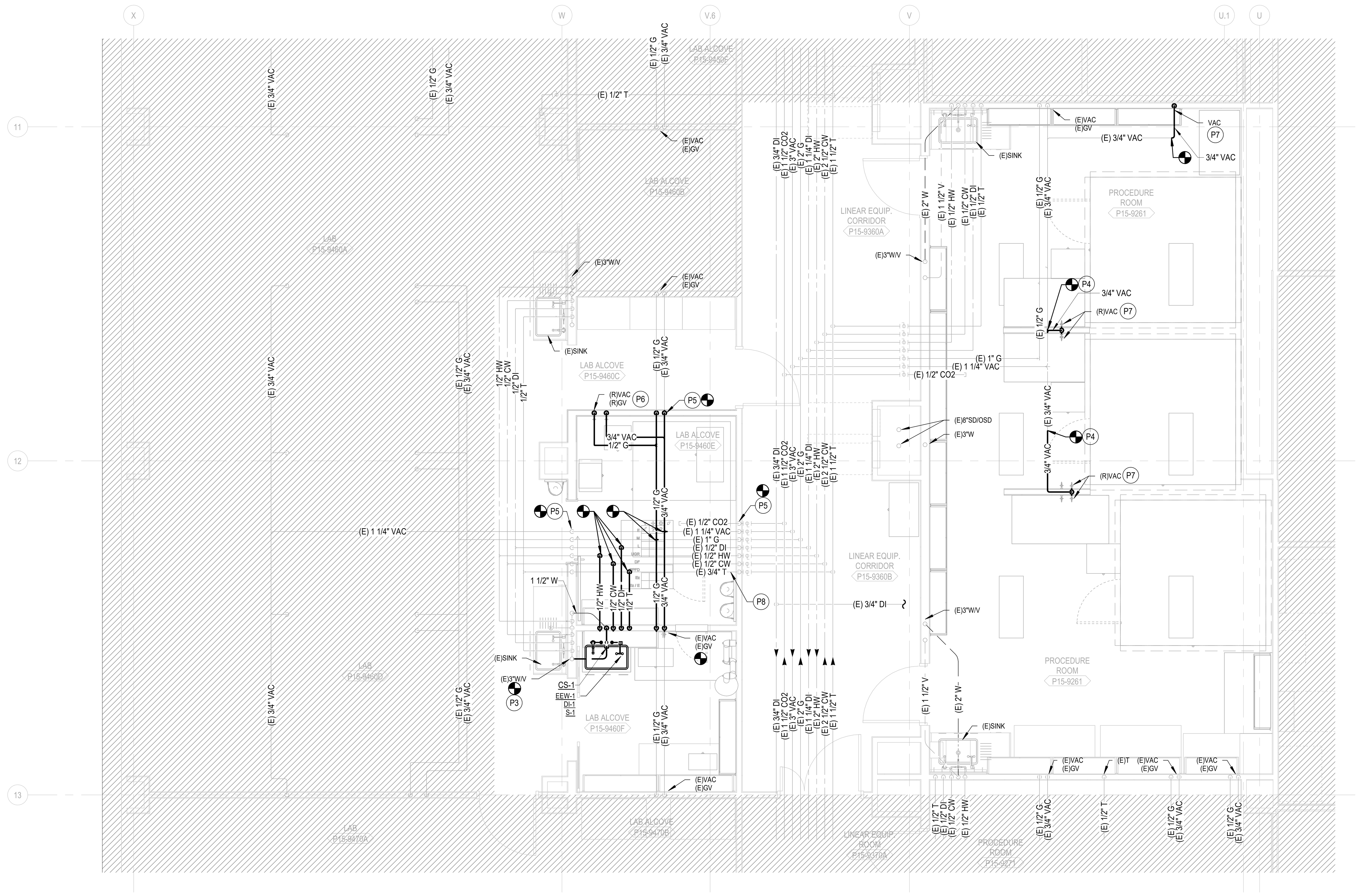
12700 E 19TH AVE
AURORA, CO 80045

CONSTRUCTION DOCUMENTS
12/18/2023
REVISIONS

PN 23-14584
37-24103-00

LEVEL 09 - PLUMBING DEMOLITION PLAN

PD2.1



LEVEL 9 - ENLARGED PLUMBING PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES

A EXISTING INFORMATION FROM RECORD SET 08/29/08, PLUMBING LEVEL 9.

B CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS, INCLUDING; PIPING SIZE, LOCATION, ELEVATION, ROUTING.

C CONTRACTOR TO VERIFY EXISTING VALVES TO BE REUSED ARE IN GOOD WORKING CONDITION. IF VALVES RE NOT IN GOOD WORKING ORDER NOTIFY ENGINEER AND REPLACE WITH NEW VALVE OF MATCHING STYLE AND SPECIFICATION.

SHEET NOTES

P3 1-1/2"W, 1-1/2"V. CONNECT WASTE TO EXISTING SERVICES BELOW FLOOR. CONNECT VENT IN CEILING SPACE.

P4 3/4"VAC CONNECT TO EXISTING SERVICES IN CEILING. EXTEND DOWN TO CEILING PANEL(S).

P5 EXTEND REVISED SERVICES (T,CW,HW,DI,G,VAC,CO2) IN CEILING SPACE, CONNECT TO EXISTING. COORDINATE EXACT ELEVATION WITH NEW CEILING HEIGHT AND SOUND BOTH.

P6 REINSTALL EXISTING VAC INLET VALVE AND GAS OUTLET VALVE ON NEW WALL. CONNECT TO ASSOCIATED SUPPLY PIPING.

P7 REINSTALL EXISTING VAC OUTLET VALVE ON NEW WALL. CONNECT TO ASSOCIATED SUPPLY PIPING.

P8 REINSTALL EXISTING PRESERVED PIPING AT NEW HIGHER ELEVATION. RECONNECT TO EXISTING SERVICE PIPING AT LOWER ELEVATION.

44076
EXP. 10/31/2025

CU DENVER | ANSCHUTZ - 9TH FLOOR PHYSIOLOGY MOVE

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LEVEL 09 - PLUMBING PLAN

P2.1

Autodesk Docs://37-24103-00 CU Anschutz - PN 23-145834_R2 9th Fl/37-24103-00 CU Anschutz - PN 23-145834_R2 9th Fl_MEP.rvt
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GENERAL PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE DESCRIPTION	MANUFACTURER	MODEL	TYPE	SIZE	TRIM		ELECTRICAL REQUIREMENTS	CONNECTIONS				NOTES
						MANUFACTURER	MODEL		WASTE	VENT	CW	HW	
CS-1	COUNTER SINK												5
DI-1	DI FAUCET	WATERSAVER	L7833	DECK MOUNTED	12.5"x6"	-	-	-	-	-	-	-	1, 2
EEW-1	EMERGENCY EYEWASH	WATERSAVER	EWBF849	DECK MOUNTED	14"x12"	WATERSAVER	TM6020	-	-	-	1/2"	1/2"	1, 3
S-1	SINK FAUCET	WATERSAVER	L2222VB	DECK MOUNTED	12"x10"	-	-	-	-	-	1/2"	1/2"	1, 4

NOTES:

1. REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS FOR ADDITIONAL NOTATIONS AND INSTALLATION INSTRUCTIONS. REFER TO ARCHITECTURAL PLANS FOR MOUNTING ELEVATIONS.
2. DECK MOUNTED WITH LOCKNUT AND WASHER, POLYPROPYLENE LINED INTERIOR, BRASS BODY, GOOSENECK SHAPE, NYLON HANDLE WITH INDEX DISC, COMPRESSION DIAPHRAM VALVE, SERRATED POLY HOSE END.
3. DECK MOUNTED, BARRIER FREE, 90 SWING DOWN ACTIVATION, DUAL SPRAY. PROVIDE R OR L PER ARCH ELEVATION. THERMOSTATIC MIXING VALVE, BELOW SINK MOUNTING, ISOLATION VALVES, TEMPERATURE OUTLET GAUGE, MOUNTING BRACKET.
4. DECK MOUNTED, 10" SWING GOOSENECK, VACUUM BREAKER, SERRATED NOZZLE, DUAL HANDLE WRISTBLADE, COLORED INDEX.
5. ARCHITECTURALLY PROVIDED COUNTER SINK, INTEGRAL WITH COUNTERTOP. REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION.

CU DENVER | ANSCHUTZ - 9TH FLOOR PHYSIOLOGY MOVE

12700 E 19TH AVE
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CONSTRUCTION DOCUMENTS
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PLUMBING SCHEDULES

P6.1

ABBREVIATIONS

#	NUMBER
&	AND
(D)	DEMOLISHED
(E)	EXISTING
(R)	RELOCATED
@	AT
°C	DEGREES CELSIUS
°F	DEGREES FAHRENHEIT
Ø	PHASE
Ø	DIAMETER
A	COMPRESSED AIR
A	AMPERE
A	AMP
A/C	AIR CONDITIONING(ER)
A/E	ARCHITECT/ENGINEER
AABC	ASSOCIATED AIR BALANCE COUNCIL
AAP	ALARM ANNUNCIATOR PANEL
AAP	AREA ALARM PANEL
AAV	AUTOMATIC AIR VENT
AAV	AIR ADMITTANCE VALVE
AB	ANCHOR BOLT
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
AC	ALTERNATING CURRENT
AC	ACOUSTIC CEILING
ACC	AIR COOLED CONDENSER
ACC	ACCESSIBLE
ACCU	AIR COOLED CONDENSING UNIT
ACM	ALUMINUM COMPOSITE MATERIAL
ACST	ACOUSTIC
AD	AREA DRAIN
AD	ACCESS DOOR
ADDN	ADDITION OR ADDITIONAL
ADJ	ADJUSTABLE
ADJT	ADJACENT, ADJOINING
ADMIN	ADMINISTRATION
ADO	AUTOMATIC DOOR OPENER
AF	AIR FILTER
AFC	ABOVE FINISHED COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGF	AIR GAP FITTING
AHJ	AUTHORITY HAVING JURISDICTION
AHRI	AIR-CONDITIONING HEATING AND REFRIGERATION INSTITUTE
AHU	AIR HANDLING UNIT
AI	AREA INLET
AI	ANALOG INPUT
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMBA	AMERICAN BOILER MANUFACTURERS ASSOCIATION
AMP	AMPERE
ANCH	ANCHOR
AP	ACCESS PANEL
APC	ACOUSTIC PANEL CEILING
APPROX	APPROXIMATE
AR	ACID RESISTING
AR	ARGON
ARCH	ARCHITECTURAL
AS	AIR SEPARATOR
ASB	ASBESTOS
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPH	ASPHALT
AUTO	AUTOMATIC
AV	AUDIO-VIDEO, AUDIO-VISUAL
AV	ACID VENT
AV	AIR VENT
AVG	AVERAGE
AW	ACID WASTE
AWG	AMERICAN WIRE GAUGE
AWP	ACOUSTIC WALL PANEL
B	BOILER
B to B	BACK TO BACK
BAS	BUILDING AUTOMATION SYSTEM
BAT	BATTERY
BBO	BOILER BLOW OFF
BC	BALANCING COCK
BC	BARE COPPER
BCMU	BURNISHED CONCRETE MASONRY UNIT
BD	BOARD
BDD	BACK DRAFT DAMPER
BET	BETWEEN
BF	BOILER FEED
BFF	BELOW FINISH FLOOR
BFP	BACKFLOW PREVENTER
BFR	BELOW FLOOR
BFV	BUTTERFLY VALVE
BHP	BREAK HORSEPOWER
BI	BACKWARD INCLINED (FAN IMPELLER/WHEEL)
BKR	BREAKER
BL	BUILDING LINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BM	BENCH MARK
BM(S)	BEAM(S)
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOF	BOTTOM OF FOOTING
BOP	BOTTOM OF PIPE
BOT	BOTTOM
BPIP	BOILER PLANT INSTRUMENTATION PANEL
BRDG	BRIDGING
BRG	BEARING
BRKT	BRACKET
BSMT	BASEMENT
BT	BATHTUB
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BUR	BUILT UP ROOFING
BV	BALL VALVE
C	CONDUIT
C	CONDENSER WATER
CA	COMBUSTION AIR
CANT	CANTILEVER
CAP	CAPACITY
CAS	CASING
CBD	COUNTER-BALANCED DAMPER
CBD	CHALKBOARD
CC	COOLING COIL
CCR	CONTROL CONTRACTOR
CCTV	CLOSED CIRCUIT TELEVISION
CD	CONDENSATE DRAIN
CD	CEILING DIFFUSER
CD	CONSTRUCTION DOCUMENTS
CDA	CLEAN DRY AIR (COMPRESSED AIR)
CDF	COMBINATION DRINKING FOUNTAIN & BOTTLE FILLING STATION
CE	COVER ELEVATION
CEM	CEMENT
CENT	CENTRIFUGAL
CER	CERAMIC
CF	CUBIC FEET
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CG	CORNER GUARD
CH	CHILLER
CH	CHANNEL
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CI	CURB INLET
CIP	CAST IN PLACE
CIP	CAST IRON PIPE
CIRC	CIRCULATING
CJ	CONTROL JOINT
CJ	CONSTRUCTION JOINT
CJA	CONTROL JOINT ABOVE
CKT	CIRCUIT
CKT BK	CIRCUIT BREAKER
CL	CENTER LINE
CL	CIRCUIT LINE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR
CM	CEILING MOUNTED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CO	CARBON MONOXIDE
CO	CONDUIT ONLY
CO2	CARBON DIOXIDE
COL	COLUMN
COMB	COMBINATION
COMM	COMMUNICATIONS
COMP	COMPRESSOR UNIT
COMP	COMPOSITE
COMPR	COMPRESSIBLE
CONC	CONCRETE
COND	CONDENSATE
CONF	CONFERENCE
CONFIG	CONFIGURATION
CONN(S)	CONNECTION(S)
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACT(OR)
CONV	CONVECTOR
COOR	COORDINATE
COORD	COORDINATE
CP	CONDENSATE PUMP
CP	COVER PLATE
CPS	CYCLES PER SECOND
CPT	CARPET
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CORROSION RESISTANT
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CS	COUNTERSINK
CS	COMBINATION SEWER
CS	CARBON STEEL
CSK	COUNTERSUNK
CSMU	CALCIUM SILICATE MASONRY UNIT
CSP	COMBINATION STANDPIPE
CSWK	CASEWORK
CT	COOLING TOWER
CT	CERAMIC TILE
CT	CURRENT TRANSFORMER
CTL	CONTROL
CTR	CENTER
CU	COPPER
CU	CONDENSING UNIT
CU	CUBIC
CU	COMBINATION UNIT
CUH	CABINET UNIT HEATER
CW	COLD WATER
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWV	COMBINATION WASTE AND VENT
CY	CUBIC YARD
CYL	CYLINDER
D	DRAIN
D	DIFFUSER
D	DEPTH
D	DATA
d	PENNY (NAIL 10D)
DB	DECIBEL
DB	DRY BULB
DBA	DECIBELS A
DBL	DOUBLE
DC	DIRECT CURRENT
DC	DUST COLLECTOR
DCJ	DUMMY CONTROL JOINT
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DEMO	DEMOLISH OR DEMOLITION
DEPR	DEPRESS(ION)(ED)
DEPT	DEPARTMENT
DET	DETAIL
DET	DETENTION
DF	DRINKING FOUNTAIN
DFR	DIESEL FUEL RETURN
DFS	DIESEL FUEL SUPPLY
DFU	DRAINAGE FIXTURE UNIT
DFV	DIESEL FUEL VENT
DG	DOOR GRILLE
DH	DUCT HEATER
DHU	DEHUMIDIFICATION UNIT
DI	DEIONIZED WATER
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIC	DISCHARGE
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISC SW	DISCONNECT SWITCH
DISCH	DISCHARGE
DISTR	DISTRIBUTION
DIV	SPECIFICATION DIVISION
DL	DRUM LOUVER
DL	DEAD LOAD
DM	DAMPER MOTOR
DMPR	DAMPER
DN	DOWN
DO or "	DITTO
DOAS	DEDICATED OUTDOOR AIR SYSTEM UNIT
DOE	DEPARTMENT OF ENERGY
DP	DIFFERENTIAL PRESSURE
DPFG	DAMPROFFING
DPI	DIFFERENTIAL PRESSURE INDICATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
DR	DOOR
DR	DRAIN
DS	DISTILLED WATER
DS	DOWNSPOUT
DSN	DOWNSPOUT NOZZLE
DSP	DRY STANDPIPE
DSPR	DRY SPRINKLER PIPING
DSPR	DRY SPRINKLER PIPE
DSTB	DISTRIBUTED
DTL	DETAIL
DTR	DUCT THRU ROOF
DW	DISHWASHER
DWBP	DOMESTIC WATER BOOSTER PUMP
DWDI	DOUBLE WIDTH DOUBLE INLET
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
DWR	DRAWER
DWRP	DOMESTIC WATER RECIRCULATING PUMP
DX	DIRECT EXPANSION
DXS	DOUBLE EXTRA STRONG
E	EAST
EA	EACH
EA	EXHAUST AIR
EA	EACH FACE
EAT	ENTERING AIR TEMPERATURE
EB	ELECTRIC BASEBOARD RADIATION
EB	EXPANSION BOLT
EBH	ELECTRIC BASIN HEATER
EC	ELECTRICAL CONTRACTOR
ECON	ECONOMIZER
ECS	EMERGENCY COMMUNICATION SYSTEM
EDH	ELECTRIC DUCT HEATER
EE	EACH END
EER	ENERGY EFFICIENCY RATIO
EEW	EMERGENCY EYE WASH
EEWS	EMERGENCY EYE WASH SHOWER
EF	EXHAUST FAN
EF	EACH FACE
EFF	EFFICIENCY
EG	EXHAUST AIR GRILLE
EH	ELECTRICAL HEATER
EIFS	EXTEROR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELAS	ELASTOMERIC
ELEC	ELECTRICAL(AL)
ELEV	ELEVATOR
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EMD	ESTIMATED MAXIMUM DEMAND
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EMV	EMERGENCY MIXING VALVE
ENCL	ENCLOSURE
ENT	ENTERING
ENTR	ENTRANCE
EOMD	END OF MAIN DRIP
EP	ELECTRO-PNEUMATIC
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ER	EXISTING (TO BE) RELOCATED
ER	EXHAUST REGISTER
ERA	ENERGY RECOVERY AIR
ERF	EPOXY RESIN FLOORING
ES	EMERGENCY SHOWER
ES	EXTRA STRONG
ESP	EXTERNAL STATIC PRESSURE
EST	ESTIMATE
ET	EXPANSION TANK
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXP	EXPOSED
EXPL	EXPLOSION
EXT	EXTERIOR
F	FAHRENHEIT
F	FIRELINE
F	FURNACE
F	FACE
F	FIRE SERVICE
FA	FIRE ALARM
FA	FACE
FA	FRESH AIR
FAA	FIRE ALARM ANNUNCIATOR
FAB	FABRICATE(D)
FACP	FIRE ALARM CONTROL PANEL
FB	FACE BRICK
FC	FLUID COOLER
FCMU	FLUTED CONCRETE MASONRY UNIT
FCO	FLOOR CLEAN OUT
FCU	FAN COIL UNIT
FCV	FLOW CONTROL VALVE
FCW	FILTERED COLD WATER
FD	FLOOR DRAIN
FD	FIRE DAMPER
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDNDR	FOUNDATION DRAIN
FDR	FEEDER
FDV	FIRE DEPARTMENT VALVE
FDVC	FIRE DEPARTMENT VALVE CABINET
FE	FIRE EXTINGUISHER
FEA	FUME HOOD EXHAUST AIR
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FH	FIRE HYDRANT
FH	FILTER HOUSING
FHC	FIRE HOSE CABINET
FIG	FIGURE
FIN	FINISHED
FIX	FIXTURE
FL	FLOOR
FLA	FULL LOAD AMPS
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG	FLOORING
FLM	FULL LENGTH MIRROR
FLUOR	FLUORESCENT
FM	FIRE MAIN
FM	FORCE MAIN
FM	FACTORY MUTUAL
FMCS	FACILITIES MANAGMENT CONTROL SYSTEM
FME	FLOW MEASURING EQUIPMENT
FNPT	FEMALE NPT
FO	FINISH OPENING
FO	FACE OF
FOC	FACE OF CONCRETE
FOF	FUEL OIL FILL
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOS	FACE OF STUD
FOV	FUEL OIL VENT
FOW	FACE OF WALL
FP	FIRE PUMP
FP	FIREPROOFING
FPB	FAN POWERED VAV TERMINAL
FPD	FIRE PUMP DISCHARGE
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FR	FIRE RESISTANT
FR	FIRE RESISTIVE
FR	FRAME
FRP	FIBERGLASS REINFORCED PANEL
FS	FLOW SWITCH
FS	FLOOR SINK
FSD	FIRE SMOKE DAMPER
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FT	FIN TUBE
FT	FLOW TRANSMITTER
FTG	FOOTING
FURN	FURNISH(ED)
FUT	FUTURE
FV	FIELD VERIFY
FV	FACE VELOCITY
FVC	FIRE VALVE CABINET
FWC	FABRIC WALL COVERING
G	GRILLE
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAD BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT
GCO	GRADE CLEAN OUT
GD	GARBAGE DISPOSAL
GEA	GREASE EXHAUST AIR
GEN	GENERATOR
GEN	GENERAL
GFA	GROSS FLOOR AREA
GFCMU	GROUND-FACE CONCRETE MASONRY UNIT
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFRC	GLASS FIBER REINFORCED CONCRETE
GHR	GLYCOL-WATER HEATING RETURN
GHS	GLYCOL-WATER HEATING SUPPLY
GI	GALVANIZED IRON
GL	GLUE LAMINATED
GL	GLASS
GMU	GLASS MASONRY UNIT
GND	GROUND
GOVT	GOVERNMENT
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GUARD RAIL
GR	GRADE
GR	GRILLE
GRC	GLASS REINFORCED CONCRETE
GRC	GALVANIZED RIGID CONDUIT
GRC	GLASS REINFORCED CONCRETE
GRD	GRILLES, REGISTERS AND DIFFUSERS
GRGP	GLASS REINFORCED GYPSUM PLASTER
GRS	GALVANIZED RIGID STEEL
GRV	GRAVITY VENTILATOR
GS	GASOLINE
GV	GATE VALVE
GV	GREASE VENT
GVBF	GREASE VENT BELOW FLOOR
GW	GREASE WASTE
GWB	GYPSUM WALL BOARD
GWR	GEOTHERMAL WATER RETURN
GWS	GEOTHERMAL WATER SUPPLY
GYP	GYPSUM
H	HEIGHT
H1E	HOOK ONE END
H2	HYDROGEN
HB	HOSE BIB
HC	HEATING COIL
HC	HOLLOW CORE
HC	HANDICAP
HCB	HANDICAP BENCH
HCR	HOT/CHILLED WATER RETURN
HCS	HOT/CHILLED WATER SUPPLY
HCW	HARD COLD WATER
HD	HAND DRYER
HDBD	HARDBOARD
HDCP	HANDICAP
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HE	HELIUM
HEV	HOSE END VALVE
HGR	HANGER
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HOA	HAND-OFF-AUTOMATIC
HORIZ	HORIZONTAL
HP	HORSE POWER
HP	HEAT PUMP
HP	HIGH PRESSURE
HPC	HIGH PRESSURE STEAM CONDENSATE
HPNG	HIGH PRESSURE NATURAL GAS
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HRO	HOT REVERSE OSMOSIS
HROC	HOT REVERSE OSMOSIS RECIRCULATION
HRWR	HEAT RECOVERY WATER RETURN
HRWS	HEAT RECOVERY WATER SUPPLY
HS	HEADSTUD
HSPF	HEAT SEASONAL PERFORMANCE FACTOR
HSTR	HIGH STRENGTH
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HTWR	HIGH TEMPERATURE HOT WATER RETURN
HTWS	HIGH TEMPERATURE HOT WATER SUPPLY
HUM	HUMIDIFIER
HV	HEATING VENTILATING UNIT
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER RECIRCULATING
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ (FREQUENCY)
i.e.	THAT IS
IAQ	INDOOR AIR QUALITY
IAW	IN ACCORDANCE WITH
IB	INFRARED BURNER
IBC	INTERNATIONAL BUILDING CODE
IC	INTERCOM
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IECC	INTERNATIONAL ENERGY CONSERVATION CODE
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IF	INSIDE FACE
IG	ISOLATED GROUND
IH	INTAKE HOOD
IJ	ISOLATION JOINT
IJS	IN JOIST SPACE
IMC	INTERNATIONAL MECHANICAL CODE
IMC	INTERMEDIATE METAL CONDUIT
IN	INCH
IN HG	INCHES OF MERCURY (PRESSURE)
IN WC	INCHES OF WATER COLUMN (PRESSURE)
INC	INCLUDE(ING)
INSUL	INSULATION
INT	INTERIOR
IP	IRON PIPE
IPC	INTERNATIONAL PLUMBING CODE
IPS	IRON PIPE SIZE
IW	INDIRECT WASTE
JAN	JANITOR
JB	JUNCTION BOX
JCT	JUNCTION
JFB	JOINT FILLER BOARD
JST	JOIST
JT	JOINT
KCJ	KEYED CONSTRUCTION JOINT
KCP	KEENE'S CEMENT PLASTER
KD	KNOCKDOWN
KH	KITCHEN HOOD
KHE	KITCHEN HOOD EXHAUST FAN
KHS	KITCHEN HOOD SUPPLY FAN
KIT	KITCHEN
KO	KNOCKOUT
KS	KITCHEN SINK
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
L	ANGLE
LA	LABRATORY COMPRESSED AIR
LAB	LABORATORY
LAM	LAMINATED
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB(S)	POUND(S)
LBR	LUMBER
LDG	LOADING
LF	LINEAR FOOT
LG	LENGTH (LONG)
LIN	LINEAR
LINO	LINOLEUM
LKR	LOCKER
LL	LIVE LOAD
LLH	LONG LENGTH HORIZONTAL
LLV	LONG LENGTH VERTICAL
LN2	LIQUID NITROGEN
LO2	LIQUID OXYGEN
LOC	LOCATION
LONG	LONGITUDINAL
LPG	LIQUIFIED PETROLEUM GAS (PROPANE)
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LR	LIVING ROOM
LS	LAWN SPRINKLER
LSC	LIFE SAFETY CODE
LT	LIGHT
LTD	LINED TRANSFER DUCT
LTG	LIGHTING
LV	LOUVER
LV	LABORATORY VACUUM
LVG	LEAVING
LW	LONG WAY
LWT	LEAVING WATER TEMPERATURE
M	THOUSAND
MA	MIXED AIR
MA	MAKE-UP AIR
MA	MEDICAL COMPRESSED AIR
MAC	MACHINE
MAG	MAGNETIC
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MAU	MAKEUP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MB	MACHINE BOLT
MBD	MARKER BOARD
MBH	THOUSAND BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MC	MEDICINE CABINET
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCM	METAL COMPOSITE MATERIAL
MD	MOTORIZED DAMPER
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MFRG	MANUFACTURING
MG	MOTOR GENERATOR
MH	MANHOLE
MH	METAL HALIDE
MH	MOP HOLDER
MIN	MINIMUM
MISC	MISCELLANEOUS
MISC	MISCELLANEOUS
ML	MOTORIZED LOUVER
MLDG	MOLDING
MLO	MAIN LUGS ONLY
MLWK	MILLWORK
MO	MASONRY OPENING
MOCP	MAXIMUM OVERCURRENT PROTECTION
MPG	MEDIUM PRESSURE GAS
MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
MR	MIRROR
MR/S	MIRROR WITH SHELF
MS	MAGNETIC STARTER
MS	MOP SINK
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MTWR	MEDIUM TEMP HOT WATER RETURN
MTWS	MEDIUM TEMP HOT WATER SUPPLY
MUL	MULLION
MV	MEDICAL VACUUM
MV	MERCURY VAPOR
MW	MARKER WALL
N	NITROGEN
N	NORTH
N2	LABORATORY NITROGEN
N2O	NITROUS OXIDE
N20	NITROUS OXIDE
N/A	NOT APPLICABLE
NA	NOT APPLICABLE
NAT	NATURAL
NC	NORMALLY CLOSED
NC	NOISE CRITERIA
NC	NURSE CALL
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN.
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO	NUMBER
NO2	NITROGEN DIOXIDE
NOM	NOMINAL
NRS	NON RISING STEM
NS	NEUTRAL SENSOR
NTS	NOT TO SCALE
NV	NITROGEN VENT
O2	OXYGEN
O to O	OUT TO OUT
O&M	OPERATION AND MAINTENANCE
OA	OUTSIDE AIR
OBSC	OBSCURE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OF	OUTSIDE FACE
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OWNER FURNISHED OWNER INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OSD	OVERFLOW STORM DRAIN
OTCS	OPEN TO CEILING SPACE
OV	OIL VENT
OVFL	OVERFLOW
OVHD	OVERHEAD
OW	OIL WASTE
P	POLE(S)
P	PUMP
P/T	PRESSURE/TEMPERATURE TEST PORT
PA	PUBLIC ADDRESS
PAN B	PANIC BOLT
PAR	PARALLEL
PB	PULL BOX
PB	PUSH BUTTON
PB	PARTICLE BOARD
PBS	PUSH BUTTON STATION
PC	PRECAST CONCRETE
PC	PUMPED CONDENSATE
PCD	PAPER CUP DISPENSER
PCF	POUNDS PER CUBIC FOOT
PCT	PORCELAIN CERAMIC TILE
PCV	PRESSURE CONTROL VALVE
PCWP	PROCESS COOLING WATER PUMP
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP
PD	PUMP DISCHARGE
PDI	PLUMBING & DRAINAGE INSTITUTE
PENT	PENTHOUSE
PERF	PERFORATED
PERP	PERPENDICULAR
PF	POWER FACTOR
PG	PRESSURE GAUGE
PG	PROPANE GAS
PH	PHASE
PHC	PRE-HEAT COIL
PI	POINT OF INTERSECTION
PI	PRESSURE INDICATOR
PIC	PORTABLE INSTRUMENT CONNECTION
PIV	POST INDICATOR VALVE
PL	PLATE
PL	PLACE(S)
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD

GENERAL MECHANICAL NOTES

1 GENERAL NOTES APPLY TO ALL MECHANICAL DRAWINGS.

2 REFERENCE MECHANICAL DIVISION 21, 22 & 23 SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

3 SHOULD ANY CONFLICT OCCUR BETWEEN ANY PORTIONS OF THE CONTRACT DOCUMENTS (DRAWINGS AND SPECIFICATIONS). THE CONTRACTOR IS DEEMED TO HAVE BASED THEIR BID/PRICE ON THE MORE EXPENSIVE MATERIAL, EQUIPMENT, PRODUCT OR WORK, UNLESS THEY HAVE REQUESTED AND OBTAINED A WRITTEN CLARIFICATION OR DECISION IN REGARD TO THE CONFLICT FROM THE ARCHITECT/ENGINEER.

4 MECHANICAL PLANS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF PIPES, DUCTS, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING AND EXISTING CONDITION. LOCATION OF THESE ITEMS MAY BE ADJUSTED CONDITIONAL UPON THE SATISFACTORY COMPLIANCE WITH ALL OTHER REQUIREMENTS. DO NOT SCALE DRAWINGS.

5 WORK REQUIRED BY THE CONTRACT DOCUMENTS, WHICH EXCEED THE MINIMUM REQUIREMENTS OF THE GOVERNING LOCAL STANDARDS, AND REGULATIONS SHALL BE DONE AS SHOWN OR SPECIFIED.

6 COORDINATION DRAWING IS TO BE PROVIDED BY THE CONTRACTOR IF THE CONTRACTOR BELIEVES THERE ARE CONGESTED AREAS. NOTE: ENGINEER WILL NOT RESPOND TO SPACE COORDINATION, RFI'S, ETC. WITHOUT CONTRACTOR'S COORDINATION DRAWING SUBMITTAL.

7 REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT TO BE FURNISHED, FOR DIMENSIONS, MEASUREMENTS, EQUIPMENT LOCATIONS, LEVELS, ETC.

8 THE MECHANICAL DESIGN AND COORDINATION WITH OTHER TRADES SUCH AS, BUT NOT LIMITED TO, ARCHITECTURAL, ELECTRICAL, CIVIL AND STRUCTURAL, IS BASED ON THE CHARACTERISTICS OF EQUIPMENT MANUFACTURED BY THOSE COMPANIES SPECIFICALLY LISTED IN THE SCHEDULES AND ON THE DRAWINGS. ANY AND ALL COSTS ASSOCIATED WITH CHANGES DUE TO THE USE OF OTHER MANUFACTURES EQUIPMENT, INCLUDING MANUFACTURERS LISTED IN THE MANUFACTURERS LIST IN THE SPECIFICATIONS, SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THESE CHANGES SHALL INCLUDE, BUT NOT BE LIMITED TO, AMPERAGE AND VOLTAGE CHANGES, ACCESS SPACE REQUIREMENTS, PIPING CHANGES, STRUCTURAL MODIFICATIONS, AND SPACE REQUIRED FOR PLACEMENT OF EQUIPMENT. COORDINATION SHALL OCCUR PRIOR TO FABRICATION, PURCHASE, AND/OR INSTALLATION OF ALL WORK. DISCUSS, COORDINATE AND COOPERATE WITH OTHER TRADES AND COORDINATE THE WORK WITH THEIRS. COORDINATE CEILING CAVITY SPACE CAREFULLY WITH OTHER TRADES. BRING ANY CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER.

9 ALL EQUIPMENT SHALL BE DERATED FOR THE ACTUAL ELEVATION OF THE PROJECT SITE TO DELIVER THE REQUIRED CAPACITIES INDICATED ON THE DRAWINGS AND SCHEDULES.

10 THE MECHANICAL CONTRACTOR SHALL LOCATE ALL EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITIONS. EQUIPMENT SHALL INCLUDE (BUT NOT BE LIMITED TO) VALVES, VIBRATION ISOLATORS, TRAPS, CLEANOUTS, MOTORS, CONTROLLERS, SWITCH GEAR, AND DRAIN POINTS. MINOR DEVIATIONS FROM DRAWINGS MAY BE ALLOWED TO PROVIDE FOR BETTER ACCESSIBILITY. ANY CHANGES SHALL BE REVIEWED BY THE ARCHITECT/ENGINEER PRIOR TO MAKING THE CHANGE. VERIFY AND COORDINATE THE MAINTENANCE ACCESS AND CODE REQUIRED CLEARANCES FOR ALL MECHANICAL EQUIPMENT. INSTALL ALL WORK AND COORDINATE THE WORK OF OTHER TRADES TO MAINTAIN CODE REQUIRED CLEARANCE AND ACCESS FOR PROPER MAINTENANCE OF EQUIPMENT.

11 MECHANICAL EQUIPMENT ACCESS PANELS SHALL NOT BE BLOCKED. PROVIDE A MINIMUM OF 3'-0" OF CLEARANCE IN FRONT OF EQUIPMENT MAINTENANCE ACCESS PANELS. PROVIDE DUCTOWRK AND PIPING OFFSET AS NECESSARY TO MAINTAIN CLEARANCE.

12 THE MECHANICAL CONTRACTOR SHALL PROTECT NEW CONSTRUCTION FROM DAMAGE BY ALL TRADES. ALL SUCH DAMAGE CAUSED BY THE CONTRACTOR DURING THE COURSE OF THIS WORK SHALL BE REPAIRED OR REPLACED AT THE CONTRACTORS EXPENSE.

13 THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROPER REMOVAL AND DISPOSAL OF ALL DEBRIS GENERATED BY CONSTRUCTION OF THIS PROJECT. THE REMOVAL AND DISPOSAL OF ALL CONSTRUCTION DEBRIS SHALL BE IN FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS. THE PREMISES SHALL BE KEPT CLEAN AND FREE FROM ALL WASTE MATERIALS.

14 THE MECHANICAL CONTRACTOR SHALL PROVIDE THE GENERAL CONTRACTOR WITH THE EXACT LOCATIONS AND SIZES OF ACCESS DOORS, WALL OPENINGS, ROOF OPENINGS, CONCRETE SLEEVES OR ANY OTHER CONSTRUCTION REQUIREMENTS NEEDED TO ACCOMMODATE THE MECHANICAL EQUIPMENT. LOCATIONS OF THESE OPENINGS SHALL BE SUBMITTED IN SUFFICIENT TIME TO BE INSTALLED IN THE NORMAL COURSE OF WORK. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR LOCATING CONCRETE SLEEVES IN INTERIOR GRADE BEAMS FOR ALL DUCTS OR PIPING HUNG IN CRAWL SPACE. THIS WORK SHALL BE DONE PRIOR TO POURING OF GRADE BEAMS.

15 THE MECHANICAL CONTRACTOR SHALL COORDINATE CUT-OUTS FOR CASEWORK, MILLWORK, OR OTHER EQUIPMENT AS REQUIRED WITH THE GENERAL CONTRACTOR.

16 MAINTAIN UNOBSTRUCTED ACCESSIBILITY TO ALL DAMPERS. PROVIDE ACCESS DOORS IN WALLS, CEILINGS AND DUCTS AS NEEDED TO PROVIDE ACCESS.

17 REFER TO CODE PLAN SHEETS FOR LOCATIONS OF RATED FIRE AND/OR SMOKE SEPARATION WALLS. THE MECHANICAL CONTRACTOR SHALL PROVIDE FIRE, SMOKE OR COMBINATION FIRE/SMOKE DAMPERS FOR ALL RATED WALLS/CEILINGS/ASSEMBLIES. COORDINATE THE LOCATION OF FIRE RATED & SMOKE AND RATED WALLS PRIOR TO ORDER AND INSTALLATION OF DAMPERS.

18 WALL OPENINGS FOR FIRE, SMOKE AND COMBINATION FIRE AND SMOKE DAMPERS SHALL BE FRAMED AS REQUIRED BY THE FIRE DAMPER MANUFACTURER'S RECOMMENDATIONS. COORDINATE; PROVIDE/INSTALLED MANUFACTURER REQUIREMENTS WITH GENERAL CONTRACTOR.

19 ALL WALL PENETRATIONS AT RATED WALL LOCATIONS REQUIRED FOR PIPES, CONDUIT, DUCTWORK, ETC. SHALL BE SEALED BY THE GENERAL CONTRACTOR TO STOP PASSAGE OF FIRE AND / OR SMOKE WITH FIRE SAFING AND APPROVED FIRESTOPPING SEALANT AS DETAILED BY INSTALLED/PROVIDED MANUFACTURERS RECOMMENDATIONS. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR ALL WALL PENETRATIONS FOR CORRECT SIZES.

20 EQUIPMENT SHUT-DOWN OF SYSTEMS WITH A DESIGN AIRFLOW CAPACITY GREATER THAN 2,000 CFM SHALL BE SHUT-DOWN BY THE SMOKE DETECTORS OF THE SYSTEM BY DIV. 28, CONNECTED TO THE FIRE ALARM SYSTEM. THIS INCLUDES MULTIPLE AIR HANDLING SYSTEMS THAT SHARE COMMON SUPPLY OR RETURN AIR DUCTS OR PLENUMS WITH A COMBINED DESIGN CAPACITY GREATER THAN 2,000 CFM. THE USE OF THE AREA SMOKE DETECTORS OF THE FULL AREA COVERAGE SYSTEM BY DIV. 28 MAY BE USED IF SPECIFIED IN DIV. 28 AS SUCH. IF NOT, LOCAL DUCT SMOKE DETECTORS ARE TO BE UTILIZED FOR EQUIPMENT SHUT DOWN. THESE DUCT SMOKE DETECTOR SHALL BE LOCATED IN THE MAIN SUPPLY AIR OR RETURN AIR DUCT AS INDICATED ON DRAWINGS OR REQUIRED BY THE PROJECT GOVERNING CODE. DUCT SMOKE DETECTORS SHALL BE PROVIDED BY SPECIAL SYSTEMS CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTRACTOR. POWER WIRING BY THE ELECTRICAL CONTRACTOR. WIRING TO THE FIRE ALARM SYSTEM BY THE SPECIAL SYSTEM CONTRACTOR. WIRING FROM THE DUCT SMOKE DETECTOR TO THE MECHANICAL EQUIPMENT AND UNIT SHUT-DOWN IS BY THE DIV. 28 CONTRACTOR.

21 A SPECIAL INSPECTION BY THE PROJECT TESTING ADJUSTING AND BALANCE CONTRACTOR IS REQUIRED FOR THE SHUT-DOWN OF SYSTEMS AND INSTALLATION AND TESTING OF ALL FIRE, SMOKE AND COMBINATION FIRE/SMOKE DAMPERS. THE SPECIAL INSPECTION REPORT SHALL BE RECEIVED BY ARCHITECT/ENGINEER AND BY THE AUTHORITY HAVING JURISDICTION INSPECTOR PRIOR TO ISSUANCE OF FINAL INSPECTION APPROVAL OR OCCUPANCY APPROVAL, INCLUDING CONDITIONAL OCCUPANCY APPROVAL. REFER TO SPECIFICATION SECTION "TESTING, ADJUSTING, AND BALANCING" FOR ADDITIONAL REQUIREMENTS. ALL MATERIALS PLACED IN PLENUMS SHALL COMPLY WITH PROJECT GOVERNING CODE TO BE NON-COMBUSTIBLE OR HAVE A UL TESTED FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50. WHERE CEILING SPACE IS USED AS A RETURN, SUPPLY OR RELIEF AIR PLENUM. COORDINATE WITH THE GENERAL CONTRACTOR TO PROVIDE FREE RETURN OF AIR FROM ALL LOCATIONS OF THE PLENUM.

22 ALL CONTRACTOR'S ARE RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS AND FIELD CONDITIONS PRIOR TO ORDERING OR INSTALLING MATERIALS OR EQUIPMENT.

23 BASE FINAL INSTALLATION OF MATERIALS AND EQUIPMENT ON ACTUAL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE. FIELD MEASURE FOR MATERIALS OR EQUIPMENT REQUIRING EXACT FIT.

24 THE MOUNTING HEIGHT OF THE THERMOSTATS SHALL BE IN COMPLIANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN: REACH UNOBSTRUCTED – THE HIGH SHALL BE 48 INCHES MAXIMUM AND THE LOW SHALL BE 15 INCHES MINIMUM ABOVE THE FINISH FLOOR. REACH OBSTRUCTED BY ELEMENTS UP TO 34 INCHES HIGH AND UP TO 24 INCHES AWAY FROM THE WALL SHALL BE 46 INCHES MAXIMUM. WHERE DIFFERENT RECESSED MECHANICAL AND/OR ELECTRICAL DEVICES WITH THE SAME MOUNTING HEIGHTS ARE INDICATED SIDE-BY-SIDE, MOUNT THE DEVICES SO THAT THERE IS FOUR INCHES BETWEEN ADJACENT VERTICAL EDGES OF THE FACEPLATES. WHERE DIFFERENT MECHANICAL AND/OR ELECTRICAL DEVICES WITH DIFFERENT MOUNTING HEIGHTS ARE LOCATED IN THE SAME AREA, ALIGN DEVICES VERTICALLY THROUGH THEIR CENTERLINES.

25 ALL DIMENSIONS SHOWN ON THE DRAWINGS FOR DUCTS ARE INSIDE CLEAR DIMENSIONS. REFER TO SPECIFICATIONS FOR INSULATION OR LINER REQUIRED FOR DUCT SYSTEMS. VERIFY THAT THE DUCTS SPECIFIED WILL FIT IN THE CEILING SPACE AVAILABLE USING THE ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DRAWINGS AS REFERENCE PRIOR TO FABRICATION AND INSTALLATION.

26 ALL MECHANICAL AND PLUMBING SYSTEMS SHALL BE CONCEALED WITHIN WALLS, UNDERGROUND, ABOVE CEILINGS OR IN ARCHITECT AND ENGINEER APPROVED UTILITY SPACES IN ALL CASES UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. EXPOSED ITEMS MUST BE LOCATED IN AREAS APPROVED BY THE ARCHITECT AND ENGINEER. EXPOSED ITEMS SHALL BE INSTALLED AND FINISHED TO PROVIDE MINIMAL VISUAL IMPACT. ALL EXPOSED ITEMS ARE TO BE PREPARED FOR PAINTING AND PAINTED TO MATCH THE ADJACENT SURFACES UNLESS SCHEDULED FOR AN ACCENT COLOR.

27 REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF DIFFUSERS AND GRILLES.

28 FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATING DUCTS. ALL BRANCH RUNOUTS TO REGISTERS AND GRILLES SHALL BE THE SAME SIZE AS THE DEVICE SERVED, UNLESS NOTED OTHERWISE.

29 CONTRACTOR SHALL PROVIDE FOR EXPANSION OF PIPING. USE EXPANSION LOOPS, ANCHORS, GUIDES, EXPANSION JOINTS, ETC. AS INDICATED OR REQUIRED BY SPECIFICATIONS.

30 ALL PIPING BRANCH RUN-OUT TO EQUIPMENT SHALL BE OF THE PIPE SIZE INDICATED ON THE EQUIPMENT SCHEDULE, UNLESS NOTED OTHERWISE.

31 ALL CONDENSATE DRAIN PIPES ARE TO BE INSULATED TYPE "M" COPPER PIPE WITH WROUGHT COPPER FITTINGS. SLOPE CONDENSATE DRAIN PIPES AT 1/8" PER FOOT MINIMUM. ALL CONDENSATE PIPING SHALL BE ¾"UNLESS NOTED OTHERWISE.

32 UNLESS SPECIFIED ON STRUCTURAL DRAWINGS, ANY ALTERATIONS OR MODIFICATIONS TO A STRUCTURAL ELEMENT BY CUTTING, DRILLING, BORING, BRACING, WELDING, ETC. SHALL BE PROHIBITED UNLESS PRIOR WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER IS OBTAINED PRIOR TO BEGINNING WORK.

33 PROVIDE VIBRATION ISOLATORS FOR MOTOR DRIVEN MECHANICAL EQUIPMENT UNLESS SPECIFICALLY NOTED OTHERWISE. REFER TO SCHEDULES, DETAILS AND/OR SPECIFICATIONS FOR TYPES AND SIZES REQUIRED. OTHERWISE, PROVIDE ISOLATION AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.

34 MULTIMOTOR AND COMBINATION - LOAD EQUIPMENT SHALL BE PROVIDED WITH A VISIBLE NAMEPLATE MARKED WITH THE MAKER'S NAME, THE RATING IN VOLTS, FREQUENCY AND NUMBER OF PHASES, MINIMUM SUPPLY CIRCUIT CONDUCTOR AMPACITY, THE MAXIMUM RATING OF THE BRANCH – CIRCUIT, SHORT - CIRCUIT AND GROUND - FAULT PROTECTIVE DEVICE, AND THE SHORT - CIRCUIT CURRENT RATING OF THE MOTOR CONTROLLERS OR INDUSTRIAL CONTROL PANEL.

35 MECHANICAL AND PLUMBING EQUIPMENT, DUCTS, PIPING, OR ACCESSORIES THAT DO NOT SERVE ELEVATOR EQUIPMENT ROOMS MAY NOT ENTER OR PASS THROUGH THE SPACE. REFERENCE APPROPRIATE ELEVATOR CODE PROVISIONS FOR CONSTRUCTION OF ELEVATOR EQUIPMENT ROOMS.

36 MECHANICAL AND PLUMBING EQUIPMENT, DUCTS, PIPING, OR ACCESSORIES THAT DO NOT SERVE ELECTRICAL EQUIPMENT ROOMS MAY NOT ENTER OR PASS THROUGH THE SPACE. REFERENCE NATIONAL ELECTRICAL CODE PROVISIONS FOR CONSTRUCTION OF ELECTRICAL ROOMS.

37 MECHANICAL AND PLUMBING EQUIPMENT, DUCTS, PIPING, OR ACCESSORIES THAT DO NOT SERVE ELECTRONICS EQUIPMENT ROOMS ARE TO AVOID ENTERING OR PASSING THROUGH THE SPACE.

38 PROVIDE DUCT MOUNTED VOLUME DAMPERS IN ALL SUPPLY, RETURN, EXHAUST AND OUTDOOR AIR BRANCH DUCTWORK CONNECTIONS. INCLUDE REMOTE DAMPER OPERATOR WITH ADJUSTABLE COVER IN NON-ACCESSIBLE CEILING AREAS.

39 PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES EXCEPT TRANSFER AIR ELBOWS.

40 GRILLES, REGISTERS AND DIFFUSERS AND CONNECTED DUCTS LOCATED IN MOISTURE LADEN ENVIRONMENTS ARE TO BE STAINLESS STEEL OR ALUMINUM. DUCTS SHALL BE WELDED WATERTIGHT AND SLOPED BACK TO AIR OPENING.

41 BRANCH DUCT RUN-OUTS TO RECTANGULAR CONNECTIONS OF DIFFUSERS, REGISTERS AND GRILLES ARE TO BE THE SAME SIZE AS THE NECK OF THE DIFFUSER, REGISTER OR GRILL IT SERVES, UNLESS NOTED OTHERWISE.

42 NO FLEXIBLE DUCTS ARE ALLOWED ABOVE HARD INACCESSIBLE CEILINGS.

43 REFER TO SPECIFICATIONS FOR REQUIREMENTS AND RESPONSIBILITIES OF THIS CONTRACTOR FOR COMMISSIONING OF THIS PROJECT.

44 SPIN-IN FITTINGS, BRANCH DUCT RUN-OUTS AND FLEXIBLE DUCTS TO ROUND CONNECTIONS OF DIFFUSERS, REGISTERS AND GRILLES ARE SHALL BE BASED ON THE FOLLOWING SCHEDULE UNLESS NOTED OTHERWISE:

BRANCH AIRFLOW (CFM)	BRANCH ROUND DUCT SIZE (IN)
0 - 100	6"
101 - 220	8"
221 - 380	10"
381 - 600	12"
601 - 900	14"

PROJECT INFORMATION

- PROJECT LOCATION: BOULDER, CO.
- PROJECT ALTITUDE: 5,400 FT. ASL (APPROX.)
- CLIMATE ZONE: 5b
- COOLING DESIGN CRITERIA (UCB DESIGN STANDARD)
  - SUMMER DRY BULB:
  - SUMMER WET BULB:
  - COOLING OCCUPIED SETPOINT: 73° F
  - COOLING UNOCCUPIED SETPOINT: 80° F

APPLICABLE CODES

- 2021 IBC - INTERNATIONAL BUILDING CODE
- 2021 IEBC - INTERNATIONAL EXISTING BUILDING CODE
- 2021 IMC - INTERNATIONAL MECHANICAL CODE
- 2021 IECC - INTERNATIONAL ENERGY CONSERVATION CODE
- 2021 NEC - NATIONAL ELECTRIC CODE
- 2021 IPC - NATIONAL PLUMBING CODE
- 2021 IFC - INTERNATIONAL FIRE CODE
- NFPA - NATIONAL FIRE PROTECTION ASSOCIATION

HVAC SYMBOLS

SCHEMATIC	3D	DESCRIPTION
		DIFFUSER (SUPPLY)
		GRILLE (RETURN)
		GRILLE (EXHAUST)
		WALL REGISTER
		LINEAR DIFFUSER (SLOT)
AFMS	AFMS	AIR FLOW MEASURING STATION
BDD	BDD	BACKDRAFT DAMPER
RD	RD	BAROMETRIC RELIEF DAMPER
DP	DP	DIFFERENTIAL PRESSURE SENSOR
DD	DD	DUCT DETECTOR
GD	GD	GRAVITY DAMPER
M	M	MOTORIZED DAMPER
PR	PR	PRESSURE REDUCING DAMPER
SB	SB	SECURITY BARS
SP	SP	STATIC PRESSURE SENSOR
VD	VD	VOLUME DAMPER
RVD	RVD	REMOTE VOLUME DAMPER
F	F	FIRE DAMPER
FS	FS	COMBINATION FIRE / SMOKE DAMPER
S	S	SMOKE DAMPER
		ROUND DUCT UP
		RECTANGULAR DUCT UP
		OVAL DUCT UP
		ROUND DUCT DOWN
		RECTANGULAR DUCT DOWN
		OVAL DUCT DOWN
		MITERED ELBOW WITH VANES
		MITERED ELBOW WITHOUT VANES
		RADIUSED ELBOW
		TEE WITH VANES
		RADIUSED TEE
		DUCT WITH INSULATION
		DUCT WITH LINING
		DUCT IS FABRIC
		FLEXIBLE DUCT
		TRANSFER DUCT
		DUCT SMOKE DETECTOR
		SUPPLY ARROW
		RETURN ARROW
		EXHAUST ARROW
UC 100		DOOR UNDERCUT ARROW WITH CFM
D-1 12"x12" 200 CFM		DIFFUSER, REGISTER OR GRILLE TAG NECK SIZE (00"x00" - SQ / RECT) (0"ø ROUND) AIR FLOW (CUBIC FEET PER MINUTE)
24"x12"		TYPICAL DUCT - SIZE AS INDICATED (WIDTH x DEPTH) SIZE INDICATED FREE AREA
DDC-xx		MECHANICAL EQUIPMENT TAG MECHANICAL EQUIPMENT CLEARANCE
		CARBON DIOXIDE SENSOR - WALL MOUNTED
		CARBON DIOXIDE SENSOR - CEILING MOUNTED
		CARBON MONOXIDE SENSOR - WALL MOUNTED
		CARBON MONOXIDE SENSOR - CEILING MOUNTED
		HUMIDISTAT - WALL MOUNTED
		HUMIDISTAT - CEILING MOUNTED
		NITROGEN DIOXIDE SENSOR - WALL MOUNTED
		NITROGEN DIOXIDE SENSOR - CEILING MOUNTED
		PRESSURE SENSOR - WALL MOUNTED
		PRESSURE SENSOR - CEILING MOUNTED
		TEMPERATURE SENSOR - WALL MOUNTED
		TEMPERATURE SENSOR - CEILING MOUNTED
		THERMOSTAT - WALL MOUNTED
		THERMOSTAT - CEILING MOUNTED

PIPING ANNOTATIONS

SCHEMATIC	3D	DESCRIPTION
		EXISTING TO REMAIN - (E) or EXIST
		ITEM TO BE DEMOLISHED - (D) or DEMO
18" CHWS	18" CHWS	PIPE SIZE TAG (DIAMETER WITH SYSTEM NAME)
		ABOVE GROUND PIPING
		BELOW GROUND PIPING
1/8" / 12" SLOPE	1/8" / 12" SLOPE	PIPE SLOPE
IE: -93' - 1"	IE: -93' - 8"	PIPE INVERT ELEVATION
DDC-xx		MECHANICAL EQUIPMENT TAG
		MECHANICAL EQUIPMENT CLEARANCE

PIPING VALVES AND FITTINGS

SCHEMATIC	3D	DESCRIPTION
		PIPE DROP
		PIPE RISE
		PIPE TEE DOWN
		PIPE TEE UP
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		PIPE CAP
		PIPE ALIGNMENT GUIDE
		PIPE ANCHOR
		FLOW DIRECTION
		EXPANSION JOINT
		FLEXIBLE CONNECTION
		UNION
		DIRECTION OF PIPE PITCH
		AQUASTAT
		EXPANSION LOOP
		BALANCING VALVE
		BALANCING VALVE W/ METERING POINTS
		BALL VALVE
		BUTTERFLY VALVE
		CHECK VALVE
		STEAM TRAP
		GATE VALVE
		CIRCUIT SETTER
		MANUAL AIR VENT
		AUTOMATIC AIR VENT
		PLUG VALVE
		PRESSURE GAUGE
		SOLENOID VALVE
		ANGLE VALVE
		AUTOMATIC CONTROL VALVE 2-WAY
		AUTOMATIC CONTROL VALVE 3-WAY
		AUTOMATIC FLOW CONTROL VALVE
		STRAINER
PT		PRESSURE AND TEMPERATURE TEST PORT
		THERMOMETER
		PRESSURE REDUCING VALVE (WATER SYSTEMS) PRESSURE REGULATING VALVE (GAS SYSTEMS)
		RELIEF VALVE
		FLOW MEASURING DEVICE
		BACKFLOW PREVENTER
		UNION

GENERAL SYMBOLS

	POINT OF DISCONNECT - DEMOLITION REMOVED FROM EXISTING
	POINT OF CONNECTION - NEW CONNECTS TO EXISTING
	AREA NOT IN CONTRACT

SHEET INDEX

M0.1	MECHANICAL SYMBOLS, ABBREVIATIONS & NOTES
MD1.9	LEVEL 09 - MECHANICAL DEMOLITION PLANS
M1.9	LEVEL 09 - MECHANICAL PLANS
M7.1	MECHANICAL DETAILS & SCHEDULES

NOTE

ALL NOTES ON THIS SHEET ARE APPLICABLE TO ALL OTHER SHEETS IN THIS SET.

THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE APPLICABLE IN THIS SET OF DRAWINGS.

DLRGROUP

44076
12-18-2023
EXP. 10/31/2025

CU DENVER | ANSCHUTZ - 9TH FLOOR PHYSIOLOGY MOVE

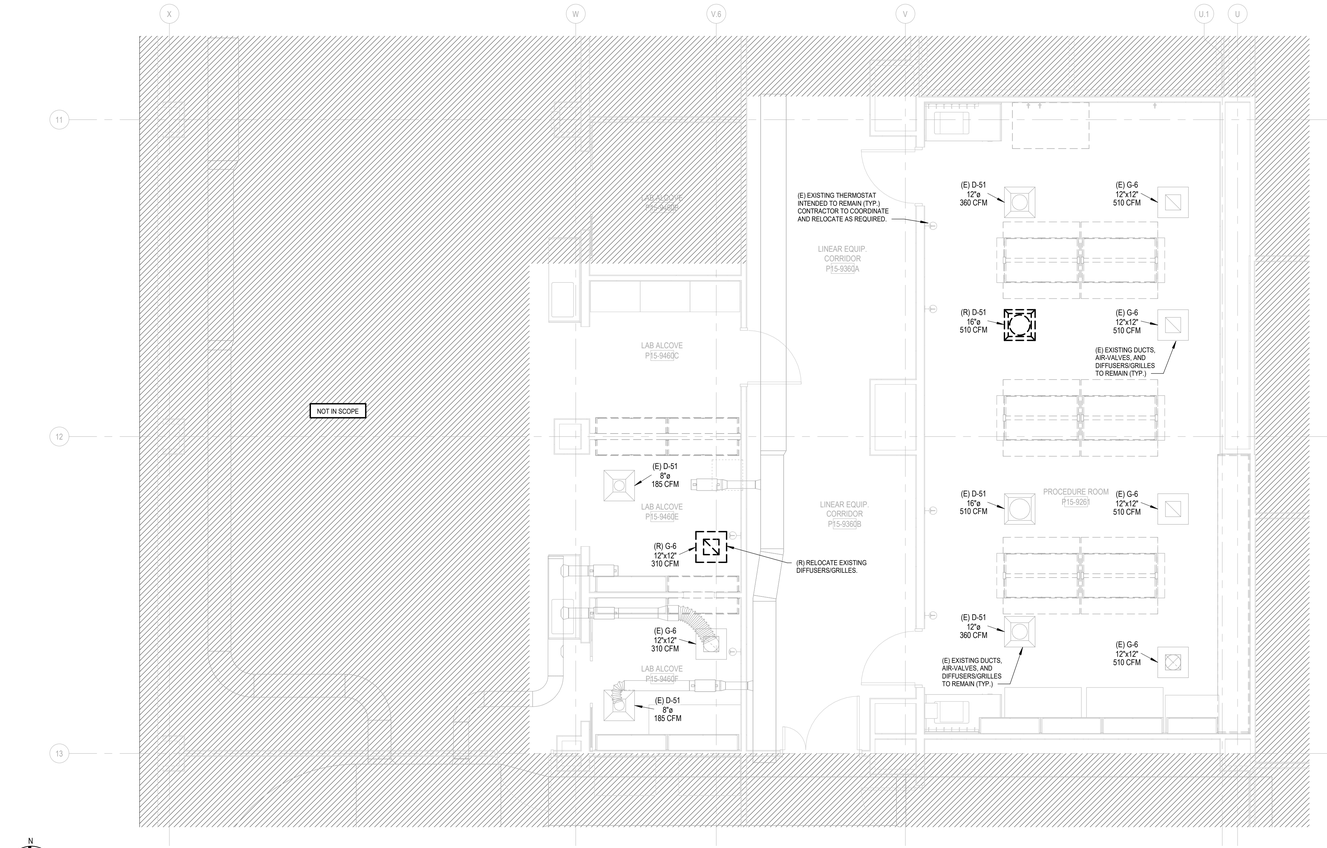
12700 E 19TH AVE
AURORA, CO 80045

CONSTRUCTION DOCUMENTS
12/18/2023
REVISIONS

PN 23-14584
37-24103-00

MECHANICAL SYMBOLS, ABBREVIATIONS & NOTES

M0.1



N

LEVEL 9 - ENLARGED HVAC DEMOLITION PLAN

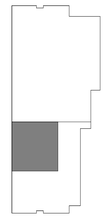
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING M0.1

SHEET NOTES

KEY PLAN



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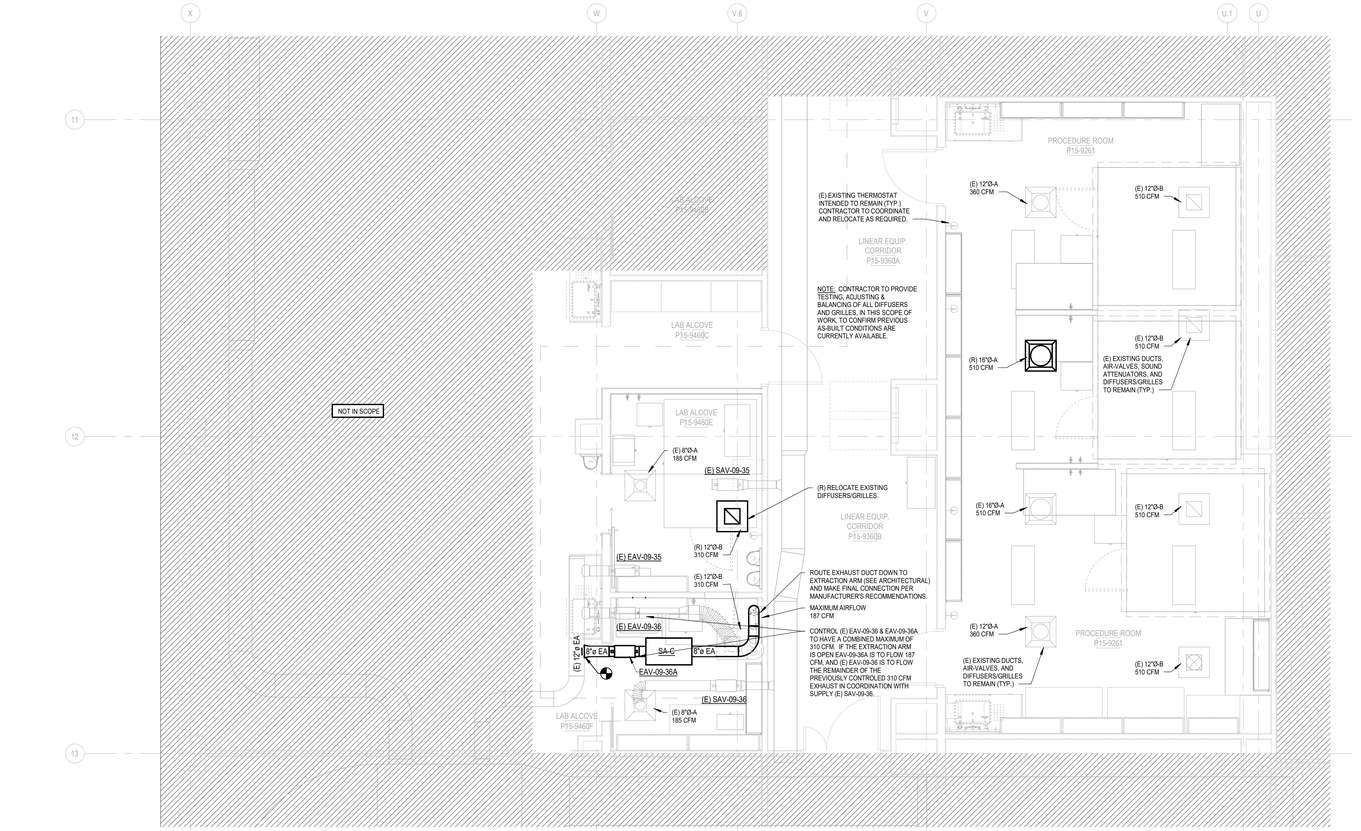
AURORA, CO 80045

CONSTRUCTION DOCUMENTS
12/18/2023
REVISIONS

PN 23-14584
37-24103-00

LEVEL 09 - MECHANICAL DEMOLITION PLANS

MD1.9



N

LEVEL 9 - ENLARGED HVAC PLAN

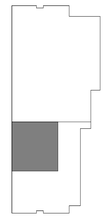
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING M0.1

SHEET NOTES

KEY PLAN



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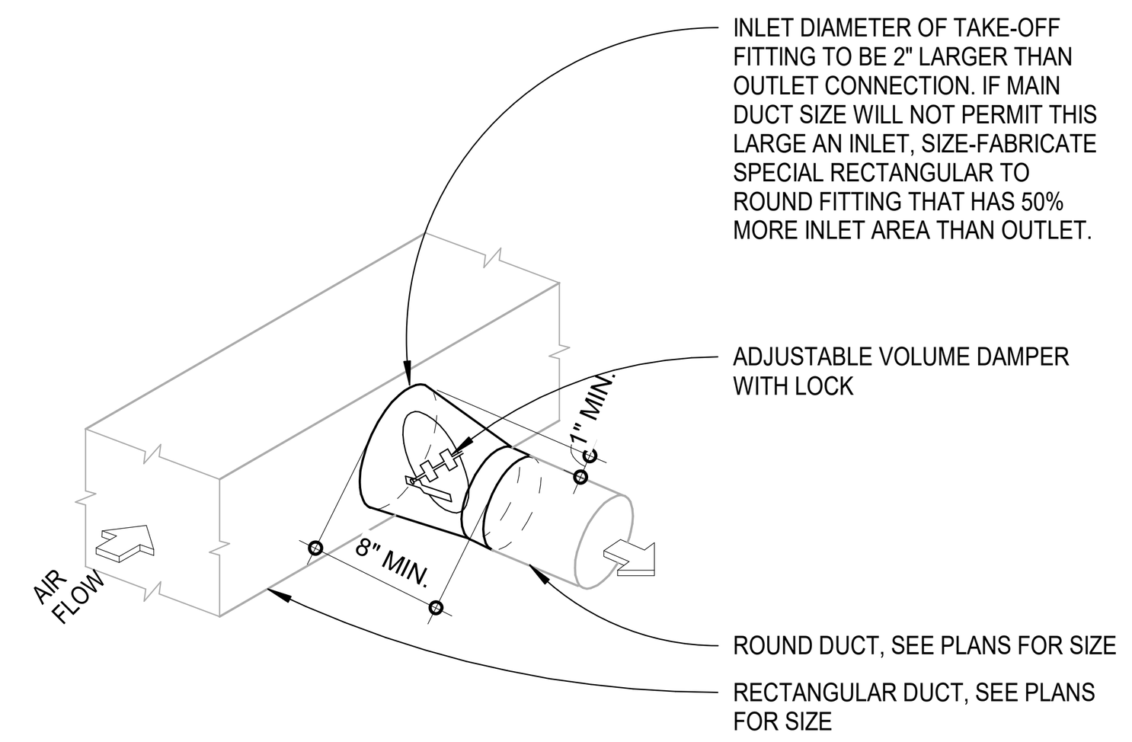
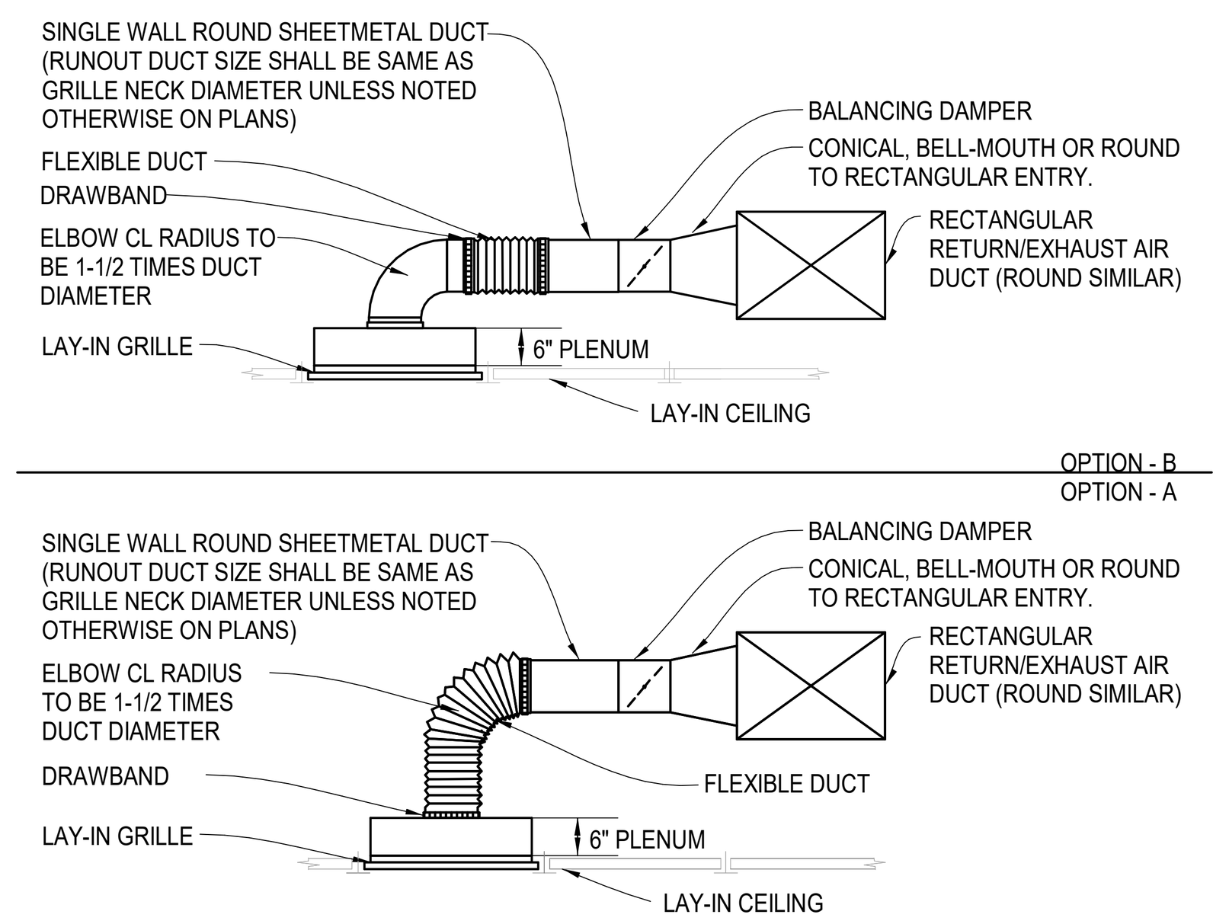
LEVEL 09 - MECHANICAL PLANS

M1.9

A	B	C	D	E	F

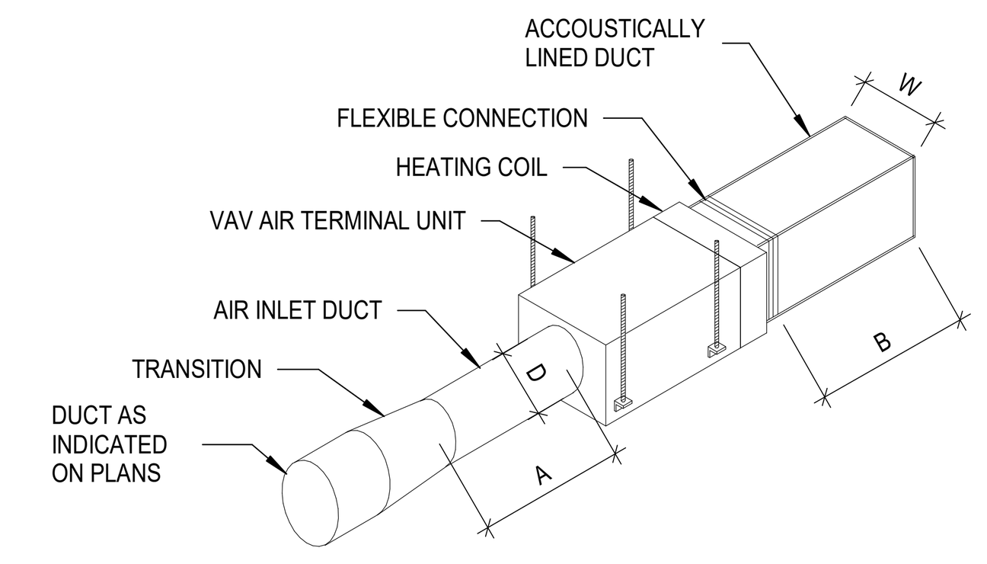


1B M7.1 **DUCT TAKE-OFF TO DIFFUSER**
NO SCALE



1C M7.1 **GRILLE DETAIL - LAY-IN**
NO SCALE

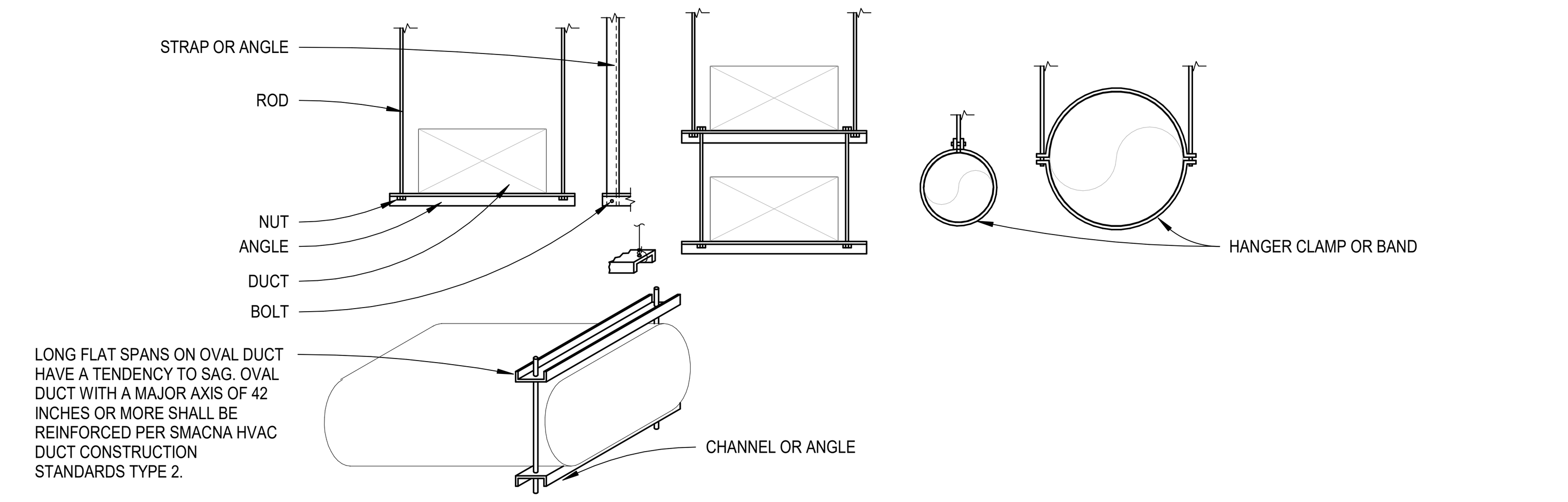
NOTE:
INSULATE OVER COIL AND COIL HEADERS TO PREVENT CONDENSATION WHEN IN COOLING MODE.



PROVIDE UNIFORM AIRFLOW AT TERMINAL UNIT INLET AND DISCHARGE. AVOID SHARP TURNS OR ENTRANCE CONDITIONS THAT CAUSE SYSTEM EFFECT.
INSTALLATION REQUIREMENTS:
(STRAIGHT DUCT, NOT TRANSITIONS, TAKE OFFS OR FITTINGS)

A = 3 x D B = 3 x W

1D M7.1 **AIR TERMINAL UNITS - MOUNTING**
NO SCALE



NOTES:
1. DO NOT EXCEED ALLOWABLE LOAD LIMITS OF ANY OR ALL OF THE INDIVIDUAL TRAPEZE PARTS.
2. DO NOT PENETRATE DUCT OR DUCT INSULATION VAPOR BARRIER WHEN SECURING HANGERS TO DUCTWORK. EVENTUALLY THE PENETRATIONS WILL LEAK.
3. USE HANGER CLAMPS OR BANDS FOR ROUND DUCTS AS ROUND DUCT TENDS TO DEFORM ON TRAPEZE HANGERS.
4. TEARS, PUNCTURES, ETC. SHALL BE REPAIRED WITH TAPE OR MASTIC TO MAINAIN THE INTEGRITY OF THE VAPOR BARRIER.
5. DO NOT USE ANY STRAP HANGERS WITH SCREWS ON ANY DUCTWORK THAT IS EXTERNALY WRAPPED.

1E M7.1 **DUCTWORK HANGERS**
NO SCALE

SOUND ATTENUATOR SCHEDULE

CODE (SA)	MANUFACTURER./ MODEL NO.	SYSTEM	CFM	FACE VELOCITY (FPM)	OCTAVE BAND Hz DYNAMIC INSERTION LOSS, 1⁄16dB SELF-NOISE POWER LEVELS, 1⁄16dB 63	125	250	500	1K	2K	4K	8K	SIZE WIDTH (IN)	HEIGHT (IN)	LENG. (IN)	MAX. PRESS. DROP (" WC)	REMARKS
02-11	IAC 3LFS	CONFERENCE RETURN	4,320	720	9 45	14 42	24 45	27 43	25 45	19 49	16 44	14 37	36	24	36	0.30	
02-12	IAC 3LFS	CONFERENCE RETURN	2,000	667	9 45	14 42	24 45	27 43	25 45	19 49	16 44	14 37	24	18	36	0.30	
02-13	IAC 3LFS	CONFERENCE RETURN	3,000	600	9 45	14 42	24 45	27 43	25 45	19 49	16 44	14 37	30	24	36	0.30	
11-01	IAC 3L	LAB GENERAL EXHAUST	56,000	2,000	4 48	5 47	9 47	14 46	20 53	18 52	13 43	8 31	84	48	36	0.20	
11-02	IAC 3L	LAB GENERAL EXHAUST	56,000	2,000	4 48	5 47	9 47	14 46	20 53	18 52	13 43	8 31	84	48	36	0.20	
11-03	IAC 3L	LAB GENERAL EXHAUST	53,200	1,773	4 48	5 47	9 47	14 46	20 53	18 52	13 43	8 31	72	60	36	0.20	
11-04	IAC 3L	LAB GENERAL EXHAUST	53,200	1,773	4 48	5 47	9 47	14 46	20 53	18 52	13 43	8 31	90	48	36	0.20	
R-02	IAC 3L	LAB GENERAL EXHAUST	56,000	2,000	4 48	5 47	9 47	14 46	20 53	18 52	13 43	8 31	84	48	36	0.20	
R-03	IAC 3L	LAB GENERAL EXHAUST	53,200	1,773	4 48	5 47	9 47	14 46	20 53	18 52	13 43	8 31	72	60	36	0.20	
R-04	IAC 5LFM	LAB GENERAL EXHAUST	185,000	1,423	9 50	13 42	23 46	28 44	27 44	17 45	13 39	12 33	156	120	60	0.43	
A	IAC 3TXL	SAV SUPPLY	---	1,000	13 20	15 20	25 25	14 25	8 23	7 20	6 20	4 20	21	21	36	0.20	A 8" INLET
B	IAC 3TXL	SAV SUPPLY	---	1,000	4 20	8 20	16 25	16 25	7 23	7 20	5 20	3 20	21	21	36	0.32	A 12" INLET
C	IAC 3TXL	EAV EXHAUST	---	1,000	13 20	15 20	25 25	14 25	8 23	7 20	6 20	4 20	21	21	36	0.20	A 8" INLET
D	IAC 3TXL	EAV EXHAUST	---	1,000	4 20	8 20	16 25	16 25	7 23	7 20	5 20	3 20	21	21	36	0.32	A 12" INLET
E	IAC 3KL	SAV SUPPLY	2,900	1,160	4 36	5 36	13 38	11 43	7 49	7 46	6 38	4 35	24	15	36	0.30	A
F	IAC 3KL	EAV EXHAUST	2,245	898	4 38	6 38	14 42	12 47	8 51	7 48	7 41	6 35	24	15	36	0.25	A
G	IAC 8TXL	RACK FAN/ EAV	165	210	5 54	8 47	17 45	20 45	13 49	10 50	11 45	8 34	21	21	36	0.05	A 12" INLET

COB 38A

GENERAL NOTES
1. PROVIDE TWO STRAIGHT DUCT LENGTH UPSTREAM AND DOWNSTREAM OF SILENCER.
2. SILENCERS ARE SCHEDULED BASED ON SCHEDULED EQUIPMENT. CONTRACTOR SHALL PROVIDE NOISE INFORMATION FOR EACH ITEM REQUIRING AN ATTENUATOR AND SHALL BE RESPONSIBLE FOR MAKING REVISIONS TO SILENCERS IF ALTERNATE EQUIPMENT IS INSTALLED.
3. IF REQUIRED, PROVIDE MULTIPLE MODULES SO TOTAL SIZE MATCHES THE LISTED DIMENSIONS.

REMARK NOTES
A. PACKLESS, NON-EROSIVE ATTENUATOR.
B. STAINLESS STEEL, PACKLESS, NON-EROSIVE ATTENUATOR.

GRILLE REGISTER DIFFUSER SCHEDULE

CODE	MANUFACTURER/ MODEL NO.	SERVICE	TYPE	ACCESSORIES	FACE SIZE	REMARKS
A	TITUS PAS	SUPPLY	PERFORATED		24 X 24	A
B	TITUS PAR	RETURN / EXHAUST	PERFORATED		12 X 12 OR 24 X 24	A, B
C	TITUS ML	SUPPLY	SLOT	LINED PLENUM	SEE DRAWINGS	A, D, E
D	TITUS 23R	RETURN / EXHAUST	LOUVERED	O.B.D.	SEE DRAWINGS	
F	TITUS 272FS	SUPPLY	LOUVERED	O.B.D.	SEE DRAWINGS	
G	TITUS 50	RETURN / EXHAUST	EGG CRATE		SEE DRAWINGS	
H	TITUS 350ZFL	RETURN / EXHAUST	LOUVERED	O.B.D.	SEE DRAWINGS	
I	TITUS TRITEC	SUPPLY	LAMINAR FLOW		24 X 48	C
J	TITUS TRITEC	SUPPLY	LAMINAR FLOW		24 X 24	C
K	TITUS CT-480	EXHAUST	SLOTTED		SEE DRAWINGS	F
L	TITUS SG-SD	SUPPLY/EXHAUST	PERFORATED	---	SEE DRAWINGS	G, H, I

GENERAL NOTES
COB 38A
1. SEE PLANS FOR CFM AND NECK SIZE.
2. MAXIMUM NOISE CRITERIA (NC) SHALL BE 25 UNLESS OTHERWISE NOTED.
3. COLOR TO BE COORDINATED WITH ARCHITECT.
4. MATERIAL IS STEEL UNLESS OTHERWISE NOTED.
5. PROVIDE BALANCING DEVICE FOR ALL GRD'S UNLESS OTHERWISE NOTED.
6. DIFFUSERS SHALL BE 4-WAY THROW UNLESS NOTED OTHERWISE ON PLANS.
7. PROVIDE CABLE ACTUATOR (SUCH AS YOUNG REGULATOR) AT ALL LOCATIONS WHERE BALANCING DEVICE IS INACCESSIBLE.

REMARK NOTES
A. IN CONFERENCE ROOMS, MAXIMUM NC SHALL BE 20.
B. GRILLES WITH 100 CFM OR LESS AND INSTALLED IN GYP CEILING, MAY HAVE 12 X 12 OR 24 X 24 FACE. ALL OTHERS SHALL BE 24 X 24 FACE.
C. DIFFUSERS SHALL BE 2-WAY THROW UNLESS NOTED OTHERWISE ON PLANS.
D. DIFFUSERS SHALL BE 1" WIDE, 3-SLOT UNLESS NOTED OTHERWISE ON PLANS. PROVIDE EITHER FACTORY OR FIELD PLENUM.
E. WHERE SLOT DIFFUSERS ARE SHOWN WALL TO WALL, CONTRACTOR SHALL VERIFY EXACT LENGTHS AND FIELD CUT AS REQUIRED.
F. CLEAR ANODIZED FINISH.
G. MAXIMUM SECURITY GRILLE WITH 3/16" INCH PERFORATIONS.
H. PAINT SHALL PASS 100-HOUR ASTM B117 CORROSIVE ENVIRONMENTS SALT SPRAY TEST, 250 HOUR ASTM D870 WATER IMMERSION TEST, AND ASTM D2794 REVERSE IMPACT CRACKING TEST WITH 50 INCH-POUND FORCE.
I. FUTURE WORK. NOT IN CONTRACT.
COB 38A

NINTH FLOOR LAB AIR VALVE SCHEDULE (PARTIAL)

MARK	AREA SERVED	MANUFACTURER/ MODEL NO.	DESIGN AIRFLOW MAX	DESIGN AIRFLOW MIN	VALVE CAPACITY MAX	VALVE CAPACITY MIN	HEATING COIL CFM	HEATING COIL CAP. MBH	HEATING COIL GPM	HEATING COIL APD W.C.	HEATING COIL WPD FT	SOUND ATTENUATOR DESIGNATION	NOTES
(E) SAV-09-35	LAB ALCOVE P15-9460E	(E) SIEMEN SUPPLY AIR TERMINAL	-	-	-	-	-	-	-	-	-	-	1,2,3,4,5,6
(E) EAV-09-35	LAB ALCOVE P15-9460E	(E) SIEMEN EXHAUST AIR TERMINAL	-	-	-	-	-	-	-	-	-	-	1,2,3,4,5,6
(E) SAV-09-36	LAB ALCOVE P15-9460F	(E) SIEMEN SUPPLY AIR TERMINAL	-	-	-	-	-	-	-	-	-	-	1,2,3,4,5,6
(E) EAV-09-36	LAB ALCOVE P15-9460F	(E) SIEMEN EXHAUST AIR TERMINAL	-	-	-	-	-	-	-	-	-	-	1,2,3,4,5,6
EAV-09-36-A	LAB ALCOVE P15-9460F	SIEMEN EXHAUST AIR TERMINAL 08	310	141	1,120	130	-	-	-	-	-	SA-C	1,2,3,4,5

NOTES:
1. CONTROLS SHALL BE BY SIEMENS, INSTALLED AT THE FACTORY.
2. MOUNT WITH 1/5 STRAIGHT DUCT DIAMETERS UPSTREAM OF THE BOX, VERIFY WITH MANUFACTURER.
3. EWT = 180 F, LWT = 160 F
4. PROVIDE 2 WAY, MODULATING CONTROL VALVES ON HEATING COILS.
5. PROVIDE SOUND ATTENUATOR FOR VALVE AS SCHEDULED AND SHOWN ON DRAWINGS.
6. EXISTING SAV/EAV TO REMAIN

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MECHANICAL DETAILS & SCHEDULES

M7.1

(R)	RELOCATED
Ø	PHASE
A	AMPERE
AC	ABOVE COUNTER
AF	AMP FRAME (CIRCUIT BREAKER)
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AMP	AMPERE
AP	WIRELESS ACCESS POINT
AT	AMP TRIP (CIRCUIT BREAKER OR FUSE)
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO-VIDEO, AUDIO-VISUAL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BJ	BONDING JUMPER
BKR	BREAKER
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAS	CASING
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CE	COVER ELEVATION
CEM	CEMENT
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CG	CORNER GUARD
CH	CHANNEL
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CKT BK	CIRCUIT BREAKER
CL	CIRCUIT LINE
CM	CEILING MOUNTED
CMP	CORRUGATED METAL PIPE
CO	CONDUIT ONLY
COMP	COMPOSITE
COOR	COORDINATE
COORD	COORDINATE
CSK	COUNTERSUNK
CT	CURRENT TRANSFORMER
CTL	CONTROL
CU	COPPER
CWV	COMBINATION WASTE AND VENT
DB	DECIBEL
DC	DIRECT CURRENT
DISC	DISCONNECT
DP	DISTRIBUTION PANELBOARD
DW	DISHWASHER
ECS	EMERGENCY COMMUNICATION SYSTEM
EGB	ELECTRICAL GROUNDING BUSBAR
EMD	ESTIMATED MAXIMUM DEMAND
EMGB	ELECTRICAL MAIN GROUNDING BUSBAR
EP	EXPLOSION PROOF
ERMS	ENERGY REDUCTION MAINTENANCE SWITCH
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT CANDLE
FLA	FULL LOAD AMPS
FS	FLOW SWITCH
FSD	FIRE SMOKE DAMPER
G	EQUIPMENT GROUNDING CONDUCTOR
GEN	GENERATOR
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFPE	GROUND FAULT PROTECTION OF EQUIPMENT
GND	EQUIPMENT GROUNDING CONDUCTOR
HH	HANDHOLE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
IC	INTERCOM
IG	ISOLATED GROUND
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CIRCUIT
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LT	LIGHT
LTG	LIGHTING
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MRTS	MOTOR RATED TOGGLE SWITCH
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTG	MOUNTING
MTS	MAIN TRANSFER SWITCH
N	NEUTRAL
NC	NORMALLY CLOSED
NF	NON-FUSED
NL	NIGHT LIGHT
NO	NORMALLY OPEN
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OS&Y	OUTSIDE SCREW AND YOKE
P	POLE(S)
PA	PUBLIC ADDRESS
PB	PULL BOX
PH	PHASE
PIV	POST INDICATOR VALVE
PNL	PANEL
PWR	POWER
RCP	REFLECTED CEILING PLAN
RECPT	RECEPTACLE
REF	REFERENCE
RESP	RESPONSIVE
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DAMPER
SEC	SECONDARY
SPD	SURGE PROTECTION DEVICE
SWBD	SWITCHBOARD
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TIME CLOCK
TGB	TELECOMMUNICATIONS GRONDING BUSBAR
TMGB	TELECOMMUNICATIONS MAIN GRONDING BUSBAR
TO	TELECOMMUNICATIONS OUTLET
TR	TELECOMMUNICATIONS ROOM
TS	TAMPER SWITCH
TV	TELEVISION
UG	UNDERGROUND
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
WA	TELECOMMUNICATIONS WORK AREA
WG	WIRE GUARD
WP	WEATHER-PROOF (NEMA 3R)
XFMR	TRANSFORMER

NOTES

GENERAL NOTES

1. MODIFICATIONS TO EXISTING POWER DISTRIBUTION EQUIPMENT: MATCH EXISTING MANUFACTURER, SWITCH TYPE, FUSE TYPE, BREAKER TYPE AND KAIC RATING FOR ALL INSTALLED DEVICES.
2. EXISTING PANEL DIRECTORIES AT PANELS AFFECTED BY WORK: PROVIDE UPDATED TYPED PANEL DIRECTORY. CONSULT OWNER FOR INPUT ON LABELING OF ALL EXISTING CIRCUITS.
3. DEVICES AND LIGHT FIXTURES DENOTED 'ER' ARE EXISTING TO BE RELOCATED. NOTIFY A/E IF DEVICES OR FIXTURES ARE DAMAGED.

GENERAL DEMOLITION NOTES

1. ITEMS INDICATED ON DEMOLITION PLANS ARE BASED ON AS-BUILT DRAWINGS AND FIELD OBSERVATIONS AND ARE INTENDED TO GIVE THE BIDDER A GENERAL REPRESENTATION OF EXISTING CONDITIONS.
2. REMOVE ALL ITEMS SHOWN FULL-TONE OR NOTED ELSEWHERE IN THE DOCUMENTS TO BE REMOVED OR DEMOLISHED. DEMOLISH ADDITIONAL ITEMS NOT SHOWN ON DRAWINGS, BUT WHICH MUST BE REMOVED TO COMPLETE THE PROJECT.
3. ITEMS SHOWN HALF-TONE ARE EXISTING TO REMAIN.
4. RELOCATE ITEMS DENOTED 'ER'. SEE LIGHTING, POWER AND/OR SPECIAL SYSTEM SHEETS FOR NEW LOCATIONS. 'ER' IS DEFINED AS EXISTING (TO BE) RELOCATED.
5. EXISTING CONDUIT MAY REMAIN IF ALL THE FOLLOWING ARE TRUE:
   A. IT CAN BE REUSED TO FEED DEVICES INSTALLED UNDER THIS CONTRACT.
   B. IT DOES NOT INTERFERE WITH OTHER TRADES.
   C. IT WAS ORIGINALLY INSTALLED MEETING SPECIFICATIONS RELATED TO THIS PROJECT.
   D. IT WILL NOT BE EXPOSED IN A FINISHED AREA (UNLESS NOTED OTHERWISE).
6. PROVIDE ELECTRICAL DEMOLITION ASSOCIATED WITH MECHANICAL EQUIPMENT TO BE REMOVED. IN ADDITION TO DEVICES SHOWN, REFER TO MECHANICAL AND ARCHITECTURAL DEMOLITION SHEETS TO DETERMINE EQUIPMENT TO BE REMOVED.
7. MAINTAIN FUNCTIONALITY OF ALL EXISTING LOW VOLTAGE SYSTEMS INCLUDING, BUT NOT LIMITED TO, TELECOM CABLING NETWORKS, INTERCOM, CLOCKS, FIRE ALARM, SAFETY AND SECURITY DURING ALL PHASES OF CONSTRUCTION. PROVIDE TEMPORARY INTERCONNECTIONS AS REQUIRED TO ACCOMMODATE CONSTRUCTION SCHEDULE.

GENERAL POWER NOTES

1. VERIFY ANY NEUTRAL WIRES REQUIRED ON 1Ø OR 3Ø MECHANICAL UNITS FURNISHED UNDER DIVISION 23. IF REQUIRED, PROVIDE NEUTRAL.
2. PROVIDE DEDICATED 120-VOLT CIRCUITS TO ALL HVAC BAS CONTROL DEVICES AND PANELS. COORDINATE QUANTITY WITH DIVISION 23. UTILIZE NEAREST SPARE 120-VOLT, 20/1 BREAKER. LABEL TYPED PANEL DIRECTORY ACCORDING TO LOAD BEING SERVED.
3. IN ADDITION TO DEVICES SHOWN, SEE SCHEDULE SHEETS FOR CONNECTIONS TO ALL MECHANICAL EQUIPMENT.
4. LOCATE SWITCHES FOR CONTROL OF FANS IN TWO-GANG BOX WITH LIGHT SWITCH WHERE APPLICABLE.
5. PROVIDE #10AWG CONDUCTORS FOR ALL WARM AIR DRYER CIRCUITS. PROVIDE LOCKOUT DEVICE AT ALL BREAKERS SERVING WARM AIR DRYERS.

GENERAL LIGHTING NOTES

1. SEE LIGHT FIXTURE SCHEDULE AND SYMBOLS LEGEND FOR MOUNTING HEIGHTS, UNLESS NOTED OTHERWISE.
2. PROVIDE #10AWG MINIMUM CONDUCTORS FOR ALL EXTERIOR LIGHTING CIRCUITS.
3. SEE ARCHITECTURAL BUILDING ELEVATIONS FOR LOCATION OF BUILDING MOUNTED EXTERIOR LIGHT FIXTURES.
4. PROVIDE BEAD OF SILICONE SEALANT AROUND RECESSED BACK BOX PERIMETER AT ALL BUILDING MOUNTED EXTERIOR LIGHT FIXTURE LOCATIONS.
5. CIRCUIT FIXTURES DENOTED WITH 'NL' AS UNSWITCHED NIGHT LIGHTS.
6. FIXTURES DENOTED WITH LOWER CASE LETTERS SHALL BE CONTROLLED BY SWITCHES DENOTED WITH THE SAME LOWER CASE LETTER IN EACH ROOM.

GENERAL DEVICE BOX NOTES

1. SEE SYMBOLS LEGEND THIS SHEET FOR MOUNTING HEIGHTS UNLESS NOTED OTHERWISE ON DRAWINGS.
2. ALL MOUNTING HEIGHTS ARE TO CENTERLINE OF BOXES UNLESS NOTES OTHERWISE.
3. PROVIDE BOX EXTENDER FOR FLUSH INSTALLATION OF DEVICES LOCATED IN ARCHITECTURAL CASEWORK THAT IS FLUSH WITH ADJACENT WALL (SUCH AS RECEPTACLES FOR GARBAGE DISPOSERS).
4. FLOOR BOXES: OBTAIN OWNER APPROVAL OF ALL BOX LOCATIONS PRIOR TO ROUGH IN. PROVIDE DEVICE PLATES AT DEVICES AND BLANK PLATES AT ALL UNUSED COMPARTMENTS.
5. COORDINATE LOCATION OF DEVICE BOXES FOR SWITCHES, RECEPTACLES, AND SYSTEMS DEVICES WITH MARKERBOARDS. ADJUST BOX LOCATIONS TO AVOID MARKERBOARDS.
6. COORDINATE LOCATION OF DEVICE BOXES FOR SWITCHES, RECEPTACLES, AND SYSTEMS DEVICES WITH TACKBOARDS. ADJUST BOX LOCATIONS TO AVOID TACKBOARDS. PROVIDE BOX EXTENDER FOR A FLUSH INSTALLATION WHERE DEVICES MUST BE MOUNTED AT TACKBOARD/TACKWALL.
7. CEILING MOUNTED RECEPTACLES: AT SUSPENDED CEILINGS, ROUTE POWER TO RECEPTACLE VIA FLEXIBLE METALLIC CONDUIT WITH 6-FOOT SERVICE LOOP. FEED FMC FROM A J-BOX RIGIDLY SUPPORTED A MAXIMUM OF 24-INCHES ABOVE SUSPENDED CEILING OR AT BOTTOM OF STRUCTURE ABOVE, WHICHEVER IS LOWER. LOCATE J-BOX DIRECTLY ABOVE RECEPTACLE AND SUPPORT VIA STRUCTURE, OR VIA THREAD ROD AND UNISTRUT HUNG FROM STRUCTURE ABOVE IN HIGH STRUCTURE APPLICATIONS.
8. DEVICES RECESSED IN MULLIONS: BACK BOXES TO BE RECESSED FOR FLUSH INSTALLATION OF DEVICE AND WALLPLATE. EXTEND CONCEALED CONDUIT IN MULLION UP TO WALL ABOVE AND STUB OUT ABOVE ACCESSIBLE CEILING. IN AREAS WITH NO CEILING, EXTEND CONDUIT TOWARDS CABLING SOURCE TO ABOVE NEAREST ACCESSIBLE CEILING.

* NOTE *

ALL NOTES ON THIS SHEET ARE APPLICABLE TO ALL OTHER SHEETS IN THIS SET.

THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE APPLICABLE IN THIS SET OF DRAWINGS.

ELECTRICAL SYMBOLS

LIGHTING

LIGHTING FIXTURE TAG

XXX — FIXTURE TYPE
XXX-X — CKT DESIGNATION (PNL - CKT NO.)
XXX-X — RELAY PANEL - RELAY NO. OR LOCAL SWITCH DESIGNATION

LIGHTING FIXTURES

- LIGHTING FIXTURE
- LIGHTING FIXTURE ON EMERGENCY SYSTEM
- CEILING FIXTURE, SURFACE, RECESSED OR PENDANT
- LIGHTING FIXTURE ON EMERGENCY SYSTEM
- LIGHTING TRACK, TRACK MOUNTED LIGHT FIXTURES
- LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- WALL WASHER
- HIGH BAY LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- SELF CONTAINED EMERGENCY LIGHTING UNIT MOUNT 94-INCHES AFF, UNO
- EXIT SIGN, CEILING MOUNTED, DIRECTIONAL ARROW(S) AS INDICATED
- EXIT SIGN, WALL MOUNTED, DIRECTIONAL ARROW(S) AS INDICATED. MOUNT 94-INCHES AFF, UNO

AREA LIGHTING

- SITE LIGHTING - POLE
- POLE MOUNTED AREA LIGHTING FIXTURE
- POLE WITH POLE MOUNTED AREA LIGHTING FIXTURE
- WALL MOUNTED AREA LIGHTING FIXTURE
- IN GRADE LIGHT FIXTURE
- BOLLARD LIGHT FIXTURE

LIGHTING CONTROL DEVICES

- RPx — LIGHTING CONTROL PANEL
- CVx — CENTRAL INVERTER
- R — LOW VOLTAGE RELAY
- PC — PHOTOELECTRIC CELL
- LC — LIGHTING CONTACTOR
- BAT — REMOTE EMERGENCY BATTERY PACK

SWITCHES AND WALL-BOX CONTROLS

SWITCHES: MOUNT 42-INCHES AFF UNO

S^{X}_{X} — SUPERSCRIPT , SWITCH SHALL CONTROL FIXTURE DENOTED WITH SAME LOWER CASE LETTER; SWITCH SYMBOL; SUBSCRIPT, SWITCH TYPE - SEE BELOW; LINE THRU SWITCH INDICATES A KEY OPERATED SWITCH

- S — SWITCH, SINGLE POLE
- S_2 — SWITCH, DOUBLE POLE
- S_3 — SWITCH, 3-WAY
- S_4 — SWITCH, 4-WAY
- S_D — SWITCH, DIMMER
- S_E — SWITCH, EMERGENCY
- S_{LV} — SWITCH, LOW VOLTAGE
- S_{MC} — SWITCH, MOMENTARY CONTACT
- S_{OS} — SWITCH, WALL-BOX OCCUPANCY SENSOR
- S_{OS2} — SWITCH, WALL-BOX OCCUPANCY SENSOR, 2-POLE
- S_P — SWITCH WITH PILOT LIGHT
- S_R — SWITCH, LOW VOLTAGE, ASSOCIATED WITH RELAY PANEL
- S_T — SWITCH, TIMER
- S_{ES} — SWITCH, ECO-SYSTEM
- S_{EP} — SWITCH, EXPLOSION-PROOF

CEILING MOUNTED LIGHTING CONTROL DEVICES
MAXIMUM MOUNTING HEIGHT OF 10-FEET AFF

- OS — OCCUPANCY SENSOR
- VS — VACANCY SENSOR

WALL MOUNTED LIGHTING CONTROL DEVICES:
MOUNT 94-INCHES AFF, UNO

- OS — OCCUPANCY SENSOR
- VS — VACANCY SENSOR

THEATRICAL LIGHTING DEVICES:

- LCD — THEATRICAL LIGHTING LCD STATION, MOUNT 50-INCHES AFF, UNO
- E — THEATRICAL LIGHTING ENTRY STATION, MOUNT 42-INCHES AFF, UNO
- TO — THEATRICAL OUTLET BOX, MOUNT 18-INCHES AFF, UNO
- TN — THEATRICAL NETWORK OUTLET, MOUNT 18-INCHES AFF, UNO
- TC — THEATRICAL CONTROL CONSOLE OUTLET, MOUNT 18-INCHES AFF, UNO

POWER

- CIRCUIT HOME RUN
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- CONDUIT STUB-UP
- CONDUIT SLEEVE
- CONDUIT SEAL
- CONDUIT CONCEALED IN CEILING OR WALLS, POWER
- CONDUIT CONCEALED IN CEILING OR WALLS, OTHER (* = SEE ABBREVIATIONS)
- CONDUIT CONCEALED IN FLOOR OR UNDERGROUND, POWER
- CONDUIT CONCEALED IN FLOOR OR UNDERGROUND, OTHER (* = SEE ABBREVIATIONS)
- EXPOSED CONDUIT, POWER
- EXPOSED CONDUIT, OTHER (* = SEE ABBREVIATIONS)
- FRS — FIRE RATED SLEEVE
- T — TRANSFORMER
- XXX — BRANCH CIRCUIT PANELBOARD MOUNT 72-INCHES TO TOP
- XXX — DISTRIBUTION PANELBOARD MOUNT 72-INCHES TO TOP
- EQUIPMENT CABINET, AS NOTED
- XXX — SWITCHBOARD
- MOTOR STARTER OR DRIVE
- DISCONNECT SWITCH
- COMBINATION STARTER / DISCONNECT SWITCH
- CT — CURRENT TRANSFORMER ENCLOSURE
- M — METER
- GEN — GENERATOR
- ATS — AUTOMATIC TRANSFER SWITCH
- SYSTEM GROUND ELECTRODE
- THERMOSTAT
- MUSHROOM SWITCH
- MH — ELECTRICAL MANHOLE
- HH — ELECTRICAL HAND HOLE
- M — MOTOR CONNECTION, HORSEPOWER AS INDICATED
- S_F — FUSE AND SWITCH ASSEMBLY
- S_T — MANUAL CONTROLLER WITH THERMAL OVERLOAD
- S_M — MANUAL CONTROLLER W/O THERMAL OVERLOAD
- B — CIRCUIT BREAKER ENCLOSURE
- PB — PULL BOX
- EQUIPMENT CONNECTION
- CABLE TRAY, LADDER TYPE OR RUNWAY
- CABLE TRAY
- MULTI-OUTLET ASSEMBLIES MOUNT 18-INCHES AFF, UNO WHERE DENOTED 'AC', MOUNT ABOVE COUNTER
- DIVIDED SURFACE RACEWAY MOUNT 18-INCHES AFF, UNO WHERE DENOTED 'AC', MOUNT ABOVE COUNTER

PUSHBUTTON STATION: MOUNT 42-INCHES AFF UNO

- SWITCH, PUSH BUTTON, SINGLE
- SWITCH, PUSH BUTTON, DOUBLE
- SWITCH, PUSH BUTTON, TRIPLE

RECEPTACLES: MOUNT 18-INCHES AFF, UNO

DIAGONAL LINE THROUGH SYMBOL OR DENOTED 'AC' INDICATES MOUNT DEVICE ABOVE COUNTER. WHERE INDICATED AS 'MOUNT ABOVE COUNTER' MOUNT BOTTOM OF BOX 2-INCHES ABOVE TOP OF BACKSPLASH OR 6-INCHES ABOVE COUNTERTOP IF NO BACKSPLASH EXISTS.

LABELS SHALL BE MACHINE PRINTED, UNO

- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE, GFI TYPE
- DUPLEX RECEPTACLE, MOUNT ABOVE COUNTER
- DUPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
- DOUBLE DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLE, GFI TYPE
- DOUBLE DUPLEX RECEPTACLE, MOUNT ABOVE COUNTER
- DOUBLE DUPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
- DUPLEX RECEPTACLE, FLUSH IN CEILING
- DOUBLE DUPLEX RECEPTACLE, FLUSH IN CEILING
- DUPLEX RECEPTACLE, HORIZONTALLY MOUNTED
- DUPLEX RECEPTACLE, HORIZ. MTD, GFI TYPE
- DUPLEX RECEPTACLE, HORIZ. MTD, ABOVE COUNTER
- DUPLEX RECEPTACLE, HORIZ. MTD, GFI TYPE, MOUNT ABOVE COUNTER
- R — WEATHER RESISTANT GFI DUPLEX RECEPTACLE, ROOF MOUNT 18-INCHES ABOVE ADJACENT STRUCTURE WITH A WEATHERPROOF, IN-USE COVER
- WP — WEATHER RESISTANT GFI DUPLEX RECEPTACLE, MOUNT 18-INCHES AFF WITH A WEATHERPROOF, IN-USE COVER
- EWC — STD DUPLEX RECEPTACLE TO SERVE ELECTRIC WATER COOLER, MOUNT AT HEIGHT PER EQUIPMENT MANUFACTURER'S INSTALLATION GUIDELINES. WIRE TO GFCI BKR IN PANELBOARD.
- TV — DUPLEX RECEPTACLE TO SERVE TELEVISION, MOUNT AT SAME HEIGHT AND WITHIN 8-INCHES OF ADJACENT TV OUTLET
- SIMPLEX RECEPTACLE, CEILING MOUNTED L5-20R
- DUPLEX RECEPTACLE, EMERGENCY
- DOUBLE DUPLEX RECEPTACLE, EMERGENCY
- DUPLEX RECEPTACLE, LOWER SWITCH
- DUPLEX RECEPTACLE, SWITCHED
- RANGE RECEPTACLE, MOUNT 8-INCHES AFF
- SPECIAL RECEPTACLE, DEEP WELL BOX
- FLUSH FLOOR OUTLET BOX UNO
- FLUSH FLOOR BOX WITH DUPLEX RECEPTACLE UNO
- MULTI-DEVICE FLOOR BOX WITH DUPLEX RECEPTACLE AND TELECOMMUNICATIONS OUTLETS
- USB ONLY RECEPTACLE
- RECEPTACLE WITH USB PORTS
- J — FLUSH JUNCTION BOX, CEILING MOUNTED
- J_P — JUNCTION BOX FOR FUTURE PROJECTOR POWER MOUNT 24-INCHES ABOVE SUSPENDED CEILING MOUNT TIGHT TO CEILING AT EXPOSED STRUCTURE LABEL BOX COVER 'PROJECTOR POWER'
- JUNCTION BOX ABOVE SUSPENDED CEILING WITH FLEX CONNECTION
- J — FLUSH JUNCTION BOX, WALL MOUNTED
- J — SURFACE JUNCTION BOX, WALL MOUNTED
- J — SURFACE JUNCTION BOX, CEILING MOUNTED
- H — HAND DRYER, INSTALL HAND DRYER SPECIFIED IN DIV. 11

ONE-LINE DIAGRAM

- X — ENCLOSED CONTROLLER (ACROSS-THE-LINE UNO) MOUNT 60-INCHES AFF TO TOP
  X = STARTER NEMA SIZE
- XX/X, XXAF, XX — ENCLOSED SWITCH; MOUNT 60-INCHES AFF TO TOP
  XX/X = AMP RATING / NO. OF POLES
  XXAF = FUSE SIZE; AF=AMP FUSE; NF=NO FUSE
  X = STARTER NEMA SIZE
- XX/X, XXAF, XX — COMBINATION CONTROLLER \ DISCONNECT; MOUNT 60-INCHES AFF TO TOP
  XX/X = AMP RATING / NO. OF POLES
  XXAF = FUSE SIZE; AF=AMP FUSE; NF=NO FUSE
  XX = ENCLOSURE NEMA RATING; BLANK=NEMA 1; WP=NEMA 3R
- M — METER SOCKET/METER
- SPD — SURGE PROTECTION DEVICE
- T, XX, Y — TRANSFORMER
  T = TRANSFORMER ID
  XX = SIZE
- XXX/X, LSIG — BREAKER
  XXX/X = AMP RATING / POLES
  LSIG = ADJUSTABLE SETTINGS (WHERE NOTED)
  L = LONG TIME
  S = SHORT TIME
  I = INSTANTANEOUS
  G = GROUND FAULT PROTECTION OF EQUIPMENT
  GFPE = GROUND FAULT PROTECTION OF EQUIPMENT
  ERMS = ENERGY REDUCTION MAINTENANCE SWITCH
- XXX/3, XXX — FUSIBLE SWITCH
  XXX/X = SWITCH AMP RATING / POLES
  XXX = FUSE SIZE
- GROUNDING ELECTRODE SYSTEM

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12/18/2023

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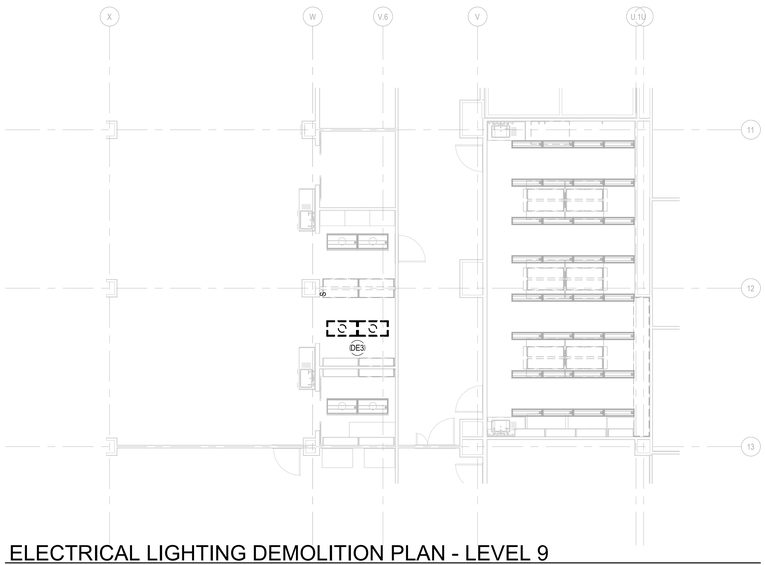
AURORA, CO 80045

CONSTRUCTION DOCUMENTS
12/18/2023
REVISIONS

PN 23-14584
37-24103-00

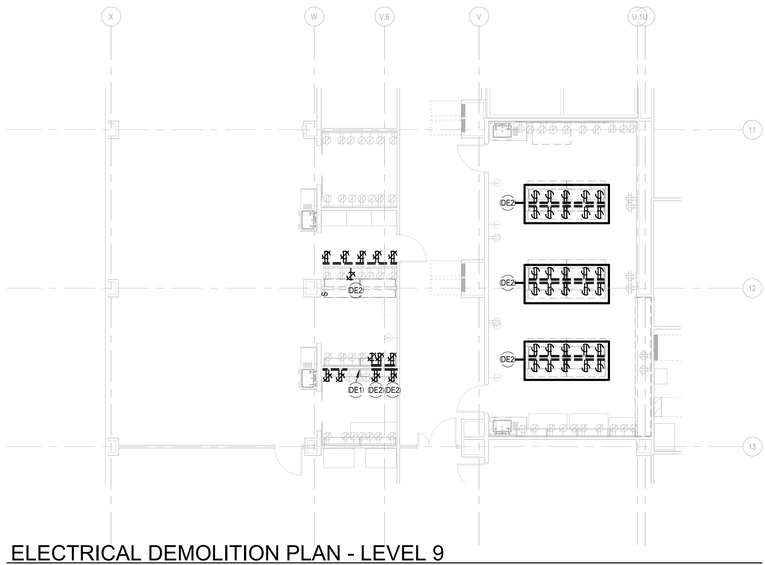
ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES

E0.1



ELECTRICAL LIGHTING DEMOLITION PLAN - LEVEL 9

SCALE: 1/8" = 1'-0"



N

ELECTRICAL DEMOLITION PLAN - LEVEL 9

SCALE: 1/8" = 1'-0"

SHEET NOTES

DE1 CONTRACTOR TO PROVIDE END CAPS FOR SURFACE RACEWAY WHERE SHORTENED.

DE2 MAINTAIN EXISTING CIRCUITS FOR REUSE.

DE3 REMOVE ALL LIGHT FIXTURES AND CONTROLS, RETURN TO OWNER FOR SALVAGE. MAINTAIN CIRCUIT FOR REUSE

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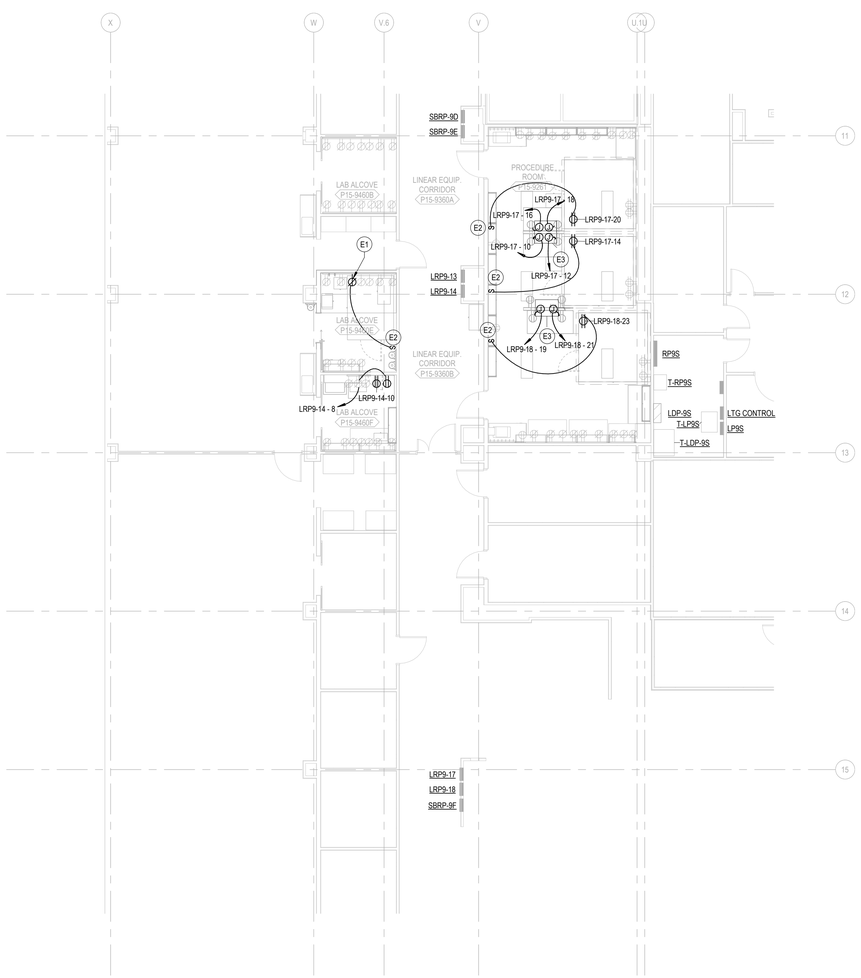
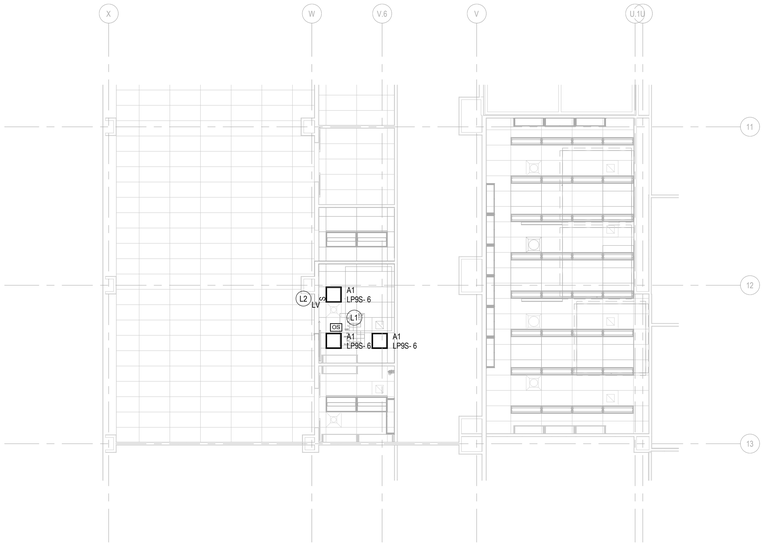
ELECTRICAL DEMOLITION PLAN - LEVEL 9

ED1.1



POWER PLAN - LEVEL 9

SCALE: 1/8" = 1'-0"



LIGHTING PLAN - LEVEL 9

SCALE: 1/8" = 1'-0"

SHEET NOTES

E1 RECEPTACLE TO BE RELOCATED TO 7"AFF TO FEED SOUNDBOOTH.

E2 SWITCH SHALL BE CIRCUITED TO RECEPTACLE SHOWN TO CONTROL SOUNDBOOTH. EXTEND EXISTING CIRCUIT AS NEEDED TO REFEED RECEPTACLE.

E3 PROVIDE POWER CONNECTION TO PREWIRED DEMOUNTABLE WALL AT CEILING. COORDINATE CONNECTION TYPE WITH DEMOUNTABLE WALL MANUFACTURER.

L1 CONNECT LIGHTING FIXTURES AND CONTROLS TO EXISTING LIGHTING CIRCUIT SERVING SPACE.

L2 NEW LOW VOLTAGE DIMMER SHALL BE WIRED TO CONTROL FIXTURES IN SPACE. OCCUPANCY SENSOR SHALL BE PROGRAMMED TO TURN OFF LIGHTS AFTER 30 MIN OF NO MOTION.

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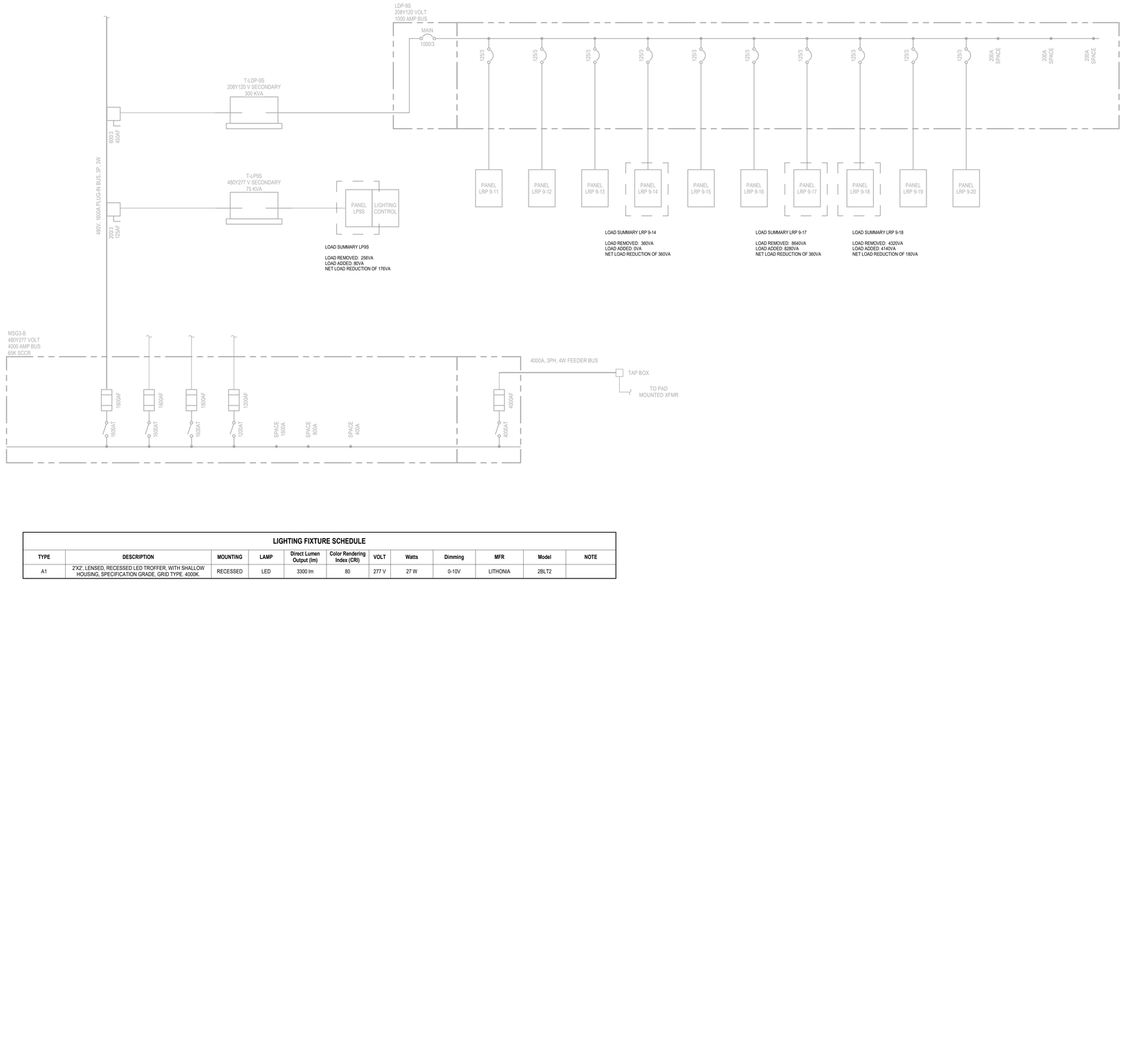
FLOOR PLAN - LEVEL 9

E1.0

GENERAL SINGLE LINE NOTES

1 PROJECT RESULTS IN A NET REDUCTION OF LOAD ON ALL ELECTRICAL PANELS.
2 ELECTRICAL ONE-LINE DIAGRAM INFORMATION TAKEN FROM EXISTING DOCUMENTATION AND IS EXISTING TO REMAIN AND SHOWN FOR REFRENCE ONLY. ALL CIRCUITING TO BE REUSED.



LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MOUNTING	LAMP	Direct Lumen Output (lm)	Color Rendering Index (CRI)	VOLT	Watts	Dimming	MFR	Model	NOTE
A1	2'X2', LENSED, RECESSED LED TROFFER, WITH SHALLOW HOUSING, SPECIFICATION GRADE, GRID TYPE, 4000K.	RECESSED	LED	3300 lm	80	277 V	27 W	0-10V	LITHONIA	2BLT2	

1 E5.1 One-Line Diagram
NO SCALE

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ELECTRICAL DIAGRAMS

E5.1