

HOUSTON COMMUNITY COLLEGE COLEMAN COLLEGE OF HEALTH SCIENCES

1900 PRESSLER ST, HOUSTON, TX 77030



**DOAS REPLACEMENT AND BAS UPGRADE
PROJECT SYNOPSIS**

THE PROJECT INCLUDES THE FOLLOWING MAJOR ELEMENTS FOR HOUSTON COMMUNITY COLLEGE, COLEMAN COLLEGE OF HEALTH SCIENCES:

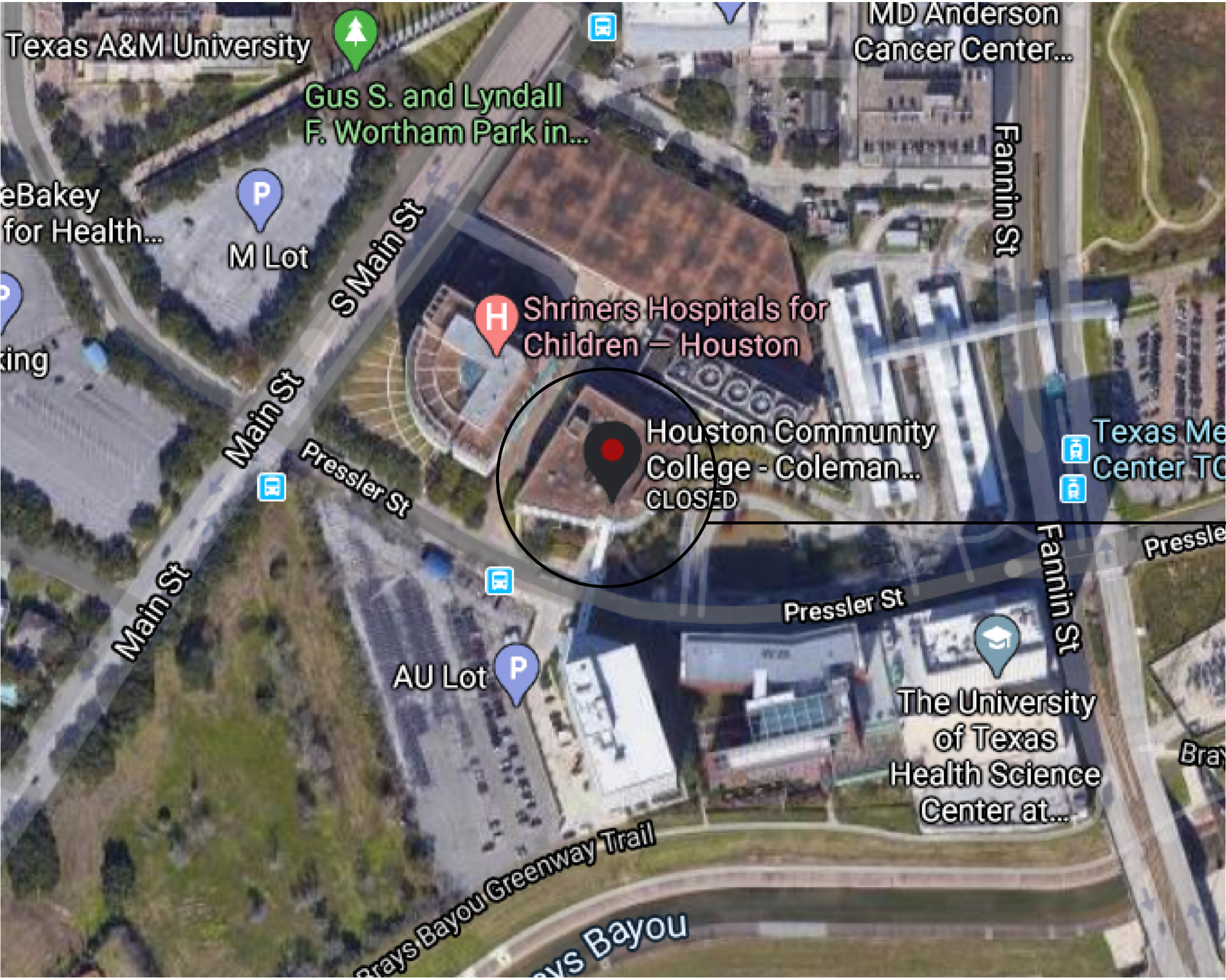
1. REPLACEMENT OF 35000 CFM OUTSIDE AIR UNIT
2. REMOVAL OF LOW PRESSURE STEAM HEATING ELEMENT SERVING OAHU-R.01 AND REPLACING WITH 388 KW ELECTRICAL HEATER.
3. REPLACEMENT OF TWO FAN COIL UNITS SERVING THE ELEVATOR MACHINE ROOM AND TELECOM ROOMS.
4. REPLACEMENT OF ELECTRIC UNIT HEATER SERVING MECHANICAL ROOM HOUSING OAHU-R.01 VFD AND OTHER MECHANICAL EQUIPMENT.
5. UPGRADE OF EXISTING BUILDING AUTOMATION SYSTEM TO MODERNIZE CONTROLS.

DRAWING LIST

GENERAL:
COVER SHEET

MECHANICAL:
M-001 MECHANICAL ABBREVIATIONS AND SYMBOLS
M-101 MECHANICAL ROOF PLAN A - DEMOLITION
M-102 MECHANICAL ROOF PLAN B - DEMOLITION
M-201 MECHANICAL ROOF PLAN A - NEW WORK
M-202 MECHANICAL ROOF PLAN B - NEW WORK
M-501 MECHANICAL DETAILS
M-502 MECHANICAL DETAILS
M-701 BAS SYSTEM ARCHITECTURE
M-702 MECHANICAL CONTROL SCHEMATICS
M-703 SEQUENCE OF OPERATIONS AND POINTS LIST
M-901 MECHANICAL EQUIPMENT SCHEDULES

ELECTRICAL:
E-001 ELECTRICAL SYMBOLS AND ABBREVIATIONS
E-101 ELECTRICAL ROOF PLAN A - DEMOLITION
E-102 ELECTRICAL ROOF PLAN B - DEMOLITION
E-201 ELECTRICAL ROOF PLAN A - NEW WORK
E-202 ELECTRICAL ROOF PLAN B - NEW WORK
E-501 ENLARGED ELECTRICAL PLANS
E-601 ELECTRICAL SINGLE LINE
E-701 PANEL SCHEDULES



HOUSTON COMMUNITY COLLEGE COLEMAN

LOCATION MAP 



AFFILIATED ENGINEERS, INC
ONE GREENWAY PLAZA, SUITE 150
HOUSTON, TX 77046
OFFICE: (713) 548-8900 FAX: (713) 548-8901
TEXAS RESISTED ENGINEERING FIRM F-8301
WWW.AEIENG.COM

**100% CONSTRUCTION
DOCUMENT
04/10/2020**

HOUSTON COMMUNITY COLLEGE COLEMAN COLLEGE OF HEALTH SCIENCES

1900 PRESSLER ST, HOUSTON, TX 77030

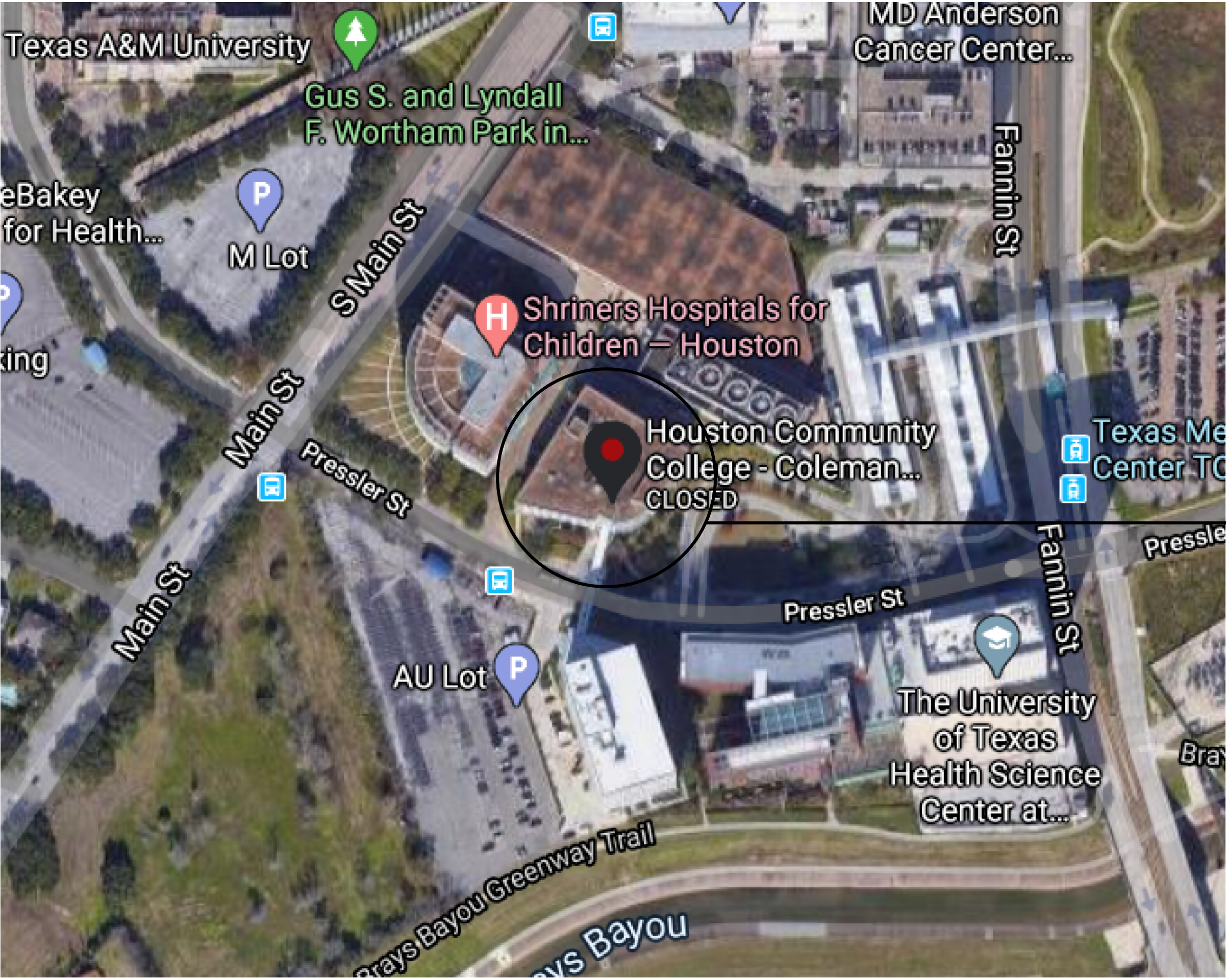


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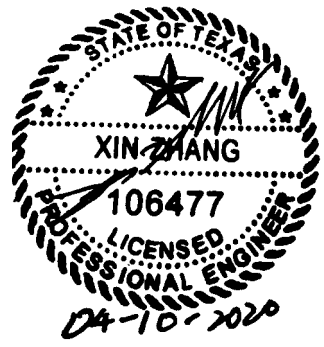
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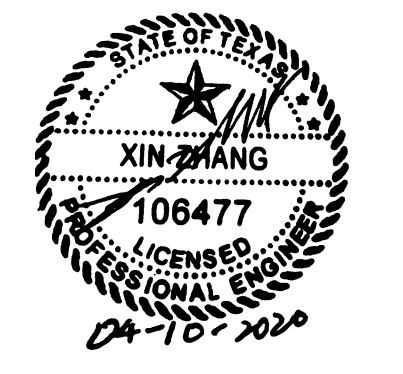
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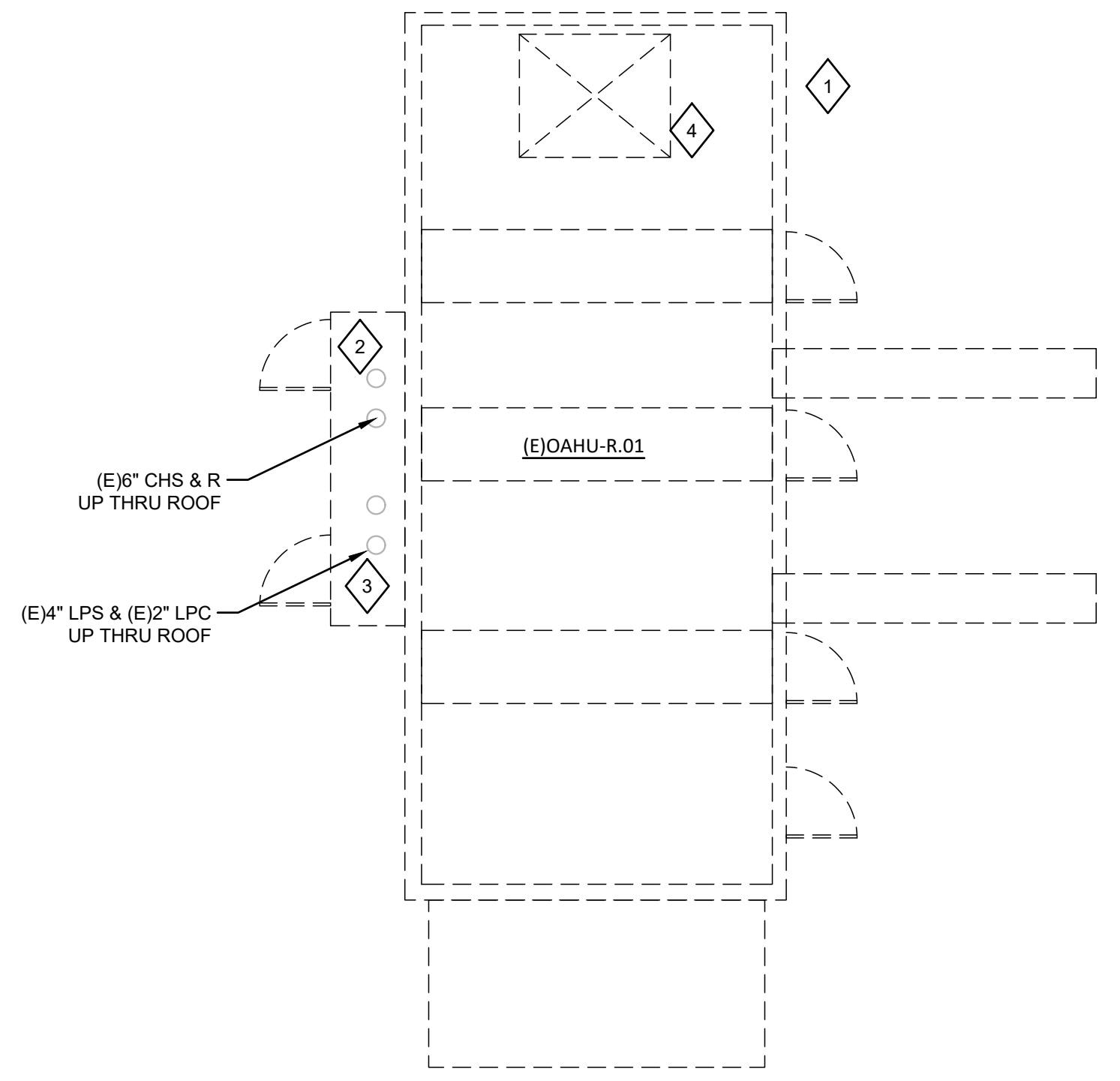
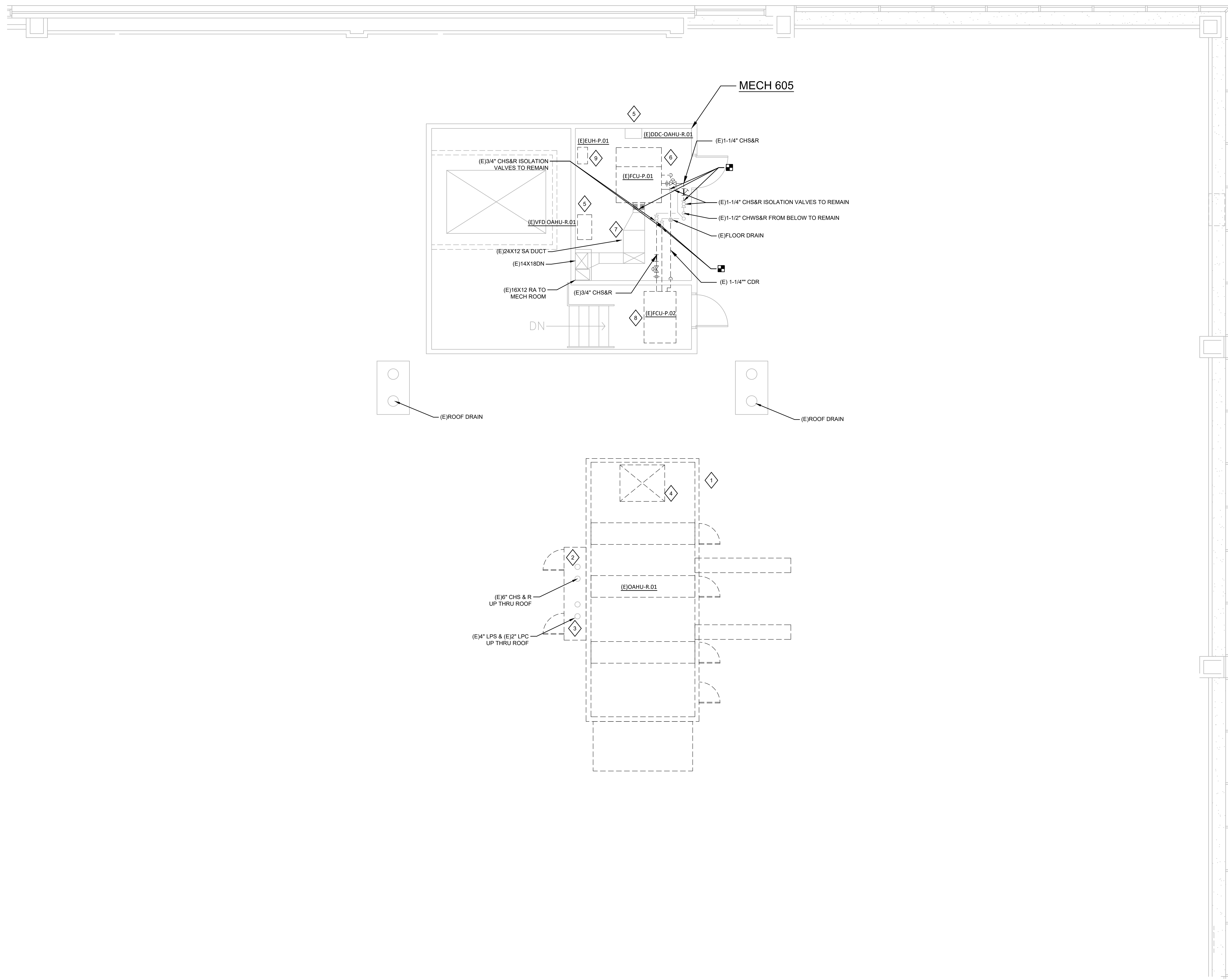


GENERAL NOTES

A. CONTRACTOR TO FIELD VERIFY LOCATIONS OF ALL EXISTING EQUIPMENT, CONTROLS, PIPING, AND ASSOCIATED APPURTENANCES.

SHEET KEYNOTES

- REMOVE EXISTING OAHU-R.01, VFD, ALL ASSOCIATED CONTROLS, ALL CONDENSATE PIPING, ROOF CURB, APPROX. 24'-0" X 10'-4", TO REMAIN. REFER TO DETAIL 8/M-501 FOR FLASHING DETAILS.
- CHS&R PIPING SHALL BE REMOVED TO EXISTING ISOLATION VALVES. REFER TO DETAIL 7/M-501 FOR CHS&R PIPING REMOVAL.
- STEAM PIPING SHALL BE REMOVED AND CAPPED IN 4TH FLOOR MECHANICAL ROOM. REFER TO DETAIL 6/M-501 FOR STEAM PIPING REMOVAL.
- TRANSITION DUCTING FROM OAHU-R.01 TO 50X42 DUCT IN OA RISER SHAFT TO BE REMOVED. CONTRACTOR TO VERIFY INTEGRITY OF EXISTING RISER. CONTRACTOR TO DEMO SHAFT WALL ON 5TH FLOOR AS REQUIRED FOR DUCT REMOVAL.
- REMOVE (E)OAHU-R.01 VFD AND DDC PANEL CONTROLS. DDC PANEL ENCLOSURE TO REMAIN.
- REMOVE EXISTING FCU-P.01, ASSOCIATED CONTROLS, AND APPURTENANCES. CHS & R PIPING SHALL BE REMOVED TO ISOLATION VALVES IN PENTHOUSE.
- EXISTING SUPPLY DUCTWORK SHALL REMAIN.
- REMOVE EXISTING FCU-P.02, ASSOCIATED CONTROLS, AND APPURTENANCES. CHS & R PIPING SHALL BE REMOVED TO ISOLATION VALVES IN PENTHOUSE.
- REMOVE EXISTING EUH-P.01 AND ASSOCIATED CONTROLS.



Issue
100% CD **2020.05.07**

Revisions

Project
HCC COLEMAN DOAS REPLACEMENT AND BAS UPGRADE

Sheet Title
MECHANICAL ROOF PLAN A - DEMOLITION

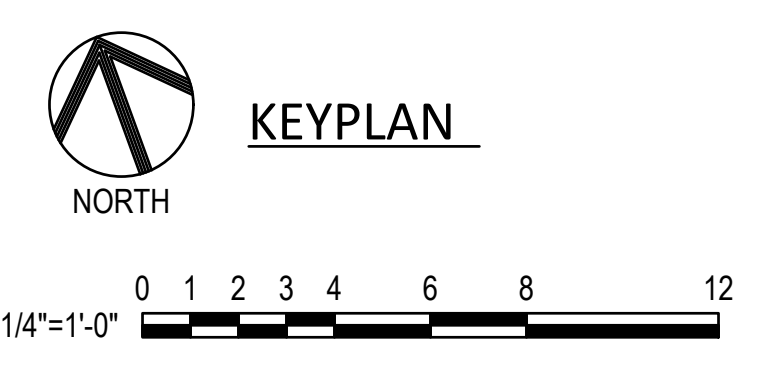
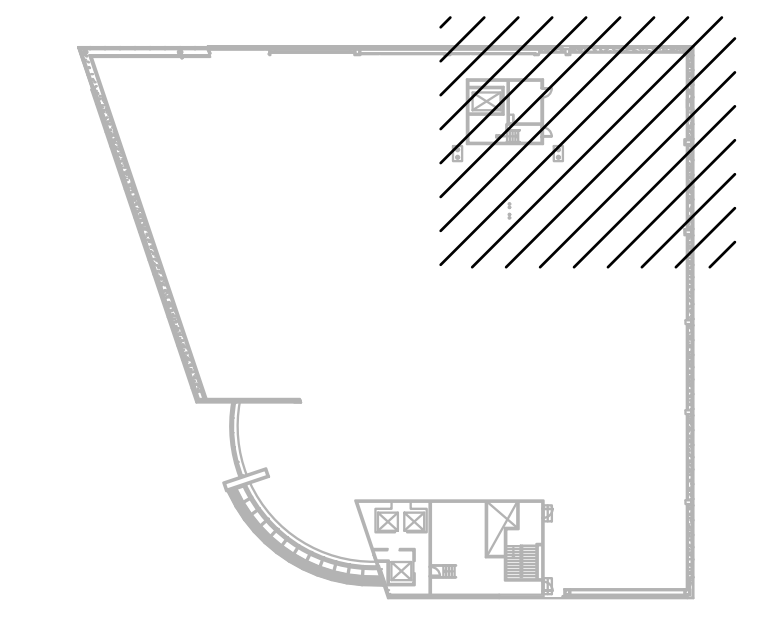
Scale
AS NOTED

Date Drawn By
04/10/2020 **JT/TR**

AEI Project No.
20683-00

Sheet No.

1 MECHANICAL ROOF PLAN A - DEMOLITION
 SCALE: 1/4"=1'-0"





Issue **100% CD** **2020.05.07**

Revisions

Project
**HCC COLEMAN DOAS
 REPLACEMENT AND
 BAS UPGRADE**

Sheet Title
**MECHANICAL ROOF
 PLAN B - DEMOLITION**

Scale
AS NOTED

Date **04/10/2020** Drawn By **JT/TR**

AEI Project No.
20683-00

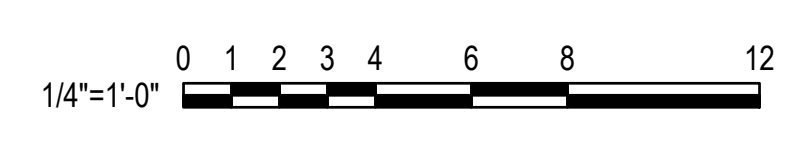
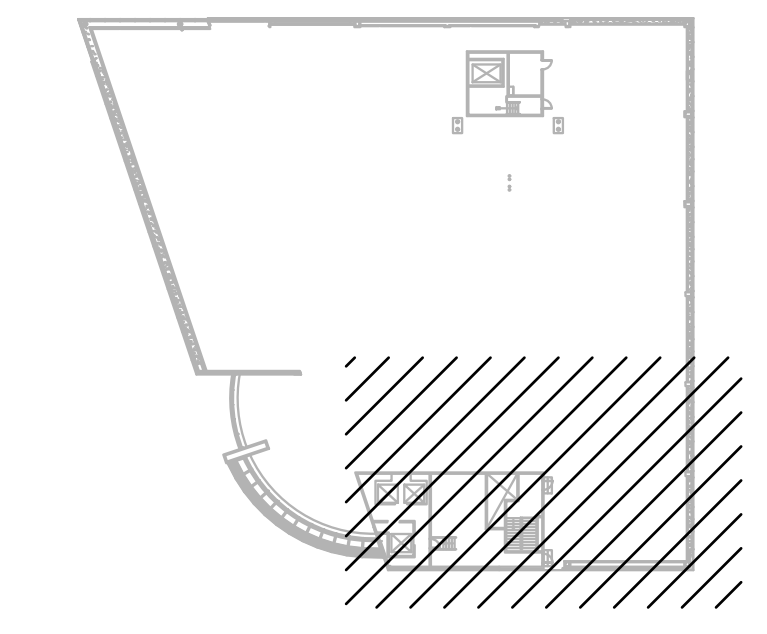
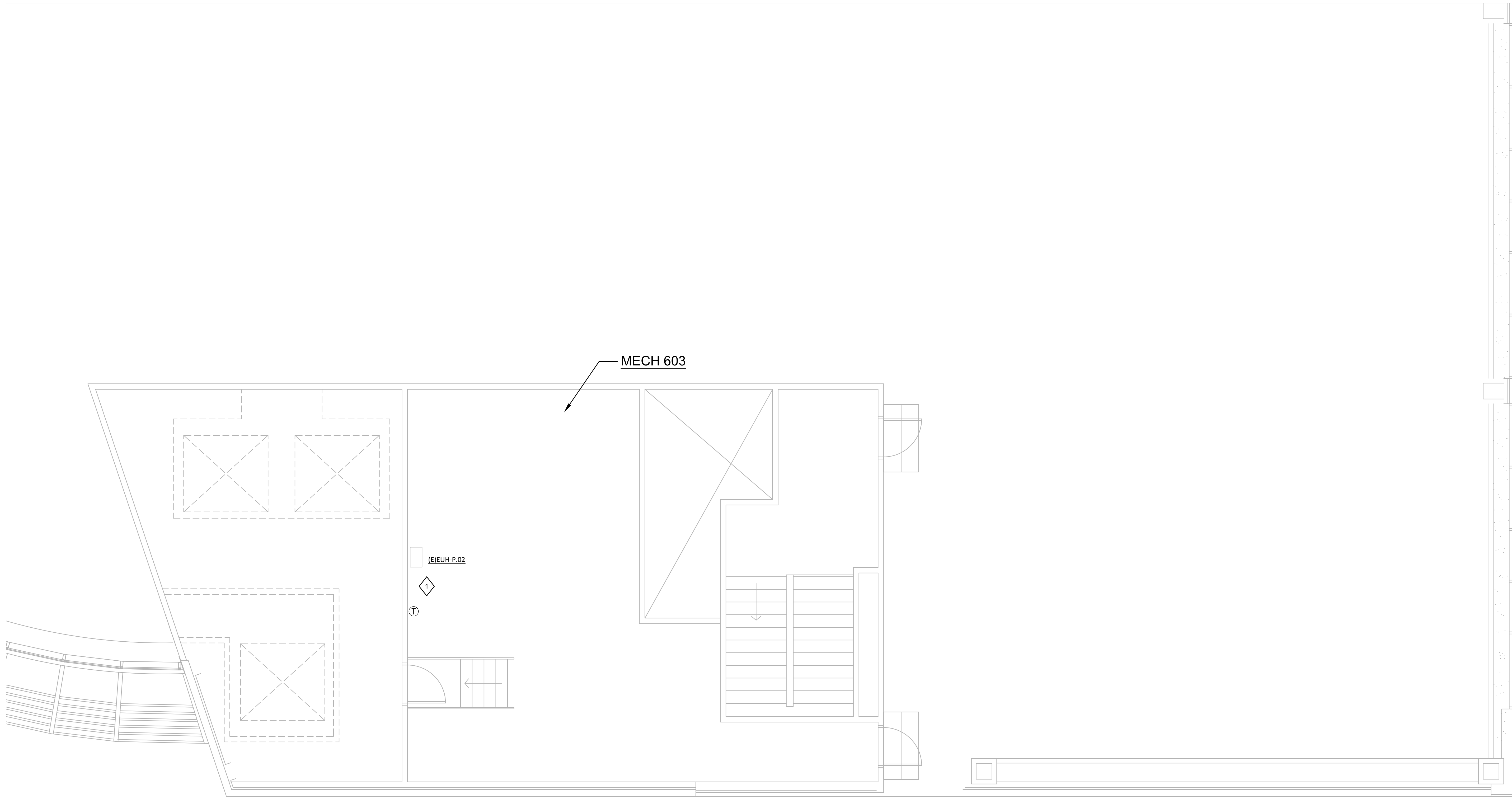
Sheet No.

GENERAL NOTES

A. CONTRACTOR TO FIELD VERIFY LOCATIONS OF ALL EXISTING EQUIPMENT, CONTROLS, PIPING, AND ASSOCIATED APPURTENANCES.

SHEET KEYNOTES

1. REMOVE EXISTING EUH-P-02 AND ASSOCIATED CONTROLS.



1 MECHANICAL ROOF PLAN B - DEMOLITION
 SCALE: 1/4"=1'-0"



Issue
100% CD **2020.05.07**

Revisions

Project
**HCC COLEMAN DOAS
 REPLACEMENT AND
 BAS UPGRADE**

Sheet Title
**MECHANICAL ROOF
 PLAN A - NEW WORK**

Scale
AS NOTED

Date **04/10/2020** Drawn By **JT/TR**

AEI Project No.
20683-00

Sheet No.

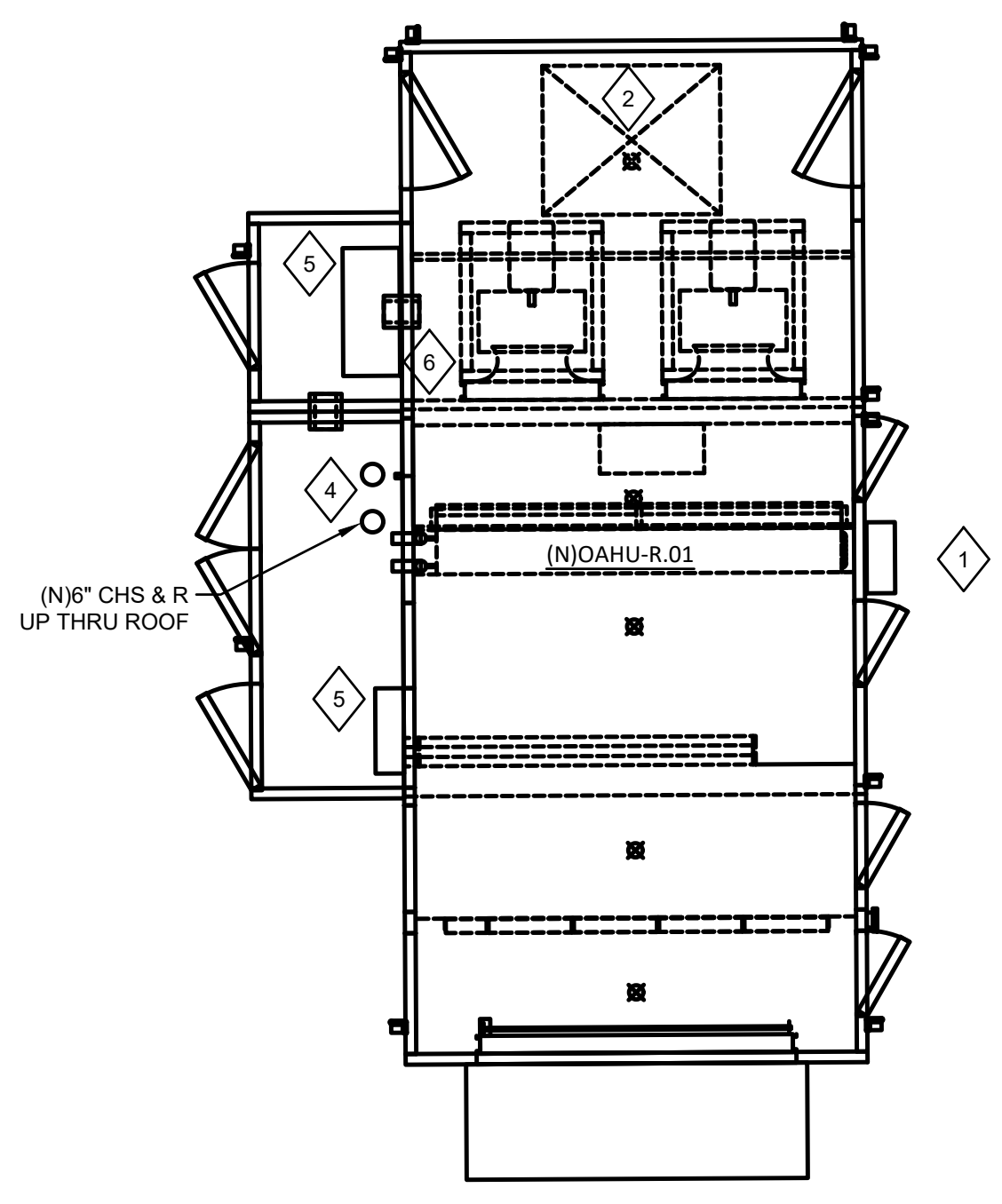
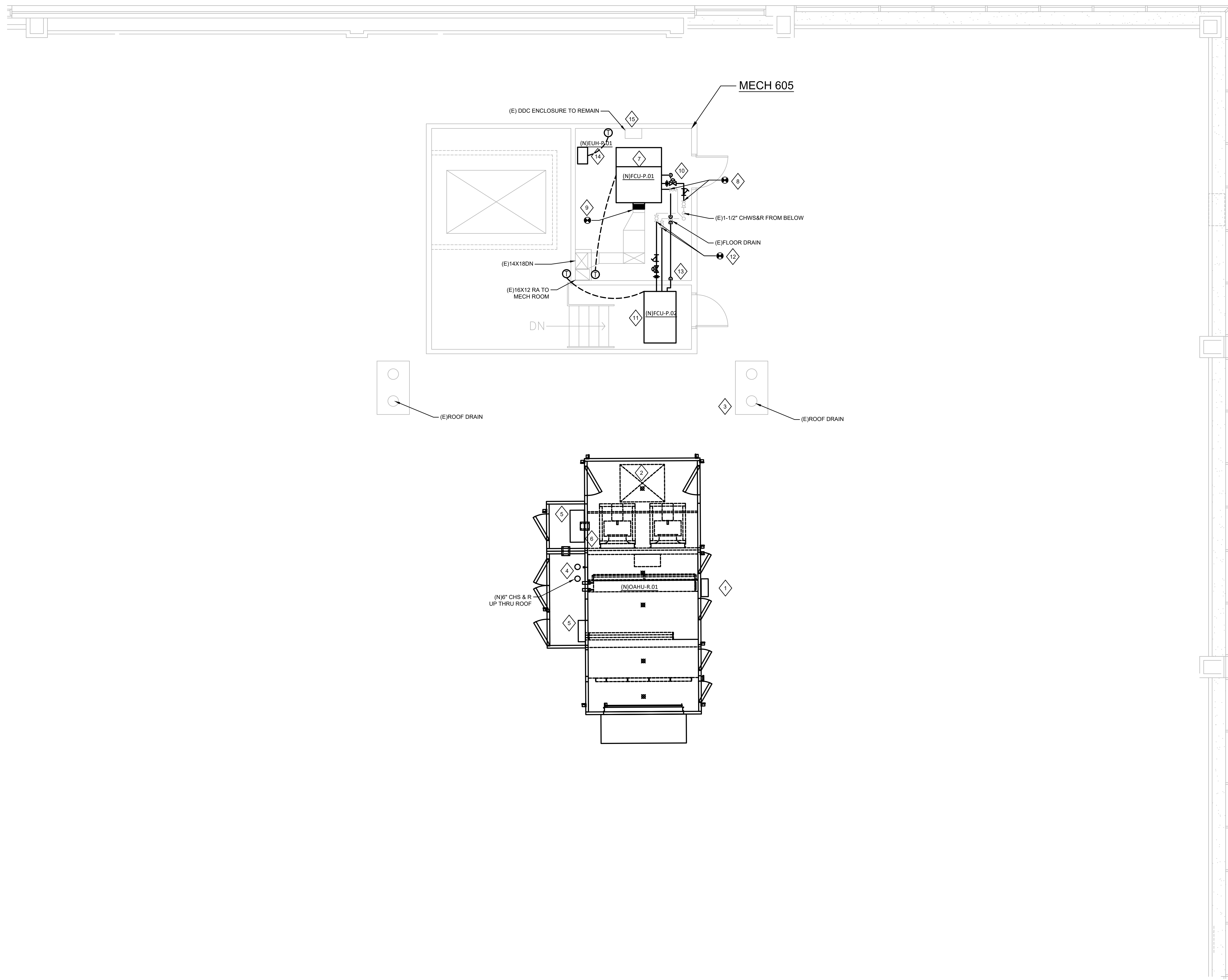
M-201

GENERAL NOTES

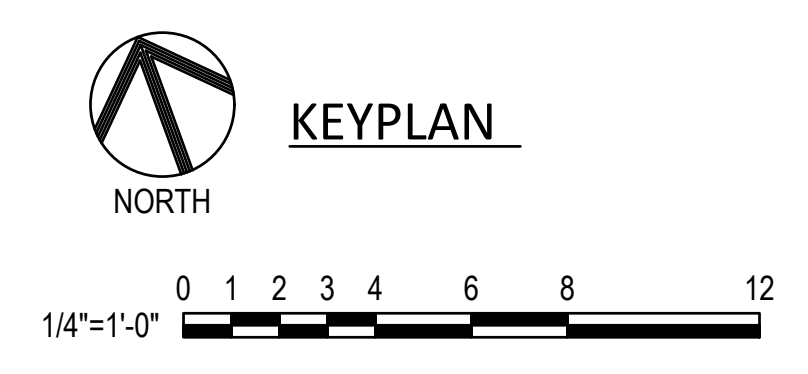
- A. CONTRACTOR TO FIELD VERIFY LOCATIONS OF ALL EXISTING EQUIPMENT, CONTROLS, PIPING, AND ASSOCIATED APPURTENANCES.
- B. INSULATE NEW CHILLED WATER PIPING, PIPING APPURTENANCES, AND CONDENSATE DRAIN PIPING PER SECTION 23 0700.
- C. PROVIDE FIRE STOPPING FOR MECHANICAL SYSTEM PENETRATIONS PER 20 0573.

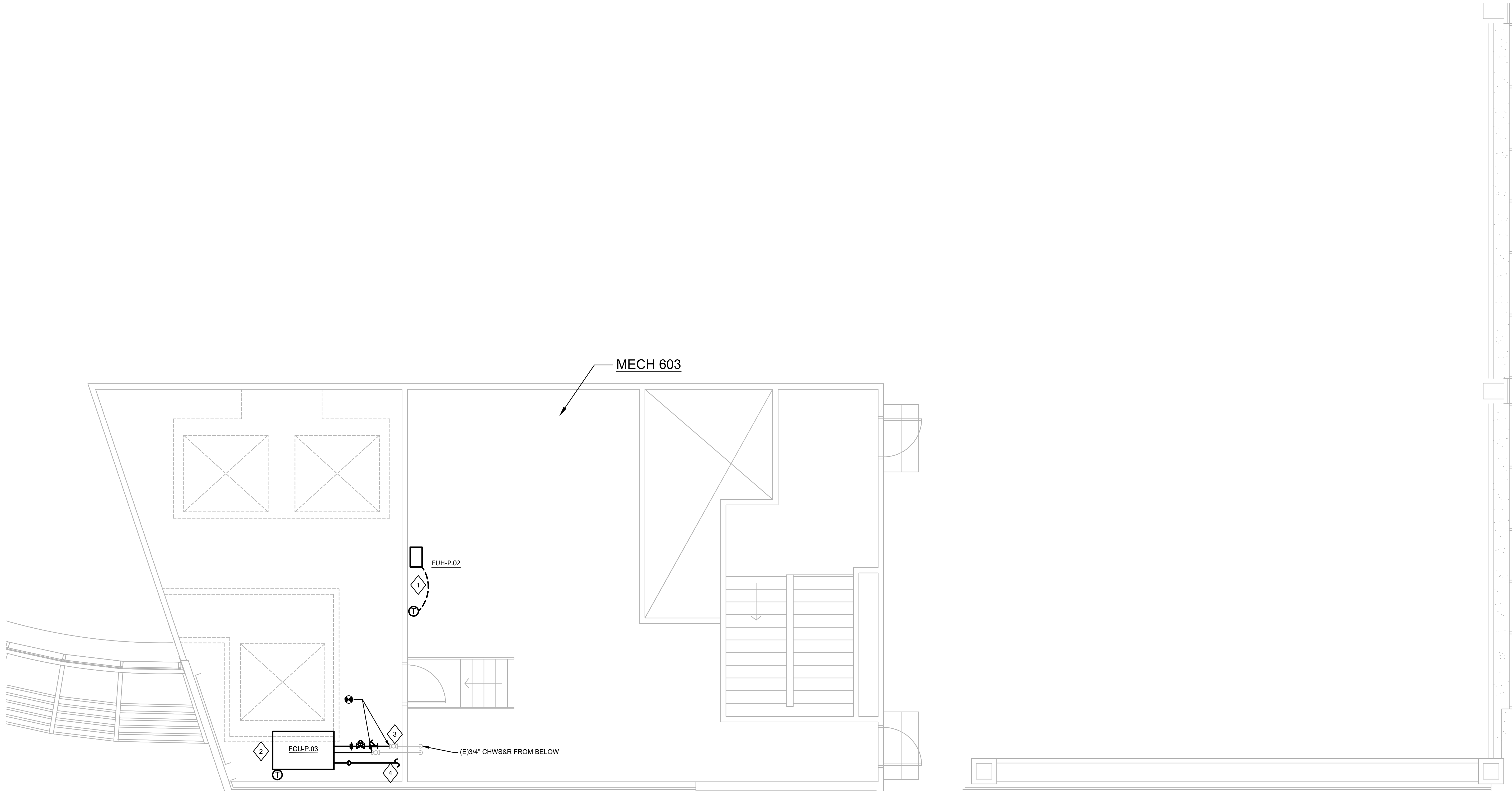
SHEET KEYNOTES

- 1. PROVIDE NEW OAHU-R.01, CONNECT CHS&R WITH EXISTING ISOLATION VALVES. MOUNT UNIT ON EXISTING ROOF CURB, APPROX. 24'-0" X 10'-4". FLASH ROOF CURB AS REQUIRED SEE DETAIL 8/M-501.
- 2. PROVIDE ALL TRANSITIONS REQUIRED TO TIE INTO THE EXISTING 50X42 SUPPLY AIR RISER. CONTRACTOR TO PATCH ANY WALL DEMOLITION REQUIRED FOR ACCESS TO OA RISER ON 5TH FLOOR.
- 3. ROUTE NEW CONDENSATE DRAIN PIPING TO NEAREST EXISTING ROOF DRAIN.
- 4. TIE NEW CHILLED WATER PIPING INTO EXISTING 6" CHS & R PIPING IN 5TH FLOOR MECHANICAL ROOM. REFER TO DETAIL 1/M-501 FOR CONNECTION REQUIREMENTS. INSULATE PIPING PER SECTION 23 0700.
- 5. OAHU-R.01 VFD AND HEATER CONTROLS/POWER CONNECTIONS TO BE MOUNTED IN VESTIBULE. INSULATE AS REQUIRED PER SECTION 23 0700.
- 6. MANUFACTURER OF CUSTOM AHU TO PROVIDE CONDUIT/DUCT FROM FAN SECTION TO BLEED 100 CFM INTO VESTIBULE.
- 7. PROVIDE NEW FCU-P.01, SUPPORTS, ASSOCIATED CONTROLS, AND APPURTENANCES.
- 8. CHS & R PIPING SHALL BE TIED INTO EXISTING 1-1/4" ISOLATION VALVES IN PENTHOUSE.
- 9. PROVIDE TRANSITIONS, DUCT CONNECTOR REQUIRED TO TIE INTO EXISTING SUPPLY DUCTING.
- 10. ROUTE NEW 1-1/4" CONDENSATE PIPE TO (E)FLOOR DRAIN.
- 11. PROVIDE NEW FCU-P.02, SUPPORTS, ASSOCIATED CONTROLS, AND APPURTENANCES.
- 12. CHS & R PIPING SHALL BE TIED INTO EXISTING 3/4" ISOLATION VALVES IN PENTHOUSE.
- 13. ROUTE NEW 1-1/4" CONDENSATE PIPE TO (E)FLOOR DRAIN.
- 14. PROVIDE NEW EUH-P.01 AND ASSOCIATED CONTROLS.
- 15. PROVIDE NEW DDC CONTROLS IN EXISTING PANEL. CONTRACTOR TO FIELD VERIFY ADEQUACY OF EXISTING ENCLOSURE TO HOUSE DDC CONTROLS AND PROVIDE ADDITIONAL PANEL ENCLOSURES AS REQUIRED.



1 MECHANICAL ROOF PLAN A - NEW WORK
 SCALE: 1/4"=1'-0"



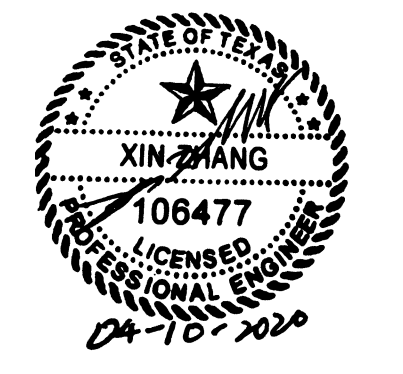


GENERAL NOTES

- A. CONTRACTOR TO FIELD VERIFY LOCATIONS OF ALL EXISTING EQUIPMENT, CONTROLS, PIPING, AND ASSOCIATED APPURTENANCES.

SHEET KEYNOTES

1. PROVIDE NEW EUIH-P.02 AND ASSOCIATED CONTROLS. MOUNT UNIT 8'-0" FROM FINISHED FLOOR.
2. ADD ITEM 1: PROVIDE NEW FCU-P.03, SUPPORTS, ASSOCIATED CONTROLS, AND APPURTENANCES.
3. ADD ITEM 1: CHS & R PIPING SHALL BE TIED INTO EXISTING 3/4" ISOLATION VALVES IN PENTHOUSE.
4. ADD ITEM 1: ROUTE NEW 1-1/4" CONDENSATE PIPE TO (E)FLOOR DRAIN.



Issue
100% CD **2020.05.07**

Revisions

Project
HCC COLEMAN DOAS REPLACEMENT AND BAS UPGRADE

Sheet Title
MECHANICAL ROOF PLAN B - NEW WORK

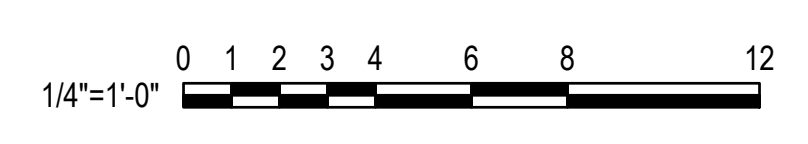
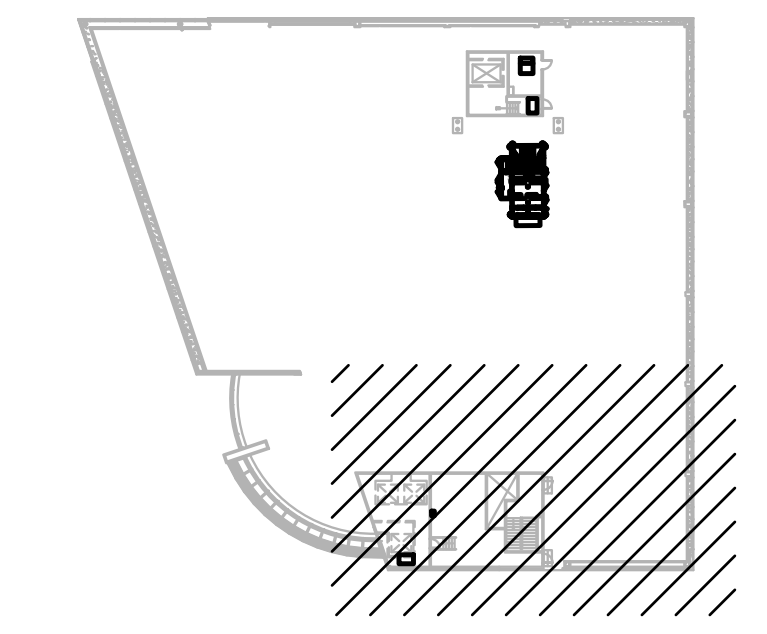
Scale
AS NOTED

Date **04/10/2020** Drawn By **JT/TR**

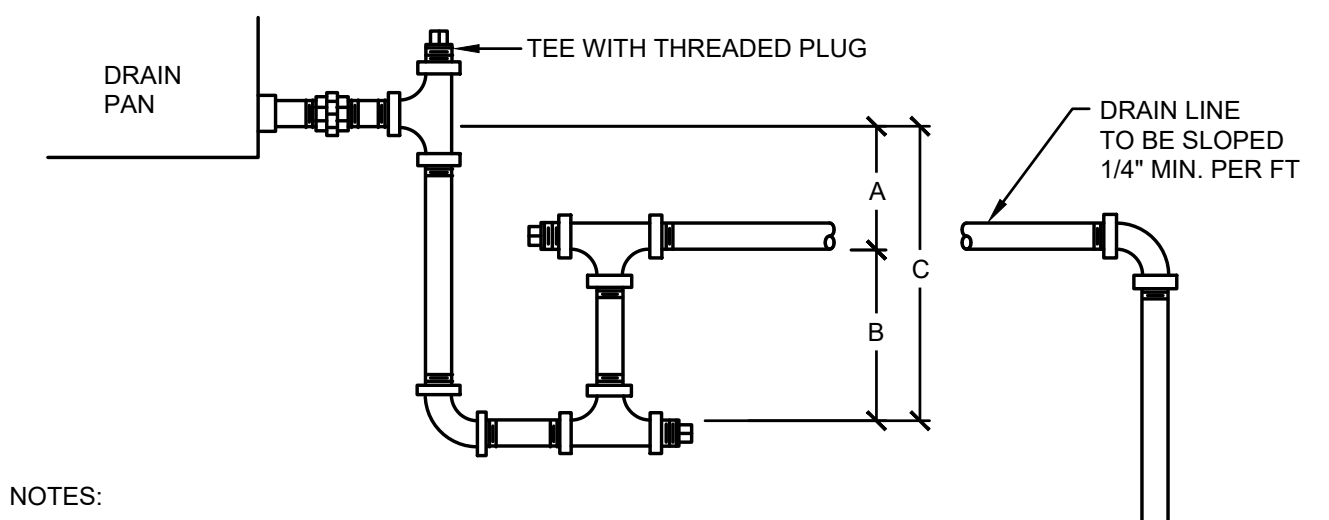
AEI Project No.
20683-00

Sheet No.

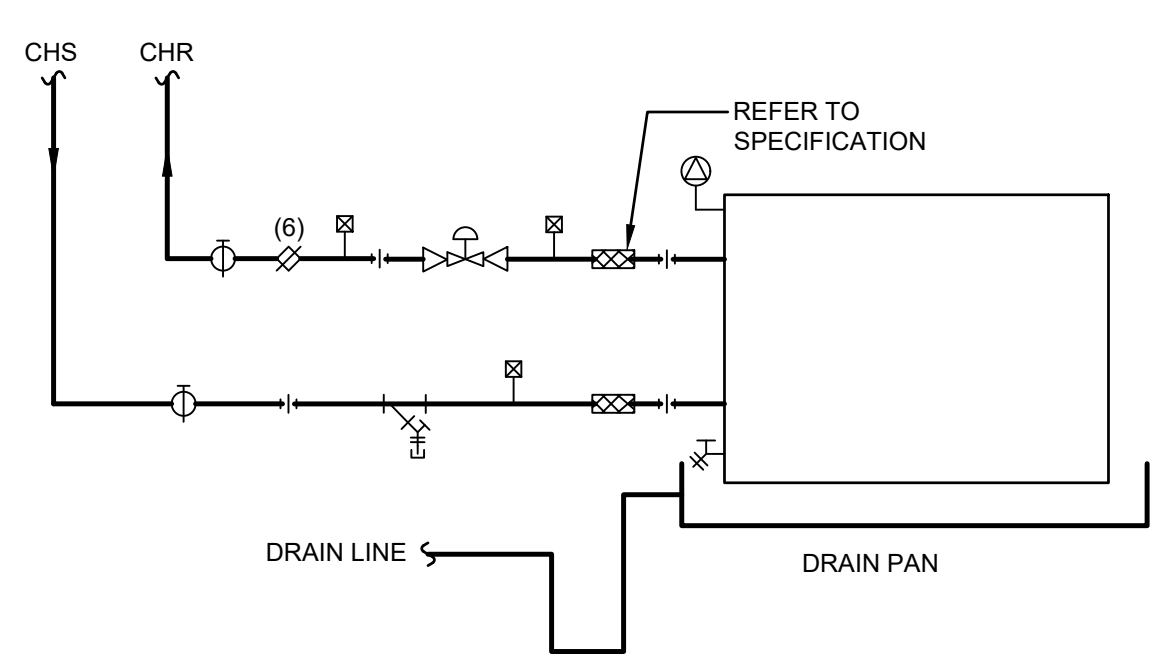
M-202



1 MECHANICAL ROOF PLAN B - NEW WORK
 SCALE: 1/4"=1'-0"



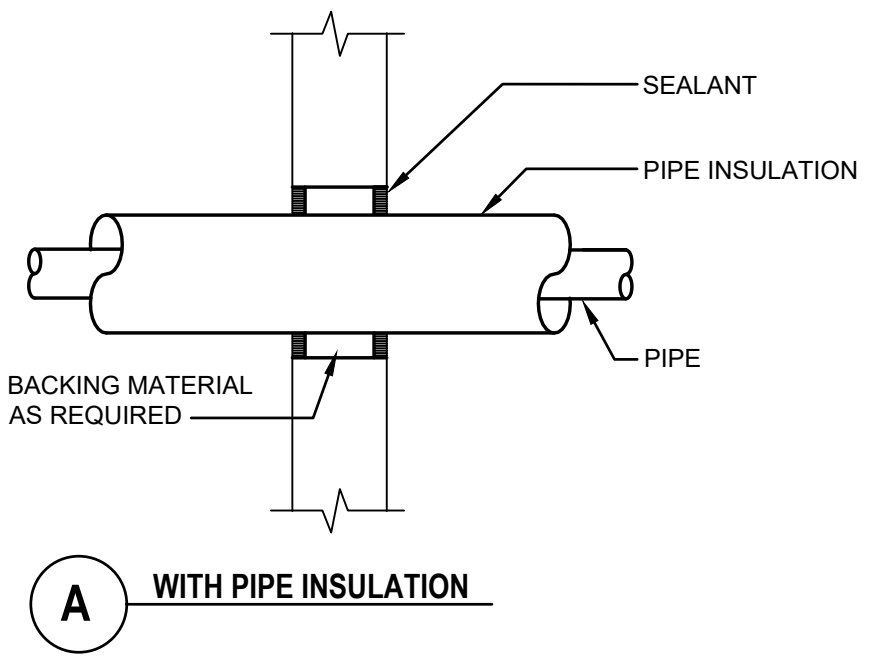
- NOTES:
- FILL TRAP MANUALLY ON INITIAL START-UP.
 - TRAP EACH COMPONENT DRAIN CONNECTION.
 - PIPE SIZE SHALL BE DRAIN PAN CONNECTION SIZE, BUT NOT SMALLER THAN 1-1/2" FOR COOLING COILS IN AHUS OR 3/4" FOR FAN COIL UNITS, WHICHEVER IS LARGER.
 - DRAW-THRU UNITS
 $A = SP + 1'$
 $B = 1/2 SP + 1/2'$
 $C = 1-1/2 SP + 1-1/2'$
 BLOW-THRU UNITS
 $A = 1/2'$
 $B = SP + 1/2'$
 $C = SP + 1'$
 SP TO BE MAXIMUM STATIC PRESSURE (SP) ON DRAIN PAN INCLUDING MAXIMUM FILTER PRESSURE DROP AND PRESSURE DROP OF FUTURE COMPONENTS OF UNIT IF APPLICABLE.
 - RAISE COIL SECTION OR ENTIRE AIR HANDLING UNIT WITH STRUCTURAL MEMBERS OR STANDS TO PROVIDE PROPER TRAP HEIGHT.
 - INSULATE CONDENSATE PIPING AS REQUIRED PER SECTION 23 0700. ROUTE CONDENSATE TO NEAREST (E) ROOF DRAIN.



- NOTES:
- REFER TO SPECIFICATION SECTION 23 2116 FOR UNIONS AND REDUCING FITTINGS REQUIREMENTS.
 - REFER TO SPECIFICATION SECTION 23 2118 FOR BALANCING VALVE SIZING AND STRAIGHT INLET AND OUTLET PIPING REQUIREMENTS.
 - REFER TO COOLING COIL CONDENSATE DRAIN TRAP PIPING DETAIL.
 - PROVIDE MEANS OF BYPASSING COIL, CONTROL AND BALANCING VALVES DURING FLUSHING. REFER TO SPECIFICATION SECTION 23 2116.
 - ARRANGE RUNOUTS AND HEADERS TO ALLOW FOR COIL PULL.
 - BALANCING VALVE IS NOT REQUIRED WHEN PRESSURE INDEPENDENT CONTROL VALVE (PICV) IS USED.

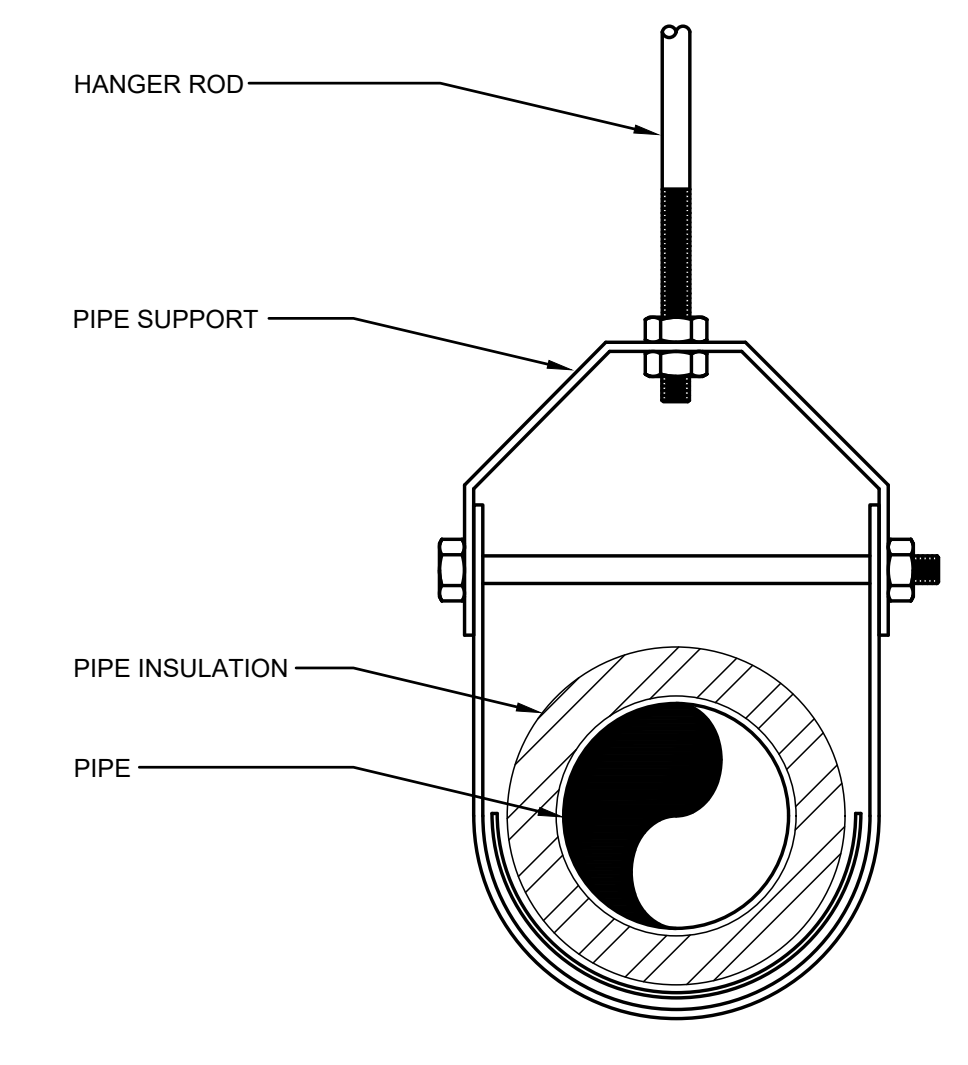
1 CHILLED WATER COOLING COIL PIPING
SCALE: NONE

2 COOLING COIL CONDENSATE DRAIN TRAP PIPING
SCALE: NONE



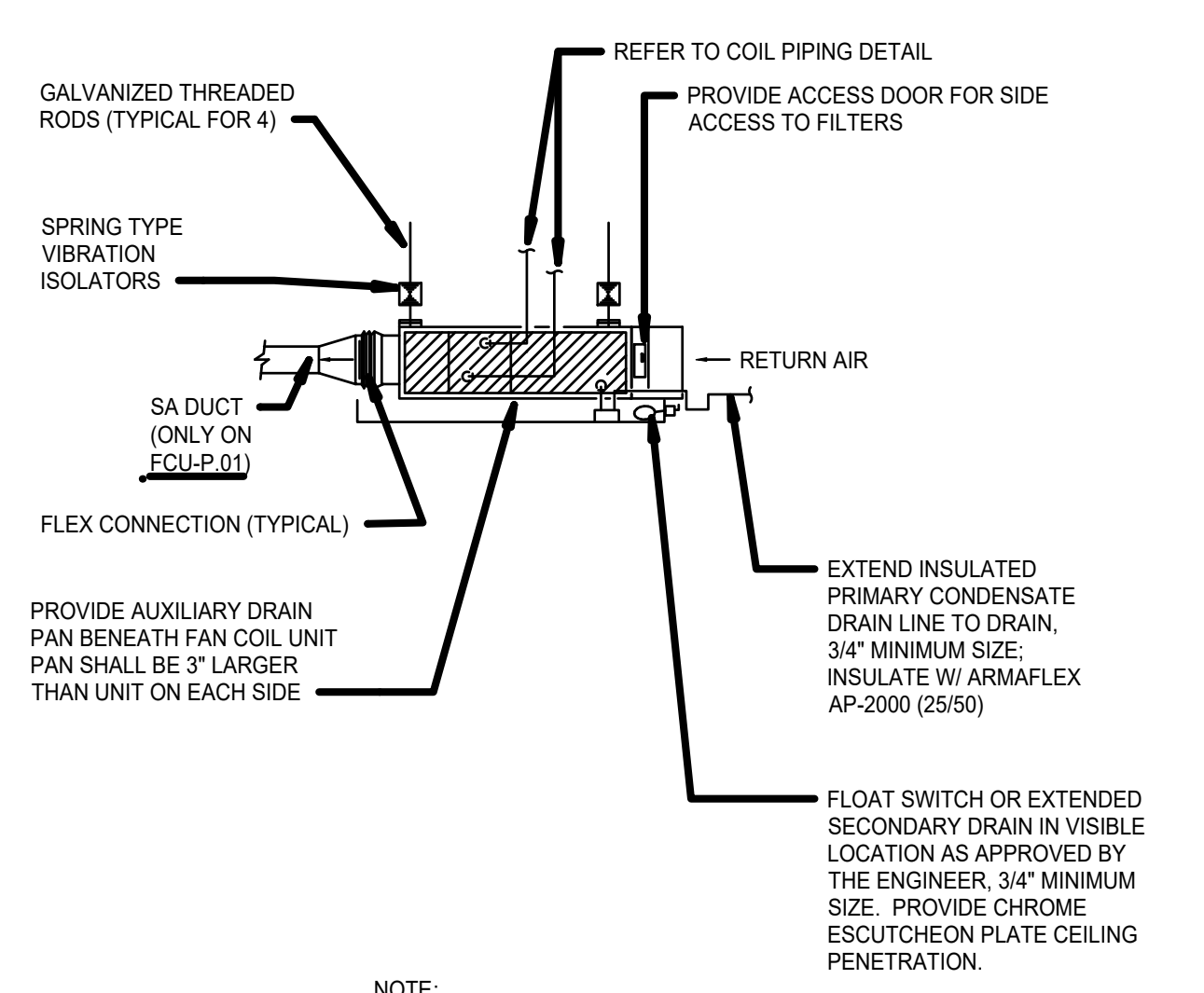
- NOTES:
- WHERE WALL IS FIRE RATED, APPLY FIRESTOPPING SYSTEM (COMBINATION OF SEALANT, BACKING MATERIAL AND INSULATION) MEETING THIS RATING. REFER TO SPECIFICATION SECTION 20 0573 FOR FIRESTOPPING SYSTEM.

3 PIPE THRU INTERIOR WALL
SCALE: NONE



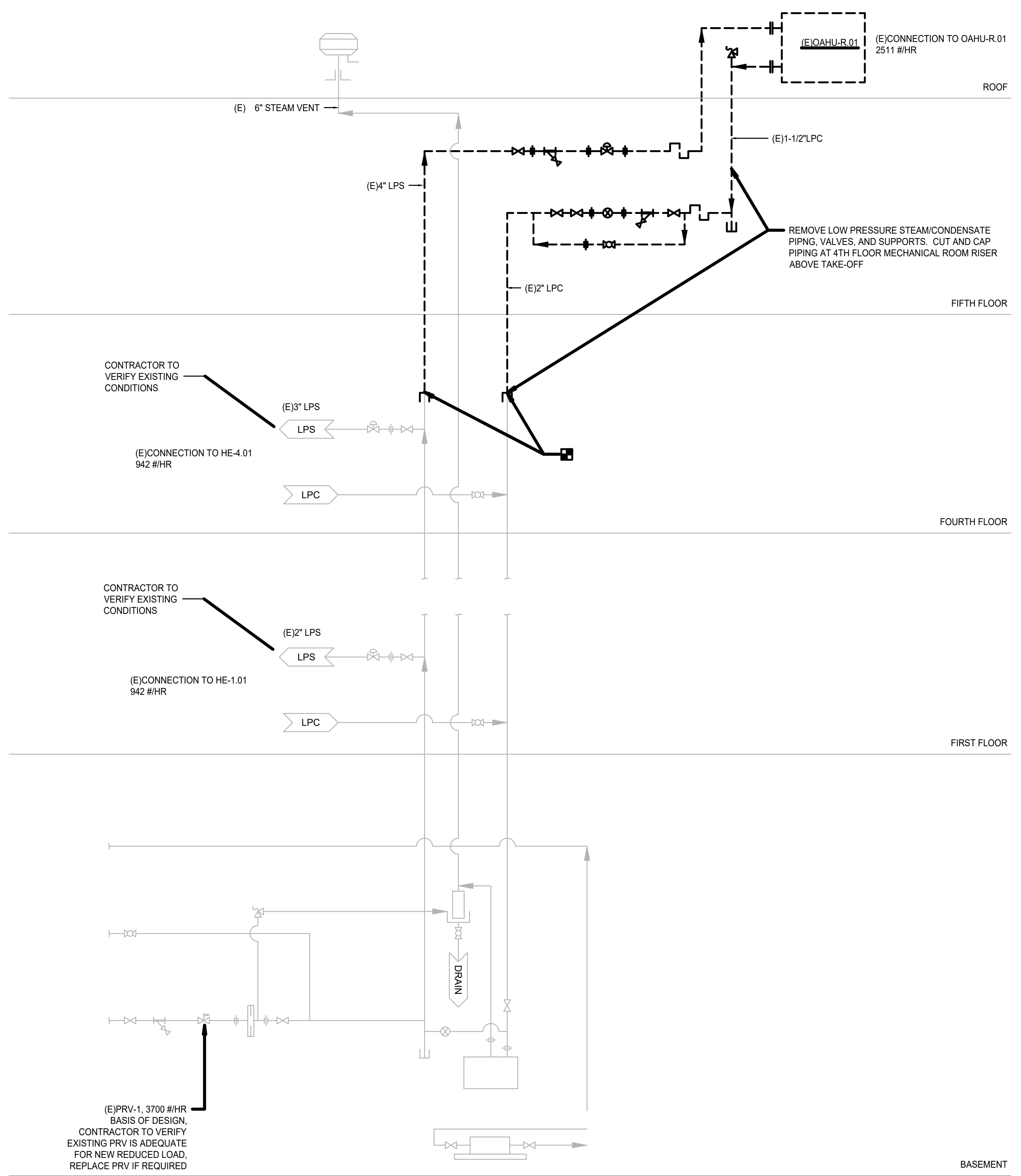
- NOTES:
- REFER TO SPECIFICATION SECTION 20 0520 FOR INSULATED PIPE SUPPORTS, INSULATION PROTECTION SHIELDS AND SADDLES.

4 PIPE HANGER
SCALE: NONE (MSS TYPE-1 CLEVIS HANGER)

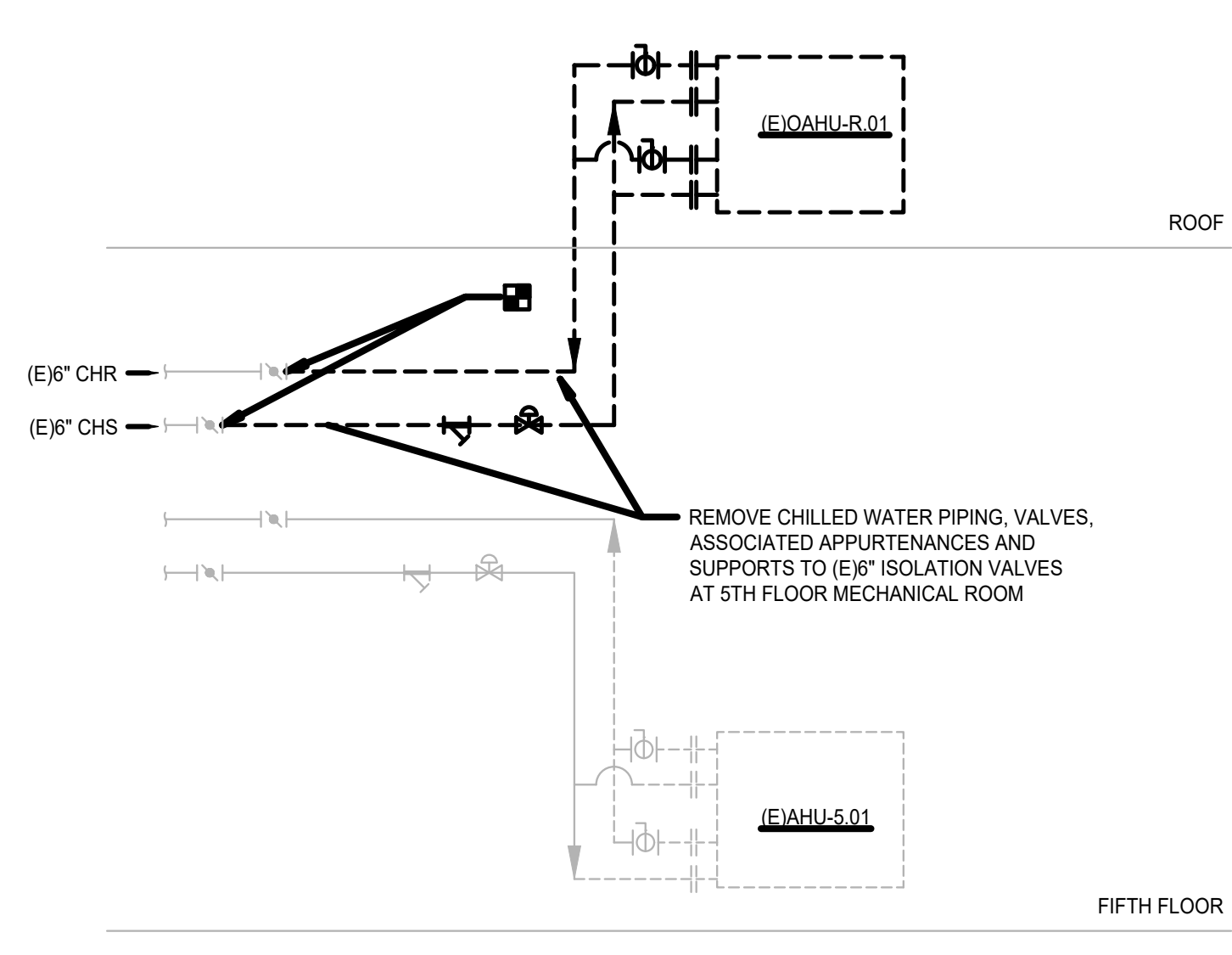


- NOTE:
- REUSE EXISTING SUPPORTS IF POSSIBLE.

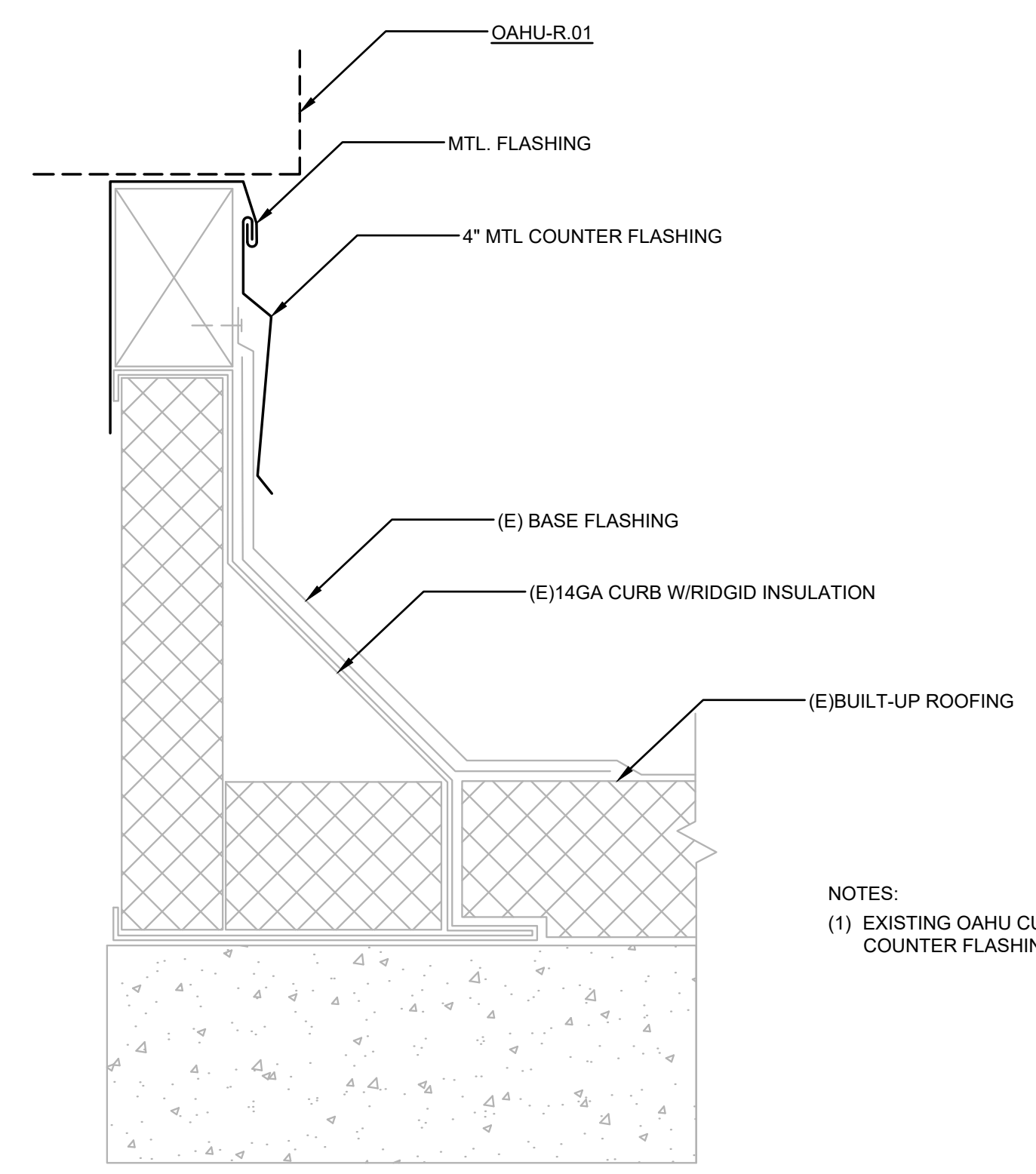
5 FAN COIL UNIT SUPPORT DETAIL
SCALE: NONE



6 LOW PRESSURE STEAM RISER DETAIL
SCALE: NONE



7 CHILLED WATER RISER DETAIL
SCALE: NONE



- NOTES:
- EXISTING OAHU CURB TO REMAIN. PROVIDE NEW MTL FLASHING, COUNTER FLASHING, AND WEATHER PROOF SEALANT AS REQUIRED.

8 EXISTING CURB REFLASHING DETAIL
SCALE: NONE



Issue
 100% CD 2020.05.07

Revisions

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MECHANICAL DETAILS

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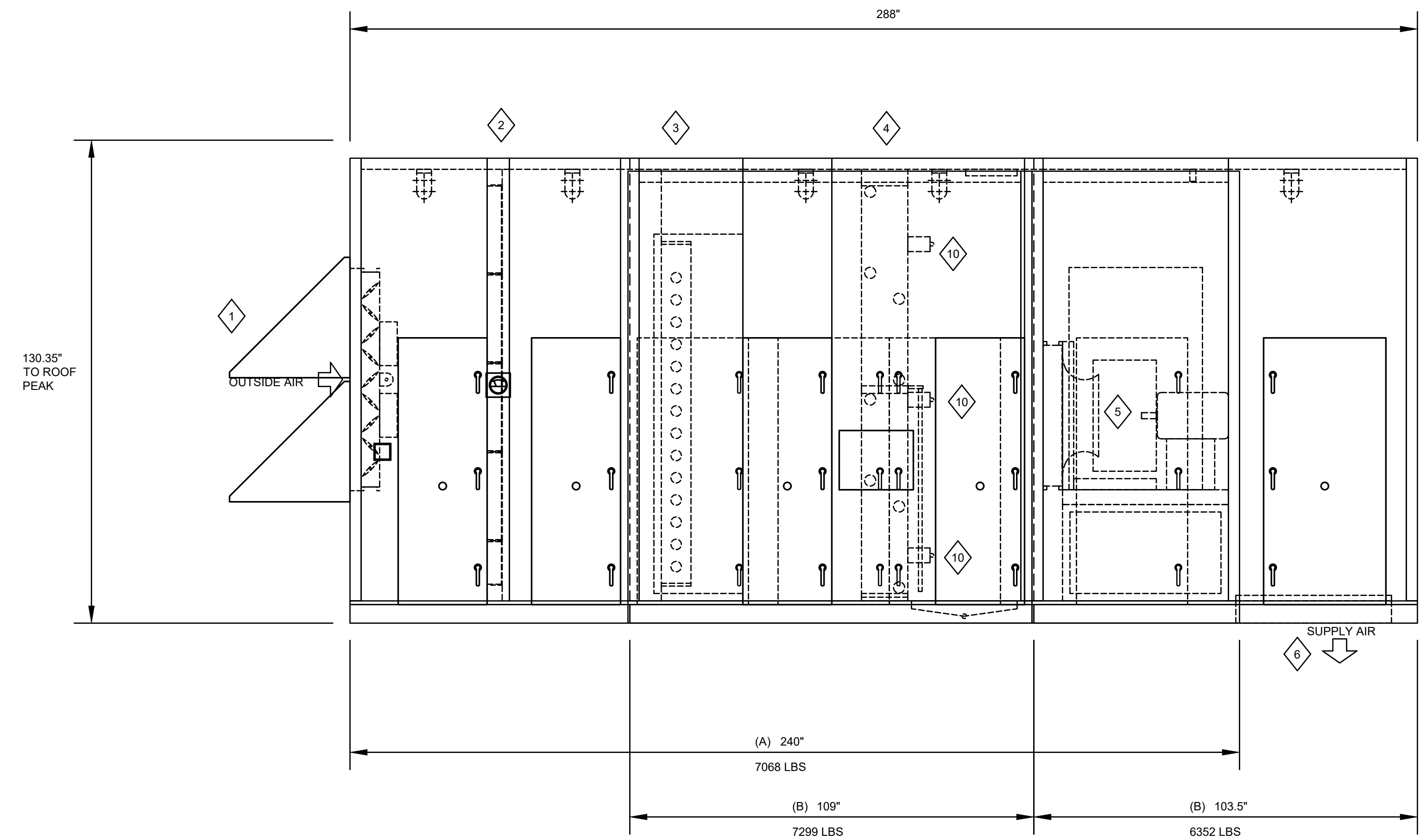
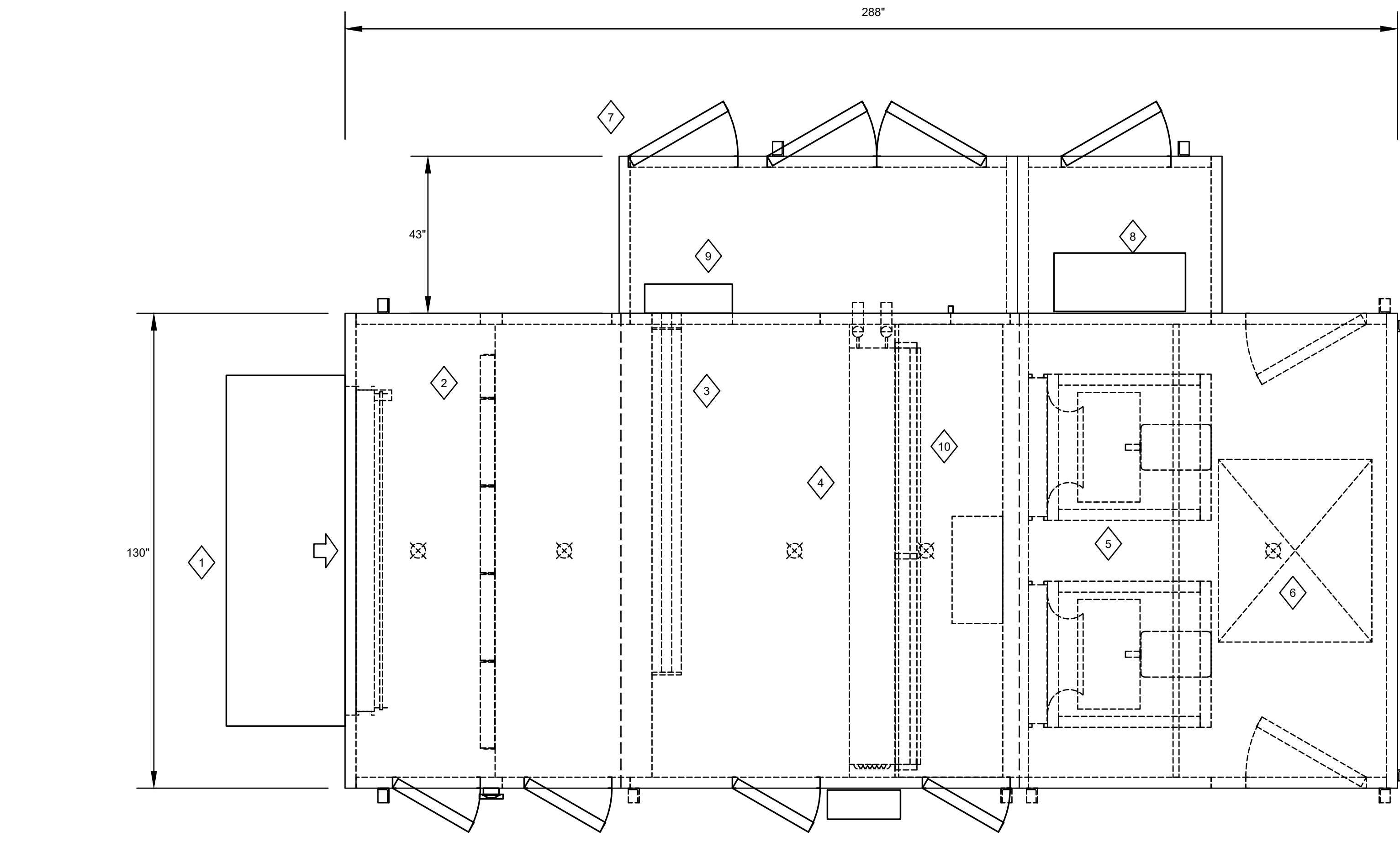
AEI Project No.
20683-00

Sheet No.

M-502

SHEET KEYNOTES

1. INTAKE WEATHER HOOD
2. FILTER BANK
3. ELECTRIC HEATING COIL
4. COOLING COIL
5. FAN ARRAY
6. SUPPLY AIR OUTLET
7. PIPING AND CONTROLS VESTIBULE
8. VFD ENCLOSURE
9. HEATING CONTROLLER (SCR)
10. U.V. LIGHTS



1 OAHU-R.01 DIMENSIONS AND WEIGHTS
 SCALE: NONE



GENERAL NOTES

- THE BUILDING AUTOMATION SYSTEM (BAS) SHALL BE UPGRADED WITH NEW PLATFORM. THIS WORK WILL BE PERFORMED BY THE CONTROL MANUFACTURE IN CONJUNCTION WITH HVAC UPGRADE IN THIS SCOPE OF WORK.
- THE INTENT OF THIS DIAGRAM IS TO PROVIDE A NIST/PIP BASIS FOR THE BAS. NOT THE ACTUAL LAYOUT OF THE FINAL DESIGN. BAS CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROLLERS AS NECESSARY TO FULFILL REQUIREMENTS AND SEQUENCES WITHIN THE PROJECT DOCUMENTS.
- IF USING IP CONTROLLERS FOR TERMINAL UNITS, CONTRACTOR IS TO COORDINATE ADDITIONAL DATA DROPS. IN CONTRACTOR'S DESIGN, PROVIDE 20% SPACE FOR FUTURE ADDITIONAL TERMINAL UNIT CONTROLLERS IN EACH DATA CONNECTION. CONNECTING CONTROLLERS VIA IP, USE CIRCLE OR STAR WIRING METHOD, OR WIRING METHOD APPROVED BY EOR.
- COORDINATE WITH THE CONTROLS REP FOR THE BAS SYSTEM PLATFORM NOTED BELOW FOR THE EXACT SCOPE OF WORK AND REPLACEMENT COSTS.
- ALL COLEMAN SCIENCE AND TECH CONTINUUM CONTROLS (BAS) SHALL BE INTEGRATED TO THE HCC "ECO-STRUXURE BAS" BY SCHNEIDER ELECTRIC.
- EXISTING CONTINUUM MASTER NODES SHALL BE REPLACED WITH NEW ECO-STRUXURE MASTER NODES.
- EXISTING NON-COMPATIBLE HVAC SYSTEM CONTROLS SHALL BE UPGRADED TO COMMUNICATE WITH THE NEW ECOSTRUXURE BY REPLACING THE EXISTING CONTROLLER, PER EACH PIECE OF EQUIPMENT, WITH NEW CONTROLLER.
- EXISTING COMPATIBLE HVAC SYSTEM CONTROLS SHALL REMAIN AND COMMUNICATE WITH THE NEW ECOSTRUXURE BY REPLACING EXISTING CONTROLLER MASTER NODES, CONVERTING EXISTING DATABASE AND CREATING NEW GRAPHICS, TRENDS AND ALARMS.
- THE CURRENT BAS SYSTEM SHALL BE ANALYZED FROM WORKSTATION FOR ISSUES WITH COMMUNICATION, CONTROLLERS, AND FIELD SENSORS.
- A DEFICIENCY REPORT SHALL BE PROVIDED TO THE OWNER AND ENGINEER FOR AUTHORIZATION TO REPAIR.

KEYNOTES

- ADD ITEM 1: PROVIDE CONTROLS PANEL/MODULES AS REQUIRED TO INCLUDE MONITORING AND CONTROLS OF FCU-P.03.

Revisions

No.	Description	Date

Project
HCC COLEMAN DOAS REPLACEMENT AND BAS UPGRADE

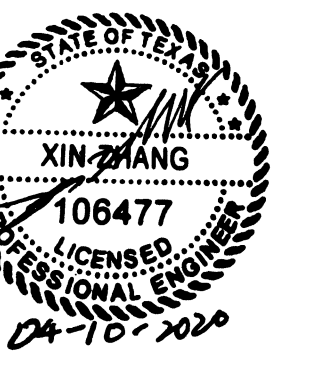
Sheet Title
BAS ARCHITECTURE DIAGRAM

Scale
AS NOTED

Date **04/10/2020** Drawn By **JT/TR**

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20683-00

Sheet No.
M-701



Revisions

No.	Description

Project: **HCC COLEMAN DOAS REPLACEMENT AND BAS UPGRADE**

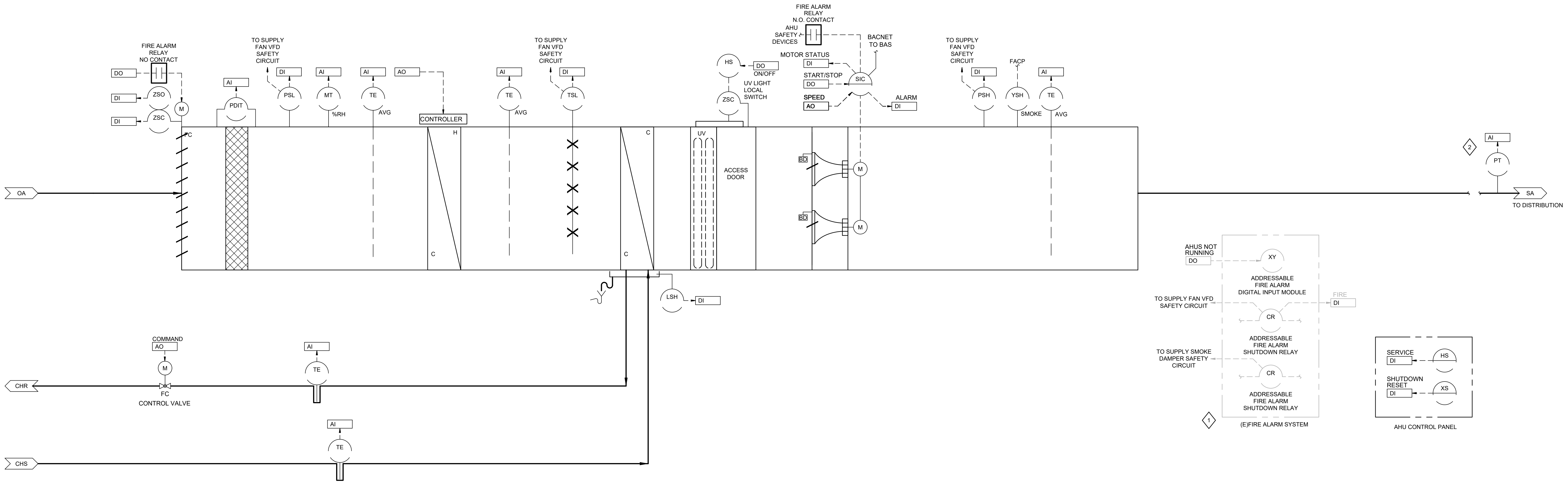
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Scale: **AS NOTED**

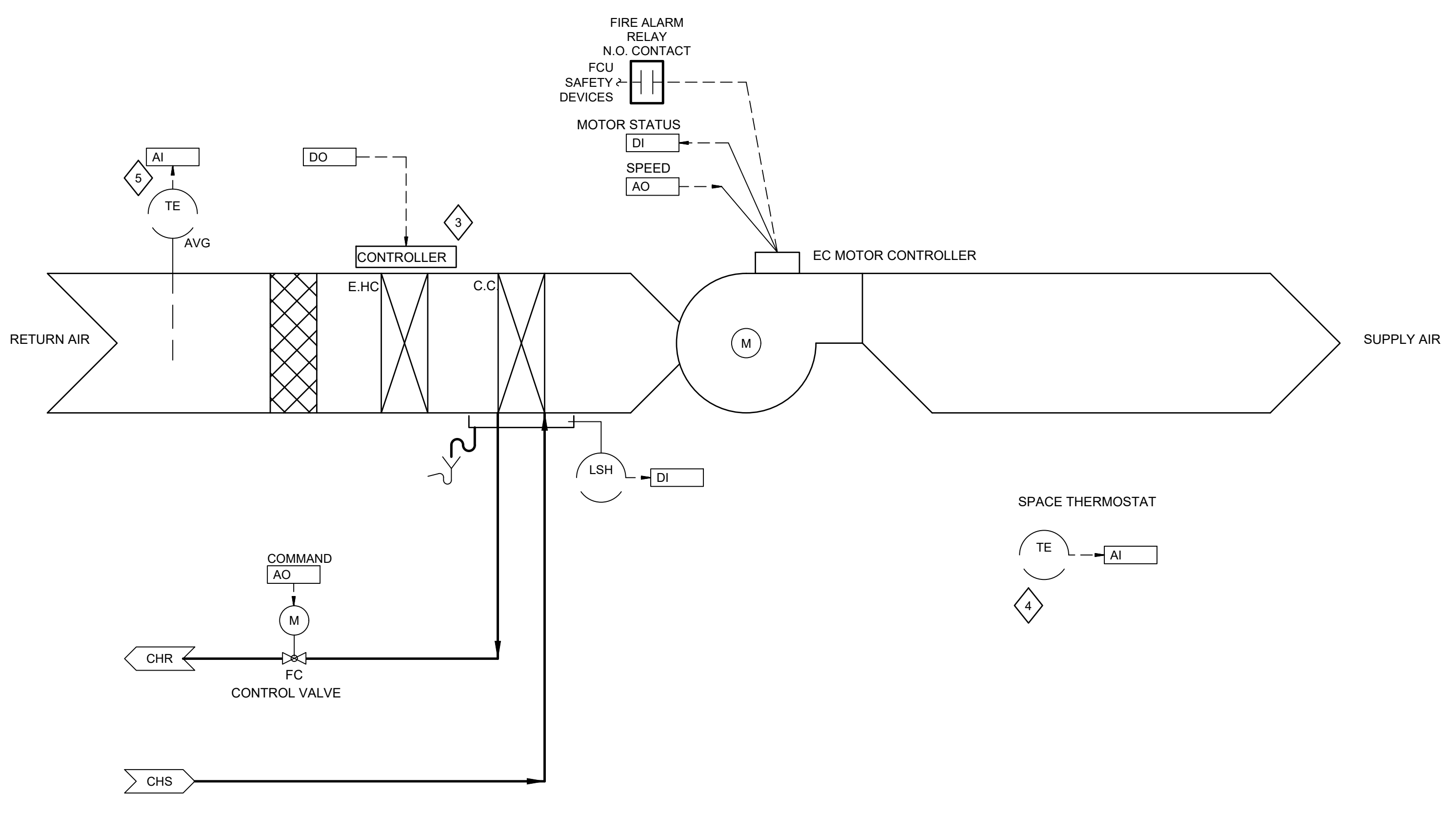
Date: **04/10/2020** Drawn By: **JT/TR**

AEI Project No.: **20683-00**

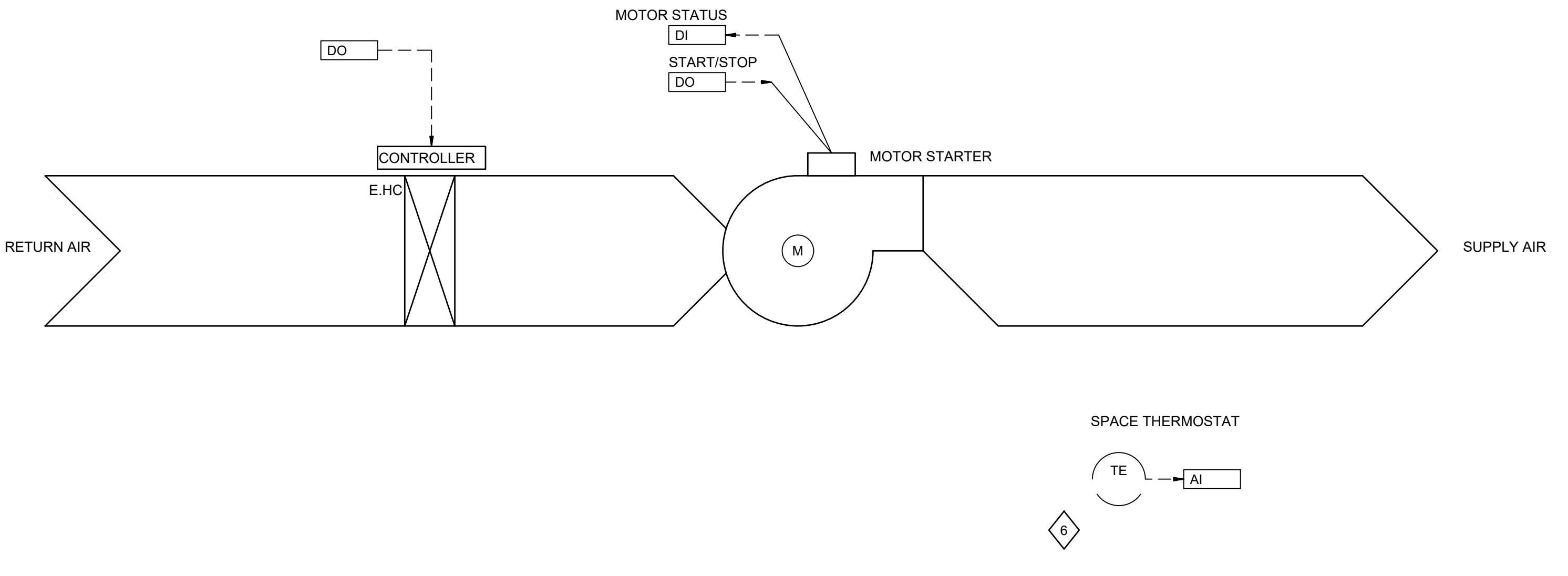
Sheet No.: **M-702**



1 **OUTSIDE AIR HANDLER UNIT CONTROL DIAGRAM**
SCALE: 1/4"=1'-0"

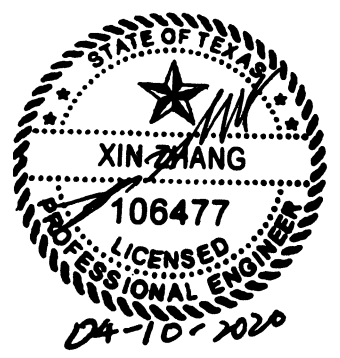


2 **FAN COIL UNIT CONTROL DIAGRAM**
SCALE: NOT TO SCALE



3 **ELECTRIC UNIT HEATER CONTROL DIAGRAM**
SCALE: NOT TO SCALE

- # SHEET KEYNOTES
- 1. CONTRACTOR TO VERIFY IF EXISTING FIRE ALARM CONNECTIONS ARE AVAILABLE, COORDINATE WITH ELECTRICAL CONTRACTOR.
- 2. PROVIDE NEW PRESSURE TRANSDUCER FOR VFD CONTROL.
- 3. HEATING COIL ONLY ON FCU-P.02. PROVIDE INTERNAL AIR PROVING SWITCH FOR SCR HEATING CONTROLLER.
- 4. PROVIDE SPACE T-STAT FOR CONTROL OF FCU-P.02.
- 5. PROVIDE RETURN DUCT TEMP SENSOR FOR FCU-P.01
- 6. PROVIDE SPACE T-STAT FOR CONTROL OF EUH-P.01, EUH-P.02 IN RESPECTIVE MACHINE ROOM.



OUTSIDE AIR HANDLING UNITS

MARK	SERVICE	FILTER TYPE	QTY	MERV RATING	SUPPLY FAN CHARACTERISTICS															COOLING COIL								HEATING COIL								OPER. WEIGHT (LB)	REMARKS					
					CFM	MIN. OA (%)	ESP ("WG) (1)	NO. FANS	WHEEL DIA. (IN)	DRIVE	MOTOR HP EA	ELECTRICAL				EAT (°F)		LAT (°F)		ROWS	FINS/ INCH	MAX. FACE VEL. (FPM)	MAX. AIR PD ("WG)	MAX. WATER PD (FT)	CAPACITY (MBH)	GPM	EWT (°F)	LWT (°F)	EAT (°F)		LAT (°F)		MAX. AIR PD ("WG)	CAPACITY (MBH)	ELECTRICAL			CONTROL	STAGES			
												V	PH	HZ	FLA	MCA	DB	WB	DB										WB	V	PH	HZ			FLA					KW		
OAHU-R.01	OUTSIDE AIR	4" PLEATED(12X24)	8	8	35000	100%	1"	2	-	DIRECT	20	460	3	60	50	56	89	80	52.8	52.8	8	10	410	0.85	8.73	3312	475	46	59.9	20	55	-	1323	460	3	60	488	388	SCR	0-10V	19381	(1)(2)(3)(4)
	4" PLEATED(24X24)	16																																								
	4" PLEATED(12X12)	1																																								

(1) ESP TO EXCLUDE PD OF UNIT COMPONENTS FURNISHED BY UNIT MANUFACTURER SUCH AS COILS, "DIRTY" FILTERS, U.V. LAMP, AND PERFORATED DIFFUSER PLATES WHERE REQUIRED.

(2) PROVIDE C.C. WITH U.V.LIGHT, DOOR SHUTOFF SWITCH, AND DEDICATED POWER WITH TOGGLE SWITCH IN WEATHERPROOF HOUSING, 120V/1PH/60HZ, 1110W, 3 ROW

(3) BASIS OF DESIGN, CUSTOM TEMTROL UNIT, SEE DETAIL 1/M-502.

(4) PROVIDE WITH ALL ELECTRICAL CONNECTIONS AND CONTROLS AT UNIT, INCLUDING VFD, HEATER POWER AND CONTROLS, U.V. LIGHT, AND INTERIOR LIGHTING WITH TOGGLE SWITCH.

FAN COIL UNITS

MARK	LOCATION	TYPE	FAN CHARACTERISTICS				COOLING COIL								ELECTRICAL CHARACTERISTICS						HEATING COIL					FILTERS		OPERATING WEIGHT (LB)	REMARKS				
			NOM. CFM	TYPE	ESP (IN. WG)	HT (BTUH)	HS (BTUH)	EAT (°F)	WB (°F)	LAT (°F)		EWT (°F)	LWT (°F)	GPM	PD (FT)	MAX. FACE VEL. (FPM)	MOTOR HP	VOLT	PH	MCA	SCCR (MIN)	CAP. (BTUH)	EAT DB (°F)	LAT DB (°F)	ELECTRICAL V	P	KW			STAGE	TYPE	MERV	
										DB (°F)	WB (°F)																						
FCU-P.01	MECH PENTHOUSE	HORIZONTAL	1500	EC	0.15	55310	41980	80	67	54.1	54	46	61	8	1.8	-	1/2	277	1	4.7	5k	-	-	-	-	-	-	-	-	2"	8	238	(1)(2)(3)(4)
FCU-P.02	MECH PENTHOUSE	HORIZONTAL	600	EC	0	22000	16660	80	67	54.3	54	46	61.9	3	3	-	1/3	460	3	13.66	5k	23900	60	96.9	460	3	7	1	2"	8	158	(1)(2)(3)(5)	
FCU-P.03	MECH PENTHOUSE	HORIZONTAL	600	EC	0	22000	16660	80	67	54.3	54	46	61.9	3	3	-	1/3	460	3	13.66	5k	23900	60	96.9	460	3	7	1	2"	8	158	(1)(2)(3)(5)	

(1) ESP TO EXCLUDE PD OF UNIT COMPONENTS FURNISHED BY UNIT MANUFACTURER SUCH AS COILS, "DIRTY" FILTERS, AND PERFORATED DIFFUSER PLATES WHERE REQUIRED.

(2) SUSPEND UNITS WITH APPROPRIATE HANGERS AND VIBRATION ISOLATORS, 1" DEFLECTION.

(3) CONTRACTOR TO VERIFY EXISTING CIRCUIT ADEQUATE FOR NEW EQUIPMENT. SEE ELECTRICAL DRAWINGS FOR POWER CONNECTIONS.

(4) BASIS OF DESIGN, TRANE MODEL BCD054.

(5) BASIS OF DESIGN, TRANE MODEL BCD024.

ELECTRIC UNIT HEATER

MARK	LOCATION	TYPE	MOUNTING	CAPACITY (KW)	VOLT	PH	STAGES	THERMOSTAT	SCCR (MIN)	OPER. WEIGHT (LB)	REMARKS
EUH-P.01	PENTHOUSE	UNIT HEATER	WALL	5	480	3	1	Y	(1)	9	(1)(2)(3)
EUH-P.02	PENTHOUSE	UNIT HEATER	WALL	5	480	3	1	Y	(1)	9	(1)(2)(3)

NOTES:

(1) COORDINATE SCCR OF EQUIPMENT AND CONTROLS WITH DIV 26 CONTRACTOR.

(2) PROVIDE WITH LINE T-STAT.

(3) BASIS OF DESIGN TRANE MODEL UHEC053D.



Issue
100% CD **2020.05.07**

Revisions

Project
**HCC COLEMAN DOAS
 REPLACEMENT AND
 BAS UPGRADE**

Sheet Title
**MECHANICAL
 EQUIPMENT
 SCHEDULES**

Scale
AS NOTED

Date **04/10/2020** Drawn By **JT/TR**

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20683-00

Sheet No.

M-901



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Revisions

Project
**HCC COLEMAN DOAS
 REPLACEMENT AND
 BAS UPGRADE**

Sheet Title
**ELECTRICAL ROOF
 PLAN A - DEMOLITION
 WORK**

Scale
AS NOTED

Date **04/10/2020** Drawn By **FJ**

AEI Project No.
20683-00

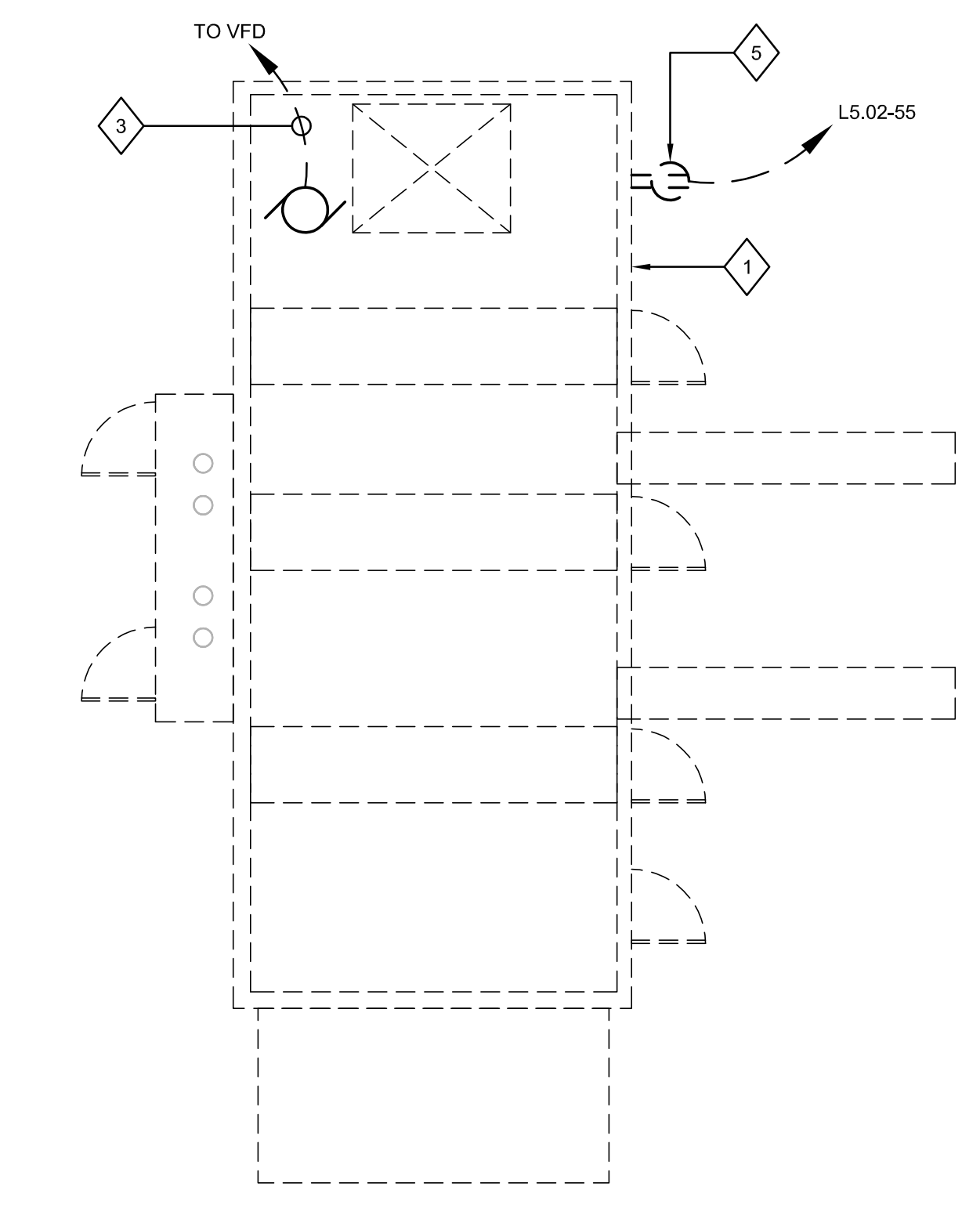
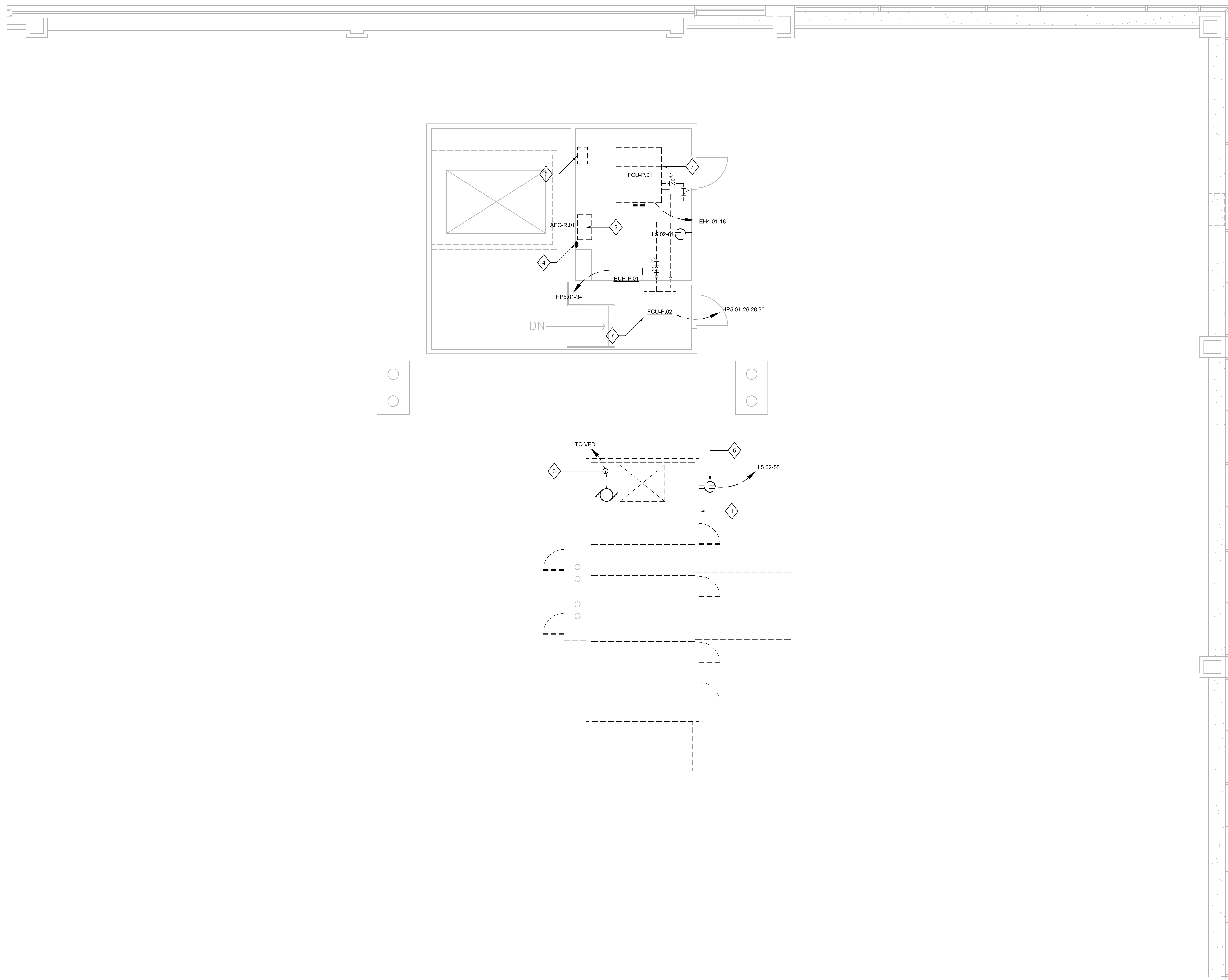
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GENERAL NOTES

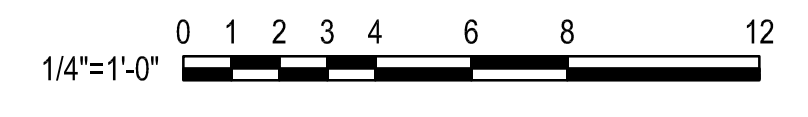
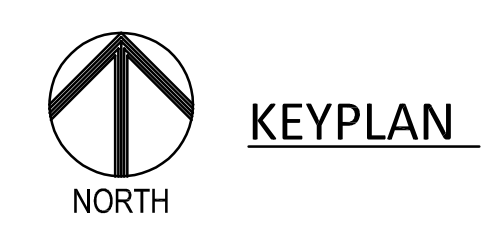
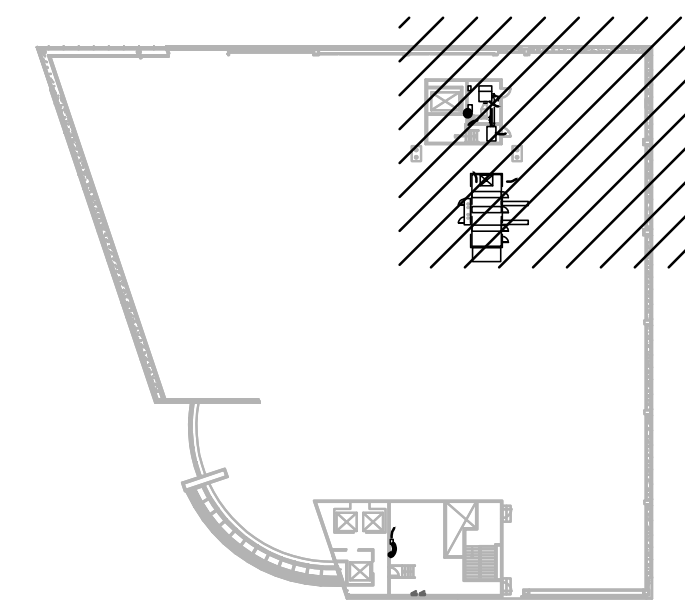
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SHEET KEYNOTES

1. (EX) OAHU-R-01. REMOVE ALL CIRCUITS DOWN TO ROOF CURB. REMOVE CONDUCTORS BACK TO VFD OR SERVING PANEL.
2. EXISTING VFD FOR OAHU-R-01. REMOVE AND RETURN TO OWNER OR RECYCLE AT OWNER'S DIRECTION.
3. DEMO EXISTING CIRCUIT BACK TO VFD. EXISTING CONDUIT INSIDE ROOF CURB WILL BE RE-USED FOR NEW OAHU-R-01 CONTROL CIRCUIT.
4. RE-USE EXISTING CONDUITS FOR NEW CONTROL CIRCUITS.
5. DEMO EXISTING CONVENIENCE RECEPTACLE(S) AT OAHU INCLUDING CONDUCTORS BACK TO SERVING PANEL. LEAVE CONDUITS IN PLACE FOR FUTURE DEVICES INSTALLED APPROXIMATE THE SAME LOCATIONS.
6. DISCONNECT EXISTING UNIT HEATER. RE-USE EXISTING CIRCUIT FOR NEW UNIT.
7. DISCONNECT EXISTING FCU. RE-USE EXISTING CIRCUIT FOR NEW UNIT.



1 ELECTRICAL ROOF PLAN A - DEMOLITION WORK
 SCALE: 1/4"=1'-0"





Issue
100% CD **2020.05.07**

Revisions

Project
HCC COLEMAN DOAS REPLACEMENT AND BAS UPGRADE

Sheet Title
ELECTRICAL ROOF PLAN B - DEMOLITION WORK

Scale
AS NOTED

Date **04/10/2020** Drawn By **FJ**

AEI Project No.
20683-00

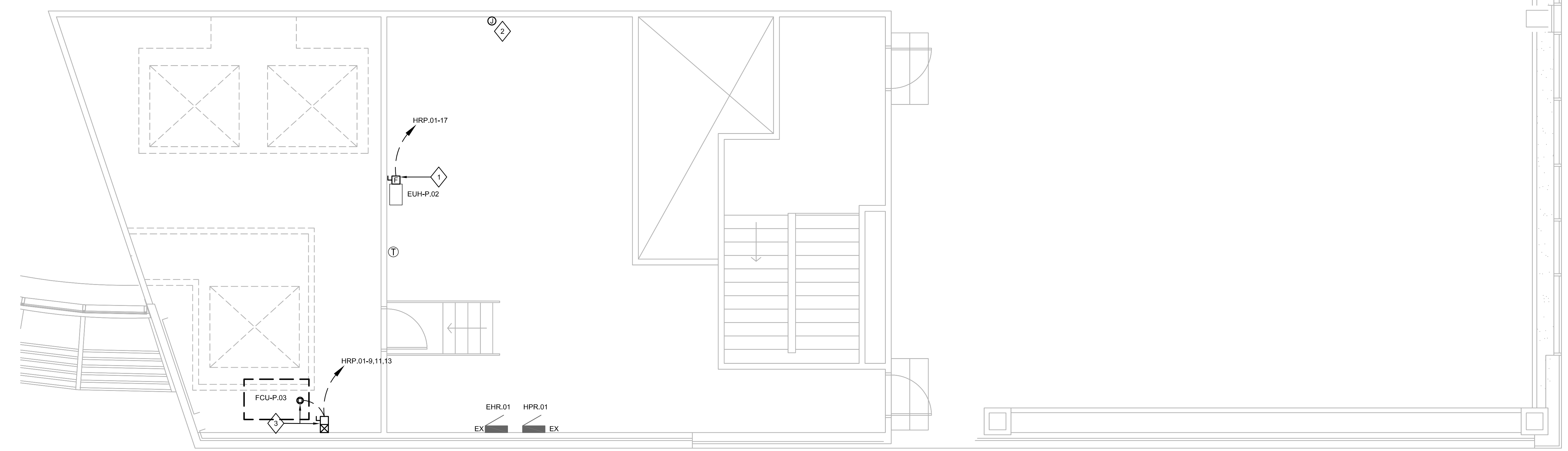
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GENERAL NOTES

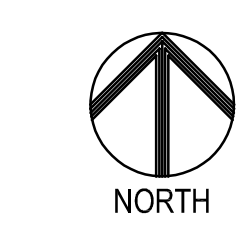
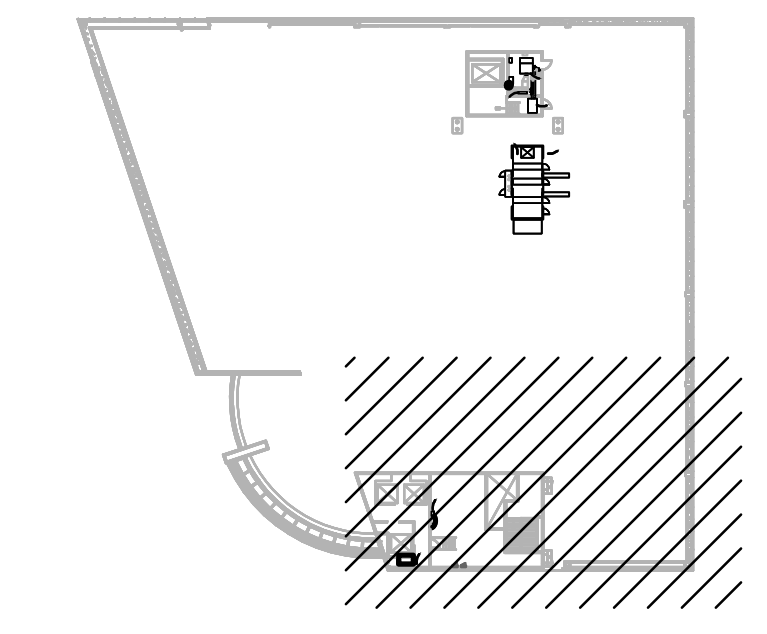
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SHEET KEYNOTES

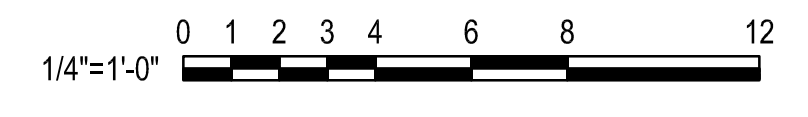
1. DISCONNECT EXISTING CIRCUIT FOR UNIT HEATER BEING REPLACED.
2. EXISTING JUNCTION BOX FOR DDC CONTROLLER.
3. ADD ALTERNATE 1: DISCONNECT EXISTING CIRCUIT FOR FAN COIL UNIT BEING REPLACED.



1 ELECTRICAL ROOF PLAN B - DEMOLITION WORK
SCALE: 1/4"=1'-0"



KEYPLAN



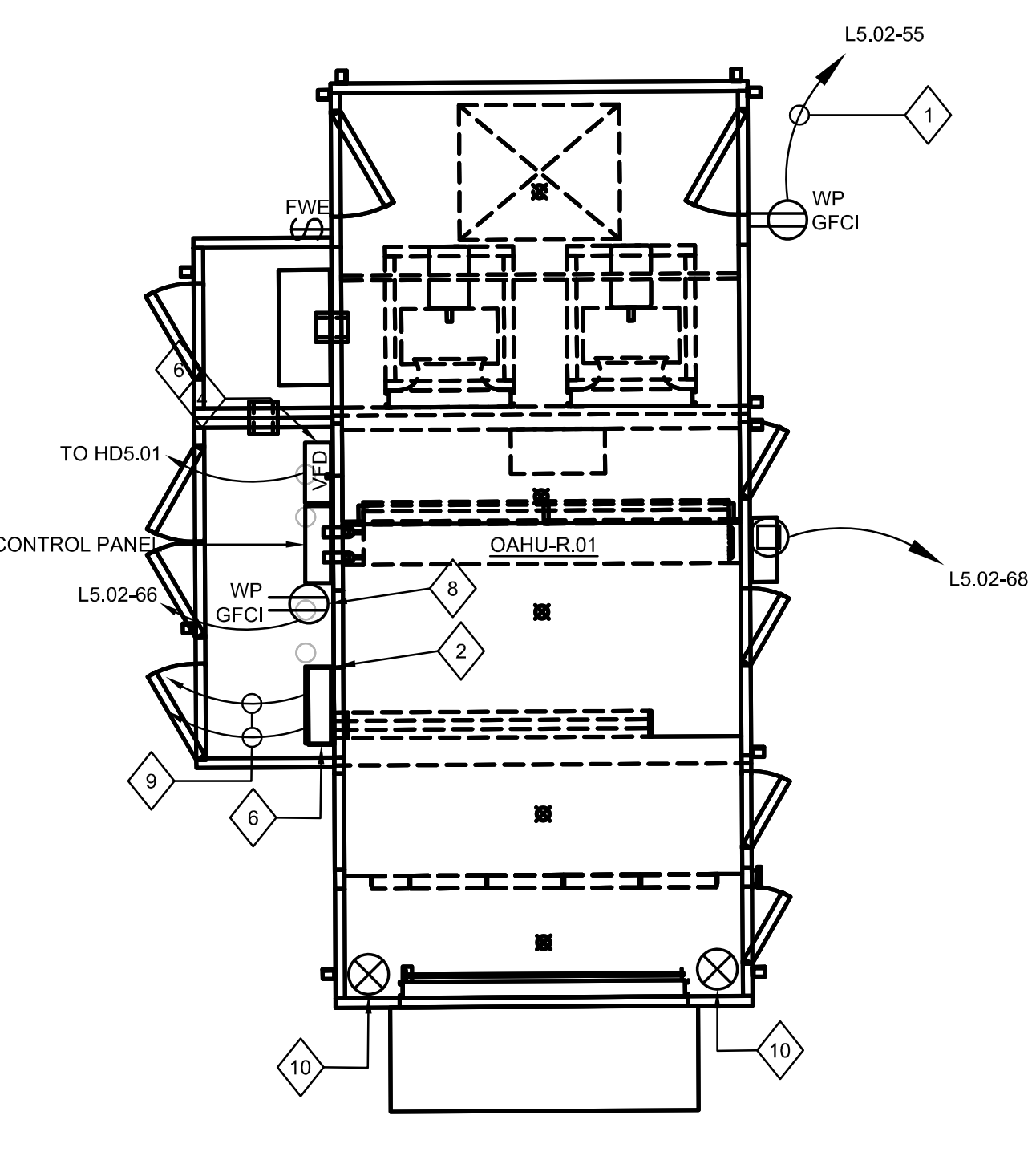
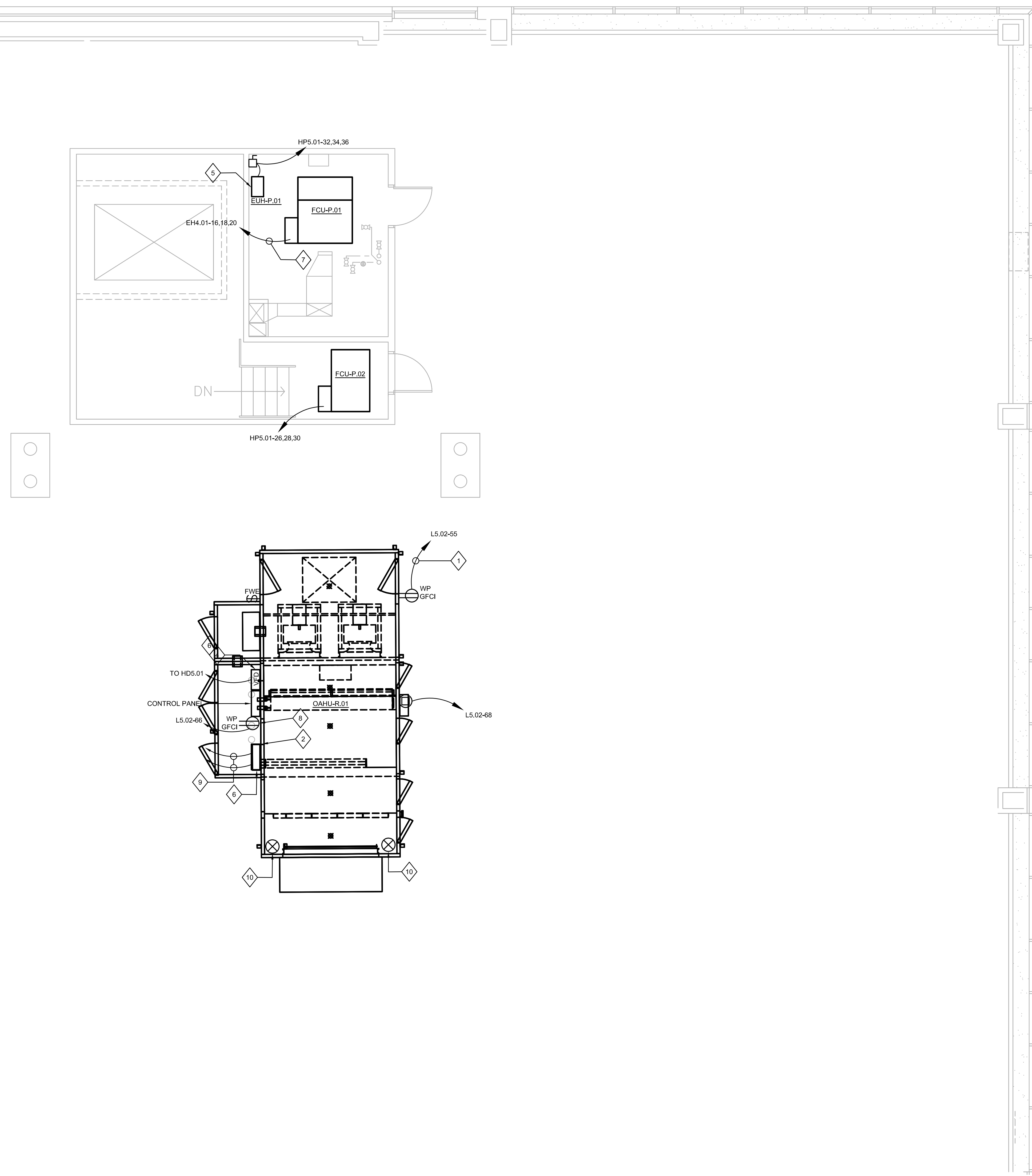


GENERAL NOTES

A. XXXX

◆ SHEET KEYNOTES

1. REUSE EXISTING 120V CIRCUIT FOR NEW RECEPTACLE.
2. HEATER CONTROL PANEL WITH FUSED DISCONNECT (FUSE), STUB UP NEW CONDUIT INSIDE ROOF CURB.
3. UV LIGHT(S) CONTROL PANEL. PROVIDE DEDICATED 120V/20A CIRCUIT FROM SPARE 20A BREAKER IN LS.02 IN LS ELECTRICAL ROOM.
4. VFD FURNISHED WITH OAHU. EXTEND EXISTING CONDUIT FROM 5TH FLOOR ELECTRICAL ROOM INSIDE ROOF CURB. INSTALL NEW CONDUCTORS FROM PANEL 'HDS.01'.
5. NEW UNIT HEATER. PROVIDE 480V/3PH, 30A/3P FUSED DISCONNECT SWITCH.
6. PROVIDE (2) 1" C FOR CONTROLS BACK TO DDC PANELS IN LEVEL 5 MECHANICAL ROOM. (1) CONDUIT FOR HEATER CONTROL AND (1) CONDUIT FOR MOTOR CONTROL.
7. REUSE EXISTING EMERGENCY CIRCUIT FOR NEW FCU - P.01.
8. CONVENIENCE RECEPTACLE AND CIRCUIT FOR INTERIOR LIGHTING.
9. NEW CONDUITS TO EXISTING MAIN SWITCHGEAR IN BASEMENT. COORDINATE ROUTING WITH OWNER FOR MINIMUM DISRUPTION TO EXISTING FACILITY. REFER TO SINGLE-LINE FOR FEEDER SIZE.
10. PROVIDE AIR TERMINAL ON TOP OF OUTSIDE AIR HANDLING UNIT. CONNECT NEW AIR TERMINAL TO EXISTING LIGHTNING PROTECTION SYSTEM. MATERIAL OF NEW AIR TERMINAL AND CABLE SHALL MATCH THAT OF EXISTING LIGHTNING PROTECTION SYSTEM. LOCATION OF AIR TERMINAL SHOWN IS APPROXIMATE. FINAL LOCATION AND QUANTITY IF AIR TERMINALS FOR NEW COOLING TOWERS SHALL BE DETERMINED BY LIGHTNING PROTECTION CONTRACTOR. AFTER LIGHTNING PROTECTION WORK IS COMPLETE, LIGHTNING PROTECTION CONTRACTOR SHALL HAVE THE ENTIRE LIGHTNING PROTECTION SYSTEM RECERTIFIED TO PROVIDE A UL780 MASTER LABEL FOR THE ENTIRE SYSTEM.



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Revisions

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Project
HCC COLEMAN DOAS REPLACEMENT AND BAS UPGRADE

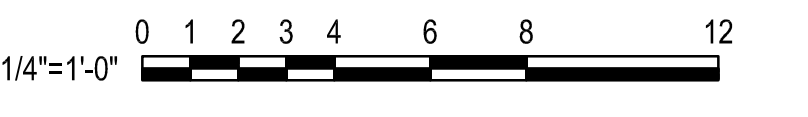
Sheet Title
ELECTRICAL ROOF PLAN A - NEW WORK

Scale
AS NOTED

Date
04/10/2020 Drawn By
FJ

AEI Project No.
20683-00

Sheet No.



1 ELECTRICAL ROOF PLAN A - NEW WORK
 SCALE: 1/4"=1'-0"



Revisions

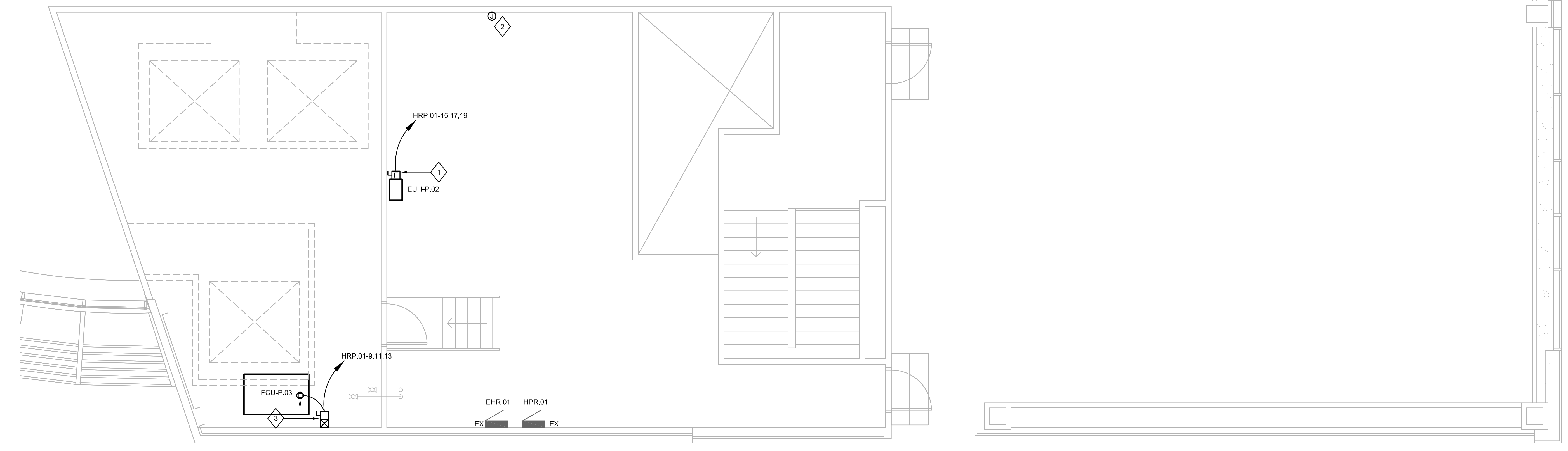
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GENERAL NOTES

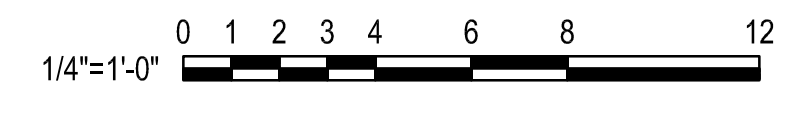
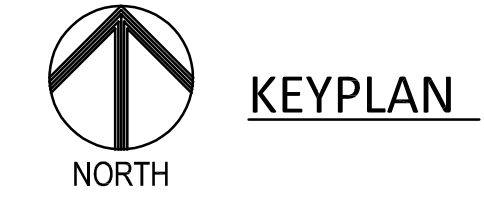
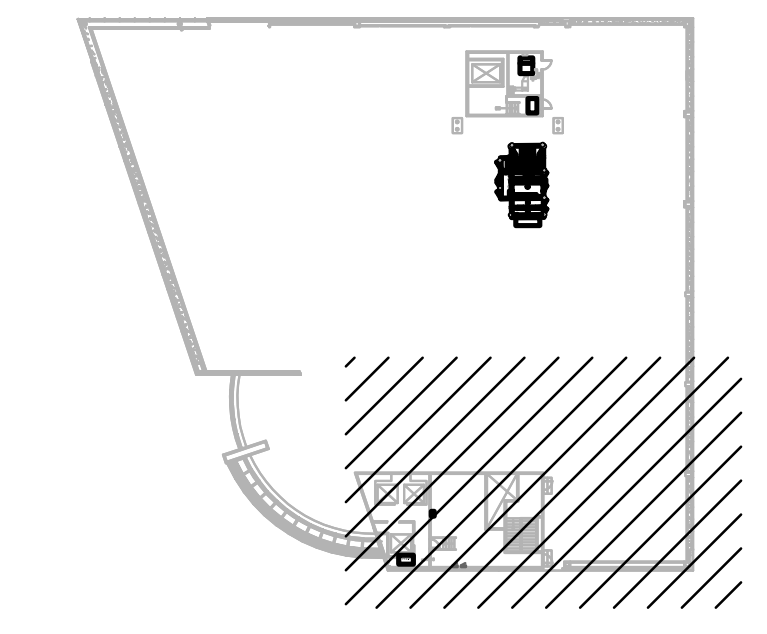
A. XXXX

SHEET KEYNOTES

- 1. PROVIDE NEW FUSED DISCONNECT SWITCH AND RE-CONNECT NEW UNIT HEATER TO EXISTING CIRCUIT.
- 2. EXISTING JUNCTION BOX FOR NEW DDC CONTROLLER. COORDINATE EXACT LOCATION WITH EQUIPMENT SUPPLIER.
- 3. ADD ALTERNATE 1: RE-USE EXISTING MOTOR STARTER DISCONNECT SWITCH AND RE-CONNECT NEW FAN COIL UNIT TO EXISTING CIRCUIT.



1 ELECTRICAL ROOF PLAN B - NEW WORK
SCALE: 1/4"=1'-0"

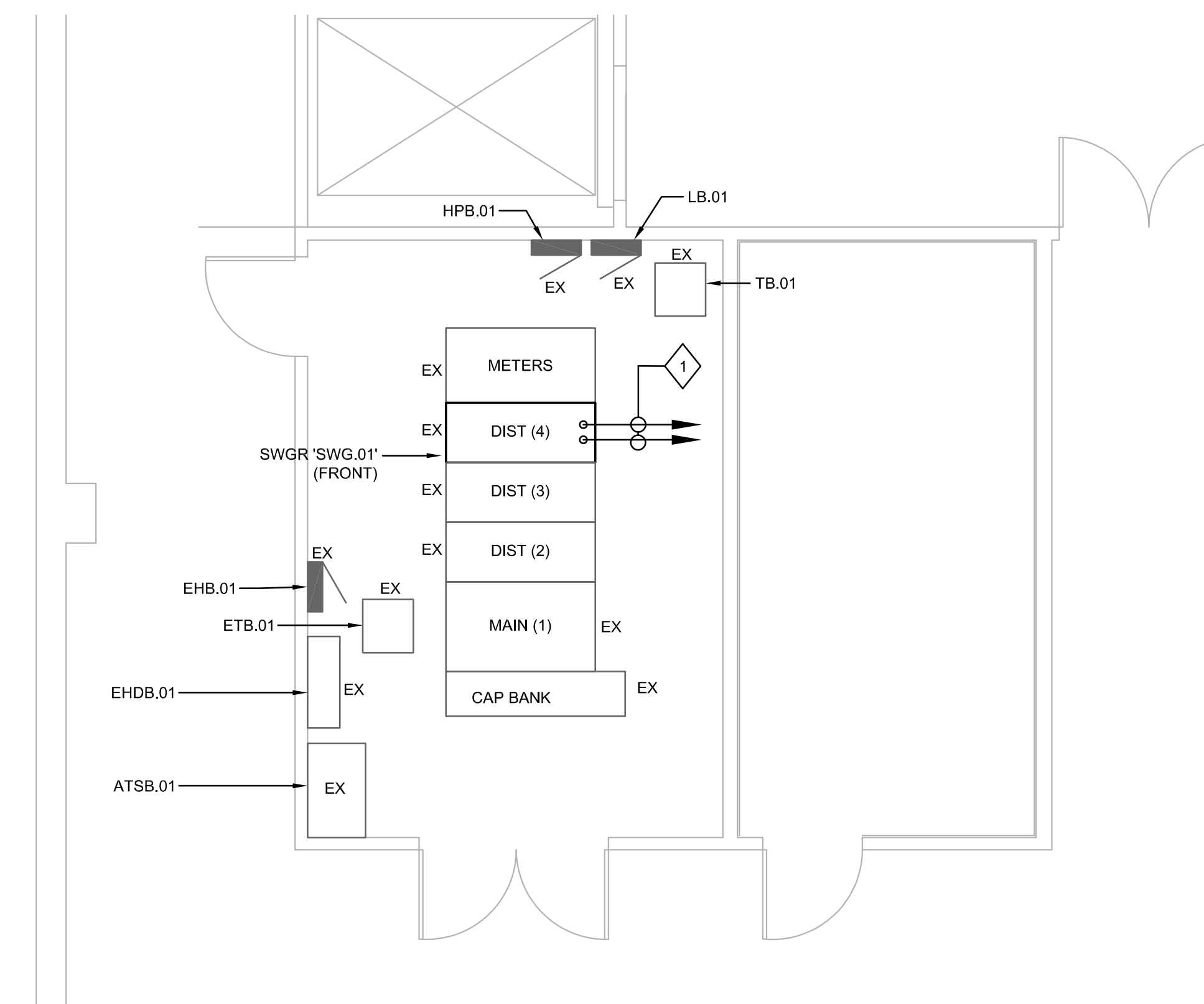




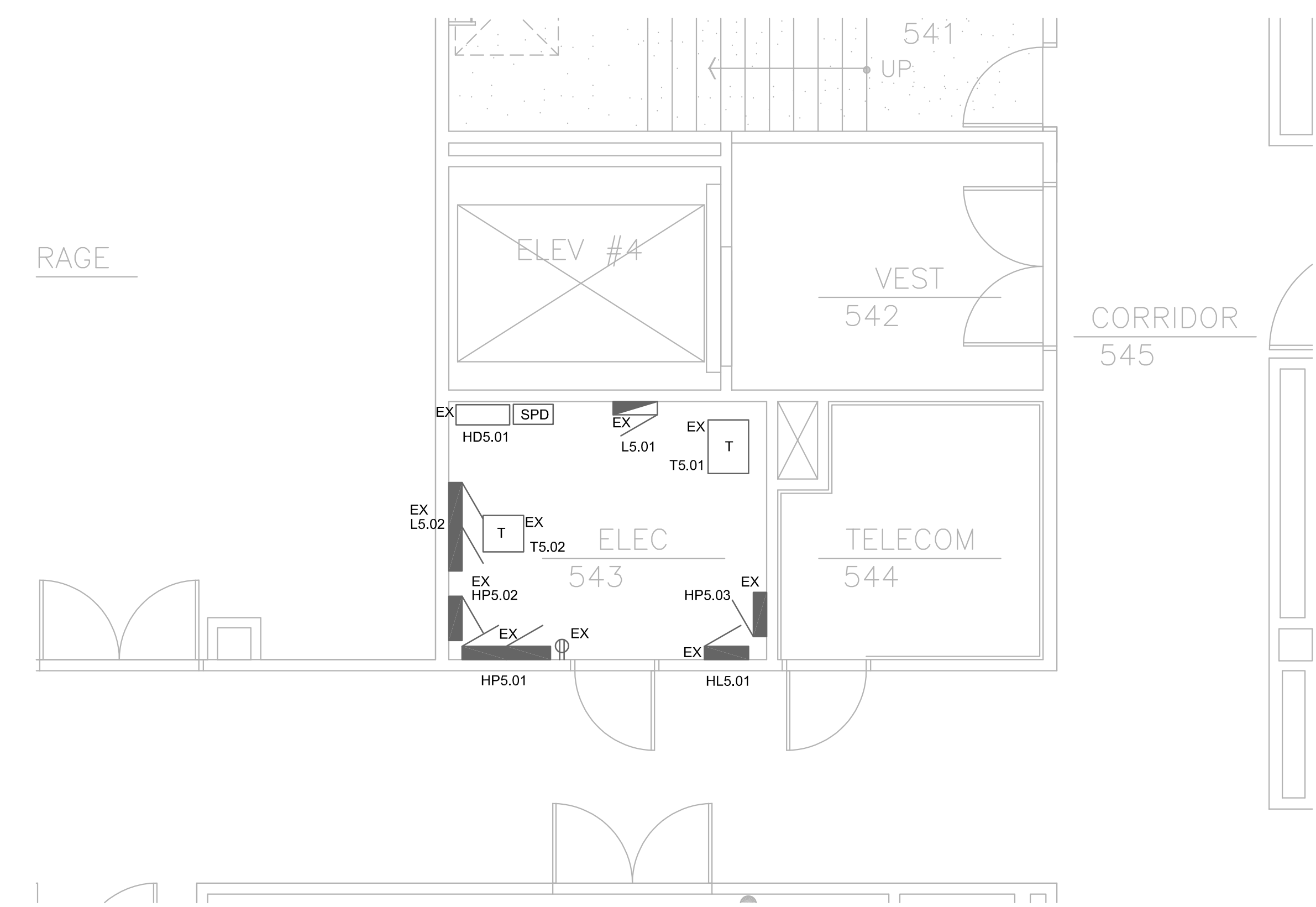
GENERAL NOTES

SHEET KEYNOTES

- 1. NEW FEEDER FOR HEATING COIL IN OAHU-R-01. UTILIZE EXISTING SPARE 800A FRAME CIRCUIT BREAKER IN DISTRIBUTION SECTION 4.



1 ENLARGED ELECTRICAL PLAN - BASEMENT LEVEL ELECTRICAL ROOM
SCALE: 1/4" = 1'-0"



2 ENLARGED ELECTRICAL PLAN - LEVEL FIVE ELECTRICAL ROOM
SCALE: 1/4" = 1'-0"



Issue
100% CD 2020.05.07

Revisions

No.	Description

Project
HCC COLEMAN DOAS REPLACEMENT AND BAS UPGRADE

Sheet Title
ENLARGED ELECTRICAL PLANS

Scale
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20683-00

Sheet No.
E-501



GENERAL NOTES

A. XXXX

SHEET KEYNOTES

- UTILIZE EXISTING FEEDER BREAKER FOR NEW OAHU-R.01 ELECTRIC HEATING COIL. ADJUST LONG TIME (LT) SETTING ON TRIP UNIT TO 650A.
- 600A FUSED DISCONNECT SWITCH FOR HEATING COIL IN OAHU-R.01 (FVE).
- RE-USE EXISTING 100A CIRCUIT BREAKER IN HD5.01 FOR NEW FAN ARRAY IN OAHU-R.01.
- FUSED DISCONNECT OR CIRCUIT BREAKER (INCLUDED WITH VFD).

