



METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION

1945 S Hill St, Los Angeles, CA 90007

BID SET

11/01/2017
SFM#17-S-1690-CP



GENERAL NOTES

- PROVIDE WORK AND MATERIALS IN ACCORDANCE WITH THE LATEST RULES AND REGULATIONS OF APPLICABLE STATE AND LOCAL CODES, LAWS, AND STATUTES, INCLUDING 2013 CBC, CMC, CPC AND 2013 CEC AS AMENDED BY STATE OF CA AND LOCAL JURISDICTION. NOTHING IN THE CONTRACT DOCUMENTS IS TO BE CONSTRUED AS REQUIRING OR PERMITTING WORK CONTRARY TO THESE CODES, LAWS AND STATUTES.
- EXAMINATION OF THE SITE AND PORTIONS THEREOF WHICH WILL AFFECT THIS WORK SHALL BE MADE IMMEDIATELY BY THE CONTRACTOR, WHO SHALL COMPARE IT WITH THE CONTRACT DOCUMENTS AND SATISFY HIMSELF AS TO CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. HE SHALL, AT SUCH TIME, CHECK LOCATIONS OF THE EXISTING STRUCTURES AND EQUIPMENT WHICH MAY AFFECT HIS WORK. NO ALLOWANCE SHALL BE MADE FOR ANY EXTRA EXPENSE TO WHICH HE MAY BE PUT DUE TO FAILURE OR NEGLIGENCE ON HIS PART JCC BEFORE PROCEEDING WITH ANY WORK.
- DIMENSIONS ON CONSTRUCTION DRAWINGS ARE TO FACE OF FINISH UNLESS OTHERWISE NOTED. CONTRACTOR SHALL NOT SCALE DRAWINGS. DIMENSIONS NOTED "(E)" MEANING EXISTING ARE TO BE FIELD VERIFIED PRIOR TO LAYING OUT WORK.
- THE CONSTRUCTION DOCUMENTS ARE PROVIDED TO ILLUSTRATE THE DESIGN AND GENERAL TYPE OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP THROUGHOUT. THE DOCUMENTS DO NOT ILLUSTRATE EVERY CONDITION. THE CONTRACTOR, IN ASSUMING RESPONSIBILITY FOR THE WORK INDICATED, SHALL COMPLY WITH THE SPIRIT AS WELL AS THE LETTER IN WHICH THEY WERE PREPARED.
- CONSTRUCTION DOCUMENTS AND SPECIFICATIONS ARE COMPLEMENTARY, AND WHAT IS CALLED FOR BY ANY WILL BE AS BINDING AS IF CALLED FOR BY ALL. ANY WORK SHOWN OR REFERRED TO ON ANY CONSTRUCTION DOCUMENT SHALL BE PROVIDED AS THOUGH ON ALL RELATED DOCUMENTS.
- WORK LISTED, SHOWN, OR IMPLIED ON ANY CONSTRUCTION DOCUMENT SHALL BE PROVIDED BY THE CONTRACTOR, EXCEPT WHERE NOTED OTHERWISE. THE GENERAL CONTRACTOR SHALL CLOSELY COORDINATE HIS WORK WITH THAT OF OTHER CONTRACTORS OR VENDORS ASSURE THAT SCHEDULES ARE MET AND THAT WORK IS DONE IN CONFORMANCE TO MANUFACTURER'S REQUIREMENTS.
- UNLESS OTHERWISE NOTED WORK IS ASSUMED NEW UNLESS NOTED AS EXISTING (E).
- THE USE OF THE WORD "PROVIDE" IN CONNECTION WITH ANY ITEM SPECIFIED IS INTENDED TO MEAN THAT SUCH SHALL BE FURNISHED, INSTALLED, AND CONNECTED, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL PROTECT WORK AREA AND NEW OR EXISTING MATERIALS AND FINISHES FROM DAMAGE WHICH MAY OCCUR FROM CONSTRUCTION, DEMOLITION, DUST, WATER, ETC., AND SHALL PROVIDE AND MAINTAIN TEMPORARY BARRICADES OR ENCLOSURES AS REQUIRED TO PROTECT THE PUBLIC DURING THE PERIOD OF CONSTRUCTION. AT NO ADDITIONAL EXPENSE TO THE OWNER, THE CONTRACTOR SHALL REPAIR OR REPLACE DAMAGE TO NEW AND EXISTING MATERIALS, FINISHES, STRUCTURES, AND EQUIPMENT TO THE SATISFACTION OF THE OWNER.
- CONTRACTORS SHALL REMOVE RUBBISH AND WASTE MATERIALS ON A REGULAR BASIS, AND SHALL EXERCISE STRICT CONTROL OVER JOB CLEANING TO PREVENT ANY DIRT, DEBRIS, OR DUST FROM AFFECTING, IN ANY WAY, FINISHED WORK OR EXISTING TO REMAIN WORK OR CREATING A SAFETY HAZARD IN OR OUTSIDE JOBSITE.
- CONTRACTOR SHALL LEAVE JOB SITE AND AFFECTED AREAS CLEAN AND IN AN ORDERLY MANNER READY FOR MOVE IN. THIS IS TO INCLUDE CLEANING OF THE INTERIOR AND EXTERIOR FACES OF NEW AND EXISTING GLASS.
- THE MAXIMUM FLAME SPREAD CLASSIFICATION OF FINISH MATERIALS USED ON THE INTERIOR WALLS AND CEILINGS MUST NOT EXCEED THE LIMITS SET FORTH IN C.B.C. TABLE NO. 803.9
- HAZARDOUS MATERIALS ABATEMENT IS NOT PART OF THE ELEVATOR MODERNIZATION WORK AND IS THE SOLE RESPONSIBILITY OF THE JCC
- FOR OFCI AND OFOI ITEMS COORDINATE W/ OWNER'S REPRESENTATIVE FOR SCHEDULING/ SEQUENCING DURING CONSTRUCTION. CONFIRM W/ OWNER BLOCKING/ BACKING REQ AND PROVIDE AS REQD. PREPARE SURROUNDING AREAS, SUBSTRATES AND SURFACES AS REQD
- FIRE ALARM TO BE A DEFERRED SUBMITTAL TO OSFM
- CONTRACTOR SHALL RECYCLE AND/OR SALVAGE FOR REUSE A MINIMUM OF 65 PERCENT OF THE NONHAZARDOUS CONSTRUCTION AND DEMOLITION WASTE. SUBMIT WASTE MANAGEMENT PLAN OF THESE PROCEDURES TO JCC.
- PERFORM BUILDING MAINTENANCE AND OPERATION IN ACCORDANCE WITH CGBC NON-RESIDENTIAL MANDATORY MEASURE SECTION 5.410 FOR TESTING AND ADJUSTMENT, DEVELOPMENT OF SYSTEM PROCEDURES, HVAC BALANCING. PROVIDE OPERATION AND MAINTENANCE MANUAL TO JCC UPON COMPLETION OF THE PROJECT.
- PERFORM POLLUTANT CONTROL MEASURES DURING CONSTRUCTION IN ACCORDANCE WITH CGBC NON-RESIDENTIAL MANDATORY MEASURE SECTION 5.504 FOR TEMPORARY VENTILATION, COVERING OF DUCT OPENINGS AND MECHANICAL EQUIPMENT, POLLUTANT CONTROL OF ADHESIVES, SEALANTS, CAULKS, AEROSOLS, CARPET CLEANERS, RESILIENT FLOORING SYSTEMS, MECHANICAL SYSTEM MERV AIR FILTERS, ENVIRONMENTAL TOBACCO SMOKE CONTROL AND DOCUMENTATION OF COMPLIANCE.

2016 CBC EXCEPTIONS

- PER CBC 2016, 11B-203.5 - MACHINERY SPACES.** THE ELEVATOR PITS AND PENTHOUSE MACHINE ROOMS SHALL NOT BE REQUIRED TO BE ON ACCESSIBLE ROUTE. THE AREA OF WORK IS LIMITED TO THE ELEVATOR PENTHOUSE MACHINE ROOMS AND PITS.
- PER CBC 2016, 11B202.4, EXCEPTION #3 - ALTERING EXISTING ELEVATORS TO MEET ACCESSIBILITY REQUIREMENTS.** EXISTING ELEVATOR CAB SHELLS ARE TO REMAIN. WORK CONSISTS OF REPAIRING AND REPLACING DAMAGED INTERIOR CAB PANELS AND REPLACING EXISTING PANEL BUTTONS THAT ARE NON-COMPLIANT. PANELS DO NOT ALTER THE EXISTING CAB INTERIOR DIMENSIONS.
- PER CBC 2016, 11B202.4, EXCEPTION #4 ALTERATIONS SOLELY FOR THE PURPOSE OF BARRIER REMOVAL.** WORK IN ELEVATOR LOBBIES CONSISTS SOLELY OF REPLACING NON-COMPLIANT CALL BUTTONS AND HALL LANTERNS.

APPLICABLE CODES

- 2016 CALIFORNIA BUILDING CODE
- 2016 CALIFORNIA ELECTRICAL CODE
- 2016 CALIFORNIA MECHANICAL CODE
- 2016 CALIFORNIA PLUMBING CODE
- 2016 CALIFORNIA FIRE CODE
- 2016 CALIFORNIA ENERGY CODE
- 2016 CALIFORNIA REFERENCE STANDARDS CODE
- NFPA 72 AND NFPA 13 WITH CA AMENDMENTS
- TITLE 19, CCR, PUBLIC SAFETY SFM REGULATIONS
- 2016 CALIFORNIA ADMINISTRATIVE CODE TITLE 24, PT. 1

PROJECT DIRECTORY

- OWNER:**
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3389 Twelfth Street, Riverside, CA 92501
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117 East Colorado Blvd, Suite 200, Pasadena, CA 91105
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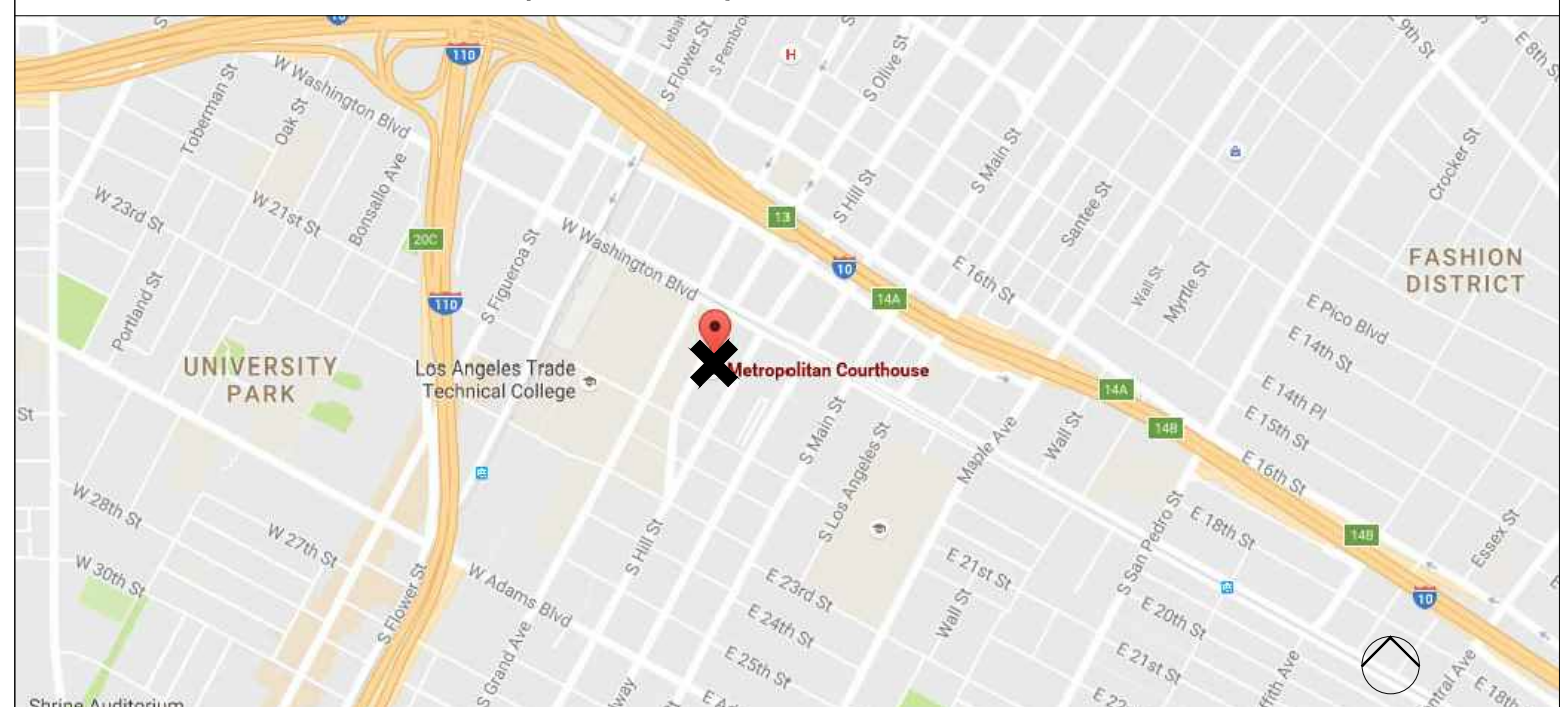
PROJECT DESCRIPTION

THE PROJECT CONSISTS PRIMARILY OF ALTERATIONS, REPAIRS, AND UPGRADES TO OUTDATED AND AGING ELEVATOR MACHINERY AND EQUIPMENT IN THE ELEVATOR MACHINE ROOMS AND ELEVATOR PITS TO ALLEVIATE POOR SERVICE, ENTRAPMENTS AND ASSOCIATED MALFUNCTIONS. IN ADDITION, THE ELEVATOR CAB INTERIOR FINISHES WILL BE COSMETICALLY REPAIRED OWING TO LONG TERM WEAR AND TEAR, NEGLECTED MAINTENANCE WORK, AND DAMAGE. AS THE INTERIOR CAB PANELS WILL BE REPLACED, BARRIER REMOVAL ISSUES ASSOCIATED WITH CAB PANEL AND LOBBY CONTROL BUTTONS AND LANTERNS WILL ALSO BE UPGRADED TO MEET ACCESSIBILITY STANDARDS.

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S3.01	MECHANICAL EQUIPMENT ANCHORAGE

VICINITY MAP (N.T.S.)



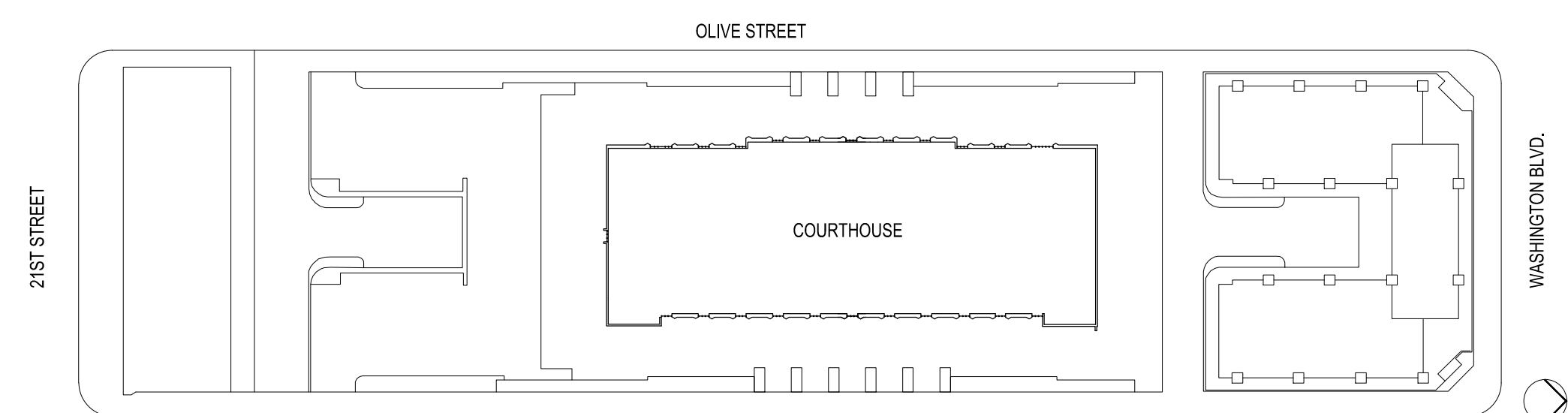
PROJECT DATA

PROJECT ADDRESS: 1945 S Hill St, Los Angeles, CA 90007

BUILDING DATA:
EXISTING 9-STORY COURTHOUSE
CONSTRUCTION TYPE: TYPE I-A
OCCUPANCY TYPE: A-3, B, I-3
BUILDING HEIGHT: ±155'-6" FROM GRADE PLANE
GROSS BUILDING AREA: 250,000 SF

FIRE SPRINKLERS: YES
FIRE ALARM: YES
YEAR CONSTRUCTED: 1972
HIGH FIRE HAZARD SEVERITY ZONE: LOCAL RESPONSIBILITY
SMOKE CONTROL SYSTEM: YES
EMERGENCY RESPONDER RADIO: YES

SITE PLAN

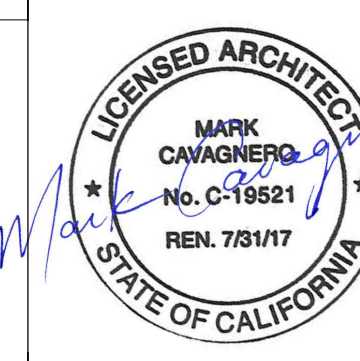


ABBREVIATIONS

&	AND	F O S	FACE OF STUD	PA	PLANTING AREA
∟	ANGLE	F T	FOOT	PLAM	PLASTIC LAMINATE
∠	AT	FTNG	FOOTING	PIV	POST INDICATOR VALVE
@	CENTER LINE	G	GAS	PLYWD	PLYWOOD
€		GA	GAUZE	PTD	PAINTED
ACC	ACCESSIBLE	GALV	GALVANIZED	PT	PRESSURE TREATED
ACOUS	ACOUSTIC	GSM	GALVANIZED SHEET METAL	R.D	ROOF DRAIN
AEC	ARCH EXPOSED CONCRETE	GYP	GYPSPUM	REC	RECESSED
AESS	ARCH EXPOSED STRUCTURAL STEEL	HWWD	HARD WOOD	REQD	REQUIRED
AL	ALUMINUM	HT	HEIGHT	RM	ROOM
APROX	APPROXIMATE	HM	HOLLOW METAL	R.O	ROUGH OPENING
ARCH	ARCHITECTURAL	INT	INTERIOR	SECT	SECTION
B.D	BOARD	IN	INCH	SIM	SIMILAR
BEY	BEYOND	ISA	INTERNATIONAL SYMBOL OF ACCESSIBILITY	SPEC	SPECIFICATION
BLDG	BUILDING	JAN	JANITOR	SQ	SQUARE
B.O	BOTTOM OF	JT	JOINT	SAF	SELF ADHESIVE FLASHING
B.U	BUILT UP	LAV	LAVATORY	SS	STAINLESS STEEL
CLNG	CEILING	MAX	MAXIMUM	STD	STANDARD
CLR	CLEAR	MIN	MINIMUM	STL	STEEL
CONC	CONCRETE	MISC	MISCELLANEOUS	SCD	SEE CIVIL DRAWINGS
CONT	CONTINUOUS	MTD	MOUNTED	SLD	SEE LANDSCAPE DRAWINGS
DF	DRINKING FOUNTAIN	NIC	NOT IN CONTRACT	SED	SEE ELECTRICAL DRAWINGS
DIA	DIAMETER	NO.	NUMBER	SHPD	SEE HISTORIC PRESERVATION DRAWINGS
DN	DOWN	NTS	NOT TO SCALE	SMD	SEE MECHANICAL DRAWINGS
DWG	DRAWING	(N)	NEW (SEE GENERAL NOTE 7)	SPD	SEE PLUMBING DRAWINGS
(E)	EXISTING	OPP	OPPOSITE	SSD	SEE STRUCTURAL DRAWINGS
EA	EACH	O	OVER	SYM	SYMMETRICAL
EJ	EXPANSION JT	O.C	ON CENTER	THK	THICK
ELEC	ELECTRICAL	O.D	OUTSIDE DIAMETER	TO	TOP OF
ENCL	ENCLOSURE	O.FD	OVERFLOW DRAIN	TS	TUBE STEEL
EQ	EQUAL	OFI	OWNER FURNISHED CONTRACTOR INSTALLED	TYP	TYPICAL
EXT	EXTERIOR	OFOI	OWNER FURNISHED OWNER INSTALLED	UNO	UNLESS NOTED OTHERWISE
FACP	FIRE ALARM CONTROL PANEL	OPP	OPPOSITE	VERT	VERTICAL
FDC	FIRE DEPARTMENT CONNECTION	O/	OVER	VIF	VERIFY IN FIELD
FEC	FIRE EXTINGUISHER CABINET	W/	WITH	WD	WOOD
FF	FINISH FLOOR	W.O	WHERE OCCURS	W.P	WATERPROOF
FLR	FLOOR				

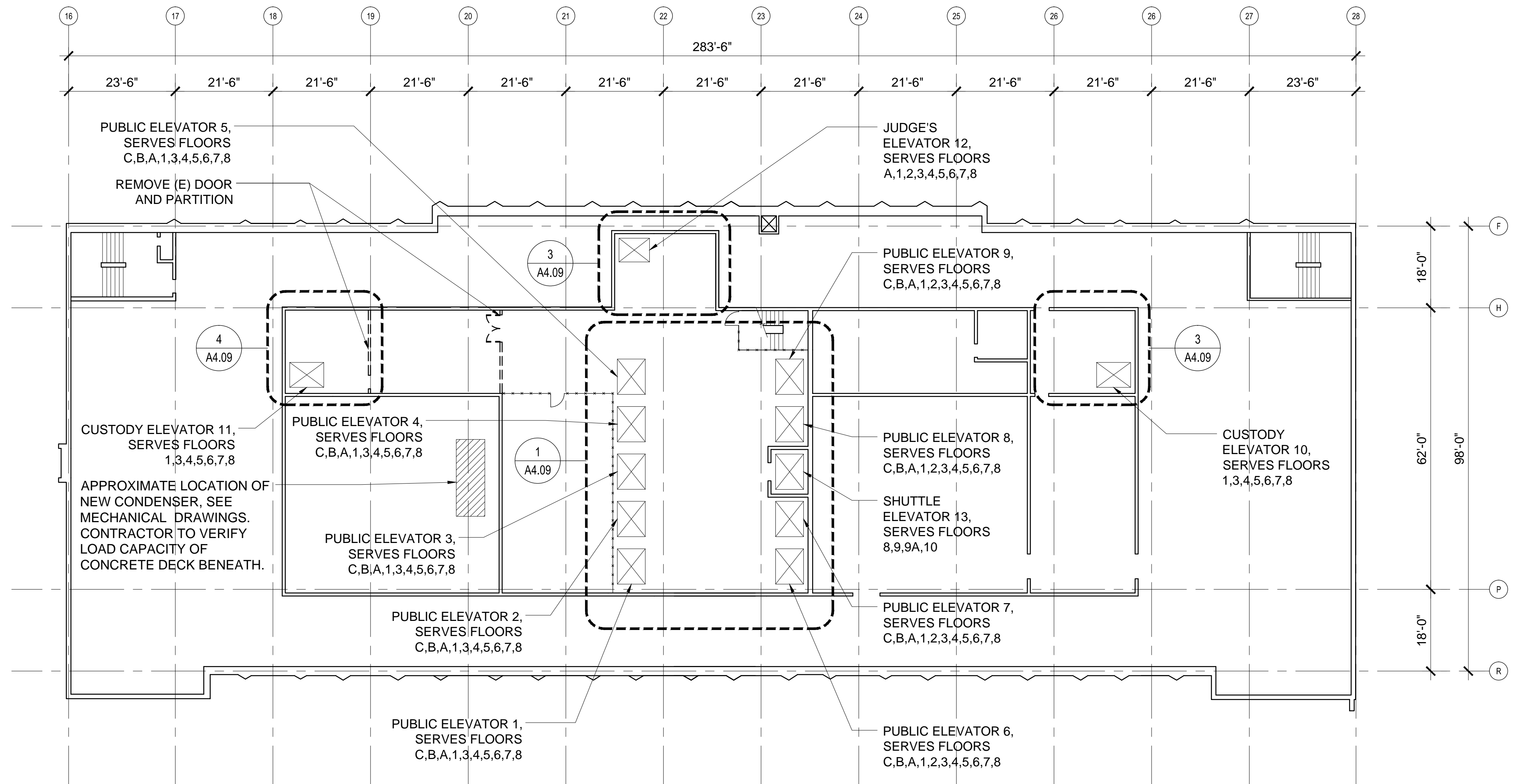
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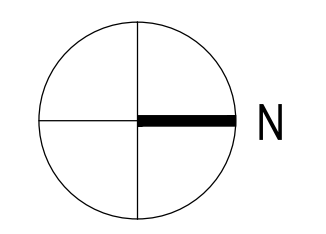


TITLE SHEET

A0.00

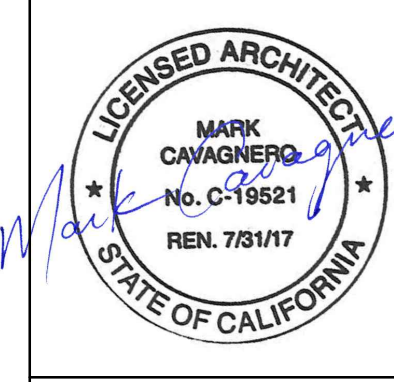


1 NINTH FLOOR PLAN
 1/16" = 1'-0"

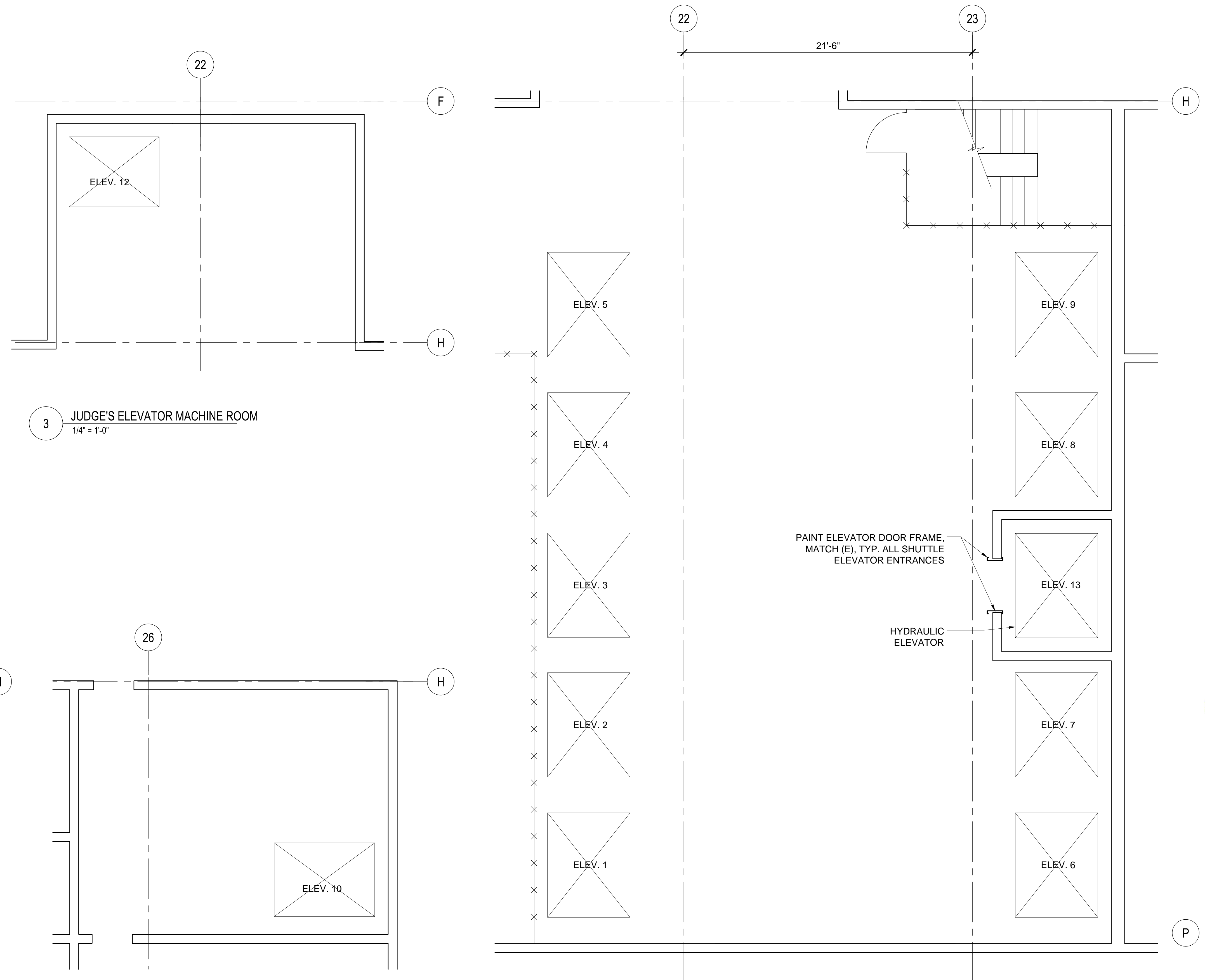


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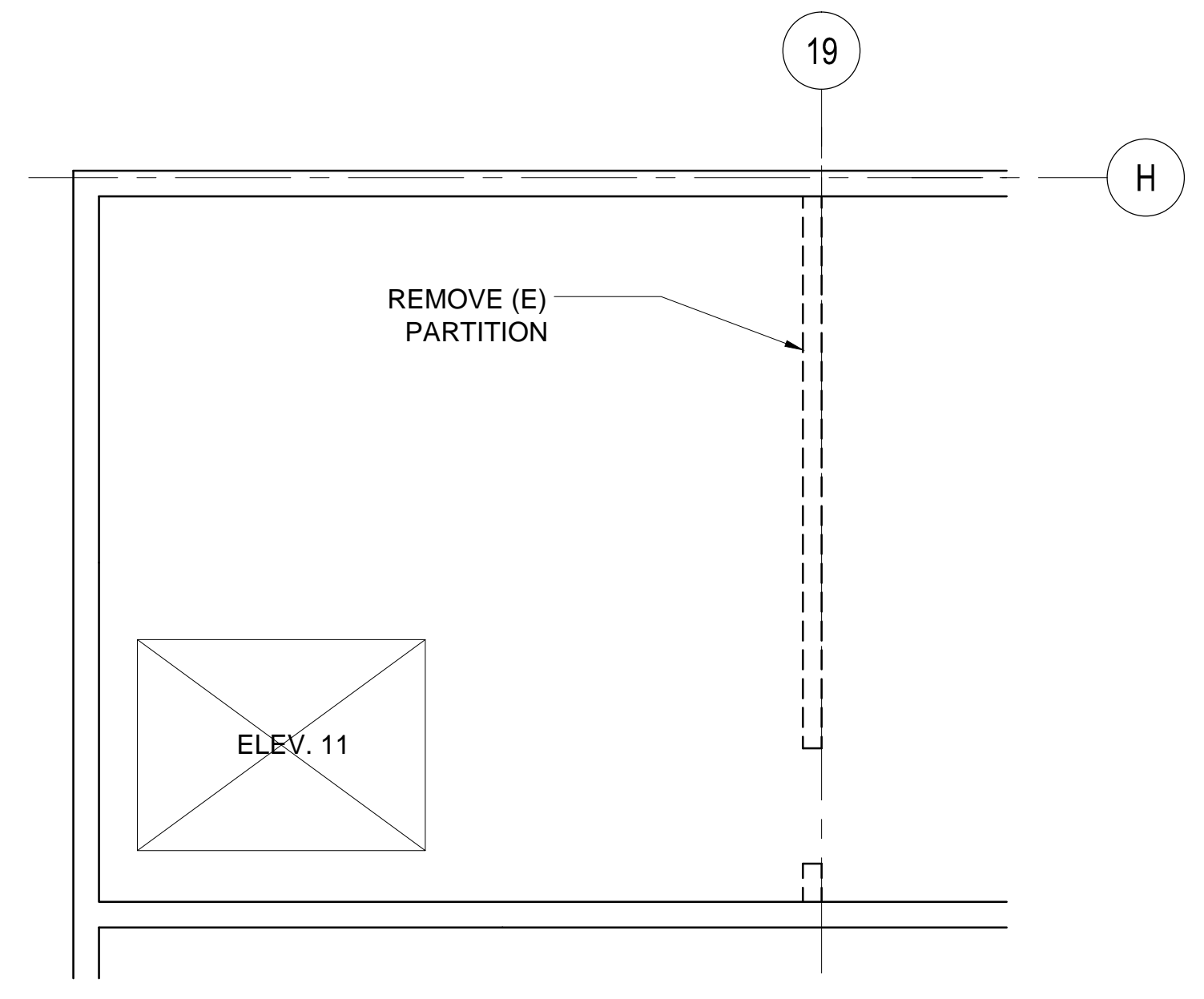
METROPOLITAN COURTHOUSE
ELEVATOR MODERNIZATION
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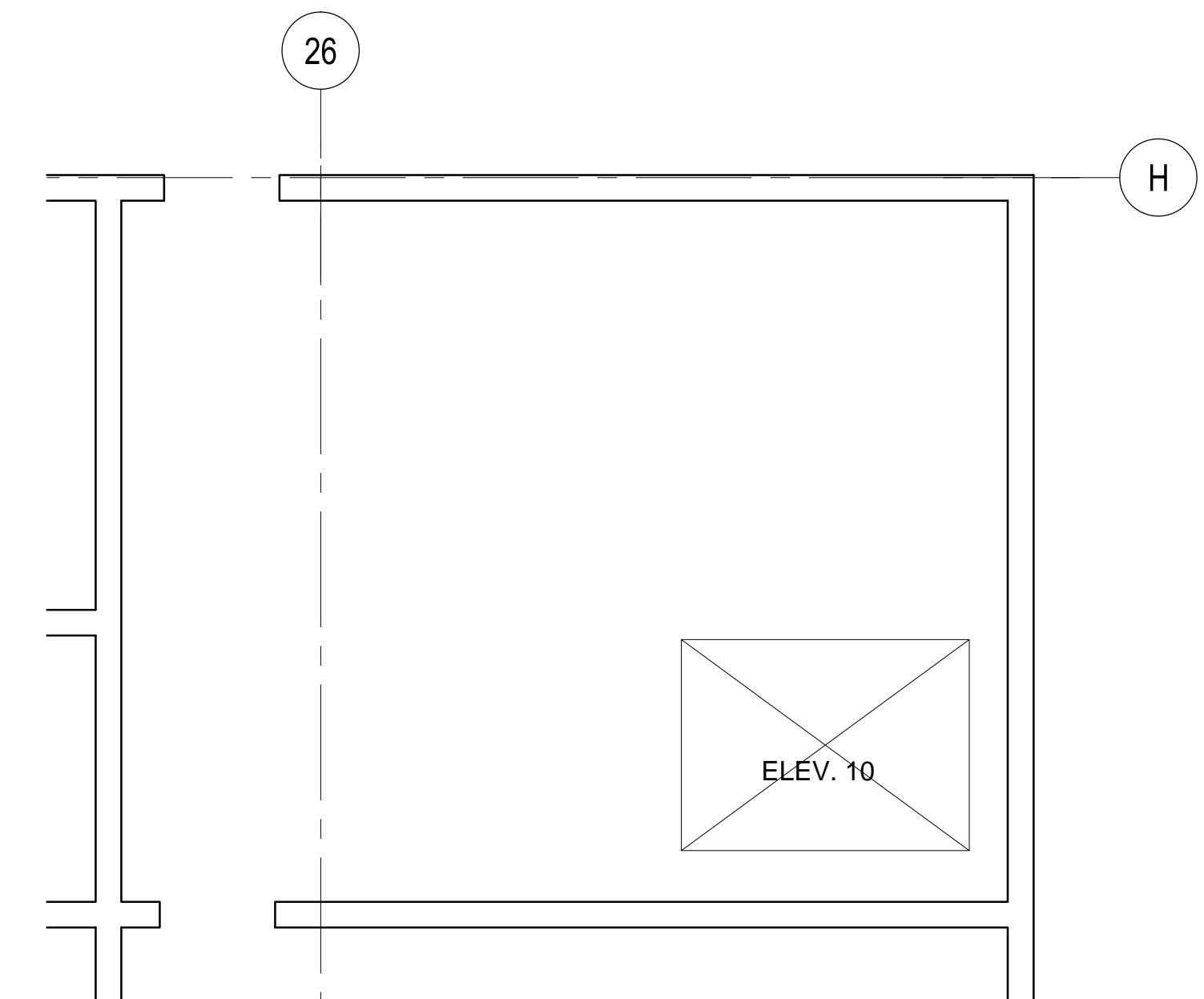
NINTH FLOOR PLAN



3 JUDGE'S ELEVATOR MACHINE ROOM
 1/4" = 1'-0"



4 CUSTODY ELEVATOR 11 MACHINE ROOM
 1/4" = 1'-0"



2 CUSTODY ELEVATOR 10 MACHINE ROOM
 1/4" = 1'-0"

1 PUBLIC ELEVATORS MACHINE ROOM
 1/4" = 1'-0"

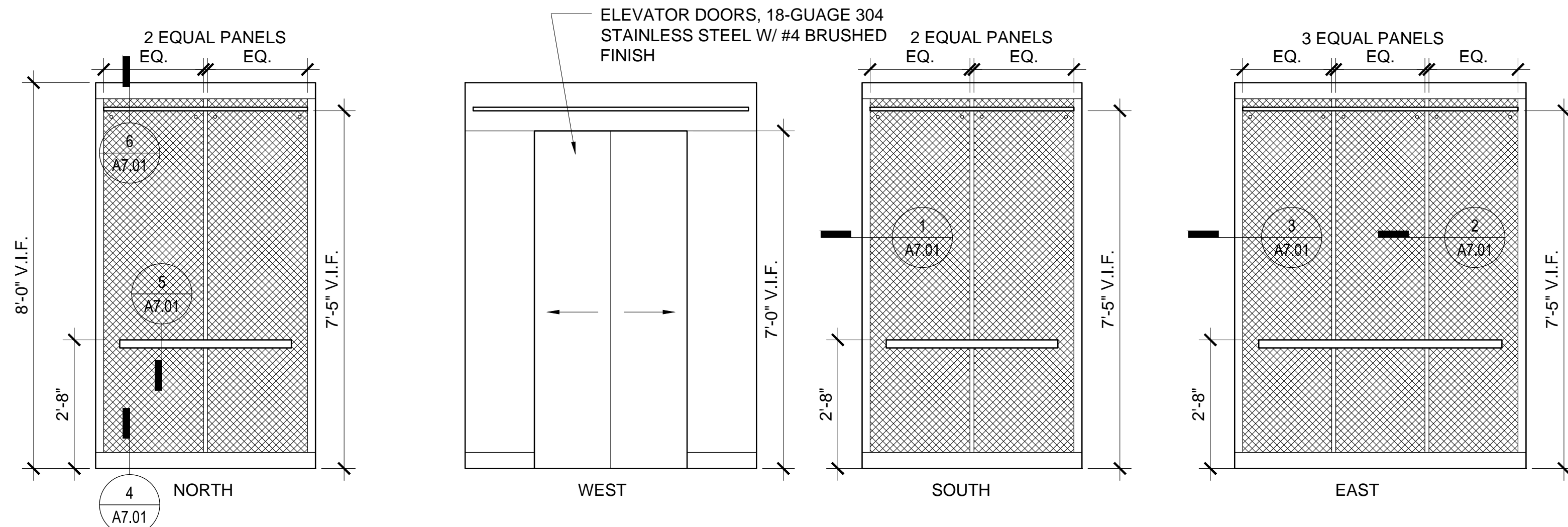
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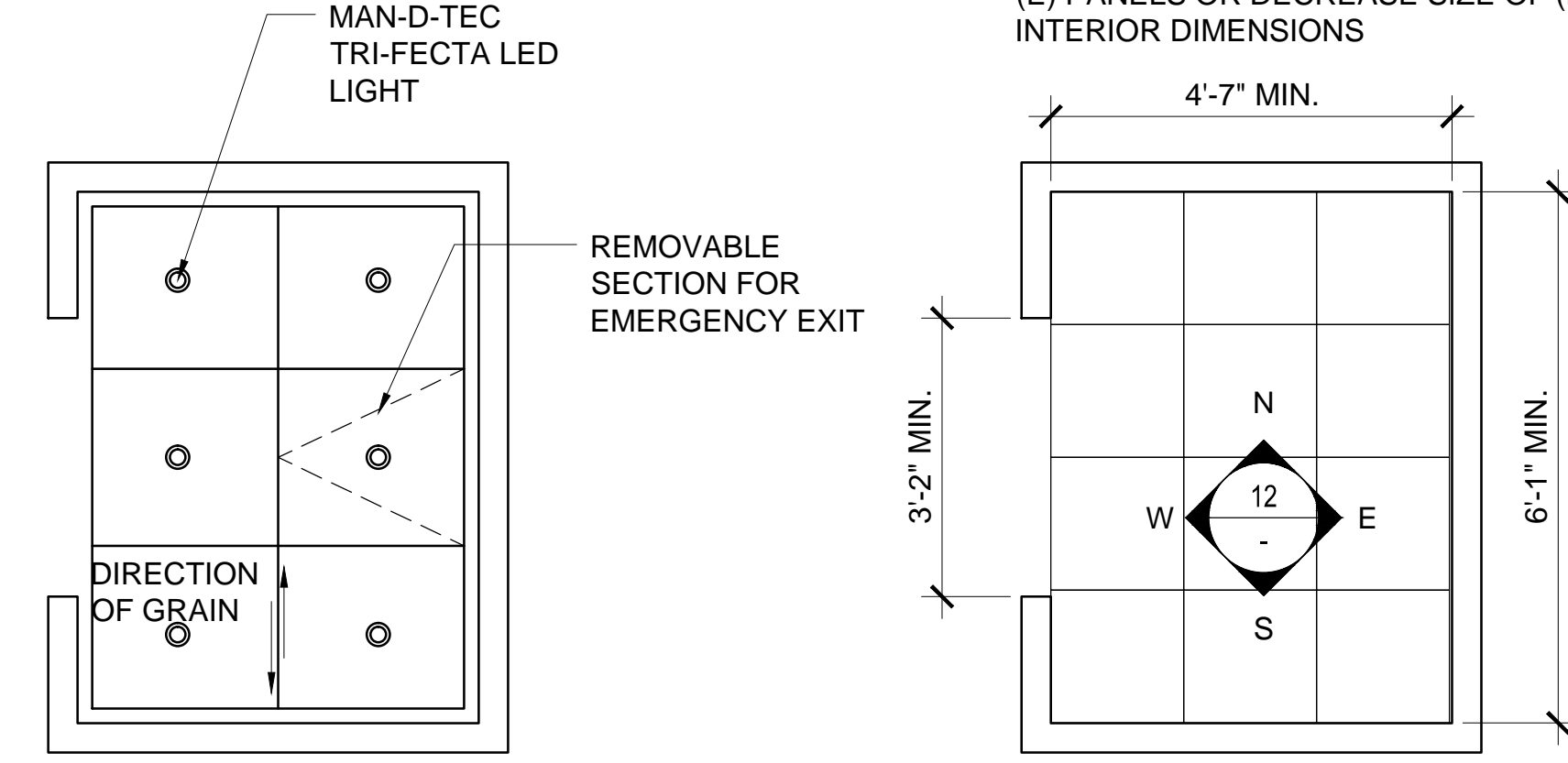


**ENLARGED
 MACHINE ROOM PLANS**

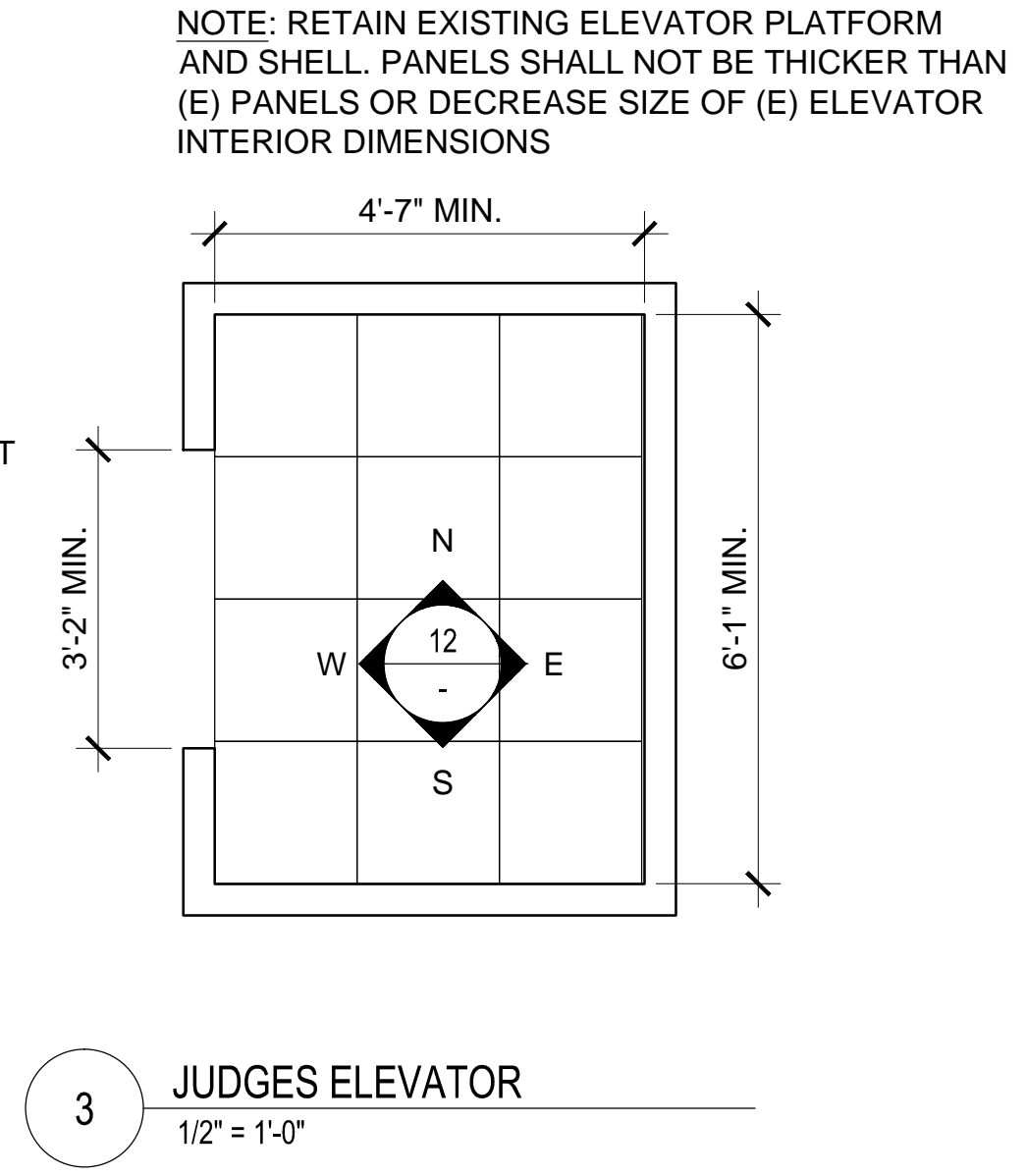
1/4" = 1'-0"



12 JUDGES ELEVATOR INTERIOR CAB ELEVATIONS
1/2" = 1'-0"

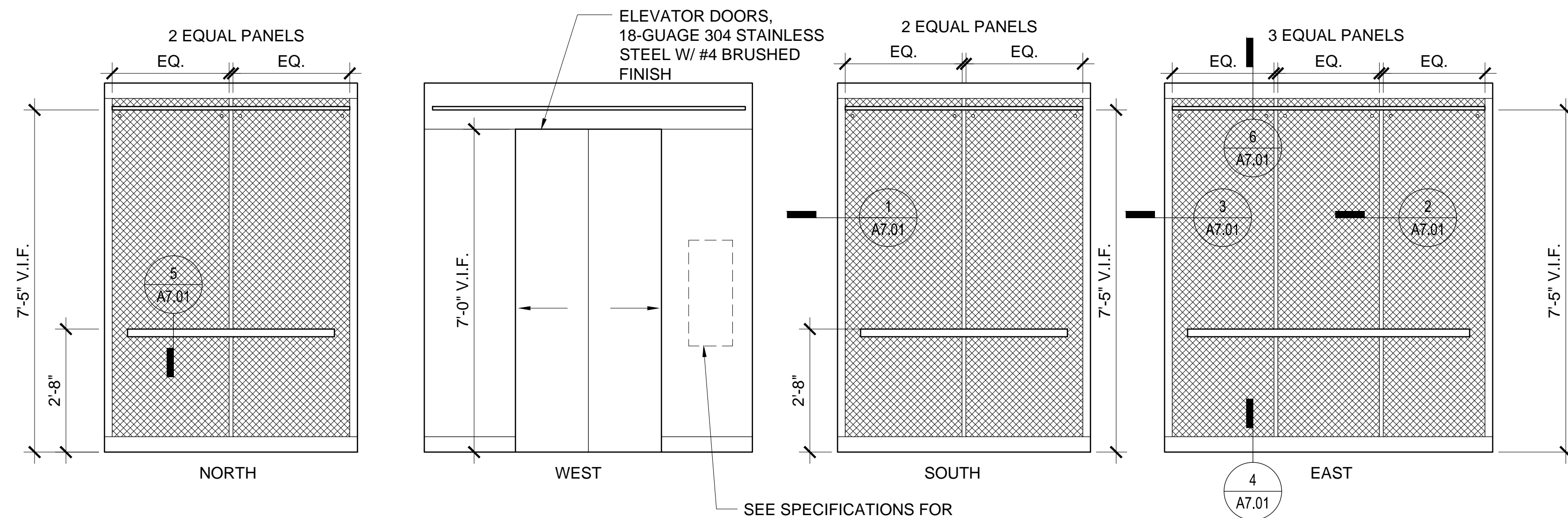


6 JUDGES ELEVATOR RCP
1/2" = 1'-0"

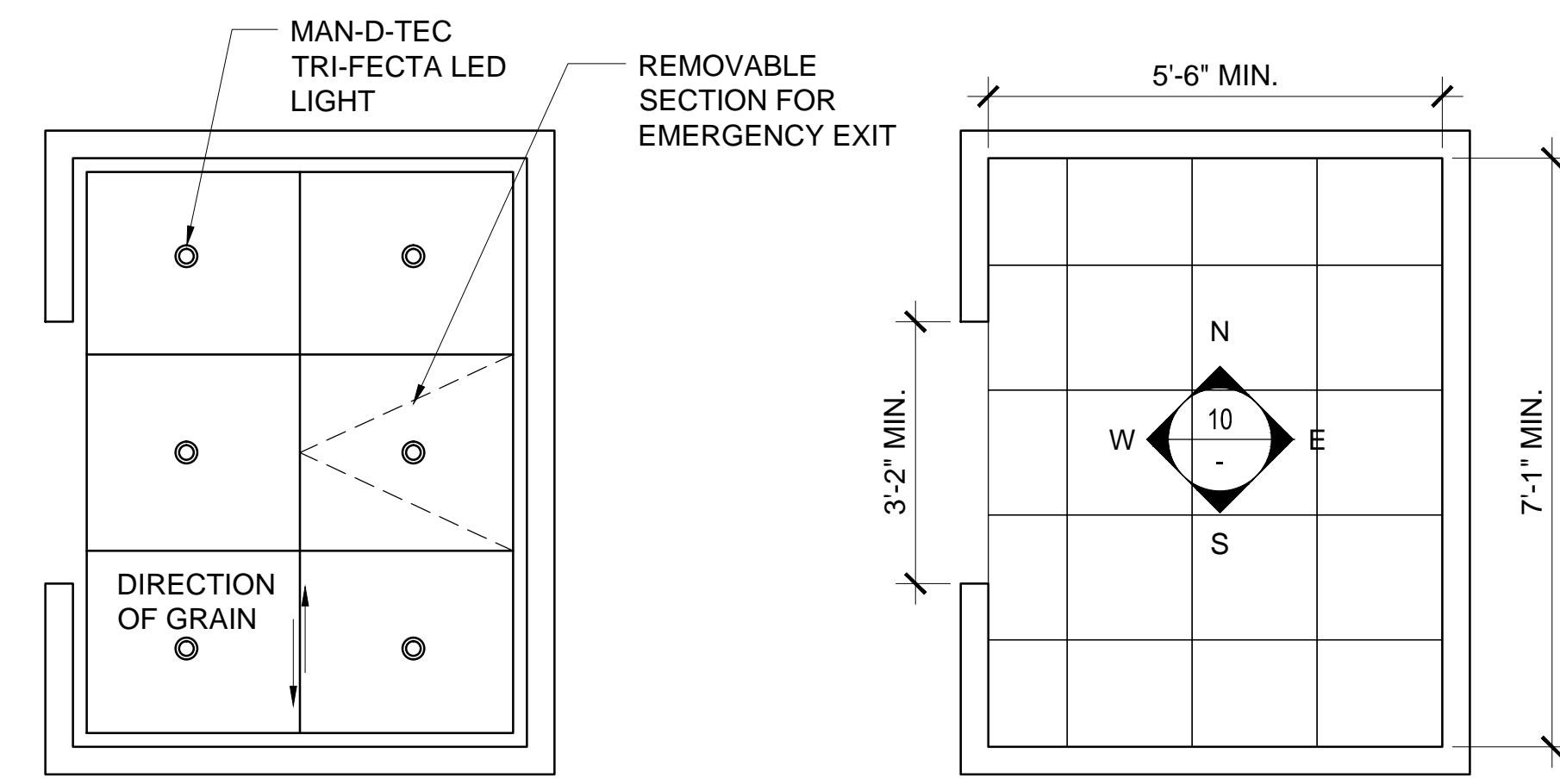


3 JUDGES ELEVATOR
1/2" = 1'-0"

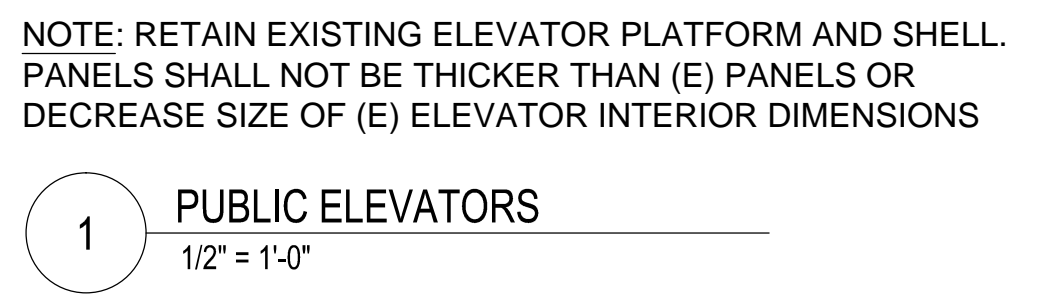
NOTE:
RETAIN EXISTING CAB FINISHES ON CUSTODY ELEVATORS #10 AND #11.
REPAINT EXISTING CAB FINISH ON SHUTTLE ELEVATOR #12.



10 PUBLIC ELEVATORS INTERIOR CAB ELEVATIONS
1/2" = 1'-0"



4 PUBLIC ELEVATORS RCP
1/2" = 1'-0"



1 PUBLIC ELEVATORS
1/2" = 1'-0"



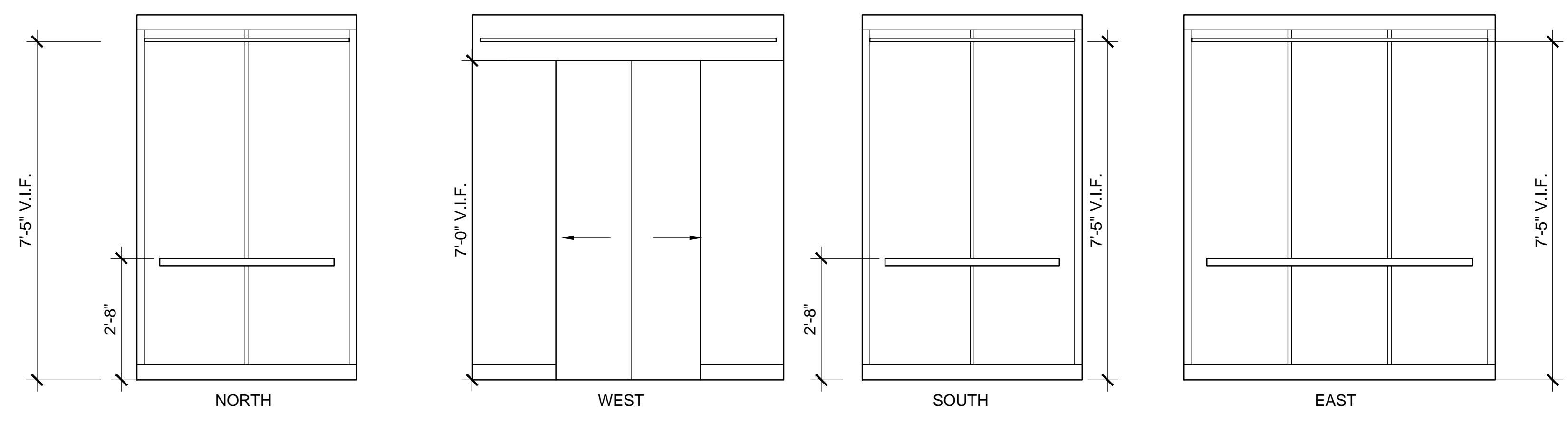
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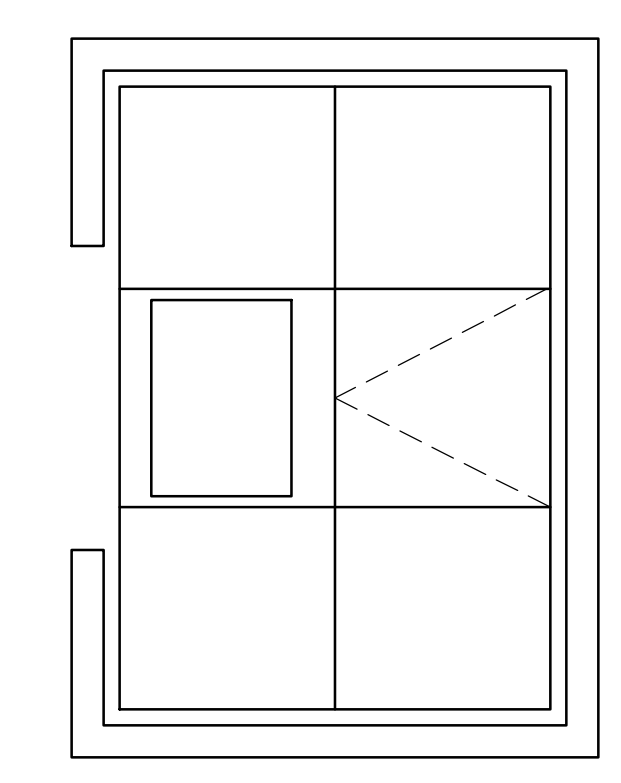


ELEVATOR CAB INTERIOR ELEVATIONS
1/2" = 1'-0"

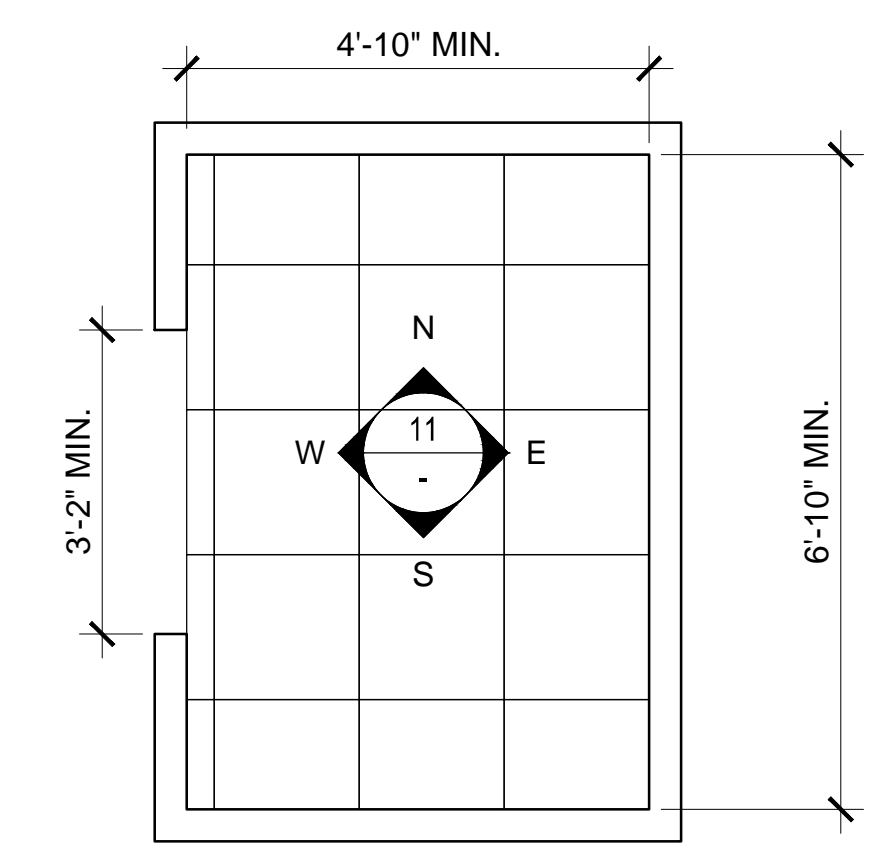
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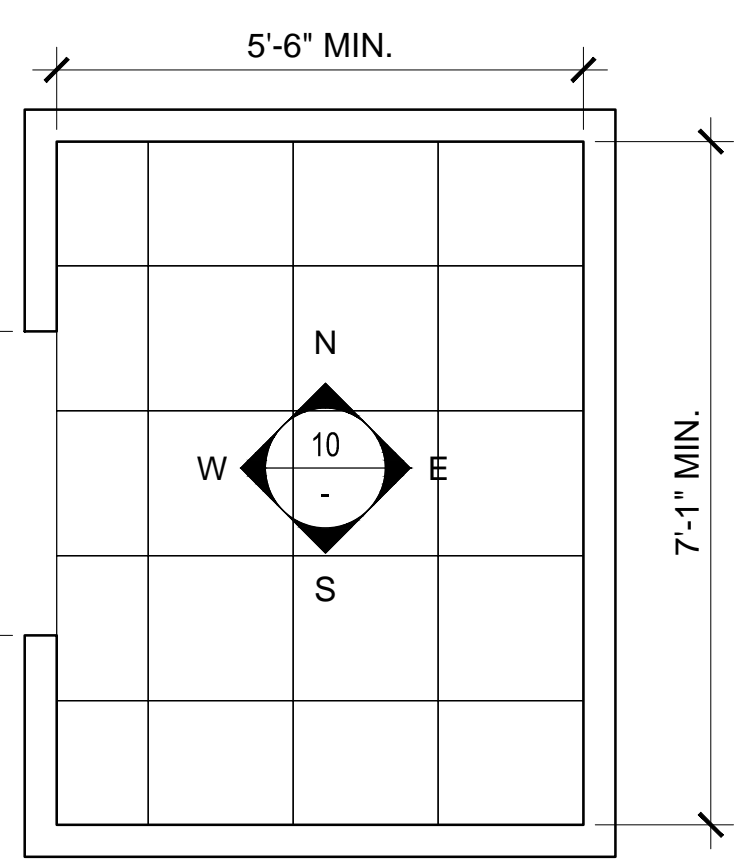
11 CUSTODY ELEVATORS INTERIOR CAB ELEVATIONS
 1/2" = 1'-0"



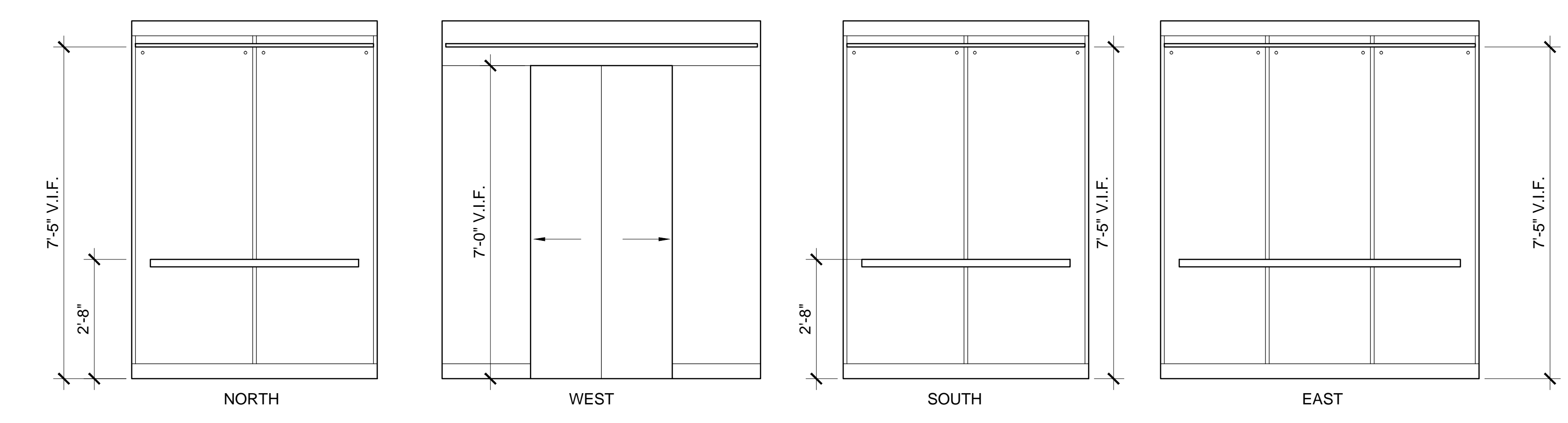
5 CUSTODY ELEVATORS RCP
 1/2" = 1'-0"



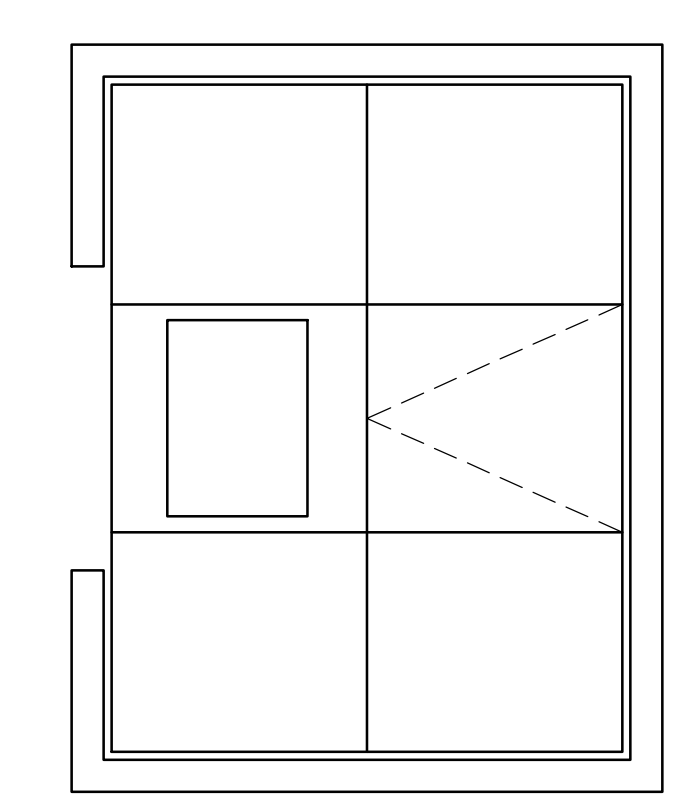
2 CUSTODY ELEVATORS
 1/2" = 1'-0"



1 SHUTTLE ELEVATOR
 1/2" = 1'-0"



10 SHUTTLE ELEVATOR INTERIOR CAB ELEVATIONS
 1/2" = 1'-0"



4 SHUTTLE ELEVATOR RCP
 1/2" = 1'-0"

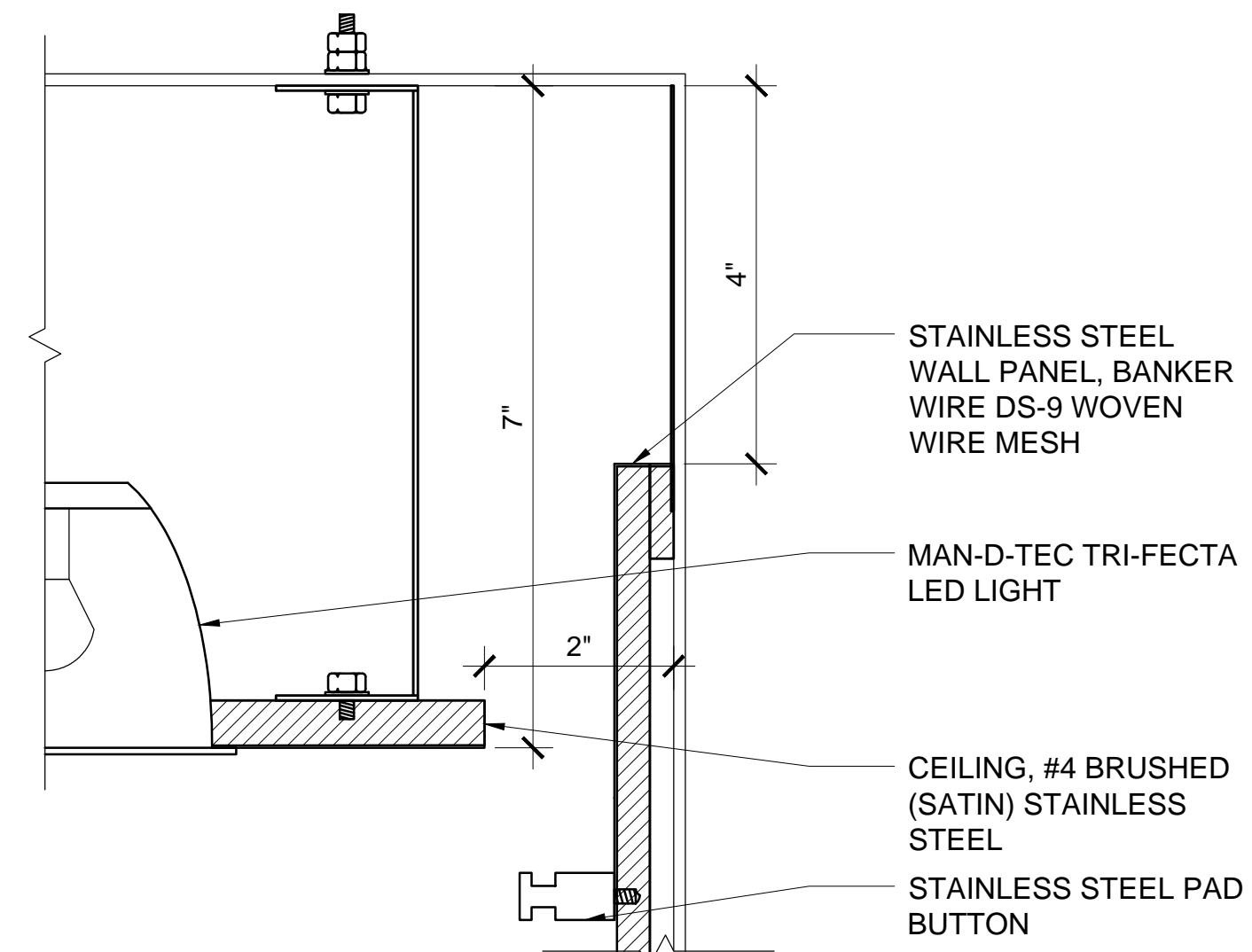
NOTE:
 RETAIN EXISTING CAB FINISHES
 ON CUSTODY ELEVATORS #10
 AND #11.
 REPAINT EXISTING CAB FINISH ON
 SHUTTLE ELEVATOR #12.

REV	DATE	DESCRIPTION
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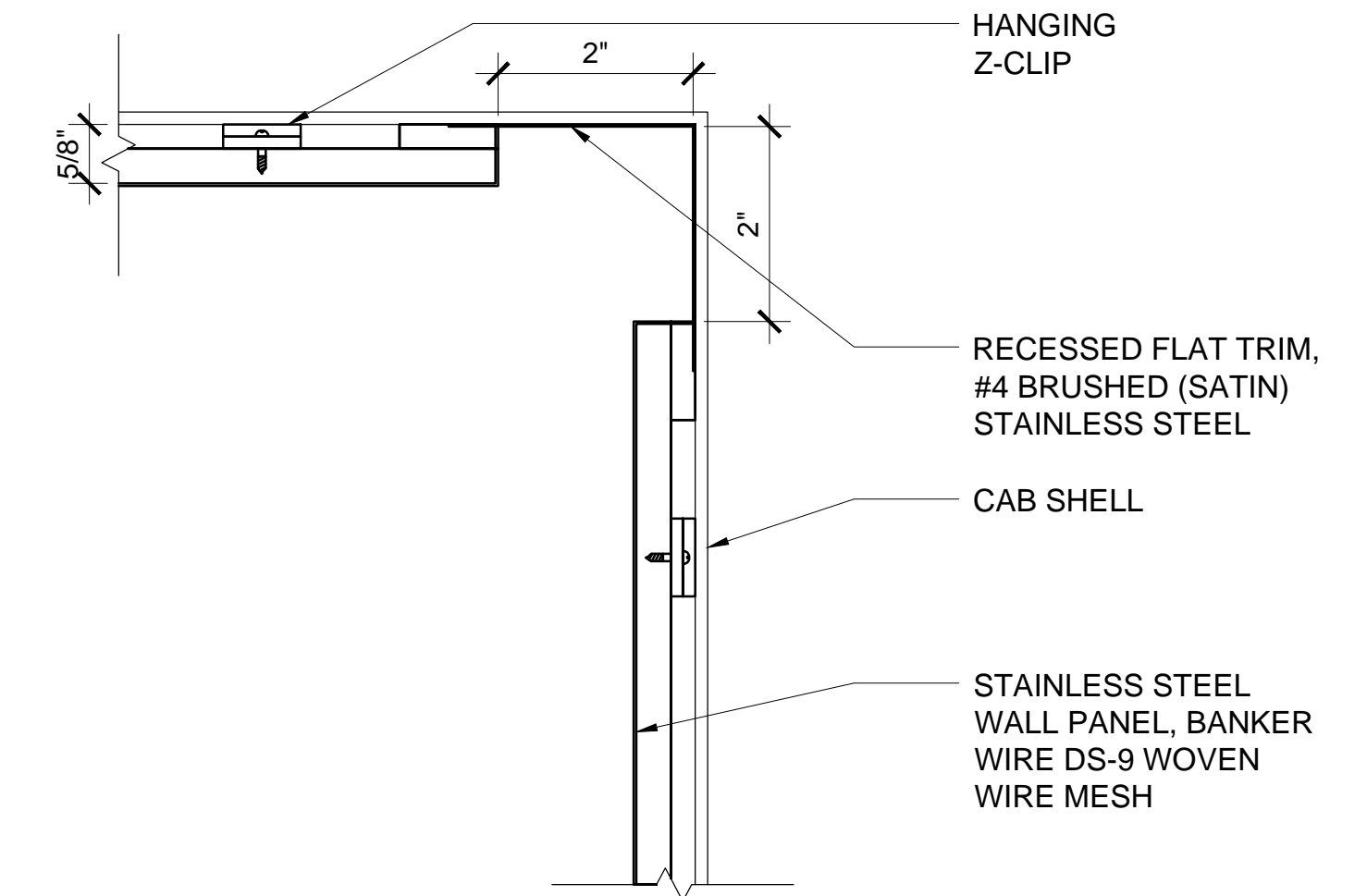
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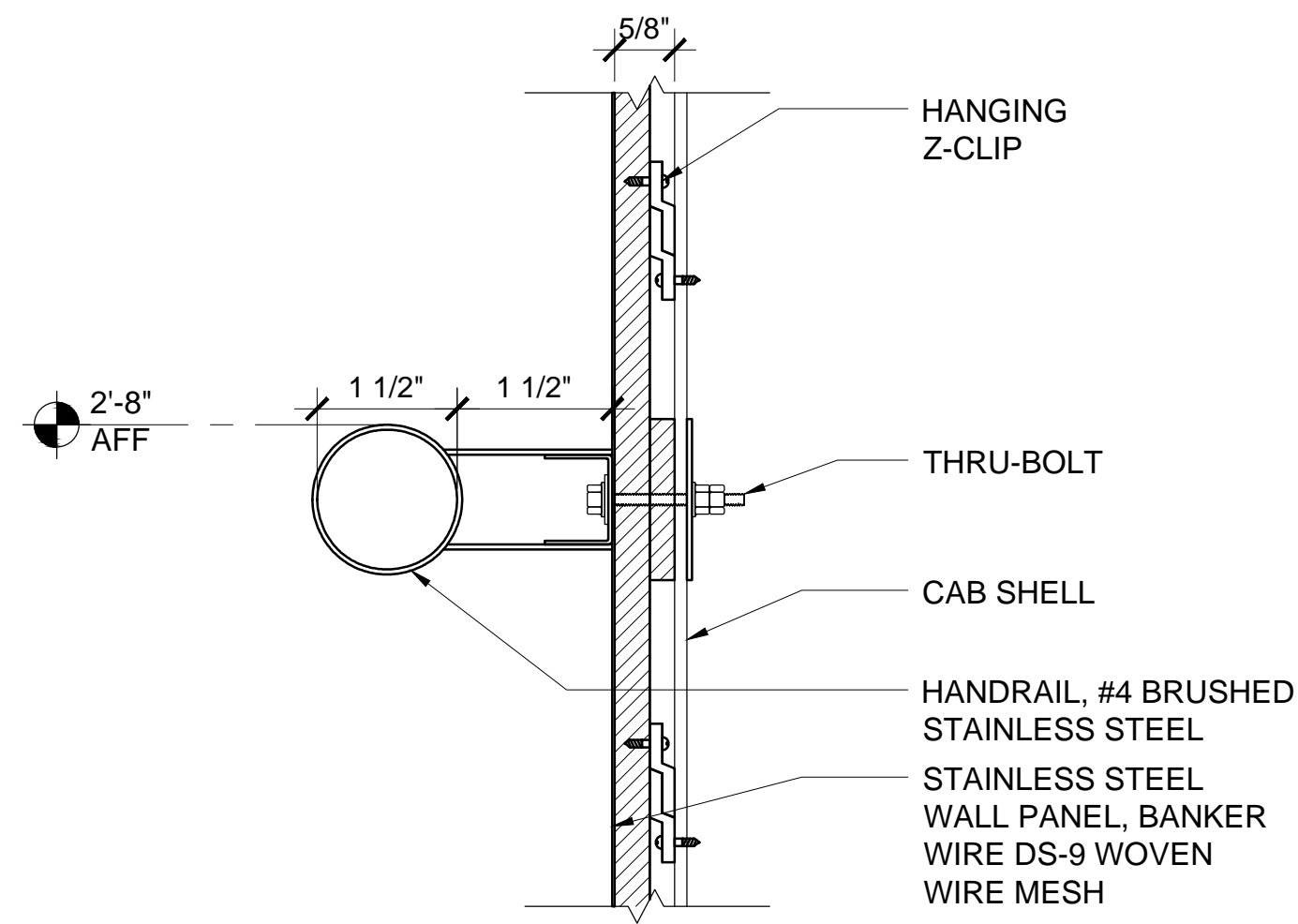
**ELEVATOR CAB
 INTERIOR ELEVATIONS**
 1/2" = 1'-0"



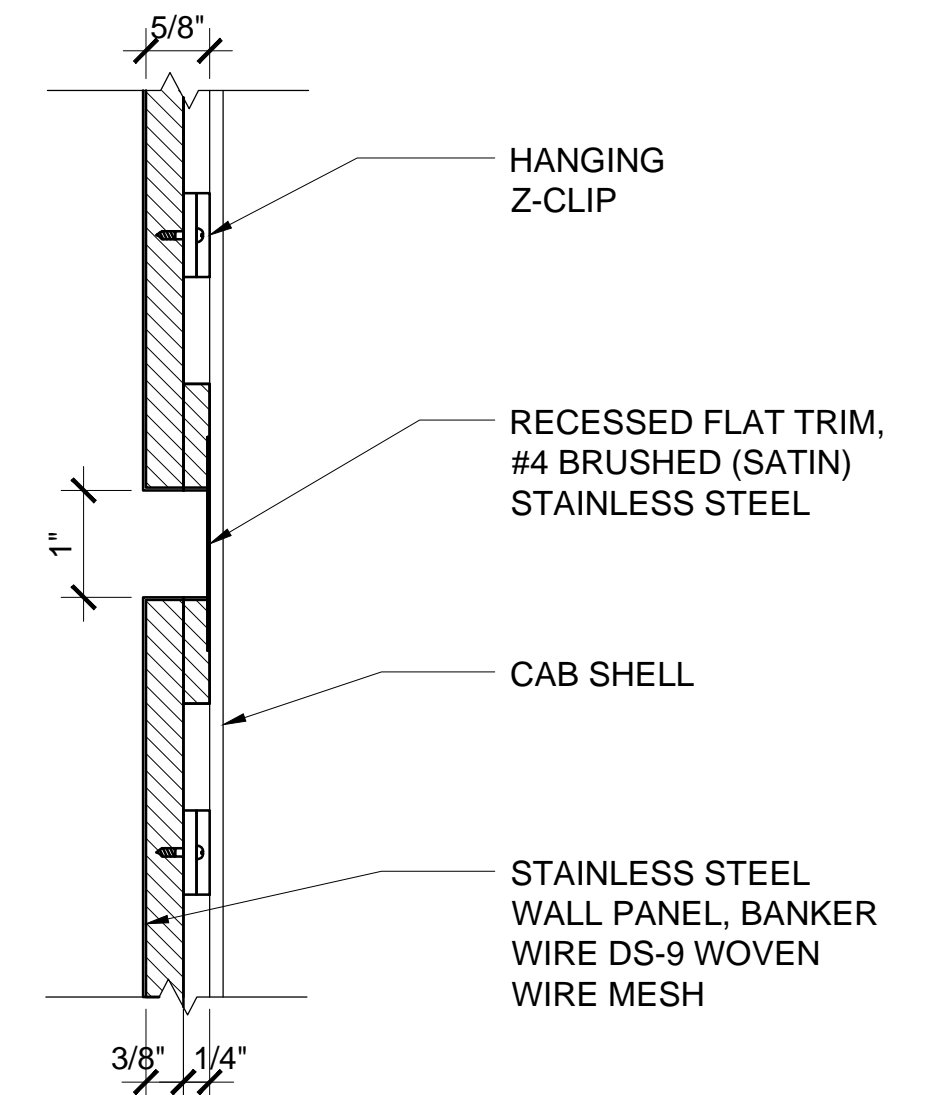
6 CEILING SECTION - PUBLIC CABS
6" = 1'-0"



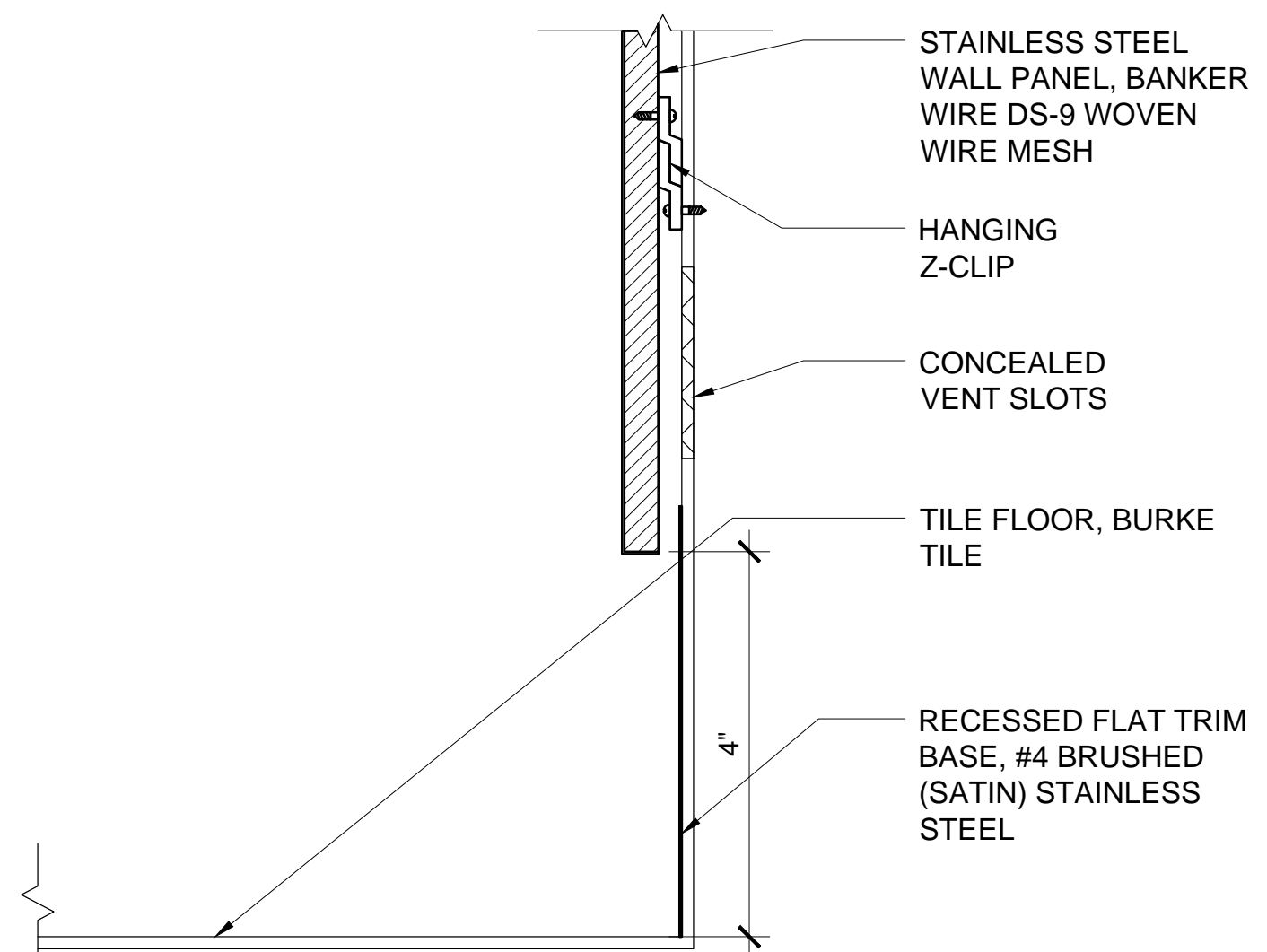
3 CORNER REVEAL
6" = 1'-0"



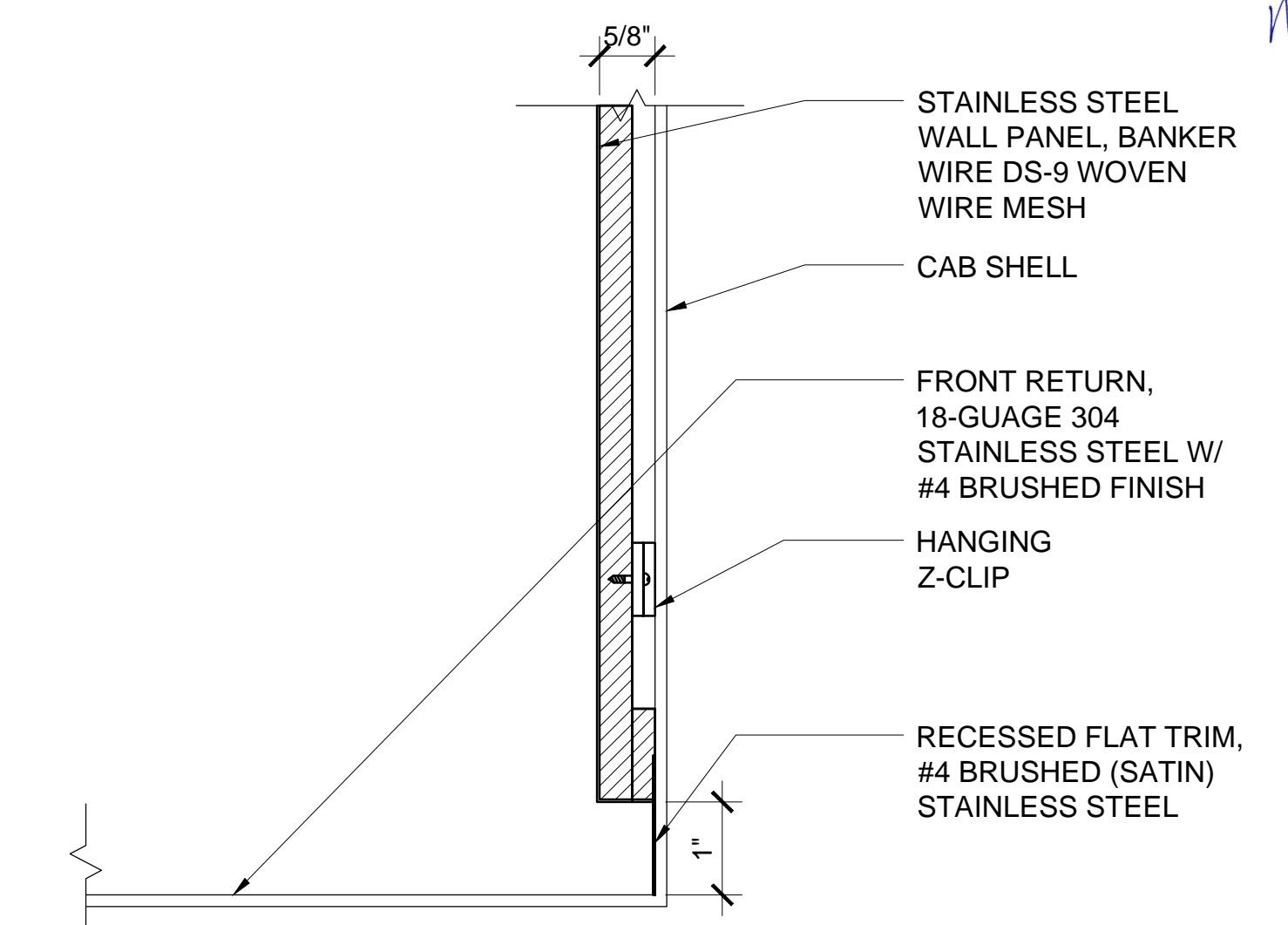
5 HANDRAIL - PUBLIC CABS
6" = 1'-0"



2 REVEAL
6" = 1'-0"



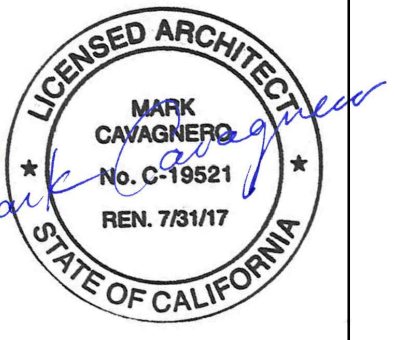
4 BASE
6" = 1'-0"



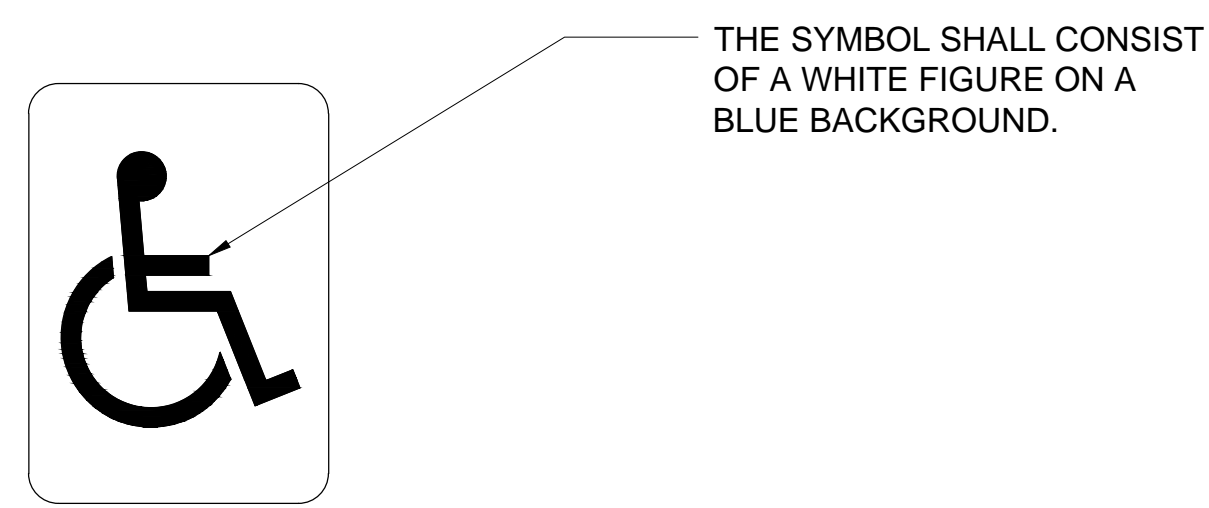
1 FRONT REVEAL
6" = 1'-0"

REV	DATE	DESCRIPTION
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100% DD	8/25/2016	100% DD
50% CD	9/29/2016	50% CD
90% CD	11/29/2016	90% CD
100% CD/CONFORMED SET	07/07/2017	100% CD/CONFORMED SET
BID SET	11/01/2017	BID SET

METROPOLITAN
COURTHOUSE
ELEVATOR MODERNIZATION
1945 S Hill St, Los Angeles, CA 90007

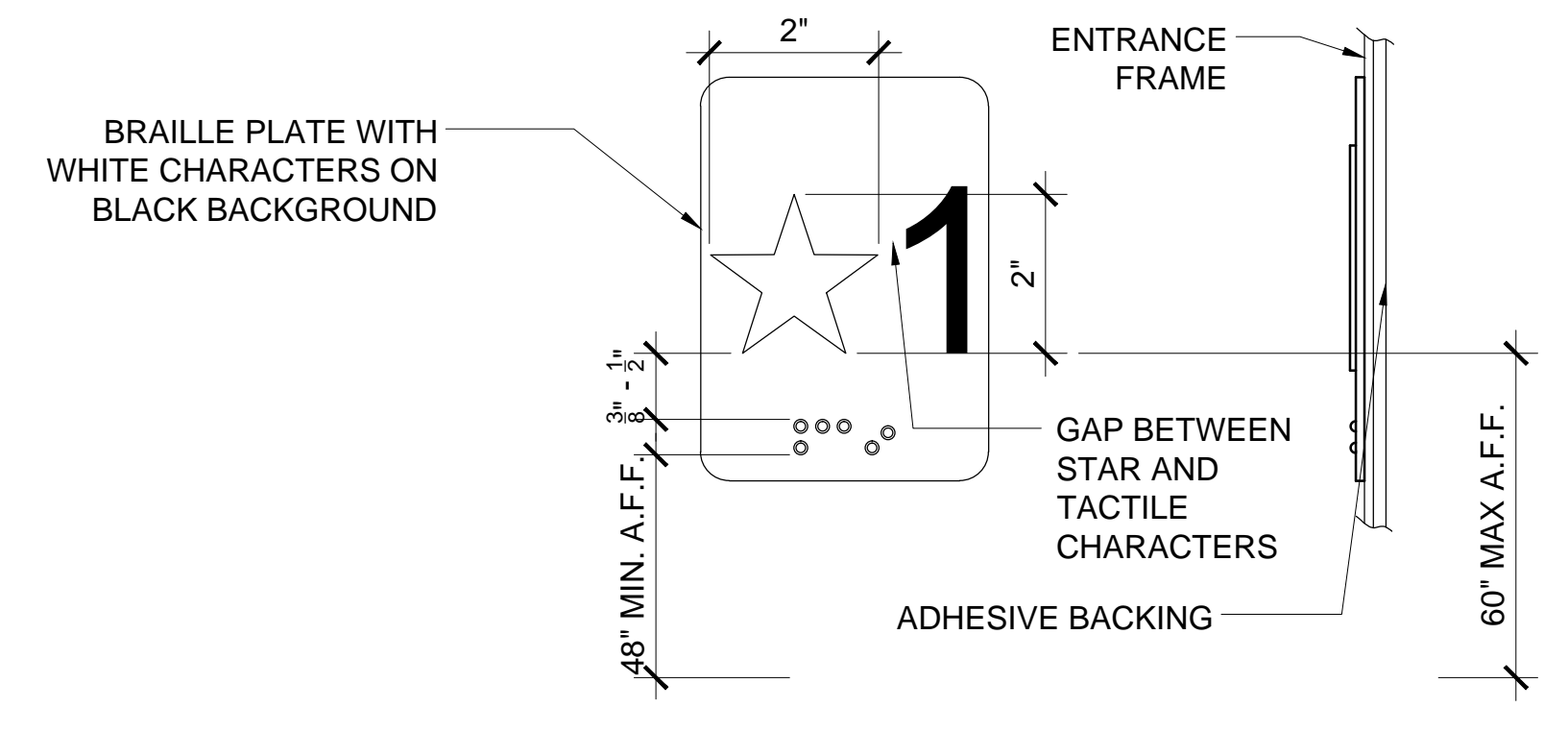


ELEVATOR DETAILS
6" = 1'-0"



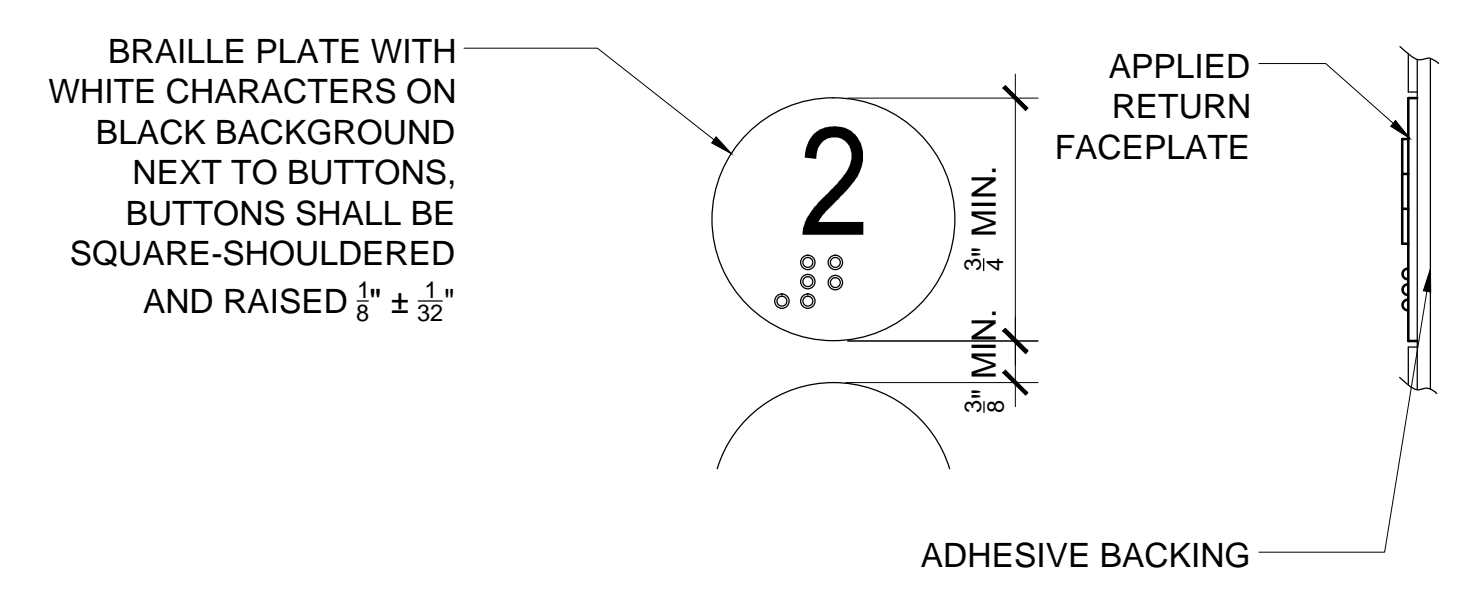
12 INTERNATIONAL SYMBOL OF ACCESSIBILITY
 NTS

HALL BRAILLE PLATES
 2 1/2" X 3 1/2" CAST PLATES WITH WHITE TACTILE CHARACTERS ON BLACK BACKGROUND. MEETS ASME A17.1 70% CONTRAST REQUIREMENTS. ADHERED FROM BACK SIDE. INCLUDES ARABIC OR N.E.I.I. DESIGNATIONS AND BRAILLE. EGRESS LEVEL TO BE INDICATED WITH A 2" DIAMETER STAR TO THE LEFT OF THE CHARACTER PER CURRENT EDITION OF CBC.

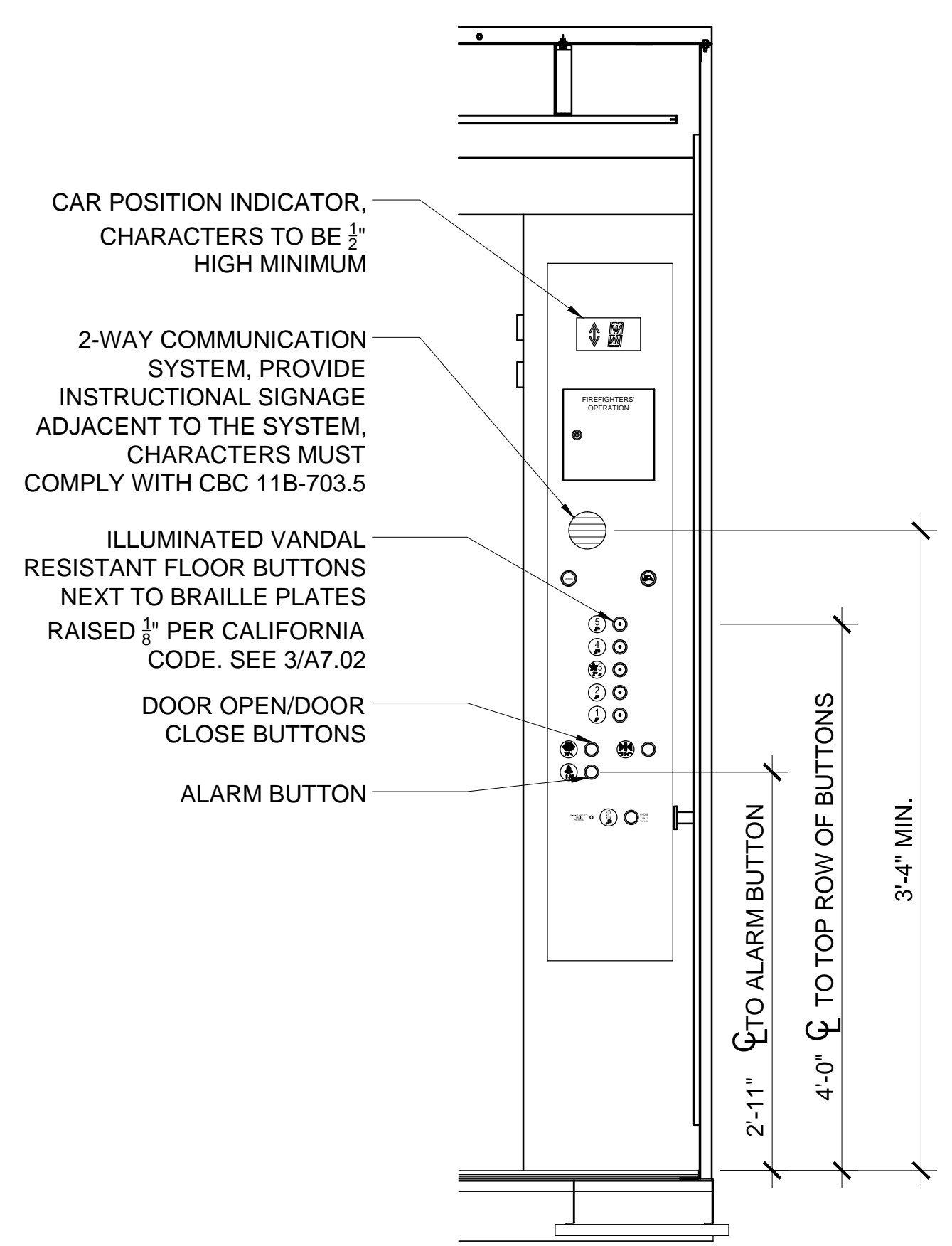


6 HALL BRAILLE DETAIL
 NTS

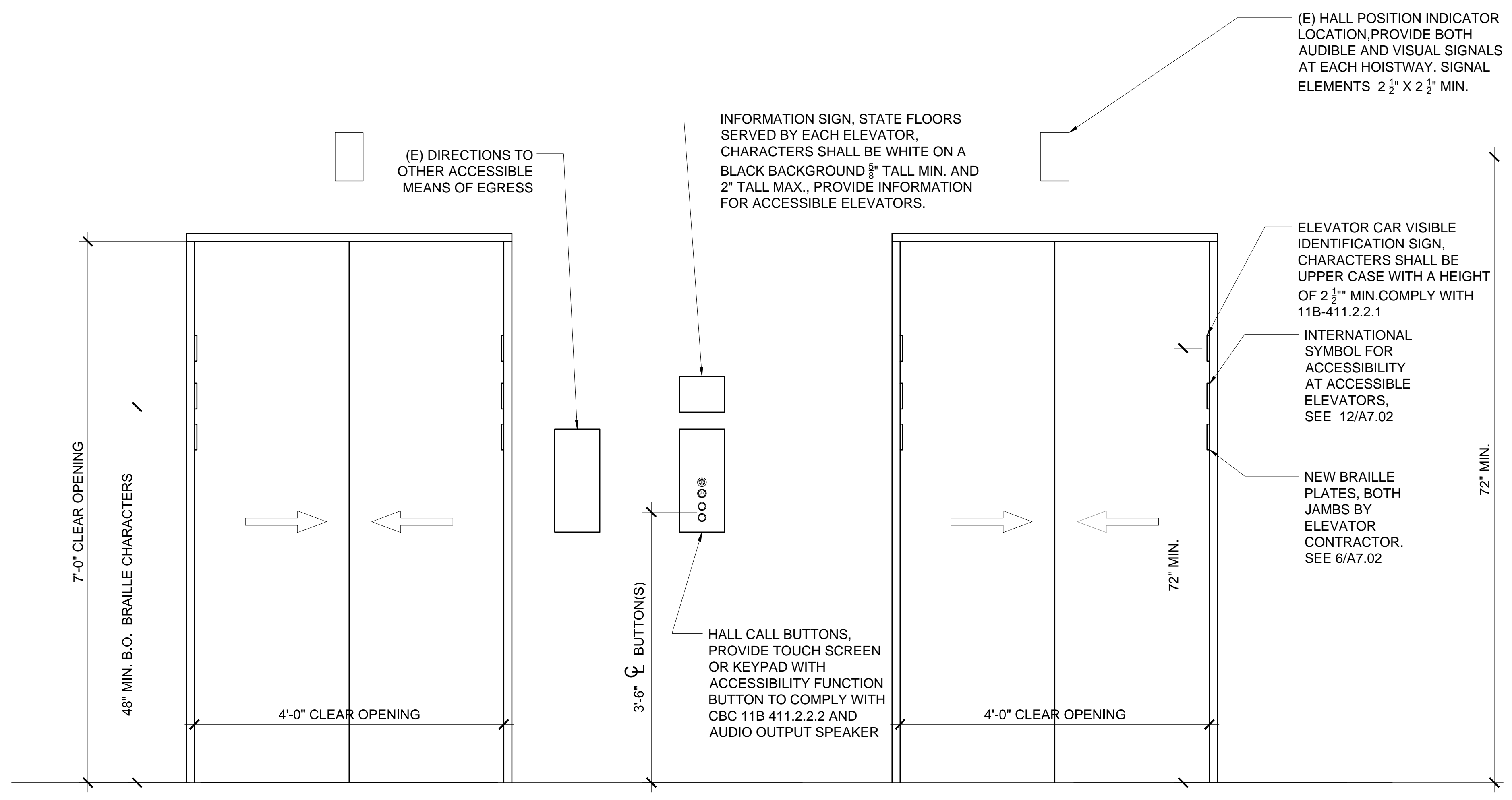
CAR BRAILLE PLATES 1 1/2" DIAMETER CAST PLATES WITH WHITE CHARACTERS ON BLACK BACKGROUND, NEXT TO BUTTONS. MEETS ASME A17.1 70% CONTRAST REQUIREMENTS. ADHERED FROM BACK SIDE. INCLUDES ARABIC OR N.E.I.I. DESIGNATIONS AND BRAILLE. EGRESS LEVEL TO BE INDICATED WITH A STAR TO THE LEFT OF THE CHARACTER PER THE CURRENT EDITION OF CBC.



3 CAR BRAILLE DETAIL
 NTS



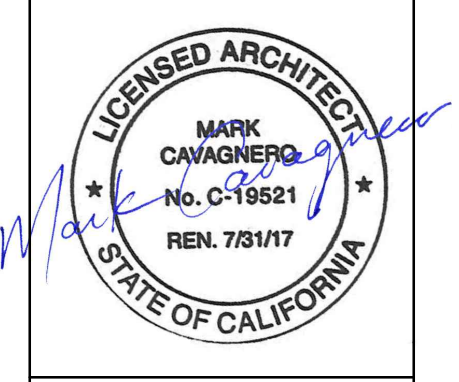
10 TYPICAL MAIN APPLIED RETURN
 1" = 1'-0"



7 TYPICAL HALL BUTTON AND BRAILLE PLATE LOCATIONS
 1" = 1'-0"

REV	DATE	DESCRIPTION
	8/9/2016	100% SD
	8/25/2016	100% DD
	9/29/2016	50% CD
	11/29/2016	90% CD
	07/07/2017	100% CD/CONFORMED SET
	11/01/2017	100% CD/CONFORMED SET BID SET

METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION
 1945 S Hill St, Los Angeles, CA 90007



SIGNAGE DETAILS
 AS SHOWN

A7.02

SYMBOLS LIST

	EXIT SIGN, CEILING MOUNTED, SINGLE OR DOUBLE FACED WITH DIRECTIONAL ARROW/S WHERE SHOWN ON LIGHTING PLANS. MATCH BASE BUILDING STANDARD. "P" DENOTES PENDANT MOUNTED.
	EXIT SIGN WALL MOUNT, SINGLE OR DOUBLE FACED WITH DIRECTIONAL ARROW/S WHERE SHOWN ON LIGHTING PLANS. MATCH BASE BUILDING STANDARD
	SINGLE POLE TOGGLE SWITCH α = CONTROLLING OUTLET OR FIXTURE "α" M = MOTOR RATED
	NEW 4' LENSED NEMA 4R LED ELEVATOR PIT LIGHT FIXTURE TO REPLACE (E)LIGHT FIXTURE. CONNECT TO (E)CCT. LITHONIA #XWMLD OR EQUAL
	DUPLEX CONVENIENCE RECEPTACLE 15A, 125V. FLUSH WALL MOUNTED. 20A. RATING FOR SINGLE RECEPTACLE ON 20A INDIVIDUAL CIRCUIT.
	GFCI, GROUND FAULT INTERRUPTER DUPLEX CONVENIENCE RECEPTACLE 15A, 125V.
	CEILING MOUNTED JUNCTION BOX
	FLUSH WALL MOUNTED JUNCTION BOX
	3/4 IN CONDUIT WITH 2 #12 WIRES
	3/4 IN CONDUIT WITH 3 #12 WIRES
	3/4 IN CONDUIT WITH 4 #12 WIRES
	3/4 IN CONDUIT WITH 5 #12 WIRES
	3/4 IN CONDUIT WITH 6 #12 WIRES
	CONDUIT TURNING UP
	CONDUIT TURNING DOWN
	CONDUIT STUBBED OUT
	GROUND CONNECTION
	CONDUIT HOMERUN TO PANELBOARD "2PA" WITH CIRCUITS 1,3,5
	FUSED DISCONNECT SWITCH-100A SWITCH, 60A FUSE. PROVIDE LOCKABLE DISCONNECT SWITCH AT ELEVATORS.
	DISCONNECT SWITCH-30AMP, 3 POLE
	SURFACE MOUNTED PANELBOARD
	FLUSH MOUNTED PANELBOARD
	MOTOR
	TRANSFORMER
	CIRCUIT BREAKER-100 AMP FRAME/100AMP TRIP, 3 POLE UON LT=LONG TIME SETTING ST=SHORT TIME SETTING I=INSTANTANEOUS SETTING
	SMOKE DETECTOR (REFER TO FIRE ALARM SHEETS FOR ADDITIONAL INFORMATION)
	COMBINATION SMOKE-HEAT DETECTOR (REFER TO FIRE ALARM SHEETS FOR ADDITIONAL INFORMATION)

SYMBOL TAG DESIGNATION

N = NEW
E = EXISTING
ER = EXISTING TO BE REMOVED OR RELOCATED
R = REMOVED

ABBREVIATIONS

A	AMPERE	AC	ABOVE COUNTER	ACB	AIR CIRCUIT BREAKER	AFF	ABOVE FINISHED FLOOR	AL	ALUMINUM	ALM	ALARM	AMM	AMMETER	AOST	AQUASTAT	ARF	ABOVE RAISED FLOOR	ASYM	ASYMMETRICAL	ATS	AUTOMATIC TRANSFER SWITCH	AUTO	AUTOMATIC	AWG	AMERICAN WIRE GAUGE																										
BC	BREAK GLASS SWITCH	BCB	BRANCH CIRCUIT BREAKER	BIL	BASIC IMPULSE LEVEL	BLDG	BUILDING	BFC	BEFORE FINISHED CEILING	C	CONDUIT	*C	DEGREE CELSIUS	CAB	CABINET	CAT	CATALOG	CB	CIRCUIT BREAKER	CCTV	CLOSED CIRCUIT TELEVISION	CKT	CIRCUIT	CL	CENTER LINE	CLG	CEILING	CLOS	CLOSET	CNTL	CONTROL	CO	CONDUIT ONLY	COMM	COMMUNICATION	CONT	CONTINUATION	CT	CURRENT TRANSFORMER	CU	COPPER	CUH	CABINET UNIT HEATER								
DB	DECIBEL	DE	DOUBLE ENDED SUBSTATION	DEG	DEGREE	DF	DRINKING FOUNTAIN	DIA	DIAMETER	DISC	DISCONNECT	DN	DOWN	DP	DISTRIBUTION PANEL BOARD	DT	DUST TIGHT	DWG	DRAWING	E	EXISTING	EA	EACH	EC	ELECTRICAL CLOSET	EL	ELEVATION	ELEC	ELECTRICAL	ELEV	ELEVATOR	EMER	EMERGENCY	EQUIP	EQUIPMENT	ER	EXISTING REPLACED OUTLET	EXIST	EXISTING	EXT	EXTERIOR	EM	DENOTES FIXTURE WITH INTEGRAL BATTERIES PACK								
*F	DEGREE FAHRENHEIT	F	FUSE	FA	FIRE ALARM	FAP	FIRE ALARM CONTROL PANEL	FBO	FURNISHED BY OTHER DIVISION OF WORK	FCU	FAN COIL UNIT	FDR	FEEDER	FDS	FUSED DISCONNECT SWITCH																																				
FIXT	FIXTURE	FL	FLOOR	FLEX	FLEXIBLE	FLUOR	FLUORESCENT	FM	FLOOR MACHINE	FSP	FAN SHUTDOWN PANEL	FT	FEET OR FOOT	G	GROUND	GEN	GENERATOR	GFI	GROUND FAULT INTERRUPTER	H	HUNG CEILING	HID	HIGH INTENSITY DISCHARGE	HH	HAND HOLE	HP	HORSEPOWER	HV	HIGH VOLTAGE	HZ	HERTZ	I	INTERRUPTING CAPACITY	ID	INSIDE DIAMETER	INCAND	INCANDESCENT	INST	INSTRUMENT	J	JUNCTION BOX	K	KILOVOLT	KVA	KILOVOLT AMPERE	KW	KILOWATT	KWH	KILOWATT HOUR	KWHM	KILOWATT HOUR METER
MAP	MECHANICAL ALARM PANEL	MAX	MAXIMUM	MCB	MAIN CIRCUIT BREAKER	MC	MOTOR CONTROLLER	MCC	MOTOR CONTROL CENTER	MCM	THOUSAND CIRCULAR MILS	MECH	MECHANICAL	MER	MECHANICAL EQUIPMENT ROOM	MFS	MAIN FUSED SWITCH	MH	MANHOLE	MIC	MICROPHONE	MIN	MINIMUM	MTD	MOUNTED	MTG	MOUNTING	MTS	MANUAL TRANSFER SWITCH	MUFS	MAIN UNFUSED SWITCH	N	NEW	NC	NORMALLY CLOSED	NF	NON-FUSED	NIC	NOT IN CONTRACT	NO	NORMALLY OPEN	NP	NETWORK PROTECTOR	NTS	NOT TO SCALE	O	ON CENTER	OCB	OIL CIRCUIT BREAKER	OD	OUTSIDE DIAMETER
W	WATT	WC	WATER COOLER	WFS	WATER FLOW SWITCH	WHM	WATT HOUR METER	WP	WEATHERPROOF	WT	WATERTIGHT	X	EXPLOSION PROOF																																						

GENERAL NOTES

- ALL SYMBOLS SHOWN ON SYMBOL LIST ARE NOT NECESSARILY USED ON THIS PROJECT.
- SEE ARCHITECTURAL DRAWINGS FOR NOTES, SYMBOLS, ETC. AND COMPLY WITH THEIR REQUIREMENTS.
- ALL WORK SHALL COMPLY WITH THE CEC 2013, THE STATE OF CALIFORNIA, CITY OF EL CAJON, AND ALL OTHER GOVERNING CODES AND ORDINANCES.
- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE AND ALL LOCAL APPLICABLE CODES AND REGULATIONS.
- UNLESS INSTRUCTED OTHERWISE, THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, AND FEES REQUIRED FOR INSTALLATION OF THE ELECTRICAL WORK, AND FURNISH FINAL CERTIFICATE OF INSPECTION OR WRITTEN EVIDENCE OF ACCEPTANCE BY INSPECTION AUTHORITIES FOR ALL WORK INSTALLED.
- BEFORE STARTING ANY WORK, THE CONTRACTOR SHALL EXAMINE THE COMPLETE SET OF DRAWINGS FOR ALL TRADES, INCLUDING ARCHITECTURAL AND HEATING-VENTILATING-AIR CONDITIONING. VERIFY ALL DIMENSIONS SPACE REQUIREMENTS, POINTS OF CONNECTION TO ALL EQUIPMENT, AND MAKE ANY MINOR ADJUSTMENTS NECESSARY TO AVOID CONFLICTS WITH THE BUILDING STRUCTURE AND THE WORK OF OTHER TRADES.
- BEFORE SUBMITTING PROPOSALS FOR THIS WORK, EACH BIDDER SHALL BECOME FAMILIAR WITH DRAWINGS, SHALL HAVE EXAMINED THE PREMISES, AND BE AWARE OF ALL EXISTING CONDITIONS UNDER WHICH HE WILL BE OBLIGATED TO OPERATE IN PERFORMING HIS CONTRACT. THE CONTRACTOR WILL NOT BE ENTITLED TO ANY EXTRA COMPENSATION FOR FAILURE TO ALLOW FOR ALL EXISTING CONDITIONS. SUBMITTING OF A BID OR PROPOSAL WILL BE CONSIDERED EVIDENCE OF THE FACT THAT CONTRACTOR IS FULLY AWARE OF THESE CONDITIONS AND IS ABLE TO COMPLETE ALL WORK REQUIRED BY THE DRAWINGS.
- IF ANY EQUIPMENT SUBMITTED BY THE CONTRACTOR IS DIFFERENT FROM THAT SPECIFIED, OR REQUIRES CHANGES IN MATERIAL OR LABOR FROM THAT REQUIRED IN THE CONTRACT DOCUMENTS AFFECTING THIS AND/OR OTHER TRADES, SUCH CHANGES SHALL BE SUBMITTED AS SHOP DRAWINGS. SUBMITTAL SHALL INDICATE CREDIT DUE TO OWNER, IF ANY, BECAUSE OF THE CHANGES. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PAYMENT OF ALL CHARGES RESULTING FROM ADDITIONS OR CHANGES IN THE WORK OF OTHER TRADES NECESSARY TO ACCOMMODATE THE REQUESTED MODIFICATION. ALL CHANGES SHALL BE SHOWN ON RECORD AND AS-BUILT DRAWINGS.
- THE DRAWINGS INDICATE, IN A DIAGRAMMATIC MANNER, THE DESIRED LOCATIONS AND ARRANGEMENT OF THE COMPONENTS OF THE ELECTRICAL WORK. DETERMINE EXACT CONDUIT ROUTING, CONDUIT BENDS, AUXILIARY JUNCTION BOXES, SUPPORTS, AND UNDEFINED CONSTRUCTION DETAILS, AS A JOB CONDITION TO BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS.
- THESE DRAWINGS INDICATE THE FINISHED REQUIREMENTS FOR THE ELECTRICAL SYSTEMS, EQUIPMENT, LIGHTING FIXTURES, OUTLETS AND DEVICES. DUE TO STRUCTURAL CONDITIONS, MECHANICAL DUCT OR PIPING INTERFERENCE, OR FOR OTHER REASONS, THE CONTRACTOR MAY DESIRE TO INSTALL THE WORK IN A MANNER DIFFERENT FROM THAT SHOWN. SUCH CHANGES SHALL BE PRESENTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE PROCEEDING, AND THE RECORD DRAWINGS SHALL BE ACCURATELY REVISED TO SHOW THE CHANGES AS COMPLETED.
- THE WORK OF THIS PROJECT INVOLVES ALTERATION OF THE EXISTING BUILDING TO ACHIEVE THE ARRANGEMENT INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VISIT THE JOB SITE TO DETERMINE THE EXTENT OF WORK REQUIRED BY THE CONSTRUCTION ACTIVITIES. THE ARCHITECTURAL DRAWINGS SHOW THE CHANGES TO BE MADE. THE CONTRACTOR SHALL REVISE, REARRANGE, REROUTE OR REMOVE EXISTING WIRING AS REQUIRED TO ACCOMMODATE THE CHANGES AND ADDITION SHOWN AND TO PROVIDE CONTINUING ELECTRICAL SERVICE TO THOSE EXISTING PORTIONS OF THE PROJECT WHICH ARE TO REMAIN IN UNINTERRUPTED OPERATION. NO WORK SHALL BE PERFORMED DURING HOURS OF COURT OPERATION.
- THE ALTERATION OF THE EXISTING BUILDING IS A COMPLEX WORK IN NATURE WHICH WILL REQUIRE ACCURATE PLANNING, CAREFUL PREPARATION AND EXECUTION, ATTENTION TO DETAIL AND CLOSE SUPERVISION BY THE CONTRACTOR. THE CONTRACTOR WILL BE REQUIRED TO DO HIS WORK IN FULL COOPERATION WITH THE OTHER CONSTRUCTION TRADES.
- SEE ARCHITECTURAL DRAWINGS FOR SCOPE/EXTENT OF DEMOLITION, NEW CONSTRUCTION.
- MAINTAIN CIRCUIT CONTINUITY TO THOSE AREAS NOT AFFECTED BY THE ALTERATION WORK.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR DETAILS APPLICABLE TO THE ELECTRICAL WORK.
- ALL ELECTRICAL MATERIALS SHALL BE NEW AND BEAR THE UNDERWRITERS (AND/OR EQUIVALENT TESTING AGENCY) LABEL.
- ALL OUTLETS SHALL BE INSTALLED AT 15" TO BOTTOM ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- ALL J-BOXES SHALL BE SIZED PER 2010 NEC TABLE 314.16(A).
- ALL OUTLET, FACE PLATES (RECEPTACLE, SWITCHES, ETC.) COLOR AND MATERIAL SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL.
- ALL WALL JUNCTION BOXES SHALL BE MOUNTED FLUSH WITH FINISHED FACE OF WALL. PROVIDE EXTENSION BOXES AT WALLS WITH APPLIED ACOUSTIC PANELS. ALL WALL JUNCTION BOXES SHALL BE INSTALLED WITH MOUNTING HOLES AT TOP AND BOTTOM, UNLESS OTHERWISE NOTED.
- ALL JUNCTION BOXES AND PULL BOXES SHALL BE OF CODE GAUGE AND OF THE REQUIRED SIZE TO ACCOMMODATE NUMBER OF CONDUCTORS SHOWN.
- ALL PULL BOXES IN FINISHED AREAS SHALL HAVE FACTORY APPLIED PRIME COAT OF PAINT.
- FOR ALL WIRING DEVICES, VERIFY FINISH COLOR WITH ARCHITECT.
- A DUPLEX RECEPTACLE INSTALLED ON AN INDIVIDUAL 20A CIRCUIT BREAKER SHALL HAVE A 20A RATING AND A DUPLEX RECEPTACLE INSTALLED ON AN INDIVIDUAL 30A CIRCUIT BREAKER SHALL HAVE A 30A RATING.
- LIGHT FIXTURES:
a. PROVIDE FIXTURES COMPONENTS AND LAMPS
b. TYPE OF FIXTURES INDICATED BY LETTERS
c. BALLAST: ELECTRONIC BALLAST; SEE SPECIFICATIONS LEVEL, ETL AND CBM APPROVED, ENERGY SAVING ELECTRONIC BALLAST.
- FLUORESCENT LAMP BALLASTS AND LUMINAIRES WITH FLUORESCENT LAMP BALLASTS SHALL BE CERTIFIED BY THE MANUFACTURER TO COMPLY WITH TITLE 24 "APPLIANCE STANDARDS FOR FLUORESCENT BALLASTS".
- THE CONTRACTOR SHALL EXTEND WIRING FROM ALL JUNCTION BOXES, RECEPTACLES, SWITCHES, ETC. AND MAKE FINAL CONNECTION AS REQUIRED TO ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTION.
- THE CONTRACTOR SHALL PROVIDE PULL CORDS IN ALL EMPTY CONDUITS. WHERE MORE THAN ONE CONDUIT TERMINATES IN A JUNCTION BOX, THE ELECTRICAL CONTRACTOR SHALL IDENTIFY EACH J-BOX AND CONDUIT IN A MANNER ALLOWING IDENTIFICATION OF J-BOXES AND CONDUITS AFTER ALL WALL FINISHES HAVE BEEN APPLIED.
- REFER TO SPECIFICATION FOR ALLOWED CONDUIT TYPES.
- THE MINIMUM SIZE OF CONDUITS SHALL BE 3/4". THE MINIMUM SIZE OF CONDUCTORS SHALL BE #12 AWG, U.O.N. 120V CONDUCTORS SHALL BE SIZED TO THE NEXT LARGER SIZE FOR EVERY ADDITIONAL 100 FT IN FEEDER RUN.
- THE CONTRACTOR SHALL COORDINATE BOTH HORIZONTAL AND VERTICAL ROUTING OF ALL RACEWAY AND CONDUITS TO AVOID CONFLICTS WITH OTHER SYSTEMS, FRAMES AND ARCHITECTURAL OR STRUCTURAL BARRIERS. CONDUITS RUN IN THE CEILING SHALL BE RUN AS CLOSE AS POSSIBLE TO THE SLAB ANS SHALL BE RUN PARALLEL TO THE PERIMETER WALLS.
- ALL CONDUCTORS SHALL BE COPPER TYPE THWN INSULATION.
- ALUMINUM CONDUCTORS SHALL NOT BE USED ON THIS PROJECT.
- FOR ANY INSTALLATION, NON-METALLIC SHEATHED CABLE, TYPES NM OR NMC ("ROMEX") OR TYPE AC ("BX") SHALL NOT BE ALLOWED. THIS NOTE OVERRIDES ALL OTHER CONTRADICTING NOTES THAT MAY EXIST WITHIN THIS CONTRACT.
- MC CABLE SHALL NOT BE USED ON THIS PROJECT. THIS NOTE OVERRIDES ALL OTHER CONTRADICTING NOTES THAT MAY EXIST WITHIN THIS CONTRACT.

- ALL PANELBOARDS SHALL BE MARKED WITH IDENTIFYING NAMEPLATES TO INDICATE THE DESIGNATIONS USED ON THESE DRAWINGS. PROVIDE NEW PANELBOARD SCHEDULES, CORRECTLY FILLED OUT FOR EVERY PANELBOARD.
- PROVIDE TYPEWRITTEN PANEL SCHEDULES TO BE MOUNTED ON INSIDE OF ALL PANEL COVER DOORS. PROVIDE COPY IN AS-BUILT PACKAGE. SCHEDULE TO MATCH THOSE SHOWN ON DRAWINGS.
- FURNISH APPROVED EXPANSION FITTINGS WHERE RACEWAY CROSSES BUILDING EXPANSION JOINTS.
- THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT AND OTHER EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO ROUGH IN.
- WHERE MOTORS ARE INSTALLED IN HUNG CEILINGS, PROVIDE A DISCONNECT SWITCH IN HUNG CEILING WITHIN REACH FROM AN ACCESS POINT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ACTUAL MOTOR AND APPLIANCE RATINGS AND LOADS IN ORDER TO PROVIDE CORRECTLY SIZED MOTOR RELATED ELECTRICAL COMPONENTS AND OUTLETS. THE CONTRACTOR SHALL SUBMIT TO ARCHITECT, WITH REVISED DATA, BEFORE INSTALLATION. ALL CHANGES SHALL BE SHOWN ON RECORD DRAWINGS.
- ALL CONNECTIONS TO FANS, MOTORS, TRANSFORMERS, ETC. SHOULD BE MADE WITH LIQUIDTIGHT FLEXIBLE CONDUIT.
- INFORMATION ON AVAILABLE CIRCUITS TO BE USED ON EXISTING PANELBOARDS WAS OBTAINED FROM SITE VISIT AND THE ORIGINAL DOCUMENTS. CONTRACTOR SHALL FIELD VERIFY ITS ACCURACY AND REASSIGN CIRCUIT NUMBERS IF NECESSARY. UPDATE PANEL DIRECTORY WITH THE LATEST INFORMATION AND SWITCH OFF ALL SPARE CIRCUIT BREAKERS.
- ALL PENETRATIONS OF FIRE-RESISTING FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO U.L. LISTING FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS". THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS, FURNISHED BY THE MANUFACTURER OF THE FIRE STOP MATERIAL, WHICH SHOW COMPLETE CONFORMANCE TO THE U.L. LISTING. THE SUBMITTAL SHALL BE SPECIFIC FOR EACH PENETRATION, WITH ALL VARIABLES DEFINED.
- SUBMIT SHOP DRAWINGS AND PRODUCT DATA ACCORDING TO SPECIFICATIONS.
- CONTRACTOR SHALL PROVIDE COMPLETE AS-BUILT DRAWINGS PRIOR TO COMPLETION OF PROJECT FOR REVIEW BY ARCHITECT / ENGINEER.
- ALL DEVICES LOCATED OUTDOORS SHALL BE WEATHERPROOF TYPE.
- ALL ABANDONED CONDUIT AND CONDUCTORS SHALL BE REMOVED BACK TO SOURCE PANEL.
- ALL LIGHTING CONTROL DEVICES SHALL BE CERTIFIED BY THE CALIFORNIA ENERGY COMMISSION.
- CONTRACTOR SHALL CONFORM TO CEC 2010 ARTICLE 210.7(B) MULTIWIRED BRANCH CIRCUITS BY IMPLEMENTING EITHER OF THE FOLLOWING METHODS:
-INSTALL 2 POLE, 3 POLE OR (2) 2 POLES C/B'S IN LIEU OF 1 POLE BREAKERS SHOWN TO DISCONNECT THE UNGROUNDED CONDUCTORS SIMULTANEOUSLY.
OR
-INSTALL A SEPARATE NEUTRAL FOR EACH PHASE CONDUCTOR + INCREASE THE SIZE OF RACEWAY IF NECESSARY IN COMPLIANCE WITH FILL RATIO TABLES.
- DEDICATED CIRCUITS SHALL HAVE INDIVIDUAL BLACK WIRE FROM OUTLET TO PANEL BREAKER AND INDIVIDUAL WHITE (NEUTRAL) WIRE FROM OUTLET TO PANEL NEUTRAL BUS. GREEN WIRE SHALL BE RUN TO BUILDING GROUND VIA AN ISOLATED GROUND PANEL BUS. (GREEN WIRE MAY BE GANGED FROM OUTLETS TO ISOLATED GROUND PANEL BUS.) CONTRACTOR SHALL FURNISH CERTIFICATION FROM ELECTRICAL CONTRACTOR THAT THIS WORK HAS BEEN INSTALLED IN COMPLIANCE WITH SPECIFICATIONS AND VENDOR'S EQUIPMENT REQUIREMENTS.
- FOR ELECTRICAL/DATA/TELEPHONE OUTLET HEIGHTS: EXISTING RECEPTACLES MAY REMAIN AT 12" AFF, WHILE NEW OUTLETS SHALL BE PLACED AT MINIMUM 15" , WITH A PREFERRED HEIGHT OF 18" AFF.
- CONDUITS SHALL NOT BE ROUTED ALONG TOP ROOF STRUCTURES WITHOUT APPROVAL OF ARCHITECT. APPROVED CONDUITS RUN ALONG ROOF OR CONDUITS RUN DIRECTLY BELOW THE ROOF OR CANOPY EXPOSED TO THE SUN SHALL HAVE CONDUCTORS AND CONDUIT UPSIZED AS REQUIRED TO MEET NEC 310.15 (B) 2C.
- VERIFY WITH ELEVATOR VENDOR/INSPECTOR EXACT LOCATION OF DISCONNECTS AND DEVICES IN ELEVATOR MACHINE ROOMS AND SHAFT PRIOR TO INSTALLATION.

SCOPE OF WORK

ELEVATOR MODERNIZATION OF ALL EXISTING THIRTEEN ELEVATORS. MODERNIZATION INCLUDES THE FOLLOWING:
1. REPLACE EXISTING ELEVATOR #1-12 CABS WITH NEW. REPLACE EXISTING ELEVATOR #13 CAB, MOTOR AND CONTROLS WITH NEW.
2. UPGRADE EXISTING ELECTRICAL RELATED TO ELEVATORS, ELEVATOR MACHINE ROOMS, ELEVATOR HOISTWAYS AND PITS TO CURRENT CODE.
3. PROVIDE 24/7 COOLING FOR ELEVATOR MACHINE ROOMS.
4. UPGRADE EXISTING FIRE ALARM SYSTEM TO CURRENT CODE.

SHEET INDEX

SHEET NO.	DESCRIPTION	SCALE
E0.01	ELECTRICAL SYMBOLS LIST, ABBREVIATIONS AND SHEET INDEX	NONE
E0.02	ELECTRICAL SPECIFICATIONS	NONE
E0.03	ELECTRICAL SINGLE LINE DIAGRAM	NONE
E0.04	ELECTRICAL PANEL SCHEDULE	NONE
E0.05	FIRE ALARM GENERAL NOTES	NONE
E0.06	FIRE ALARM RISER DIAGRAM	NONE
E2.00	PARKING LEVEL C ELECTRICAL PLAN	1/16"=1'-0"
E2.09	9TH FLOOR ELECTRICAL PLAN	1/16"=1'-0"
E4.01	ELECTRICAL ENLARGED PLANS	1/8"=1'-0"

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REV	DATE	DESCRIPTION
1	8/2/2016	100% SD
2	8/25/2016	100% DD
3	9/29/2016	50% CD
4	11/29/2016	90% CD
5	01/24/2017	PERMIT SET
6	02/13/2017	PERMIT SET
7	07/07/2017	100% CD / CONFORMED SET
8	09/21/2017	REVISED 100% CD
9	11/01/2017	BID SET

METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION
1945 S Hill St, Los Angeles, CA 90007

E.001 ELECTRICAL SYMBOLS LIST ABBREVIATIONS AND SHEET INDEX

E0.01

ELECTRICAL SPECIFICATIONS

PART 1 GENERAL

1.01 GENERAL PROVISIONS

A. General Requirements:

- Related documents: Architectural specifications, appliance and fixture specification package, general, special and supplementary conditions, shall form a part of these specifications.
- Scope of work: Provide all required labor, materials, equipment and contractor's services necessary for complete and safe installation of Electrical work in conformity with requirements of all authorities having jurisdiction; as indicated on drawings and/or here in specified or described.
- Site cleanliness: Keep site free from this section's surplus material, tools and rubbish at all times during construction periods and, upon completion, leave site in clean condition.
- Site security: Protect this section's materials and equipment from all damage due to fire, theft, vandalism, weather, etc.
- Damage to other work: Repair any damage caused by this section to integrity of original construction.
- Damage to fireproofing: Repair any damaged fireproofing caused by this section to integrity of original construction.
- Site safety: Contractor covenants and agrees that he and his subcontractors and his and their agents, servants and employees will provide and maintain a safe place to work and that he and they will comply with all laws and regulations of any governmental authority having jurisdiction thereof, and contractor agrees to indemnify, defend and hold harmless, engineer, owner and architect from and against any liability, loss, damage or expense, including attorney's fees, arising from a failure or alleged failure on the part of contractor, this subcontractors and his and their agents, servants and employees to provide and maintain a safe place to work or to comply with all laws and regulations of any governmental authority having jurisdiction thereof.
- Verification of existing: Before submitting bid, contractor shall visit the site and become thoroughly familiar with actual existing conditions and of the present installations to which connections must be made or which must be changed or altered, the intent of the work is shown on the drawings and described herein, and no consideration will be granted by reason of lack of familiarity on the part of the contractor with actual physical conditions, requirements, and practices at the site.
- Requirements of other sections: Carefully check the documents of other sections to ascertain the requirements of any interfacing materials or equipment being furnished and/or installed by that section which relate to this section, and provide the proper installation and/or connection.
- Information transfer: Transmit all information required for work being performed by other sections in ample time for the proper installation and connection and for the provision of all openings required in floors and walls.
- Holes and structure: Field drilling and cutting of holes in building structure required for work under this section shall be coordinated through the general contractor and approved by owner and building structural engineer. All such coordination, drilling, cutting and reinforcing costs shall be borne by this contractor.
- Sleeves: Furnish and set all sleeves for the passage of conduit through walls, roof and floors and elsewhere as will be required for the proper protection of each conduit passing through building surfaces, coordinate this work with general contractor in order to properly expedite and perform this work.
- Passage of equipment: Check the dimensional requirements of equipment can pass through the necessary areas to reach its ultimate installed location, include in bid costs for all work required, including any work required to move the equipment through the site to this final location, including any dismantling and re-assembly.
- Signage: Provide signage required by Codes's and Authorities Having Jurisdiction.
- Potential Delivery problems: notify the general contractor and engineer in writing, within five days of award of contract, of the proposed delivery schedule of any equipment or material that may prevent the installation from being completed by the project completion date.
- Warranty: Submit a single guarantee stating that all portions of the work are in accordance with contract requirements, guarantee all work against faulty and improper material and workmanship for a period of one year from date of final acceptance by owner, except that where guarantees or warranties for longer terms are specified by contract, such longer term shall apply.
- Rectification: At no additional cost to the owner, within 24 hours after notification, correct any deficiencies which occur during the guarantee periods, all to the satisfaction of the owner. The contractor shall be responsible for any damage caused by such deficiencies and repair thereof and reimburse the owner for all costs incurred.

B. Major items of work include (where applicable):

- Lighting systems.
- Power, including all feeders, conduit, receptacles and equipment connections.
- Conduit for line and low voltage systems.
- Testing of all systems.
- Demolition or relocation of existing equipment, conduit, wiring and fixtures.
- Provision of equipment and fixtures as identified.

C. General Items:

- Access doors panels: Provide concealed equipment requiring access with adequately sized access doors/panels. In removable type ceiling, provide access tile identification only.
- Cutting and patching for electrical work.
- Coordinate all new work with existing installations.
- Contractor shall inspect job site prior to bid and verify exact location, size and loading of existing systems prior to installation and connection of any new work.

1.02 REFERENCE STANDARDS:

A. In addition to complying with all other legal requirements, comply with current provisions of governing Codes's and regulations in effect during the progress of the work, and with the following:

- Drawings and specification requirements shall govern where they exceed Codes and regulation requirements.
- Where requirements between governing Codes's and regulations vary, the more stringent shall apply.
- Nothing contained in contract documents shall be construed as authority or permission to disregard or violate legal requirements, the contractor shall immediately draw the attention of architect to any such conflicts noted in the contract documents.

1.03 PERMITS AND INSPECTIONS:

A. The contractor shall secure all approvals and pay all fees for all work installed. Certificate shall be delivered to owner before final payment will be made.

1.04 DESCRIPTION

- A. Specifications are of simplified form and include incomplete sentences. Words or phrases such as "The Contractor shall," "shall be," "furnish," "provide," "a," "an," "the," and "all" have been omitted for brevity.
- B. Drawings are diagrammatic and indicate general arrangement of systems and work. Follow drawings in laying out work and check drawings of other trades to verify space conditions. Maintain headroom and space conditions.
- C. Definitions:
- "Furnish" or "Provide": To supply, install and connect up complete and ready for safe and regular operation of particular work referred to unless specifically otherwise noted.
 - "Install": To erect, mount and connect complete with related accessories.
 - "Supply": To purchase, procure, acquire and deliver complete with related accessories.
 - "Work": Labor, materials, equipment, apparatus, controls, accessories and other items required for proper and complete installation.
 - "Wiring": Raceway, fittings, wire, boxes and related items.
 - "Concealed": Embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces or in enclosures. "Exposed": Not installed underground or "Concealed" as defined above.
 - "Equal": Equal in quality materials, weight, size, design and efficiency of specified product.
 - "Owner": Building Owner, tenant, client or duly appointed representative thereof, as applicable.

D. Scope of Work: Labor, materials, equipment, services and fees necessary for complete safe installation in conformity with applicable Codes and authorities having jurisdiction; as indicated on drawings and herein specified.

E. Work shall be installed in accordance with California Electrical Code and all other states, City & other applicable Codes

F. Coordinate work with other trades & install related work shown on Architect, Mechanical & Plumbing.

G. Install overcurrent protection for Mechanical & Plumbing based on the actual equipment nameplate ratings and recommendations.

1.05 JOB CONDITIONS

A. Connections to Existing Work:

- Install new work and connect to existing work with minimum interference to existing facilities.
- Temporary shutdowns of existing services:
 - At no additional charges.
 - At times not to interfere with normal operation of existing facilities.
 - Only with written consent of Owner.
- Alarm and emergency systems: Not to be interrupted.
- Maintain continuous operation of existing facilities as required with necessary temporary connections between new and existing work.
- Connect new work to existing work in neat and acceptable manner. Restore existing disturbed work to original working condition including maintenance of wiring continuity as required.
- Field verify location of existing service & submit bid according to location and condition.

B. Demolition:

- Remove all unused conduits and wiring, switches, receptacles, light fixtures, etc., where ceilings, ceiling tiles or walls are being demolished except as follows: where walls and ceilings are remain. Maintain existing conduit, wiring and boxes serving all electrical equipment, outlets and switches in those areas. Remove all power wiring back to its overcurrent device and mark circuit breakers as "spare". Install blank covers on all boxes. Refer to drawings for additional requirements and other specific operable system is not removed.
- Coordinate all demolition work with new requirements to assure that existing equipment, wiring, etc., that is required for a complete and
- All existing electrical equipment and conduits that interfere with any new construction shall be relocated or re-routed as required to clear the new construction. Reconnect all existing equipment that are to remain and not affected by the new construction, to the newly relocated or re-routed system to ensure a safe and operational system.
- Disconnect and reconnect the existing electrical equipment as required by the construction modifications.
- Modify and reconnect the existing electrical equipment required to remain, and not affected by the new construction, to ensure the final system will function in a safe manner acceptable to authorities.
- All removed material and equipment which are salvageable shall remain the property of the owner. Deliver such salvaged material and equipment on the premises as directed by the owner, and neatly pile or store them and protect from damage. Remove from premises and dispose of all material considered by the owner to be scrap. Equipment such as ballasts, transformers, etc., containing PCB or other material classified as hazardous provide certificate of destruction.
- Unless otherwise noted, remove all electrical equipment that are not to be reused within the renovated area, including but not limited to the following:
 - Lighting fixtures
 - Wall switches
 - Fire alarm devices
 - Receptacles
 - Telephone outlets
 - Data outlets
 - Disconnect switches
 - FIDS outlets

Refer to architectural drawings and notes for additional requirements for the demolition work within this area.

1.06 QUALITY ASSURANCE

A. Quality and Gauges of Materials:

- Quality of materials:
 - New, best of their respective kinds, free from defects and listed by Underwriters Laboratories, Inc., or bearing their label.
 - Materials and equipment of similar application: Same manufacture, except as noted.
- Voltage Characteristics:
 - Distribution.
 - 480Y/277 Volts, 60 Hertz with grounded neutral.
 - 208Y/120 Volts, 60 Hertz with grounded neutral.
 - 240Y/120 Volts, 60 Hertz with grounded neutral.
- Heights of Outlets
 - From finished floor to centerline of outlets for:
 - Receptacles and telephones:
 - Generally: 1 ft. - 3 in.
 - Wall switches: 3 ft. - 6 in.
 - Motor controllers: 5 ft. - 0 in.
 - Exceptions:
 - At junction of different wall finish materials.
 - On molding or break in wall surface.
 - In violation of Code.
 - As noted or directed.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Moving of Equipment: Where necessary, ship in crated sections of size to permit passing through available spaces.
- B. Accessibility:
 - For operation, maintenance and repair.
 - Minor deviations: Permissible.
 - Changes of magnitude or involving extra cost: Not permissible without review.
 - Group concealed electrical equipment requiring access with equipment freely accessible through access doors.

1.08 SUBMITTALS

- A. Submit shop drawings and product data in accordance with general requirements specified in Architectural specifications, SUBMITTALS. Or Provide six (6) copies of submittal material with descriptive data for all products and materials, including but not limited to the following, prior to installation. All submittals shall be highlighted to indicate specific products or materials being used.

B. Shop Drawings: Submit Prior to installation

- E-mom meter and associated components.
- Transformer, UPS, and PDU
- Panelboards: Dimensions, schedules and catalog cuts.
- Wall Switches
- Receptacles.
- Device plates.
- Poke-throughs.
- Life safety system:
 - Descriptive data for all products and materials.
 - Recommended application and installation methods, including area coverage for smoke detectors.
 - Information and data, such as drawings showing device locations and types, riser diagrams, wiring diagrams, approvals, test data, etc., required by local Authorities.
 - Complete shop drawings of all custom-fabricated or assembled products, including wiring diagrams.
 - Drawings identifying all terminals and illustrating all device wiring connections.

1.09 MAINTENANCE MANUALS AND AS-BUILT DRAWINGS

- A. Provide four (4) copies of operating and maintenance manual for Owner's use for each piece of equipment. Each item shall be cross-referenced and numbered with as-built drawing descriptions.
- B. As-built Drawings: Provide for approval one set of prints (including schedules) showing work as actually installed.
- C. Provide disc copy of final as-built drawings in AutoCAD format.

PART 2 PRODUCTS

2.01 GENERAL

A. Nameplates:

- Fastened with epoxy cement, engraved black Lamicoid sheet with 3/8 in. white lettering for utility power. Red with white letters for emergency equipment, blue with white lettering for UPS, or Building Standard.
- Inspector: Subject to review, indicating equipment, amperage and voltage.
- Provide for:
 - Disconnect switches.
 - Circuit breakers.
 - Panels.
 - Cabinets
 - Motor controllers.

B. Supports:

- Supports from building construction: Beam clamps, steel fishplates (in concrete fill only) or cantilever brackets.
- Grouped lines and services: Trapeze hangers of bolted angles or channels.
- Where building construction is inadequate: Provide additional framing.
- Shall comply with all OSHPD requirements.

2.02 MATERIALS

A. Raceways:

- Electrical Metallic Tubing (EMT): Thin wall pipe, galvanized, threadless.
- Rigid steel conduit: Full weight pipe, galvanized, treaded.

B. Fittings and Accessories:

- Raceway fittings:
 - Electrical Metallic Tubing: Compression or double set screw type. Galvanized rigid steel elbows, 2 in. or larger.
 - Flexible metallic conduit: Angle wedge type with insulated throat.
 - Bushings: Metallic insulated type.

C. Boxes:

- Outlet boxes: Except as otherwise required by construction, devices or wiring.
 - Stamped or welded steel, 4 in. square or octagon for:
 - Lighting fixtures: 1-1/2 in. deep above ceiling, 2-1/8 in. deep in wall.
 - In wall for telephone and data: 2-1/8 in. deep.
 - With raised covers and fixture studs where required.
 - Through-the-wall type, not permitted.
 - Without fixture or device: Blank cover.
 - Galvanized cast iron or aluminum with threaded hubs: 4 inch round, 2 inch deep on ceiling, and 4 inch square, 2 inch deep on wall.
- Boxes without fixture or device: Provide with blank cover.
- Junction and pull boxes:
 - Galvanized sheet steel.
 - Covers: Screw-on, except as noted.
 - With insulated supports for cables
 - Location: As noted or required and accessible.
 - Provide barriers between:
 - 480Y/277 volt wiring energized from separate services.
 - 208Y/120 volt and 480Y/277 volt wiring.
 - 240Y/120 volt and 480Y/277 volt wiring.
 - Emergency and normal wiring.
 - Provide barriers in existing boxes between:
 - 480/277 volt wiring energized from separate services.
 - 208/120 volt and 480Y/277 volt wiring.
 - 240Y/120 volt and 480Y/277 volt wiring
 - Emergency and normal wiring.

D. Wire and Cable:

- Conductors:
 - ASTM Standard Solid No. 14 and smaller, Stranded No. 12 and larger.
 - Type: Copper.
 - General use:
 - No. 12 minimum.
 - At 120 volts and over 100 ft. circuit length: No. 10 minimum.
 - At 277 volts and over 200 ft. circuit length: No. 10 minimum.
 - Control and alarm, except as noted:
 - No. 14 minimum.
 - At 120 volts and over 200 ft. circuit length: No. 12 minimum.
 - Other voltages and phases: As required to maintain voltage drop.
 - Increase raceway sizes for larger wire as required.
 - Insulation:
 - THWN/THHN: Feeders and branch circuits except as noted.
 - SFF-2: Branch circuits located in:
 - Wiring channels of continuous fluorescent fixtures.
 - Ambient temperatures over 75 deg. C.
 - Color coding: As per Code. Where color coding is unavailable, certify in writing and request permission to overlap color taping conductors (minimum length 6 in.) in accessible locations.
 - 600 V insulation, including control wiring.

3. Accessories:

- Tags:
 - Flameproof linen or fiber in accessible locations.
 - Feeders: Indicate feeder number, size, phase and points of origin and terminations.
 - Control and alarm wiring: Indicate type (Control or alarm), size of wire, and points of origin and terminations.
- Terminations, splices and taps under 600 volts:
 - Copper conductors No. 10 and smaller: With compression-type of twist-on spring-loaded connectors and clear nylon-insulated covering.
 - Copper conductors No. 8 and larger: Mechanical bolted pressure or hydraulic compression type using manufacturer's recommended tooling.
 - Cable lugs and connectors: Compression type of same metal as conductor. Provide to match cable, with marking indicating size and type.
 - Copper lug connections to bus bars: Use anti seize compound on tang.

E. Devices:

- Local wall switches:
 - Non-Modular Lighting System:
 - Heavy duty, toggle, quiet type.
 - 20a, 120/277V, AC.
 - Leviton Decora 5621W or equal toggle type, or building standard.
 - Color: by architect.
 - Faceplate: Building standard specifications grade.
 - To match building standards
 - Modular Lighting System:
 - Heavy duty, toggle, quiet type.
 - 20a, 120/277V, AC.
 - Color: by architect.
 - Faceplate: Building standard specifications grade.
 - To match building standards
- Insertion receptacles:
 - Grounded, except as noted. Meeting NEMA Standards, Publication WD-1-1971.
 - Equal to Hubbell Nos. indicated or building standard.
 - Duplex convenience.
 - For multi-outlet circuits, 125 volts, 2 pole, 3 wire, grounded, 20 amp, equal to No. 5352.
 - For separate circuits, 125 volts, 2 pole, 3 wire, grounded, 20 amp, equal to No. 5352.
 - Special use: Non-interchangeable types and ratings.
 - Color: by architect.
 - To match building standards.
- Device faceplates
 - Building standard specification grade.

F. Low Voltage Distribution Equipment:

- Disconnect switches:
 - Fused or nonfused as noted.
 - Voltage as required.
 - Heavy duty, except as noted.
 - Horsepower rated for motor loads.
- Toggle type:
 - Non-fused, load breaks.
 - Maximum ratings:
 - 20 amp at 600 volts.
 - 30 amp at 250 volts
 - 2 pole: Equal to Arrow-Hart, No. 6808F.
 - 3 pole: Equal to Arrow-Hart, No. 7810F.
- Knife-blade type:
 - Load break, quick-make-quick-break, UL Class R up to 600 amp.
 - Maximum rating except as noted: 800 amp.
 - Arc quenchers.
 - Individually mounted: Equal to General Electric "TH" or equal.
 - Panelboard or switchboard mounted: Equal to General Electric "QMR" or equal.
- Enclosures: Dead Front, NEMA Type 1, except as



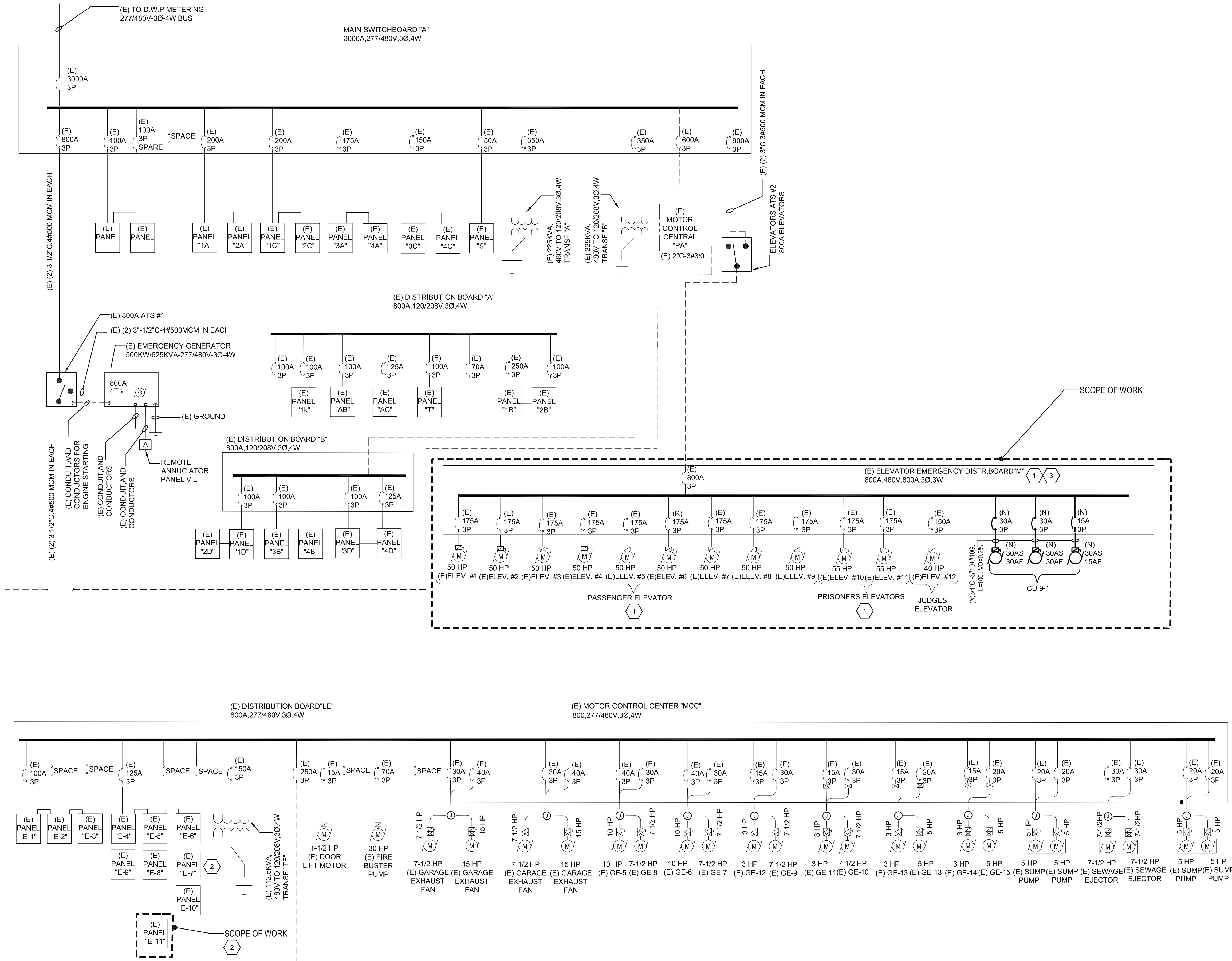
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REV	DATE	DESCRIPTION
	8/6/2016	100% SD
	8/25/2016	100% DD
	9/29/2016	90% CD
	11/29/2016	90% CD
	01/24/2017	PERMIT SET
	02/13/2017	PERMIT SET
	07/07/2017	100% CD / CONFORMED SET
	09/21/2017	REVISED 100% CD
	11/01/2017	BID SET

METROPOLITAN
COURTHOUSE
ELEVATOR MODERNIZATION
1945 S Hill St, Los Angeles, CA 90007

ELECTRICAL SPECIFICATION

E0.02



GENERAL NOTES

1. ALL EQUIPMENT, AND WIRING IS EXISTING UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL PERFORM SHORT CIRCUIT AND COORDINATION STUDY BASED ON PROPOSED DISTRIBUTION SYSTEM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A DISTRIBUTION SYSTEM THAT IS FULLY COORDINATED BASED ON THE COORDINATION STUDY THEY PROVIDE. AIC WITHSTAND RATINGS OF EQUIPMENT SHALL MEET OR EXCEED THE CALCULATED (ISC) VALUES OF THE STUDY. SERIES RATED SYSTEM IS NOT ACCEPTABLE.
3. FEEDER LENGTH SHOWN IS FOR VOLTAGE DROP CALCULATIONS AND PLAN CHECK PURPOSE ONLY. NOT FOR COST ESTIMATING PROCESSES. ALL CONDUCTORS SHALL BE CU.
4. DISCONNECTS FEEDING ELEVATORS, ELEVATOR CAB LIGHTS/FAN AND ESCALATORS SHALL BE FUSED LOCKABLE DISCONNECT SWITCHES.
5. DISCONNECTS FEEDING ELEVATOR MOTORS SHALL BE EQUIPPED WITH DUAL-ELEMENT, TIME-DELAY FUSES. SIZES PER MANUFACTURER'S REQUIREMENTS.



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REV	DATE	DESCRIPTION
		100% SD
		100% DD
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		90% CD
		PERMIT SET
		100% CD / CONFORMED SET
		100% CD / CONFORMED SET
		REVISED 100% CD
		BID SET

METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION
1945 S Hill St, Los Angeles, CA 90007

SPECIFIC NOTES

1. IN THE EVENT OF A NORMAL POWER FAILURE AND THE EMERGENCY GENERATOR RUNNING, ALL ELEVATORS #1 THRU #9 AND #12 SHALL BE PROGRAMMED TO COME DOWN TO THE FIRST FLOOR LOBBY ONE AT A TIME. THE PRISONER ELEVATORS #10 AND #11 SHALL COME DOWN TO THE PARKING LEVEL "A". SHUTTLE ELEVATOR #13 SHALL COME DONE TO EIGHTH FLOOR. AFTER THE CYCLE THROUGH THE EMERGENCY POWER SEQUENCE, TWO ELEVATORS CAN OPERATE SIMULTANEOUSLY ON GENERATOR DURING POWER FAILURE. ELEVATOR #12 AND ONE OF THE PASSENGER ELEVATORS #1 THRU #9. PASSENGER ELEVATOR #8 SHALL BE PROGRAMMED TO RUN ON EMERGENCY POWER. THERE SHALL BE A PANEL IN THE GUARD STATION WITH A SWITCH THAT ALLOWS TO CHANGE ONE OF THE ELEVATORS #1 THRU #9 TO RUN ON EMERGENCY POWER IN LIEU OF ELEVATOR #8. NEW CONNECTED LOAD ON DISTRIBUTION BOARD "M" DURING EMERGENCY CONDITION IS 186AMPS.
2. EXISTING DEMAND LOAD ON PANEL E-7 IS 24KVA BASED ON 30 DAY PEAK LOAD READING. NEW CONNECTED LOAD ON PANEL E-7 IS 24KVA + 4KVA (NEW PANEL E-11 CONNECTED LOAD) = 28KVA TOTAL LOAD.
3. EXISTING DEMAND LOAD ON DISTRIBUTION BOARD "M" IS 286KVA BASED ON 30 DAY PEAK LOAD READING. NEW CONNECTED LOAD ON DISTRIBUTION BOARD "M" IS 286KVA + 41KVA (NEW CU 9-1 CONNECTED LOAD) = 327KVA OR 393AMP @ 480V, 3PH.

E.003 ELECTRICAL SINGLE LINE DIAGRAM

E0.03

FIRE ALARM GENERAL NOTES

- THESE DRAWINGS AND THE SPECIFICATIONS ARE THE CONSTRUCTION DOCUMENTS FOR THE EXISTING METRO COURTHOUSE LOCATED AT 1945 S. HILL STREET, LOS ANGELES, CA 90007. ALL INSTALLATION WORK SHALL BE COMPLETED BY A LICENSED ELECTRICAL CONTRACTOR, WHO SHALL BE REFERRED TO AS "CONTRACTOR" WHERE REFERENCED ELSEWHERE WITHIN THESE DOCUMENTS. THE NEW FIRE ALARM SYSTEM SHALL FOLLOW THE REQUIREMENTS OF THE 2012 VUSBC (907.2.6), IN ADDITION TO THE STANDARDS LISTED IN THE SPECIFICATION, NAMELY NFPA 70 (2013 EDITION) AND NFPA 72 (2013 EDITION).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL FIRE ALARM SYSTEM COMPONENTS & DEVICES/APPLIANCES, WIRING, CONDUIT, MOUNTING HARDWARE, SYSTEM TESTING AND TRAINING. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR SUBCONTRACTING WITH A CERTIFIED FIRE ALARM CONTRACTOR WHO SHALL REPRESENT THE SYSTEM MANUFACTURER TO ENSURE PROPER INSTALLATION, PROGRAMMING, OPERATION, FINAL PANEL WIRING AND MANUFACTURER SUPPORT. THIS PROJECT INCLUDES THE REPLACEMENT OF AN EXISTING ADDRESSABLE FIRE ALARM SYSTEM, WITH
- THE NEW ADDRESSABLE INITIATION DEVICES AND NEW NOTIFICATION APPLIANCES SHALL BE CONNECTED TO THE APPROPRIATE FAS CIRCUITS AT THE TERMINAL BOX SERVING EACH FLOOR. PROVIDE AND INSTALL END OF LINE DEVICES AS REQUIRED. INSTALL LINE ISOLATION MODULES FOR EVERY 50 DEVICES ON EACH ADDRESSABLE INITIATING CIRCUIT. EXACT LOCATIONS OF ISOLATION MODULES SHALL BE DETERMINED IN THE FIELD, DOCUMENTED AND LABELED AS SUCH.
- ALL FIRE ALARM LOW VOLTAGE WIRING SHALL BE CERTIFIED TEFLON JACKETED FIRE ALARM CABLE WHICH MEETS THE REQUIREMENTS OF SECTION 760 OF NFPA 70. FIRE ALARM CABLE SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 760 OF NFPA 70. PROVIDE APPROVED FIRE STOPPING MATERIAL FOR ALL FLOOR, WALL AND BARRIER PENETRATIONS TO MAINTAIN FIRE/SMOKE RATINGS. ALL FAS CONDULETS, JUNCTION BOXES AND TERMINAL BOXES SHALL BE PAINTED IN ACCORDANCE WITH CODE.
- THE BASE CONTRACT SHALL INCLUDE A CONCEALED CONDUIT & CABLE INSTALLATION. ALL FIRE ALARM DEVICES AND FIELD CIRCUITS IN OCCUPIED AREAS ON THE FLOORS, SHALL BE RECESSED AND CONCEALED. SURFACE MOUNTING OF DEVICES AND CONDUIT SHALL BE PERMITTED IN UNOCCUPIED AREAS SUCH AS MACHINE ROOMS, SHAFT WAYS AND OTHER UNOCCUPIED AREAS. ALL SURFACE MOUNTED DEVICE BACK-BOXES SHALL BE THE FINISHED TYPE. REFER TO DETAIL SHEETS FOR FURTHER INFORMATION.
- DURING INSTALLATION THE ELECTRICAL CONTRACTOR SHALL TEST ALL WIRING FOR INTEGRITY (CONDUCTOR TO CONDUCTOR/CONDUCTOR TO GROUND) AFTER EACH PHASE OF WORK AFTER ALL EQUIPMENT IS COMPLETELY INSTALLED, TESTED AND OPERATIONAL. THE FACP SHALL BE PROGRAMMED AND THE WIRING RE-TESTED FOR INTEGRITY.
- NEW ADDRESSABLE HEAT DETECTORS, INSTALLED IN ACCORDANCE WITH NFPA 72, SHALL NOT BE REQUIRED SINCE HOISTWAYS AND MACHINE ROOMS ARE NOT SPRINKLERED AND THE SPRINKLER LOCATED IN ELEVATOR PIT IS BELOW 24".
- NEW ADDRESSABLE SMOKE DETECTORS, INSTALLED IN ACCORDANCE WITH NFPA 72, SHALL BE PROVIDED IN ELEVATOR MACHINE ROOMS, ELEVATOR LANDINGS, AND THE TOP OF ELEVATOR HOISTWAYS.
 - THE NEW ADDRESSABLE ELEVATOR MACHINE ROOM, LANDING, AND HOISTWAY SMOKE DETECTORS SHALL BE UTILIZED TO ACTIVATE ELEVATOR PHASE-I RECALL. THE DETECTORS SHALL BE CONNECTED TO THE ADDRESSABLE CIRCUIT SERVING THE ZONE.
- IN LOCATIONS WHERE HEAT DETECTORS AND/OR SMOKE DETECTORS ARE REQUIRED, THE TYPE AND/OR TEMPERATURE RATING OF FIRE DETECTOR MAY BE MODIFIED IF THE TYPE OR TEMPERATURE RATING OF THE DEVICE IS UNSUITABLE DUE TO ENVIRONMENTAL OR STRUCTURAL CONDITIONS UNIQUE TO THAT LOCATION OR WHERE MULTIPLE NUISANCE ALARMS ARE LIKELY TO OCCUR.
- INSTALL NEW ADDRESSABLE DUCT MOUNTED SMOKE DETECTORS AS SHOWN ON THE CONTRACT DRAWINGS AND WHERE REQUIRED TO COMPLY WITH THE VUSMC:
 - WHERE A SMOKE DAMPER IS INSTALLED WITHIN A DUCT, A SMOKE DETECTOR SHALL BE INSTALLED IN THE DUCT WITHIN 5' OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER.
 - SMOKE DETECTORS SHALL BE INSTALLED IN RETURN AIR SYSTEMS WITH A DESIGN CAPACITY GREATER THAN 2,000 CFM, IN THE RETURN AIR DUCT OR PLENUM UPSTREAM OF ANY FILTERS, EXHAUST AIR CONNECTIONS, OUTDOOR AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT AND APPLIANCES.
- WHERE DUCT-TYPE SMOKE DETECTORS ARE INSTALLED IN HVAC SYSTEMS, THE DUCT-TYPE SMOKE DETECTORS SHALL BE CONNECTED TO THE FIRE ALARM SYSTEM TO SIGNAL AN AUDIBLE AND VISUAL SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION. THE SUPERVISORY SIGNAL AT A CONSTANTLY ATTENDED LOCATION IS NOT REQUIRED WHERE THE DUCT SMOKE DETECTOR ACTIVATES THE BUILDING'S ALARM-INDICATING APPLIANCES.
- FAN SHUTDOWN SHALL BE A FUNCTION OF THE SYSTEM, NOT THE DUCT DETECTOR. CONTRACTOR TO VERIFY FAN SHUTDOWN WIRING WITH BMS AND MECHANICAL CONTRACTORS. PROVIDE INTERPOSING RELAYS AS REQUIRED FOR INTERPOSING VOLTAGES AT THE FAN STARTER CIRCUITS OR BMS PANEL. ADDITIONAL ADDRESSABLE CONTROL MODULES SHALL BE PROVIDED AND INSTALLED (AS OUTPUTS) FOR FIRE ALARM INDICATIONS AND ALSO FOR SEQUENTIAL FAN RESTART. UPON MANUAL COMMAND FROM THE FACP, DUCT MOUNTED SMOKE DETECTORS SHALL BE PROVIDED WITH REMOTE LED/TEST SWITCHES.

- CONTRACTOR TO PROVIDE THE ELEVATOR WITH FIREFIGHTER'S SERVICE AS PER ANSI/ASME A17.1-2010, AS REQUIRED FOR PHASE-I EMERGENCY RECALL OPERATION. PHASE-II EMERGENCY IN-CAR OPERATION SHALL BE A FUNCTION OF THE ELEVATOR CONTROLLER AND IS NOT INCLUDED IN THIS CONTRACT. PROVIDE ADDRESSABLE INTERFACE CONTROL MODULE AND CONTROL RELAY AT THE ELEVATOR CONTROLLER AS INDICATED ON THE DRAWINGS FOR PHASE-I ELEVATOR RECALL. THE ADDRESSABLE CONTROL MODULE FOR PHASE-I ELEVATOR RECALL SHALL BE PROGRAMMED TO ACTIVATE UPON ACTIVATION OF ANY ASSOCIATED ELEVATOR SMOKE DETECTOR OR WATERFLOW DEVICE. COORDINATE CONNECTIONS TO ELEVATOR CONTROLLER WITH THE ELEVATOR CONTRACTOR. CONNECT INTERFACE MODULES TO THE ADDRESSABLE CIRCUIT SERVING FLOOR. PROVIDE WIRING, CONDUIT AND ENCLOSURES REQUIRED.
- PROVIDE ADDRESSABLE INTERFACE CONTROL MODULES AS REQUIRED, FOR THE FOLLOWING EQUIPMENT/SYSTEMS:
 - AT ELEVATOR CONTROLLERS FOR PHASE-1 ELEVATOR RECALL.
 - AT ELEVATOR CIRCUIT-BREAKERS FOR SHUNT TRIP POWER SHUTDOWN.
 - AT HVAC FAN UNIT CONTROLLER FOR FAN SHUT DOWN AND OVERRIDE.
- ALL DEVICES INSTALLED AS DESCRIBED ABOVE SHALL BE PROGRAMMED, TESTED AND MADE FULLY OPERATIONAL AT THE FACP TO IMPLEMENT THE FIRE MANAGEMENT SEQUENCE OF OPERATION AS DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS. THE ENTIRE FIRE ALARM SYSTEM SHALL BE TESTED IN ACCORDANCE WITH NFPA 72 (CHAPTER 14) INSPECTION, TESTING AND MAINTENANCE. THE CONTRACTORS SHALL BE RESPONSIBLE FOR COMMISSIONING A PRE-TEST PRIOR TO AHJ INSPECTION. THE OWNER SHALL BE PERMITTED 3 COMPLETE SYSTEM REPROGRAMMINGS AS PART OF THIS CONTRACT.
- ALL WORK, WIRING, CONDUIT/RACEWAYS AND EQUIPMENT INSTALLATIONS SHALL MEET ALL APPLICABLE CODES REFERENCED IN BID SPECIFICATIONS AND SHALL BE CONSISTENT WITH MANUFACTURER'S SPECIFICATIONS. ALL WIRING AND CONDUIT REQUIREMENTS SHALL BE VERIFIED WITH THE MANUFACTURER.
- UPON COMPLETION OF THE ALL WORK, THE CONTRACTOR SHALL SUBMIT 'AS-BUILT' DRAWINGS (IN ELECTRONIC FORMAT) OF THE NEW FIRE ALARM SYSTEM TO THE CM.
- THE ELECTRICAL AND FIRE ALARM CONTRACTORS SHALL FILE FOR ALL WORK PERMITS AND PAY ALL FILING FEES WITH THE AHJ. ALL EXPEDITING SERVICES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- THE GENERAL CONTRACTOR & CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR ALL PATCHING AND FINISHING OF SURFACES DAMAGED BY INSTALLATION OF NEW EQUIPMENT AND REMOVAL OF EXISTING FIRE ALARM EQUIPMENT. ALL FLOOR AND WALL PENETRATIONS SHALL BE FILED WITH AN APPROVED FIRE STOPPING MATERIAL. THE CONTRACTORS SHALL COORDINATE ALL PATCHING, FINISHING AND LOCATION OF THE NEW AND EXISTING EQUIPMENT WITH THE CM. THE CM SHALL SCHEDULE AND APPROVE ALL WORK.
- UPON COMPLETION OF THIS INSTALLATION AND APPROVAL BY THE AHJ, THE FIRE ALARM CONTRACTOR SHALL WARRANTY THE ENTIRE INSTALLATION FOR A PERIOD OF FIVE (5) YEARS. WARRANTY SHALL INCLUDE ALL PARTS & LABOR.
- UPON COMPLETION OF THE ENTIRE SYSTEM INSTALLATION AND APPROVAL BY THE AHJ, THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER WITH 'AS-BUILT' DRAWINGS, DEPICTING THE EXACT INSTALLATION. DRAWINGS SHALL BE SUBMITTED IN ELECTRONIC FORMAT FOR AUTOCAD MEP.
- THE ELECTRICAL AND FIRE ALARM CONTRACTORS SHALL PROVIDE ADEQUATE PERSONNEL FOR ALL PRE-TESTING AND AHJ INSPECTIONS; INCLUDING REPRESENTATION FROM THE FIRE ALARM SYSTEM MANUFACTURER.
- ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES AND STANDARDS AS REQUIRED BY THE AHJ. ALL MANUFACTURER'S SPECIFICATIONS SHALL ALSO APPLY.
- UPON REVIEW OF CONSTRUCTION DOCUMENTS AND PRIOR TO THE SUBMISSION OF PROPOSALS, THE CONTRACTORS SHALL INFORM THE CM OF ANY DISCREPANCIES OR REQUEST CLARIFICATIONS, IF NECESSARY, CONCERNING THE INTENT OF THE PLANS AND SPECIFICATIONS.

SEQUENCE OF OPERATIONS MATRIX

SYSTEM FUNCTIONS	SYSTEM DEVICES								DESCRIPTION OF OPERATION
	MANUAL INITIATION AT FACP	SMOKE /HEAT DETECTOR, AREA	SMOKE DETECTOR, ELEVATOR LANDING	SMOKE DETECTOR, ELEVATOR MACHINE ROOM	SMOKE DETECTOR, TOP OF ELEVATOR HOISTWAY	HEAT DETECTOR, ELEVATOR MACHINE ROOM	HEAT DETECTOR ELEVATOR PIT	HEAT DETECTOR TOP OF HOISTWAY	
ALARM SIGNALING, AUTOMATIC		X	X	X	N/A	N/A	N/A	N/A	AUDIBLE SIGNAL AND VISIBLE ANNUNCIATION OF SIGNAL TYPE AND LOCATION AT FACP AND REMOTE ANNUNCIATORS. ALL FLASHING LIGHTS SHALL ACTIVATE AND ALL FIRE ALARM HORNS SHALL SOUND AN ALARM TONE ON ALL FLOORS.
ALARM SIGNALING, MANUAL CONTROL FROM MAIN FACP	X								MANUAL INITIATION OF CONTROLS FOR STANDARD ALARM SIGNALS (AUDIBLE, VISIBLE) IN SELECTED ZONES OR ALL ZONES.
TRANSMIT TO AN APPROVED CENTRAL STATION (SUPERVISING STATION), ALARM		X	X	X	N/A	N/A	N/A	N/A	TRANSMIT THE APPROPRIATE ALARM SIGNALS (MANUAL, AUTOMATIC, WATER FLOW) TO CENTRAL STATION.
DOORS, FIRE / SMOKE BARRIER OPENING PROTECTIVES HELD OPEN	X		X	X	N/A				RELEASE MAGNETICALLY HELD DOORS AND ACTIVATE AUTOMATIC SHUTTERS UTILIZED AS PART OF FIRE / SMOKE BARRIER ASSEMBLIES.
DOORS / GATES, ELECTRICALLY LOCKED	X		X	X	N/A				UNLOCK ALL ELECTRICALLY LOCKED DOORS / GATES IN THE INGRESS AND EGRESS PATH (WHEN PERMITTED TO BE LOCKED).
ELEVATOR, EMERGENCY RECALL			X	X	N/A				RECALL ALL ELEVATORS SERVING ALARM FLOOR TO THE DESIGNATED LEVEL.
ELEVATOR, SHUNT TRIP (NOT REQUIRED)		N/A	N/A			N/A	N/A	N/A	
VENTILATION FANS SMOKE DAMPERS	X								SHUT DOWN FANS OVER 2000 CFM. CLOSE SMOKE DAMPERS UPON ACTIVATION OF ASSOCIATED DUCT DETECTOR OR SHUT DOWN OF ASSOCIATED VENTILATION FAN.



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METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION
 1945 S Hill St, Los Angeles, CA 90007

E:005 FIRE ALARM GENERAL NOTES

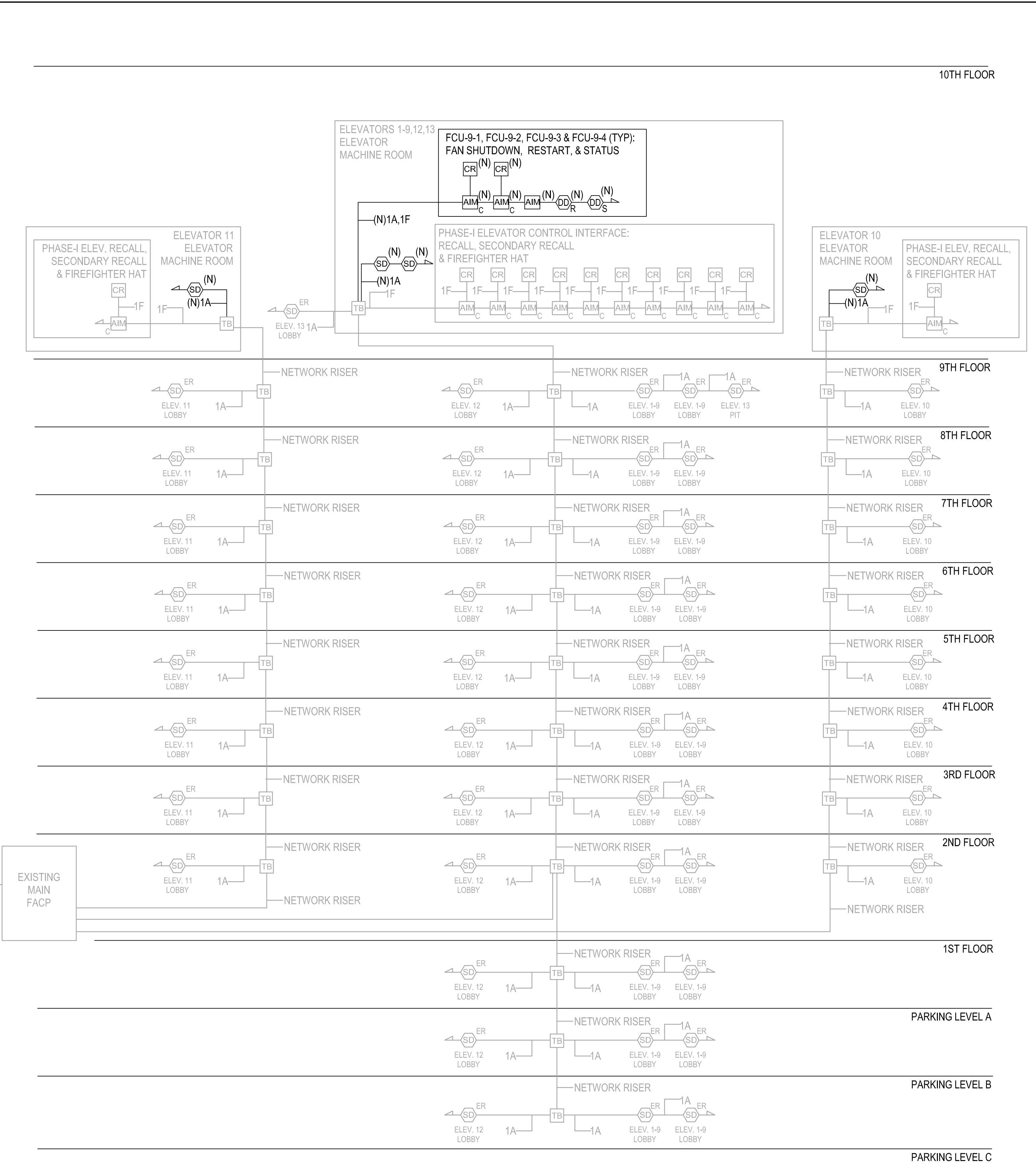
E0.05

SYMBOLS LEGEND	
EVERYTHING IS EXISTING, UNLESS NOTED AS (N) FOR NEW.	
FIRE ALARM CONDUIT	
	CONDUIT (3/4" MIN.)
	CABLE TYPE LABEL
	CLASS A RETURN
	END OF LINE RESISTOR
FIRE ALARM PANELS	
	FIRE ALARM CONTROL PANEL
	TERMINAL BOX W/ TERMINAL STRIPS
FIRE ALARM INITIATING DEVICES	
	ADDRESSABLE AREA HEAT DETECTOR W/ REMOTE LED
	ADDRESSABLE AREA SMOKE DETECTOR W/ REMOTE LED
	ADDRESSABLE AREA SMOKE DETECTOR W/ REMOTE LED FOR PHASE-1 ELEVATOR RECALL
	ADDRESSABLE DUCT MOUNTED SMOKE DETECTOR W/ REMOTE LED & TEST SWITCH (X = S: DENOTES SUPPLY; X = R: DENOTES RETURN)
	ADDRESSABLE INTERFACE MONITOR MODULE
	ADDRESSABLE INTERFACE CONTROL MODULE
	AUXILIARY INTERFACE CONTROL RELAY

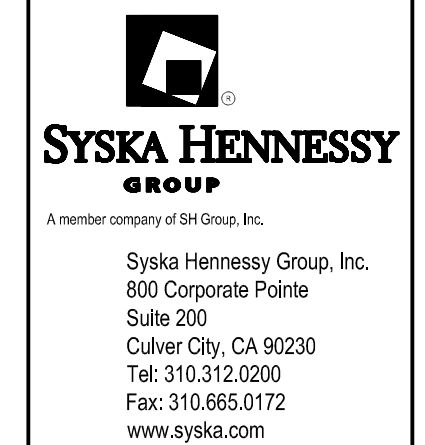
FIRE ALARM CABLE TYPE LEGEND					
ID	DESCRIPTION	TYPE	ID	DESCRIPTION	TYPE
A	ADDRESSABLE CIRCUIT	#16 T.S.P.	M	-	-
B	HORN CIRCUIT	#14 PR	N	-	-
C	STROBE CIRCUIT	#14 PR	P	-	-
D	CONTROL CIRCUIT	#14 PR	R	-	-
E	MONITORING CIRCUIT	#16 PR	S	-	-
F	24VDC POWER CIRCUIT	#14 PR	T	-	-
G	GROUND CONDUCTOR	#10 COND	U	-	-
H	120VAC POWER CIRCUIT	2 #10 PR	W	-	-
J	-	-	X	-	-
K	-	-	Y	-	-
L	-	-	Z	-	-

THE CABLE TYPES LISTED REPRESENT BASIC FUNCTIONAL REQUIREMENTS OF A STANDARD FIRE ALARM SYSTEM. MANUFACTURERS REQUIRING VARIATIONS OF THE CABLE TYPES LISTED SHALL MAKE SUBSTITUTIONS ACCORDINGLY.

EXISTING FIRENET PLUS FIRE ALARM PANEL LOCATED AT SECURITY STATION. PROVIDE ADDRESSABLE INTERFACE CONTROL MODULE AND AUXILIARY INTERFACE CONTROL RELAYS AS REQUIRED. FUNCTIONS SHALL INCLUDE PRIMARY RECALL, SECONDARY RECALL, SHUNT & FIREMAN HAT.



FIRE ALARM RISER DIAGRAM

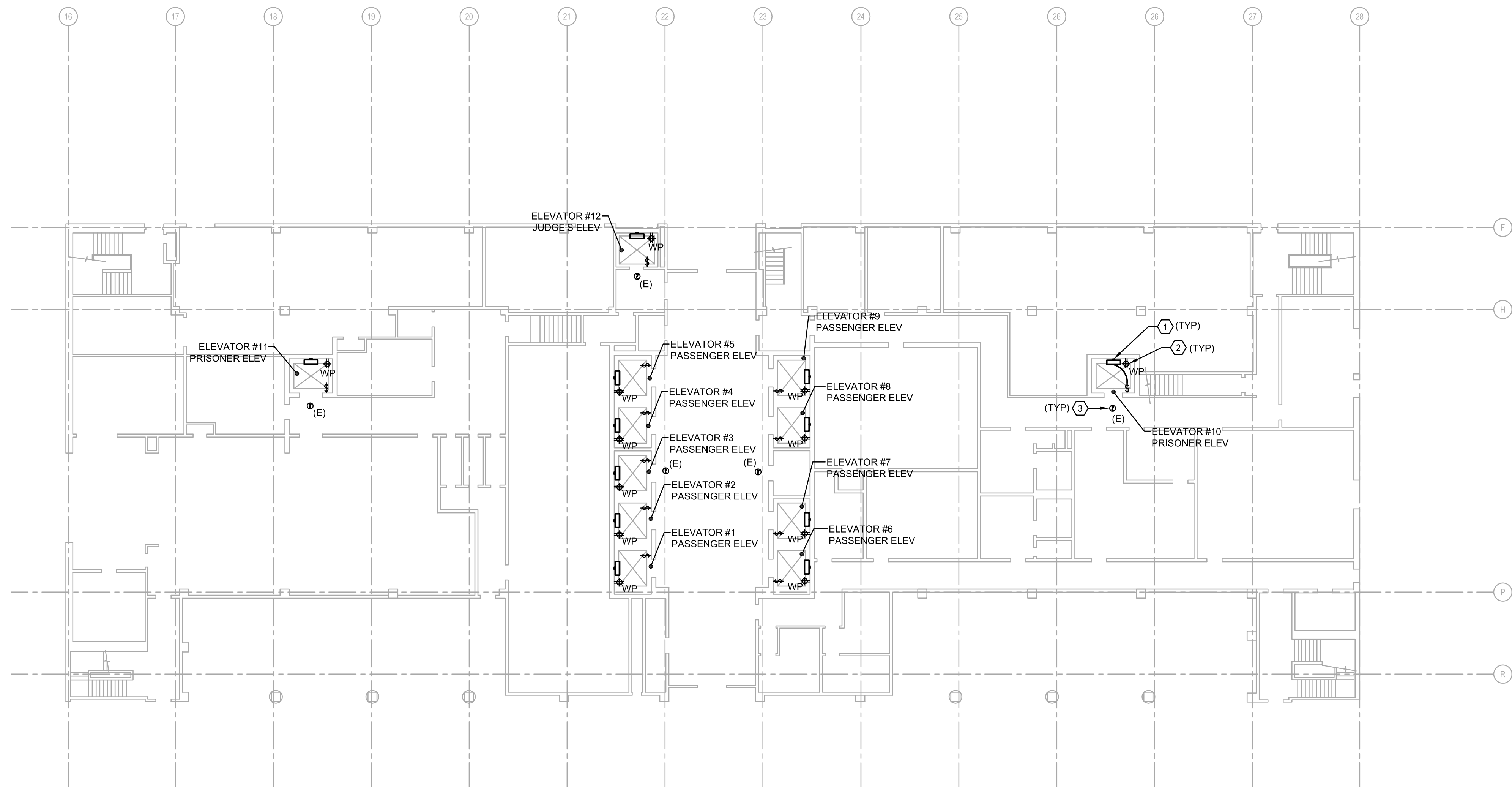


REV	DATE	DESCRIPTION
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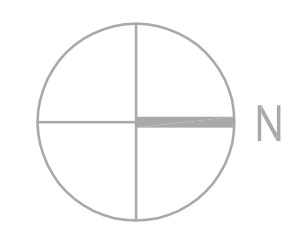
METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION
1945 S Hill St. Los Angeles, CA 90007

E.006 FIRE ALARM RISER DIAGRAM

E0.06



1 PARKING LEVEL C ELECTRICAL PLAN
 E2.00 SCALE: 1/16" = 1'-0"



GENERAL NOTES

1. EVERYTHING SHOWN IS NEW, UNLESS NOTED OTHERWISE.



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		100% DD
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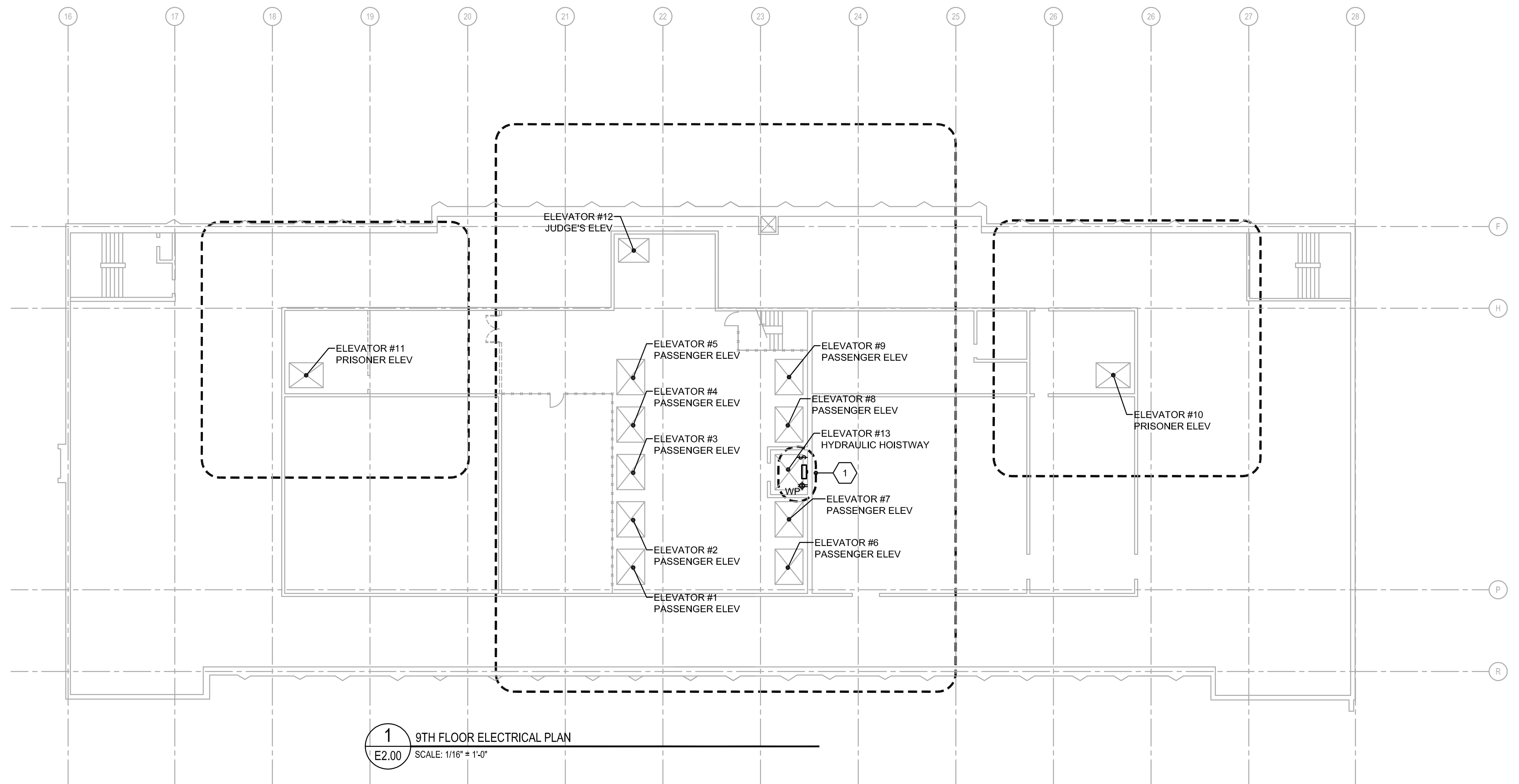
KEY NOTES

- 1 DEMOLISH EXISTING PIT FIXTURE AND SWITCH. EXISTING CIRCUIT AND SWITCH LEG TO BE REUSED. PROVIDE LITHONIA #0LV7WM FIXTURE AND CONNECT TO EXISTING CIRCUIT AND SWITCH LEG. PROVIDE NEW NEMA 4 MANUAL ON/OFF SWITCH AND CONNECT TO EXISTING SWITCH LEG.
- 2 DEMOLISH EXISTING RECEPTACLE AND REPLACE WITH GFCI WEATHERPROOF RECEPTACLE. CONNECT EXISTING CIRCUIT TO NEW DEVICE.
- 3 CONFIRM EXISTING SMOKE DETECTOR AT EACH ELEVATOR LOBBY ENTRANCE IS WORKING PROPERLY. REPLACE AS REQUIRED.

METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION
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PARKING LEVEL C ELECTRICAL PLAN

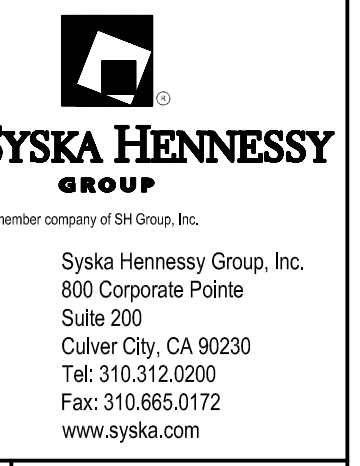
E2.00



1 9TH FLOOR ELECTRICAL PLAN
 E2.00 SCALE: 1/16" = 1'-0"

GENERAL NOTES

1. EVERYTHING SHOWN IS NEW, UNLESS NOTED OTHERWISE.



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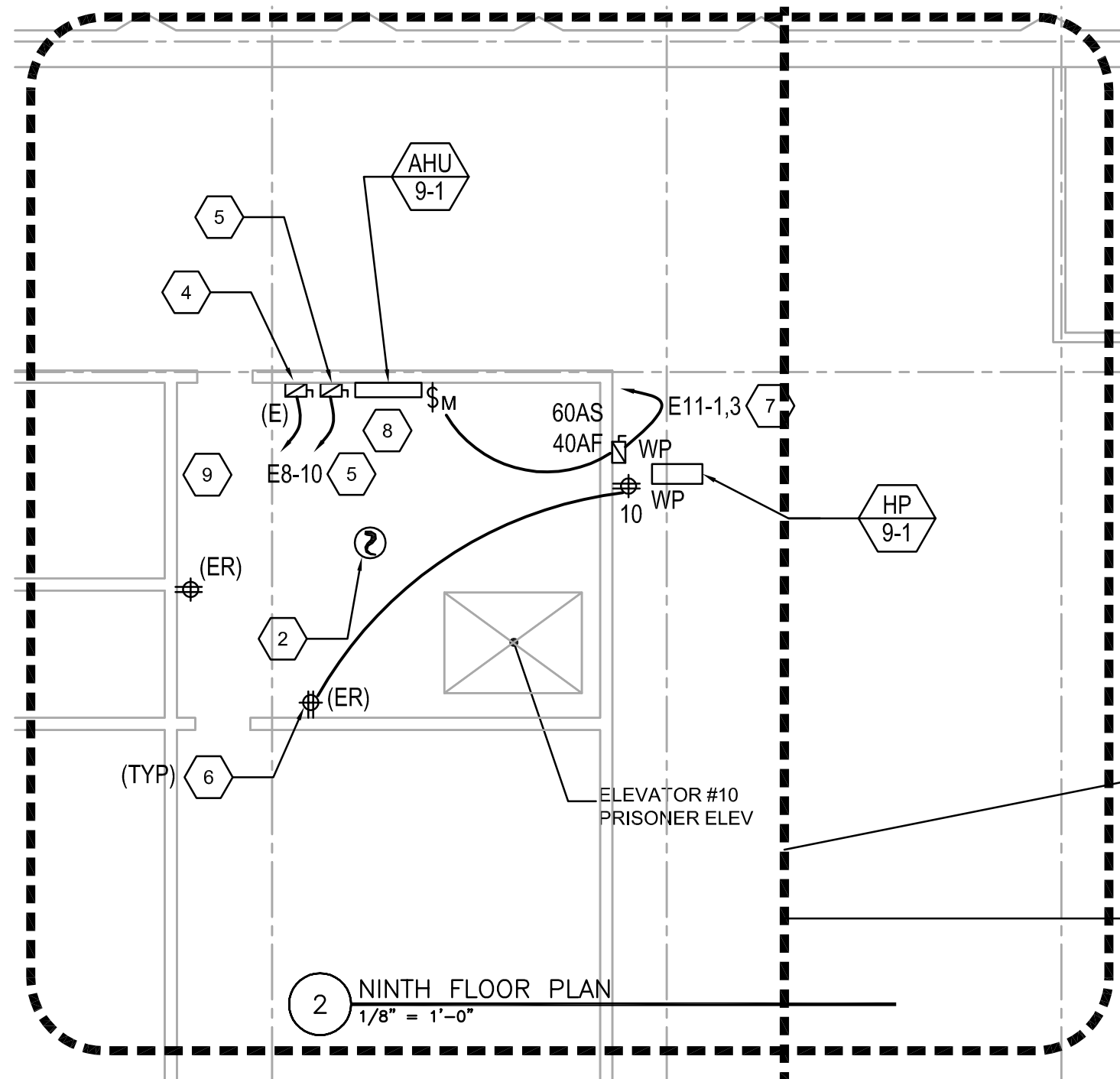
KEY NOTES

1 THESE DEVICES AND LIGHT FIXTURE ARE TO LOCATED IN THE ELEVATOR PIT ON LEVEL 7. REFER TO TYPICAL NOTES ON SHEET E2.00

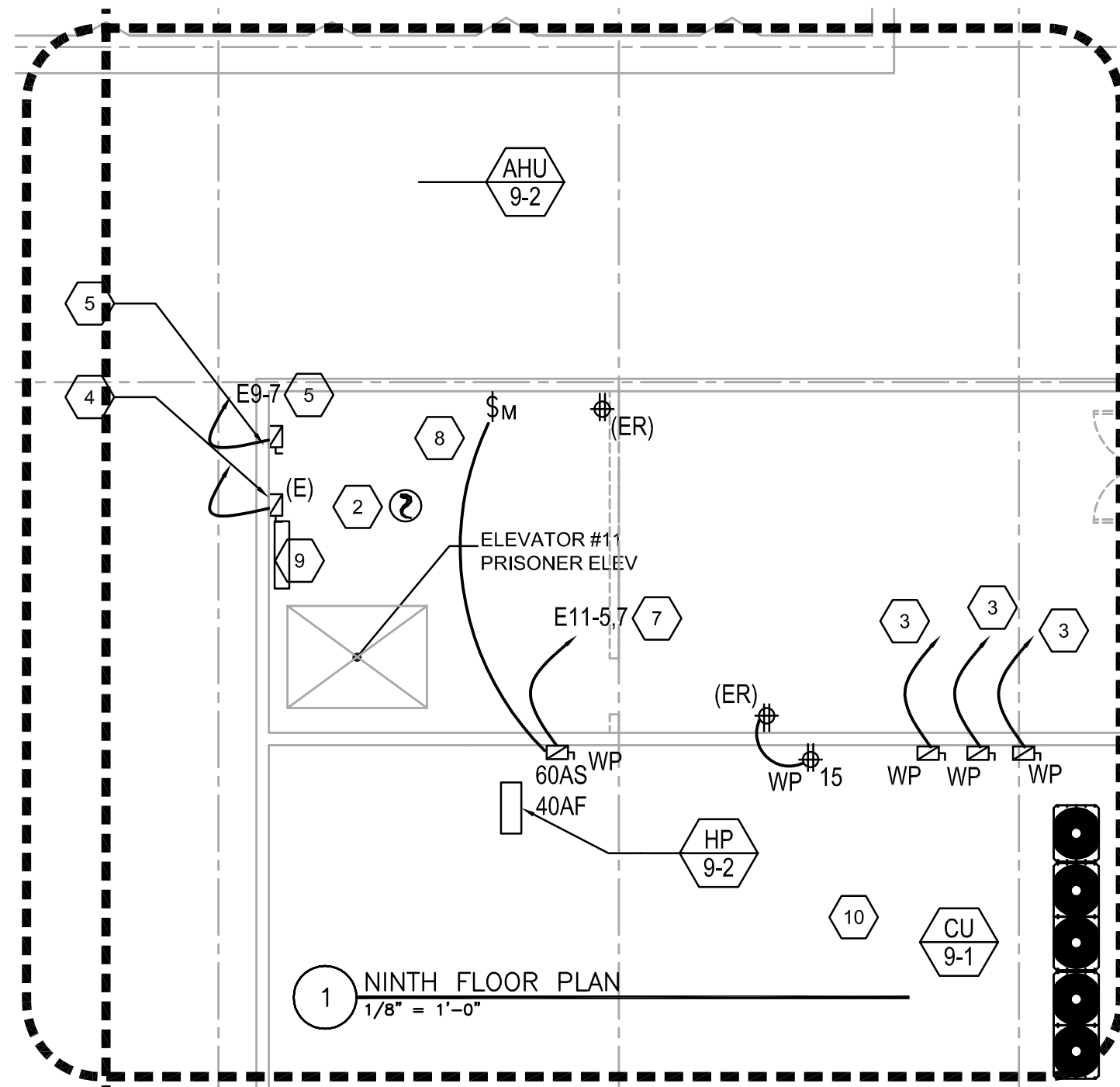
**METROPOLITAN COURTHOUSE
 ELEVATOR MODERNIZATION**
 1945 S Hill St, Los Angeles, CA 90007

9TH FLOOR ELECTRICAL PLAN

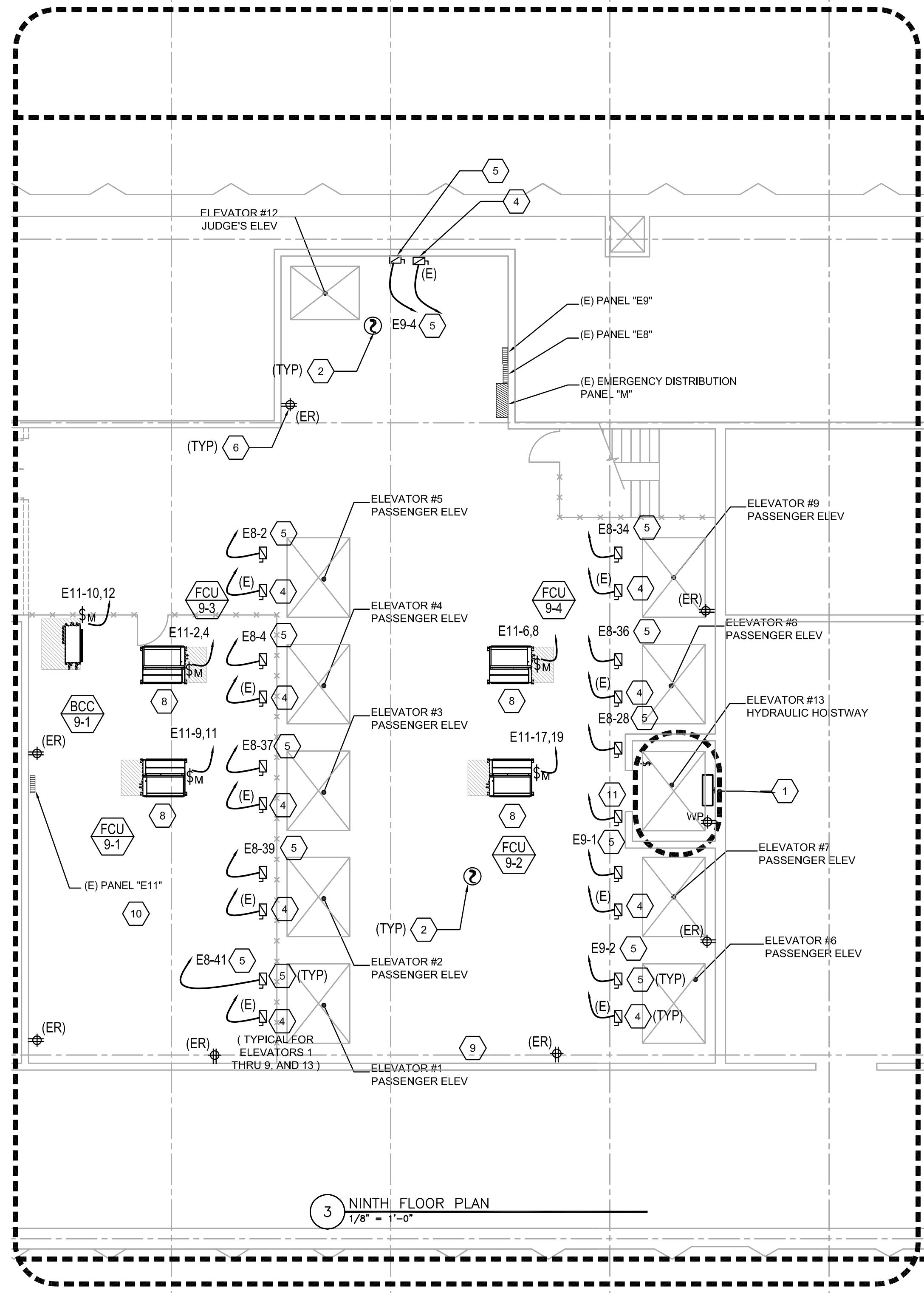
E2.09



2 NINTH FLOOR PLAN
1/8" = 1'-0"



1 NINTH FLOOR PLAN
1/8" = 1'-0"



3 NINTH FLOOR PLAN
1/8" = 1'-0"

GENERAL NOTES

1. EVERYTHING SHOWN IS NEW, UNLESS NOTED OTHERWISE.



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METROPOLITAN COURTHOUSE
ELEVATOR MODERNIZATION
1945 S Hill St. Los Angeles, CA 90007

KEY NOTES

1. THESE DEVICES AND LIGHT FIXTURE ARE TO LOCATED IN THE ELEVATOR PIT ON LEVEL 7. REFER TO SHEET E2.00 FOR TYPICAL NOTES.
2. PROVIDE SMOKE DETECTOR IN EACH ELEVATOR MACHINE ROOM.
3. REFER TO SINGLE LINE DIAGRAM FOR FEEDER INFORMATION.
4. EXISTING DISCONNECT AND FEEDER FOR EXISTING ELEVATOR TO REMAIN. REFER TO SINGLE LINE DIAGRAM.
5. PROVIDE NEW 30A, 1 POLE FUSED LOCKABLE DISCONNECT FOR CAB LIGHTS AND FANS. INTERCEPT EXISTING CIRCUIT AND EXTEND TO DISCONNECT. VERIFY EXACT LOCATION OF DISCONNECT WITH VENDOR REPRESENTATIVE.
6. REPLACE ALL EXISTING RECEPTACLES IN ELEVATOR MACHINE ROOMS WITH NEW GFC RECEPTACLE AND CONNECT TO EXISTING CIRCUIT.
7. 3#10,#12 IN 3/4".
8. CONNECT CONDENSATE PUMPS TO CIRCUIT E11-14
9. REMOVE EXISTING MACHINE ROOM FANS EF-6, EF-10 & EF-11 INCLUDING ALL FEEDERS BACK TO PANEL.
10. REMOVE EXISTING FAN COIL UNITS AND ASSOCIATED OUTDOOR CONDENSING UNIT INCLUDING ALL FEEDERS BACK TO PANELS.
11. PROVIDE 100AS/100AF LOCKABLE FUSIBLE DISCONNECT SWITCH FOR NEW ELEVATOR #13 MOTOR. INTERCEPT EXISTING FEEDER FROM EXISTING MOTOR CONTROL CENTER "PC" LOCATED IN ADJACENT MECHANICAL PENTHOUSE AND EXTEND TO NEW DISCONNECT SWITCH.

ELECTRICAL ENLARGED PLANS

ABBREVIATIONS

#		EF	EXHAUST FAN	OA	OUTSIDE AIR
2WAY	TWO-WAY	EL	ELEVATION	OD	OUTSIDE DIAMETER
3WAY	THREE-WAY	ELEC	ELECTRIC / ELECTRICAL	-P-	
-A-		EQ	EQUAL	PD	PRESSURE DROP/DIFFERENCE
A/C	AIR CONDITION	ESP	EXTERNAL STATIC PRESSURE	PERF	PERFORATED
AD	ACCESS DOOR	EWBT	ENTERING WET BULB TEMP	PH	PHASE
ADA	AMERICAN DISABILITIES ACT	EWT	ENTERING WATER TEMP	PLBG	PLUMBING
ADDL	ADDITIONAL	EXH	EXHAUST	POS	POSITIVE
ADJ	ADJUSTABLE	EXIST	EXISTING	PRV	PRESSURE REDUCING VALVE
AFF	ABOVE FINISHED FLOOR	-F-		PSI	POUNDS PER SQUARE INCH
AHJ	AUTHORITY HAVING JURISDICTION	F	FAHRENHEIT	-R-	
AHU	AIR HANDLING UNIT	FA	FACE/FREE AREA	(R)	REMOVE
AIA	AMERICAN INSTITUTE OF ARCH	FCU	FAN COIL UNIT	R	RISE
AMP	AMPHERE	FD	FIRE DAMPER	RA	RETURN AIR
ARCH	ARCHITECT	FIN FLR	FINISH FLOOR	RAG	RETURN AIR GRILLE
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION & AIR CONDITIONING ENGINEERS	FLA	FULL LOAD AMPERES	REC	RECESSED
AUTO	AUTOMATIC	FLEX	FLEXIBLE	REFR	REFRIGERATION
AVG	AVERAGE	FLTR	FILTER	REG	REGISTER
-B-		FPM	FEET PER MINUTE	REM	REMOVABLE
BDD	BACKDRAFT DAMPER	FT	FEET / FOOT	REQD	REQUIRED
BFP	BACKFLOW PREVENTOR	-G-		RFGT	REFRIGERANT
BLDG	BUILDING	GAL	GALLON	RH	RELATIVE HUMIDITY
BLW	BELOW	GALV	GALVANIZED	RHC	REHEAT COIL
BTU	BRITISH THERMAL UNIT	GPM	GALLONS PER MINUTE	RLA	RUNNING LOAD AMPERES
BTUH	BRITISH THERMAL UNIT/ HOUR	GRL	GRILLE	RLL	REFRIGERANT LIQUID LINE
-C-		-H-		RM	ROOM
CAP	CAPACITY	HD	HEAD	RPM	REVOLUTIONS PER MINUTE
CC	COOLING COIL	HORIZ	HORIZONTAL	RSL	REFRIGERANT SUCTION LINE
CD	CEILING DIFFUSER	HP	HORSEPOWER	-S-	
CFM	CUBIC FEET PER MINUTE	HVAC	HEATING, VENTILATION, & AIR CONDITIONING	SA	SUPPLY AIR
CFSD	COMBINATION FIRE/SMOKE DAMPER	HWP	HOT WATER PUMP	SAR	SUPPLY AIR REGISTER
CH	CHILLER	HWR	HOT WATER RETURN	SD	SMOKE DAMPER/DETECTOR
CHWP	CHILLED WATER PUMP	HWS	HOT WATER SUPPLY	SEER	SEASONAL ENERGY EFFICIENCY
CHWR	CHILLED WATER RETURN	HZ	HERTZ	SF	SUPPLY FAN
CHWS	CHILLED WATER SUPPLY	-I-		SF	SQUARE FOOT (FEET)
CL	CENTER LINE	ID	INSIDE DIMENSION	SP	STATIC PRESSURE
CLG	CEILING	IN	INCH	SPEC	SPECIFICATION
CNDS	CONDENSATE DRAIN	INSUL	INSULATION	SS	STAINLESS STEEL
CO2	CARBON DIOXIDE	-K-		STRUC	STRUCTURAL
COND	CONDENSER	KW	KILOWATT	-T-	
CONN	CONNECT	-L-		T	THROAT
CP	CONTROL PANEL	(L)	LINED	TA	TRANSFER AIR
CV	CONSTANT VOLUME	LAT	LEAVING AIR TEMPERATURE	TDH	TOTAL DYNAMIC HEAD
CWP	CONDENSER WATER PUMP	LBS	POUND(S)	TEMP	TEMPERATURE
CWR	CONDENSER WATER RETURN	LH	LATENT HEAT	TSTAT	THERMOSTAT
CWS	CONDENSER WATER SUPPLY	LTH	LENGTH	TYP	TYPICAL
-D-		LVR	LOUVER	-V-	
(D)	EXISTING TO BE DEMOLISHED	LWT	LEAVING WATER TEMPERATURE	V	VOLT
DB	DRY BULB	-M-		VAV	VARIABLE AIR VOLUME
dB	DECIBEL	MAT	MIXED AIR TEMPERATURE	VD	VOLUME DAMPER
DBA	UNIT OF SOUND LEVEL	MAX	MAXIMUM	VFD	VARIABLE FREQUENCY DRIVE
DBT	DRY BULB TEMPERATURE	MBTUH	THOUSAND BTU PER HOUR	-W-	
DDC	DIRECT DIGITAL CONTROL	MECH	MECHANICAL	W	WIDTH
DEG	DEGREE	MED	MEDIUM	W/	WITH
DIA	DIAMETER	MER	MECHANICAL EQUIPMENT ROOM	W/O	WITHOUT
DMPR	DAMPER	MFR	MANUFACTURER	WB	WET BULB
DN	DOWN	MHP	MOTOR HORSEPOWER	WMS	WIRE MESH SCREEN
DPT	DEW POINT TEMPERATURE	MIN	MINIMUM OR MINUTE	WP	WEATHERPROOF
DR	DRAIN	MOT	MOTOR		
DWG	DRAWING	MS	MOTOR STARTER		
-E-		MTD	MEAN TEMP DIFFERENCE		
(E)	EXISTING TO REMAIN	MTGHT	MOUNTING HEIGHT		
(ER)	EXISTING TO BE RELOCATED	MU	MAKE UP WATER LINE		
EA	EXHAUST AIR	-N-			
EAR	EXHAUST AIR REGISTER	NIC	NOT IN CONTRACT		
EAT	ENTERING AIR TEMPERATURE	NO	NUMBER		
EDBT	ENTERING DRY BULB TEMP	NTS	NOT TO SCALE		
EER	ENERGY EFFICIENCY RATIO	-O-			

SYMBOLS LEGEND

ANNOTATION			
	TITLE M-201 SCALE: NTS	TITLE MARK DETAIL OR PLAN NO. - 1 FOUND IN M-201	
	DETAIL REFERENCE DETAIL NO. - 1 FOUND IN M-501		
	SECTION MARK SECTION NO. - 1 FOUND IN M-501		
	SHEET KEYNOTE		
	REVISION CLOUD (DELTA 1)		
	DETAIL BOUNDARY B DETAIL NO. - 2		
	EQUIPMENT TAG; DESIGNATION AC, DESIGNATION NUMBER 1-1		
	LOUVER IN DOOR MINIMUM 1.0 SQ FT, FREE AREA		
	POINT OF CONNECTION		
	POINT OF DISCONNECTION		
	DUCT		
	DUCTWORK (NEW)		
	DUCTWORK (EXISTING)		
	DUCTWORK (EXISTING TO BE DEMOLISHED)		
	DUCTWORK WITH ACOUSTIC LINING		
	DUCT UNDER POSITIVE PRESSURE		
	DUCT UNDER NEGATIVE PRESSURE		
	RISE IN DUCT (IN DIRECTION OF AIR FLOW)		
	DROP IN DUCT (IN DIRECTION OF AIR FLOW)		
	REHEAT COIL		
	FLEX DUCT		
	DUCT TRANSITION		
	VANED ELBOW		
	RADIUS ELBOW		

SHEET INDEX

NO.	TITLE	SCALE
M0.01	MECHANICAL SYMBOLS LIST, ABBREVIATIONS, AND SHEET INDEX	NONE
M0.02	MECHANICAL GENERAL NOTES	NONE
M0.03	MECHANICAL SPECIFICATIONS	NONE
M0.04	MECHANICAL SPECIFICATIONS	NONE
M0.05	MECHANICAL SPECIFICATIONS	NONE
M0.06	MECHANICAL TITLE 24 ENERGY COMPLIANCE FORMS	NONE
M0.07	MECHANICAL TITLE 24 ENERGY COMPLIANCE FORMS	NONE
M0.08	MECHANICAL SCHEDULES	NONE
M0.09	MECHANICAL SCHEDULES	NONE
M2.09	OVERALL NINTH FLOOR MECHANICAL PLAN	1/16" = 1' - 0"
MD4.09	ENLARGED NINTH FLOOR MECHANICAL DEMO PLAN	1/8" = 1' - 0"
M4.09	ENLARGED NINTH FLOOR MECHANICAL PLAN	1/8" = 1' - 0"
M5.01	MECHANICAL DETAILS	NONE
M5.02	MECHANICAL DETAILS	NONE
M5.03	MECHANICAL DETAILS	NONE
M5.04	MECHANICAL DETAILS	NONE

SCOPE OF WORK

THE SCOPE OF WORK FOR THIS PROJECT SHALL BE TO PROVIDE HVAC IMPROVEMENTS FOR THE ELEVATOR MACHINE ROOMS IN THE LOS ANGELES METROPOLITAN COURTHOUSE AT 1945 S HILL ST, LOS ANGELES, CA 90007.

APPLICABLE CODE

PROJECT SHALL COMPLY WITH, BUT NOT LIMITED TO THE FOLLOWING CODE (WITH CITY OF LOS ANGELES AMENDMENTS):

- 2016 CALIFORNIA BUILDING CODE
- 2016 CALIFORNIA MECHANICAL CODE
- 2016 CALIFORNIA ELECTRICAL CODE
- 2016 CALIFORNIA PLUMBING CODE
- 2016 CALIFORNIA FIRE CODE
- 2016 CALIFORNIA ENERGY CODE
- 2016 CALIFORNIA GREEN BUILDING CODE



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COURTHOUSE
ELEVATOR MODERNIZATION
1945 S Hill St, Los Angeles, CA 90007

MECHANICAL SYMBOLS LIST,
ABBREVIATIONS, AND SHEET
INDEX

M0.01

ENERGY CONSERVATION NOTES

MANDATORY MEASURES (§110-119 AND §120-129) APPLY TO ALL SYSTEMS, WHETHER THE DESIGNER CHOOSES THE PRESCRIPTIVE OR PERFORMANCE APPROACH TO COMPLIANCE. MANDATORY MEASURES INCLUDE:

- CERTIFICATION OF EQUIPMENT EFFICIENCY (§110 AND §111).
- HVAC AND SERVICE WATER HEATING EQUIPMENT EFFICIENCIES (§112 AND §113).
- SERVICE WATER HEATING AND POOL HEATING MEASURES (§113 AND §114).
- VENTILATION REQUIREMENTS (§121).
- DEMAND CONTROLLED VENTILATION §121(C).
- THERMOSTATS, SHUT-OFF CONTROL AND NIGHT SETBACK/SETUP (§122).
- AREA ISOLATION (§122).
- PIPE INSULATION (§123).
- DUCT CONSTRUCTION AND INSULATION (§124).
- ACCEPTANCE TESTS (§125 AND REFERENCE NONRESIDENTIAL APPENDIX NA7).

LIFE SAFETY NOTES

FIRE ALARM SYSTEM DESIGN UNDER ELECTRICAL DRAWINGS AND DIV. 26 / DIV. 28 SPECIFICATIONS CONTRACTOR SHALL EXAM RECORD DRAWINGS TO LOCATE AND TEST ALL EXISTING FIRE DAMPERS AND REPORT RESULTS TO UNIVERSITY REPRESENTATIVE. ANY FIRE DAMPERS THAT ARE FOUND TO BE NON-OPERATIONAL SHALL BE REPLACED IN KIND. INSTALL FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER ON ALL DUCTS PENETRATING FIRE RATED ENCLOSURES AND PARTITIONS, AND RATED CEILINGS OF HORIZONTAL EXITS. THE CONTRACTOR SHALL INTERLOCK ALL COMBINATION FIRE/SMOKE DAMPERS WITH LISTED AREA TYPE SMOKE DETECTORS IN THE BUILDING FIRE LIFE SAFETY SYSTEM. VERIFY WITH LIFE SAFETY SYSTEM CONTRACTOR. SEE FIRE ALARM SPECIFICATION AND SMOKE CONTROL NOTES FOR ADDITIONAL INFORMATION.

MECHANICAL GENERAL NOTES

1. WHERE THERE IS A DISCREPANCY BETWEEN THE DRAWINGS AND SPECIFICATIONS, NOTIFY THE ENGINEER PRIOR TO BID. FOR BIDDING PURPOSES THE MORE STRINGENT SHALL APPLY.
2. THE CONTRACTOR SHALL EXAMINE THE COMPLETE SET OF CONTRACT DOCUMENTS FOR ALL TRADES, AS ISSUED BY THE ARCHITECT AND REVIEW DIMENSIONS, SPACE REQUIREMENTS AND POINT OF CONNECTIONS TO ALL EQUIPMENT. MAKE ANY MINOR ADJUSTMENTS NECESSARY TO AVOID CONFLICTS WITH THE BUILDING STRUCTURE AND THE WORK OF OTHER TRADES.
3. UNLESS INSTRUCTED OTHERWISE, THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, AND FEES REQUIRED FOR INSTALLATION OF THE MECHANICAL WORK. FURNISH FINAL CERTIFICATE OF INSPECTION OR WRITTEN EVIDENCE OF ACCEPTANCE BY INSPECTION AUTHORITIES FOR ALL WORK INSTALLED.
4. REFER TO COMPLETE DRAWING PACKAGE FOR EXTENT OF CONSTRUCTION, AND EXACT LOCATION OF FIXTURES, EQUIPMENT, DEVICES, ETC.
5. CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO ENSURE AN UNDERSTANDING OF THE COMPLETE SCOPE OF PROJECT PRIOR TO START OF WORK.
6. ALL EQUIPMENT & MATERIALS SHALL MATCH DESIGN SPECIFICATIONS AND MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
7. LOCATION OF DUCTWORK IS APPROXIMATE. ALL DRAWINGS AND LAYOUT ARE DIAGRAMMATIC TO SHOW DESIGN INTENT ONLY. CONTRACTOR TO COORDINATE ALL DUCTWORK AND PIPING WITH ALL OTHER WORK IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM THOSE SHOWN ON THE DRAWINGS AND AFFECT WORK, INFORM ARCHITECT IMMEDIATELY BEFORE PROCEEDING WITH THAT AREA.
8. INSTALL FIRE DAMPER OR COMBINATION FIRE/SMOKE DAMPER ON ALL DUCTS PENETRATING FIRE RATED ENCLOSURES AND PARTITIONS, AND RATED CEILINGS OF HORIZONTAL EXITS. THE CONTRACTOR SHALL INTERLOCK ALL COMBINATION FIRE/SMOKE DAMPERS WITH LISTED AREA TYPE SMOKE DETECTORS IN THE BUILDING FIRE LIFE SAFETY SYSTEM. VERIFY WITH LIFE SAFETY SYSTEM CONTRACTOR. SEE FIRE ALARM SPECIFICATION AND SMOKE CONTROL NOTES FOR ADDITIONAL INFORMATION.
9. AIR HANDLING UNITS AND FAN COIL UNITS SHALL BE PROVIDED WITH DUCT SMOKE DETECTORS AT THE UNITS OUTLET WHEN THE UNITS CAPACITY EQUALS 2000 CFM OR GREATER.
10. A MINIMUM OF 36" CLEAR WORKING SPACE, NOT LESS THAN 30" WIDE, SHALL BE MAINTAINED IN FRONT OF ALL SWITCHES, OVERCURRENT DEVICES AND ELECTRIC CONTROL COMPONENTS. THE WORKING SPACE SHALL BE CLEAR AND EXTEND FROM THE GRADE, FLOOR, OR PLATFORM TO MINIMUM OF 6'-8" FT. WHERE THE ELECTRICAL EQUIPMENT EXCEEDS 6-1/2 FT IN HEIGHT, THE MINIMUM HEADROOM SHALL NOT BE LESS THAN THE HEIGHT OF THE EQUIPMENT
11. A MINIMUM OF 24" CLEAR WORKING SPACE SHALL BE PROVIDED IN FRONT OF THE ACCESS PANELS.
12. THE SMOKE DETECTORS LOCATED AT AIR MOVING EQUIPMENT SHALL SHUT DOWN ALL AIR HANDLING EQUIPMENT VIA THE LIFE SAFETY SYSTEM. WHEN SMOKE IS DETECTED AT EQUIPMENT, ALL OTHER AIR MOVING EQUIPMENT LOCATED IN OR CONNECTED TO COMMON PLENUM OR SMOKE ZONE SHALL SHUT DOWN.
13. ALL ELECTRICAL CONTROLS FOR THE SMOKE CONTROL SHALL BE RATED FOR SUCH USE.
14. PROVIDE ACCESS PANELS (MATCH WALL OR CEILING RATING) IN ALL WALLS OR CEILINGS WHERE ACCESS TO DAMPERS, CONTROLS, ETC ARE REQUIRED BY CODE. COORDINATE LOCATIONS WITH ARCHITECT.
15. CONTRACTOR SHALL NOTE THE CRITICAL SPACE AVAILABLE ABOVE CEILINGS. PROVIDE TRANSITION PIECES AT CROSSOVERS, UNDER BEAMS, OVER/UNDER PIPES, AS REQUIRED TO ACCOMMODATE DUCTS WITHIN SPACE AVAILABLE, PROVIDING EQUIVALENT DUCT SIZE TO THE DIAMETER SHOWN. COORDINATE CLOSELY WITH OTHER TRADES TO REDUCE NECESSITY OF TRANSITIONS TO A MINIMUM. NO ADDITIONAL COSTS WILL BE PAID FOR ANY REQUIRED TRANSITIONS OR OTHER SPECIAL CHANGE SHAPE PIECES. ALL DUCTWORK SHALL BE SUPPORTED AND SEISMICALLY RESTRAINED PER THE CALIFORNIA BUILDING CODES AND SMACNA STANDARD.
16. THERE SHALL BE NO PIPING AND/OR DUCTWORK RUN THROUGH ELECTRICAL ROOMS UNLESS THAT DUCTWORK AND/OR PIPING IS SERVING THAT ELECTRICAL SPACE.
17. ALL FLEXIBLE DUCT CONNECTIONS TO AIR DISTRIBUTION DEVICES TO BE MIN. 5'-0" ACOUSTICAL FLEX DUCT PER SPECIFICATIONS.
18. NOT ALL SYMBOLS, NOTES, DETAILS AND EQUIPMENT IN SCHEDULES ON GENERAL SHEETS WILL APPLY TO EACH BUILDING. THEY ARE TO COVER ALL BUILDINGS AND WILL APPLY BASED ON SCOPE IN BUILDING.
19. LOCATE EXISTING REINFORCING STEEL UTILIZING ANY SUITABLE METAL DETECTION SYSTEM. DO NOT CUT ANY EXISTING STEEL REINFORCEMENT. SHIFT ANCHOR OR CORE TO MISS THE REBAR.
20. BOLTS MUST BE INSTALLED TO AVOID DAMAGING EXISTING STEEL REINFORCEMENT. IN CASE OF CONFLICT, ADJUST BOLT LOCATION, ALLOWING FOR 1" CONCRETE COVER BETWEEN REBAR AND BOLT.
21. PROVIDE TRANSFER DUCTS AS NECESSARY ABOVE CEILING FOR RETURN AIR PATH TO AIR HANDLING EQUIPMENT SERVING THAT SPACE. REFER TO DETAILS FOR TRANSFER DUCT SIZES.
22. ALL WORK SHALL COMPLY WITH THE STATE OF CALIFORNIA BUILDING CODE, TITLE 24 ENERGY CODE, CALGREEN, AND ALL OTHER GOVERNING CODES AND ORDINANCES.
23. COMBUSTIBLES WITHIN THE PLENUM SPACE MUST COMPLY WITH CALIFORNIA CODE FLAME-SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED RATING OF NOT MORE THAN 50.



REV	DATE	DESCRIPTION
	8/3/2016	100% SD
	8/25/2016	100% DD
	9/29/2016	50% CD
	11/29/2016	90% CD
	01/24/2017	PERMIT SET
	02/13/2017	PERMIT SET
	07/07/2017	100% CD / CONFORMED SET
	09/21/2017	REVISED 100% CD
	11/01/2017	BID SET

**METROPOLITAN
COURTHOUSE
ELEVATOR MODERNIZATION**

1945 S Hill St, Los Angeles, CA 90007

MECHANICAL GENERAL NOTES

M0.02

MECHANICAL SPECIFICATIONS (AS APPLICABLE)

DIVISION NO. 23 SECTION 23000
MECHANICAL SPECIFICATION

PART 1 GENERAL

1.01 GENERAL PROVISIONS

A. GENERAL REQUIREMENTS:

1. RELATED DOCUMENTS: ENGINEERING SPECIFICATIONS, APPLIANCE AND FIXTURE SPECIFICATION PACKAGE, GENERAL, SPECIAL AND SUPPLEMENTARY CONDITIONS, SHALL FORM A PART OF THESE SPECIFICATIONS.
2. SCOPE OF WORK: PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT AND CONTRACTOR'S SERVICES NECESSARY FOR COMPETE AND SAFE INSTALLATION OF HEATING, VENTILATING, AIR CONDITIONING (HVAC) AND PLUMBING WORK IN CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION; AS INDICATED ON DRAWINGS AND/OR HERE IN SPECIFIED OR DESCRIBED.
3. SITE CLEANLINESS: KEEP SITE FREE FROM THIS SECTION'S SURPLUS MATERIAL, TOOLS AND RUBBISH AT ALL TIMES DURING CONSTRUCTION PERIODS AND, UPON COMPLETION, LEAVE SITE IN CLEAN CONDITION.
4. SITE SECURITY: PROTECT THIS SECTION'S MATERIALS AND EQUIPMENT FROM ALL DAMAGE DUE TO FIRE, THEFT, VANDALISM, WEATHER, ETC.
5. DAMAGE TO OTHER WORK: REPAIR ANY DAMAGED FIREPROOFING CAUSED BY THIS SECTION TO INTEGRITY OF ORIGINAL CONSTRUCTION.
6. DAMAGE TO FIREPROOFING: REPAIR ANY DAMAGED FIREPROOFING CAUSED BY THIS SECTION TO INTEGRITY OF ORIGINAL CONSTRUCTION.
7. SITE SAFETY: CONTRACTOR COVENANTS AND AGREES THAT HE AND HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES WILL PROVIDE AND MAINTAIN A SAFE PLACE TO WORK AND THAT HE AND THEY WILL COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF, AND CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS, ENGINEER, OWNER AND ARCHITECT FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE OR EXPENSE, INCLUDING ATTORNEY'S FEES, ARISING FROM A FAILURE OR ALLEGED FAILURE ON THE PART OF CONTRACTOR, THIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES TO PROVIDE AND MAINTAIN A SAFE PLACE TO WORK OR TO COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF.
8. VERIFICATION OF EXISTING: BEFORE SUBMITTING BID, CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AND OF THE PRESENT INSTALLATIONS TO WHICH CONNECTIONS MUST BE MADE OR WHICH MUST BE CHANGED OR ALTERED. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN, AND NO CONSIDERATION WILL BE GRANTED BY REASON OF LACK OF FAMILIARITY ON THE PART OF THE CONTRACTOR WITH ACTUAL PHYSICAL CONDITIONS, REQUIREMENTS, AND PRACTICES AT THE SITE.
9. REQUIREMENTS OF OTHER SECTIONS: CAREFULLY CHECK THE DOCUMENTS OF OTHER SECTIONS TO ASCERTAIN THE REQUIREMENTS OF ANY INTERFACING MATERIALS OR EQUIPMENT BEING FURNISHED AND/OR INSTALLED BY THAT SECTION WHICH RELATE TO THIS SECTION, AND PROVIDE THE PROPER INSTALLATION AND/OR CONNECTION.
10. INFORMATION TRANSFER: TRANSMIT ALL INFORMATION REQUIRED FOR WORK BEING PERFORMED BY OTHER SECTIONS IN AMPLE TIME FOR THE PROPER INSTALLATION AND CONNECTION AND FOR THE PROVISION OF ALL OPENINGS REQUIRED IN FLOORS AND WALLS.
11. HOLES AND STRUCTURE: FIELD DRILLING AND CUTTING OF HOLES IN BUILDING STRUCTURE REQUIRED FOR WORK UNDER THIS SECTION SHALL BE COORDINATED THROUGH THE GENERAL CONTRACTOR AND APPROVED BY OWNER AND BUILDING STRUCTURAL ENGINEER. ALL SUCH COORDINATION, DRILLING, CUTTING AND REINFORCING COSTS SHALL BE BORNE BY THIS CONTRACTOR.
12. SLEEVES: FURNISH AND SET ALL SLEEVES FOR THE PASSAGE OF CONDUIT THROUGH WALLS, ROOF AND FLOORS AND ELSEWHERE AS WILL BE REQUIRED FOR THE PROPER PROTECTION OF EACH CONDUIT PASSING THROUGH BUILDING SURFACES. COORDINATE THIS WORK WITH GENERAL CONTRACTOR IN ORDER TO PROPERLY EXPEDITE AND PERFORM THIS WORK.

13. PASSAGE OF EQUIPMENT: CHECK THE DIMENSIONAL REQUIREMENTS OF EQUIPMENT CAN PASS THROUGH THE NECESSARY AREAS TO REACH ITS ULTIMATE INSTALLED LOCATION. INCLUDE IN BID COSTS FOR ALL WORK REQUIRED, INCLUDING ANY WORK REQUIRED TO MOVE THE EQUIPMENT THROUGH THE SITE TO THIS FINAL LOCATION, INCLUDING ANY DISMANTLING AND RE-ASSEMBLY.

14. SIGNAGE: PROVIDE SIGNAGE REQUIRED BY CODES AND AUTHORITIES HAVING JURISDICTION.

15. POTENTIAL DELIVERY PROBLEMS: NOTIFY THE GENERAL CONTRACTOR AND ENGINEER IN WRITING, WITHIN FIVE DAYS OF AWARD OF CONTRACT, OF THE PROPOSED DELIVERY SCHEDULE OF ANY EQUIPMENT OR MATERIAL THAT MAY PREVENT THE INSTALLATION FROM BEING COMPLETED BY THE PROJECT COMPLETION DATE.

16. WARRANTY: SUBMIT A SINGLE GUARANTEE STATING THAT ALL PORTIONS OF THE WORK ARE IN ACCORDANCE WITH CONTRACT REQUIREMENTS. GUARANTEE ALL WORK AGAINST FAULTY AND IMPROPER MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER, EXCEPT THAT WHERE GUARANTEES OR WARRANTIES FOR LONGER TERMS ARE SPECIFIED BY CONTRACT, SUCH LONGER TERM SHALL APPLY.

17. RECTIFICATION: AT NO ADDITIONAL COST TO THE OWNER, WITHIN 24 HOURS AFTER NOTIFICATION, CORRECT ANY DEFICIENCIES WHICH OCCUR DURING THE GUARANTEE PERIODS. ALL TO THE SATISFACTION OF THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY SUCH DEFICIENCIES AND REPAIR THEREOF AND REIMBURSE THE OWNER FOR ALL COSTS INCURRED.

B. MAJOR ITEMS OF WORK INCLUDE (AS APPLICABLE):

- B.1. AIR CONDITIONING SYSTEMS: SUPPLY AND RETURN AIR DISTRIBUTION SYSTEMS, INCLUDING DUCTWORK, SUPPLY AIR DIFFUSERS, CONTROLS AND CONNECTIONS TO EXISTING WORK.
- B.2. PIPE AND PIPING ACCESSORIES.
- B.3. TESTING AND BALANCING OF ALL SYSTEMS.
- B.4. SPRING ISOLATION.
- B.5. DEMOLITION OF EXISTING EQUIPMENT, PIPING, AND DUCTWORK.

C. GENERAL ITEMS:

- C.1. CUTTING AND PATCHING FOR MECHANICAL WORK.
- C.2. COORDINATE ALL NEW WORK WITH EXISTING INSTALLATIONS.
- C.3. CONDENSATE DRAIN LINES SHALL HAVE NO LESS THAN 1% SLOPE.
- C.4. CONTRACTOR SHALL INSPECT JOB SITE PRIOR TO BID AND VERIFY EXACT LOCATION, SIZE AND LOADING OF EXISTING PIPING PRIOR TO INSTALLATION AND CONNECTION OF ANY PIPING.

1.02 REFERENCE STANDARDS:

A. IN ADDITION TO COMPLYING WITH ALL OTHER LEGAL REQUIREMENTS, COMPLY WITH CURRENT PROVISIONS OF GOVERNING CODES AND REGULATIONS IN EFFECT DURING THE PROGRESS OF THE WORK, AND WITH THE FOLLOWING:

1. DRAWINGS AND SPECIFICATION REQUIREMENTS SHALL GOVERN WHERE THEY EXCEED CODE AND REGULATION REQUIREMENTS.
2. WHERE REQUIREMENTS BETWEEN GOVERNING CODES AND REGULATIONS VARY, THE MORE STRINGENT SHALL APPLY.
3. NOTHING CONTAINED IN CONTRACT DOCUMENTS SHALL BE CONSTRUED AS AUTHORITY OR PERMISSION TO DISREGARD OR VIOLATE LEGAL REQUIREMENTS. THE CONTRACTOR SHALL IMMEDIATELY DRAW THE ATTENTION OF ARCHITECT TO ANY SUCH CONFLICTS NOTED IN THE CONTRACT DOCUMENTS.

1.03 PERMITS AND INSPECTIONS:

A. THE CONTRACTOR SHALL SECURE ALL APPROVALS AND PAY ALL FEES FOR ALL WORK INSTALLED. CERTIFICATE SHALL BE DELIVERED TO OWNER BEFORE FINAL PAYMENT WILL BE MADE.

1.04 DESCRIPTION:

A. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES, WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL", "SHALL BE", "FURNISH", "PROVIDE", "A", "AN", "THE", AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. MAINTAIN HEADROOM AND SPACE CONDITIONS.

C. DEFINITIONS:

1. "FURNISH" OR "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION OF PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
 2. "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
 3. "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
 4. "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
 5. "PIPING": PIPE, TUBE, FITTINGS, FLANGES, VALVES, CONTROLS, STRAINERS, HANGERS, SUPPORTS, UNIONS, TRAPS, DRAINS, INSULATION, AND RELATED ITEMS.
 6. "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.
 7. "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES OR IN ENCLOSURES.
 8. "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
 9. "EQUIVALENT": EQUIVALENT IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.
- D. SCOPE OF WORK: LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE SAFE INSTALLATION IN CONFORMITY WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION: AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

1.05 JOB CONDITIONS:

A. CONNECTION TO EXISTING WORK:

1. INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES.
2. TEMPORARY SHUTDOWNS OF EXISTING SERVICES.
 - 2.1. AT NO ADDITIONAL CHARGES.
 - 2.2. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES.
 - 2.3. ONLY WITH WRITTEN CONSENT OF OWNER.
3. ALARM AND EMERGENCY SYSTEMS: NOT TO BE INTERRUPTED.
4. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTION BETWEEN NEW AND EXISTING WORK.
5. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

B. REMOVAL AND RELOCATION OF EXISTING WORK:

1. REMOVE UNUSED PIPING, DUCTWORK AND MATERIAL.

1.06 QUALITY ASSURANCE:

A. QUALITY AND GAUGES OF MATERIALS:

1. QUALITY OF MATERIALS:
 - 1.1. NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITES' LABORATORIES, INC. AND BEARING THEIR LABEL.
 - 1.2. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION: SAME MANUFACTURE, EXCEPT AS NOTED.
 - 1.3. CONFORM TO REFERENCE STANDARDS.

1.07 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CRATED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

B. ACCESSIBILITY:

1. FOR OPERATION, MAINTENANCE AND REPAIR.
2. MINOR DEVIATIONS: PERMISSIBLE.
3. CHANGE OF MAGNITUDE OR INVOLVING EXTRA COST: NOT PERMISSIBLE WITHOUT REVIEW.
4. GROUP CONCEALED MECHANICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

1.08 SUBMITTALS:

A. PROVIDE TWO (2) HARD COPIES OR AN ELECTRONIC COPY OF SUBMITTAL MATERIAL WITH DESCRIPTIVE DATA FOR ALL PRODUCTS AND MATERIALS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING, PRIOR TO INSTALLATION. ALL SUBMITTALS SHALL BE HIGHLIGHTED TO INDICATE SPECIFIC PRODUCTS OR MATERIALS BEING USED. ALLOW 10 DAYS FOR ENGINEER TO REVIEW SUBMITTALS.

1. SHOP DRAWINGS OF NEW INSTALLATIONS SHOWING COMPLIANCE WITH DESIGN INTENT AND FULLY COORDINATED WITH ALL TRADES AND EXISTING BUILDING COMPONENTS AND SYSTEMS.
2. AIR HANDLING UNIT, CONDENSING UNIT, AND ALL OTHER SCHEDULED EQUIPMENT AND COMPONENTS.
3. DUCTWORK ACCESSORIES.
4. DUCTWORK TYPICAL CONSTRUCTION.
5. DUCT SEALING.
6. DAMPERS.
7. AIR TEST AND BALANCE.
8. PIPE, PIPE SUPPORT, AND PIPING ACCESSORIES.
9. CONTROLS DRAWINGS.
10. DIFFUSERS, GRILLES, AND REGISTERS.
11. VIBRATION ISOLATION.
12. ONE SET OF AS-BUILT REPRODUCIBLE DRAWINGS.

B. PROVIDE 1 COPY OF APPROVED SUBMITTALS TO THE OFFICE OF THE BUILDING ENGINEER.

C. SUBMITTALS TRANSMITTED VIA E-MAIL SHALL HAVE A MAXIMUM ATTACHMENT SIZE OF 5MB.
1. IF TRANSMITTAL OF LARGER FILE IS REQUIRED, CONTRACTOR SHALL CONFIGURE A SECURE FILE TRANSFER LOCATION ACCESSIBLE BY JCC AND ENGINEER REPRESENTATIVES VIA INTERNET AND NOTIFY THE APPROPRIATE PARTIES WHEN FILES HAVE BEEN POSTED TO THAT LOCATION REQUIRING REVIEW.

1.09 MAINTENANCE MANUALS AND AS-BUILT DRAWINGS:

- A. PROVIDE FOUR (4) COPIES OF OPERATING AND MAINTENANCE MANUAL FOR OWNER'S USE FOR EACH PIECE OF EQUIPMENT. EACH ITEM SHALL BE CROSS-REFERENCED AND NUMBERED WITH AS-BUILT DRAWING DESCRIPTIONS.
- B. AS-BUILT DRAWINGS: DELIVER TO ENGINEER, ONE SET OF REDLINED MARK-UP, AIR BALANCE REPORT AND PANEL SCHEDULES SHOWING WORK AS ACTUALLY INSTALLED THREE (3) DAYS PRIOR TO FINAL PUNCH WALK.

1.10 SEISMIC SUPPORT:

A. CONTRACTOR SHALL SUPPORT AND BRACE ALL NEW HVAC AND PLUMBING SYSTEMS IN ACCORDANCE WITH CODE SEISMIC REQUIREMENTS.



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MECHANICAL SPECIFICATIONS

MECHANICAL SPECIFICATIONS CONTINUED (AS APPLICABLE)

PART 2 PRODUCTS

2.01 DUCTWORK

A. GENERAL: ALL SHAFTING, DUCTS, DAMPERS, ACCESS DOORS, JOINTS, HANGERS, STIFFENERS, FIRE DAMPERS AND FIRE RETARDING MATERIALS, IN ACCORDANCE WITH REQUIREMENTS OF SMACNA, "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION, AND ALL OTHER AUTHORITIES HAVING JURISDICTION AND AS DESCRIBED HEREIN. ALL SHEET METAL WORK SHALL BE SEAL CLASS B AND HAVE A PRESSURE CLASSIFICATION AS FOLLOWS:

- SUPPLY DUCT BETWEEN MAIN LOOP AND INLET TO TERMINAL AIR UNIT - 4 INCHES W.G.
- SUPPLY DUCTS DOWNSTREAM OF TERMINAL AIR UNITS, AIR HANDLING UNITS AND FANS - 2 INCHES W.G.
- RETURN AND EXHAUST AIR DUCTS - 2 INCHES W.G.

B. DUCTWORK: UNLESS OTHERWISE SPECIFIED.

1. COLD ROLLED "COMMERCIAL" QUALITY HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM NO. M525-67.

- AIR CONDITIONING SYSTEMS.
- VENTILATION SYSTEMS.

- DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
- FITTINGS: SAME GAUGE AND CONSTRUCTION AS DUCTS. ELBOWS SHALL HAVE CENTERLINE RADIUS NOT LESS THAN 1.5 TIMES WIDTH.
- DUCT SUPPORTS AS REQUIRED.
- DUCTS WITH TRANSVERSE AND LONGITUDINAL BRACING IN ACCORDANCE WITH SMACNA.

C. ACCESS DOORS:

- FURNISH ACCESS DOOR OF SUFFICIENT SIZE AS REQUIRED. FOR ACCESS, INSPECTION MAINTENANCE AND REPLACEMENT TO ALL INSTRUMENTS, CONTROLS AND EQUIPMENT.

D. DAMPERS:

- FURNISH ALL DAMPERS NECESSARY FOR PROPER CONTROL AND BALANCING OF AIR DISTRIBUTION AS FOLLOWS:
 - ALL DUCTS WHICH SPLIT IN 2 OR MORE BRANCHES TO SERVE SUPPLY DIFFUSERS.
 - AT EACH SUPPLY AND RETURN BRANCH DUCT, AS FAR AWAY FROM EACH OUTLET AND INLET AS POSSIBLE.
 - ADJUSTABLE AND ACCESSIBLE.
 - ADDITIONALLY AS INDICATED.
- FIRE/SMOKE DAMPERS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH NFPA STANDARD 90A AND UL STANDARD 555 AND SHALL BE SO LABELED WITH A PERMANENT IDENTIFICATION. FIRE/SMOKE DAMPER SHALL BE LEAKAGE CLASS II, RATED FOR DYNAMIC USE, 165 DEG. FUSIBLE LINK, PROVIDED WITH FACTORY ELECTRIC ACTUATOR AND FACTORY INSTALLED AND PREWIRED DUCT MOUNTED SMOKE DETECTOR. FIRE/SMOKE DAMPERS SHALL BE CSFM LISTED FOR BOTH FIRE AND SMOKE. "POTTORFF" SERIES FSD-142.

J. TURNING VANES: GALVANIZED STEEL, DOUBLE THICKNESS TURNING VANES WITH 2 IN. INSIDE RADIUS ALL SQUARE ELBOWS, UNLESS OTHERWISE NOTED.

J. DUCT MTD. SMOKE DETECTORS SHALL BE "SYSTEM SENSOR" DH400 OR EQUIVALENT. AREA SMOKE DETECTORS SHALL BE SERIES 400.

K. MOTORIZED DAMPERS SHALL BE "RUSKIN" CD-50 LOW LEAKAGE TYPE ACTUATORS BY "BELIMO" UNLESS OTHERWISE NOTED.

2.02 AIR OUTLETS AND INLETS:

A. ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE OF TYPE AND CAPACITY AS INDICATED ON DRAWINGS, STEEL AND/OR EXTRUDED ALUMINUM CONSTRUCTION WITH BAKED ENAMEL FINISH COLOR AS SELECTED BY ARCHITECT. DIFFUSERS TO HAVE NO VISIBLE SCREW HEADS OR CONNECTORS. RETURN GRILLES AND EXHAUST REGISTERS SIMILAR TO SUPPLY.

B. BALANCING DAMPERS SHALL BE PROVIDED IN THE BRANCH DUCT AS FAR AS POSSIBLE FROM ALL SUPPLY AND RETURN DEVICES. THESE SHALL BE ADJUSTABLE AND ACCESSIBLE.

C. OUTLETS FURNISHED SHALL PROVIDE FOR THE REQUIRED CAPACITY WITH NO APPARENT DRAFTS OR EXCESSIVE AIR MOVEMENT. OUTLET WHICH CAUSE EXCESSIVE AIR MOVEMENT OR DRAFTS SHALL BE REPLACED AT NO COST TO THE OWNER.

D. SEE PLANS AND SCHEDULES FOR DIFFUSER TYPES AND MFR.

E. THE NOISE LEVEL PRODUCED SHALL COMPLY WITH ALL REQUIREMENTS OF THE ACOUSTICAL SPECIFICATION STATED HEREIN. A REPRESENTATIVE SAMPLE SHALL BE TESTED IN ACCORDANCE WITH THE PROCEDURE SPECIFIED HEREIN IN ORDER TO DEMONSTRATE SUCH COMPLIANCE. ALL MEASUREMENTS SHALL BE MADE IN ACCORDANCE WITH AIR DIFFUSION COUNCIL TEST CODE NO. 1062R3 AND ASHRAE STANDARD 36-72. TEST CONDITIONS SHALL BE IN ACCORDANCE WITH THE APPLICABLE STANDARDS. THE TEST RESULTS SHALL BE CERTIFIED BY THE TESTING AGENCY AND SUBMITTED FOR APPROVAL. THE TEST REPORT SHALL INCLUDE A COMPLETE DESCRIPTION OF THE TEST CONDITIONS, MEASUREMENT PROCEDURE AND SAMPLE CALCULATION.

F. THE SOUND POWER LEVEL (PWL. RE 10-12 WATTS) OF EACH TYPE AND SIZE OF DIFFUSER SPECIFIED SHALL NOT EXCEED THE VALUES AS FOLLOWS:

PWL IN DB RE 10-12 WATTS OCTAVE BAND CENTER FREQUENCY, HZ

OCTAVE BAND CENTER FREQUENCY, HZ	DIFFUSER UP TO CFM RANGE			
	125	126-180	181-280	281-400
125	46	48	50	51
250	39	41	43	44
500	33	35	35	38
1000	29	31	33	34
2000	26	28	30	31
4000	24	26	28	29
8000	23	25	27	28

2.03 HVAC AND DOMESTIC WATER PIPING

A. PIPE:

1. 2-1/2" AND SMALLER: SEAMLESS COPPER TUBING, TYPE L, COLD DRAWN, HARD TEMPER. ASTM B88, WROUGHT COPPER FITTINGS WITH

1.1. NON-POTABLE: SAME AS DOMESTIC WATER.

1.2. CONDENSATE DRAIN: SAME AS DOMESTIC WATER OR SEAMLESS TYPE M DRAWN TEMPER. ASTM B88.

2. REFRIGERANT PIPING (HOT GAS AND LIQUID): COPPER TUBE ASTM B 280, TYPE ACR, DRAWN-TEMPER TUBING, WROUGHT COPPER FITTINGS WITH BRAZED JOINTS.

B. FITTINGS:

1. WROUGHT COPPER. ANSI B16.22.

C. JOINTS:

1. SOLDER FILLER: ASTM B32, LEAD FREE ALLOYS.

2. BRAZING FILLER: AWS A5.8, BCUP SERIES, COPPER-PHOSPHORUS ALLOYS FOR JOINING COPPER WITH COPPER.

D. INSULATION:

1. INSULATE ALL PIPING, FITTINGS, VALVES, STRAINERS, ETC., BY EITHER PREFABRICATING OR BY FABRICATING FITTINGS FROM METERED SEGMENTS OF PIPE INSULATION TO AN EQUAL THICKNESS OF ADJOINING PIPE INSULATION.

2.04 SUPPORTS, ANCHORS AND RESTRAINTS

A. PIPE HANGERS, SUPPORTS, AND GUIDES:

1. GENERAL:

- ASSURE ADEQUATE SUPPORT FOR PIPE AND CONTENTS.
- PREVENT VIBRATION OR SWAYING.
- PROVIDE FOR EXPANSION AND CONTRACTION.
- SUPPORTS OF WIRE, ROPE, WOOD, CHAIN, STRAP PERFORATED BAR OR ANY OTHER MAKESHIFT DEVICE NOT PERMITTED.
- COMPLY WITH APPLICABLE REQUIREMENTS AT ANSI B31.1.0 AND B31.2 FOR PIPING.
- SUPPORT PIPING INDEPENDENTLY SO THAT EQUIPMENT IS NOT STRESSED BY PIPING WEIGHT OF EXPANSION.
- HANGERS AND SUPPORTS SHALL HAVE MINIMUM SAFETY FACTOR OF THREE (3), BASED ON ULTIMATE TENSILE OR COMPRESSIVE STRENGTH, AS APPLICABLE, OF MATERIAL USED.
- PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS:
 - HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPES SHAFTS AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.

2. HORIZONTAL PIPING, EXCEPT AS NOTED:

2.1. ADJUSTABLE CLEVIS TYPE AND ROD:

2.1.1. ALL SERVICES AT OR BELOW 250°F.

2.2. THREADED STEEL RODS:

- 2 IN VERTICAL ADJUSTMENT WITH 2 NUTS EACH END FOR POSITIONING AND LOCKING.
- SIZE TO 12 IN IPS:

PIPE, IPS	ROD
TO 2 IN.	3/8 IN.
2-1/2 IN. AND 3 IN.	1/2 IN.
4 IN.	5/8 IN.

3. INSTALL PIPE ISOLATORS BETWEEN HANGERS AND:

3.1. UNINSULATED COPPER TUBING.

3.2. WHEREVER ANY PIPE REQUIRED SOUND AND VIBRATION ISOLATION.

4. MISCELLANEOUS STEEL:

4.1. PROVIDE MISCELLANEOUS STEEL MEMBERS, BEAMS, BRACKETS, ETC., FOR SUPPORT OF WORK IN THIS DIVISION UNLESS SPECIFICALLY INCLUDED IN OTHER DIVISIONS.

B. PIPE SUPPORT SPACING:

1. MAXIMUM SPACING FOR HORIZONTAL PIPING:

TYPE OF PIPE	SIZE	MAXIMUM SPACING
BRASS OR COPPER	3/4 IN. AND SMALLER	5 FT
	1- 1-1/4 IN.	6 FT
	1-1/2 TO 3 IN.	8 FT

SPACING NOTES:

- NOTE 1 TYPE OF CAST IRON AND DURIRON.
 NOTE 2 TWO SUPPORTS PER JOINT.
 NOTE 3 SUPPORT TO BE WITHIN 18 INCHES OF HUB OR JOINT.
 NOTE 4 SUPPORT TO BE PLACED ON OR IMMEDIATELY ADJACENT TO COUPLING.
 NOTE 5 ADDITIONAL SUPPORT AT:

- CHANGE IN DIRECTION.
- BRANCH PIPING AND RUNOUTS OVER 5 FT.
- CONCENTRATED LOADS DUE TO VALVES, STRAINERS AND OTHER SIMILAR ITEMS.
- AT VALVES 4 IN. AND LARGER IN HORIZONTAL PIPING.
- SUPPORT PIPING ON EACH SIDE OF VALVE.

C. ATTACHMENT TO STRUCTURE:

1. WOOD TRUSS:

- APPROVED SCREW.
- DO NOT CUT WOOD TRUSS WITHOUT WRITTEN APPROVAL OF OWNER.
- OTHER METHODS AS APPROVED BY LICENSED STRUCTURAL ENGINEER.

2.05 INSULATION AND LINING

A. MATERIALS:

1. INSULATION, JACKETS, FACINGS, ADHESIVES, COATINGS, AND ACCESSORIES FIRE HAZARD RATING BY UL, INC. STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723, ASTM E-84, NFPA-225.

- FLAMESPREAD: MAXIMUM 25.
- FUEL CONTRIBUTED AND SMOKE DEVELOPED: MAXIMUM 50.
- FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION DUE TO MOISTURE OR HUMIDITY NOT ACCEPTABLE.

2. INSULATION SHALL BE MANVILLE, OR EQUAL.

3. LABEL AS REQUIRED BY CODE.

B. ALL INSULATION APPLIED ACCORDING TO MANUFACTURER'S PUBLISHED RECOMMENDATIONS.

C. INSULATE ALL PIPING INCLUDING REFRIGERANT AND CONDENSATE DRAIN.

D. TYPE OF INSULATION:

1. PIPE INSULATION: GLASS FIBER INSULATION WITH ALL SERVICE JACKET AND VAPOR BARRIER, MANVILLE MICRO-LOK

1.1. CONDENSATE:

1.1.1. 1/2" THICK. K=.25

1.2. REFRIGERANT PIPING:

1.2.1. 1" THICK. K=.25. PROVIDE WEATHERPROOF JACKET ON OUTDOOR PIPING.

2.06 REFER TO SCHEDULE ON SHEET M-004.

A. AIR HANDLING UNIT AND CONDENSING UNIT
 B. EXHAUST FAN

2.07 IDENTIFICATION

A. AN IDENTIFICATION LABEL SHALL BE PROVIDED FOR THE FOLLOWING TYPES OF EQUIPMENT:

1. AIR HANDLING UNITS, CONDENSING UNITS, EXHAUST FAN, EXHAUST FAN TIMER, PIPING, AND THERMOSTATS.

B. IDENTIFICATION LABELS SHALL BE BY SETON, OR EQUIVALENT. PROVIDE LABELS & FLOW ARROWS ON ALL PIPING. @ 10' INTERVALS.

C. IDENTIFICATION SHALL CONFORM TO BLDG. STD. WHERE APPLICABLE.



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MECHANICAL SPECIFICATIONS

M0.04

MECHANICAL SPECIFICATIONS CONTINUED (AS APPLICABLE)

PART 3 EXECUTION

3.01 INSTALLATION OF THE WORK

A. THE CONTRACT DRAWINGS INDICATE THE GENERAL ARRANGEMENTS FOR THE HVAC AND PLUMBING SYSTEMS.

1. DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE NECESSARY OFFSETS, OBSTRUCTIONS OR STRUCTURAL CONDITIONS.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE WORK IN SUCH A MANNER THAT IT WILL BE AT THE HIGHEST ELEVATION POSSIBLE, CONFORM TO THE STRUCTURE, AVOID OBSTRUCTIONS, MAINTAIN HEADROOM, LEAVE ADEQUATE CLEARANCES FOR LIGHT FIXTURES, RETURN AIR PATHWAYS, MAINTENANCE AND REPAIRS, AND PROVIDE CLEARANCE AND ACCESS AS REQUIRED BY CODES. NOTHING SHALL BE INSTALLED BELOW CEILING LEVEL WITHOUT ARCHITECT'S WRITTEN CONSENT.
3. ABOVE ITEMS TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
4. PROCEED AS RAPIDLY AS THE BUILDING CONSTRUCTION WILL PERMIT.
5. THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP OPENING TO EXCLUDE DIRT UNTIL FINAL CONNECTION HAS BEEN MADE.
6. CUT MATERIALS ACCURATELY, WORK INTO PLACE WITHOUT SPRINGING OR FORCING, PROPERLY CLEAR WINDOWS, DOORS AND OTHER OPENINGS. EXCESSIVE CUTTING OR OTHER WEAKENING OF THE BUILDING STRUCTURE WILL NOT BE PERMITTED.
7. FIRE CAULK ANY PIPING, CONDUIT PENETRATIONS THRU FIRE RATED PARTITION TO MATCH THE RATING OF THE PARTITION.
8. MANUFACTURER'S DRAWINGS AND INSTRUCTIONS SHALL BE FOLLOWED IN ALL CASES WHERE THE MAKERS OF DEVICES AND EQUIPMENT FURNISH DIRECTIONS OR DETAILS NOT SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
9. DRAWINGS ARE NOT INTENDED TO BE SCALED, BUT SHALL BE FOLLOWED WITH SUFFICIENT ACCURACY TO COORDINATE WITH OTHER WORK AND STRUCTURAL LIMITATIONS.
10. SEISMIC DESIGN: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ANCHORS, SUPPORTS AND CONNECTION OF MECHANICAL WORK TO THE BUILDING STRUCTURE TO PREVENT DAMAGE AS A RESULT OF AN EARTHQUAKE, INCLUDING MANUFACTURED EQUIPMENT. THE CONNECTION AND INTEGRITY OF SHOP FABRICATED AND FIELD FABRICATED MATERIALS AND EQUIPMENT. ALL SUPPORTS, EQUIPMENT AND CONNECTIONS THERETO SHALL BE DESIGNED TO CONFORM TO REQUIREMENTS OF THE CALIFORNIA ADMINISTRATIVE CODE, OR OTHER GOVERNING CODES.
11. ALL WORK SHALL BE PROPERLY SUPPORTED FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER, INDEPENDENT OF THE CEILING SUPPORT SYSTEM. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT DIRECT FASTENING OF SUPPORTS, FURNISH ADDITIONAL FRAMING.
12. ALL EQUIPMENT SHALL BE SECURELY FASTENED TO BUILDING CONSTRUCTION WITH APPROVED SUPPORTS.
13. REFER TO ENGINEERING DRAWINGS FOR EXACT LOCATION OF DIFFUSERS, GRILLES, AND THERMOSTATS.
14. COORDINATE THE WORK OF THIS SECTION WITH THE WORK OF OTHER SECTIONS IN AMPLE TIME FOR PROPER INSTALLATION AND CONNECTION.
15. CAREFULLY CHECK SPACE REQUIREMENTS, INCLUDING SERVICING SPACE REQUIREMENTS, WITH OTHER SECTIONS TO ENSURE THAT ALL EQUIPMENT AND MATERIALS CAN BE INSTALLED IN THE SPACES ALLOTTED THERETO.
16. PREPARE DRAWINGS, ATTEND MEETINGS, OBTAIN ALL APPROVALS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION, CONDUCT REQUIRED TESTS AND OBTAIN REQUIRED PERMITS.
17. SEISMIC RESTRAINT:
 - 17.1. 2016 CALIFORNIA BUILDING CODE.
 - 17.2. SEISMIC DESIGN CATEGORIES.
 - 17.3. PROVIDE THE MANUFACTURER'S CERTIFICATE OF COMPLIANCE WHEN REQUIRED BY CONTRACT DOCUMENTS OR REGULATORY AGENCY.
 - 17.4. SEISMIC ANCHORAGE SHALL BE PERFORMED ON ALL SUSPENDED, FLOOR-, ROOF- AND WALL-MOUNTED EQUIPMENT. DESIGN SHALL BE PERFORMED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
 - 17.5. SEISMIC BRACES SHALL BE LOCATED ON SHOP DRAWINGS INDICATING MEMBER SIZES, ANCHORAGE REQUIREMENTS AND CERTIFICATION FROM A REGISTERED CIVIL OR STRUCTURAL PROFESSIONAL ENGINEER.

B. GENERAL:

1. PAINTING:
 - 1.1. PAINT:
 - 1.1.1. BEST GRADE FOR ITS PURPOSE.
 - 1.1.2. DELIVER IN ORIGINAL SEALED CONTAINERS.
 - 1.1.3. APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - 1.1.4. COLORS: TO MATCH EXISTING OR AS SELECTED BY ENGINEER.
 - 1.2. GALVANIZED IRON PRIMER.
 - 1.3. HOT DIPPED GALVANIZED OR DIPPED IN ZINC CHROMATE.
 - 1.4. ZINC CHROMATE WITH FINISH TO MATCH SURROUNDINGS.
2. CLEANING:
 - 2.1. BRUSH AND CLEAN WORK PRIOR TO CONCEALING PAINTING AND ACCEPTANCE.
 - 2.2. PAINTED EXPOSED WORK SOILED OR DAMAGED: CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE.
 - 2.3. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.
3. CUTTING AND PATCHING: AS REQUIRED FOR NEW WORK.

3.02 TESTING AND BALANCING

A. GENERAL:

1. ADJUSTMENT: EACH PIECE OF EQUIPMENT AND ALL OF THE SYSTEMS SHALL BE ADJUSTED TO INSURE PROPER FUNCTIONING OF ALL CONTROLS, AND SHALL BE LEFT IN OPERATING CONDITION.
2. PRELIMINARY OPERATION: THE OWNER RESERVES THE RIGHT TO OPERATE ANY SYSTEMS OR EQUIPMENT PRIOR TO FINAL COMPLETION AND ACCEPTANCE OF THE WORK. SUCH PRELIMINARY OPERATION SHALL NOT BE CONSTRUED AS AN ACCEPTANCE OF ANY WORK.

B. AIR DISTRIBUTION SYSTEMS:

1. BALANCE AND ADJUST AIR DISTRIBUTION SYSTEM TO QUANTITIES INDICATED ON DRAWINGS IN ACCORDANCE WITH ASSOCIATED AIR BALANCE COUNCIL (AABC) MANUAL OR NEBB STANDARDS, LATEST EDITION.
2. BALANCING AND TESTING SHALL BE PERFORMED AND SUPERVISED BY A CERTIFIED INDEPENDENT FIRM SPECIALIZING IN TESTING AND BALANCING. FIRM SHALL BE A MEMBER OF AABC. TEST REPORTS SHALL BE SUBMITTED IN BOUND FOLDERS AND ON AABC TYPE REPORT FORMS. ALL DIFFUSERS SHALL BE IDENTIFIED BY DESIGNATIONS ON DRAWINGS.
3. DIFFUSER AIR DELIVERY SHALL NOT BE LESS THAN NOR EXCEED BY MORE THAN 5% THE AIR DELIVERY INDICATED ON THE PLANS.
4. UPON COMPLETION OF THE INSTALLATION, CONTRACTOR SHALL REBALANCE ANY AIR DISTRIBUTION SYSTEM AFFECTED BY THE RENOVATION, INCLUDING TERMINAL AIR UNITS AND AIR OUTLETS.
5. CONTRACTOR SHALL CONSTRUCT, SEAL, AND TEST PER 2005 TITLE 24 REQUIREMENTS.
6. PROVIDE WRITTEN REPORT OF ALL TEST RESULTS WITHIN ONE WEEK OF COMPLETION OF BALANCING. NOTE ALL DEFICIENCIES AND FIELD OBSERVATIONS.

C. HYDRONIC SYSTEMS:

1. PREPARE TEST REPORTS WITH PERTINENT DESIGN DATA AND NUMBER IN SEQUENCE STARTING AT PUMP TO END OF SYSTEM. CHECK THE SUM OF BRACH-CIRCUITS FLOWS AGAINST APPROVED PUMP FLOW RATE. CORRECT VARIATIONS THAT EXCEED PLUS OR MINUS 5 PERCENT.
2. PREPARE SCHEMATIC DIAGRAMS OF SYSTEMS' "AS-BUILT" PIPING LAYOUTS.
3. PREPARE HYDRONIC SYSTEMS FOR TESTING AND BALANCING ACCORDING TO THE FOLLOWING, IN ADDITION TO THE GENERAL PREPARATION PROCEDURES SPECIFIED ABOVE:
 - 3.1. OPEN ALL MANUAL VALVES FOR MAXIMUM FLOW.
 - 3.2. CHECK EXPANSION TANK LIQUID LEVEL.
 - 3.3. CHECK MAKEUP-WATER-STATION PRESSURE GAGE FOR ADEQUATE PRESSURE FOR HIGHEST VENT.
 - 3.4. CHECK FLOW-CONTROL VALVES FOR SPECIFIED SEQUENCE OF OPERATION AND SET AT INDICATED FLOW.
 - 3.5. SET DIFFERENTIAL-PRESSURE CONTROL VALVES AT THE SPECIFIED DIFFERENTIAL PRESSURE. DO NOT SET AT FULLY CLOSED POSITION WHEN PUMP IS POSITIVE-DISPLACEMENT TYPE UNLESS SEVERAL TERMINAL VALVES ARE KEPT OPEN.
 - 3.6. SET SYSTEM CONTROLS SO AUTOMATIC VALVES ARE WIDE OPEN TO HEAT EXCHANGERS.
 - 3.7. CHECK PUMP-MOTOR LOAD. IF MOTOR IS OVERLOADED, THROTTLE MAIN FLOW-BALANCING DEVICE SO MOTOR NAMEPLATE RATING IS NOT EXCEEDED.
 - 3.8. CHECK AIR VENTS FOR A FORCEFUL LIQUID FLOW EXITING FROM VENTS WHEN MANUALLY OPERATED.

3.03 PROJECT CLOSE-OUT

- D. AFTER FINAL OPERATION FOR INSPECTION AND ACCEPTANCE, DELIVER ALL COPIES OF OPERATION INSTRUCTIONS, MAINTENANCE MANUALS AND PARTS DESCRIPTIONS TO THE ENGINEER.
- E. ALL TOOLS SUPPLIED WITH THE EQUIPMENT FOR MAINTENANCE SHALL BE TAGGED AND TEMPORARILY SECURED TO THE UNIT, OR TURNED OVER TO THE BUILDING ENGINEER.

END OF SECTION



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MECHANICAL SPECIFICATIONS

M0.05

MECHANICAL MANDATORY MEASURES: NONRESIDENTIAL (Page 2 of 2) MECH-MM

§ 120.1(c).4.	<p>A. CO₂ sensors shall be installed in each room with no less than one sensor per 10,000 ft² of floor space. Signal from any sensor indicating that CO₂ is near or at the set point within a space shall trigger an increase in ventilation to the space (controls shall maintain CO₂ concentrations less than or equal to 600 ppm plus the outdoor air CO₂ concentration).</p> <p>B. CO₂ sensors shall be located in the room between 3ft and 6ft above the floor or at the anticipated height of the occupants heads, and shall have suitable coverage to detect occupants in the entire ventilated space.</p> <p>F. CO₂ sensors shall be certified by the manufacturer to be accurate to within 75 ppm at a 600 and 1000 ppm concentration (when measured at sea level and 25°C), shall be factory calibrated and certified by the manufacturer to require calibration no more frequently than once every 5 years. Detection of sensor failure shall prompt the system to provide a signal resetting the supply minimum of outside air levels to meet levels specified in the plans.</p> <p>G. CO₂ sensor readings for each zone shall be displayed continuously and recorded with DDC to the zone level.</p>
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MECHANICAL MANDATORY MEASURES: NONRESIDENTIAL (Page 1 of 2) MECH-MM

Equipment and System Efficiencies	
§ 110.1	Any appliance for which there is a California standard established in the Appliance Efficiency Regulations will comply with the applicable standard.
§ 120.4(a)	Air distribution duct systems shall be installed, sealed and insulated to meet the requirements of the 2016 CMC Sections 601, 602, 603, 604, 605, and ANSI/SMACNA-006-2006 HVAC Duct Construction Standards Metal and Flexible (3rd edition). Portions of supply or return air conveying heated or cooled air in any unconditioned space shall be insulated to a minimum installed level of R-8.
§ 120.4(b)	All duct and plenum materials (including collars, connections, and splices) for factory- and field-fabricated duct systems shall comply with UL 181, and be labeled as complying with UL 181.
§ 120.3	Piping for all space-conditioning and service water-heating systems, except that conveying fluids between 60°F and 105°F, shall be insulated in accordance with Standards Section 120.3.
§ 120.3 & § 120.4(f)	All insulation shall be protected from damage (including that due to sunlight, moisture, maintenance, and wind). Insulation exposed to weather shall be protected and suitable for outdoor service (protected by aluminum, sheet metal, painted canvas, plastic cover). Cellular foam insulation shall be protected as previously stated or painted with a coating that is water-retardant and provides shielding from solar radiation.
Controls	
§ 120.2(a&b)	Each space conditioning system shall be controlled by an individual thermostat that responds to temperature within the zone. Where used to control heating, the control shall be adjustable down to 55°F or lower. For cooling, control shall be adjustable up to 85°F or higher. Where used to control both heating and cooling, the control shall be capable of providing a deadband of at least 5°F within which the supply of heating and cooling is shut off or reduced to a minimum.
§ 120.2(d)	All heat pumps shall be installed with controls to prevent electric resistance supplementary operation when the heating load can be met by the heat pump alone.
§120.2(e).1.	Each space conditioning system shall be capable of automatically shutting off the system during periods of nonuse and shall have: <ul style="list-style-type: none"> A. An automatic time switch control device complying with Standards Section 110.9, with an accessible manual override that allows operation of the system for up to 4 hours; or B. An occupancy sensor; or C. A 4-hour timer that can be manually operated.
§120.2(e).2.	Each space conditioning system shall be installed with controls that temporarily restart and temporarily operate the system as required to maintain a setback and/or a setup cooling thermostat setpoint.
§ 120.2(f)	Except in areas where equipment must operate continuously and where prohibited by other provisions of law, outdoor air supply and exhaust equipment shall be installed with dampers that automatically close upon fan shutdown.
§ 120.2(g)	Each space conditioning system serving multiple zones with a combined conditioned floor area more than 25,000 square feet shall be provided with isolation zones. Each zone: shall not exceed 25,000 sq. feet; shall be provided with isolation devices, such as valves or dampers that allow the supply of heating or cooling to be setback or shut down independently of other isolation areas; and shall be controlled by a time control device as described above.
§ 120.2(h)	<p>HVAC systems with DDC to the Zone level shall be programmed to allow centralized demand shed for non-critical zones as follows:</p> <ol style="list-style-type: none"> 1. The controls shall have a capability to remotely setup the operating cooling temperature set points by 4 degrees or more in all non-critical zones on signal from a centralized contact or software point within an Energy Management Control System (EMCS). 2. The controls shall have a capability to remotely setdown the operating heating temperature set points by 4 degrees or more in all non-critical zones on signal from a centralized contact or software point within an EMCS. 3. The controls shall have capabilities to remotely reset the temperatures in all non-critical zones to original operating levels on signal from a centralized contact or software point within an EMCS. 4. The controls shall be programmed to provide an adjustable rate of change for the temperature setup and reset. 5. The controls shall have the following features: <ul style="list-style-type: none"> A. Disabled. Disabled by authorized facility operators; and B. Manual control. Manual control by authorized facility operators to allow adjustment of heating and cooling set points globally from a single point in the EMCS; and C. Automatic Demand Shed Control. Upon receipt of a demand response signal, the space-conditioning systems shall conduct a centralized demand shed, as specified in Sections 120.2(h)1 and 120.2(h)2, for non-critical zones during the demand response period.
Ventilation	
§ 120.1(e)	Controls shall be provided to allow outside air dampers or devices to be operated at the specified ventilation rates. All variable air volume mechanical ventilation and space conditioning systems shall include dynamic controls that maintain measured outside air ventilation rates within 10 percent of specified ventilation rates.



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**MECHANICAL TITLE 24
ENERGY COMPLIANCE FORMS**

M0.07

SPLIT SYSTEM DX AIR HANDLING UNIT SCHEDULE

TAG	SERVICE	LOCATION	REFRIGERANT	EVAPORATOR FAN			COOLING CAPACITY				HEATING CAPACITY				FILTER			ELECTRIC DATA		VIBRATION ISOLATION			OPERATING WEIGHT (LB)	DIMENSIONS			MANUFACTURER	MODEL	NOTES					
				CFM	ESP (IN WG)	MOTOR			EAT		LAT		CAPACITY (MBH)		EAT		LAT		HEATING CAPACITY (MBH)	TYPE	QTY.	SIZE (IN.)		V/PH/Hz	FLA / MCA / MOCP	SPECIFICATION				MIN. STATIC DEFLECTION (IN)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	
						TYPE	QTY.	RPM	DB °F	WB °F	DB °F	WB °F	TOTAL	SENSIBLE	DB °F	WB °F	DB °F	WB °F								MOUNTING TYPE								BASE TYPE
AHU-9-1	NINTH FLOOR NE EMR	NINTH FLOOR NE EMR	R-410A	920	0.3	ECM	1	-	85	72	55	53	33.1	33.1	65	54	90	64	37.0	ANTI-ALLERGY	1	-	208 / 1 / 60	0.57 / 1 / -	WALL MOUNTED	-	-	46	46.0	11.6	14.4	mitsubishi	PKA-A36KA6	1, 2, 3
AHU-9-2	NINTH FLOOR SW EMR	NINTH FLOOR SW EMR	R-410A	920	0.3	ECM	1	-	85	72	55	53	33.4	33.4	65	54	90	64	37.0	ANTI-ALLERGY	1	-	208 / 1 / 60	0.57 / 1 / -	WALL MOUNTED	-	-	46	46.0	11.6	14.4	mitsubishi	PKA-A36KA6	1, 2, 3

- NOTES:
 1. PROVIDE UNIT WITH STAINLESS STEEL PRIMARY DRAIN PAN, CONDENSATE PUMP, 7-DAY PROGRAMMABLE THERMOSTAT, SWEAT ADAPTER KIT, AND DISCONNECT SWITCH.
 2. UNIT SHALL OPERATE 24/7.
 3. PROVIDE CONDENSATE PUMP "LITTLE GIANT" VCL-24ULS 120V, 1/18 HP, 230 GPH AT 7' HEAD, WITH SAFETY SWITCH.

AIR COOLED HEAT PUMP UNIT SCHEDULE

UNIT NO.	SERVICE	LOCATION	REFRIGERANT	NOMINAL CAPACITY (TONS)	AMBIENT AIR TEMP. (°F)	CONDENSER COIL		CONDENSER FAN (S)				COMPRESSOR (S)		ELECTRIC DATA		DIMENSIONAL DATA		VIBRATION ISOLATION			BASIS OF DESIGN		NOTES
						FACE AREA (SQ. FT.)	NO. OF ROWS	TYPE	QTY.	CFM (TOTAL)	RPM	NO.	TYPE	V/PH/Hz	FLA / MCA / MOCP	LxWxH (IN)	WEIGHT (LB.)	SPECIFICATION		MIN. STATIC DEFLECTION (IN)	MANUFACTURER	MODEL NO.	
																		MOUNTING TYPE	BASE TYPE				
HP-9-1	AHU-9-1	NINTH FLOOR ROOF	R-410A	3.0	100	-	-	ECM	1	1,940	-	1	DC INVERTER	208 / 1 / 60	0.75 / 25 / 40	37.1 / 13.1 / 37.2	165	NEOPRENE PAD	ROOF CURB	0.25	mitsubishi	PUZ-A36NHA6	1, 2
HP-9-2	AHU-9-2	NINTH FLOOR ROOF	R-410A	3.0	100	-	-	ECM	1	1,940	-	1	DC INVERTER	208 / 1 / 60	0.75 / 25 / 40	37.1 / 13.1 / 37.2	165	NEOPRENE PAD	ROOF CURB	0.25	mitsubishi	PUZ-A36NHA6	1, 2

- NOTES:
 1. PROVIDE UNIT WITH FACTORY INSTALLED DISCONNECT SWITCH.
 2. PROVIDE POWERED CONVENIENCE RECEPTACLE ADJACENT TO UNIT.

VARIABLE REFRIGERATE FLOW ZONING SYSTEM / INDOOR FAN COIL UNITS

TAG	SERVICE	LOCATION	REFRIGERANT	EVAPORATOR FAN			COOLING CAPACITY				HEATING CAPACITY				FILTER			ELECTRIC DATA		VIBRATION ISOLATION			OPERATING WEIGHT (LB)	DIMENSIONS			MANUFACTURER	MODEL	NOTES					
				CFM	ESP (IN WG)	MOTOR			EAT		LAT		CAPACITY (MBH)		EAT		LAT		HEATING CAPACITY (MBH)	TYPE	QTY.	SIZE (IN.)		V/PH/Hz	FLA / MCA / MOCP	SPECIFICATION				MIN. STATIC DEFLECTION (IN)	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	
						TYPE	QTY.	RPM	DB °F	WB °F	DB °F	WB °F	TOTAL	SENSIBLE	DB °F	WB °F	DB °F	WB °F								MOUNTING TYPE								BASE TYPE
FCU-9-1	NINTH FLOOR MAIN EMR	NINTH FLOOR MAIN EMR	R-410A	2500	0.5	DIRECT DRIVE DC	2	-	85	72	55	53	74.5	74.5	55	46	90	62	80.0	MERV 13	2	24 x 24 X 4	208 / 1 / 60	3.7 / 7.7 / 15	SPRING ISOLATOR	-	1	214	44	49	19	mitsubishi	PEFY-P72NMHSU-E	1 THRU 7
FCU-9-2	NINTH FLOOR MAIN EMR	NINTH FLOOR MAIN EMR	R-410A	2500	0.5	DIRECT DRIVE DC	2	-	85	72	55	53	74.5	74.5	55	46	90	62	80.0	MERV 13	2	24 x 24 X 4	208 / 1 / 60	3.7 / 7.7 / 15	SPRING ISOLATOR	-	1	214	44	49	19	mitsubishi	PEFY-P72NMHSU-E	1 THRU 7
FCU-9-3	NINTH FLOOR MAIN EMR	NINTH FLOOR MAIN EMR	R-410A	2500	0.5	DIRECT DRIVE DC	2	-	85	72	55	53	74.5	74.5	55	46	90	62	80.0	MERV 13	2	24 x 24 X 4	208 / 1 / 60	3.7 / 7.7 / 15	SPRING ISOLATOR	-	1	214	44	49	19	mitsubishi	PEFY-P72NMHSU-E	1 THRU 7
FCU-9-4	NINTH FLOOR MAIN EMR	NINTH FLOOR MAIN EMR	R-410A	2500	0.5	DIRECT DRIVE DC	2	-	85	72	55	53	74.5	74.5	55	46	90	62	80.0	MERV 13	2	24 x 24 X 4	208 / 1 / 60	3.7 / 7.7 / 15	SPRING ISOLATOR	-	1	214	44	49	19	mitsubishi	PEFY-P72NMHSU-E	1 THRU 7

- NOTES:
 1. PROVIDE UNIT WITH STAINLESS STEEL PRIMARY DRAIN PAN, GALVANIZED STEEL SECONDARY DRAIN PAN, CONDENSATE PUMP, FILTER BOX, AND DISCONNECT SWITCH.
 2. PROVIDE SUPPLY DUCT SMOKE DETECTOR AND TIE-IN TO BASE BUILDING FIRE ALARM SYSTEM. UNIT TO SHUT DOWN UPON ACTIVATION OF ALARM.
 3. PROVIDE WATER LEAK DETECTOR IN DRAIN PAN, ALARM SHALL BE ACTIVATED IF LEAK IS DETECTED.
 4. PROVIDE UNIT WITH DDC CONTROLLER AND TIE-IN TO BASE BUILDING BMS. UPDATE GRAPHICS ACCORDINGLY. COORDINATE WITH BUILDING ENGINEER FOR BMS INTEGRATION.
 5. PROVIDE 7-DAY PROGRAMMABLE DIGITAL THERMOSTAT TO MATCH BASE BUILDING STANDARD.
 6. PROVIDE CONDENSATE PUMP "LITTLE GIANT" VCL-24ULS 120V, 1/18 HP, 230 GPH AT 7' HEAD, WITH SAFETY SWITCH.
 7. UNIT SHALL OPERATE 24/7.

VARIABLE REFRIGERANT FLOW ZONING SYSTEM / OUTDOOR CONDENSING UNIT AND BC CONTROLLER

UNIT NO.	SERVICE	LOCATION	REFRIGERANT	NOMINAL CAPACITY (TONS)	AMBIENT AIR TEMP. (°F)	CONDENSER COIL		CONDENSER FAN (S)				COMPRESSOR (S)		ELECTRIC DATA		DIMENSIONAL DATA		VIBRATION ISOLATION			BASIS OF DESIGN		NOTES
						FACE AREA (SQ. FT.)	NO. OF ROWS	TYPE	QTY.	CFM (TOTAL)	RPM	NO.	TYPE	V/PH/Hz	FLA / MCA / MOCP	LxWxH (IN)	WEIGHT (LB.)	SPECIFICATION		MIN. STATIC DEFLECTION (IN)	MANUFACTURER	MODEL NO.	
																		MOUNTING TYPE	BASE TYPE				
CU-9-1	BCC-9-1	NINTH FLOOR ROOF	R-410A	26	100	-	-	ECM	5	28,400	-	3	INVERTER SCROLL	(3) @ 460 / 3 / 60	(2) @ - / 19 / 30 (1) @ - / 11 / 15	(2) @ 69.0 x 29.2 x 65.0 (1) @ 36.3 x 29.2 x 65.0	1,880	NEOPRENE PAD	ROOF CURB	0.25	mitsubishi	PUHY-P312YSLMU-A	1, 2, 5
BCC-9-1	FCU-9-1, 2, 3	NINTH FLOOR MAIN EMR	R-410A	20	-	-	-	-	-	-	-	-	-	208 / 1 / 60	- / 1.93 / 15	43.8 x 20.5 x 11.4	172	SPRING ISOLATOR	-	1	mitsubishi	CMB-P1016NU-HA	3, 4

- NOTES:
 1. PROVIDE UNIT WITH EXTERNAL DISCONNECT SWITCH, HIGH PRESSURE SENSOR AND SWITCH, OVERHEAT PROTECTION / THERMAL SWITCH, AND OVER-CURRENT PROTECTION AND TWINNING KIT.
 2. PROVIDE UNIT WITH DDC CONTROLLER AND TIE-IN TO BASE BUILDING BMS. UPDATE GRAPHICS ACCORDINGLY. COORDINATE WITH BUILDING ENGINEER BMS INTEGRATION.
 3. PROVIDE UNIT WITH STAINLESS STEEL PRIMARY DRAIN PAN, GALVANIZED STEEL SECONDARY DRAIN PAN, AND CONDENSATE PUMP
 4. PROVIDE UNIT WITH ISOLATION BALL VALVE AT EACH PORT. BOD: DIAMOND BALL VALVES BV-SERIES, 700PSIG WORKING PRESSURES, FULL PORT, 410A RATED.
 5. PROVIDE POWERED CONVENIENCE RECEPTACLE ADJACENT TO UNIT.



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 Culver City, CA 90230
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 Fax: 310.665.0172
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1	8/2/2016	100% SD
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9	11/01/2017	BID SET

METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION
 1945 S Hill St. Los Angeles, CA 90007

MECHANICAL SCHEDULES

DIFFUSER SCHEDULE

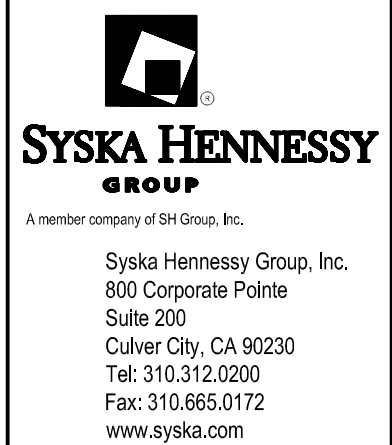
MARK NO.	TYPE	CFM RANGE	MAX. SP (IN.)	FRAME SIZE	NECK SIZE	MAX N.C.	REMARKS
SG-1	SUPPLY GRILLE	0-500	0.06	20 X 6	20 X 6	30	TITUS 300FL - DUCTED LOUVERED SUPPLY

NOTES:
 1. COORDINATE FRAME STYLE WITH FRAMING.
 2. OBTAIN ARCHITECT'S APPROVAL FOR FINISH.

BRANCH DUCT SCHEDULE

CFM	ROUND DUCT (IN)	RECTANGULAR DUCT (IN)					
		W x 4	W x 6	W x 8	W x 10	W x 12	W x 14
UP TO 120	6	8	6	X	X	X	X
120 - 150	8	10	8	X	X	X	X
151 - 240	8	16	10	8	X	X	X
241 - 320	10	X	12	10	X	X	X
321 - 420	10	X	16	12	10	X	X
421 - 500	12	X	X	14	10	X	X
501 - 660	12	X	X	16	12	X	X
661 - 850	14	X	X	20	14	12	X
851 - 1000	14	X	X	22	16	14	X
1001 - 1200	16	X	X	26	20	16	14
1201 - 1400	16	X	X	30	24	18	16
1401 - 1700	X	X	X	34	26	20	18

NOTES:
 1. THIS SCHEDULE APPLIES TO BRANCH DUCT TO INDIVIDUAL DIFFUSERS THAT ARE NOT SIZED ON PLANS .
 2. APPLICABLE FOR LOW PRESSURE DUCT WORK ONLY (<2" WG).
 3. "W" INDICATED IN THE SCHEDULE IS DUCT WIDTH.

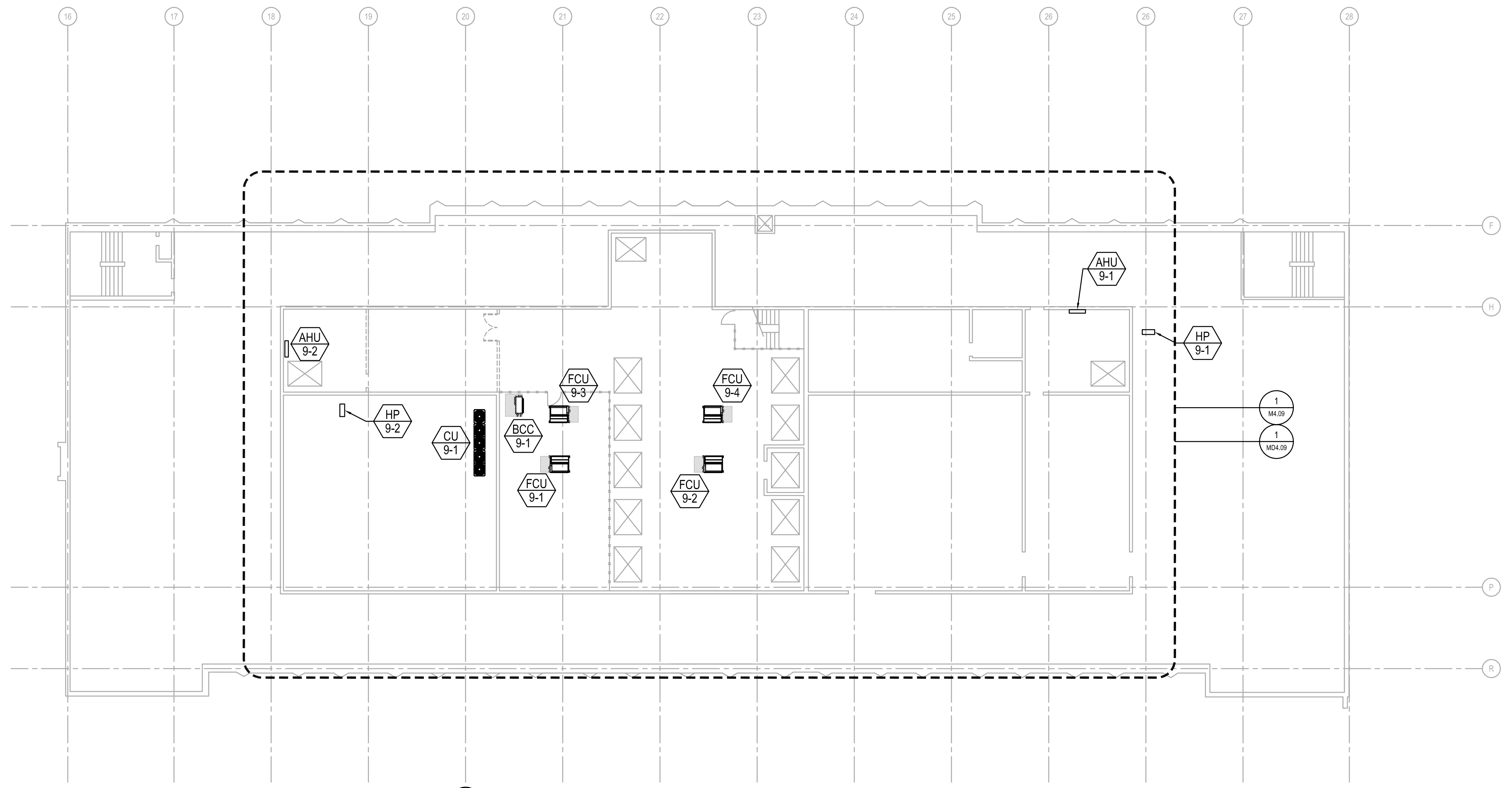


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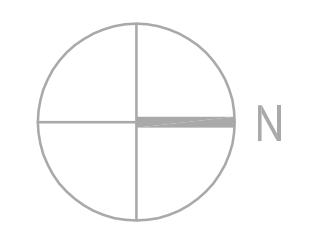
METROPOLITAN COURTHOUSE ELEVATOR MODERNIZATION
 1945 S Hill St, Los Angeles, CA 90007

MECHANICAL SCHEDULES

M0.09



1 OVERALL NINTH FLOOR MECHANICAL PLAN
1/16" = 1'-0"



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OVERALL NINTH FLOOR
MECHANICAL PLAN

M2.09

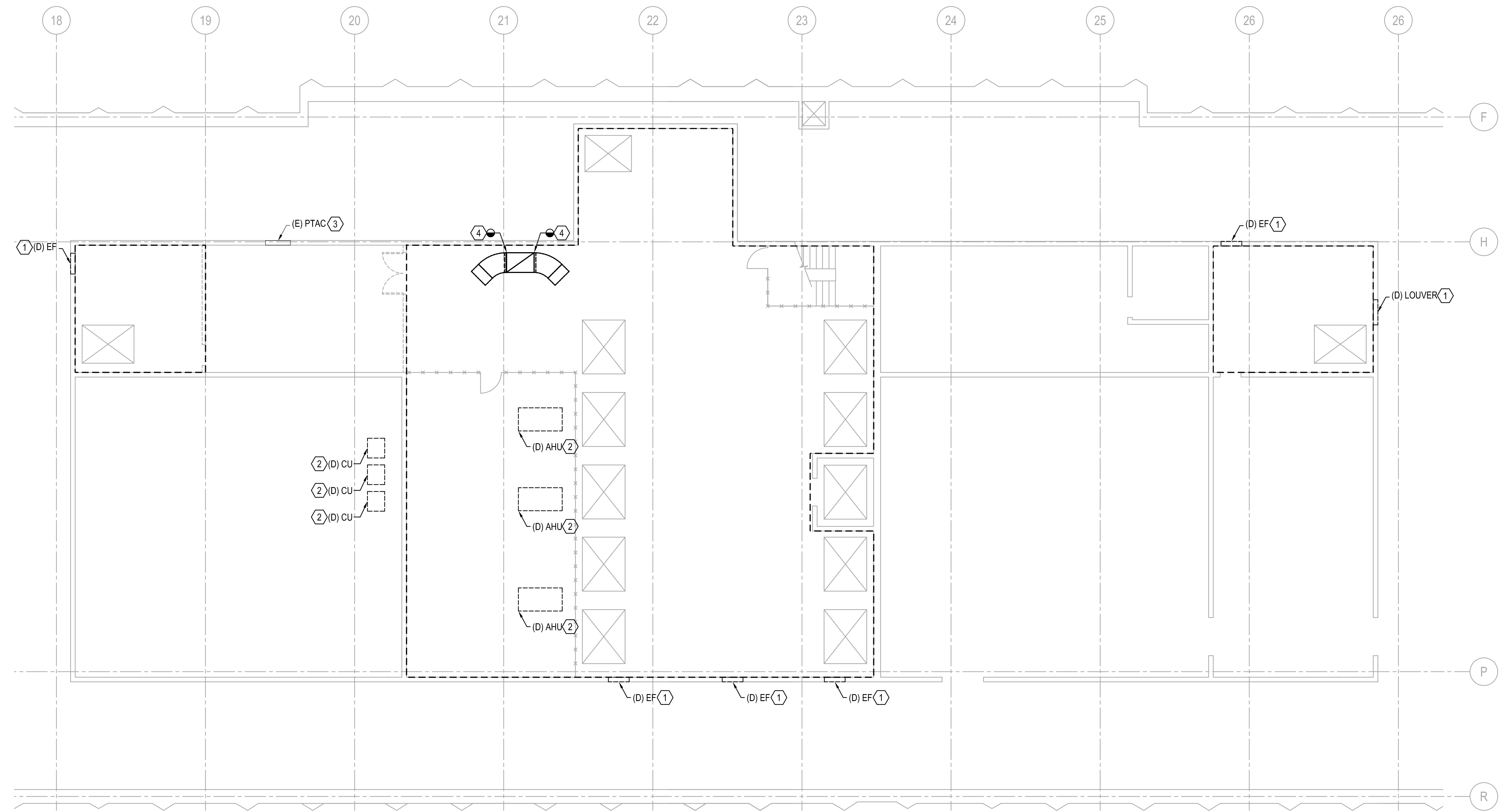
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**METROPOLITAN
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**ENLARGED NINTH FLOOR
 MECHANICAL DEMO PLAN**

**ENLARGED NINTH FLOOR
 MECHANICAL DEMO PLAN**

MD4.09



1 ENLARGED NINTH FLOOR MECHANICAL PLAN
1/8" = 1'-0"

KEY NOTES

- ALL EXISTING WALL/ROOF/FLOOR OPENINGS AND/OR LOUVERS WITHIN THE INDICATED ELEVATOR MACHINE ROOM SHALL BE DEMOLISHED AND SEALED, INCLUDING ANY ASSOCIATED FANS AND/OR DUCTWORK
- DEMOLISH EXISTING AIR HANDLER UNITS AND ASSOCIATED ROOF-MOUNTED CONDENSER UNITS SERVING THE MAIN ELEVATOR MACHINE ROOM, INCLUDING ALL ASSOCIATED DUCTWORK, CONTROLS AND REFRIGERANT PIPING INFRASTRUCTURE.
- EXISTING PTAC UNIT TO REMAIN.
- DEMO EXISTING DUCTWORK TO POINT OF DISCONNECT. CUT AND CAP AT FLOOR PENETRATION.

GENERAL NOTES

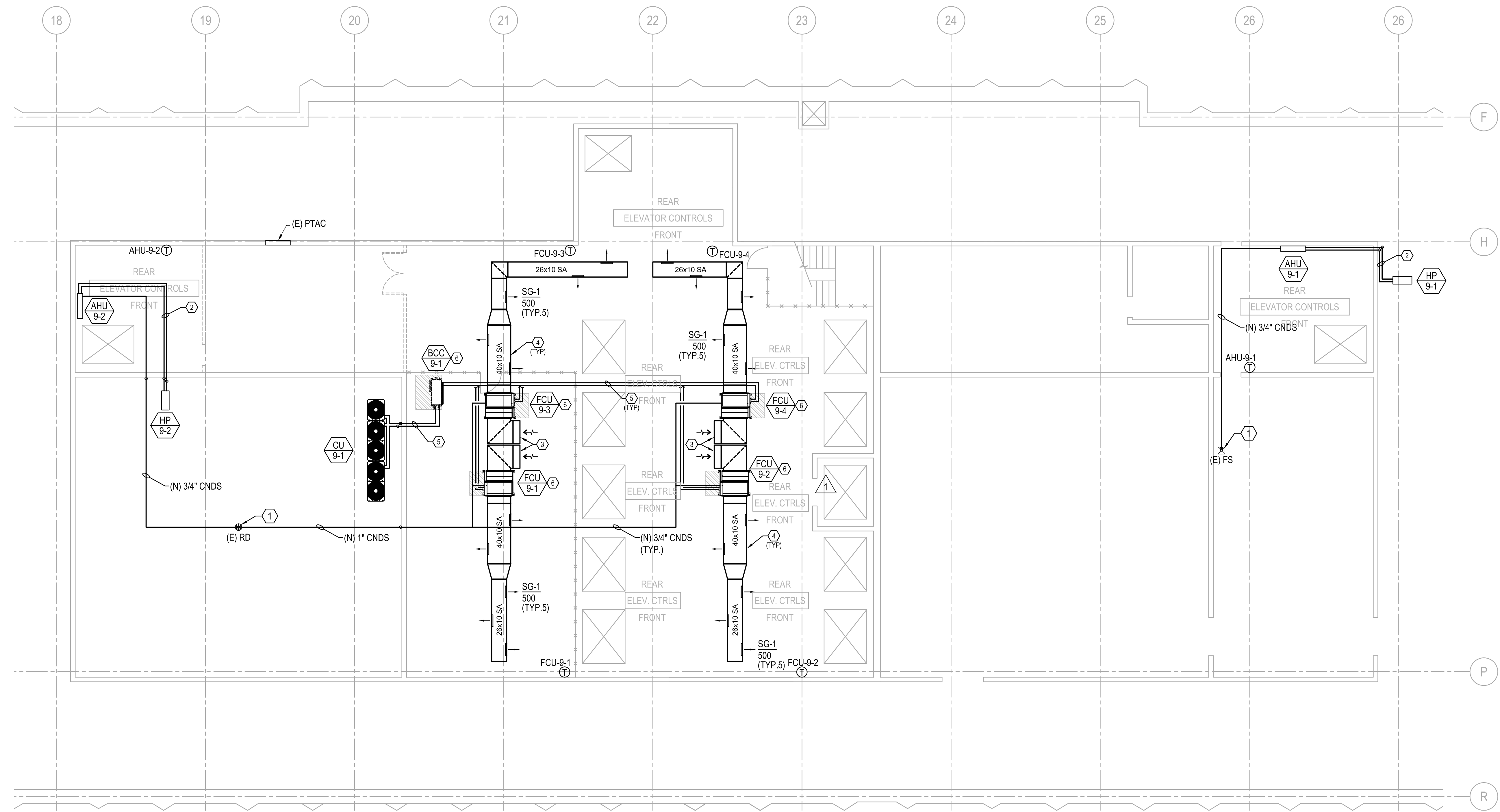
- EXISTING CONDITIONS ARE PER AS-BUILT DRAWINGS AND SYSKA SITE SURVEY. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO DEMOLITION AND INSTALLATION OF ANY WORK.
- CONTRACTOR SHALL COORDINATE ALL HVAC AND BUILDING CONTROLS, SEQUENCES OF OPERATION, AND INTERLOCKS FOR THE SPACE WITH THE CHIEF BUILDING ENGINEER TO ENSURE THAT ALL WORK IS IN CONFORMANCE WITH THE BUILDING REQUIREMENTS.
- ALL ABANDONED AND UNUSED EQUIPMENT, INCLUDING, BUT NOT LIMITED TO PIPING AND DUCTWORK SHALL BE REMOVED.
- CONTRACTOR SHALL COORDINATE THE INSTALLATION AND ROUTING OF NEW PIPING AND DUCTWORK WITH EXISTING CONDITIONS IN THE FIELD.
- BRANCH DUCT SIZES PER SCHEDULE ON SHEET M-004. TRANSITION AS REQUIRED AT POINT OF CONNECTION.
- REFER TO BRANCH DUCT SCHEDULE ON SHEET M-004 WHEN SIZING DUCT FOR NARROW PATHS DUE TO BEAM INTERFERENCE.
- CONTRACTOR SHALL PROVIDE BEAM BOXES AND TRANSITIONS AT LOCATIONS OF EXISTING DEEP BEAMS. ALL LOCATIONS TO BE VERIFIED IN FIELD, TYP.

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		50% CD
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**ENLARGED NINTH FLOOR
 MECHANICAL PLAN**

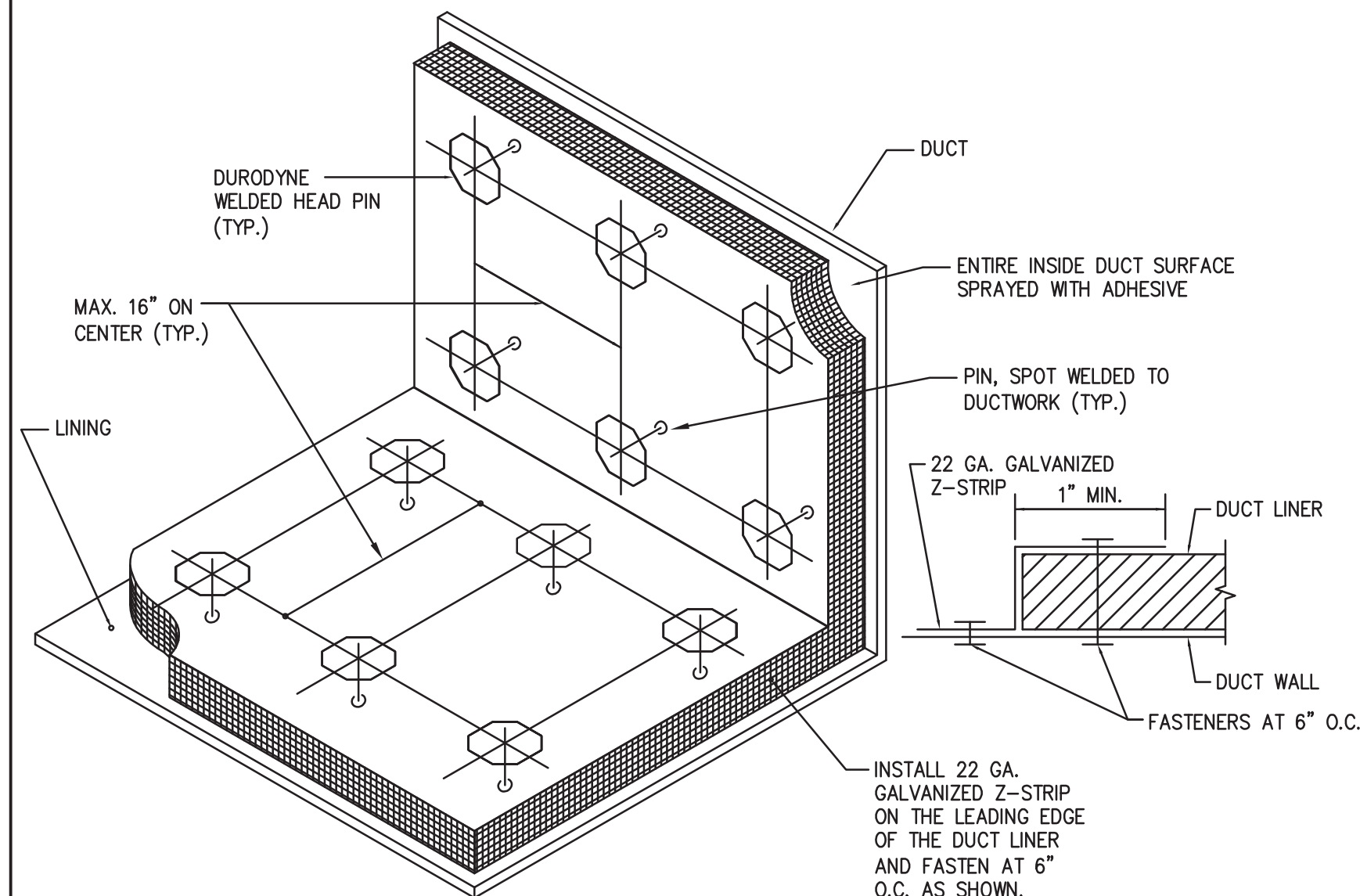
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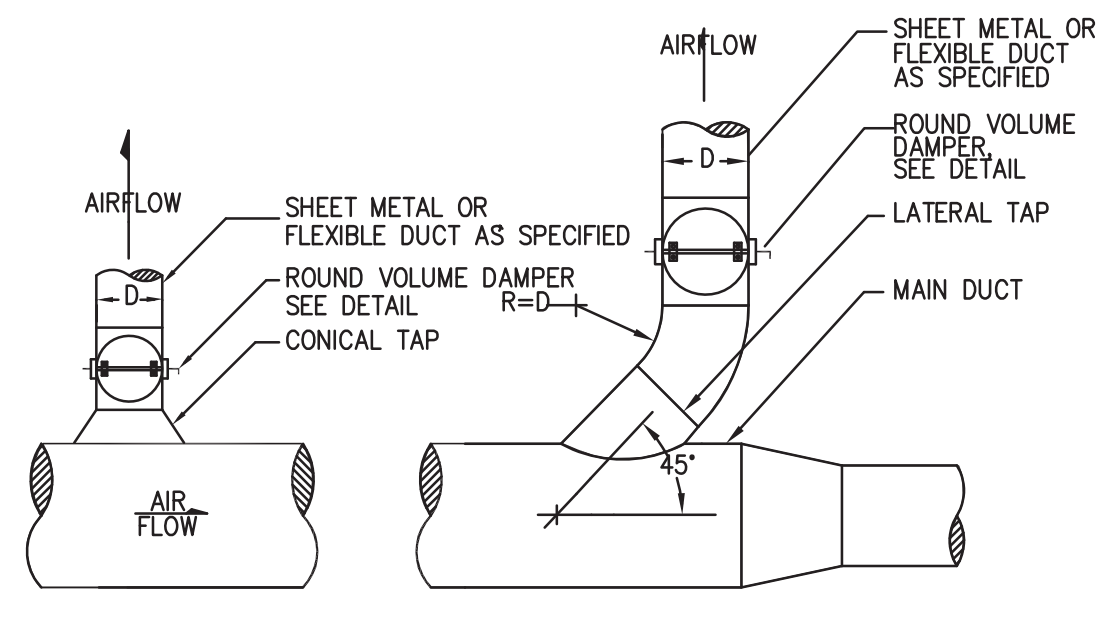
1 ENLARGED NINTH FLOOR MECHANICAL PLAN
1/8" = 1'-0"

- KEY NOTES**
- ROUTE (N) CONDENSATE DRAIN TO (E) APPROVED RECEPTACLE (FS/RD). MINIMUM 1" AIR GAP AT DISCHARGE.
 - (N) REFRIGERANT LINES CONNECTING BETWEEN (N) AHU IN ELEVATOR MACHINE ROOM TO (N) HP ON ROOF. CONTRACTOR TO COORDINATE WITH FIELD CONDITIONS FOR EXACT PIPE ROUTING.
 - OPEN-ENDED DUCT TERMINATION. PROVIDE SCREEN MESH AT DUCT TERMINATION.
 - ROUTE DUCTWORK TIGHT TO STRUCTURE ABOVE.
 - (N) REFRIGERANT LINES CONNECTING BETWEEN (N) FCU'S TO (N) BCC IN ELEVATOR MACHINE ROOM TO (N) CU ON ROOF. CONTRACTOR TO COORDINATE WITH FIELD CONDITIONS FOR EXACT PIPE ROUTING.
 - UNIT SHALL BE MOUNTED TIGHT TO STRUCTURE AS FEASIBLE. BOTTOM OF UNIT SHALL BE NOT LESS THAN 7 FEET 6 INCHES AFF, PER CBC 1003.2.

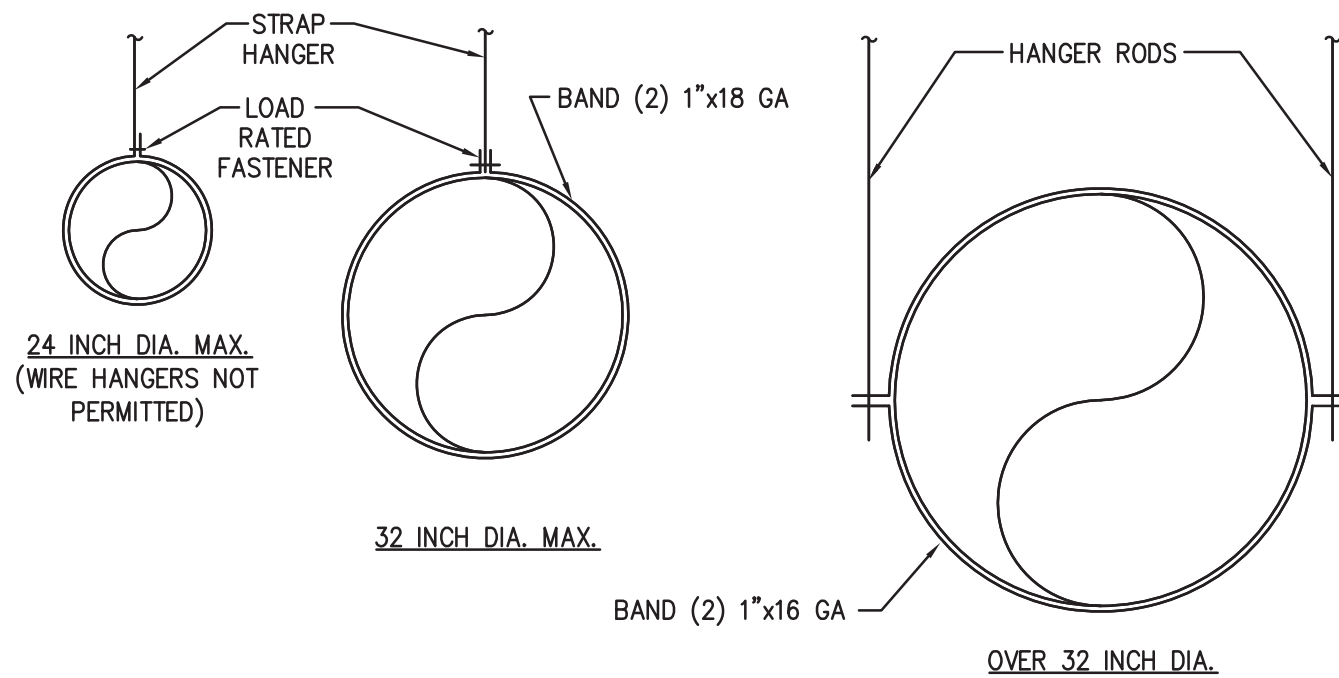
- GENERAL NOTES**
- EXISTING CONDITIONS ARE PER AS-BUILT DRAWINGS AND SYSKA SITE SURVEY. CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO DEMOLITION AND INSTALLATION OF ANY WORK.
 - CONTRACTOR SHALL COORDINATE ALL HVAC AND BUILDING CONTROLS, SEQUENCES OF OPERATION, AND INTERLOCKS FOR THE SPACE WITH THE CHIEF BUILDING ENGINEER TO ENSURE THAT ALL WORK IS IN CONFORMANCE WITH THE BUILDING REQUIREMENTS.
 - ALL ABANDONED AND UNUSED EQUIPMENT, INCLUDING, BUT NOT LIMITED TO PIPING AND DUCTWORK SHALL BE REMOVED.
 - CONTRACTOR SHALL COORDINATE THE INSTALLATION AND ROUTING OF NEW PIPING AND DUCTWORK WITH EXISTING CONDITIONS IN THE FIELD.
 - BRANCH DUCT SIZES PER SCHEDULE ON SHEET M-004. TRANSITION AS REQUIRED AT POINT OF CONNECTION.
 - REFER TO BRANCH DUCT SCHEDULE ON SHEET M-004 WHEN SIZING DUCT FOR NARROW PATHS DUE TO BEAM INTERFERENCE.
 - CONTRACTOR SHALL PROVIDE BEAM BOXES AND TRANSITIONS AT LOCATIONS OF EXISTING DEEP BEAMS. ALL LOCATIONS TO BE VERIFIED IN FIELD, TYP.
 - THE EXISTING ELEVATOR MACHINE ROOMS ARE PRESSURIZED PER CBC 3005.3 UPON ACTIVATION OF EXISTING SMOKE/HEAT DETECTORS. THIS FUNCTIONALITY SHALL REMAIN.



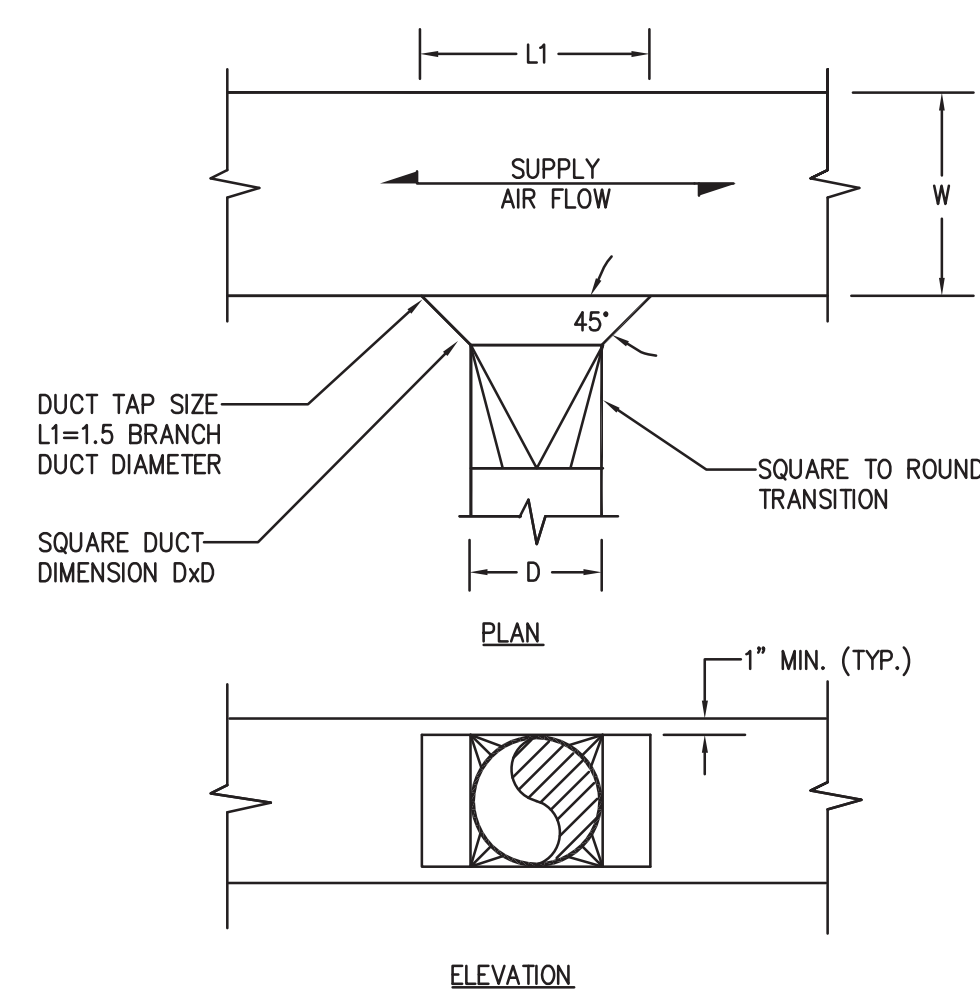
5 DUCT LINING INSTALLATION
SCALE: NONE



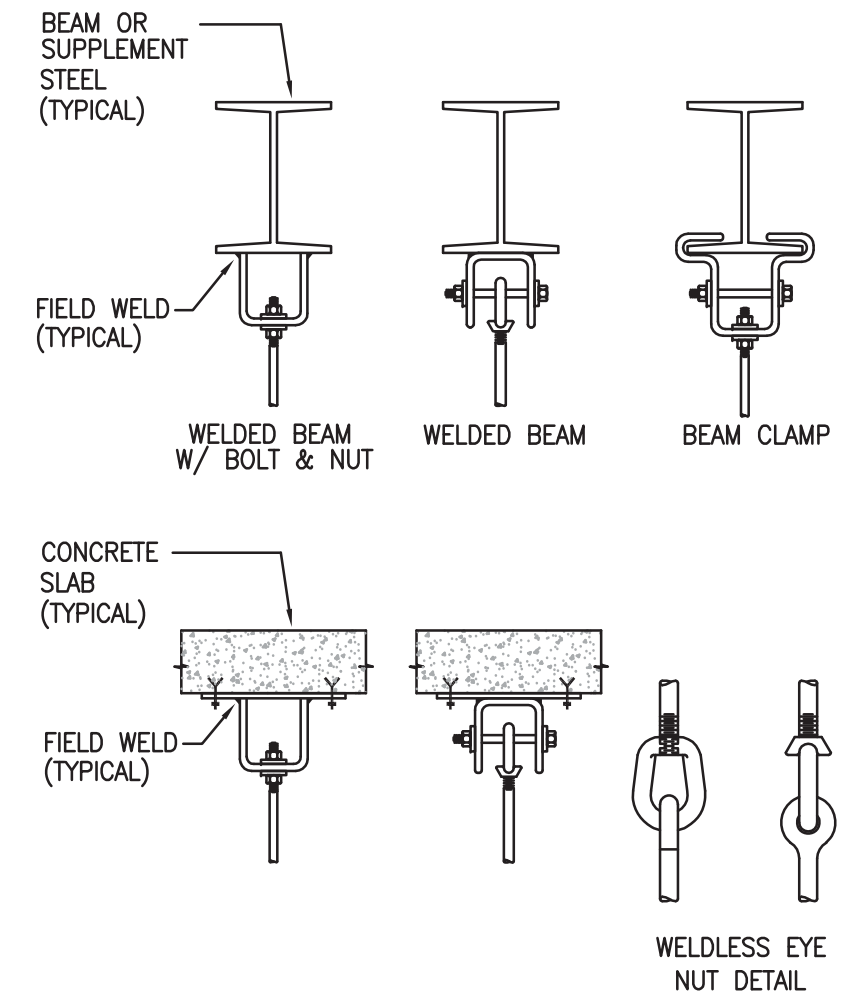
3 CIRCULAR DUCT WITH/WITHOUT VOLUME DAMPER
SCALE: NONE



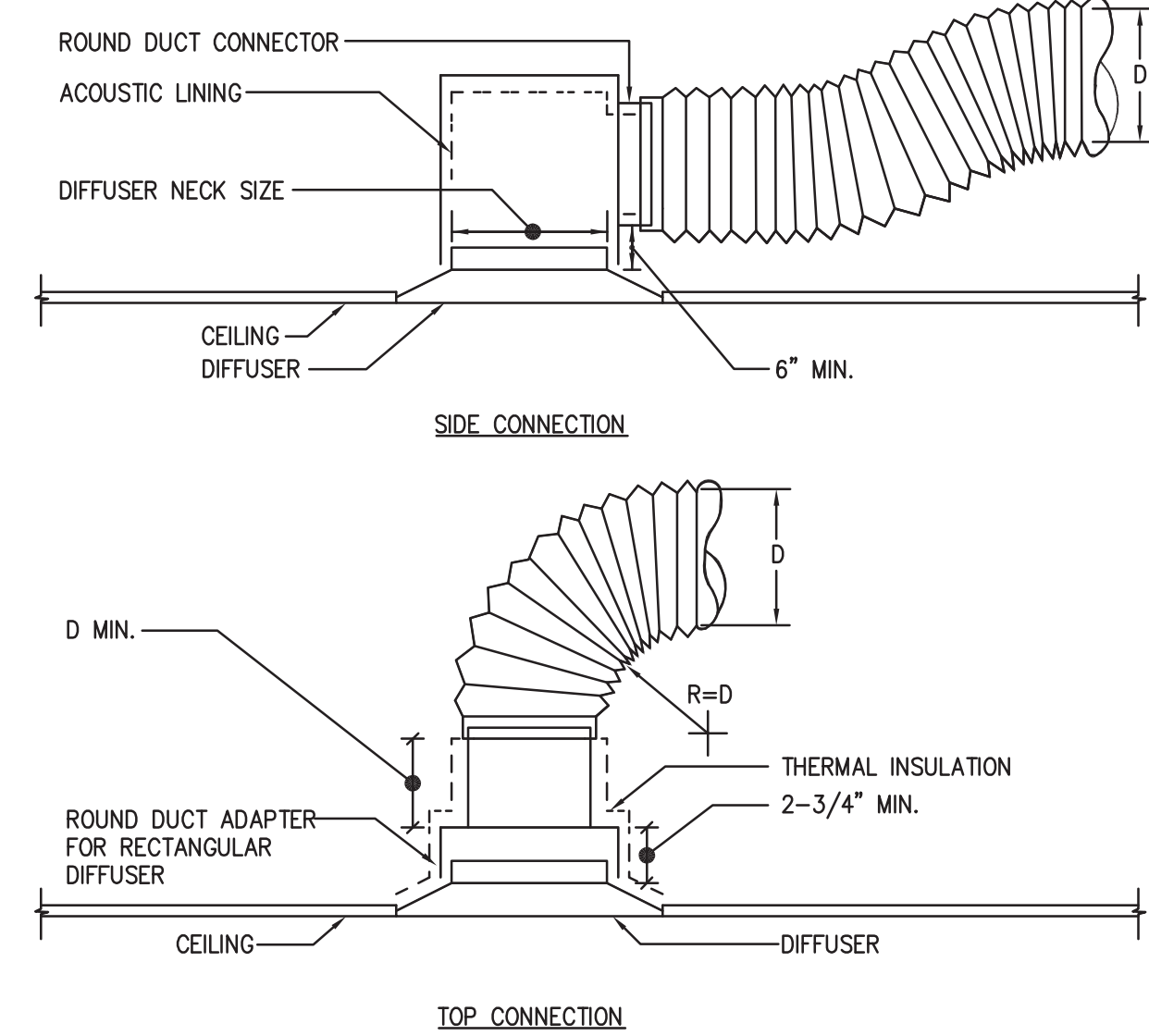
1 HORIZONTAL ROUND DUCT SUPPORTS
SCALE: NONE



6 RECTANGULAR TO ROUND BRANCH TAP
SCALE: NONE



4 ACCEPTABLE ATTACHMENT
SCALE: NONE



2 DIFFUSER CONNECTION DETAIL
SCALE: NONE

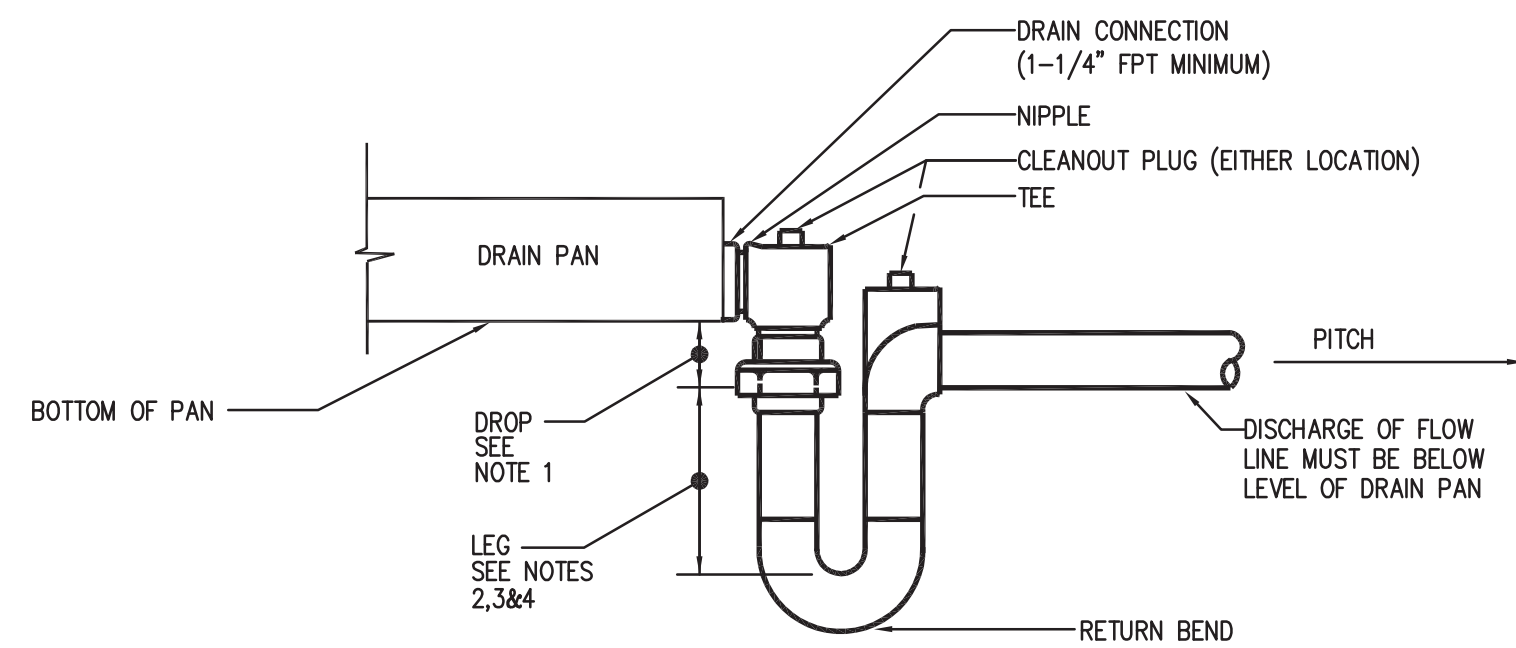


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1945 S Hill St. Los Angeles, CA 90007

MECHANICAL DETAILS

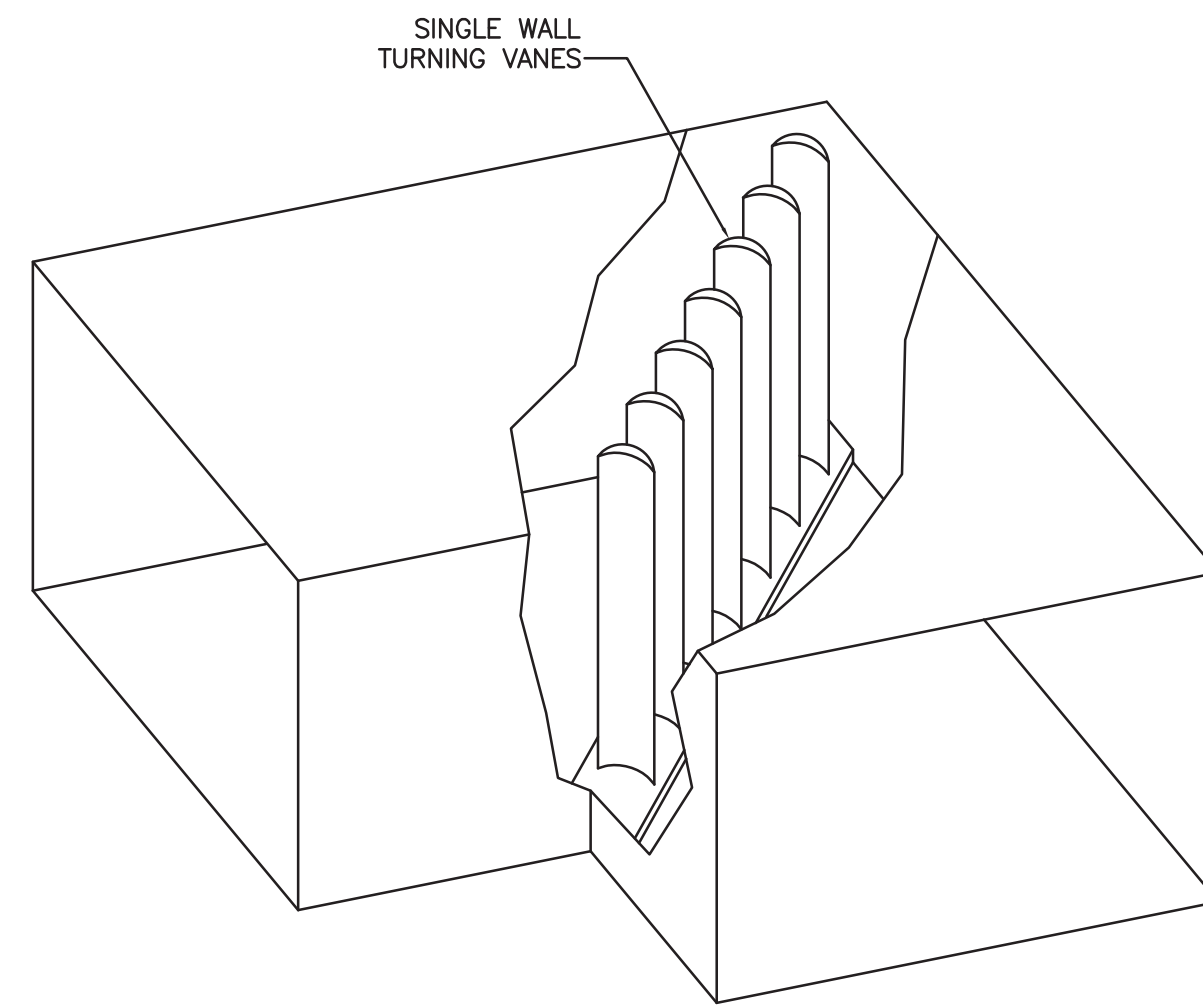
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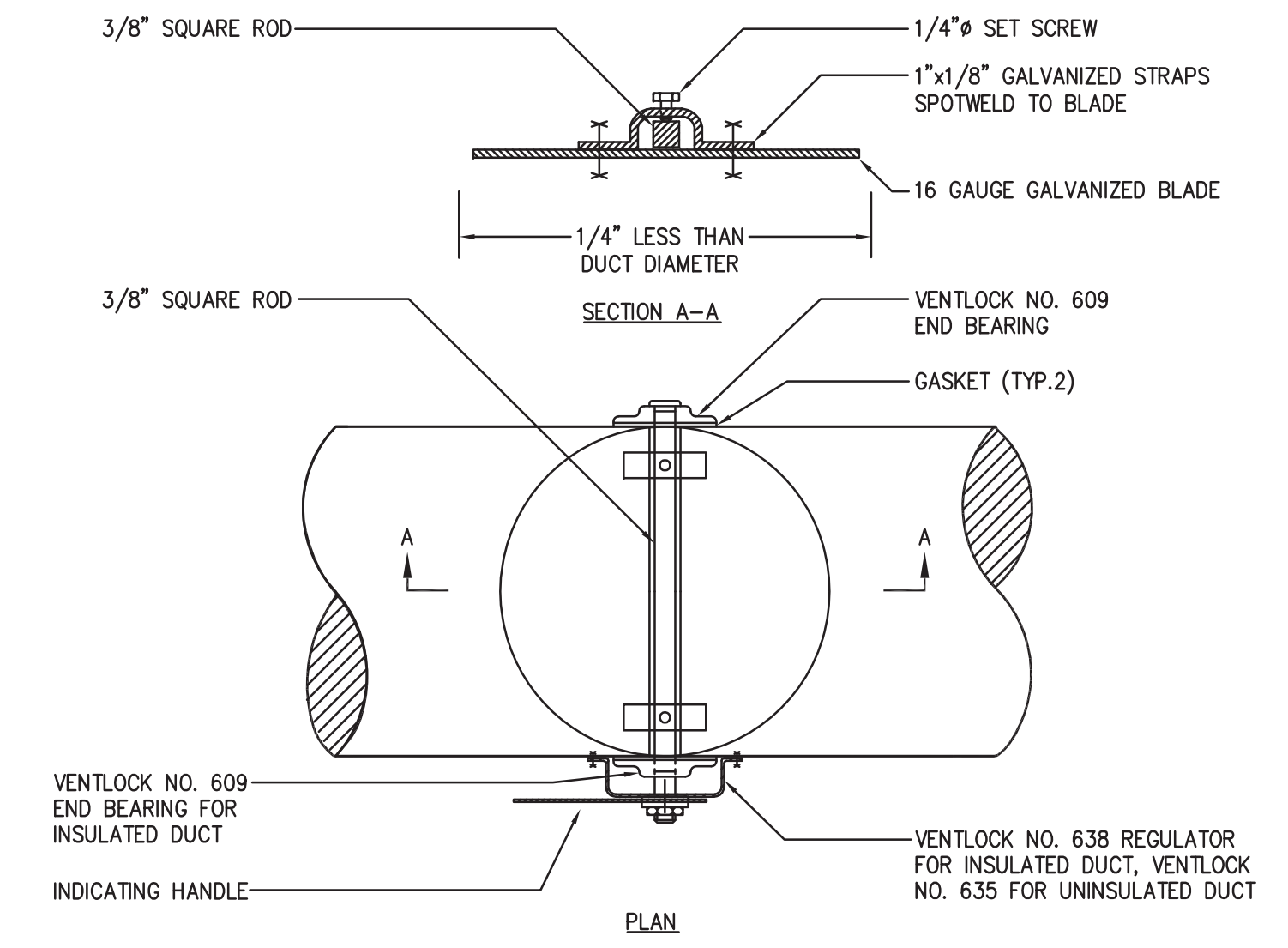
NOTES:

1. 1" MIN DROP REQUIRED. IF DRAW THRU, DROP=NEGATIVE STATIC PRESSURE AT FAN INLET.
2. BLOW-THRU UNIT: LEG=DISCHARGE PRESSURE OF FAN + 1.
3. DRAW-THRU UNIT: LEG=ONE HALF NEGATIVE INTERNAL STATIC PRESSURE AT FAN INLET + 1.
4. MANUFACTURER RECOMMENDATION: LEG SIZE PER ACU/FCU/FCU/CU MANUFACTURER.
5. ALLOW SUFFICIENT SPACE BELOW DRAIN PAN FOR TRAP.
6. PITCH DRAIN FOR PROPER RUN-OFF AND DISCHARGE TO APPROVED RECEPTACLE.
7. SUPPORT LENGTHY DRAIN LINES TO PREVENT SAG AND CONDENSATE OVERFLOW.
8. MANUALLY PRIME FILL TRAP BEFORE START-UP TO FORM INITIAL DRAIN SEAL.
9. CONTRACTOR TO VERIFY IF INTERNAL TRAP OCCUR IN WATER SOURCE HEAT PUMP.

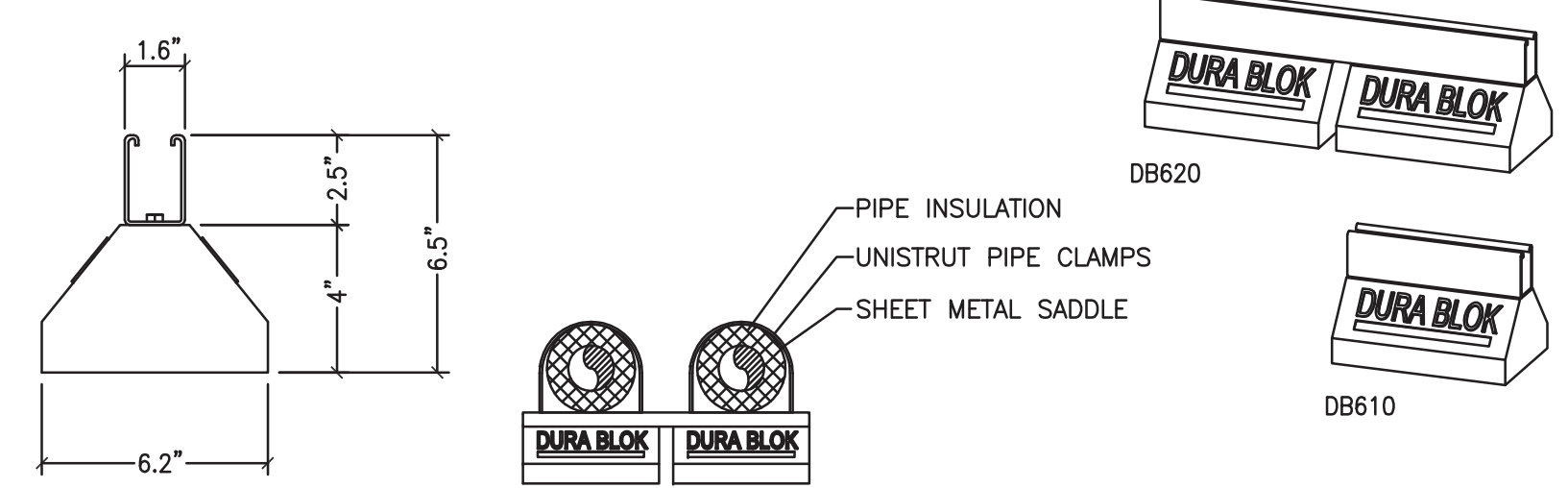
5 CONDENSATE DRAIN PIPING DETAIL
SCALE: NONE



3 TYPICAL ELBOW DETAIL
SCALE: NONE



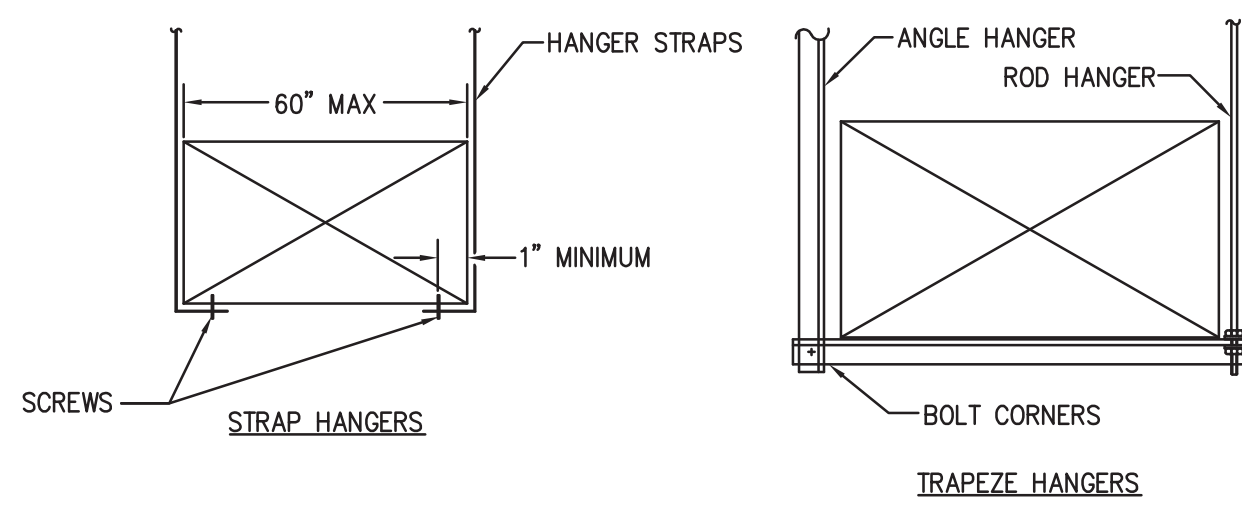
1 ROUND VOLUME DAMPER LOW PRESSURE UP TO 14\"/>SCALE: NONE



PIPE SUPPORT SPACING SCHEDULE		
TYPE OF PIPE	SIZE	MAX. SPACING
STEEL	1 1/2" AND SMALLER	7 FT.
	2" AND LARGER	10 FT.
BRASS OR COPPER	3/4" AND SMALLER	5 FT.
	1" TO 1-1/4"	6 FT.
	1-1/2" TO 3"	7 FT.
	4" AND LARGER	10 FT.

- NOTES:**
1. PIPE SUPPORT SHALL BE MANUFACTURED BY "COOPER B-LINE" MODEL DB6 SERIES. INSTALLATION SHALL PER MANUFACTURER RECOMMENDATION.

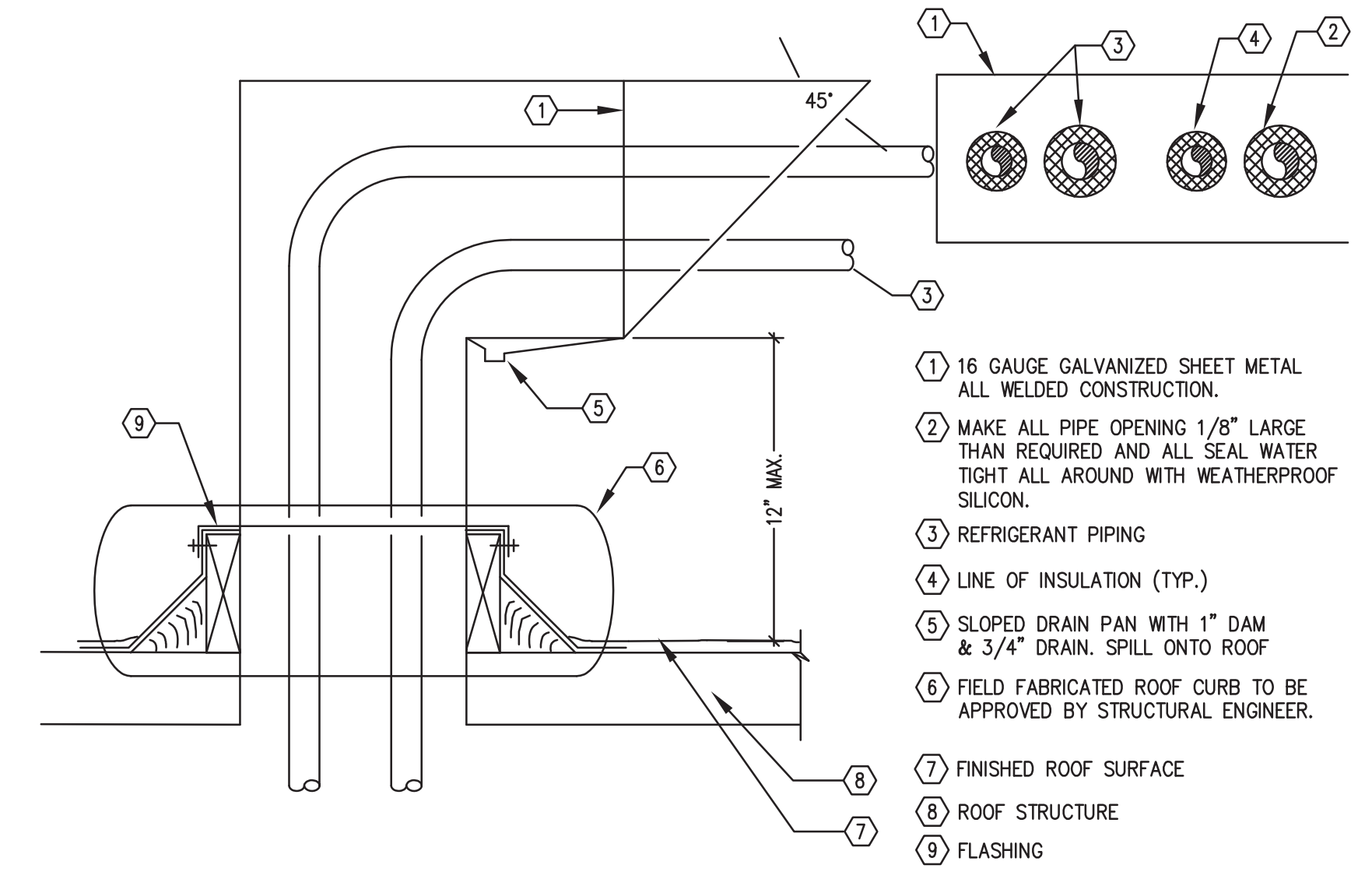
6 ROOF PIPE SUPPORT DETAIL
SCALE: NONE



NOTES:

1. FOR HANGERS SIZE AND SPACING, SEE CURRENT SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 5-1 REFERENCED ON THIS SHEET.
2. DUCTS SHALL BE BRACED AND GUYED TO PREVENT LATERAL OR HORIZONTAL SWING PER UMC 603.2.5. FOR BRACING AND OTHER SEISMIC REQUIREMENTS, SEE GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS PUBLISHED BY SMACNA AND PPIC AS APPROVED BY CALIFORNIA CODE OF REGULATIONS (CCR), AND TITLE-24. ALSO REFER TO LATEST VERSION OF NATIONAL UNIFORM SEISMIC INSTALLATION GUIDELINES (NUSIG).
3. STRAPS ARE GALVANIZED STEEL, RODS ARE UNCOATED OR GALVANIZED STEEL.
4. PROVIDE MAX 6 FT SPACING FOR DUCT HANGERS.

4 TYPICAL HORIZONTAL RECTANGULAR DUCT SUPPORTS
SCALE: NONE



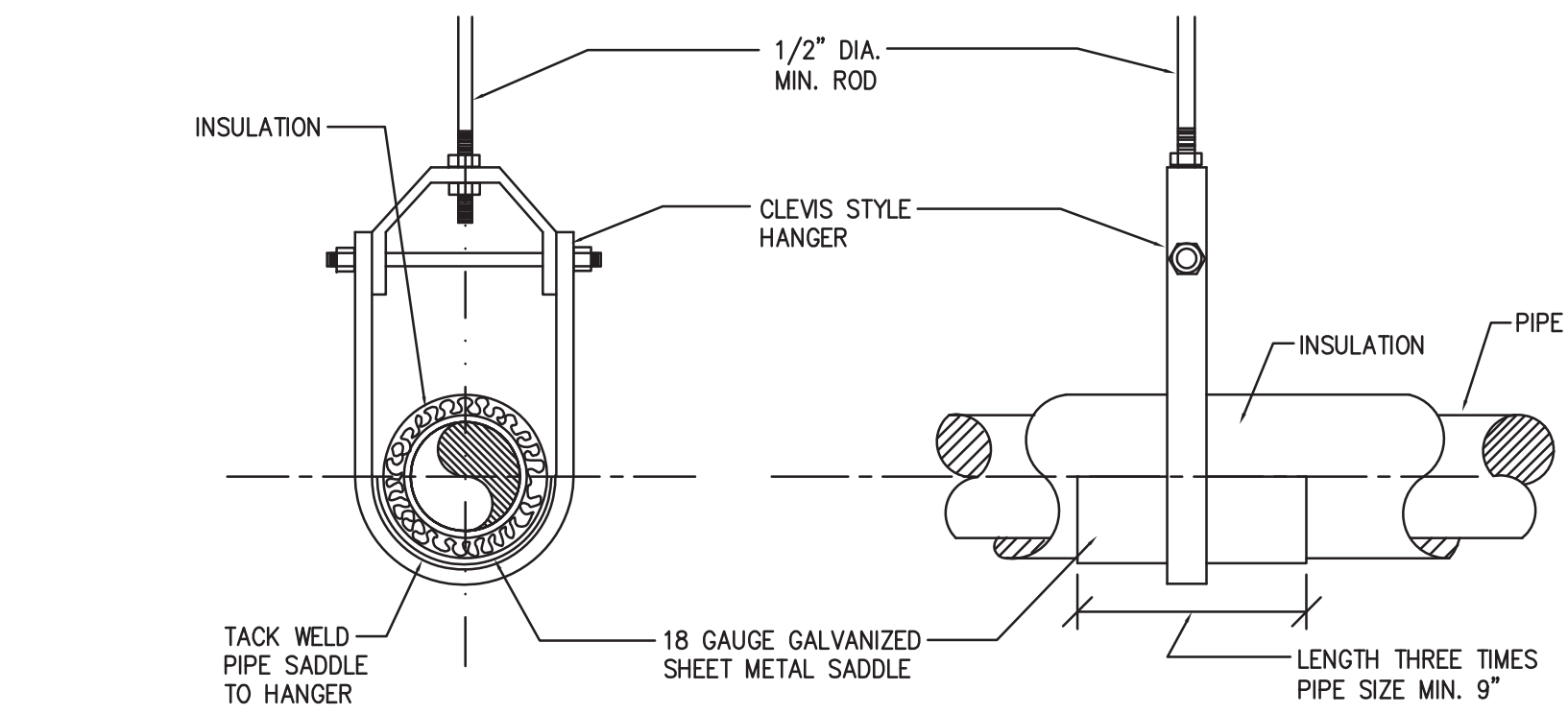
2 REFRIGERANT PIPING ROOF PENETRATION
SCALE: NONE



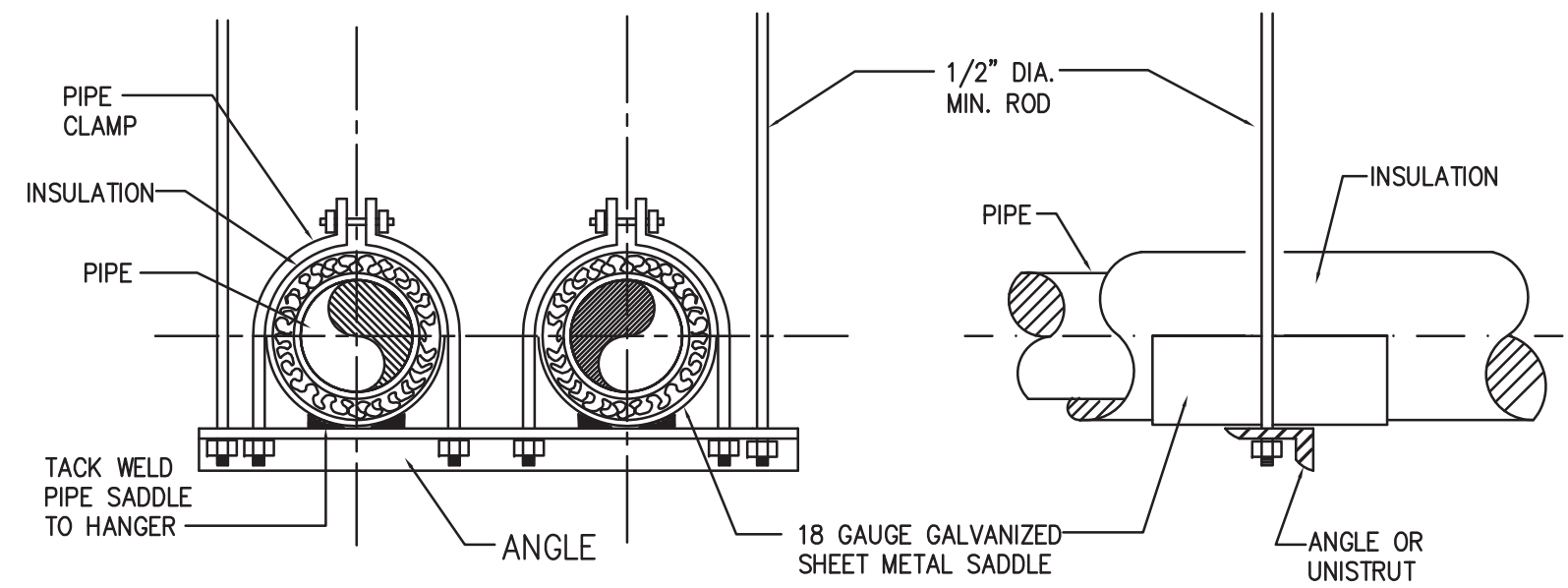
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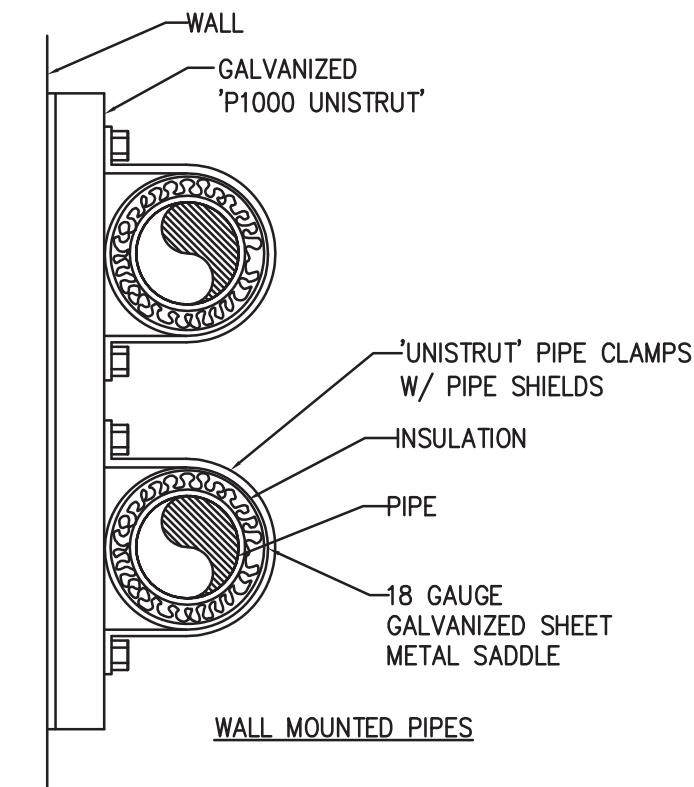
MECHANICAL DETAILS



SINGLE PIPE



TWO OR MORE PIPES



- NOTES:
- INSULATION ABOVE SADDLES SHALL BE FOAM/GLASS OF SAME THICKNESS AS PIPE INSULATION AND A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,300 PSI. HANGERS ARE ALSO TYPICAL FOR UNINSULATED PIPING (WITHOUT INSULATION AND SADDLES.)
 - CONNECT TO TOP OR BOTTOM CHORD OF JOISTS BUT ONLY AT PANEL POINTS.
 - C-CLAMPS ARE ACCEPTABLE FOR PIPE HANGER ASSEMBLIES ONLY IF RETAINING CLIP IS USED AND MSS-SP-69 STANDARD FOR PIPE HANGER ASSEMBLIES.
 - ATTACH PER SMACNA.
 - COORDINATE WITH STRUCTURE.

PIPE SUPPORT SPACING SCHEDULE

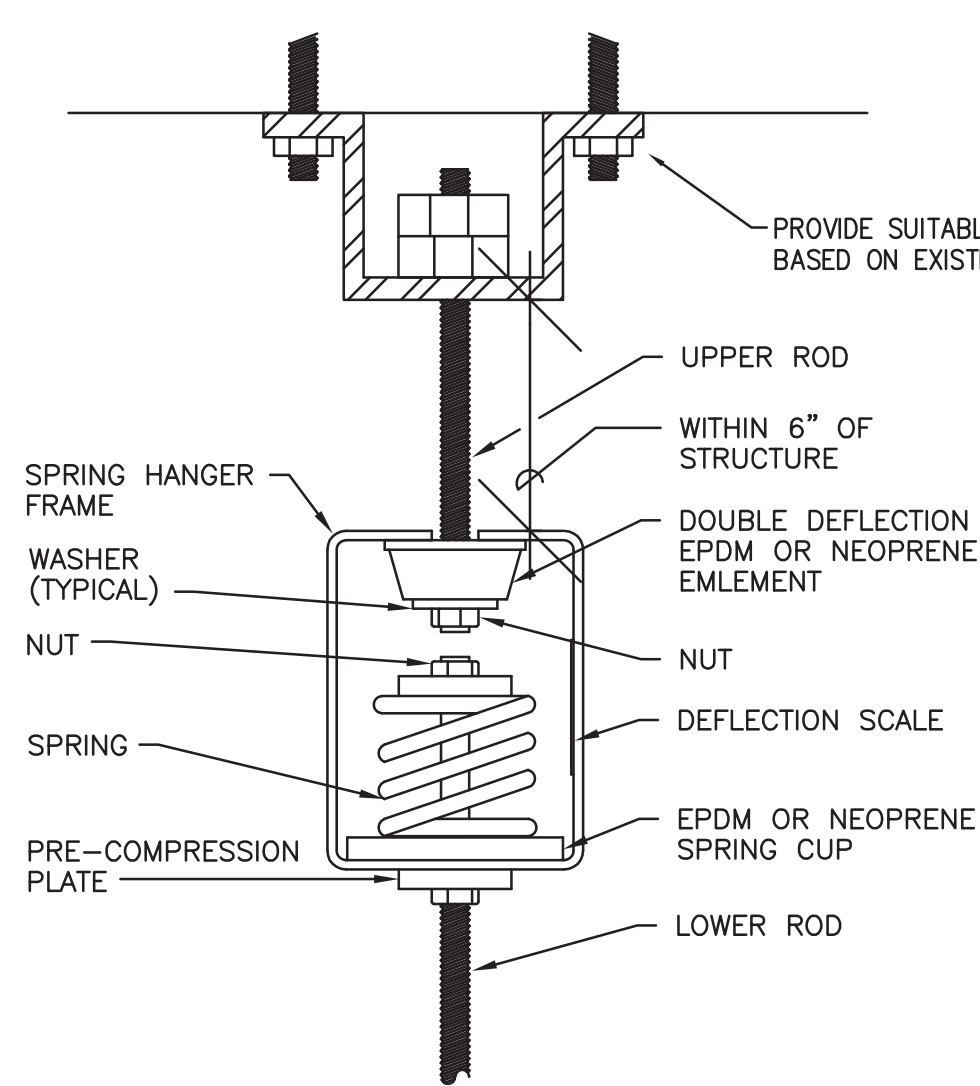
TYPE OF PIPE	SIZE	MAX. SPACING
STEEL	1-1/2" AND SMALLER	7 FT
	2" AND LARGER	10 FT
BRASS OR COPPER	3/4" AND SMALLER	3 FT
	1" TO 1-1/4"	6 FT
COPPER	1-1/2" TO 3"	7 FT
	4" AND LARGER	10 FT

STEEL ROD SIZING SCHEDULE

PIPE, IPS	ROD
2-1/2 IN	1/2 IN
3 IN	1/2 IN
4 IN	5/8 IN
6 IN	3/4 IN

5 PIPE HANGER DETAIL (TYPICAL)

SCALE: NONE

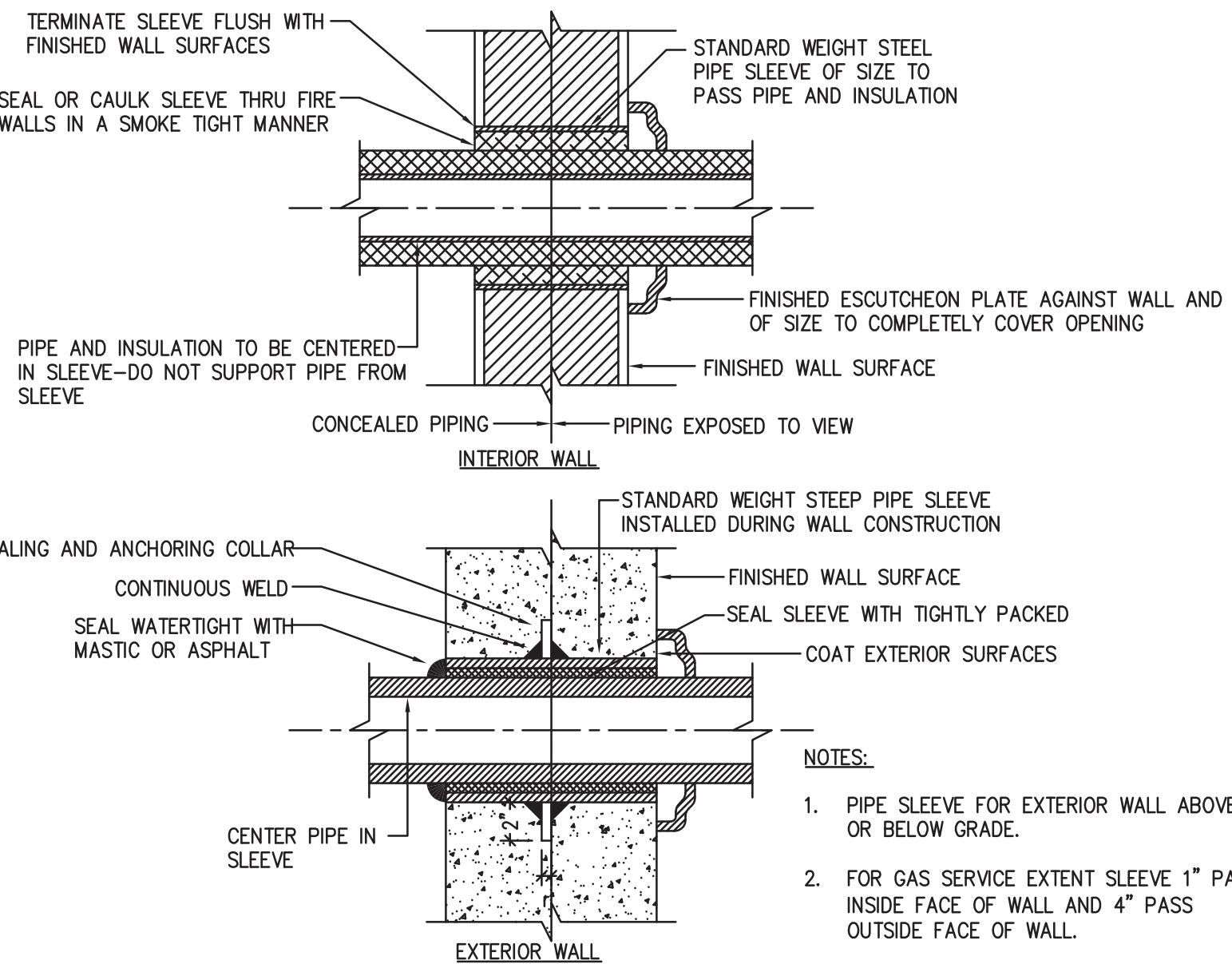


NOTES:

- TYPICAL SPRING & NEOPRENE IN SERIES ISOLATOR DETAIL. OTHER TYPES OF VIBRATION ISOLATORS ARE SIMILAR.
- THE SPRING SHALL BE PRE-COMPRESSED SO THAT WHEN PROPERLY INSTALLED AND LOADED, THE SPRING IS ADJUSTED TO THE MID-POINT OF THE DEFLECTION SCALE.
- PROVIDE SPRING AND NEOPRENE ISOLATORS FOR ECU/AHU UNITS WITH MINIMUM 1/2-INCH STATIC DEFLECTION.

3 SPRING AND NEOPRENE ISOLATION/HANGER

SCALE: NONE

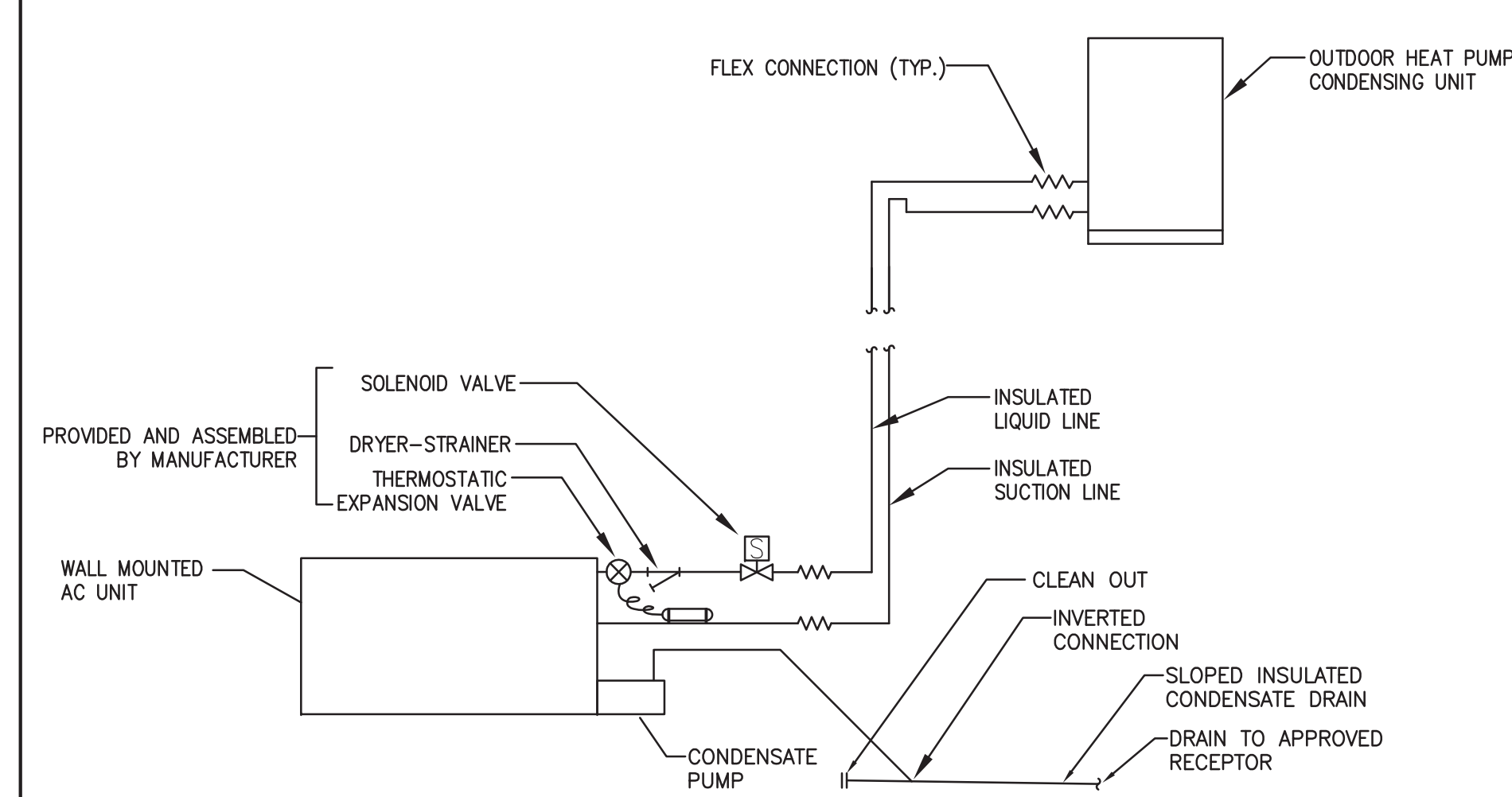


NOTES:

- PIPE SLEEVE FOR EXTERIOR WALL ABOVE OR BELOW GRADE.
- FOR GAS SERVICE EXTENT SLEEVE 1" PAST INSIDE FACE OF WALL AND 4" PAST OUTSIDE FACE OF WALL.

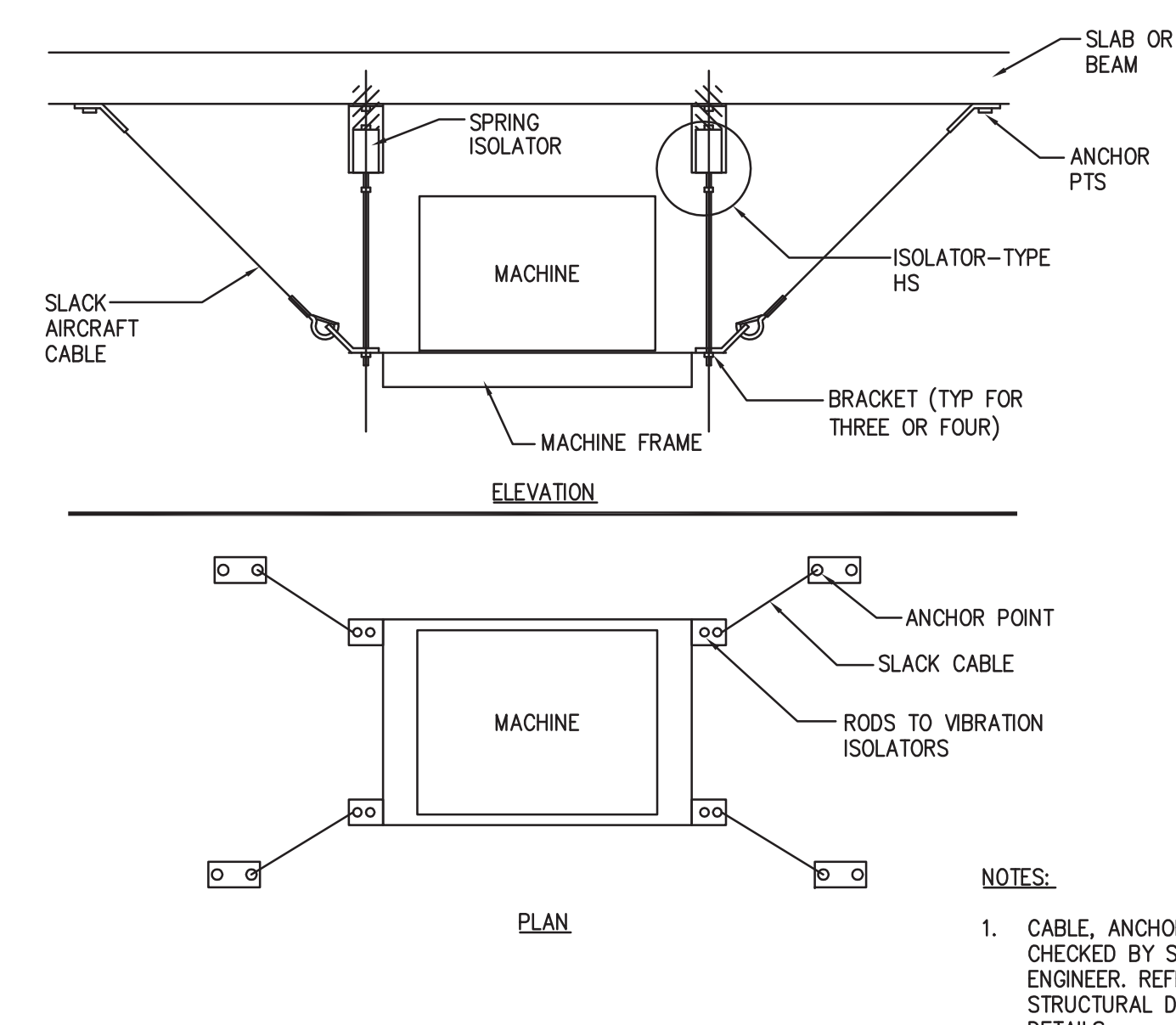
4 PIPE SLEEVE THRU WALL

SCALE: NONE



1 AHU / HP DX PIPING DETAIL

SCALE: NONE

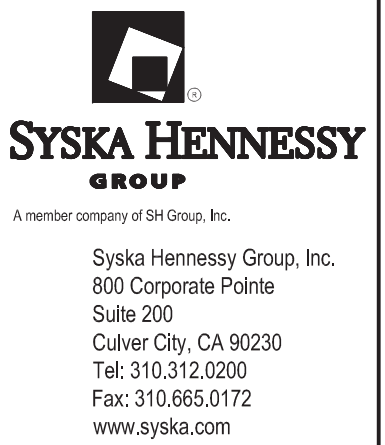


NOTES:

- CABLE, ANCHORS TO BE CHECKED BY STRUCTURAL ENGINEER. REFER TO STRUCTURAL DRAWINGS FOR DETAILS.

2 ALL DIRECTIONAL SUSPENDED EQUIPMENT

SCALE: NONE

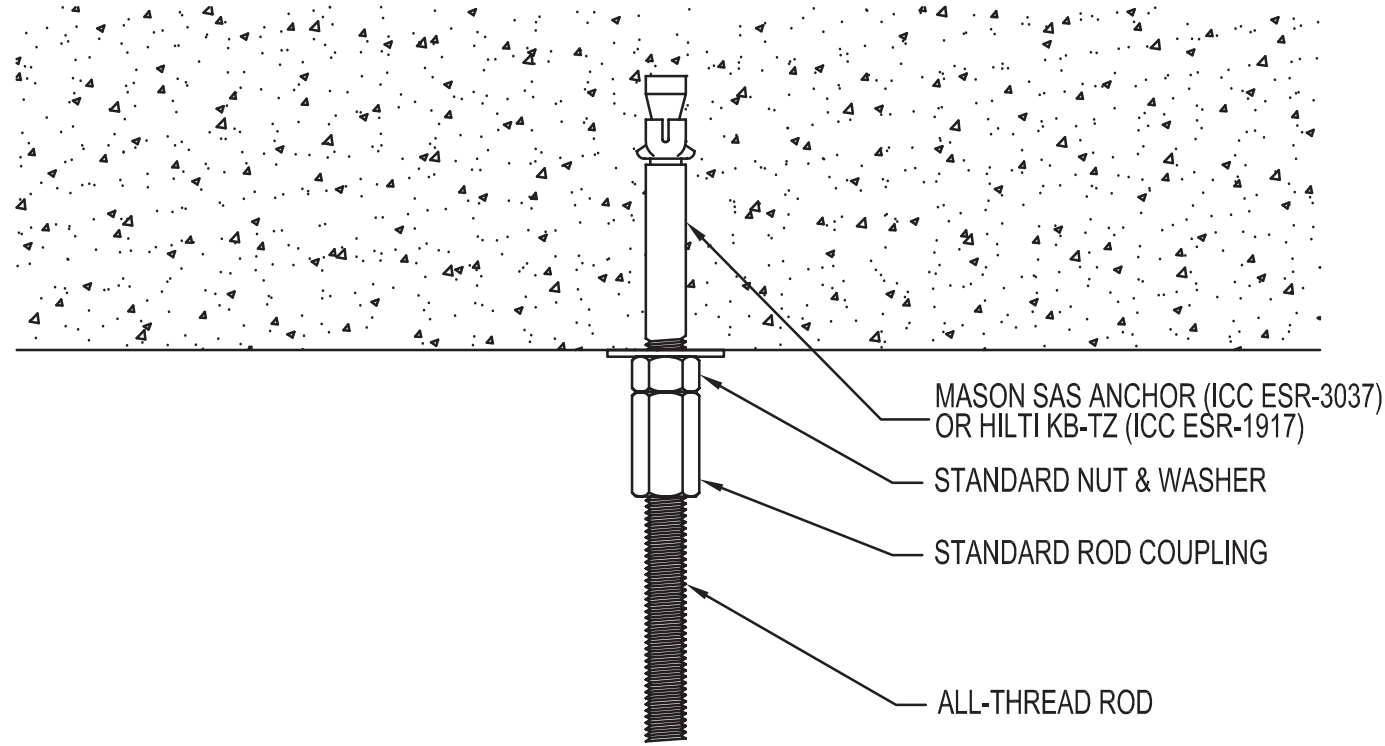


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100% DD	8/25/2016	100% DD
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50% CD	11/29/2016	50% CD
PERMIT SET	01/24/2017	PERMIT SET
100% CD / CONFORMED SET	02/13/2017	100% CD / CONFORMED SET
100% CD / CONFORMED SET	07/07/2017	100% CD / CONFORMED SET
100% CD / CONFORMED SET	09/21/2017	100% CD / CONFORMED SET
BID SET	11/01/2017	BID SET

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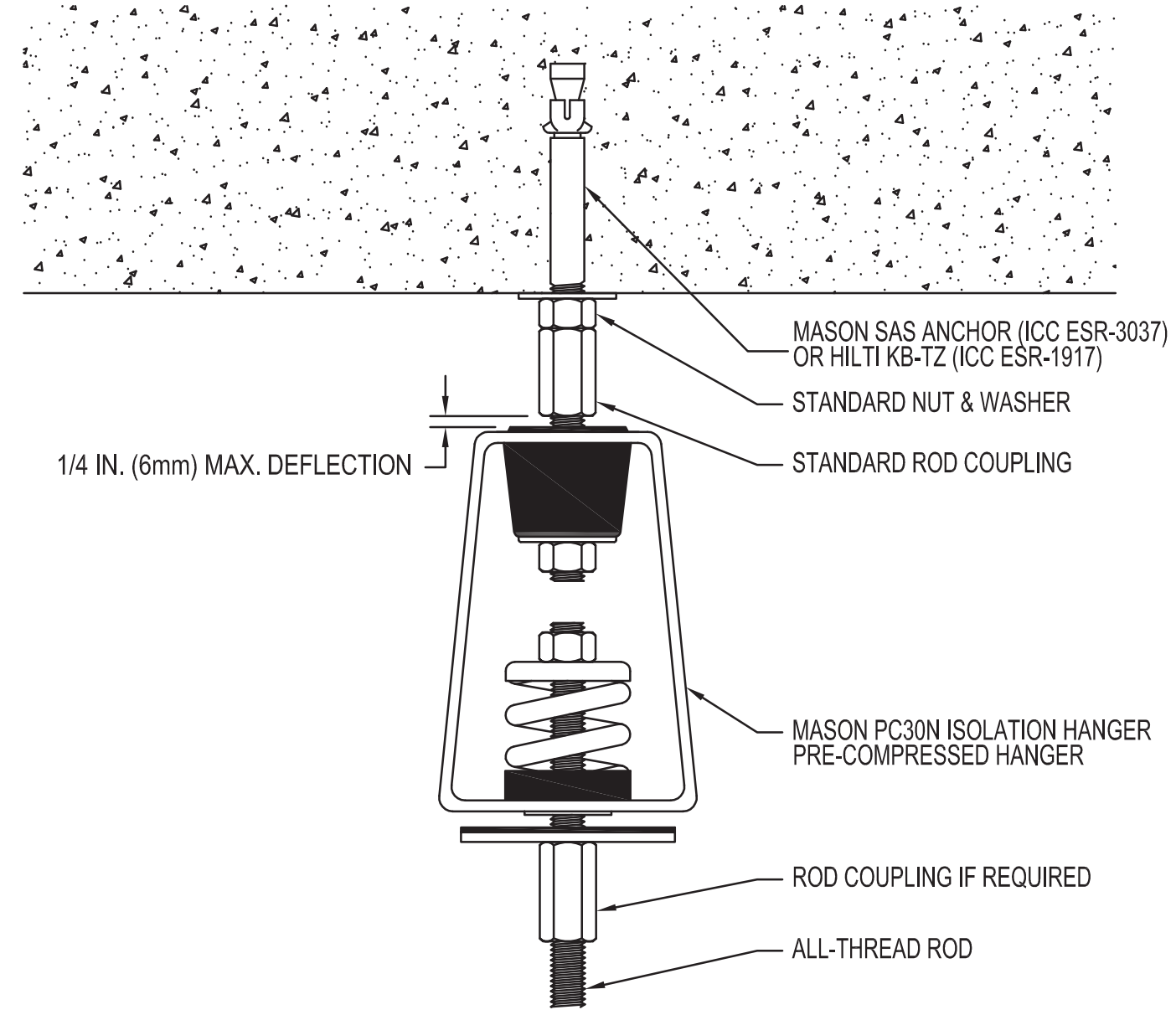
MECHANICAL DETAILS

M5.03



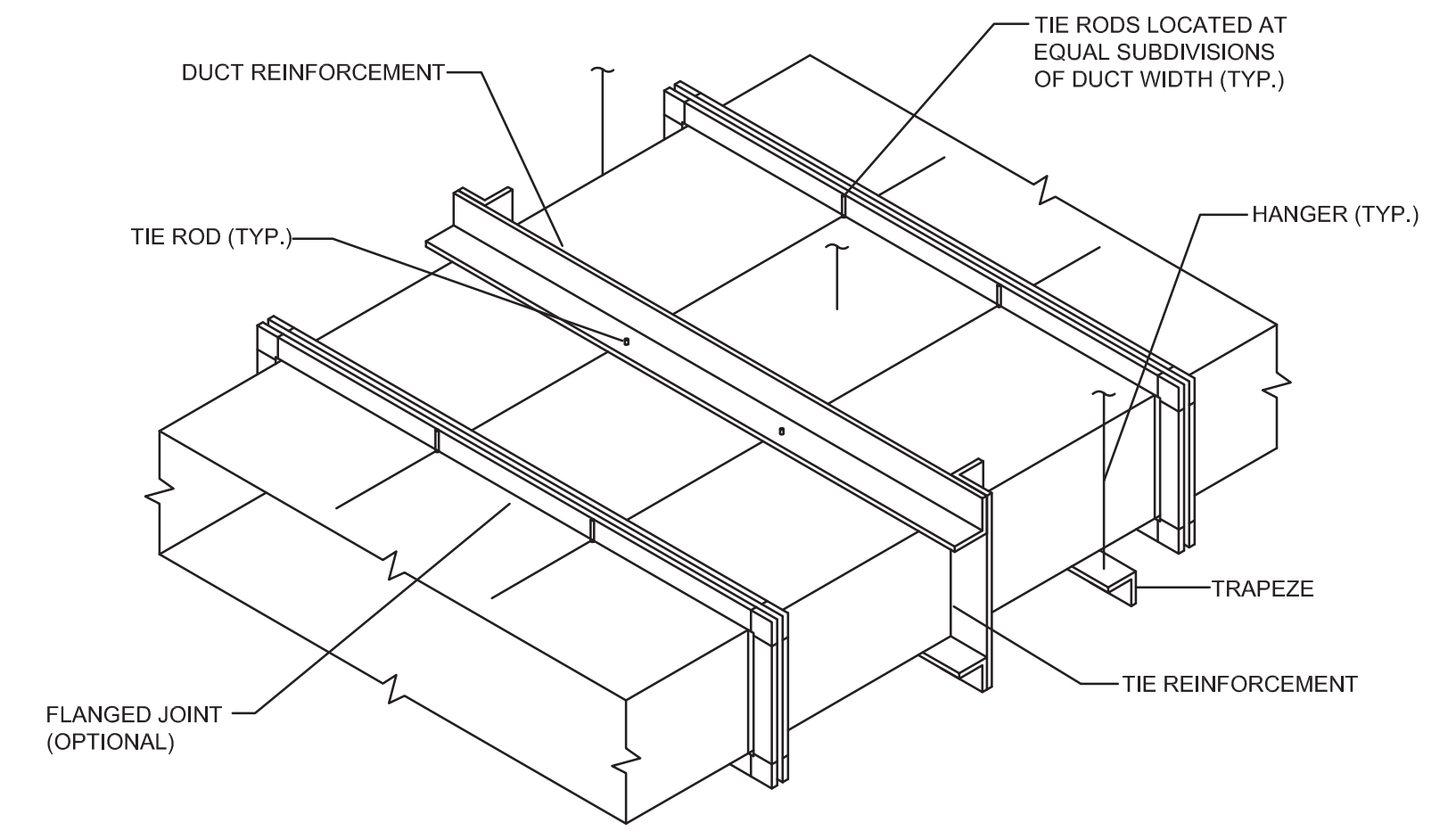
ANCHOR BOLT DIAMETER	ANCHOR BOLT EMBEDMENT
3/8"Ø MASON SAS	1 7/8" NOM. EMBEDMENT
1/2"Ø MASON SAS	2 3/4" NOM. EMBEDMENT
5/8"Ø MASON SAS	3 3/8" NOM. EMBEDMENT
3/8"Ø HILTI KB-TZ	3 3/8" NOM. EMBEDMENT
1/2"Ø HILTI KB-TZ	2 3/4" NOM. EMBEDMENT
5/8"Ø HILTI KB-TZ	3 3/8" NOM. EMBEDMENT

4 HANGER ROD ATTACHMENT TO CONCRETE STRUCTURE
SCALE: NONE



ANCHOR BOLT DIAMETER	ANCHOR BOLT EMBEDMENT
3/8"Ø MASON SAS	1 7/8" NOM. EMBEDMENT
1/2"Ø MASON SAS	2 3/4" NOM. EMBEDMENT
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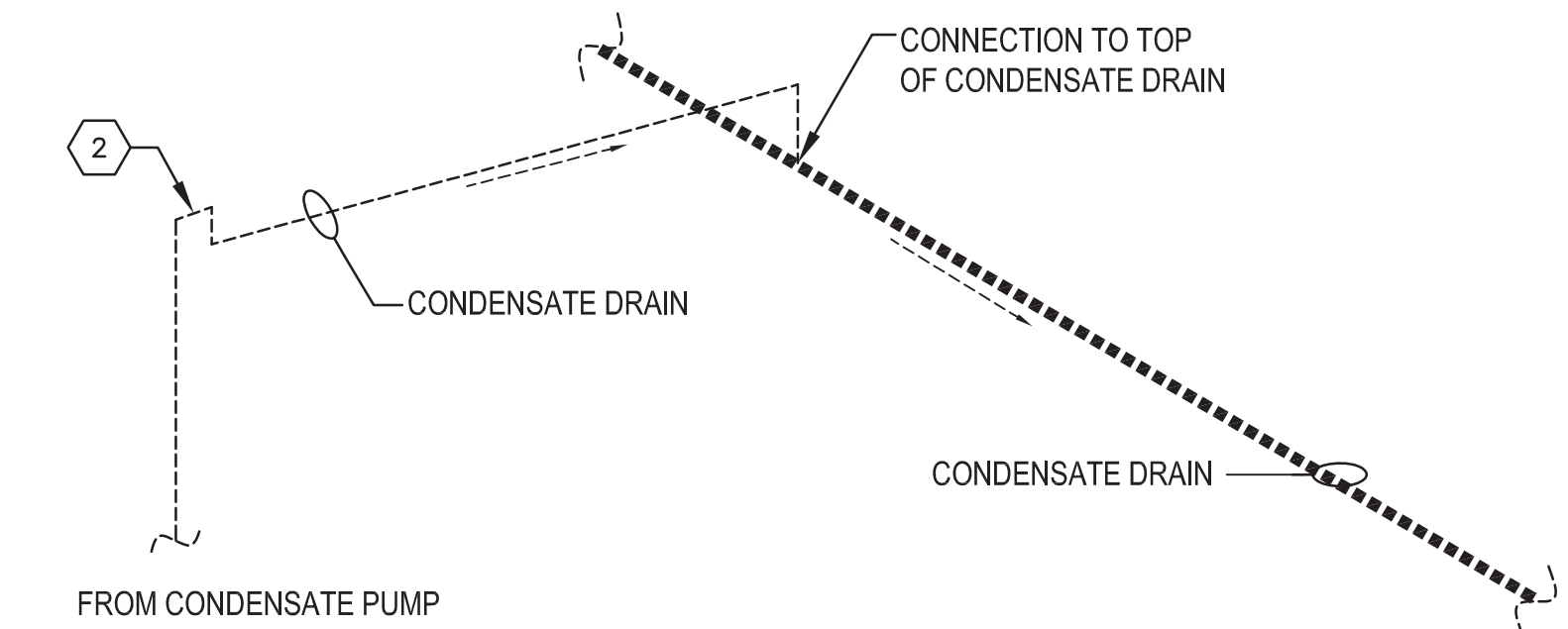
3 MASON ISOLATION HANGER ATTACHMENT TO CONCRETE STRUCTURE
SCALE: NONE



NOTES:
1. REFER TO SMACNA HANDBOOK FOR SIZING DETAILS.

2 DUCT STRENGTHENING DETAIL
SCALE: NONE

NOTES:
1. INVERTED TRAP AT HIGH POINT OF PUMPED DISCHARGE



1 CONDENSATE DRAIN LINE CONNECTION (TYPICAL)
SCALE: NONE



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	8/25/2016	100% DD
	9/29/2016	50% CD
	11/29/2016	90% CD
	01/24/2017	PERMIT SET
	02/13/2017	PERMIT SET
	07/07/2017	100% CD / CONFORMED SET
	09/21/2017	100% CD / CONFORMED SET
	11/01/2017	REVISED 100% CD
		BID SET

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MECHANICAL DETAILS

M5.04

POST-INSTALLED ANCHORS IN CONCRETE

1. WEDGE ANCHORS ARE TO BE HILTI KWIK-BOLT TZ, (ICC ESR-1917), UNO.
2. ADHESIVE ANCHORS ARE TO BE HILTI HIT-RE 500-SD (ICC ESR-2322), UNO. INSTALLATION OF ALL ADHESIVE ANCHORS IN HORIZONTAL AND UPWARDLY INCLINED POSITIONS SHALL BE PERFORMED BY AN ACI/CRSI CERTIFIED ADHESIVE ANCHOR INSTALLER.
3. LOCATE REINFORCEMENT IN CONCRETE BY NON-DESTRUCTIVE MEANS (X-RAY, ETC.) PRIOR TO DRILLING ANY HOLE FOR INSTALLATION OF POST-INSTALLED ANCHORS. DAMAGE TO (E) REINFORCEMENT SHALL BE AVOIDED.
4. INSTALLATION OF POST INSTALLED ANCHORS SHALL BE IN ACCORDANCE WITH THE APPLICABLE ICC OR IAPMO EVALUATION REPORT.
5. ANCHOR DIAMETER REFERS TO THE THREADED SIZE OF THE ANCHOR.
6. WEDGE ANCHOR CAPACITIES SHALL BE DETERMINED PER SECTION 1909 OF THE CODE, USING STRENGTH DESIGN.
7. TEST POST-INSTALLED ANCHORS PER SECTION 1909 OF THE CODE.
8. ALL WEDGE ANCHORS SHALL BE CARBON STEEL, UNO.
9. USE STAINLESS STEEL POST-INSTALLED ANCHORS AT EXTERIOR OR CONTINUOUSLY MOIST/WET CONDITIONS.

SHEET INDEX	
SHEET	TITLE
S0.01	GENERAL NOTES
S2.01	NINTH FLOOR PLAN
S3.01	MECHANICAL EQUIPMENT ANCHORAGE

GENERAL

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING FABRICATION AND CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
2. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.
3. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
4. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES:

2016 CALIFORNIA BUILDING CODE VOLUME 2 REFERRED TO HERE AS "THE CODE" AND ANY OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION AND THOSE CODES & STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.
5. SEE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
 - a. SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS, EXCEPT AS NOTED.
 - b. SIZE AND LOCATION OF ALL NON-BEARING PARTITIONS.
 - c. SIZE AND LOCATION OF ALL CONCRETE CURBS, EQUIPMENT SIZE AND LOCATION OF ALL CONCRETE CURBS, EQUIPMENT PADS, PITS, FLOOR DRAINS, SLOPES, DEPRESSED AREAS, CHANGE IN LEVEL, CHAMFERS, GROOVES, INSERTS, ETC.
 - d. FLOOR FINISHES.
 - e. DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
6. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR THE FOLLOWING:
 - a. PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC., EXCEPT AS SHOWN OR NOTED.
 - b. ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS. CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL OR PLUMBING FIXTURES.
 - c. SIZE AND LOCATION OF MACHINE OR EQUIPMENT BASES, ANCHOR BOLTS FOR MOTOR MOUNTS.
7. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
8. OPENINGS, POCKETS, ETC., SHALL BE BROUGHT TO THE ATTENTION OF THE SEOR PRIOR TO THE START OF WORK. IN NO CASE SHALL OPENINGS OR PENETRATIONS LARGER THAN 4" BE PLACED IN CONCRETE SLABS OR WALLS, UNLESS SPECIALLY DETAILED ON THE STRUCTURAL DRAWINGS. NOTIFY THE STRUCTURAL ENGINEER WHEN DRAWINGS BY OTHERS SHOW OPENINGS, POCKETS, ETC., LARGER THAN 4" NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT WHICH ARE LOCATED IN STRUCTURAL MEMBERS. FOR ANY FURTHER RESTRICTIONS ON OPENINGS IN STRUCTURAL ELEMENTS.
9. ASTM SPECIFICATIONS ON THE DRAWINGS SHALL BE OF THE LATEST REVISION.
10. CONSTRUCTION MATERIAL SHALL BE SPREAD OUT IF PLACED ON FRAMED ROOF OR FLOOR. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.
11. THE WORK INDICATED IN THESE PLANS IS A TENANT IMPROVEMENT TO AN EXISTING BUILDING. CONTRACTOR MUST VERIFY ALL ELEMENTS NOTED AS "VERIFY IN FIELD" OR "VIF" PRIOR TO PROCEEDING WITH WORK. SEOR MUST BE NOTIFIED IMMEDIATELY, WITH TIME IN THE CONSTRUCTION SCHEDULE FOR THE FIELD VERIFICATION PROCESS. SEOR IS NOT LIABLE FOR ANY DELAYS RESULTANT OF FIELD FIXES, RETROFIT, REPLACEMENT OF EXISTING STRUCTURAL MEMBERS AND EVALUATION OF NON-CONFORMING CONSTRUCTION.

DESIGN LOADS

1. EARTHQUAKE LOADS: EARTHQUAKE LOADS ARE IN ACCORDANCE WITH SECTION 1613 OF THE CODE AND CHPT 11 OF ASCE 7-10

SITE CLASS D	
$S_s = 2.209g$	$S_1 = 0.779g$
$S_{DS} = 1.473g$	$S_{D1} = 0.779g$
$S_{MS} = 2.209g$	$S_{M1} = 1.168g$

RISK CATEGORY IV
SEISMIC DESIGN CATEGORY (SDC) E

SEISMIC IMPORTANCE FACTOR:

= 1.0 FOR NON-STRUCTURAL COMPONENTS NOT REQUIRED TO FUNCTION FOR LIFE SAFETY PURPOSES AND NOT CONTAINING HAZARDOUS MATERIALS.

EARTHQUAKE LOADS ON NONSTRUCTURAL COMPONENTS MAY BE DETERMINED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:

- A. CALCULATE F_p BASED ON ASCE 7-10 EQUATION 13.3-1 USING THE S_{DS} VALUE FROM THE SEISMIC PARAMETERS ABOVE.
- B. THE MAXIMUM AND MINIMUM VALUES FOR F_p SHALL BE DETERMINED FROM ASCE 7-10 EQUATIONS 13.3-2 AND 13.3-3, RESPECTIVELY.
- C. LOADS ON NONSTRUCTURAL COMPONENTS SHALL BE BASED ON VALUES FOR op AND R_p FROM ASCE 7-10 TABLES 13.5-1 AND 13.6-1, RESPECTIVELY.

ALL MECHANICAL, ELECTRICAL, PLUMBING, TELECOM AND OTHER NONSTRUCTURAL SYSTEMS (EQUIPMENT, DUCTWORK, PIPING, CABLE TRAYS, ETC.) MUST BE ANCHORED AND BRACED PER THE CODE REQUIREMENTS. ANCHORAGE AND BRACING SHALL BE COORDINATED BETWEEN SYSTEMS AND WITH OTHER NONSTRUCTURAL SYSTEMS SUCH AS PARTITIONS, MEDICAL EQUIPMENT, SUPPORTS, CEILINGS, ETC. ANCHORAGE OF SUCH SYSTEMS OR COMPONENTS, NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. SEE MEP SEISMIC BRACING NOTES, THIS SHEET.



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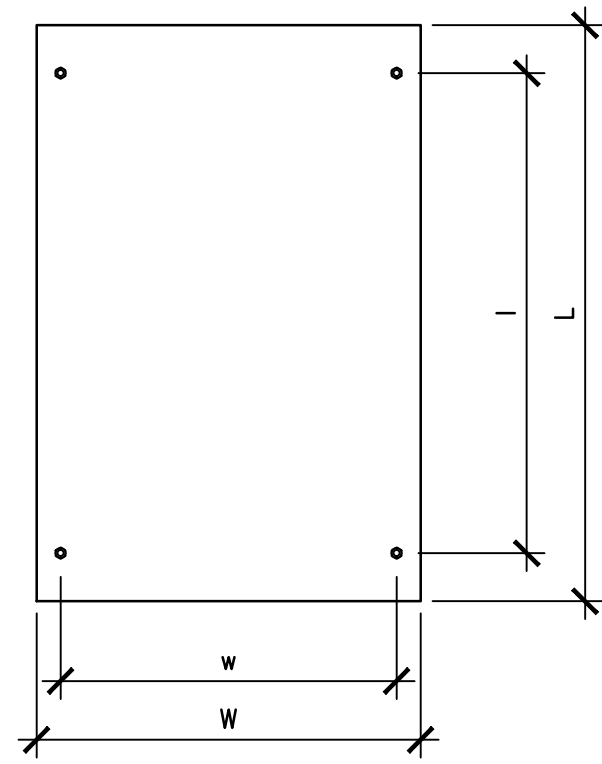
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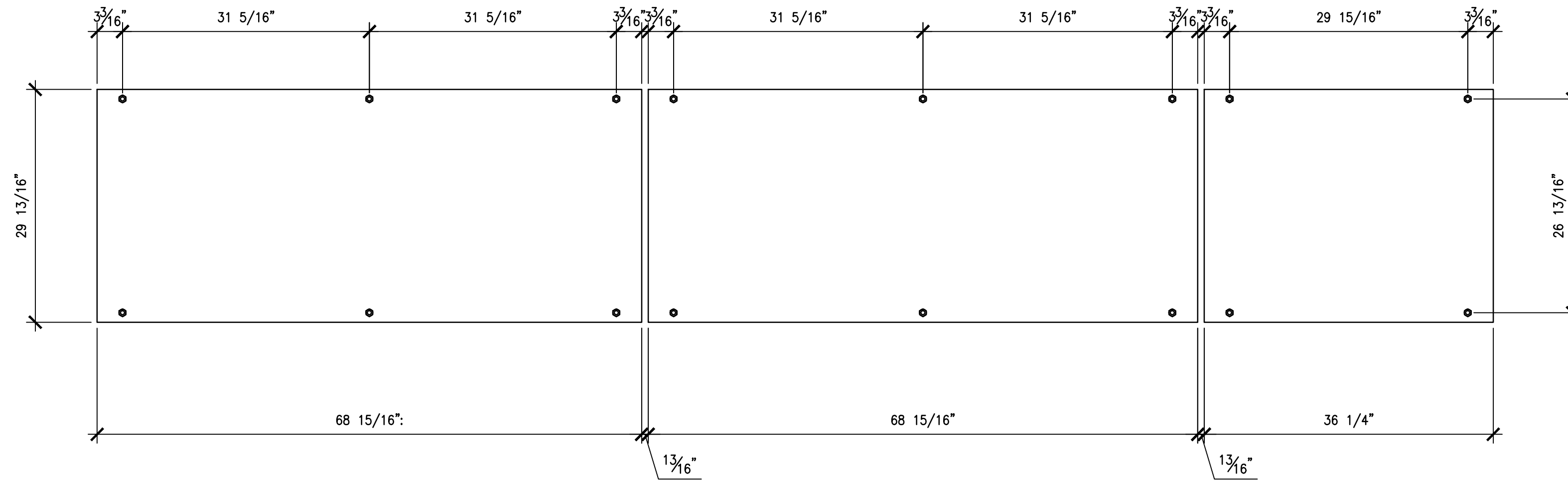


GENERAL NOTES

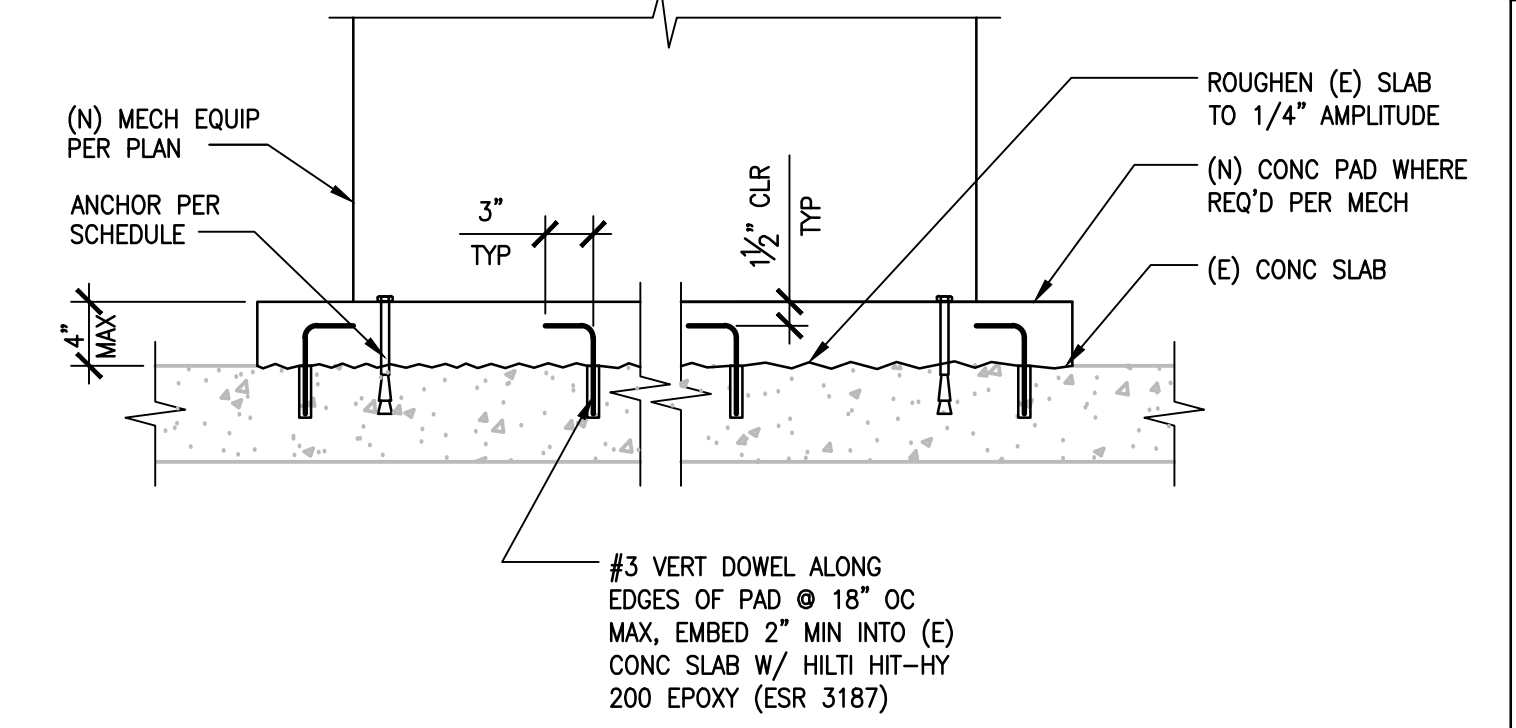
S0.01



A TYPICAL ANCHOR LAYOUT



B CONDENSER LAYOUT



C SECTION

ANCHORAGE SCHEDULE								
EQUIPMENT ID	W	L	w	l	H	WEIGHT	MIN ANCHOR CONC EDGE DISTANCE	ANCHOR
BCC	20.5"	43.8"	15.3"	45.8"	11.4"	172#	3"	(4) 3/8"Ø HILTI KB-TZ W/ 2" EMBED (ESR-1917)
CU	PER PLAN				65.0"	1880#	3"	(16) 1/2"Ø HILTI KB-TZ (SS) W/ 3 1/4" EMBED (ESR-1917)
FCU	49"	44"	52.2"	40.7"	19"	214#	3"	(4) 3/8"Ø HILTI KB-TZ W/ 2" EMBED (ESR-1917)
HP	13.1"	37.1"	14.6"	23.6"	37.2"	165#	3"	(4) 3/8"Ø HILTI KB-TZ (SS) W/ 2" EMBED (ESR-1917)

MECHANICAL EQUIPMENT ANCHORAGE

1"=1'-0" 1



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**MECHANICAL EQUIPMENT
 ANCHORAGE**

S3.01