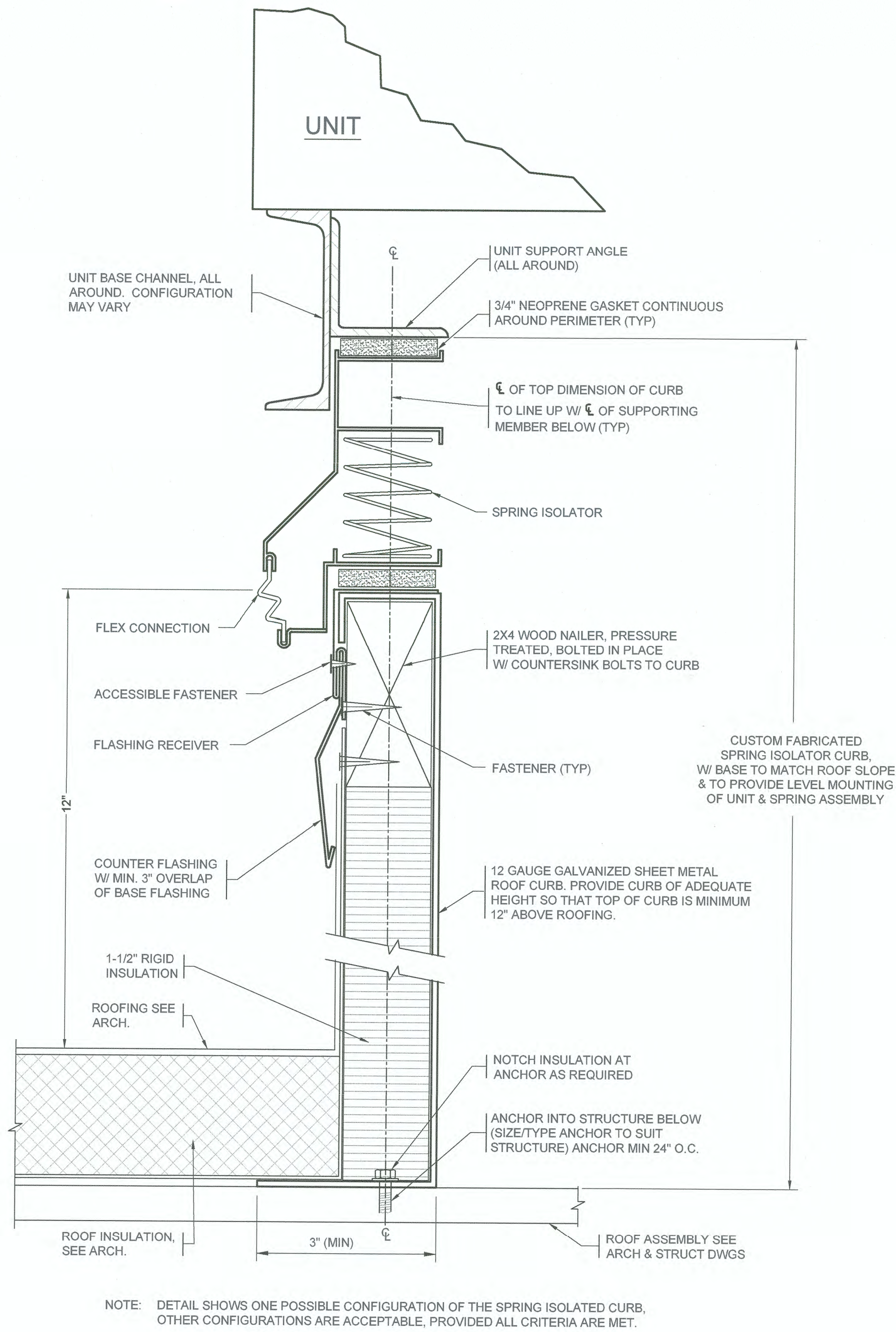


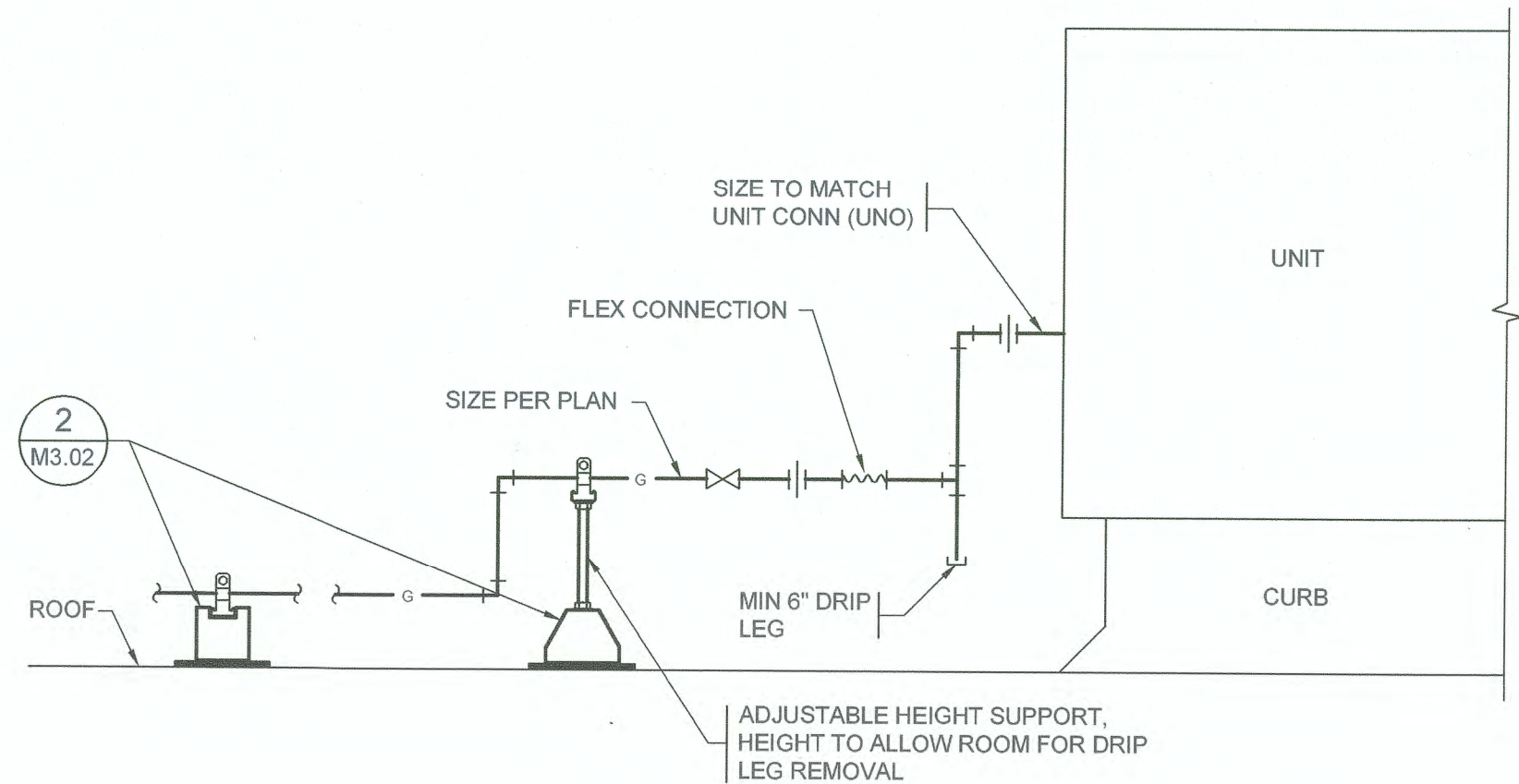


CURB FLASHING FOR ROOFTOP UNITS

NTS

3

M3.02

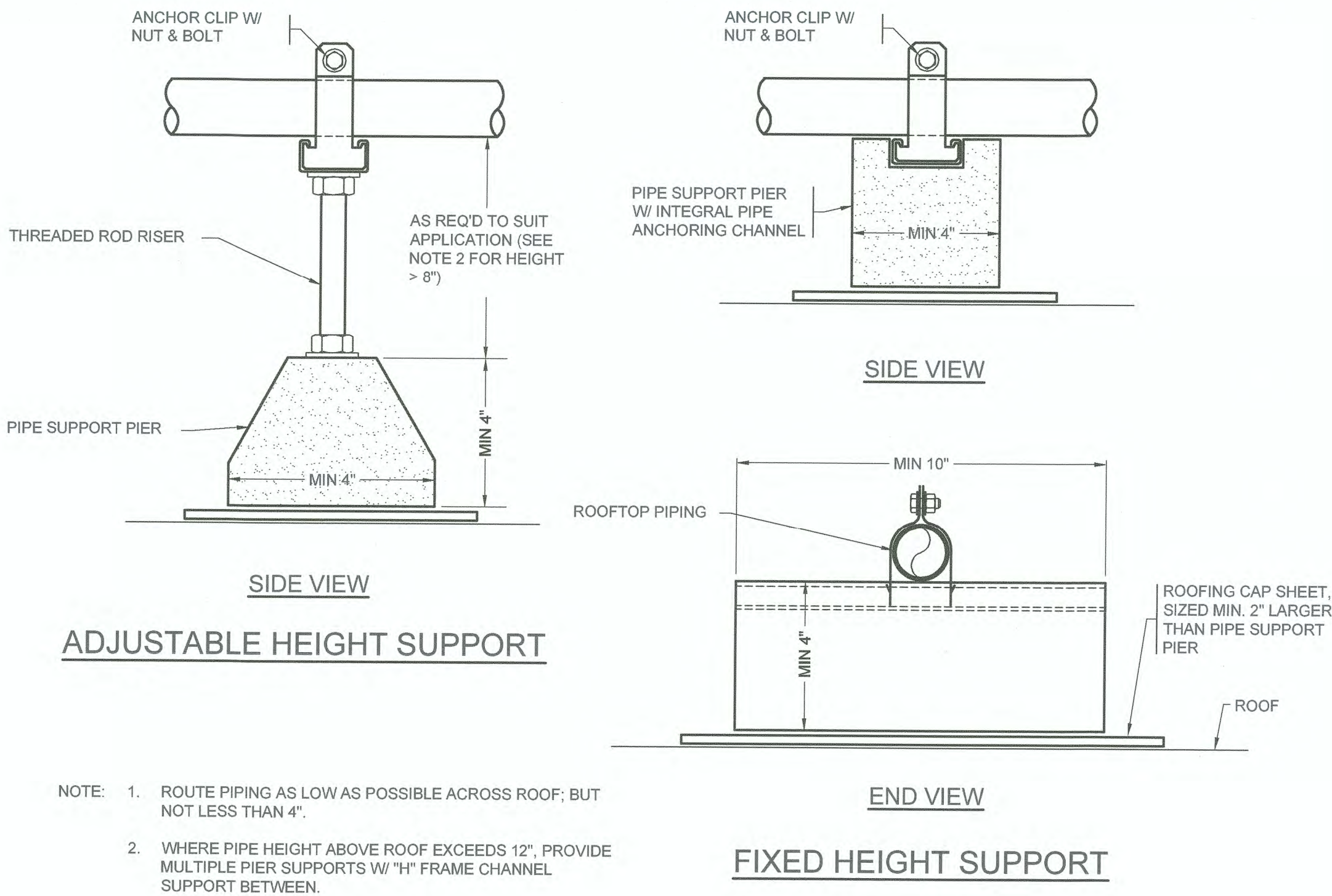


ROOFTOP UNIT GAS CONN

NTS

1

M3.02



ROOFTOP PIPE SUPPORT

NTS

2

M3.02

BID SET

M3.02

14 OF 18

EBC BLDG326 HVAC & ROOF REPLACEMENT & BLDGS 407 & 532 BIRD WIRE

DETAILS

CONTR/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 35
M. ID:	DAT-HRZ: WA85-SF	VERT: MLLW 19.39 @ Tide 22 1933	
PHASE: BID SET	PARCEL: 5000350013	DRAWING SCALE: AS NOTED	

APPROVED:

12/10/18

DIRECTOR ENG. DATE

PRINTED BY: MatB Dec 07, 2018

PORT ADDRESS: 401 ALEXANDER AVENUE

TACOMA, WA 98421

RH 12.10.18

CHECKED BY DATE

BW 12.10.18

PROJ. ENGR DATE

12/10/18

DATE



SIGNED

12/10/2018

HULTZ + BHU
engineering inc

Tacoma, WA 98402
Phone: (253) 392-8225
Fax: (253) 392-8225
general@hultzbhu.com
Job Number: 18-099

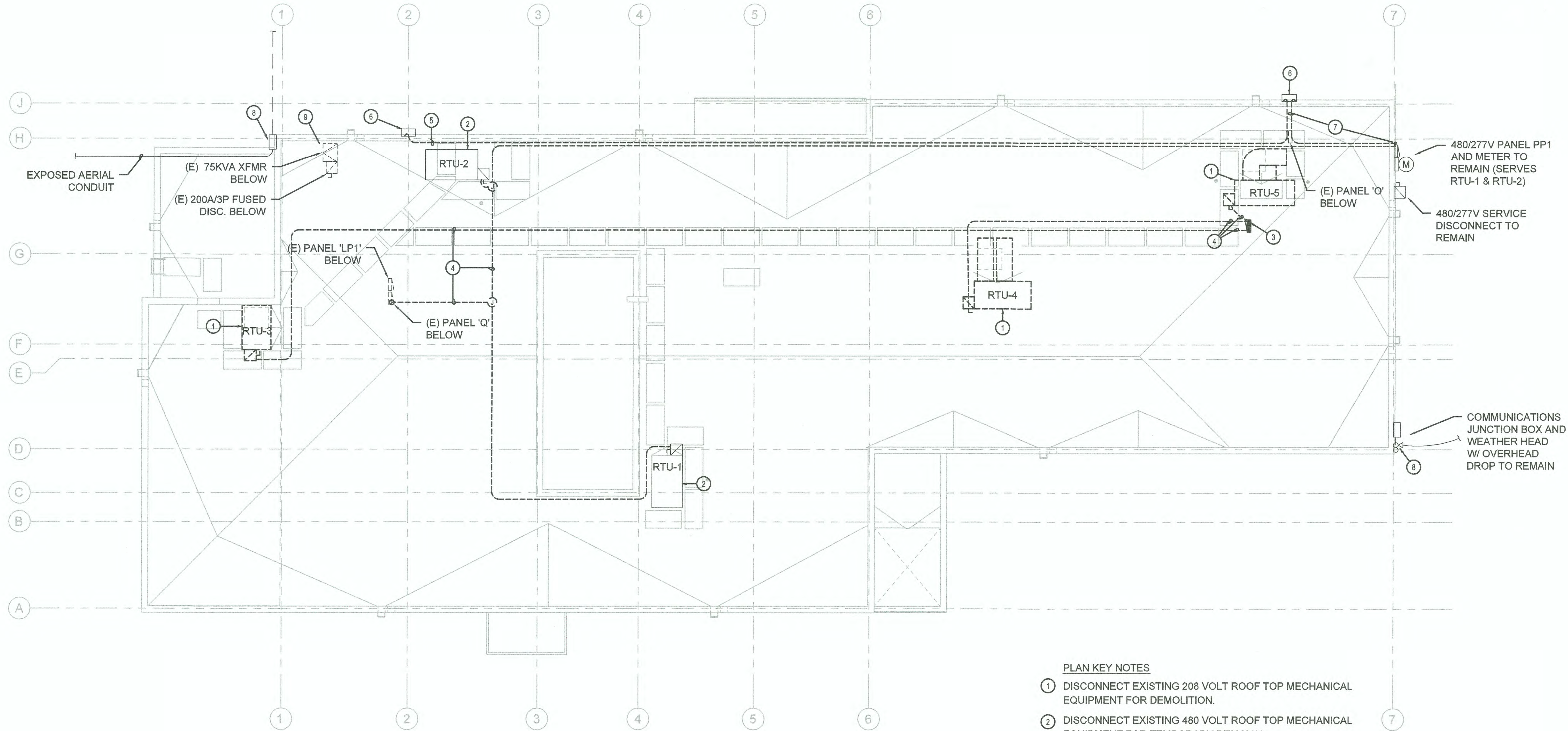
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BY: DATE:

APPR: DATE:

DATE:

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

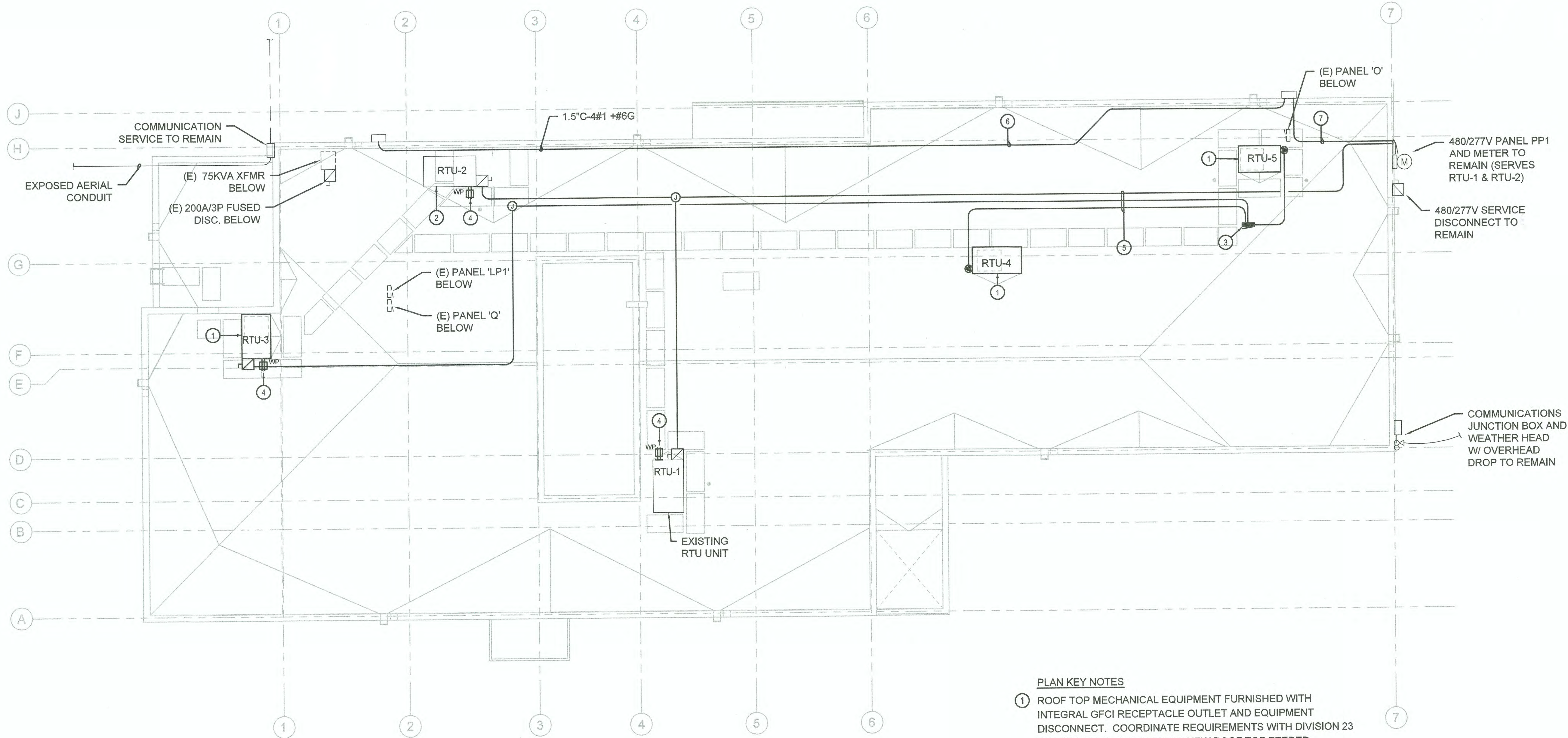
PLAN KEY NOTES

- ① DISCONNECT EXISTING 208 VOLT ROOF TOP MECHANICAL EQUIPMENT FOR DEMOLITION.
- ② DISCONNECT EXISTING 480 VOLT ROOF TOP MECHANICAL EQUIPMENT FOR TEMPORARY REMOVAL.
- ③ DISCONNECT AND DEMO EXISTING 208 VOLT PANELBOARD AND ASSOCIATED MOUNTING SUPPORT. SAVE CONDUIT THROUGH ROOF FOR CONNECTION TO NEW PANEL.
- ④ DEMO ROOF TOP POWER WIRING BACK TO SOURCE OF SUPPLY. TYPICAL FOR ALL ROOFTOP HVAC EQUIPMENT AND ASSOCIATED CONVENIENCE POWER.
- ⑤ DE-ENERGIZE AND REMOVE CONDUIT AND CONDUCTORS BETWEEN JUNCTION BOXES.
- ⑥ CUT OR DISCONNECT CONDUCTORS IN JUNCTION BOX LEAVING SUFFICIENT LENGTH FOR NEW IN-LINE SPLICE. REMOVE AND REINSTALL JUNCTION BOX AS REQUIRED FOR PARAPET WORK.
- ⑦ PULL BACK AND SAVE OR DEMO CONDUCTORS AS REQUIRED. REMOVE CONDUIT BETWEEN JUNCTION BOX AND LB FITTING AT PARAPET WALL.
- ⑧ REMOVE AND REINSTALL COMMUNICATIONS JUNCTION BOX AND OH SERVICE MASTS AS REQUIRED FOR PARAPET WORK.
- ⑨ EXISTING TRANSFORMER Q SHALL REMAIN ENERGIZED AND MAY BE USED TO PROVIDE TEMPORARY POWER FOR BUILDING TENANTS DURING CONSTRUCTION.

BID SET

E1.01 16 OF 18		EBC BLDG326 HVAC & ROOF REPLACEMENT & BLDGS 407 & 532 BIRD WIRE ELECTRICAL DEMO PLAN							
CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 35	CTU	12.10.18	APPROVED:	CTU	12.10.18	HULTZ & BHU, Inc. engineers inc. Tacoma, WA 98402 Phone: (253) 383-2927 Fax: (253) 383-2983 general@hultzbhu.com Job Number: 18-099
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	DATE: 12/31/18	PROJ. ENGR	12.10.18	DIRECTOR ENG. DATE	12/31/18	BY:	DATE:
PHASE: BID SET	PARCEL: 5000350013	DRAWING SCALE: AS NOTED	PRINTED BY: Anatoly D Dec 07, 2018	PORT ADDRESS: 401 ALEXANDER AVENUE	TACOMA, WA 98421	SIGNED	12-10-2018	REVISION:	MARK:

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

PLAN KEY NOTES

- 1 ROOF TOP MECHANICAL EQUIPMENT FURNISHED WITH INTEGRAL GFCI RECEPTACLE OUTLET AND EQUIPMENT DISCONNECT. COORDINATE REQUIREMENTS WITH DIVISION 23 CONTRACTOR. CONNECT TO NEW ROOF TOP FEEDER.
- 2 EXISTING ROOF TOP MECHANICAL EQUIPMENT AND DISCONNECT REINSTALLED AS PART OF ROOF PROJECT. COORDINATE REQUIREMENTS WITH DIVISION 23 CONTRACTOR. RECONNECT TO NEW ROOF TOP FEEDER.
- 3 PROVIDE NEW ROOF TOP PANELBOARD TO REPLACE EXISTING. PROVIDE GALVANIZED STEEL CHANNEL STRUT SUPPORT SECURED TO APPROVED ROOF MOUNTED EQUIPMENT SUPPORT CURBS ANCHORED TO ROOF STRUCTURE. COORDINATE INSTALLATION AND FLASHING WITH DIVISION 07 REQUIREMENTS. ALL EQUIPMENT, DEVICES, CONDUIT, FITTINGS, AND SUPPORTS SHALL BE RAIN TIGHT.
- 4 NEW WEATHERPROOF GFCI RECEPTACLE OUTLET
- 5 NEW ROOF TOP WIRING SECURED TO MOLDED PYRAMID BLOCK SUPPORTS. RECONNECT HVAC UNITS AND ROOFTOP CONVENIENCE POWER.
- 6 NEW ROOF TOP WIRING SECURED TO MOLDED PYRAMID BLOCK SUPPORTS. RECONNECT FEEDER BETWEEN JUNCTION BOXES.
- 7 PROVIDE NEW CONDUIT THRU PARAPET WALL AND REINSTALL EXISTING FEEDER CONDUCTORS BETWEEN JUNCTION BOX AND LB FITTING.

BID SET

E2.01
17 OF 18

EBC BLDG326 HVAC & ROOF REPLACEMENT
& BLDGS 407 & 532 BIRD WIRE

ELECTRICAL ROOF PLAN

CONT/CONS:	TOWNSHIP: 21	RANGE: 03	SECTION: 35
M. ID:	DAT-HRZ: WA83-SF	VERT: MLLW 19.39' @ Tide 22 1933	
PHASE: BID SET	PARCEL: 5000350013	DRAWING SCALE: AS NOTED	

APPROVED:	CTU	12.10.18
CHECKED BY:	CTU	12.10.18
DIRECTOR ENG. DATE:	PROJ. ENGR	DATE
PRINTED BY: Antolij Dec 07, 2018		
PORT ADDRESS: 401 ALEXANDER AVENUE		
TACOMA, WA 98421		



HULTZ + BHU
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Tacoma, WA 98402
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general@hultzbhu.com
Job Number: 18-099

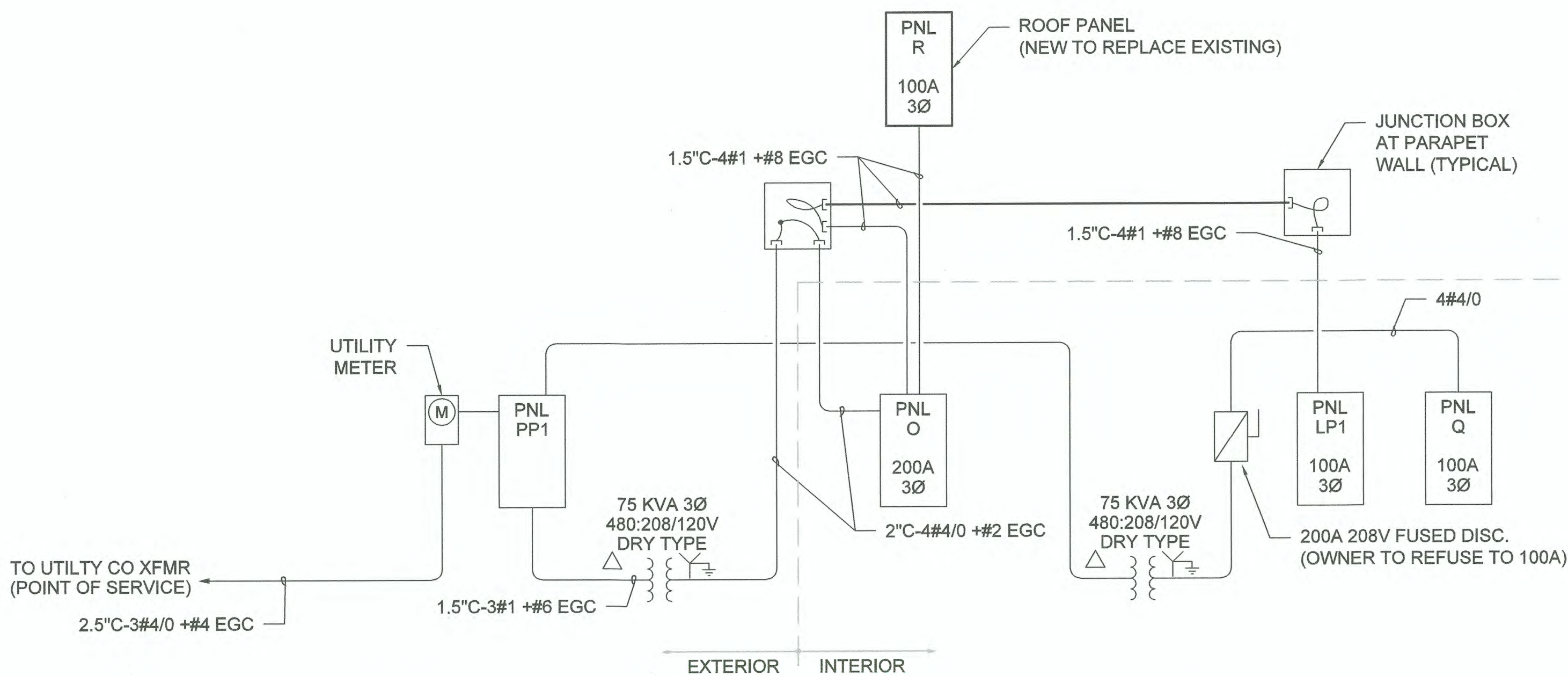
Port of Tacoma
P.O. BOX 1807 TACOMA, WA 98401 (253)885-5841

MARK:	REVISION:	BY:	DATE:

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12-10-2018

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THREE PHASE PANEL SCHEDULE																	
ID: R		Enclosure:		Voltage: 208/120, 4W			Rating: 100 Amps			Assembly AIC:							
Section: 1 OF 1		☐ Flush		☐ Isolated Gnd			☐ Main Lugs			☒ 10K							
Location: ROOF		☐ Surface		☐ SPD			☒ Main Breaker			☐ 22K							
		☐ NEMA 3R		☐ 200% Neutral			☐ Feed Thru Lugs			☐ 42K							
		☒ NEMA 12/3R					☐ Double Lugs			☐ Service Rated							
CODE		DESCRIPTION				VA	BKR	CKT	PHASE	CKT	BKR	VA	DESCRIPTION				CODE
LM		RTU #4				2740	30/3	1	A	2	30/2	1680	RTU #3				M
LM		-				2740		3	B	4		1680	-				M
LM		-				2740		5	C	6	20	540	GFI RECPT - RTU #3, 4, 5				R
M		UNIT #5				2740	30/3	7	A	8	20		SPACE				
M		-				2740		9	B	10	20		SPACE				
M		-				2740		11	C	12			SPACE				
R		GFI RECPT - RTU #1, 2				360	20	13	A	14			SPACE				
		SPACE						15	B	16			SPACE				
		SPACE						17	C	18			SPACE				
		SPACE						19	A	20			SPACE				
		SPACE						21	B	22			SPACE				
		SPACE						23	C	24			SPACE				
		SPACE						25	A	26			SPACE				
		SPACE						27	B	28			SPACE				
		SPACE						29	C	30			SPACE				
								A	B	C	PHASE						
								7.5	7.2	6.0	KVA CONNECTED						
LOAD SUMMARY													TOTAL LOAD			KVA	AMPS
Code	Description	KVA			KVA			CONNECTED			20.7	57.5					
R	Lighting	0.0	X	125%	0.0			CALCULATED			22.8	63.2					
R	Receptacles	0.0	X	100%	0.0												
R	Receptacles over 10KVA	0.0	X	50%	0.0												
C	Computers	0.0	X	100%	0.0												
M	Motors	11.6	X	100%	11.6												
LM	Largest Motor	8.2	X	125%	10.3												
K	Kitchen	0.0	X	100%	0.0												
N	Noncoincident	0.0	X	0%	0.0												
W	Water Heater	0.0	X	100%	0.0												
	Remainder	0.0	X	100%	0.0												
													SPARE CAPACITY:			36.8%	
													REMARKS:				
													* GFCI CIRCUIT BREAKER				



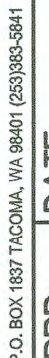
ONE-LINE DIAGRAM

MECHANICAL EQUIPMENT CONNECTION SCHEDULE																							
NAME	DESCRIPTION	LOCATION	MAXIMUM RATINGS						(CU) FEEDER	CIRCUIT#	DISCONNECT		CONTROLS										REMARKS
			HP	KVA	FLA	MCA	MOCP	VOLT/PH	#12 EACH PHASE, NEUTRAL, PLUS GROUND UNO.		BY	DESCRIPTION	STARTER										
													BY DESCRIPTION	POWER RELAY	SPEED CONTROL	PB STATION	CLOCK	T-STAT	LIMIT SWITCH	WALL SWITCH	VFD	MCC	
RTU-1	(E) HEAT/COOL UNIT	OUTDOOR ROOFTOP		13.39	16.8	18.5	20	460	3		*	30A/3P FUSED WP										EXISTING UNIT	
RTU-2	(E) HEAT/COOL UNIT	OUTDOOR ROOFTOP		8.21	10.3	12.1	15	460	3		*	30A/3P FUSED WP										EXISTING UNIT	
RTU-3	HEAT/COOL UNIT	OUTDOOR ROOFTOP		3.36	16.1	19.1	30	208	1		●	30A/3P FUSED WP											
RTU-4	HEAT/COOL UNIT	OUTDOOR ROOFTOP		8.21	22.8	23.3	30	208	3	3/4" C., 3#10, #10 GND	X	INTEGRAL											
RTU-5	HEAT/COOL UNIT	OUTDOOR ROOFTOP		8.21	22.8	23.3	30	208	3	3/4" C., 3#10, #10 GND	X	INTEGRAL											

EQUIPMEMT CONNECTION SCHEDULE NOTES:

1. VERIFY VOLTAGE, PHASE, FLA/MCA OF EACH CONNECTION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. NOTIFY ARCHITECT/ENGINEER WHEN SCHEDULED SUPPLY WILL NOT MEET NEC REQUIREMENTS.
2. OUTLETS, DISCONNECTS, CONTROLLERS, AND EQUIPMENT CONNECTIONS FOR ROOF TOP AND OTHER OUTDOOR EQUIPMENT SHALL BE WEATHER PROOF.
3. LOCATION OF OUTLETS, DISCONNECTS, CONTROL DEVICES, AND EQUIPMENT CONNECTIONS ARE DIAGRAMMATIC AND TO BE LOCATED IN FIELD BY THE CONTRACTOR AS APPROVED BY THE ENGINEER. UNLESS OTHERWISE INDICATED ON PLANS, INSTALL SCHEDULED DISCONNECTS AND CONTROL DEVICES IN SIGHT OF EQUIPMENT. ARRANGE WIRING AND EQUIPMENT TO AVOID INTERFERENCE WITH OTHER WORK AND TO MAXIMIZE ACCESSIBILITY FOR MAINTENANCE AND REPAIRS.
4. COORDINATE WITH THE OTHER INSTALLING CONTRACTORS TO ENSURE NEC REQUIRED ACCESS TO DISCONNECTS IS PROVIDED FOR EACH PIECE OF EQUIPMENT.
5. WIRING BETWEEN EQUIPMENT DISCONNECT AND POINT OF CONNECTION SHALL COMPLY WITH NEC BASED ON EQUIPMENT NAMEPLATE RATING EXCEPT MINIMUM BRANCH CIRCUIT RATING SHALL BE 20 AMPERES.
6. SIZE OF DISCONNECT SWITCH AND MOTOR STARTER SHALL BE SIZED TO COMPLY WITH NEC REQUIREMENTS. WHERE INDICATED MOTOR CONTROL IS NOT LOCATED IN SIGHT OF MOTOR AS DEFINED BY NEC, PROVIDE ADDITIONAL DISCONNECTING MEANS TO COMPLY WITH NEC 430.102.
7. WIRING SIZES ARE BASED ON 60 DEGREE C. FOR AMPACITIES 100 AMPERES AND LESS. FOR FEEDERS LESS THAN 100 FEET IN LENGTH, CONDUCTOR SIZES MAY BE SELECTED BASED ON 75 DEGREE C. WHERE EQUIPMENT INSTALLED IS LABELED FOR 75 DEGREE C. WIRING.
8. SCHEDULE LEGEND:
 - = FURNISH AND INSTALL NEW UNDER DIVISION 26
 - = INSTALL UNDER DIVISION 26; FURNISHED WITH EQUIPMENT OR BY OTHERS.
 - X = FURNISH AND INSTALL BY OTHERS (NOT DIVISION 26)
 - * = EXISTING, RELOCATED EQUIPMENT

BID SET

E5.01 18 OF 18						EBC BLDG326 HVAC & ROOF REPLACEMENT & BLDGS 407 & 532 BIRD WIRE ONE-LINE DIAGRAM						APPROVED:  DIRECTOR ENG. DATE <u>12-10-18</u>						CTU 12.10.18 CHECKED BY DATE CTU 12.10.18 PROJ. ENGR DATE PRINTED BY: Anatoliy Dec 07, 2018 PORT ADDRESS: 401 ALEXANDER AVENUE TACOMA, WA 98421						 SIGNED _____ 12-10-2018						 HULTZ & BHU engineers inc. 1111 Fawcett Ave Suite 100 Tacoma, WA 98402 Phone: (253) 383-3283 general@hultzbhu.com Job Number: 18-099						 Port of Tacoma P.O. BOX 1897 TACOMA, WA 98401 (253)835894						MARK: REVISION: BY: DATE:					
COUNT/CONS: _____ M. ID: _____ PHASE: BID SET																																															