

**American River Flood Control District
Facilities Roof Replacement – Design Drawings
Staff Report**

Discussion:

The District worked with Lionakis architects in 2015 to design and construct a new headquarters office facility. At the time of the project, certain measures were taken to reduce overall construction costs. One of the items that was left out of the work was the installation of a new roof. The estimate at the time was that the existing roof had 2 to 3 more years of service life before needing to be replaced. The useful service life of the roof on the headquarters building has now been exceeded. Numerous leaks have been detected and are starting to cause damage to ceiling tiles and other structures.

District staff contacted Lionakis to help us develop a design for a new roof and also to generate bid documents to issue to a roofing contractor. During discussions with Lionakis, staff requested that they also include options for adding additional roof ventilation in the warehouse.

The Board of Trustees approved a contract with Lionakis to develop the roof designs and bid documents in September 2019. Staff worked with the Lionakis design team to identify components of the roof design needed for the District facility. Central to the effort was the correction of numerous drainage deficiencies in the existing roof.

Lionakis completed the final design drawings for the roof replacement and is submitting them to the Board of Trustees for approval. Upon approval, Lionakis will submit the drawings to the City of Sacramento permitting department for plan check and then develop bid documents for approval at a subsequent Board meeting.

Costs estimates by division for the roof replacement are as follows:

General Requirements	\$93,033
Existing Conditions	\$138,293
Electrical Demolition	\$1,509
Concrete and Masonry	\$19,574
Metal Fabrication and Sheetmetal	\$19,328
Rough Carpentry	\$5,535
Framing	\$6,991
Sheathing	\$10,000
Thermal Insulation	\$2,559

Roofing Membrane`	\$199,653	
Doors	\$1,878	
Windows	\$1,143	
Plumbing	\$3,574	
HVAC	\$16,318	
HVAC-Duct	\$14,097	
Electrical	\$1,613	
Raceway and Boxes	\$305	
Low Voltage Distribution	\$1,453	
Distribution	\$6,745	
Antenna	\$493	
Pipe	\$10,524	
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Subtotal	\$554,618	\$554,618
Material Sales Tax	\$16,506	
Small Tools & Equip	\$4,427	
Contingency: % Est Cost	\$57,555	
Overhead: General Admin	\$37,986	
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	\$116,474	\$671,092
Margin: GC on bid	\$76,123	
Bond: Payment & Performance	\$14,015	
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	\$90,138	\$761,230
Total	\$761,230	

Recommendation:

The General Manager recommends that the Board approve the final roof designs from Lionakis.

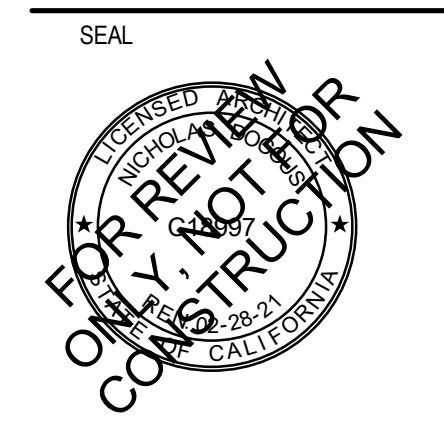
AMERICAN RIVER FLOOD CONTROL DISTRICT

185 COMMERCE CIRCLE
 SACRAMENTO, CA 95815

RE-ROOF & MECHANICAL WORK SUBMITTAL SET DECEMBER 16, 2019

IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT - SCALE ACCORDINGLY

ARCHITECTURAL SYMBOLS LEGEND	LIST OF ARCHITECTURAL ABBREVIATIONS	SHEET INDEX																																																																																																																																																																																																																																																																																				
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ADJ SHV ADJUSTABLE SHELVING	EXST EXISTING	OPNG OPENING	TOS TOP OF STEEL																																																																																																																																																																																																																																																																																			
AFF ABOVE FINISHED FLOOR	EXP EXPANSION	OPP OPPOSITE	TOW TOP OF WALL																																																																																																																																																																																																																																																																																			
AFG ABOVE FINISHED GRADE	EXT EXTERIOR	OPR OPENING	TV TELEVISION																																																																																																																																																																																																																																																																																			
AGGR AGGREGATE	FA FIRE ALARM	PAF POWER ACTUATED FASTENER	TYP TYPICAL																																																																																																																																																																																																																																																																																			
AHU AIR HANDLING UNIT	FB FLAT BAR	PL PROPERTY LINE, PLATE	UC UNDER COUNTER/CABINET																																																																																																																																																																																																																																																																																			
ASSY ASSEMBLY	FD FLOOR DRAIN	PLM PLASTIC LAMINATE	UNO UNLESS NOTED OTHERWISE																																																																																																																																																																																																																																																																																			
BD BOARD	FDTN FOUNDATION	PLB PLUMB	UNOT UNLESS OTHERWISE NOTED																																																																																																																																																																																																																																																																																			
BKG BACKING	FE FIRE EXTINGUISHER	PLBG PLUMBING	UR URINAL																																																																																																																																																																																																																																																																																			
BLDG BUILDING	FEC FIRE EXTINGUISHER CABINET	PLYWD PLYWOOD	VCT VINYL COMPOSITION TILE																																																																																																																																																																																																																																																																																			
BM BEAM	FIN FINISH	PNL PANEL	VERT VERTICAL																																																																																																																																																																																																																																																																																			
BM BENCHMARK	FLG FLOORING	PROP PROPERTY	VEST VESTIBULE																																																																																																																																																																																																																																																																																			
BOT BOTTOM	FLL FLOW LINE	PSF POUNDS PER SQUARE FOOT	VIF VERIFY IN FIELD																																																																																																																																																																																																																																																																																			
BTWN BETWEEN	FLR FLOOR	PSI POUNDS PER SQUARE INCH	VWF VINYL WALL COVERING																																																																																																																																																																																																																																																																																			
BUR BUILT-UP ROOFING	FOC FACE OF CONCRETE/CURB	PT PAINT, PAINT	W WITH																																																																																																																																																																																																																																																																																			
BW BOTH WAYS	FOF FACE OF FINISH	PTN PARTITION	W/O WITHOUT																																																																																																																																																																																																																																																																																			
C CHANNEL	FOM FACE OF MASONRY	PV PHOTOVOLTAIC	WC WATER CLOSET																																																																																																																																																																																																																																																																																			
CAB CABINET	FOS FACE OF STUD	QT QUARRY TILE	WD WOOD																																																																																																																																																																																																																																																																																			
CB CATCH BASIN	FOW FACE OF WALL	R RADIUS, RISER	WH WATER HEATER																																																																																																																																																																																																																																																																																			
CBC CALIFORNIA BUILDING CODE	FP FIREPROOF	RD ROOF DRAIN	WO WHERE OCCURS																																																																																																																																																																																																																																																																																			
CEM CEMENT	FRP FIBERGLASS REINFORCED PLASTIC	REBAR REINFORCING STEEL BAR	WP WORKING POINT																																																																																																																																																																																																																																																																																			
CEM PLAS CEM PLASTER	FT FEET / FOOT	REF REFERENCE	WPM WATERPROOF MEMBRANE																																																																																																																																																																																																																																																																																			
CFLG COUNTERFLASHING	FTG FOOTING	REF REFRIGERATOR	WSCOT WAINSCOT																																																																																																																																																																																																																																																																																			
CFMF COLD-FORMED METAL FRAMING	FURG FURRING	REINF REINFORCE / REINFORCING	WT WEIGHT																																																																																																																																																																																																																																																																																			
CG CORNER GUARD	FUT FUTURE	REQD REQUIRED	WTR WATER																																																																																																																																																																																																																																																																																			
CI CAST IRON	GNDND GROUND, NATURAL GAS	RESIL RESILIENT	WWR WELDED WIRE REINFORCEMENT																																																																																																																																																																																																																																																																																			
CJ CONSTRUCTION JOINT / CONTROL JOINT	GA GAGE	RM ROOM																																																																																																																																																																																																																																																																																				
CL CENTER LINE	GALV GALVANIZED	RO ROUGH OPENING																																																																																																																																																																																																																																																																																				
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CMU CONCRETE MASONRY UNIT	GLU LAM GLUED LAMINATED WOOD	SAD SEE ARCHITECTURAL DRAWINGS																																																																																																																																																																																																																																																																																				
CNTR COUNTER	GYP GYPSUM	SATC SUSPENDED ACOUSTICAL TILE CEILING																																																																																																																																																																																																																																																																																				
CO CLEANOUT	HB HOSE BIB	SB SPLASH BLOCK																																																																																																																																																																																																																																																																																				
COL COLUMN	HC HOLLOW CORE	SC SOLID CORE																																																																																																																																																																																																																																																																																				
CONC CONCRETE	HDBD HARDBOARD	SCHED SCHEDULE																																																																																																																																																																																																																																																																																				
CONSTR CONSTRUCTION	HDW HARDWARE	SD STORM DRAIN																																																																																																																																																																																																																																																																																				
CONT CONTINUE / CONTINUOUS	HDWD HARDWOOD	SELF SELF DRIVING, SELF TAPPING																																																																																																																																																																																																																																																																																				
COTG CLEANOUT TO GRADE	HLM HOLLOW METAL	SHT SHEET																																																																																																																																																																																																																																																																																				
CP CONTROL PANEL	HORIZ HORIZONTAL	SHTG SHEATHING																																																																																																																																																																																																																																																																																				
CPT CARPET	HR HOUR	SHV SHELVING																																																																																																																																																																																																																																																																																				
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CSK COUNTER SUNK	ID INSIDE DIAMETER	SLANT SEALANT																																																																																																																																																																																																																																																																																				
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CTR CENTER	JAN JANITOR	SQ SQUARE																																																																																																																																																																																																																																																																																				
DBL DOUBLE	KIT KITCHEN	SS SANITARY SEWER, SERVICE																																																																																																																																																																																																																																																																																				
DEPT DEPARTMENT	L ANGLE	SST STAINLESS STEEL																																																																																																																																																																																																																																																																																				
DET DETAIL	LAB LABORATORY																																																																																																																																																																																																																																																																																					
DF DRINKING FOUNTAIN	LAV LAVATORY																																																																																																																																																																																																																																																																																					



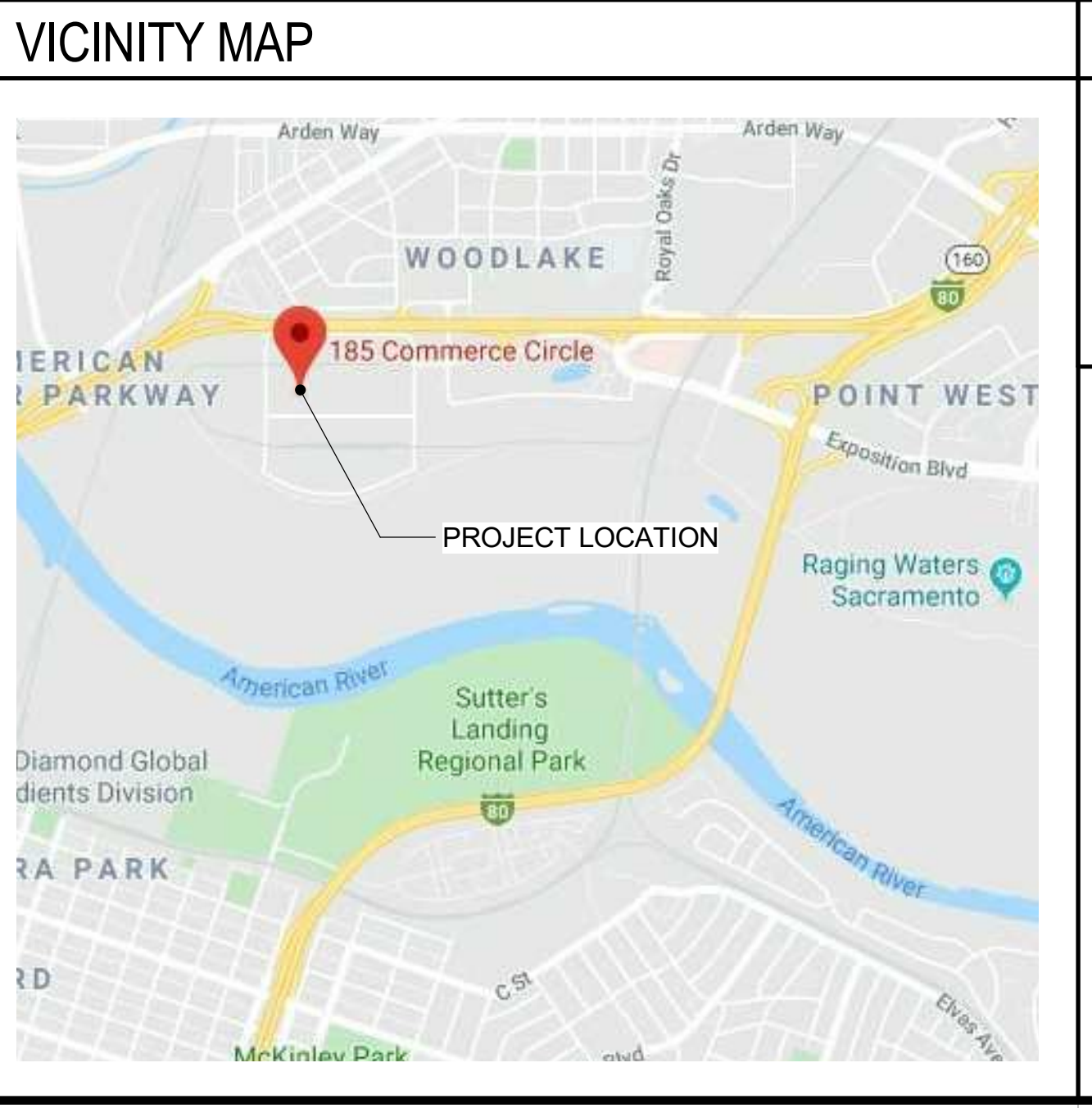
185 COMMERCE CIRCLE
 SACRAMENTO, CA 95815

CLIENT

165 COMMERCE CIRCLE, SUITE D, SACRAMENTO, CA 95815

MARK	DATE	DESCRIPTION

MANAGEMENT	CLIENT PROJECT NO.	CLIENT PROJECT NO.
LIONAKIS PROJECT NO. 019134		
COPYRIGHT: LIONAKIS 2019		



SCOPE OF PROJECT

REMOVE EXISTING ROOF AND ASSOCIATED FLASHING AND COPING. REPLACE WITH NEW SINGLE-PLY ROOFING, COPING, FLASHING, SCUPPER AND DOWNSPOUTS. REPLACE EXISTING ROOF/TO HVAC UNIT WITH NEW IN-KIND UNIT. INSTALL NEW EXHAUST FANS.

PROJECT DIRECTORY

OWNER
 AMERICAN RIVER FLOOD CONTROL DISTRICT
 165 COMMERCE CIRCLE, SUITE D
 SACRAMENTO, CA 95815
 CONTACT: TIM KERR
 PHONE: (916) 929-4006
 EMAIL: tkerr@arfcfd.org

MECHANICAL ENGINEER
 SACRAMENTO ENGINEERING CONSULTANTS
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 SACRAMENTO, CA 95827
 CONTACT: MING CHEN
 PHONE: (916) 441-6708
 EMAIL: ming@saceng.com

ARCHITECT
 LIONAKIS
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ELECTRICAL ENGINEER
 SACRAMENTO ENGINEERING CONSULTANTS
 10555 OLD PLACERVILLE ROAD
 SACRAMENTO, CA 95827
 CONTACT: RICK HENRIKSEN
 PHONE: (916) 368-4468
 EMAIL: rh@saceng.com

SHEET IDENTIFICATION LEGEND

DISCIPLINE DESIGNATORS - LEVEL 1	SHEET TYPE DESIGNATORS
G GENERAL	0 - GENERAL
H HAZARDOUS MATERIALS	1 - PLANS
V SURVEY/MAPPING	2 - ELEVATIONS
B GEOTECHNICAL	3 - SECTIONS
C CIVIL	4 - LARGE SCALE VIEWS
S LANDSCAPE	5 - DETAILS
W STRUCTURAL	6 - SCHEDULES & DIAGRAMS
A ARCHITECTURAL	7 - USER DEFINED
I INTERIORS	8 - USER DEFINED
O EQUIPMENT	9 - 3D REPRESENTATIONS
F FIRE PROTECTION	
P PLUMBING	
D PROCESS	
M MECHANICAL	
E ELECTRICAL	
W DISTRIBUTED ENERGY	
T TELECOMMUNICATIONS	
R RESOURCE	
X OTHER DISCIPLINES	
Z CONTRACTOR/SHOP DRAWINGS	
O OPERATIONS	

BUILDING IDENTIFIER - WHERE OCCURS
 DISCIPLINE DESIGNATOR - LEVEL 1
 DISCIPLINE DESIGNATOR - LEVEL 2
 REPLACE DASH WHERE OCCURS
 SHEET TYPE DESIGNATOR
 SHEET TYPE SUBSET DESIGNATOR
 LEVEL/SEQUENCE DESIGNATOR
 AREA IDENTIFIER - WHERE OCCURS
 UNIQUE PORTION IDENTIFIER - WHERE OCCURS

C.A-123AB

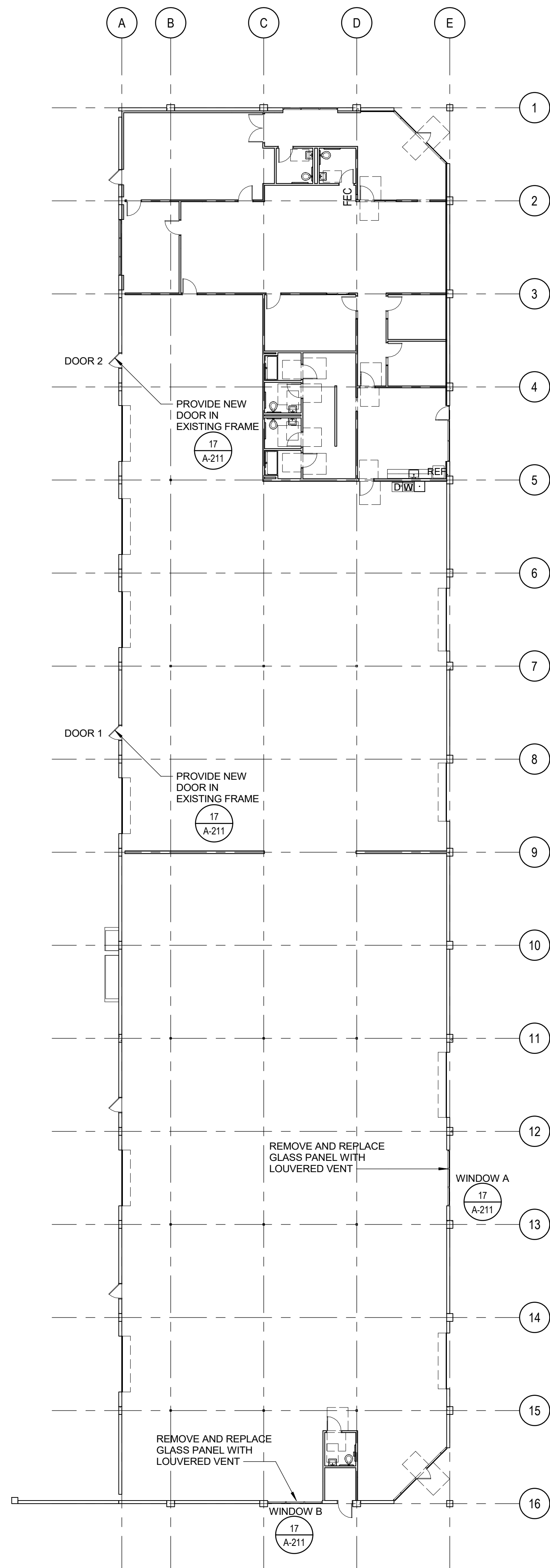
TITLE

COVER SHEET

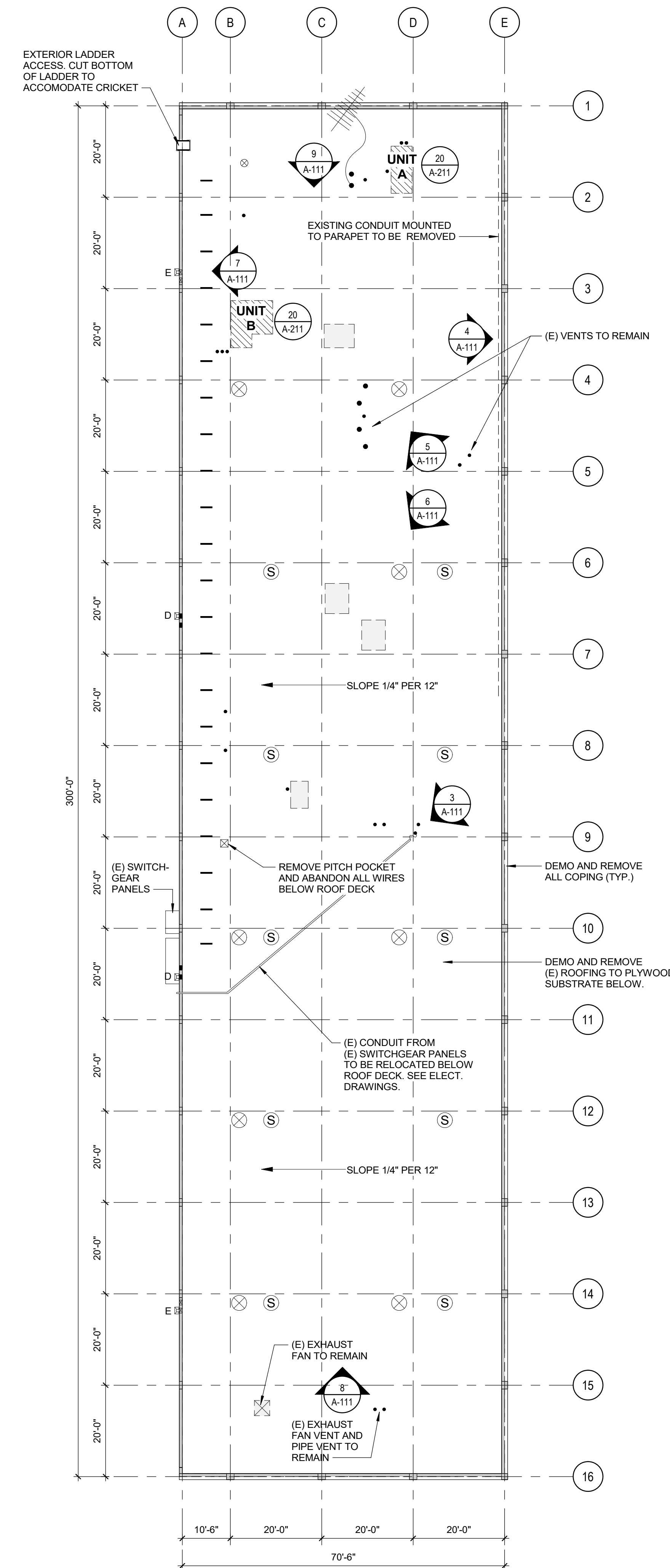
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G-001

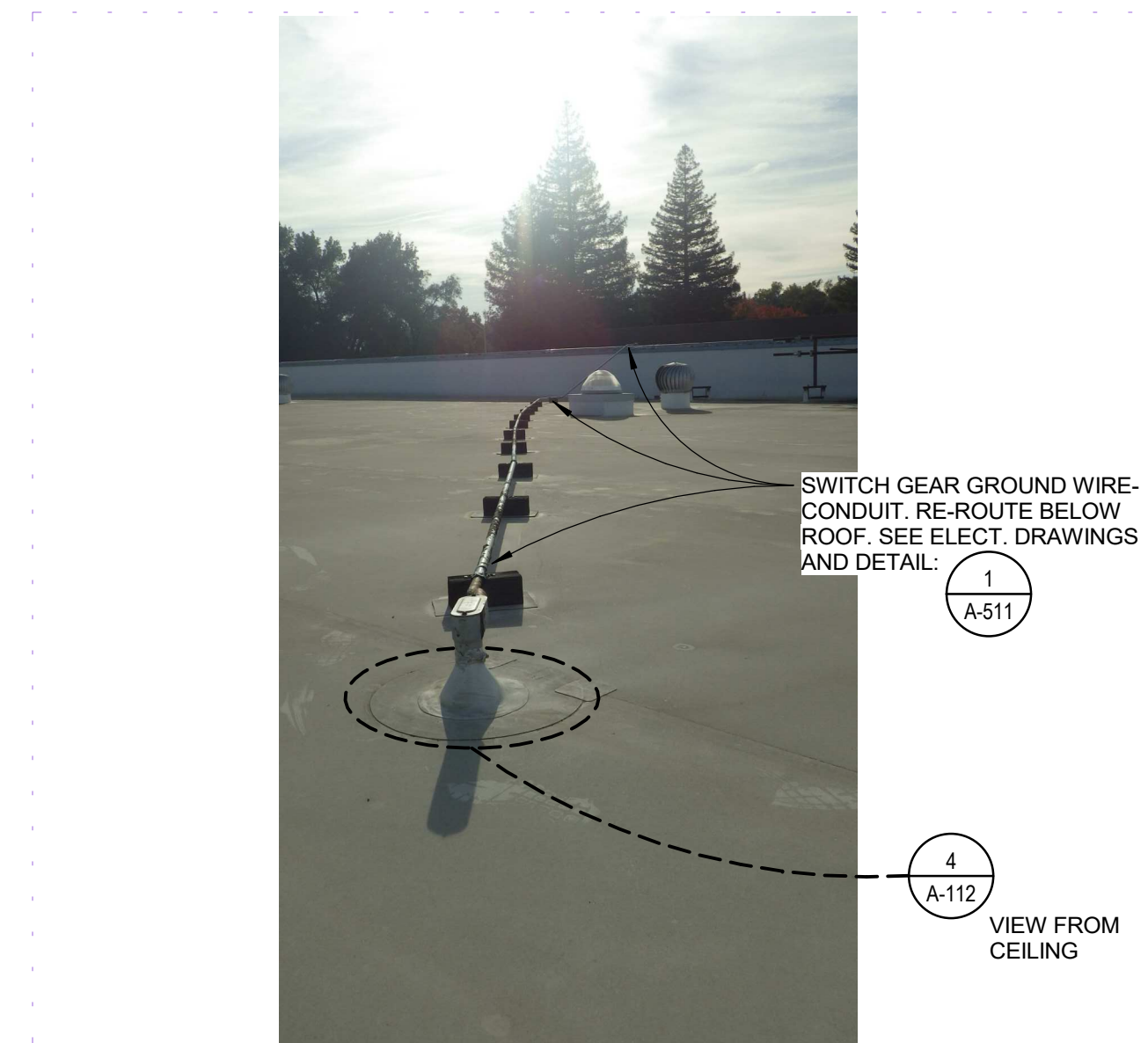
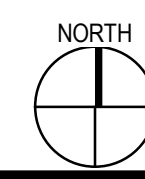
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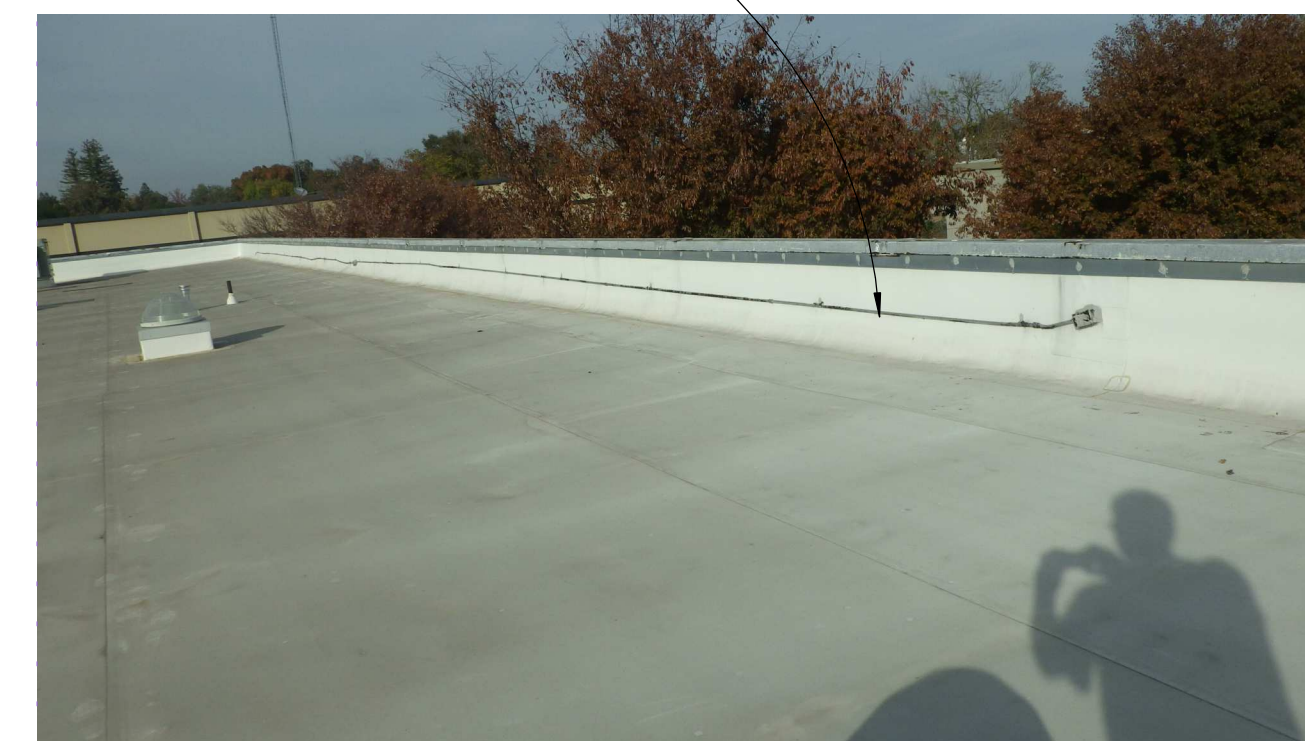
1 EXISTING / DEMO FLOOR PLAN - OVERALL
SCALE 1/16" = 1'-0"



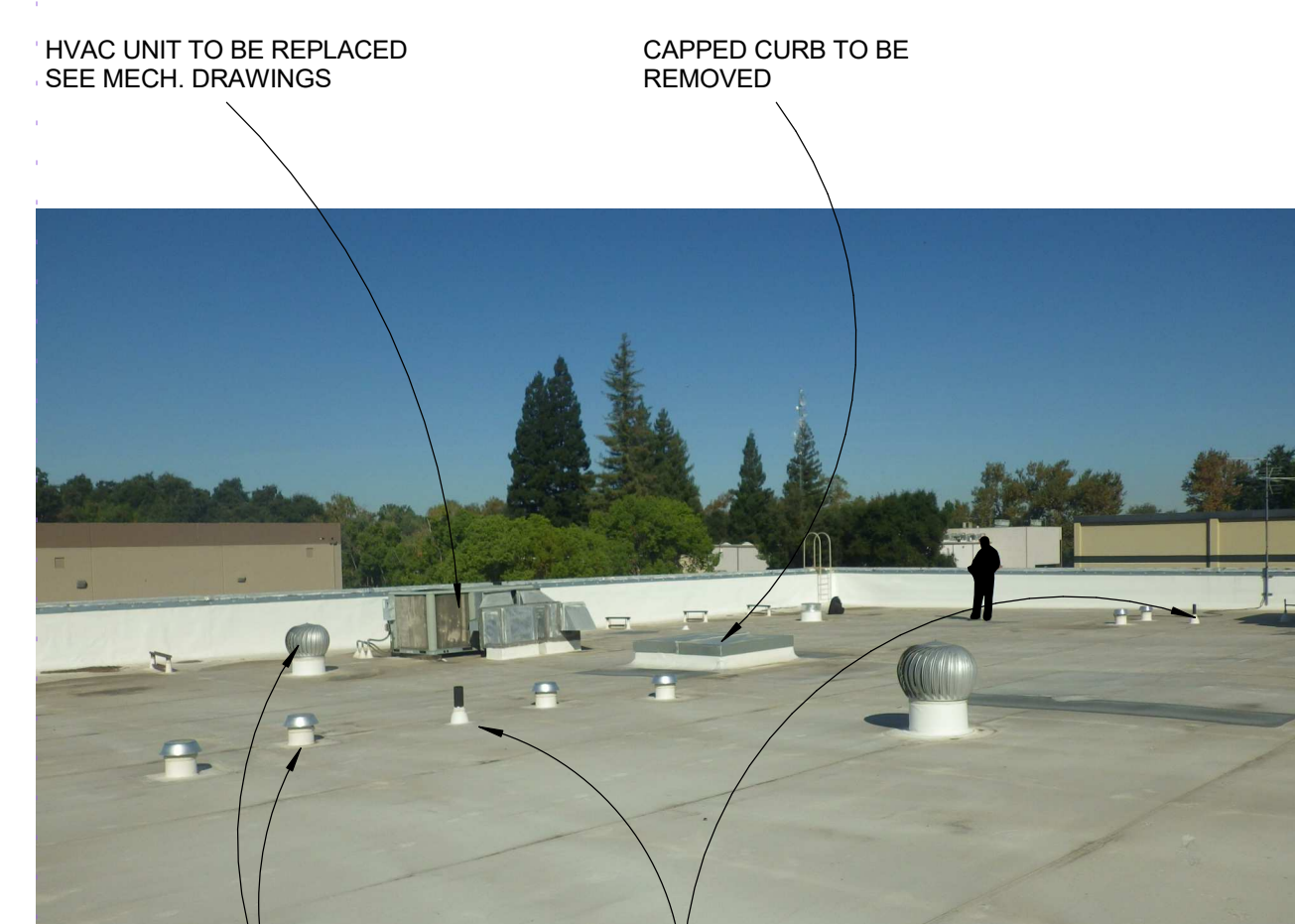
2 EXISTING / DEMO ROOF PLAN - OVERALL
SCALE 1/16" = 1'-0"



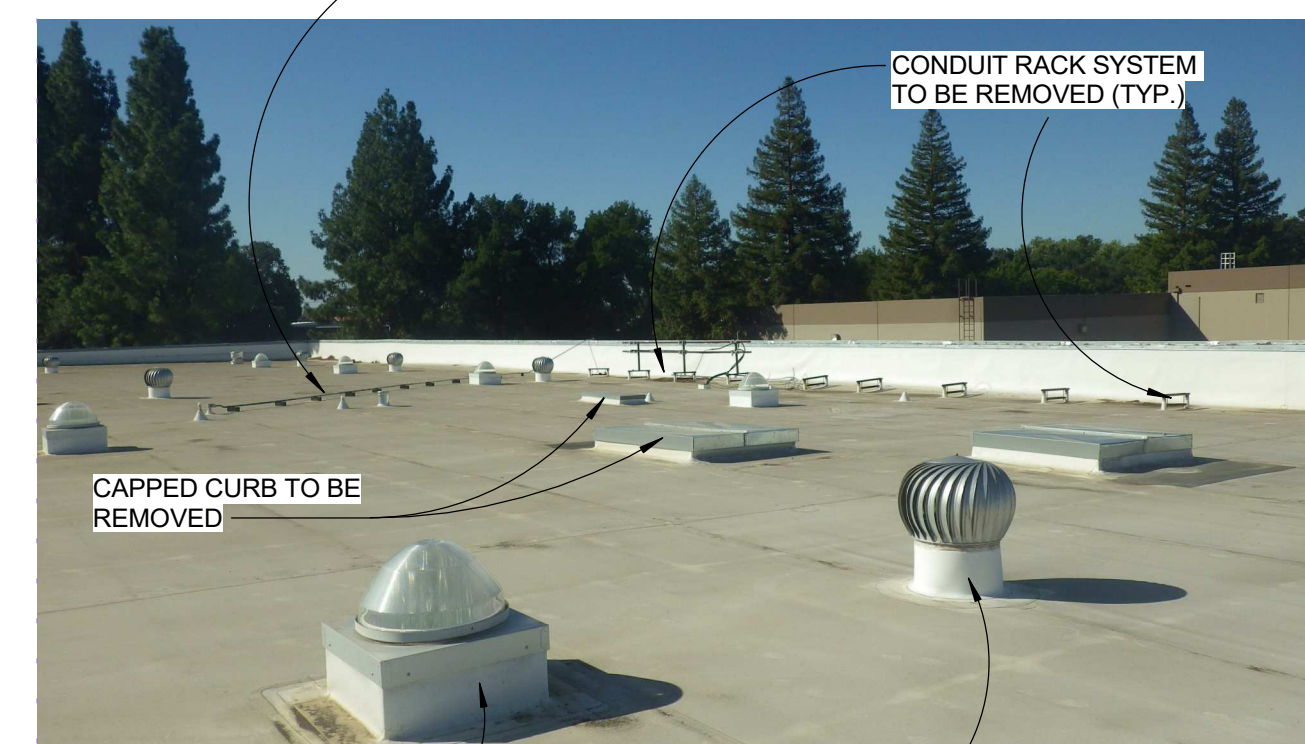
3 (E) SWITCH GEAR CONDUIT
12" = 1'-0"



4 (E) CONDUIT AT PARAPET
12" = 1'-0"



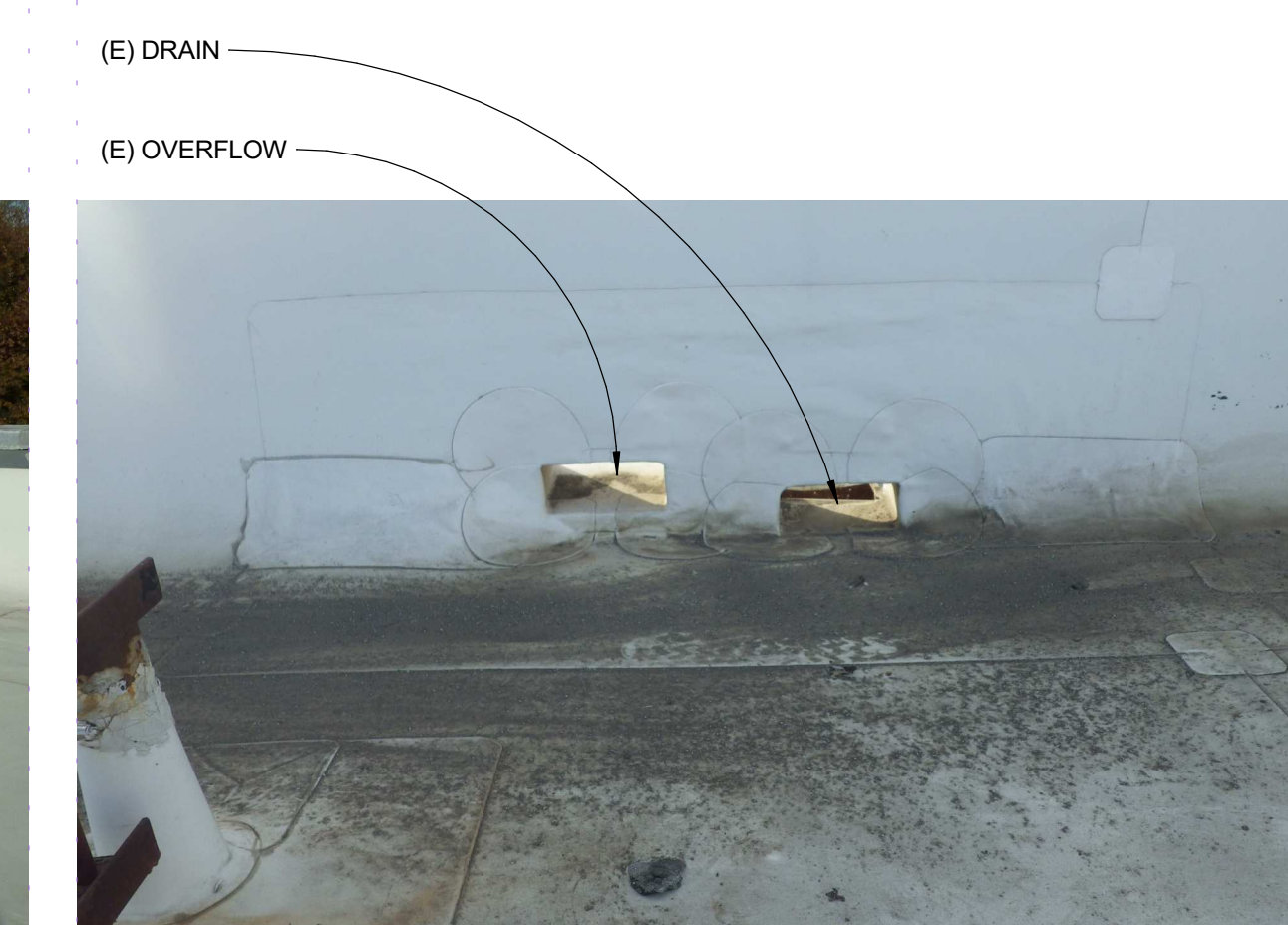
5 (E) MISC. PENETRATIONS 1
12" = 1'-0"



6 (E) MISC. PENETRATIONS 2
12" = 1'-0"

ROOF PLAN LEGEND

- (E) EXHAUST FAN
- (E) SKY LIGHTS
- (E) PIPE / CONDUIT PENETRATIONS. MOST PENETRATIONS OBSERVED ARE NOT IN USE. VERIFY THEN REMOVE, AND REPAIR ROOF SHEATHING.
- (E) MECHANICAL UNITS. SEE 20 A-211
- (E) ABANDONED MECH. UNIT CURB TO BE REMOVED AND ROOF DECK REPAIRED.
- (E) CONDUIT RACK - DEMO AND REMOVE ALL RACK AND SUPPORT STRUCTURE
- NEW SCUPPER & OVERFLOW DRAINS 8 A-511
- EXISTING SCUPPER & OVERFLOW DRAINS 8 A-511
- EXISTING SCUPPER & OVERFLOW DRAINS REMOVED AND INFILLED WITH CONC. 14 A-211
- PATH OF WALK-WAY PADS
- (E) ANTENNA TO BE SALVAGED AND REINSTALLED IN SAME LOCATION AFTER WORK IS COMPLETE.



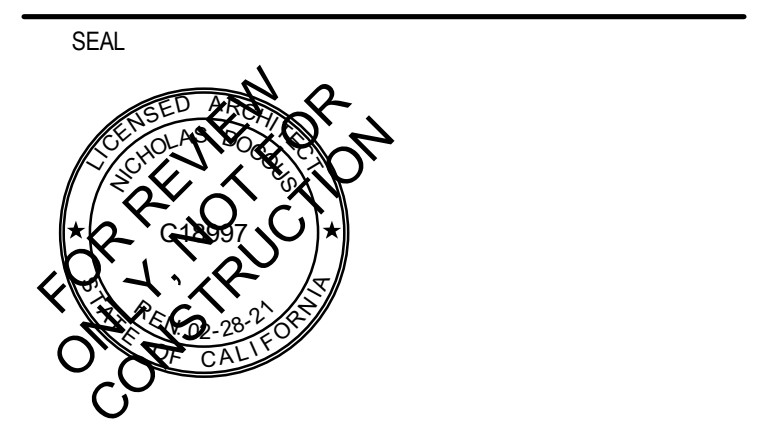
7 TYP. (E) DRAIN AND OVERFLOW
12" = 1'-0"



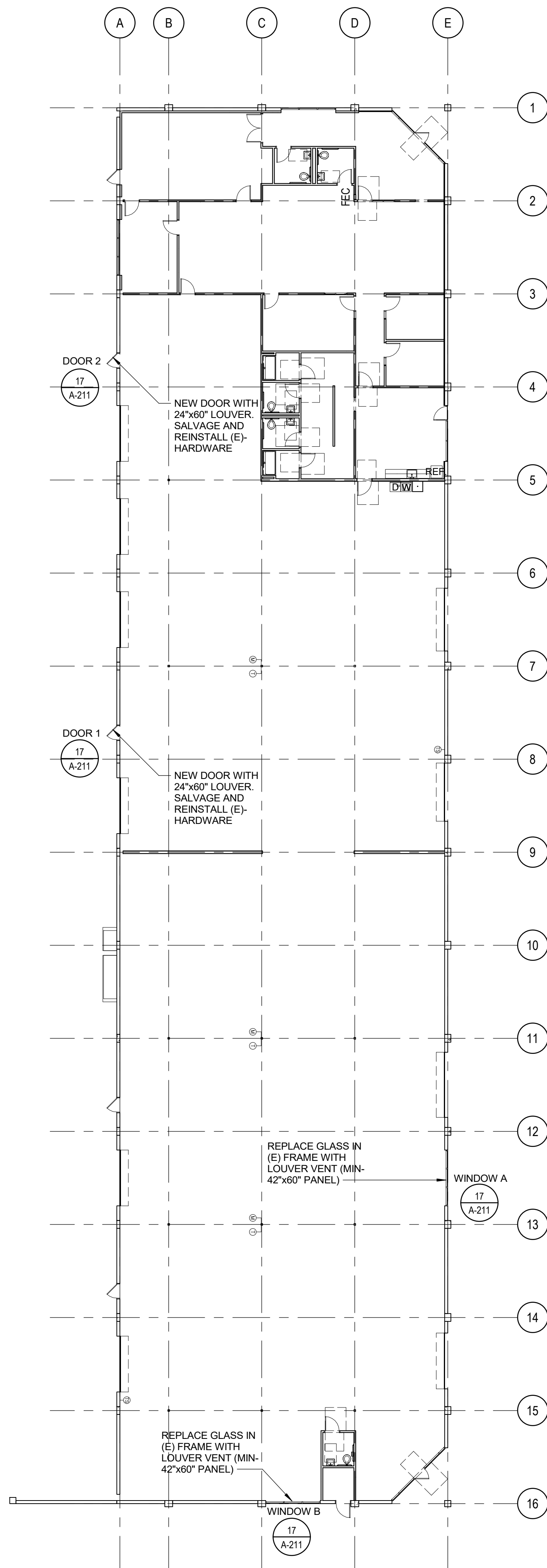
8 (E) ROOF OVERVIEW FROM SOUTH END
12" = 1'-0"



9 (E) ROOF OVERVIEW FROM NORTH END
12" = 1'-0"

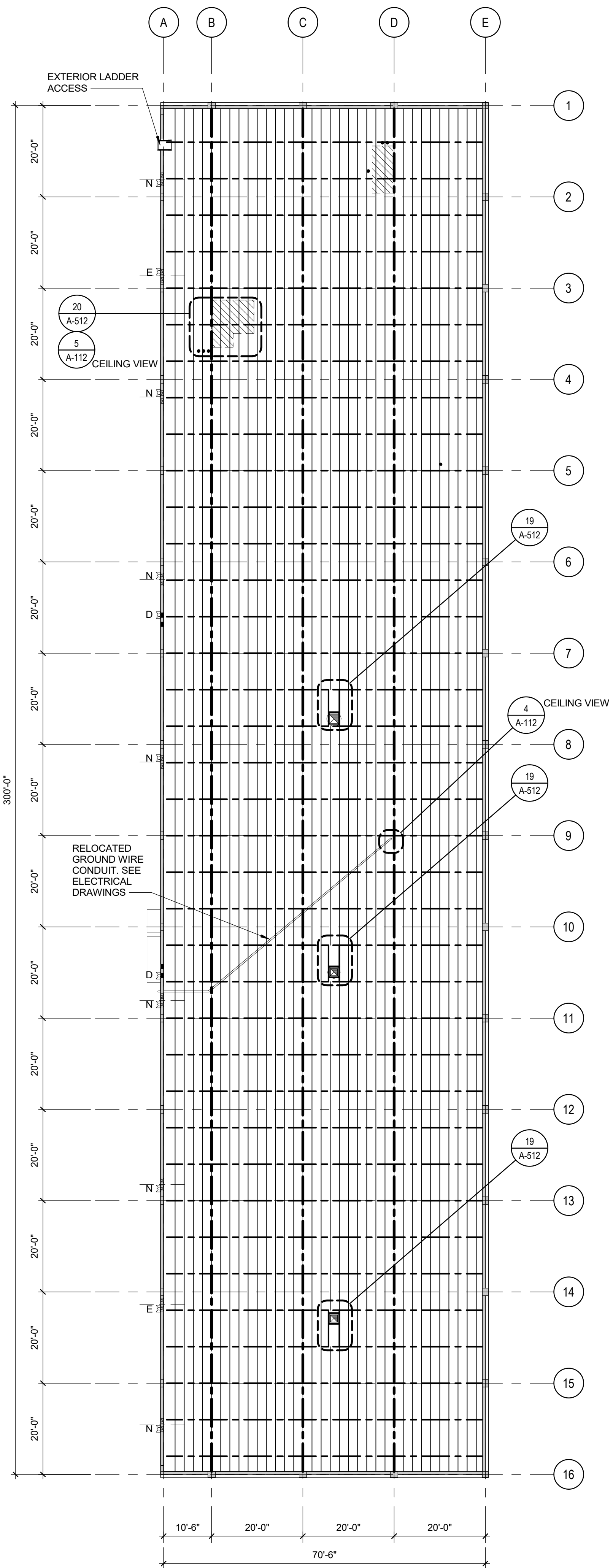


MARK	DATE	DESCRIPTION



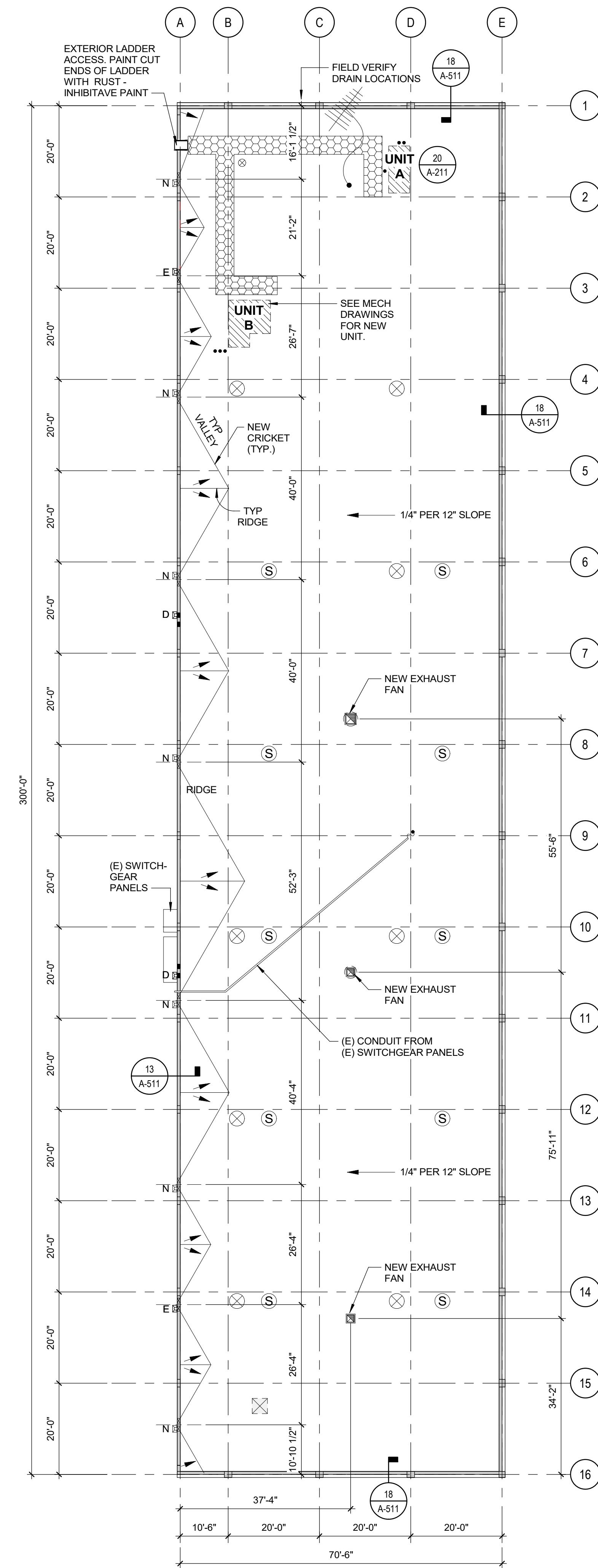
1 NEW FLOOR PLAN - OVERALL

SCALE: 1/16" = 1'-0"



2 ROOF FRAMING PLAN - OVERALL

SCALE: 1/16" = 1'-0"



3 NEW ROOF PLAN - OVERALL

SCALE: 1/16" = 1'-0"

ROOF PLAN LEGEND

- (E) EXHAUST FAN
- (E) SKY LIGHTS
- (E) PIPE / CONDUIT PENETRATIONS. MOST PENETRATIONS OBSERVED ARE NOT IN USE. VERIFY THEN REMOVE, AND REPAIR ROOF SHEATHING.
- (E) MECHANICAL UNITS. SEE 20 A-211
- (E) ABANDONED MECH. UNIT CURB TO BE REMOVED AND ROOF DECK REPAIRED.
- (E) CONDUIT RACK - DEMO AND REMOVE ALL RACK AND SUPPORT STRUCTURE
- NEW SCUPPER & OVERFLOW DRAINS
- EXISTING SCUPPER & OVERFLOW DRAINS
- EXISTING SCUPPER & OVERFLOW DRAINS REMOVED AND INFILLED WITH CONC.
- PATH OF WALK-WAY PADS
- (E) ANTENNA TO BE SALVAGED AND REINSTALLED IN SAME LOCATION AFTER WORK IS COMPLETE.

GENERAL NOTES

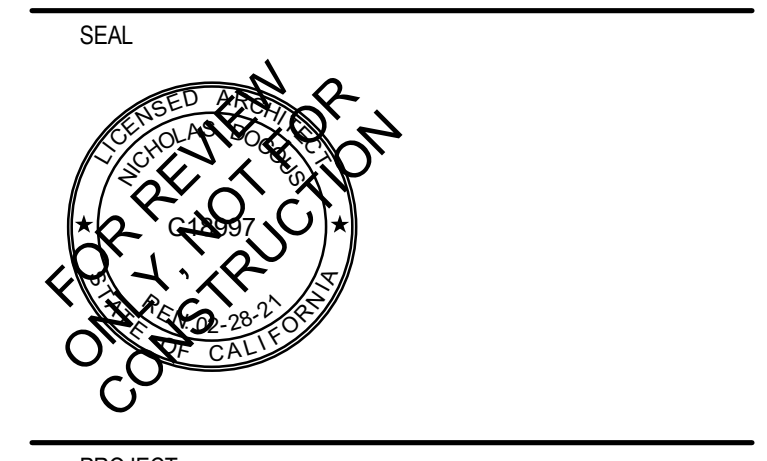
- GENERAL NOTES:**
- REMOVE EXISTING HVAC UNIT TO REMAIN DURING ROOFING WORK. RE-SET & RECONNECT ALL PIPING, CONDUIT, & WIRING TO UNIT. TEST THAT UNIT HAS BEEN RETURNED TO FULLY OPERATIONAL STATE.
 - REMOVE AND RE-SET ALL EXISTING SOLATUBE SKYLITES AND ALL EXHAUST FANS TO ACCOMMODATE RE-ROOFING.
- ALLOWANCE:**
- INCLUDE A TOTAL COST OF \$10,000.00 FOR DEMOLITION & REMOVAL AND REPLACEMENT OF ROOF SHEATHING THAT HAS EVIDENCE OF DRY ROT. ASSUME EXISTING PLYWOOD IS 5/8" THICK x 4' x 8' AND NAILED WITH 8d @ 4" O.C. (PERIMETER) AND 12" O.C. (FIELD). SEE SPECS FOR MORE ALLOWANCE REQUIREMENTS.
 - INCLUDE A TOTAL COST OF \$2,500.00 TO REMOVE / REPLACE / REINSTALL ANY MISSING, LOOSE, OR DAMAGED R-11 BATT INSULATION AT UNDERSIDE OF ROOF DECK. SEE SPECS FOR MORE ALLOWANCE REQUIREMENTS.



5 CEILING AT MECH UNIT B



4 CEILING AT GROUND WIRE CONDUIT



PROJECT

185 COMMERCE CIRCLE
SACRAMENTO, CA 95815

CLIENT

165 COMMERCE CIRCLE, SUITE D, SACRAMENTO, CA
95815

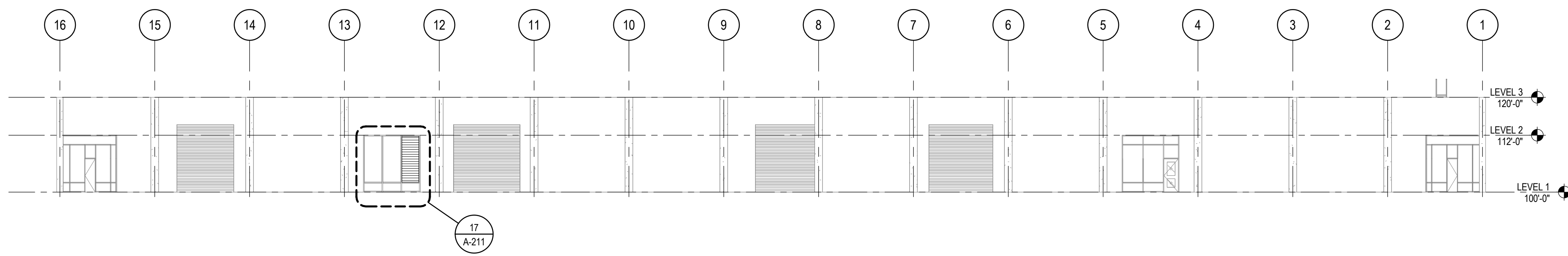
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MANAGEMENT	LIONAKIS PROJECT NO.	019134
	CLIENT PROJECT NO.	
	COPYRIGHT:	LIONAKIS 2019

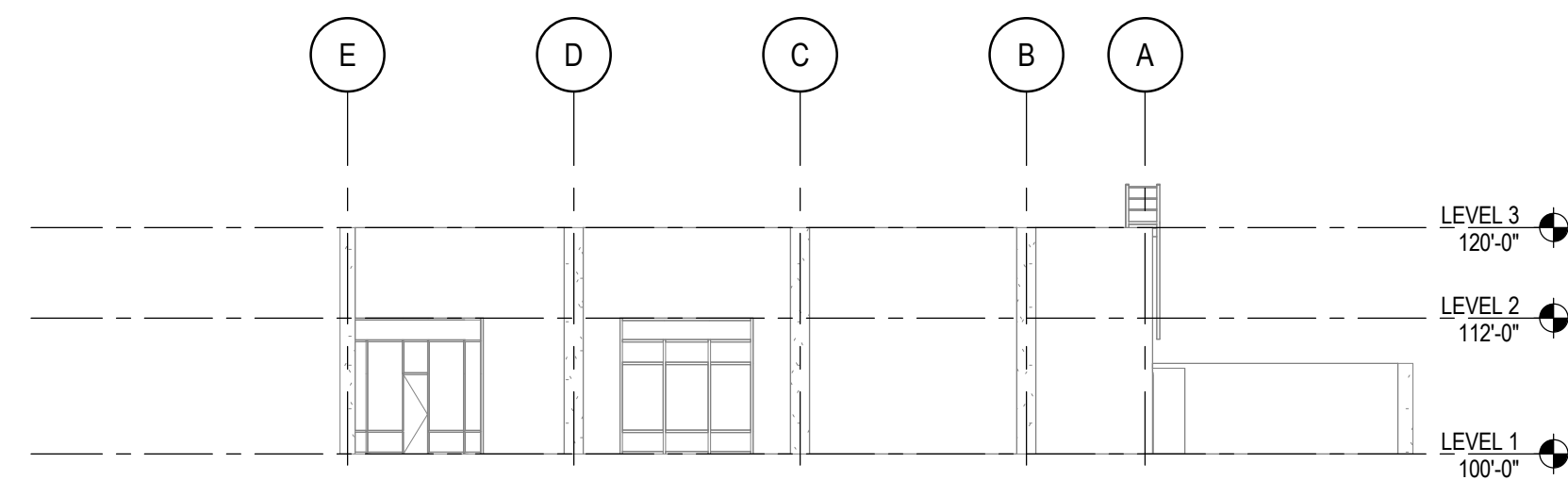
AGENCY

TITLE
PLANS - FLOOR & ROOF
- NEW OVERALL

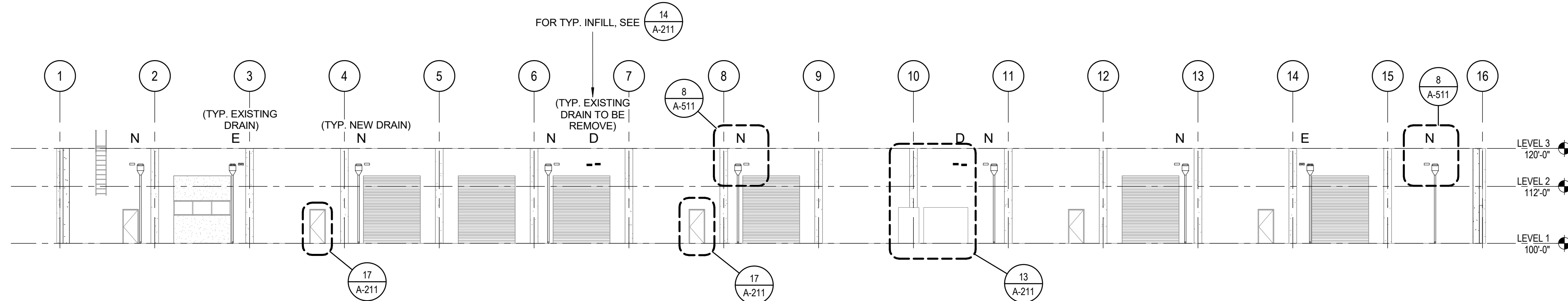
SHEET
A-112



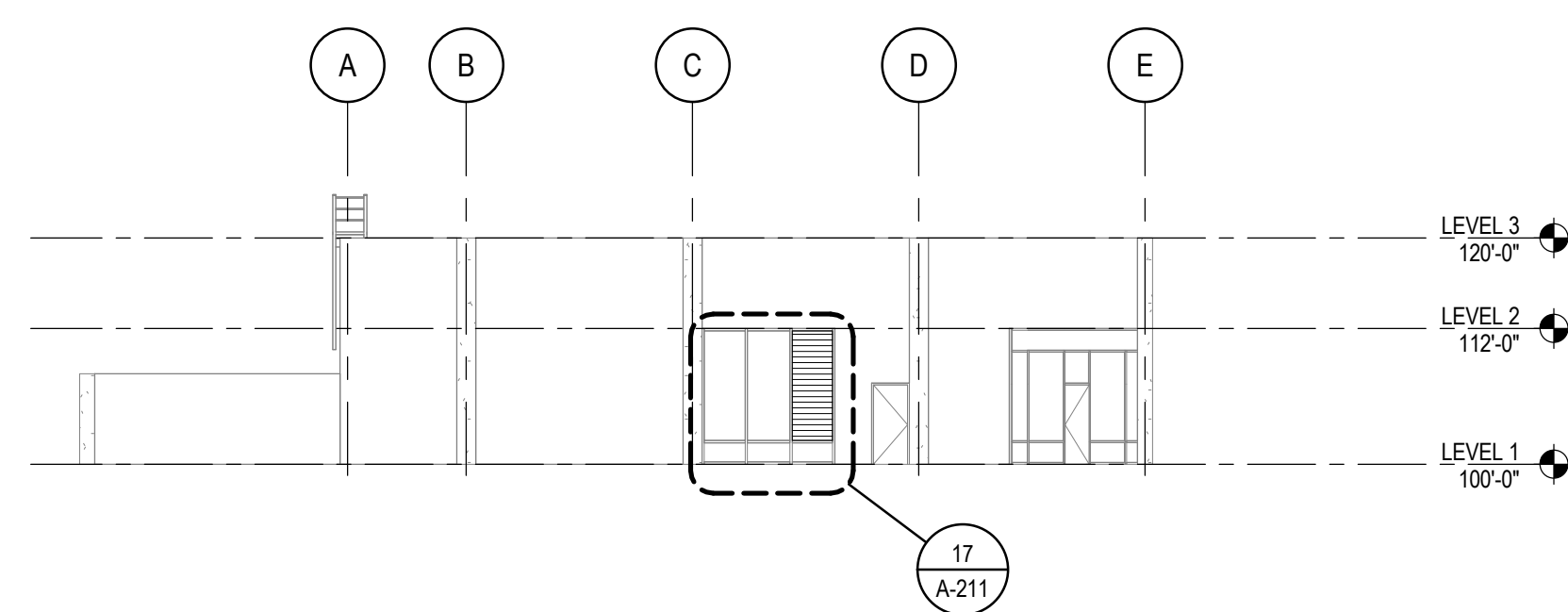
1 EAST EXTERIOR ELEVATION
SCALE 1/16" = 1'-0"



6 NORTH EXTERIOR ELEVATION
SCALE 1/16" = 1'-0"



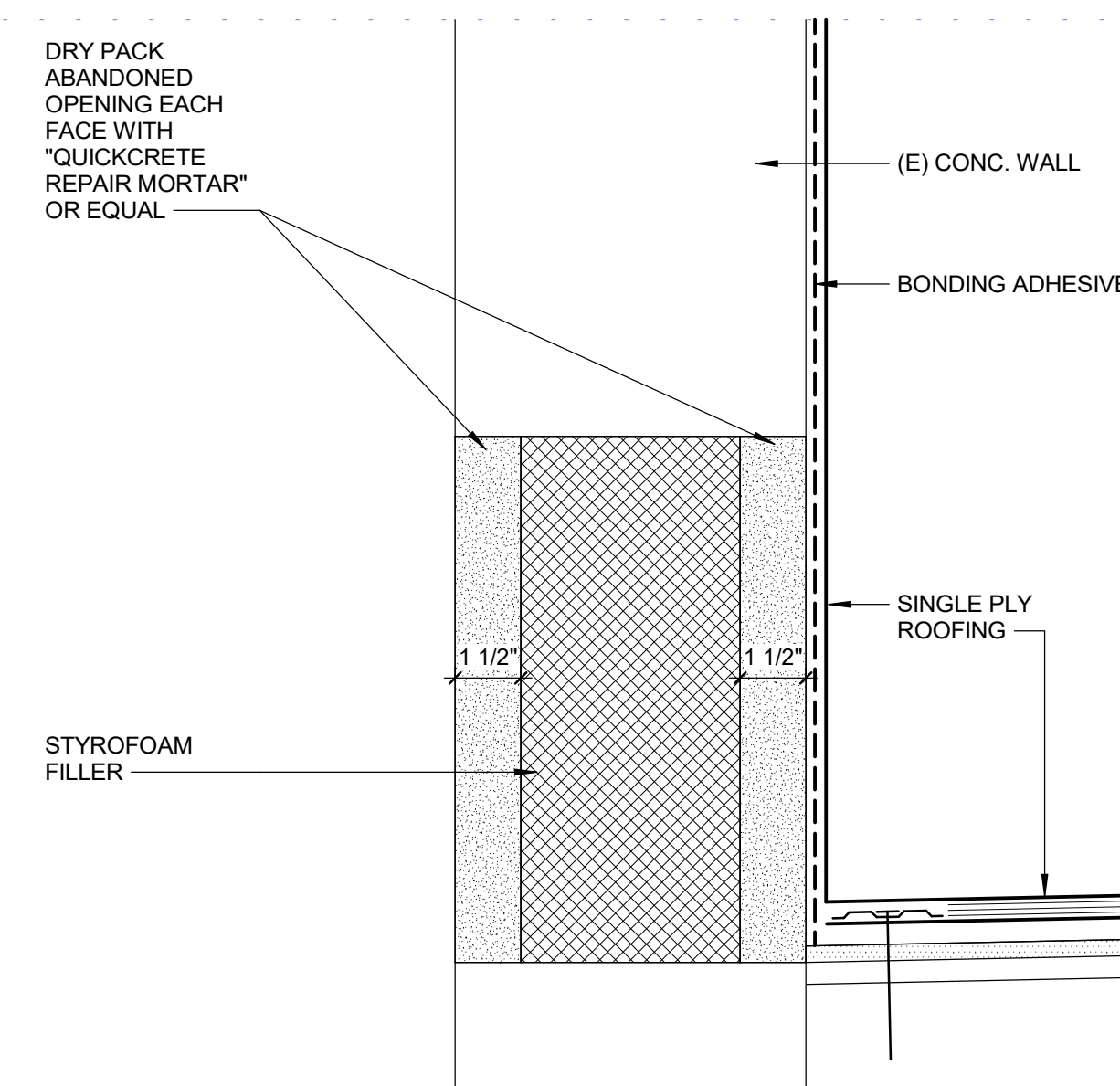
3 WEST EXTERIOR ELEVATION
SCALE 1/16" = 1'-0"



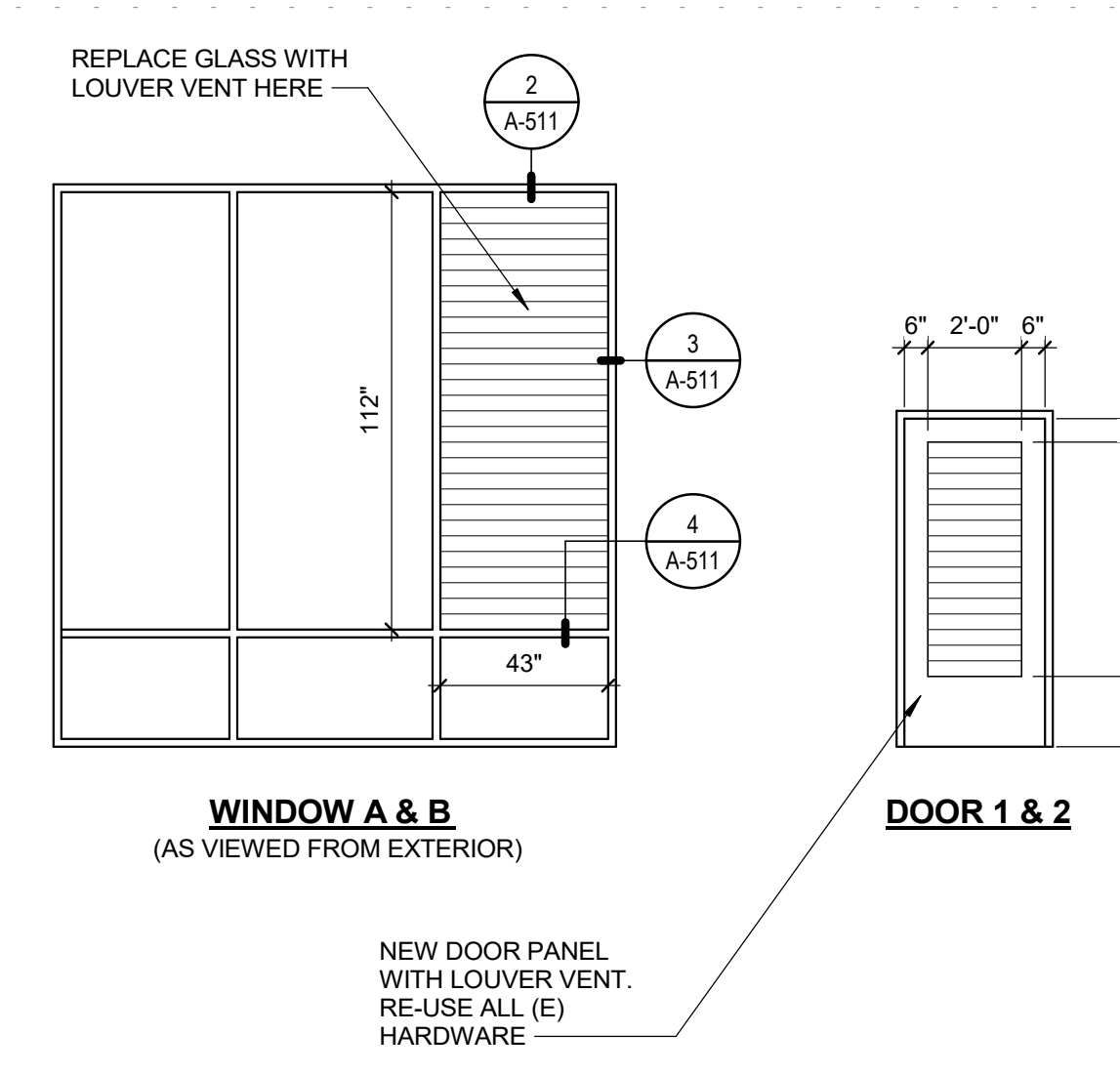
8 SOUTH EXTERIOR ELEVATION
SCALE 1/16" = 1'-0"



13 (E) DRAIN MODIFICATION AT ELECT. SWITCH GEAR
12" = 1'-0"



14 (E) SCUPPER / OVERFLOW INFILL
3" = 1'-0"



17 WINDOW & DOOR LOUVER VENT LOCATIONS
14" = 1'-0"



UNIT B



UNIT B

DEMO EXISTING HVAC UNIT, PIPE & CONDUITS, AND DUCT WORK. PATCH HOLES IN (E) ROOF & PREP FOR INSTALLATION OF NEW UNIT WITH NEW PIPE, CONDUIT & DUCT PENETRATIONS.



UNIT A



UNIT A

EXISTING HVAC UNIT, PIPE, & CONDUIT PENETRATIONS TO REMAIN

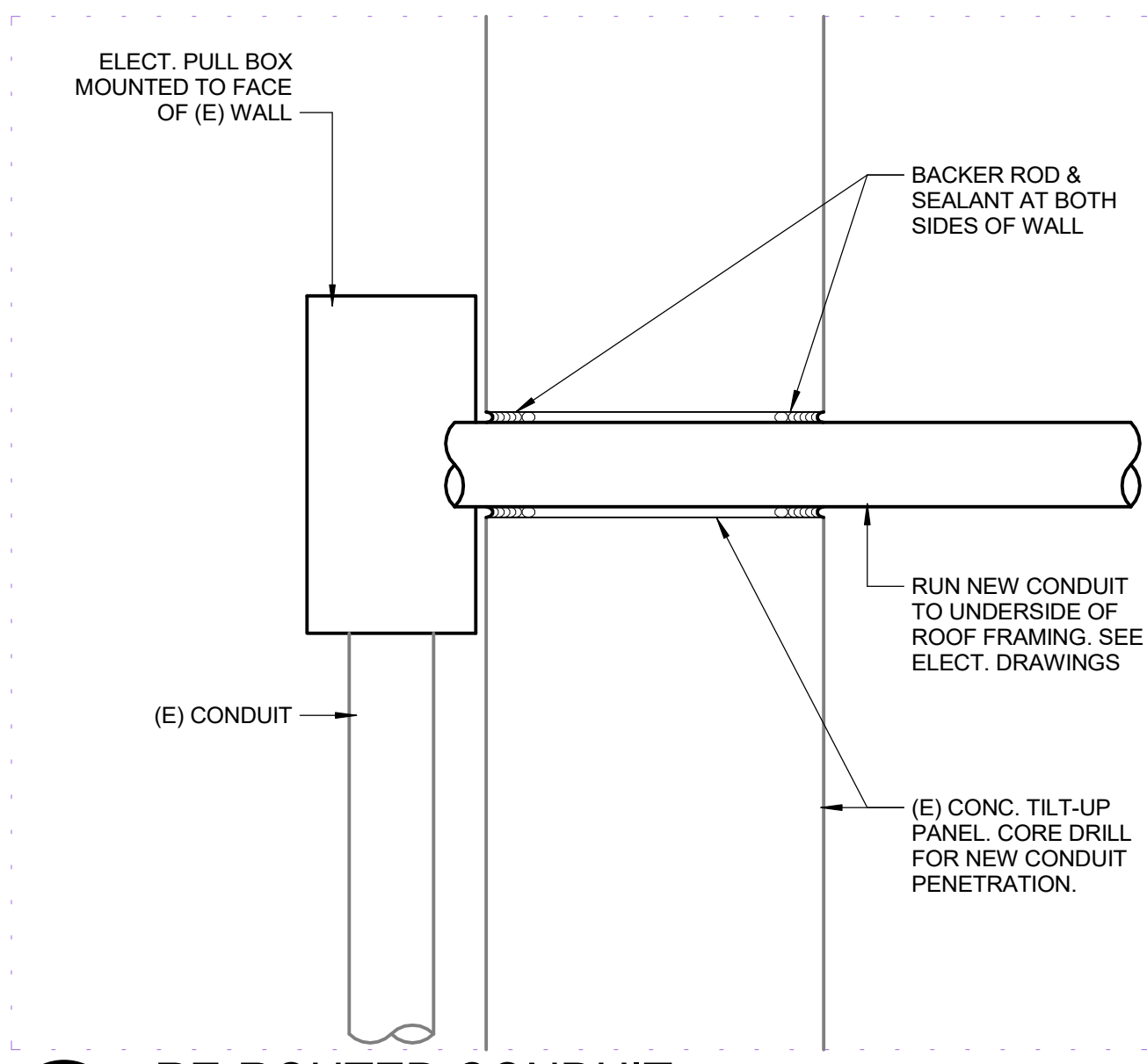
20 (E) HVAC UNITS
12" = 1'-0"



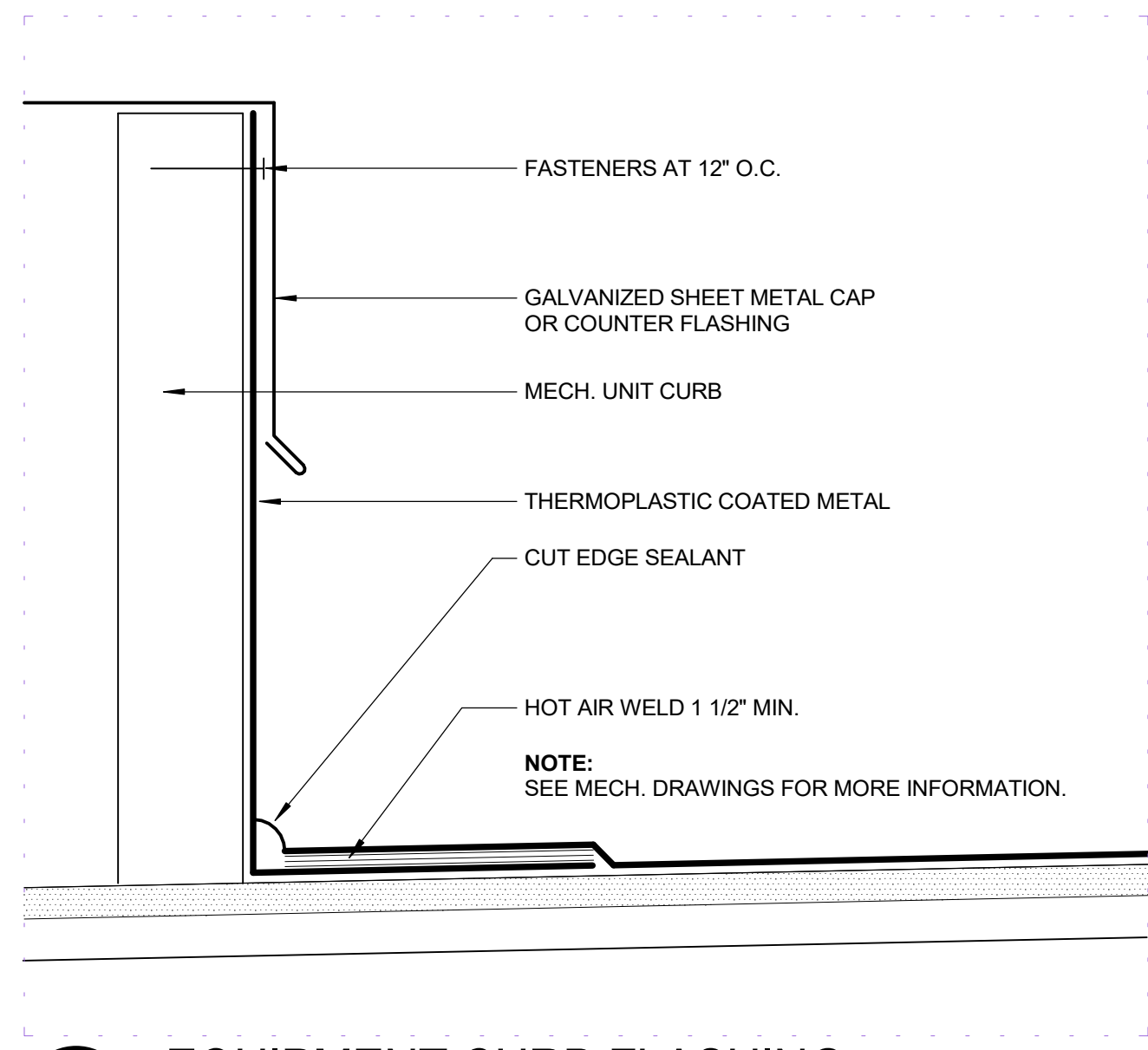
MARK	DATE	DESCRIPTION

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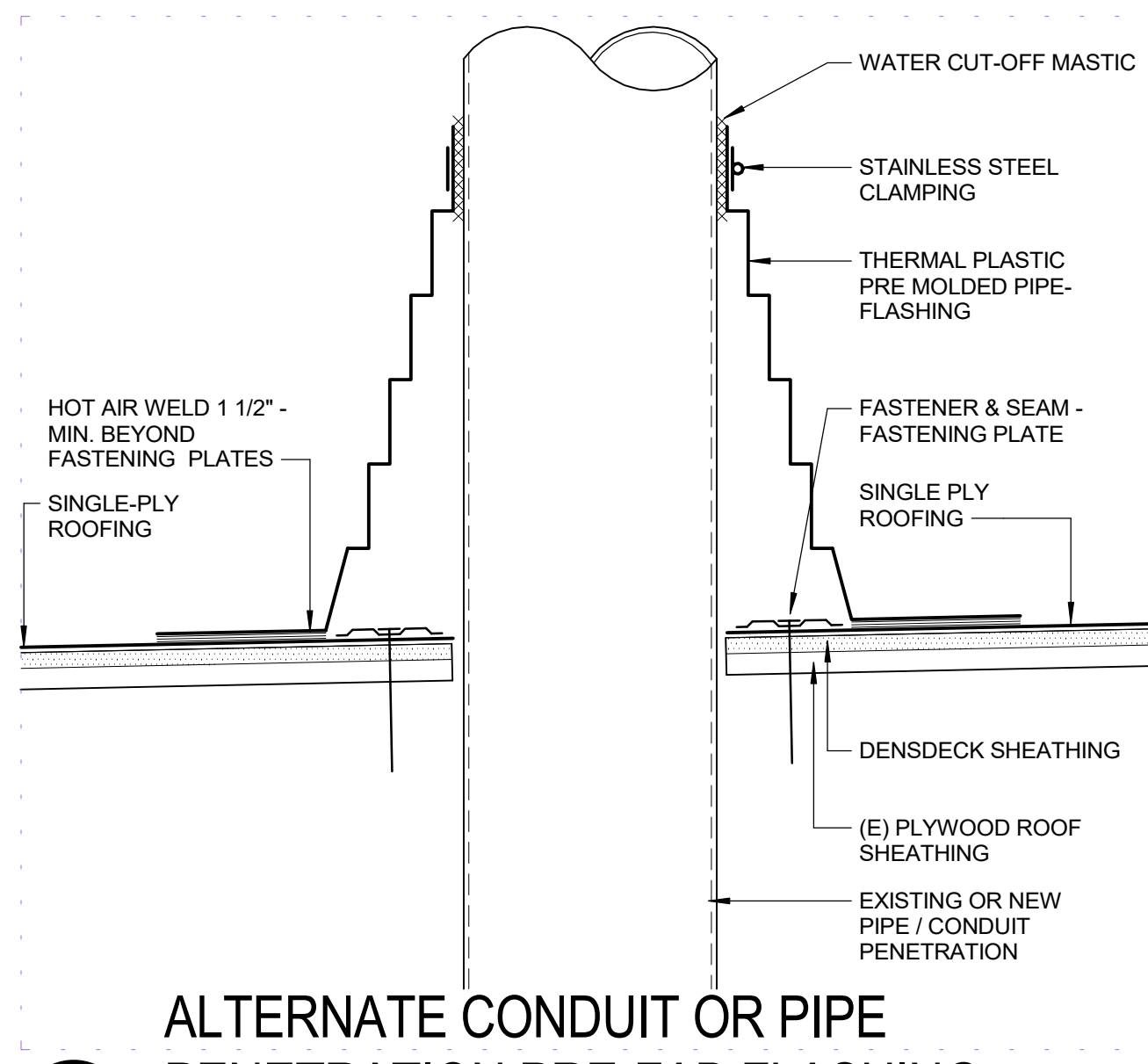
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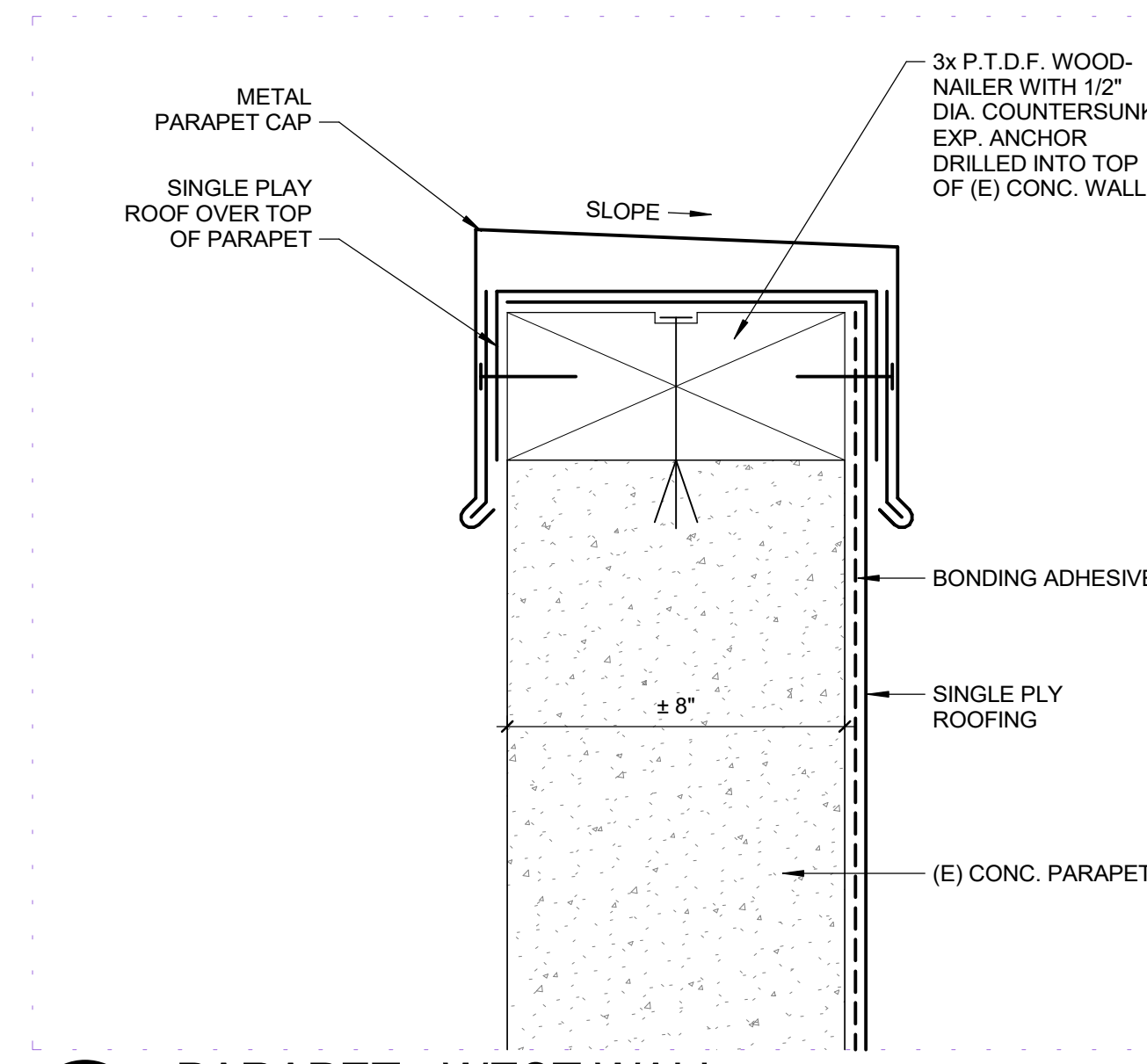
1 RE-ROUTED CONDUIT
3" = 1'-0"



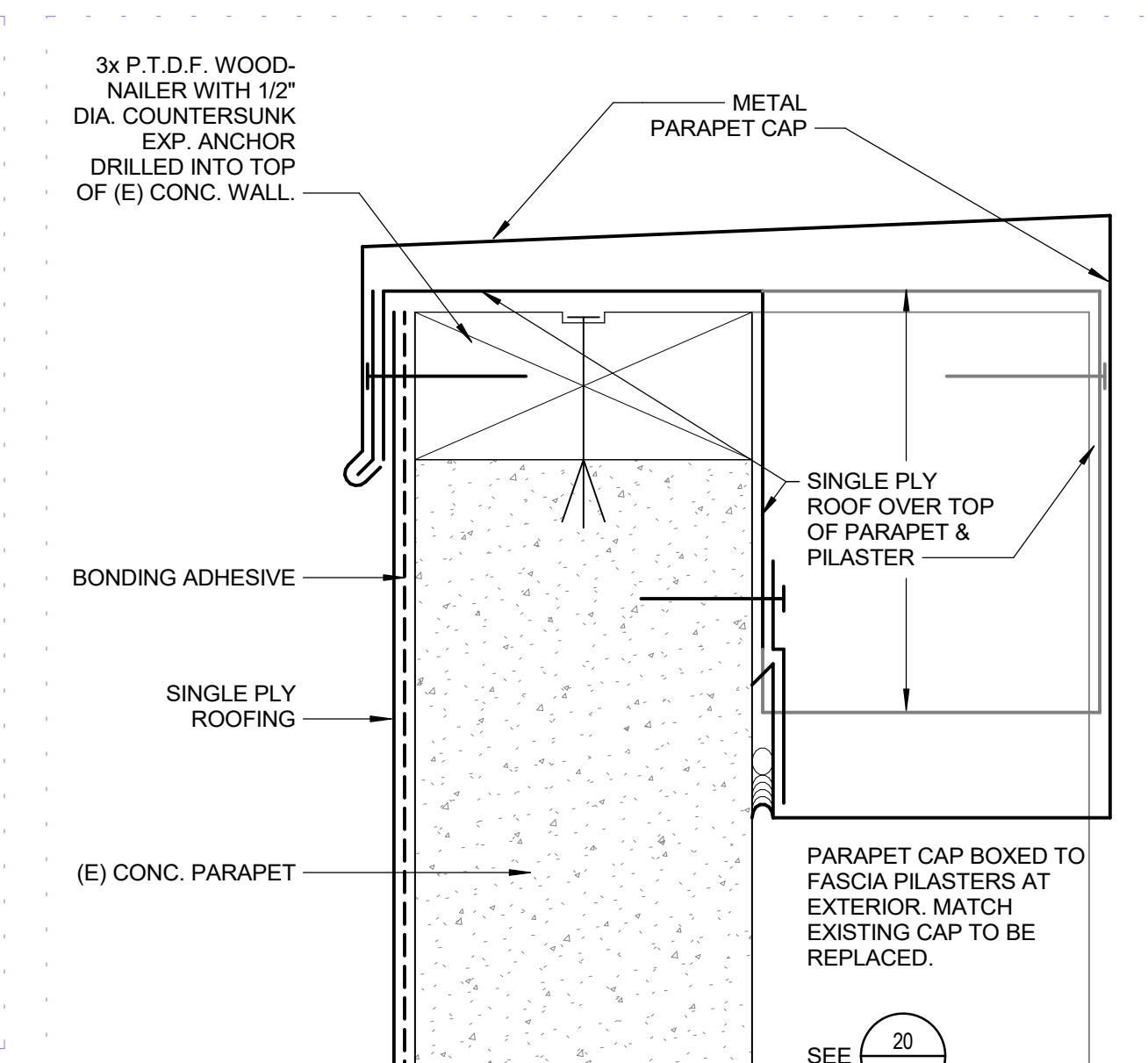
5 EQUIPMENT CURB FLASHING
6" = 1'-0"



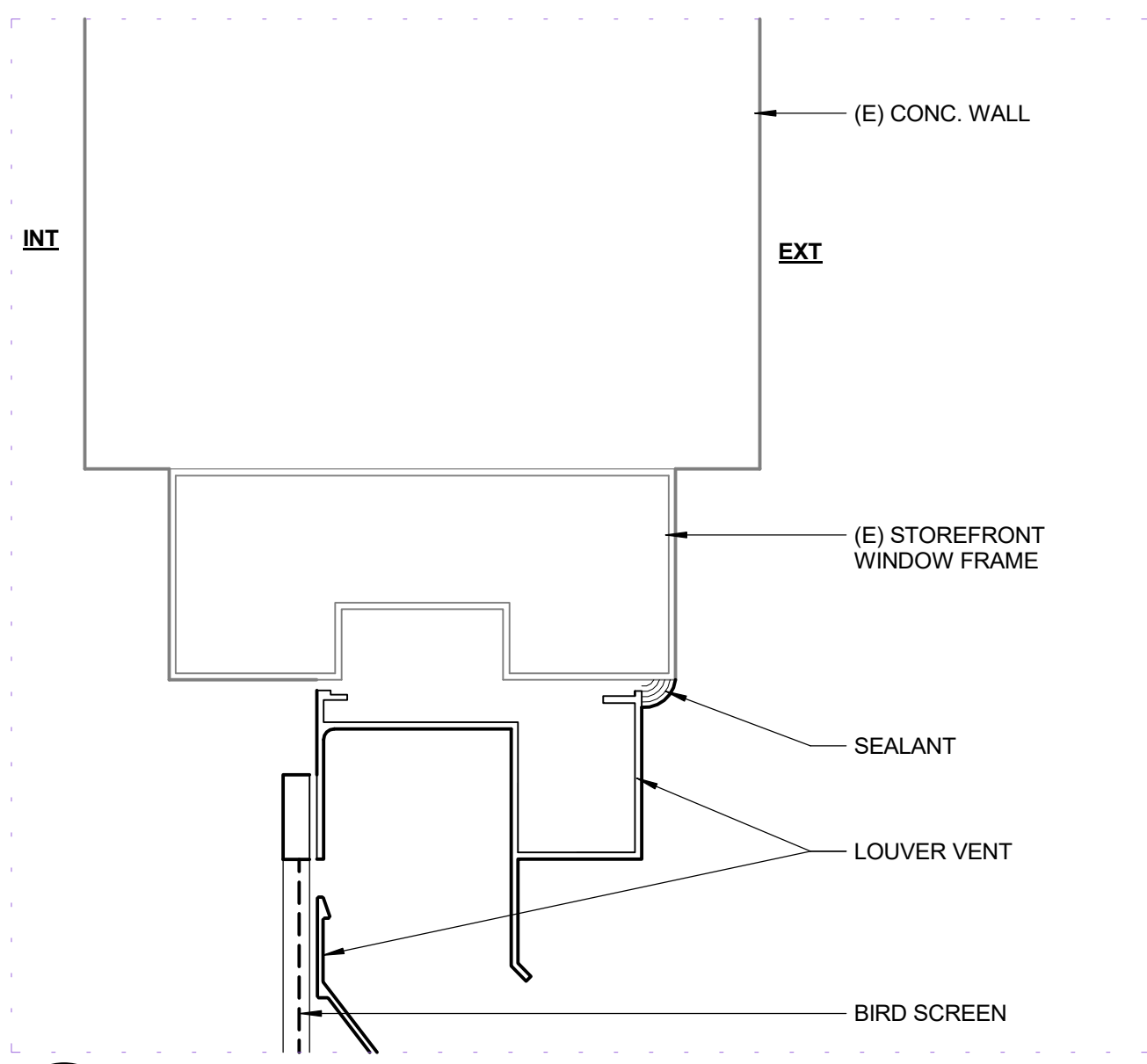
9 ALTERNATE CONDUIT OR PIPE PENETRATION PRE-FAB FLASHING
3" = 1'-0"



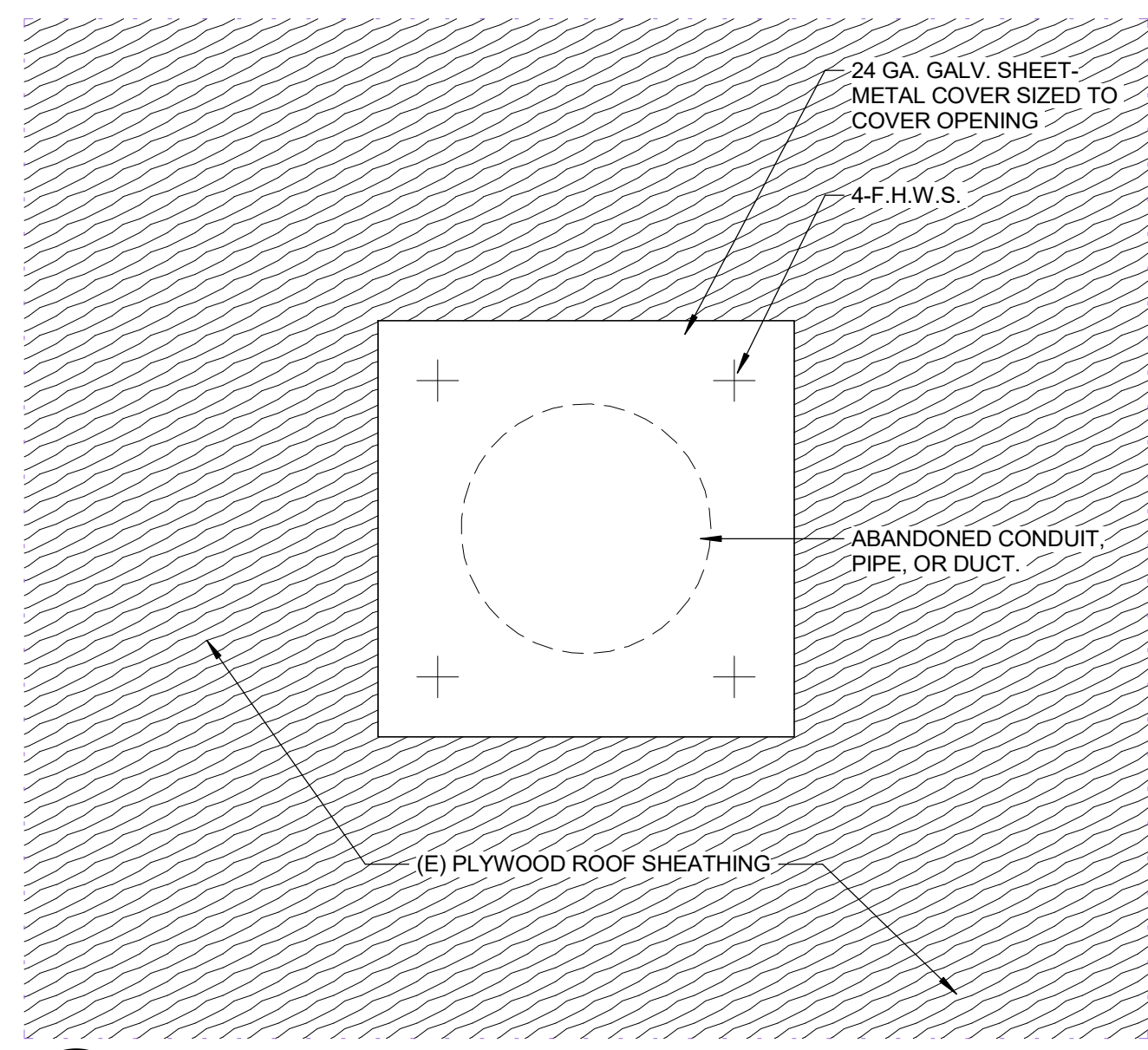
13 PARAPET - WEST WALL
3" = 1'-0"



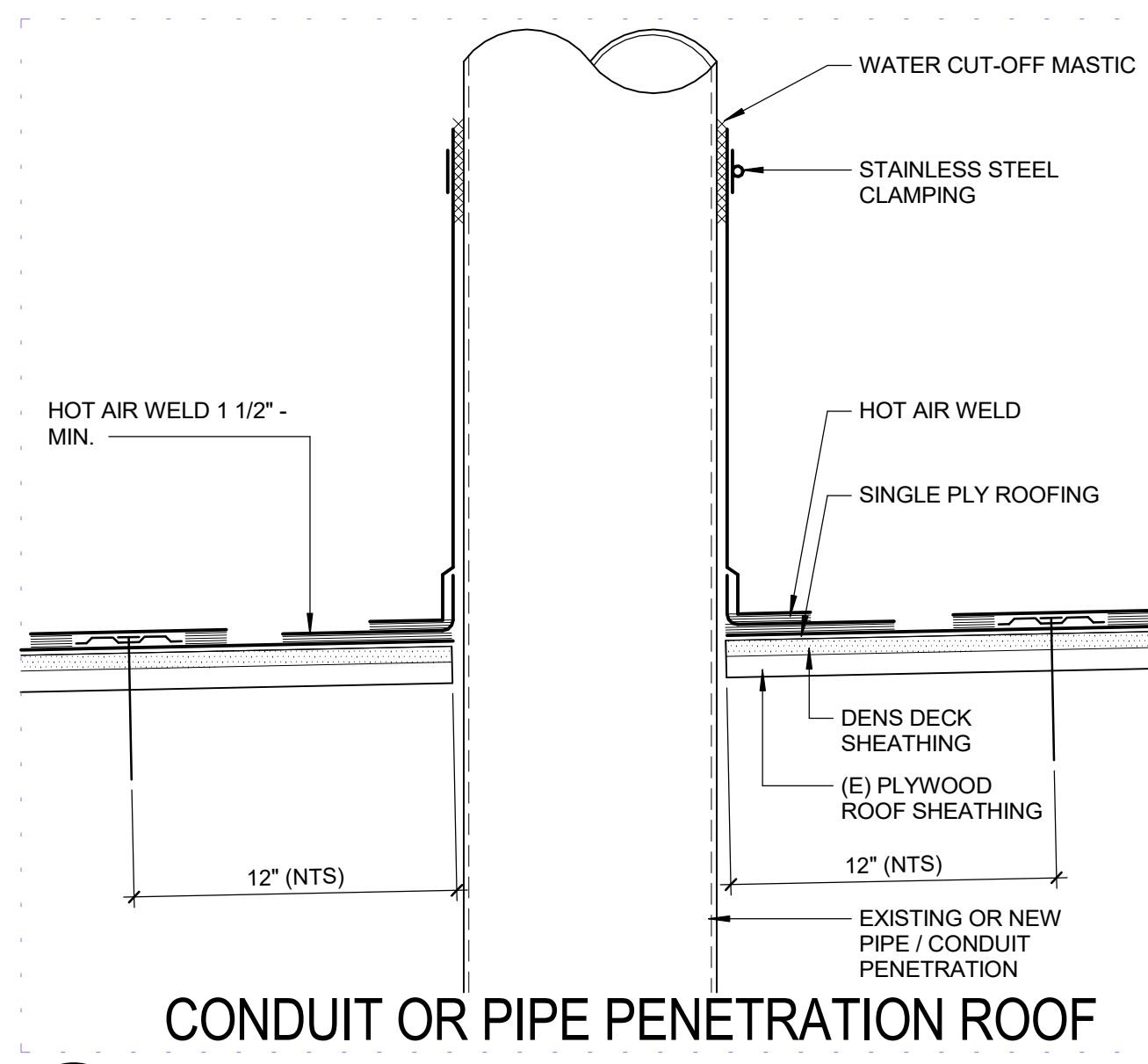
18 PARAPET - NORTH, EAST, SOUTH WALLS
3" = 1'-0"



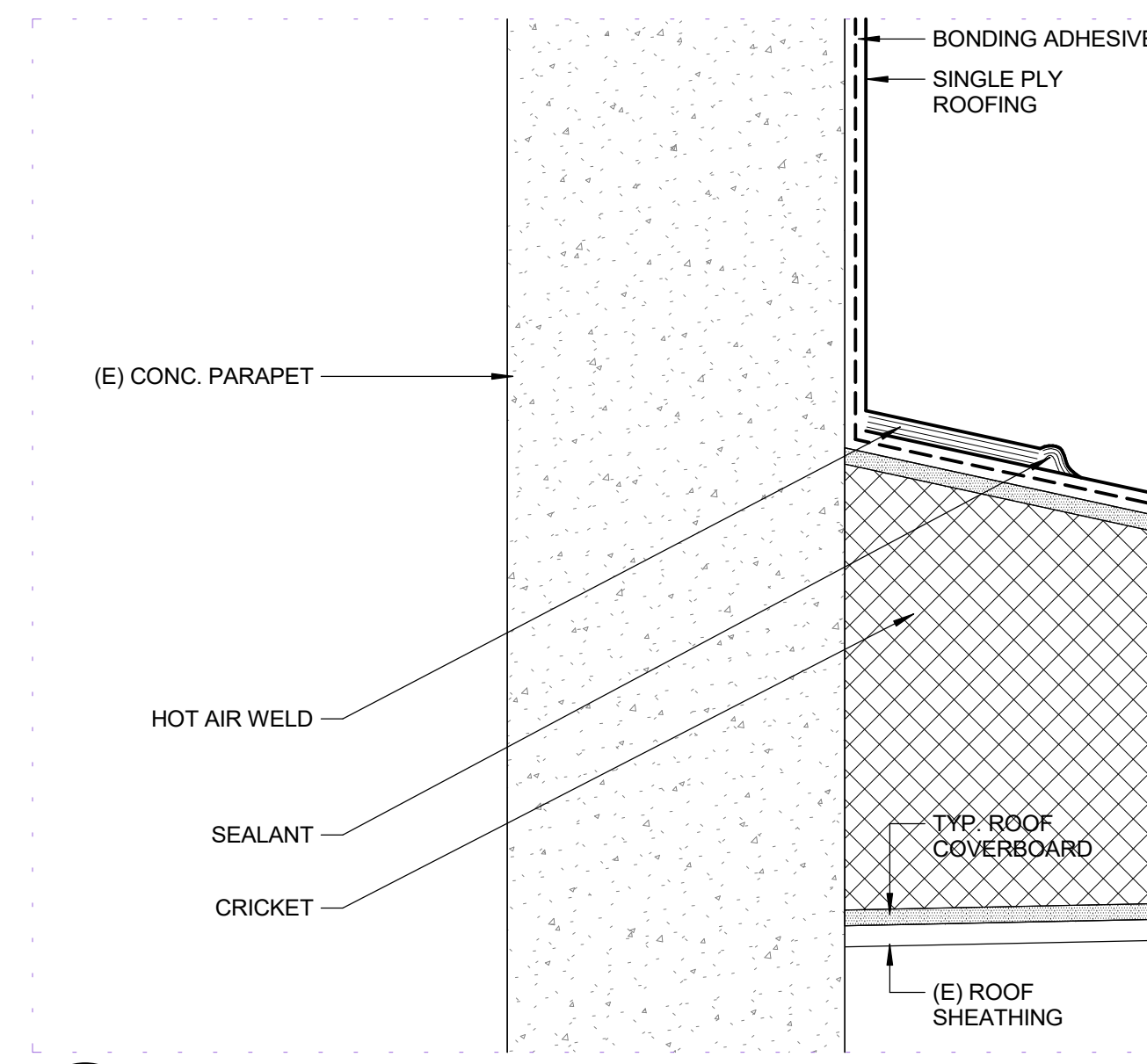
2 LOUVER VENT HEAD
6" = 1'-0"



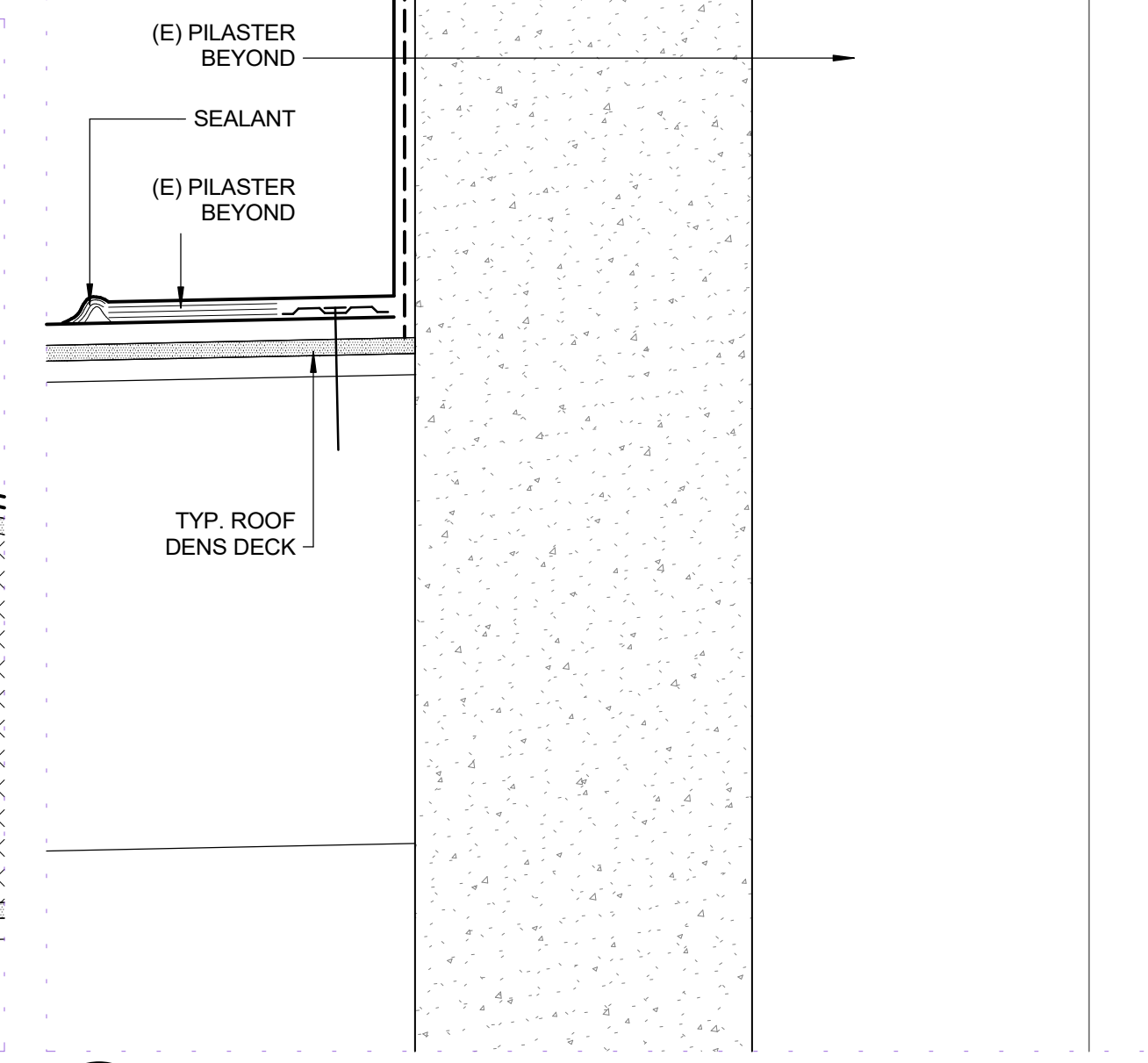
6 ROOF PATCH AT SMALL HOLES
3" = 1'-0"



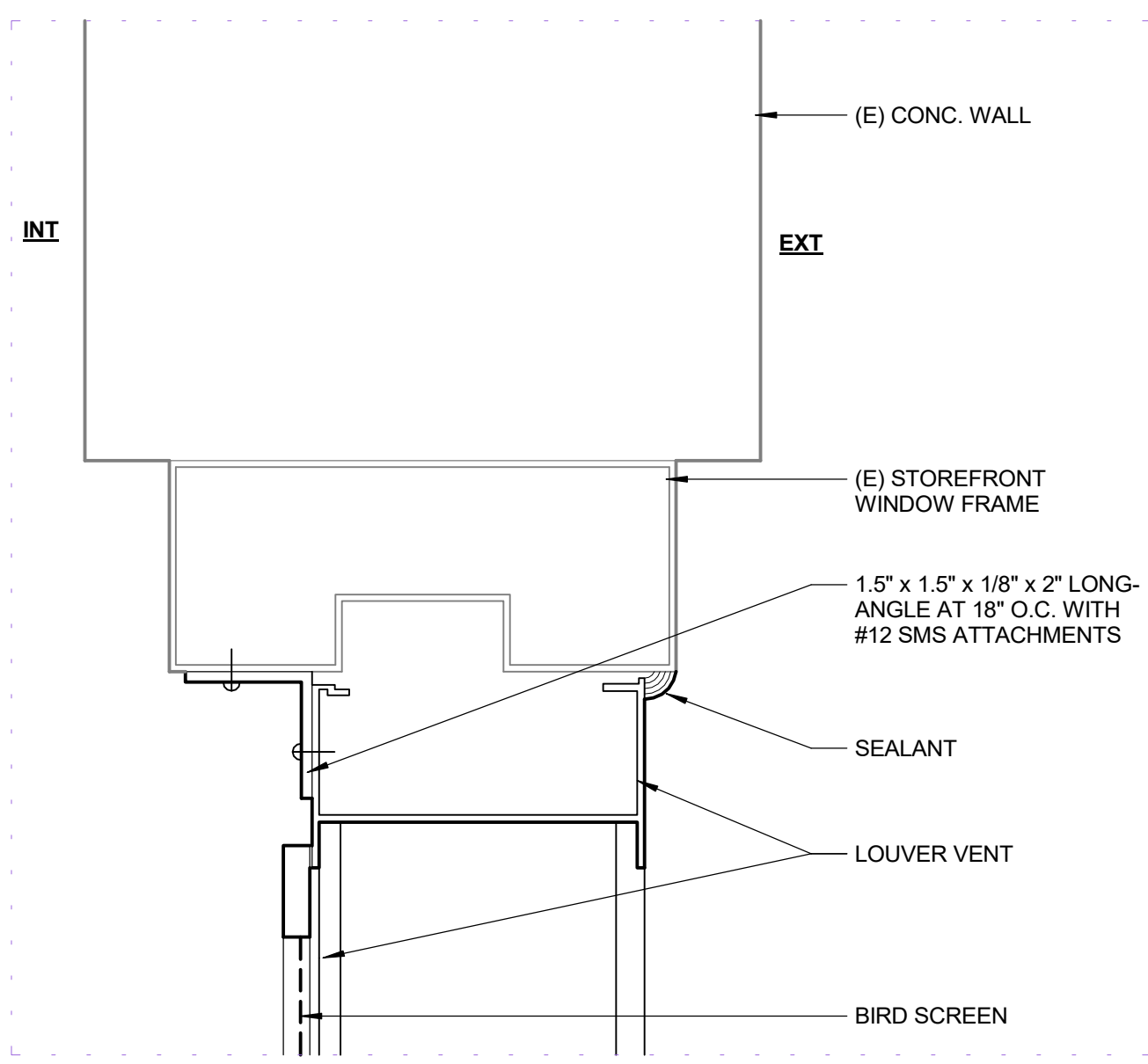
10 CONDUIT OR PIPE PENETRATION ROOF FLASHING
3" = 1'-0"



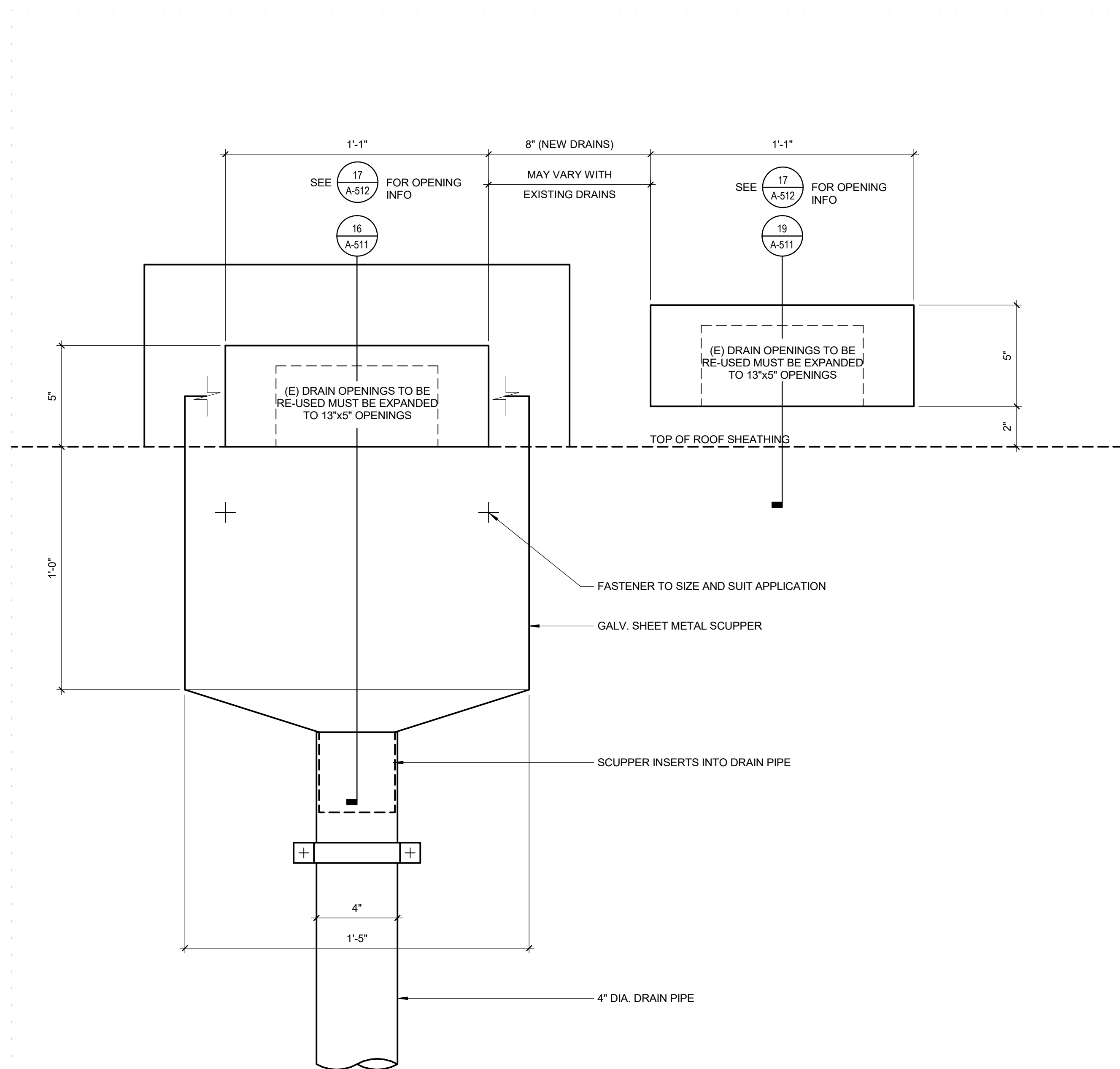
14 PARAPET AT CRICKET
3" = 1'-0"



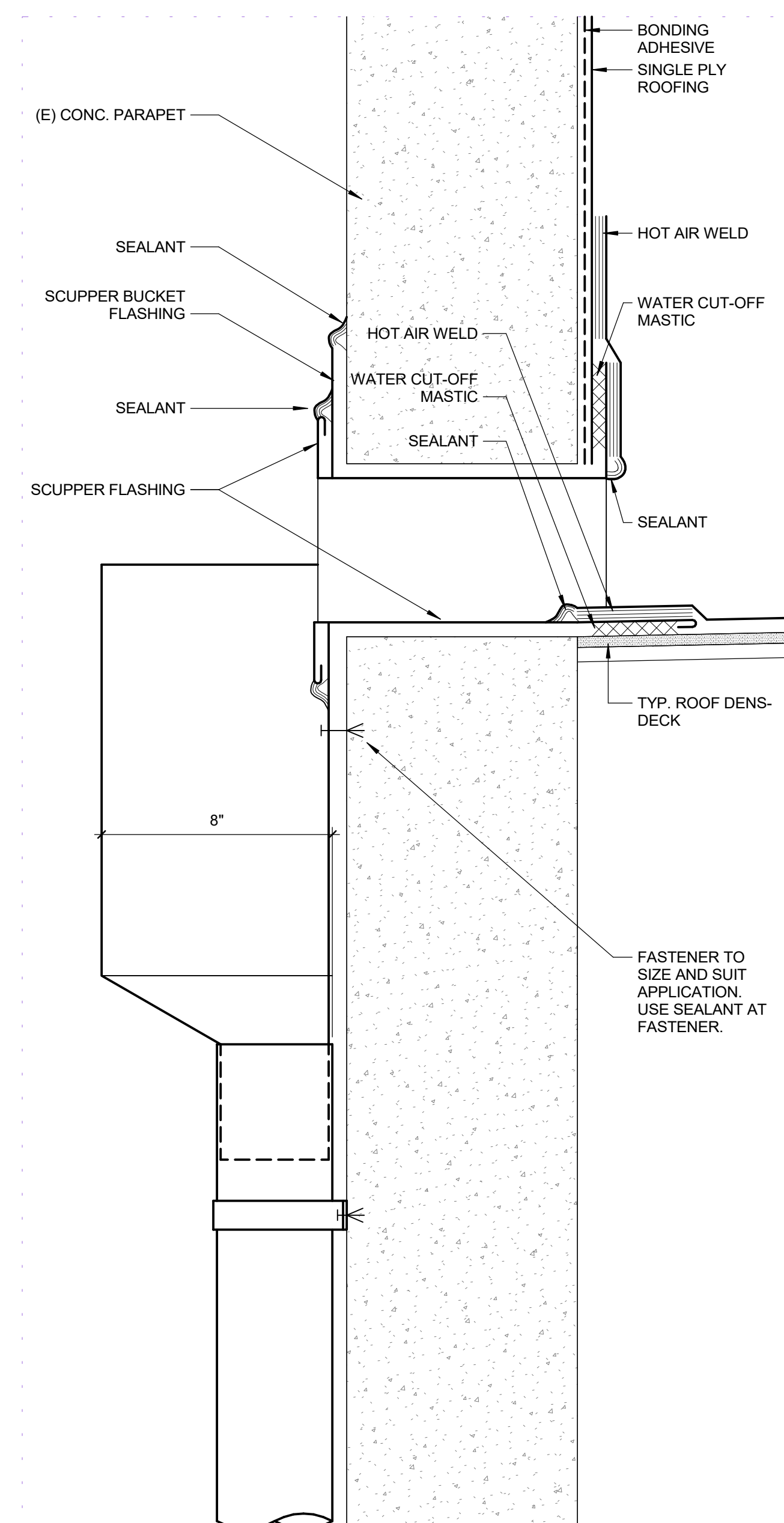
19 DRAIN - OVERFLOW
3" = 1'-0"



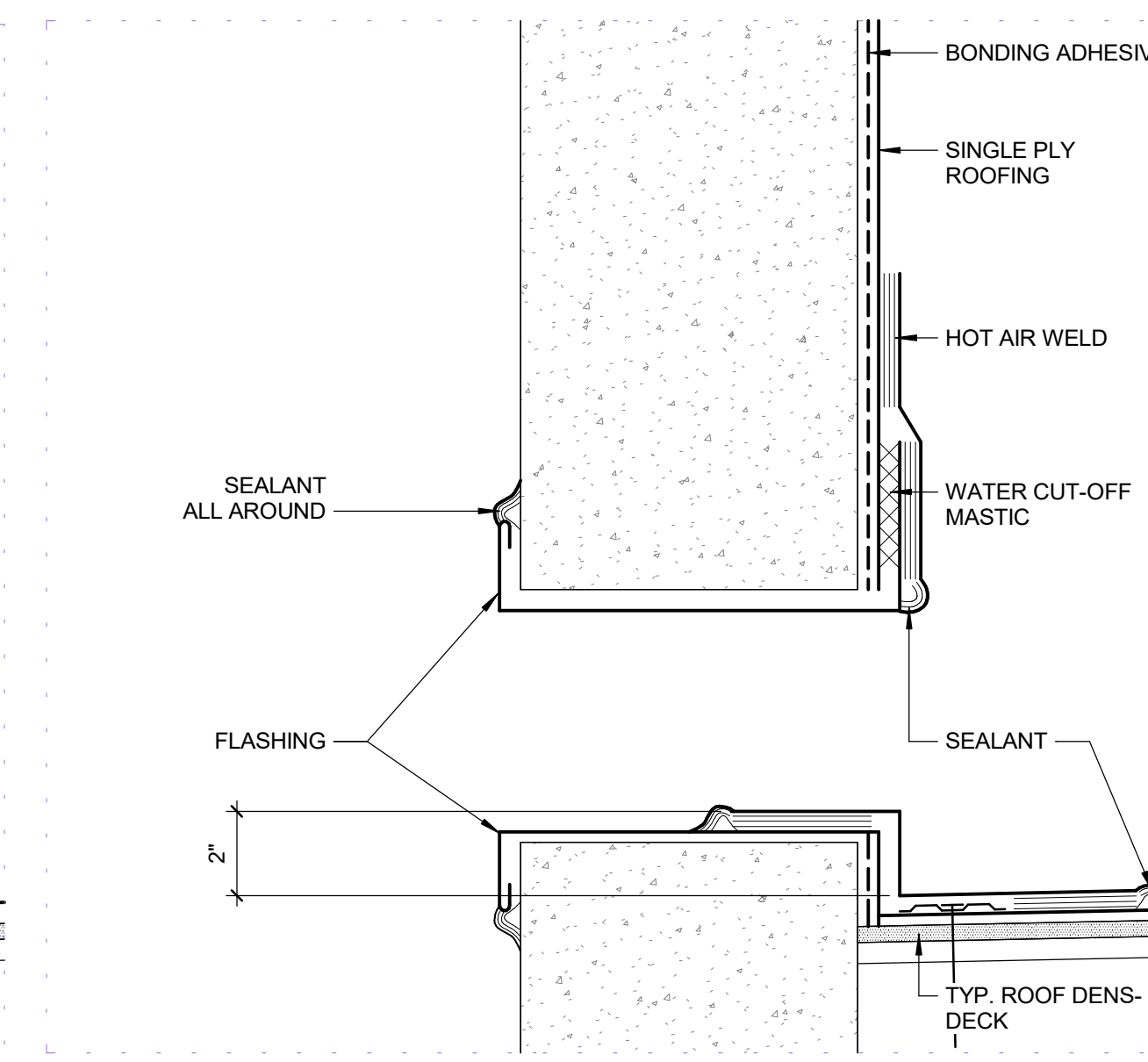
3 LOUVER VENT JAMB
6" = 1'-0"



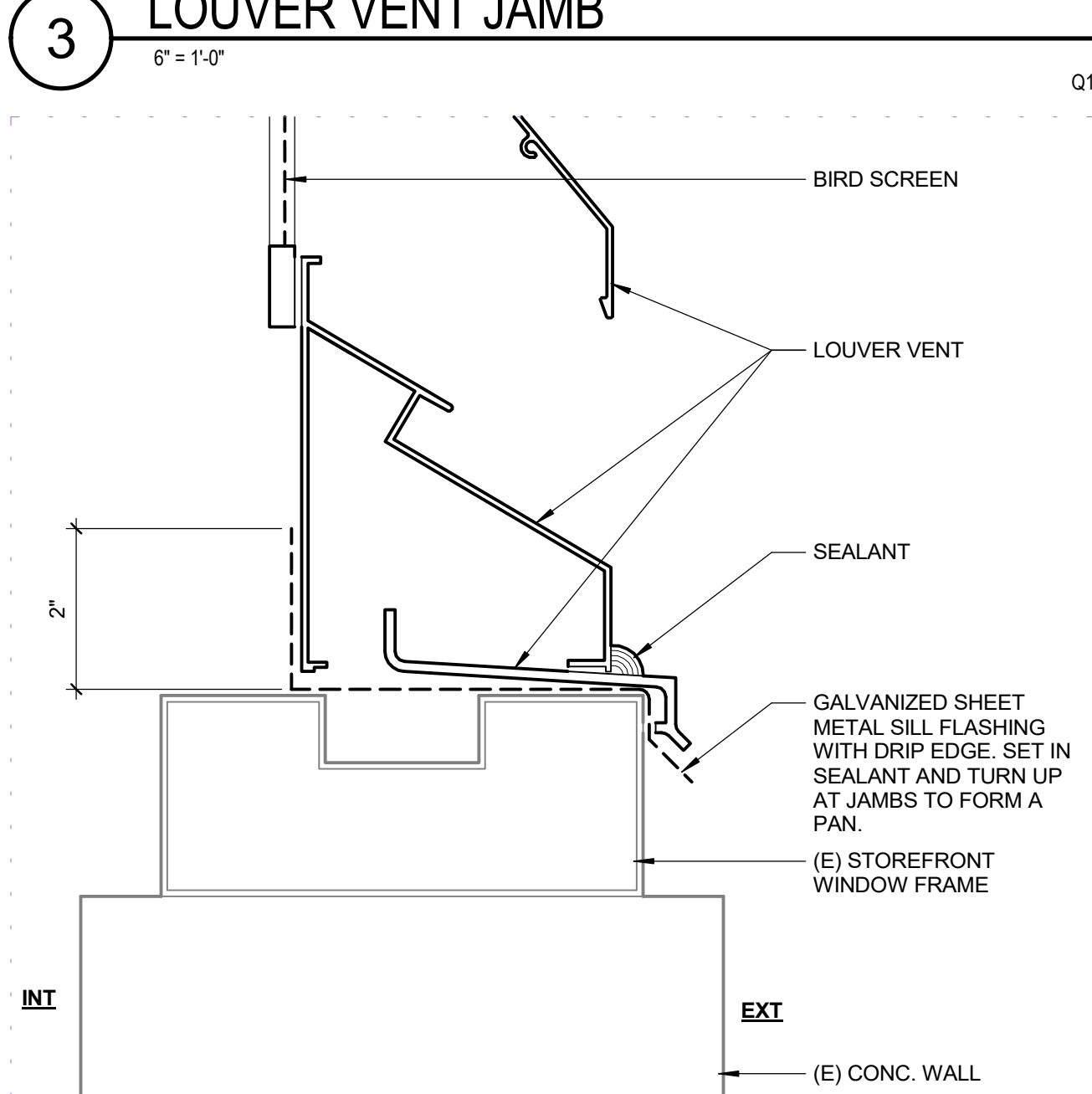
8 DRAIN - EXTERIOR VIEW
3" = 1'-0"



16 DRAIN - SCUPPER
3" = 1'-0"



20 (E) EAST PARAPET CAP
12" = 1'-0"



4 LOUVER VENT SILL
6" = 1'-0"



PROJECT

185 COMMERCE CIRCLE
SACRAMENTO, CA 95815

CLIENT

165 COMMERCE CIRCLE, SUITE D, SACRAMENTO, CA
95815

ISSUED

MARK	DATE	DESCRIPTION

MANAGEMENT

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CLIENT PROJECT NO:	
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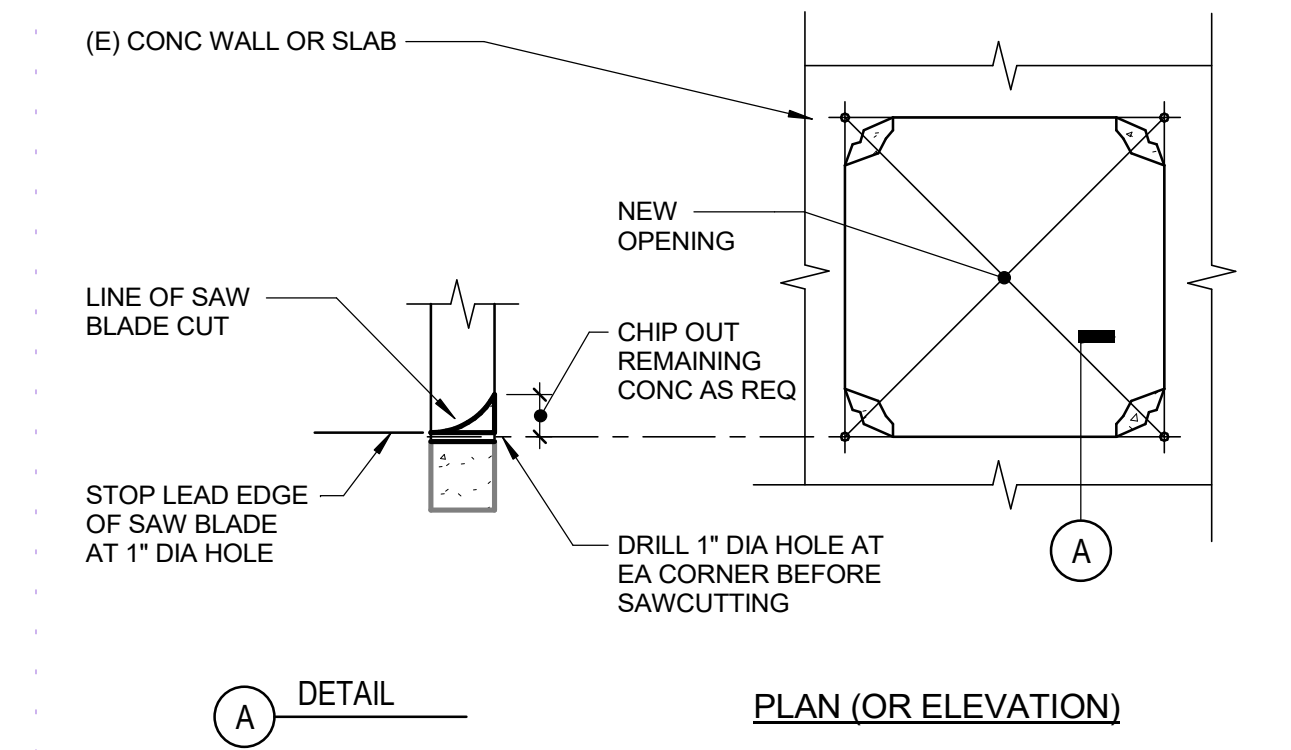
AGENCY

TITLE

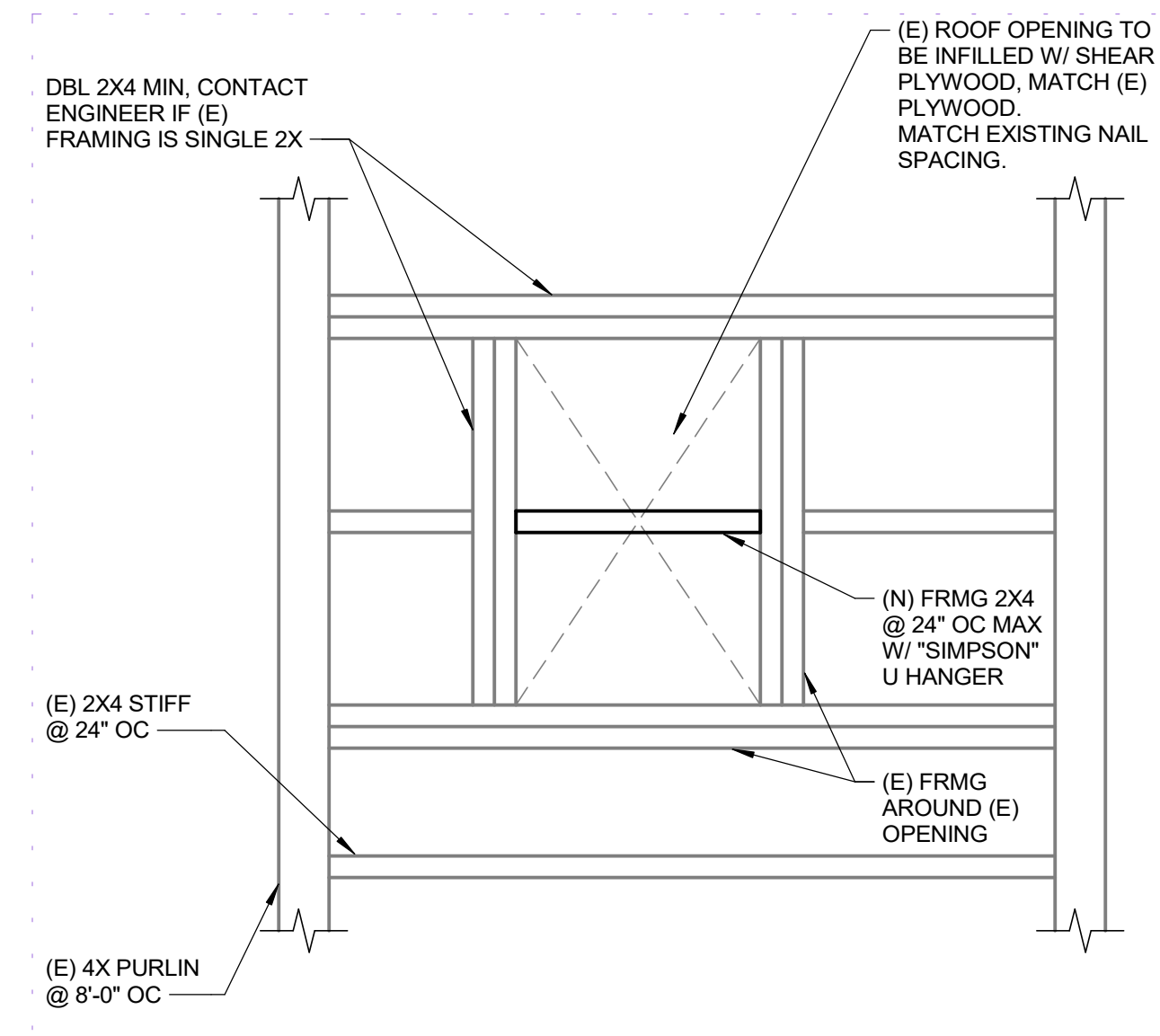
DETAILS - EXTERIOR

SHEET

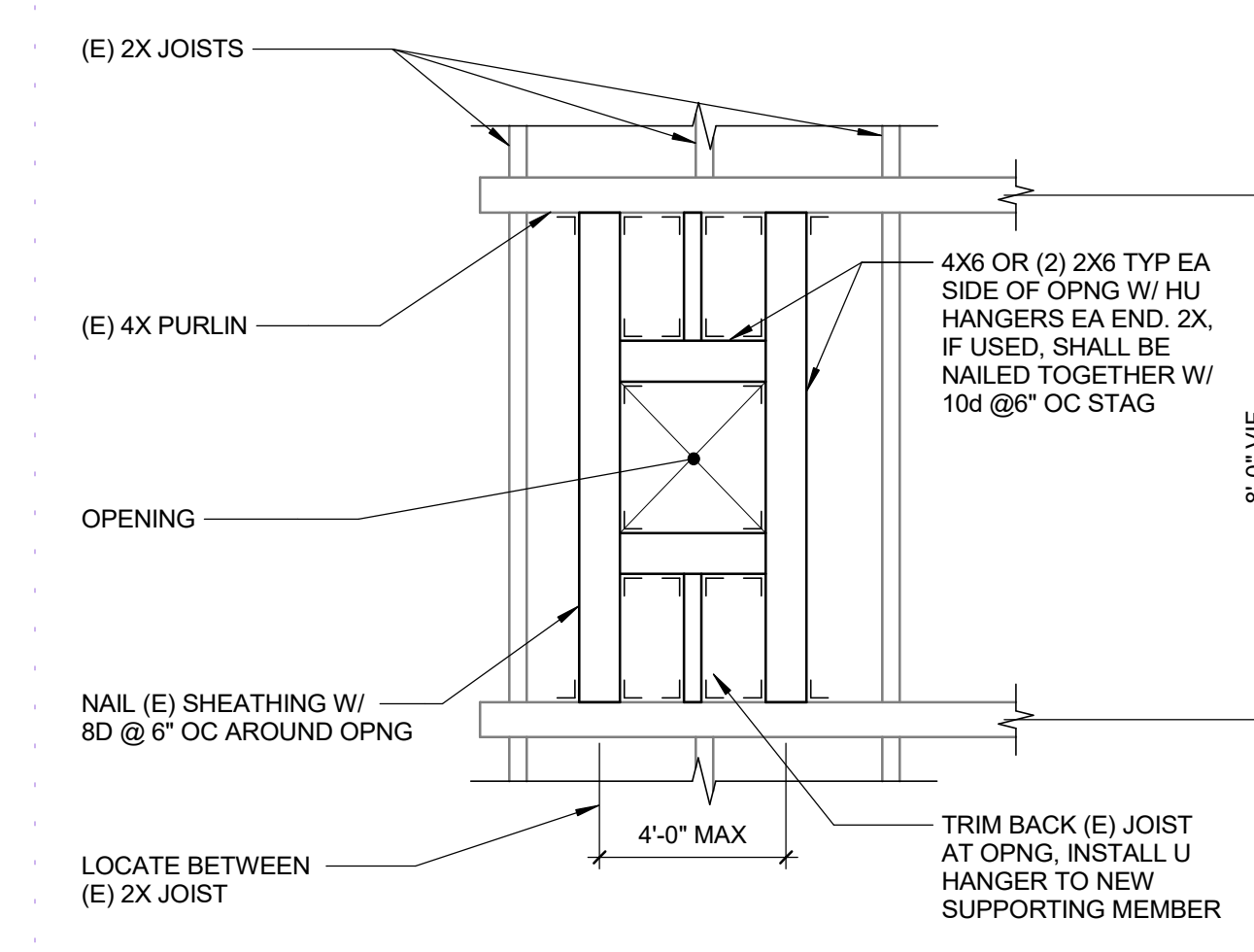
A-511



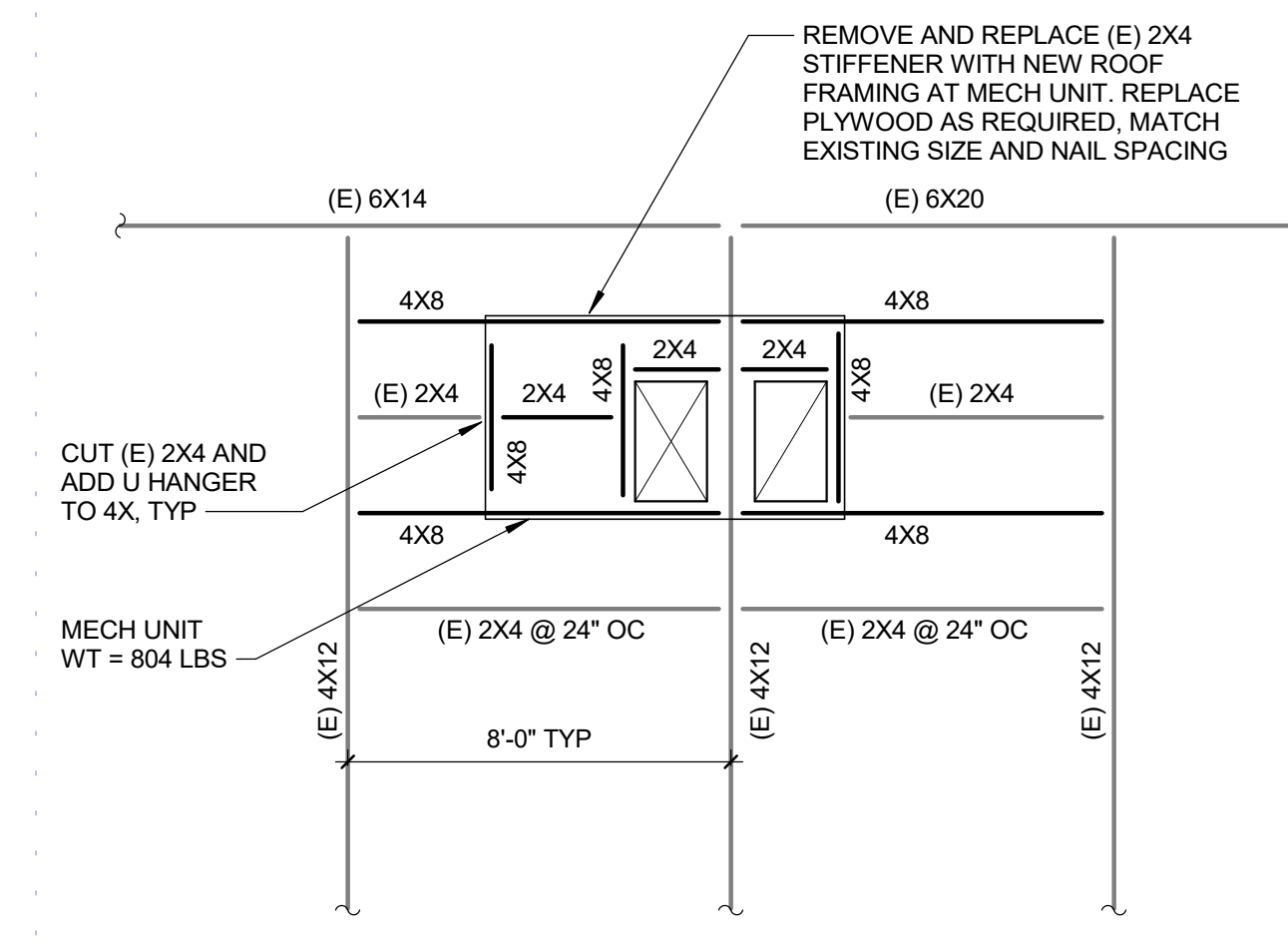
17 TYP SAWCUT OF OPENING IN (E) CONC SLAB / WALL FOR NEW SCUPPERS
1/2" = 1'-0"
S_033000_T035A
140127_02



18 INFILL FRAMING AT PATCHED OPENINGS
1" = 1'-0"
01

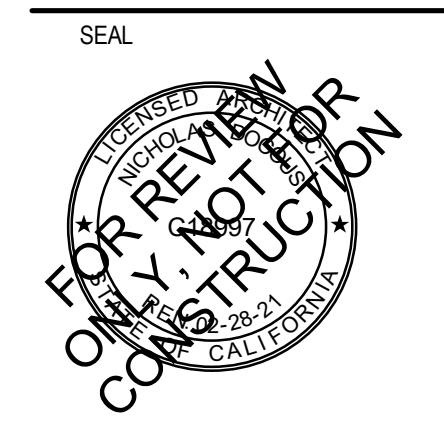


19 OPENING IN (E) FRAMING @ NEW EXHAUST FANS
3/4" = 1'-0"
S_061010_C002A
180306_02



NOTES:
1. FRAMING IS DOUGLAS FIR-LARCH NO. 1 AND BETTER.
2. ATTACH FRAMING MEMBERS WITH "SIMPSON" U HANGER EACH END.

20 PLAN DETAIL - NEW MECH. UNIT
1/4" = 1'-0"
01



PROJECT

185 COMMERCE CIRCLE
SACRAMENTO, CA 95815

CLIENT

165 COMMERCE CIRCLE, SUITE D, SACRAMENTO, CA
95815

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DETAILS - STRUCTURAL

SHEET

A-512



SEAL

PROJECT
ROOF REPAIR / REPLACEMENT

185 COMMERCE CIRCLE
SACRAMENTO, CA 95815

CLIENT
AMERICAN RIVER FLOOD CONTROL DISTRICT
165 COMMERCE CIRCLE, SUITE D, SACRAMENTO, CA
95815

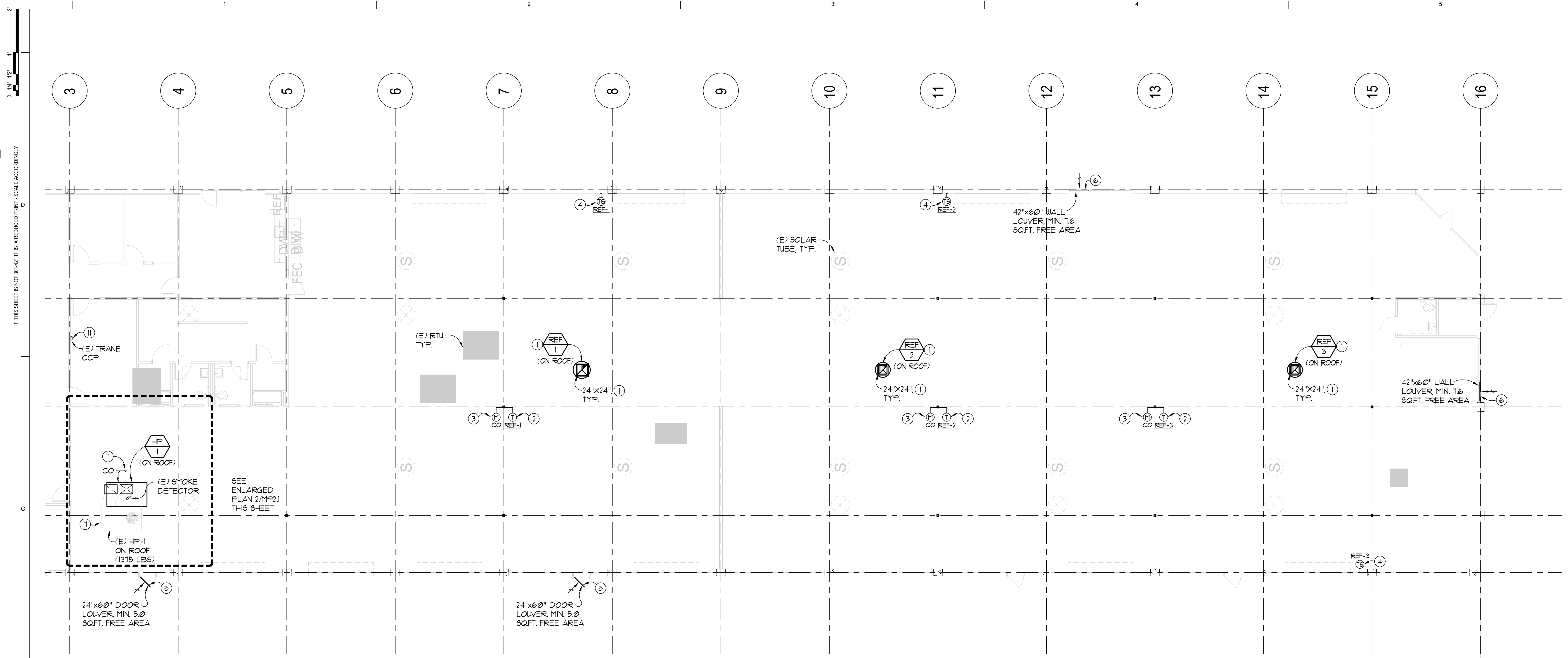
ISSUED	MARK	DATE	DESCRIPTION

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TITLE
MECHANICAL / PLUMBING PLAN

SHEET
MP2.1



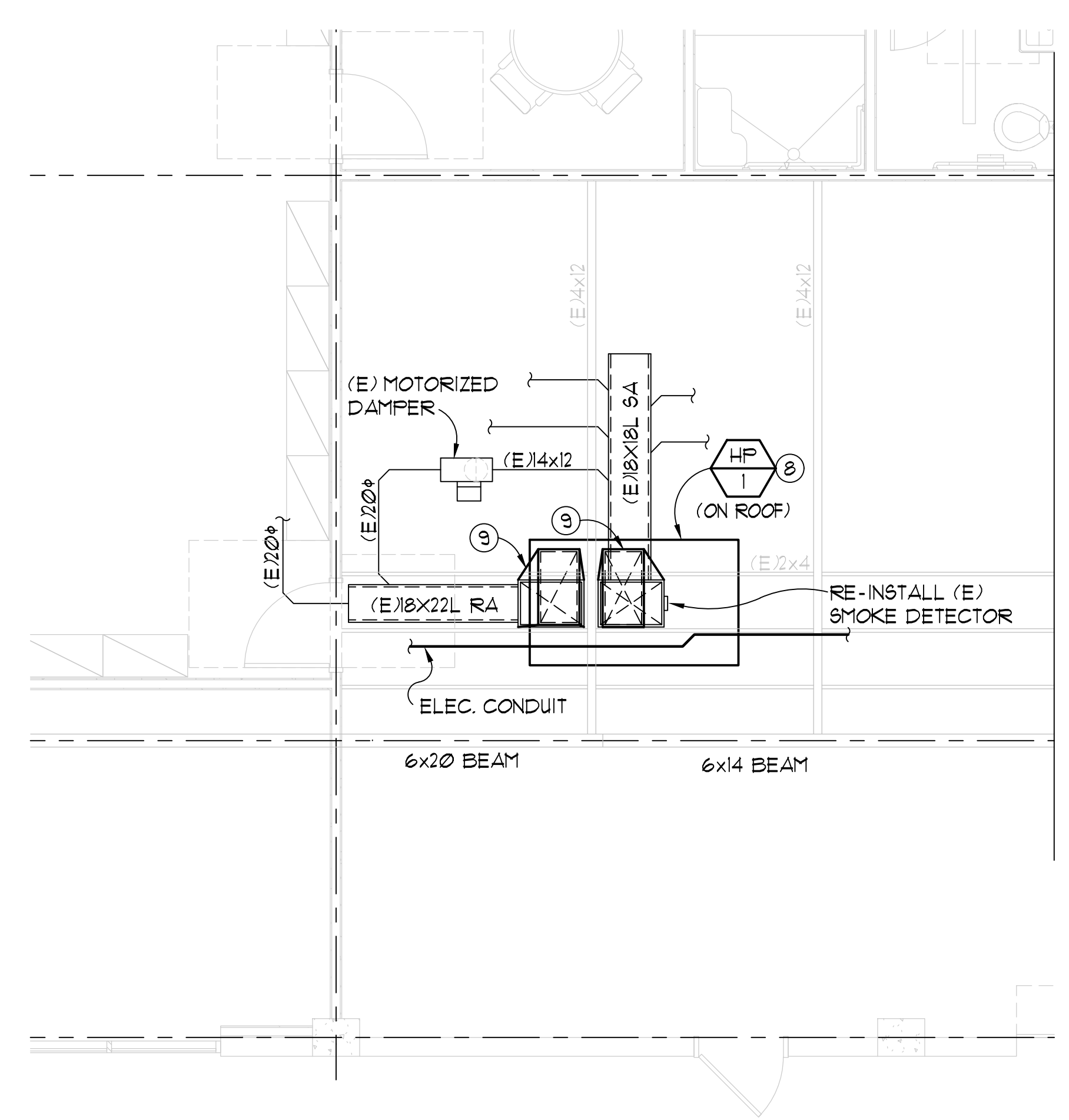
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NUMBERED SHEET NOTES:

- ① FIELD COORDINATE FAN UNIT FINAL LOCATION TO MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKE. SECURE ROOF EXHAUST FAN TO ROOF FRAMING MEMBERS AS REQUIRED. FIELD VERIFY DUCT DROP OPENING SIZES THROUGH ROOF WITH STRUCTURAL MEMBERS. DUCT TO EXTEND MINIMUM 6 INCHES BELOW ROOF INSULATION. TYPICAL.
- ② FURNISH AND INSTALL THERMOSTATIC CONTROL ON COLUMN AS SHOWN. SET TO OPERATE FAN AT 80°F (ADJUSTABLE). TYPICAL.
- ③ FURNISH AND INSTALL CARBON MONOXIDE MONITOR ON COLUMN AS SHOWN. SET EXHAUST FAN TO OPERATE WHEN CO LEVEL REACHES 50 PPM (ADJUSTABLE) OR HIGHER. TURN FAN OFF WHEN CO LEVEL DROPS BELOW 40 PPM. CO MONITOR SHALL BE ACME UNISSET MODEL (120V) FOR SINGLE GAS MONITOR. TYPICAL.
- ④ FURNISH AND INSTALL WALL MOUNTED TIMER SWITCH AT 48" AFF FOR MANUAL ACTIVATION OF EXHAUST FAN. FIELD COORDINATE EXACT LOCATION WITH FACILITY PERSONNEL. TIMER SWITCH SHALL HAVE OPERATING RANGE FROM 15 MINUTES TO 2 HOURS MAXIMUM. TYPICAL.
- ⑤ FURNISH AND INSTALL OUTSIDE AIR INTAKE LOUVER AT DOOR. LOUVER SHALL HAVE MINIMUM FREE AREA AS INDICATED. LOUVER TO BE POTTORFF MODEL EAF-445 OR EQUAL. TYPICAL.
- ⑥ FURNISH AND INSTALL OUTSIDE AIR INTAKE LOUVER AT EXTERIOR WALL. LOUVER SHALL HAVE MINIMUM FREE AREA AS INDICATED. REMOVE EXISTING GLAZING PANEL AND INSTALL ADDITIONAL TRIM PIECES AS REQUIRED. LOUVER SHALL BE NATIONAL GUARD PRODUCTS MODEL L-100-RX OR EQUAL. TYPICAL.
- ⑦ REMOVE EXISTING PACKAGED HEAT PUMP HP-1 (15-TON) AND DUCT FLENUMS ON ROOF. REMOVE DUCT SMOKE DETECTOR TO BE RE-INSTALLED AT SUPPLY DUCT BELOW ROOF.
- ⑧ SECURE NEW ROOFTOP HEAT PUMP UNIT (HP-1) TO ROOF FRAMING MEMBERS AS REQUIRED. FIELD VERIFY FINAL UNIT LOCATION AND DUCT DROPS THROUGH ROOF WITH STRUCTURAL MEMBERS AND EXISTING ELECTRICAL CONDUITS. REFER TO ARCHITECTURAL/STRUCTURAL PLAN FOR STRUCTURAL SUPPORT DETAIL.
- ⑨ LINED SUPPLY/RETURN AIR DUCTS DOWN THROUGH ROOF. TRANSITION WITHIN ROOF CURBS AND/OR UNDERSIDE OF ROOF STRUCTURE TO EXISTING SA/RA DUCT MAINS. CONNECT DUCT TO UNIT COMPLETE WITH FLEXIBLE CONNECTION. TYPICAL.
- ⑩ CONNECT EXISTING TRANE VARITRAC CENTRAL CONTROL PANEL (CCP) TO NEW HP-1 TO PERFORM BYPASS/ZONE FUNCTIONS PER TRANE PROTOCOL.
- ⑪ ROUTE CONDENSATE DRAIN PIPING DOWN THRU ROOF AND CONNECT TO EXISTING DRAIN PIPING AT UNDERSIDE OF ROOF. FIELD COORDINATE EXACT ROUTING AND POINT OF CONNECTION.

FAN CONTROLS

WHEN EXHAUST FAN IS NOT CONTROLLED BY TIMER SWITCH, IT SHALL BE ACTIVATED EITHER BY CO MONITOR OR THERMOSTATIC CONTROL. MECHANICAL CONTRACTOR SHALL PROVIDE TIMER SWITCH, CO MONITOR, AND THERMOSTATIC CONTROL. ALL TO BE INSTALLED BY ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL FURNISH ANY RELAY AND/OR CONTACTOR AS REQUIRED TO PERFORM ALL THREE FUNCTIONS OF EXHAUST FAN OPERATION. TYPICAL.

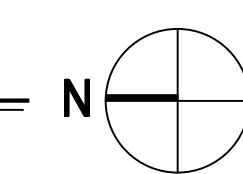


ENLARGED MECHANICAL PLAN
SCALE: 1/4"=1'-0"

2
MP2.1

MECHANICAL/PLUMBING PLAN
SCALE: 1/8"=1'-0"

1
MP2.1



0, 1/4", 1/2", 1"

IF THIS SHEET IS NOT 30x42 IT IS A REDUCED PRINT - SCALE ACCORDINGLY

C

B

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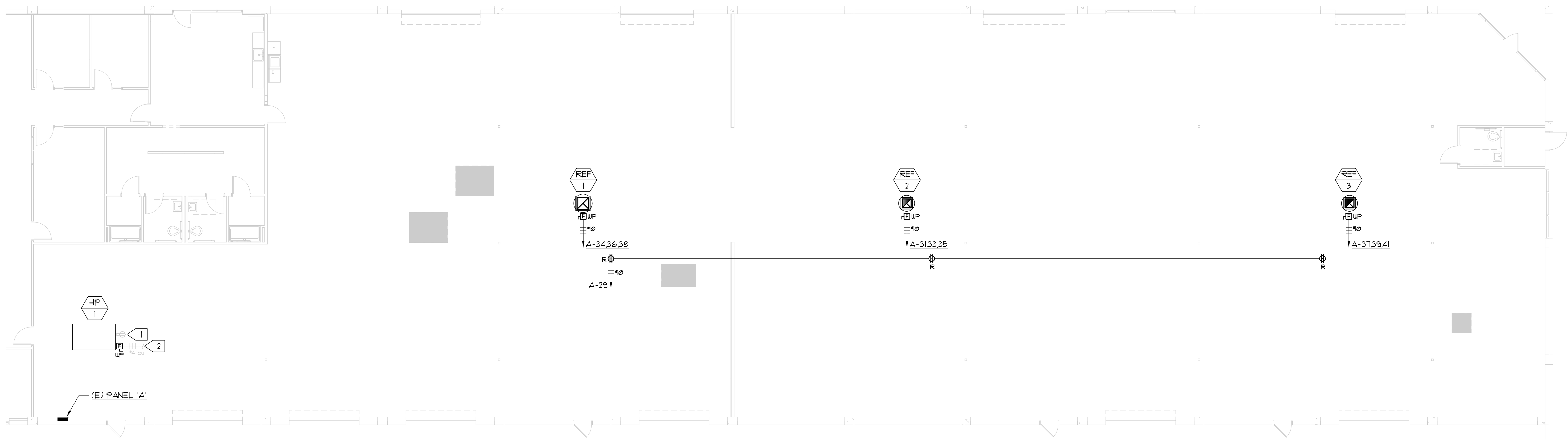
ABBREVIATIONS LIST			
A	AMPERE	NTS	NOT TO SCALE
A.F.F.	ABOVE FINISHED FLOOR	FRI.	PRIMARY
AL	ALUMINUM	PVC	POLYVINYL CHLORIDE
B.C.	BARE COPPER		
C.	CONDUIT	SEC.	SECONDARY
C.O.	CONDUIT ONLY, WITH FULL LINE	TTB	TELEPHONE TERMINAL BOARD
CU	COPPER	TTC	TELEPHONE TERMINAL CABINET
(E)	EXISTING	TYP.	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	UG	UNDERGROUND
GND.	GROUND	UN	UNLESS OTHERWISE NOTED
H.I.D.	HIGH INTENSITY DISCHARGE	WP	WEATHERPROOF
J-BOX	JUNCTION BOX	W	WIRE
KVA	KILO VOLT AMP	WP	WEATHERPROOF
MH	METAL HALIDE	W	WITH
M&B	MAIN SWITCHBOARD	XFMR	TRANSFORMER
		φ	PHASE

WIRE AND CONDUIT LEGEND	
	CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING.
	CONDUIT RUN UNDERFLOOR OR UNDERGROUND.
	HOME RUN, NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS IN HOME RUN.
	FLEXIBLE CONDUIT
	FACTORY WHIP
	NO CROSSBARS ON CONDUIT INDICATE 1/2" CONDUIT WITH TWO #12 AWG CONDUCTORS, CROSSBARS INDICATE NUMBER OF #12 AWG CONDUCTORS IN CONDUIT. CONDUIT SIZE OTHER THAN #12 AWG NOTED ON DRAWING. CONDUIT SIZE OTHER THAN 1/2" NOTED ON DRAWING.
	CONDUIT UP.
	EXAMPLE: THREE CIRCUITS IN HOME RUN - FOUR #10 AWG CONDUCTORS AND ONE #10 AWG GROUNDING CONDUCTOR IN 3/4" CONDUIT, RUN CONCEALED IN WALL OR ABOVE CEILING.

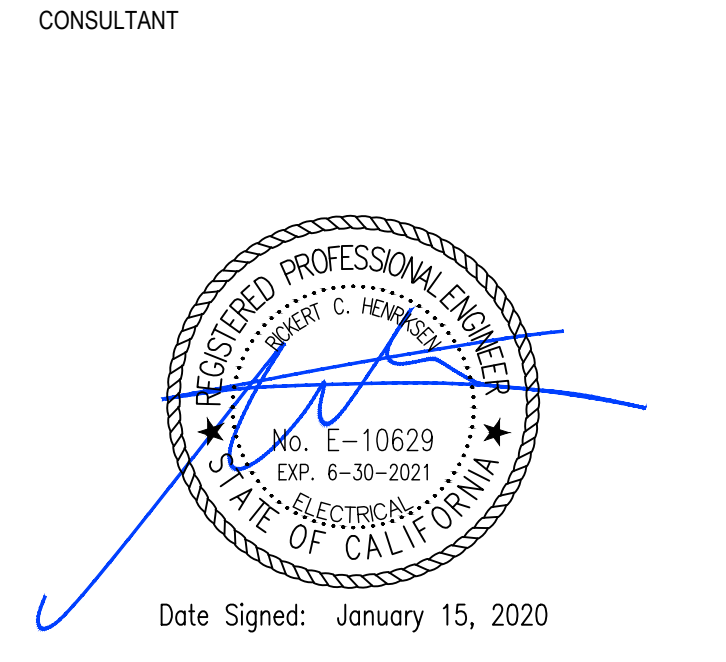
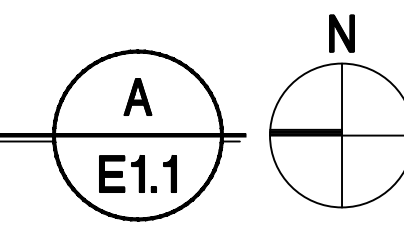
- NUMBERED NOTES**
- (E) WEATHER DUPLEX RECEPTACLE TO REMAIN. MOUNT TO NEW HEAT PUMP.
 - PROVIDE NEW FUSED DISCONNECT SWITCH AND RECONNECT TO (E) CIRCUIT.

ELECTRICAL SYMBOLS	
	NON-FUSED DISCONNECT SWITCH, SIZE AS REQUIRED
	FUSED DISCONNECT SWITCH WITH TIME DELAY FUSES SIZED PER UNIT NAMEPLATE OR AS NOTED. DISCONNECT SHALL ACCEPT MAXIMUM RECOMMENDED FUSE SIZE.
	DUPLEX RECEPTACLE, NEMA 5-15R, #18" UON
RECEPTACLE SUBSCRIPTS: R = ROOF MOUNTED, WEATHERPROOF (IN-USE), GFCI	
	JUNCTION BOX, SIZE AND TYPE AS REQUIRED
	EXHAUST FAN, N.I.E.S., CONNECT AS REQUIRED
	SWITCHBOARD, SEE ONE LINE DIAGRAM
	IDENTIFICATION TAG FOR EQUIPMENT PROVIDED BY M.C. CONNECT EQUIPMENT AS INDICATED OR AS REQUIRED.
	NUMBERED NOTE TAG - SEE NUMBERED NOTES, SAME SHEET
	INDICATES DETAIL "A" AT SHEET "E1"

EXISTING		120/208V, 3 Ph, 4W.		SURFACE MOUNTED						
PANEL 'A'		225 AMP BUS		10,000 ISC						
DESCRIPTION	KVA	BKR	CKT	Ph. A	Ph. B	Ph. C	CKT	BKR	KVA	DESCRIPTION
(E) RECEPTACLES	1.1	20/1	1	1.3			2	20/1	0.2	(E) FACP
(E) RECEPTACLES	0.7	20/1	3		0.9		4	20/1	0.2	(E) FIRE BELL
(E) RECEPTACLES	0.7	20/1	5			1.2	6	20/1	0.5	(E) TELE. RECEPT.
(E) RECEPTACLES	0.7	20/1	7	0.9			8	20/1	0.2	(E) ROOF RECEPT.
(E) RECEPTACLES	0.7	20/1	9		0.9		10	20/1	0.2	(E) SMOKE DAMPER
(E) RECEPTACLES	0.7	20/1	11			0.9	12	20/1	0.2	(E) ROOF RECEPT.
(E) RECEPTACLES	1.1	20/1	13	2.6			14	20/1	1.5	(E) DRYER
(E) RECEPTACLES	0.7	20/1	15			2.2	16	20/1	1.5	(E) DRYER
(E) G.D.	0.6	20/1	17			1.5	18	20/1	0.9	(E) RECEPTACLES
(E) RECEPTACLES	0.7	20/1	19	1.9			20	20/1	1.2	(E) DOOR
(E) RECEPTACLES	1.1	20/1	21		2.3		22	20/1	1.2	(E) DOOR
(E) RECEPTACLES	0.9	20/1	23			2.1	24	20/1	1.2	(E) DOOR
(E) WASHER	1.5	20/1	25	1.5			26	20/1		
(E) WH RECEPT.	0.4	20/1	27		0.4		28	20/1		
ROOF RECEPTACLES	0.5	20/1	29			0.5	30	20/1		
REF-2	1.3	20/3	31	1.3			32	20/1		
	1.3	20/3	33		3.3		34	2.0		
	1.3	37	35			3.3	36	30/3	2.0	REF-1
	1.3	37	37	3.3			38	2.0		
REF-3	1.3	20/3	39		5.3		40	50/2	4.0	(E) WATER HEATER
	1.3	41				5.3	42	4.0		
SUBTOTAL:					12.8	15.3	14.8			
CONNECTED LOAD	42.9 KVA									MAIN LUGS ONLY
25% LARGEST MOTOR	1.5 KVA									
TOTAL LOAD	44.4 KVA / 0.380 FACTOR =									123 AMPS



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



SEAL

PROJECT
ROOF REPAIR / REPLACEMENT

185 COMMERCE CIRCLE
SACRAMENTO, CA 95815

CLIENT
AMERICAN RIVER FLOOD CONTROL DISTRICT
165 COMMERCE CIRCLE, SUITE D, SACRAMENTO, CA 95815

ISSUED		
MARK	DATE	DESCRIPTION

MANAGEMENT
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AGENCY

TITLE
ELECTRICAL PLANS

SHEET
E1.1