



McKIM & CREED

ADDENDUM NO. 3

**RE: NCDAC NC Correctional Institution for Women
Air Conditioning Installation
SCO ID#: 22-24913-02A
NCDAC Central Engineering Job Order # 4290**

DATE: September 12, 2023

FROM: McKim & Creed

To: Prospective Bidders

This Addendum issued prior to receipt of bids shall and does hereby become a part of the Contract Documents for the above Project. This Addendum must be acknowledged on the Form of Proposal.

All Prime contractors shall be responsible for ensuring that their Subcontractors are properly apprised of the contents of this Addendum.

All information contained in this Addendum shall supersede and shall take precedence over any conflicting information in the original Drawings and Specifications.

Specifications

1. Section 23 05 13: Add the following to part 2.2A: “Contractor shall coordinate harmonic analysis with the Short Circuit Study required by specification section 26 05 73, part 1.3D. Variable Frequency Drives shall not be approved prior to receiving the Short Circuit Study.”
2. Section 23 05 13, Part 2.2 B, Item 15: Revise to read as follows: “Drive shall communicate with building automation system via BACnet protocol.
3. Section 23 05 13, Part 2.2 B: Add the following: “19. The VFD shall include an override input. Upon receipt of a contact closure from the building’s smoke purge interlock wiring/relays, the VFD shall override all other inputs (analog/digital, serial communication, and all keypad commands) and force the motor to run at an adjustable, preset speed.”
4. Section 23 05 13, Part 2.2 B: Add the following: “20. Seven (7) programmable preset speeds.”

5. Section 23 05 93: Add the following to the Air System Procedure: “O. All supply, return and exhaust air flow rates shall be measured during normal heat/cool mode of operation as well as during the smoke purge mode of operation. Air flow measurements shall be made using all new and existing as indicated on the drawings. Make adjustments to equipment as required to achieve air flow rates indicted on drawings for each mode of operation.”
6. Section 23 09 00, Part 2.6 C Relays: Add the following: “Relays indicated on the drawings for the Smoke Purge control sequence shall be MR201, UL864 listed multi-voltage, double-pole, double-throw relays with contacts rated at 10 amp.”
7. Section 23 31 00, Part 2.3 F, Item 1: Revise to read as follows: “Insulation (1” thick; refer to Duct Liner Insulation in Section 23 07 00) with solid 18ga. outer liner and 22 ga. inner solid liner tack-welded to support channels. All steel surfaces, channels, and trim to be galvanized steel (G-60).”
8. Section 23 31 00, Part 2.3 F: Delete item 2.
9. Section 23 73 00, Part 2.9: Delete item B. (All dampers shall be low leakage design.)
10. Section 26 05 73, Part 1.3 D: Revise to include the following: “The short circuit study shall be submitted to the design engineer prior to receiving final approval of the distribution equipment shop drawings and/or prior to release of equipment drawings for manufacturing.”

Drawings

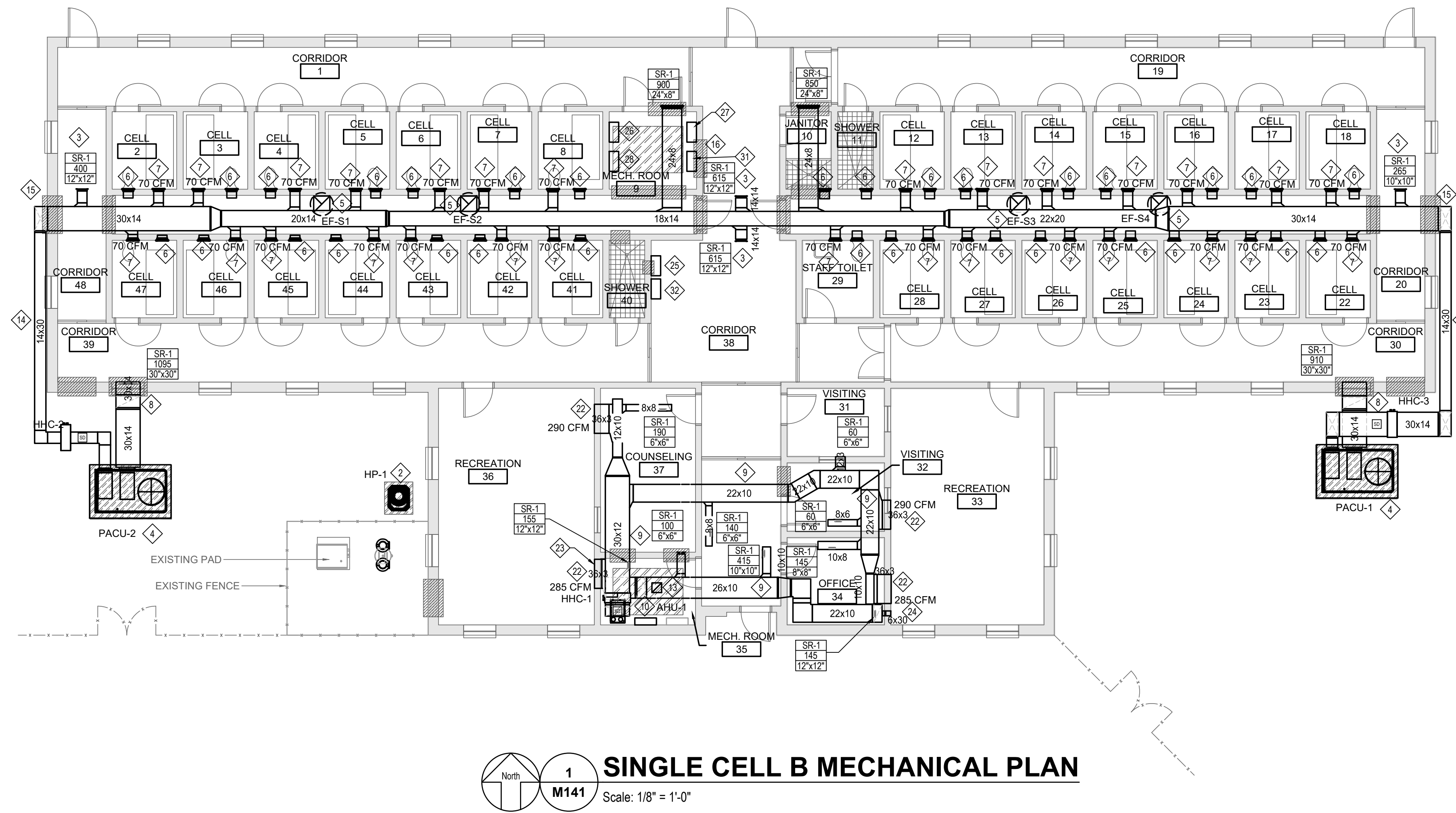
1. Sheet M001: Revised commissioning notes. See revisions on attached sheet.
2. Sheet M131: In sheet note 2, revise glycol percentage from 35% to 30%.
3. Sheet M141: See revision on attached sheet.
4. Sheet M200: Revised keyed note 1. See revision on attached sheet.
5. Sheet M210: Revised keyed note 1. See revisions on attached sheet.
6. Sheet M220: Revised keyed note 1. See revision on attached sheet.
7. Sheet M401: Revised keyed note 6. See revisions on attached sheet.
8. Sheet M501: Revised ductwork detail. Exposed ductwork in dormitories shall be double wall insulated ductwork. See revision on attached sheet.
9. Sheet M600: Revise sequence of operation. See revisions on attached sheet.
10. Sheet M601: Revise detail 2. See revisions on attached sheet.
11. Sheet M602: See revisions on attached sheet.
12. Sheet M603: Revise sequence of operation. See revisions on attached sheet.
13. Sheet M604: Revise sequence of operation. See revisions on attached sheet.
14. Sheet M605: See revisions on attached sheet.
15. Sheet M607: See revisions on attached sheet.
16. Sheet M608: Revise sequence of operation. See revisions on attached sheet.
17. Sheet M609: See revisions on attached sheet.
18. Sheet M610: See revisions on attached sheet.
19. Sheet M700: See revisions on attached sheet.
20. Sheet E131: See revisions on attached sheet.
21. Sheet E141: See revisions on attached sheet.
22. Sheet E602: See revisions on attached sheet.

SHEET NOTES

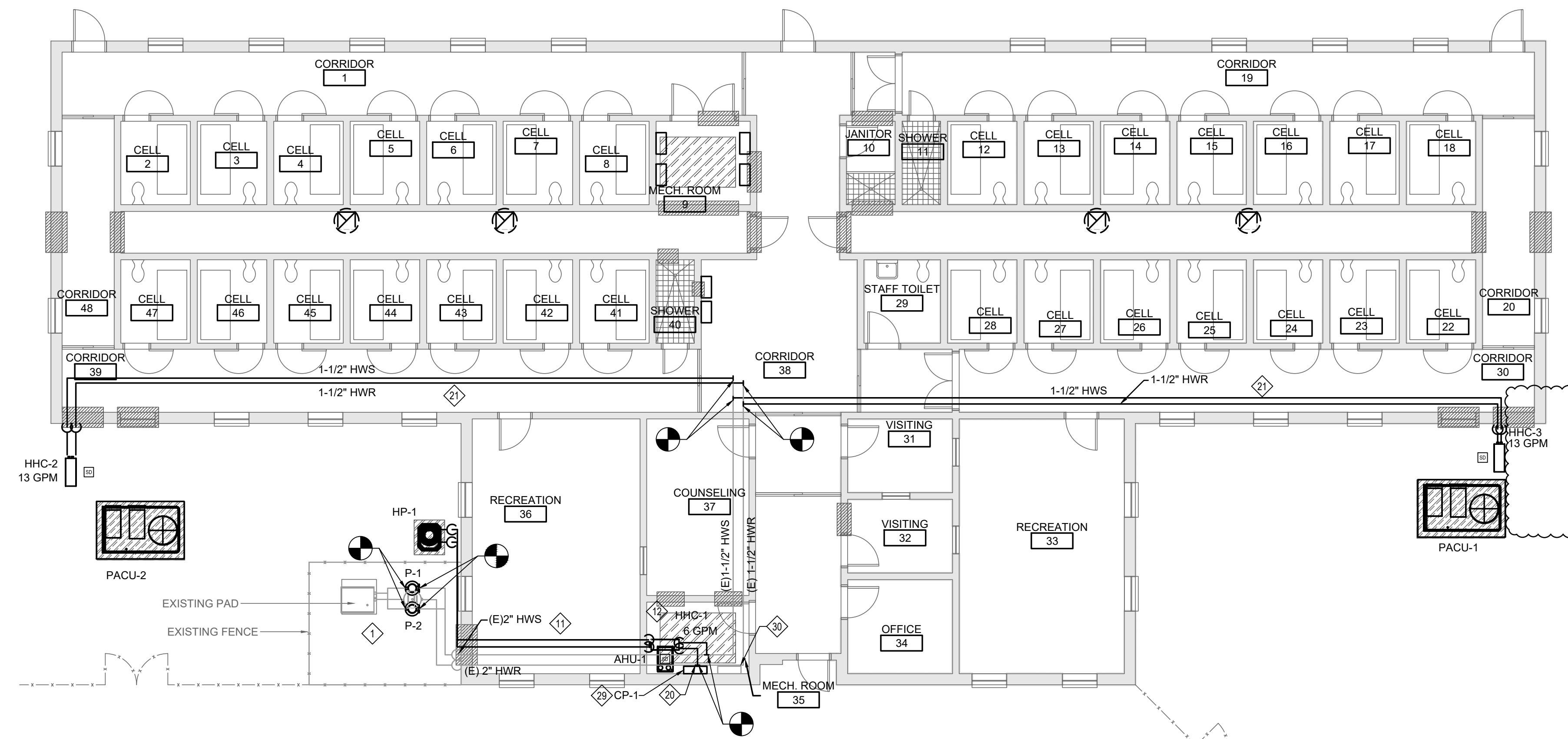
- ALL NEW DUCTWORK IN EXPOSED AREA SHALL BE RUN TIGHT TO THE UNDERSIDE OF THE ROOF DECK. ALL NEW INSULATED DUCTWORK SHALL BE COVERED WITH A HEAVY GAUGE GALVANIZED STEEL ENCLOSURE THAT SHALL BE SECURED TO THE UNDERSIDE OF THE ROOF DECK WITH TAMPER RESISTANT FASTENERS. DUCT ENCLOSURES SHALL BE PAINTED TO MATCH COLOR OF CEILING.
- THE HEATING HOT WATER SYSTEM SHALL BE FILLED WITH A MINIMUM OF 35% INHIBITED PROPYLENE GLYCOL.

KEY NOTES

- EXISTING GAS FIRED OUTDOOR HEATING HOT WATER BOILER SHALL REMAIN IN SERVICE.
- PROVIDE AND MOUNT NEW CONDENSING UNIT ON CONCRETE HOUSEKEEPING PAD. ROUTE CONDENSATE TO DISCHARGE INTO GRASS.
- PROVIDE NEW TAMPER PROOF SIDEWALL GRILLE.
- NEW PACKAGED AIR CONDITIONING UNIT. PROVIDE HOUSEKEEPING CONCRETE PAD FOR UNIT MOUNTING.
- MOUNT NEW ROOF MOUNTED EXHAUST FAN ON EXISTING CURB. FIELD VERIFY SIZE OF EXISTING CURB PRIOR TO ORDERING.
- EXISTING SIDEWALL SECURITY EXHAUST GRILLE SHALL BE THOROUGHLY CLEANED.
- CONNECT NEW DUCTWORK TO EXISTING SIDEWALL SECURITY GRILLES. EXISTING GRILLE SHALL BE THOROUGHLY CLEANED. REBALANCE SUPPLY DIFFUSERS TO INDICATED AIRFLOW.
- PROVIDE INSULATED PLENUM BEHIND WINDOW OPENING AND ROUTE RETURN AIR DUCT TO PACKAGED DX UNIT.
- NEW DUCTWORK SHALL BE LOCATED ABOVE A NEW LAY-IN CEILING.
- PROVIDE NEW SPLIT SYSTEM HEAT PUMP. AHU SHALL BE LOCATED IN EXISTING MECHANICAL ROOM. CONNECT NEW OUTSIDE AIR DUCT WITH A MANUAL VOLUME DAMPER TO THE EXISTING OPENING IN THE ROOF AND CONNECT TO THE NEW RETURN AIR DUCT. NEW AHU SHALL BE MOUNTED ON THE EXISTING HOUSEKEEPING PAD.
- ROUTE NEW REFRIGERANT LINES UP EXTERIOR WALL UP TO ROOF. PENETRATE ROOF ABOVE MECHANICAL ROOM AND CONNECT TO NEW AHU. SEAL ROOF PENETRATION WATER TIGHT. SIZE REFRIGERANT PER MANUFACTURER'S SPECIFICATION.
- HOT WATER HEATING PIPING PENETRATING ROOF AND CONNECT TO NEW DUCT MOUNTED HOT WATER COIL. PATCH ROOF PENETRATION WATER TIGHT.
- NEW 12"x12" OUTDOOR AIR DUCT. CONNECT TO EXISTING ROOF OPENING.
- ROUTE NEW SUPPLY DUCT BELOW EXISTING WINDOW AND AS CLOSE TO BUILDING AS POSSIBLE.
- SEAL NEW DUCT PENETRATION THROUGH EXISTING WALL WATER TIGHT. PROVIDE SHEETMETAL BLANK-OFF PANEL BEHIND EXISTING RETURN AIR GRILLE.
- OMITTED.
- OMITTED.
- OMITTED.
- CONNECT NEW AHU TO EXISTING 1" HEATING HOT WATER PIPING. ROUTE CONDENSATE FROM NEW AHU TO EXISTING FLOOR DRAIN IN THE MECHANICAL ROOM.
- ROUTE ALL NEW HHW PIPING TIGHT TO THE STRUCTURE ABOVE.
- CONNECT NEW SUPPLY DUCTWORK TO EXISTING 36"x3" SIDEWALL SECURITY GRILLES. EXISTING GRILLE SHALL BE THOROUGHLY CLEANED. REBALANCE TO INDICATED AIRFLOW.
- CONNECT NEW RETURN DUCTWORK TO EXISTING 30"x6" SIDEWALL SECURITY GRILLE LOCATED APPROXIMATELY 12" ABOVE FINISHED FLOOR AND BELOW EXISTING SUPPLY DIFFUSER. EXISTING GRILLE SHALL BE THOROUGHLY CLEANED. REBALANCE TO 495 CFM.
- CONNECT NEW RETURN DUCTWORK TO EXISTING 6"x30" SIDEWALL SECURITY GRILLE LOCATED APPROXIMATELY 12" ABOVE FINISHED FLOOR. EXISTING GRILLE SHALL BE THOROUGHLY CLEANED. REBALANCE TO 495 CFM.
- NEW EMERGENCY MANUAL SWITCH FOR PURGE AND SHUTDOWN FOR PACU-1.
- NEW CONTROL PANEL FOR PACU-1.
- NEW PURGE SHUTDOWN RELAY BOX FOR PACU-1.
- PROVIDE NEW CONTROLLER WITH BACNET INTEGRATION. CONTRACTOR SHALL PICK THE EXISTING CONTROL DEVICES AND TIE IN TO THE NEW CONTROLLER TO OPERATE THE UNIT WITH CURRENT SEQUENCE. EXISTING BACNET ROUTER AND ASSOCIATED CONTROL WIRING TO REMAIN.
- NEW PURGE SHUTDOWN RELAY BOX FOR PACU-2.
- NEW EMERGENCY MANUAL SWITCH FOR PURGE AND SHUTDOWN FOR PACU-2.

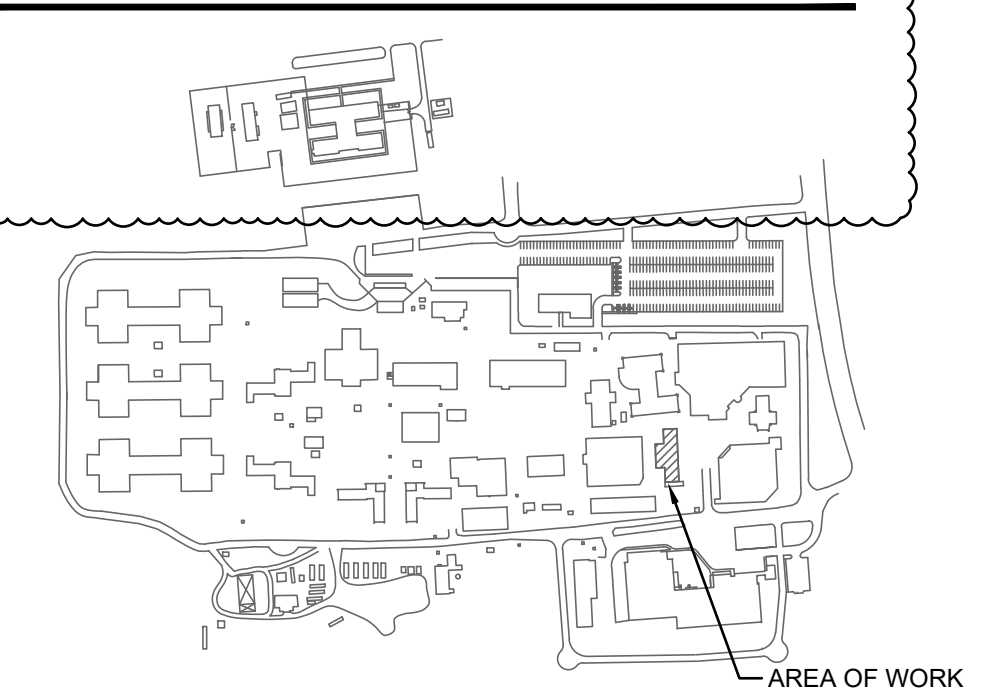


1 SINGLE CELL B MECHANICAL PLAN
Scale: 1/8" = 1'-0"



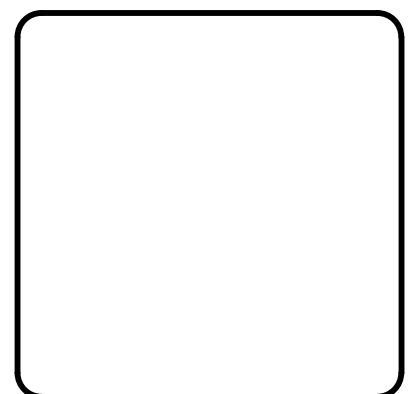
2 SINGLE CELL B MECHANICAL PIPING PLAN
Scale: 1/8" = 1'-0"

KEY PLAN



WALL CHART	
---	1 HR FIRE WALL
---	1 HR FIRE WALL/SMOKE BARRIER

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023
REVISIONS		



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NC Correctional Institution for Women
Air Conditioning Installation
 SCO ID: 22-24913-02A Code: 42107 Item: 4112
MECHANICAL
SINGLE CELL B MECHANICAL PLAN

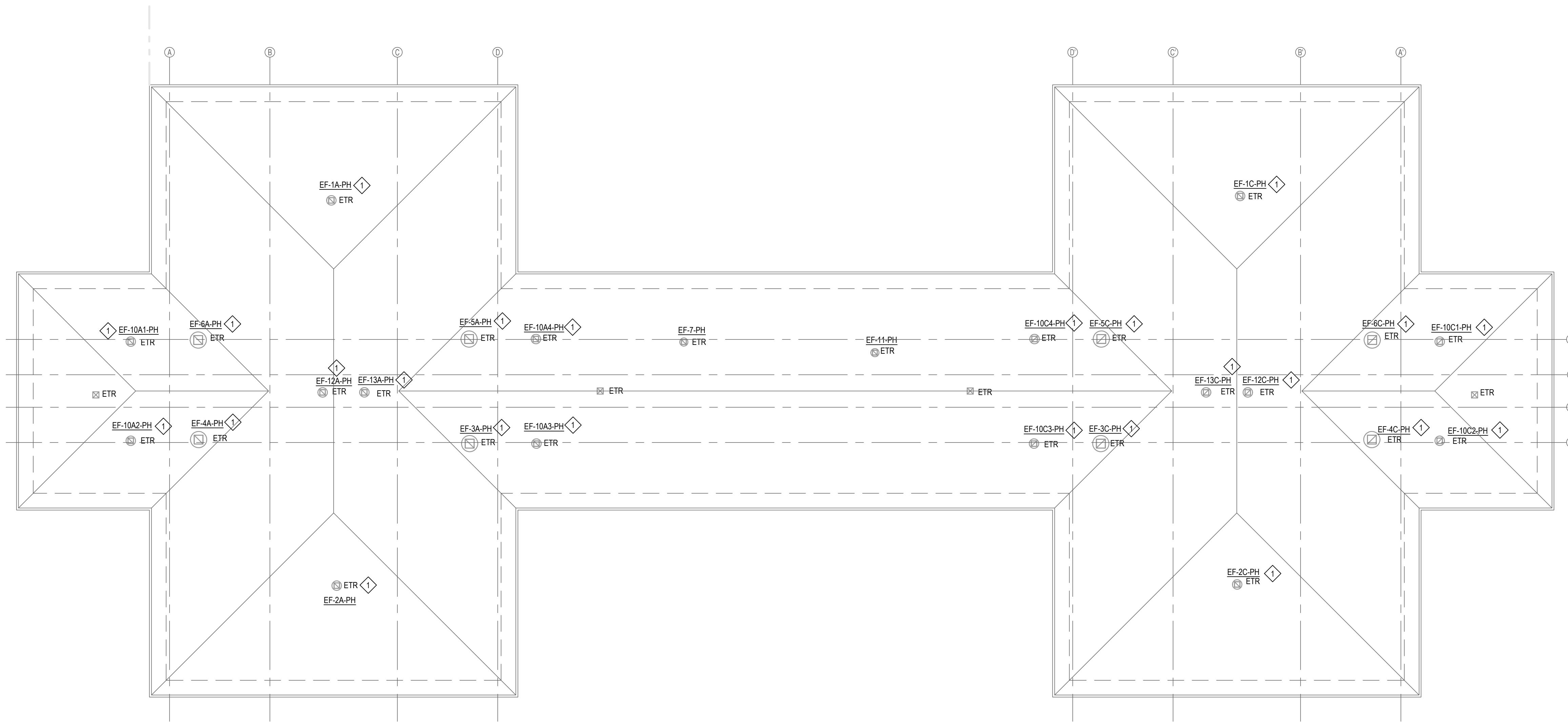
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DESIGNED: CDR		
CHECKED: CDR		
PROJ. MGR: AWB		
STATUS: BID DOCUMENTS		

SHEET NOTES

- REFER TO M001 FOR ALL SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES.
- ALL NOTES SHALL BE REVIEWED TO ESTABLISH THE OVERALL SCOPE OF WORK
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED AT THE BUILDING AND SITE.
- ANY CONFLICT BETWEEN INFORMATION ON DRAWINGS AND ACTUAL FIELD "AS BUILT" CONDITIONS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION PRIOR TO COMMENCING WORK.

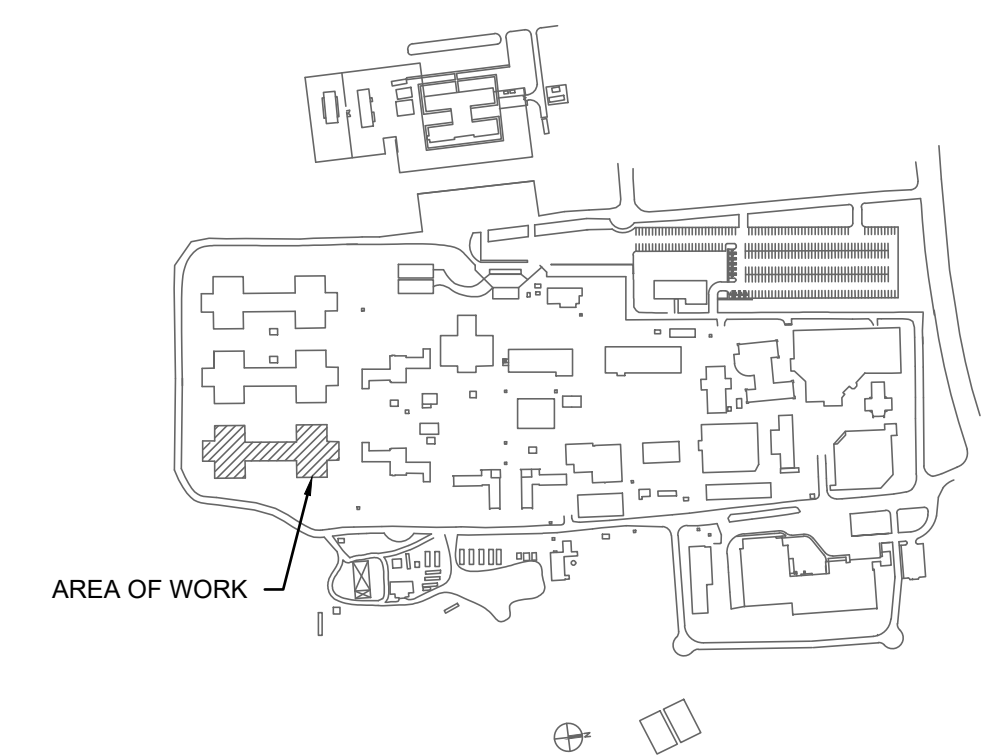
KEY NOTES

- BALANCE EXISTING FAN TO CFM INDICATED IN THE SCHEDULE. PROTECT EXISTING EQUIPMENT FROM DAMAGE. SERVICE AND ADJUST DAMPERS TO OPEN OR CLOSE FULLY (TWO-POSITION)



1 DORMITORY I & J MECHANICAL ROOF PLAN
 Scale: 1/16" = 1'-0"

KEY PLAN



REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023



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NC Correctional Institution for Women
Air Conditioning Installation
 SCO ID: 22-24913-02A Code: 42107 Item: 4112

DORMITORY I & J ROOF MECHANICAL PLAN -
 PHOENIX BUILDING

PROJ. START DATE: 08/11/2023	SCALE: AS NOTED
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DESIGNED: EIK	
CHECKED: MAB	
PROJ. MGR.: MAB	

M200
DRAWING NUMBER
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REVISION

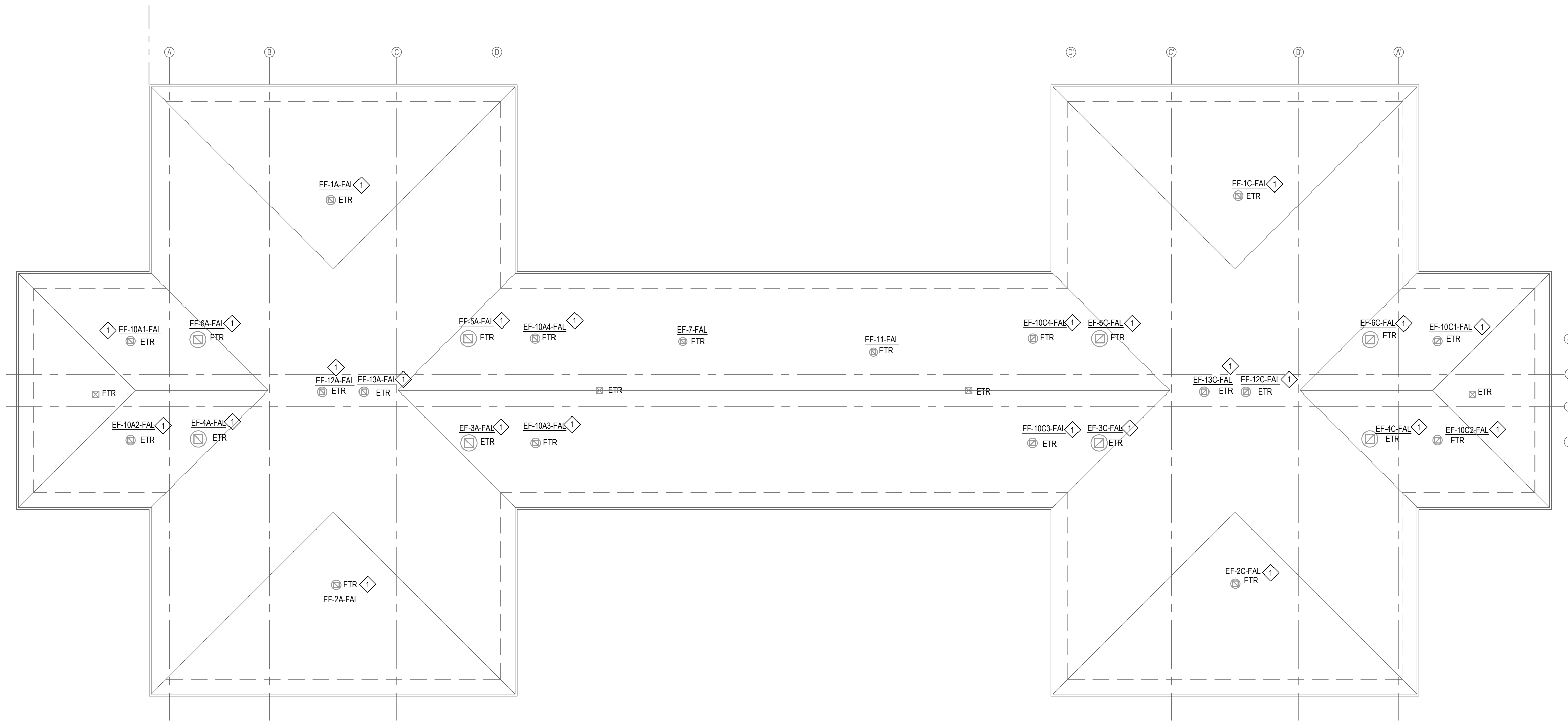
STATUS: **BID DOCUMENTS**

SHEET NOTES

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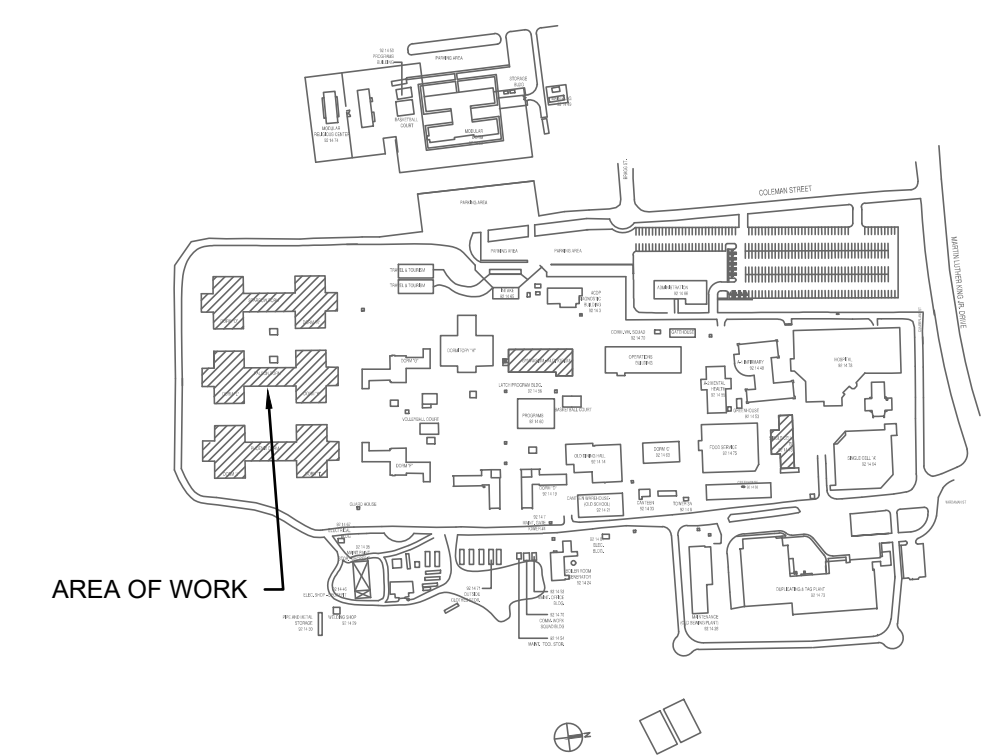
KEY NOTES

1. BALANCE EXISTING FAN TO CFM INDICATED IN THE SCHEDULE. PROTECT EXISTING EQUIPMENT FROM DAMAGE. SERVICE AND ADJUST DAMPERS TO OPEN OR CLOSE FULLY (TWO-POSITION)



1
M210 **DORMITORY K & L MECHANICAL ROOF PLAN**
Scale: 1/16" = 1'-0"

KEY PLAN



REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023
REVISIONS		



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DORMITORY K & L ROOF MECHANICAL PLAN -
 FALCON BUILDING

PROJ. START DATE: 08/11/2023	SCALE: AS NOTED
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DESIGNED: EIK	
CHECKED: MAB	
PROJ. MGR.: MAB	

M210
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 REVISION

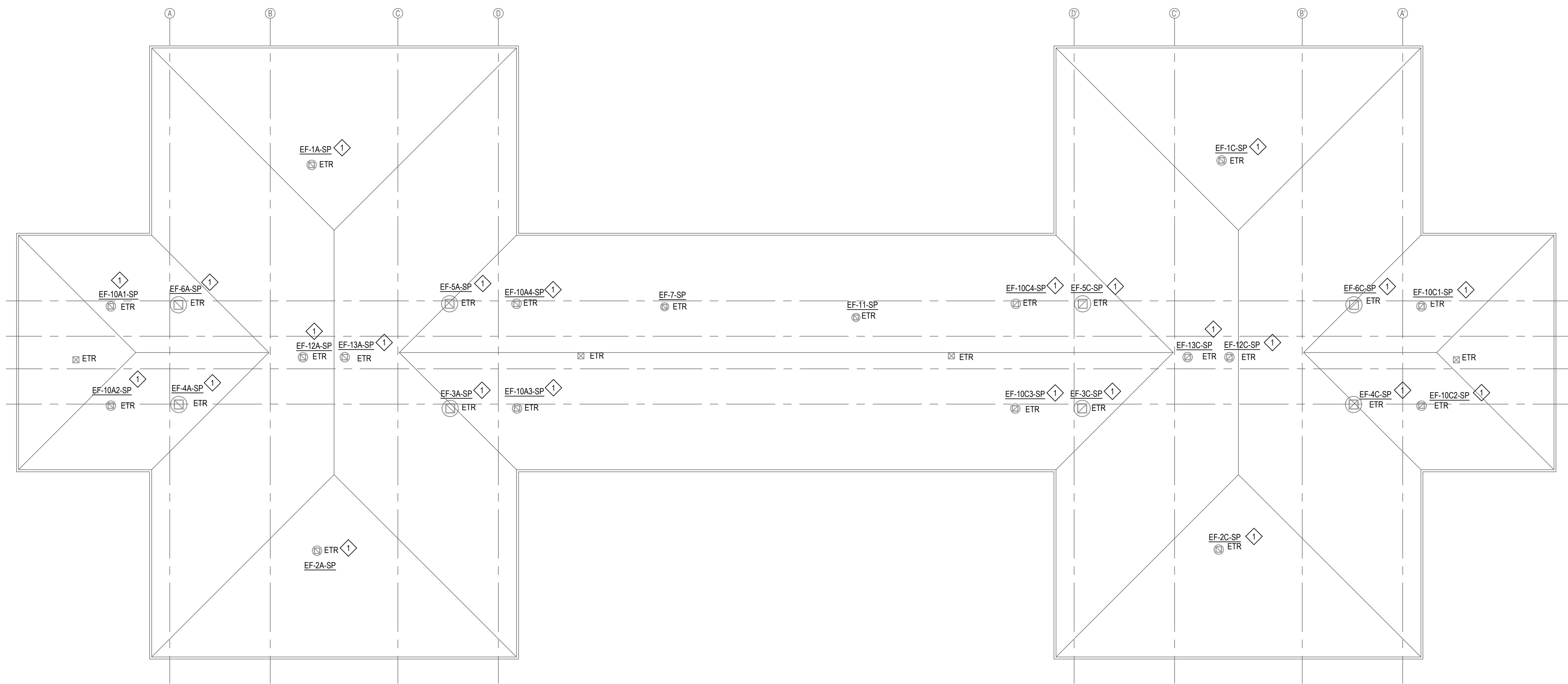
STATUS: **BID DOCUMENTS**

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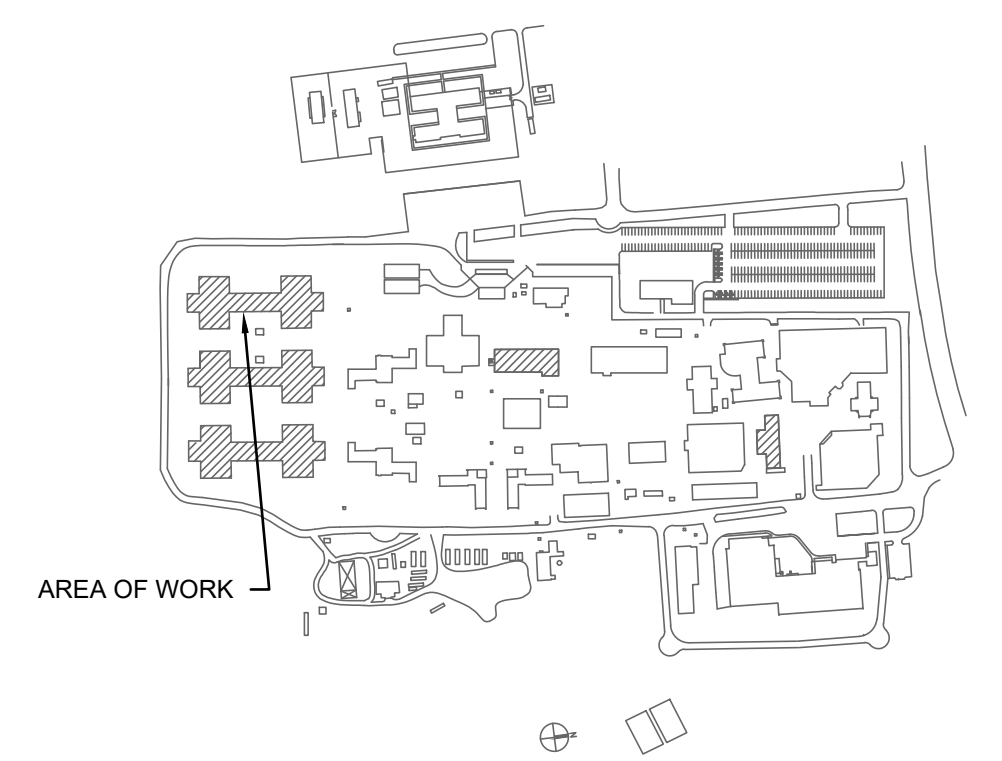
KEY NOTES

- BALANCE EXISTING FAN TO CFM INDICATED IN THE SCHEDULE. PROTECT EXISTING EQUIPMENT FROM DAMAGE. SERVICE AND ADJUST DAMPERS TO OPEN OR CLOSE FULLY (TWO-POSITION)

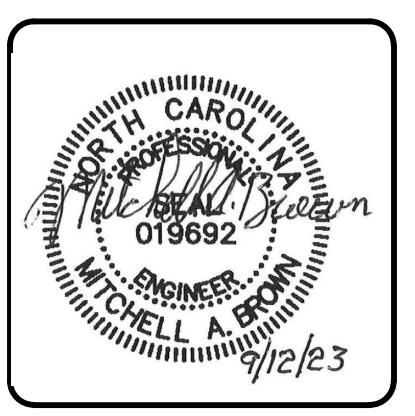
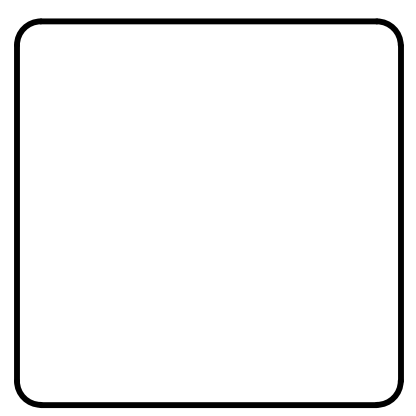


1 DORMITORY N & O MECHANICAL ROOF PLAN
 Scale: 1/16" = 1'-0"

KEY PLAN



REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023
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NC Department of Adult Correction

NC Correctional Institution for Women
Air Conditioning Installation
 SCO ID: 22-24913-02A Code: 42107 Item: 4112

DORMITORY N & O ROOF MECHANICAL PLAN - SPARROW BUILDING

PROJ. START DATE: 08/11/2023	SCALE: AS NOTED	M220 DRAWING NUMBER
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CHECKED: MAB		
PROJ. MGR.: MAB		

SHEET NOTES

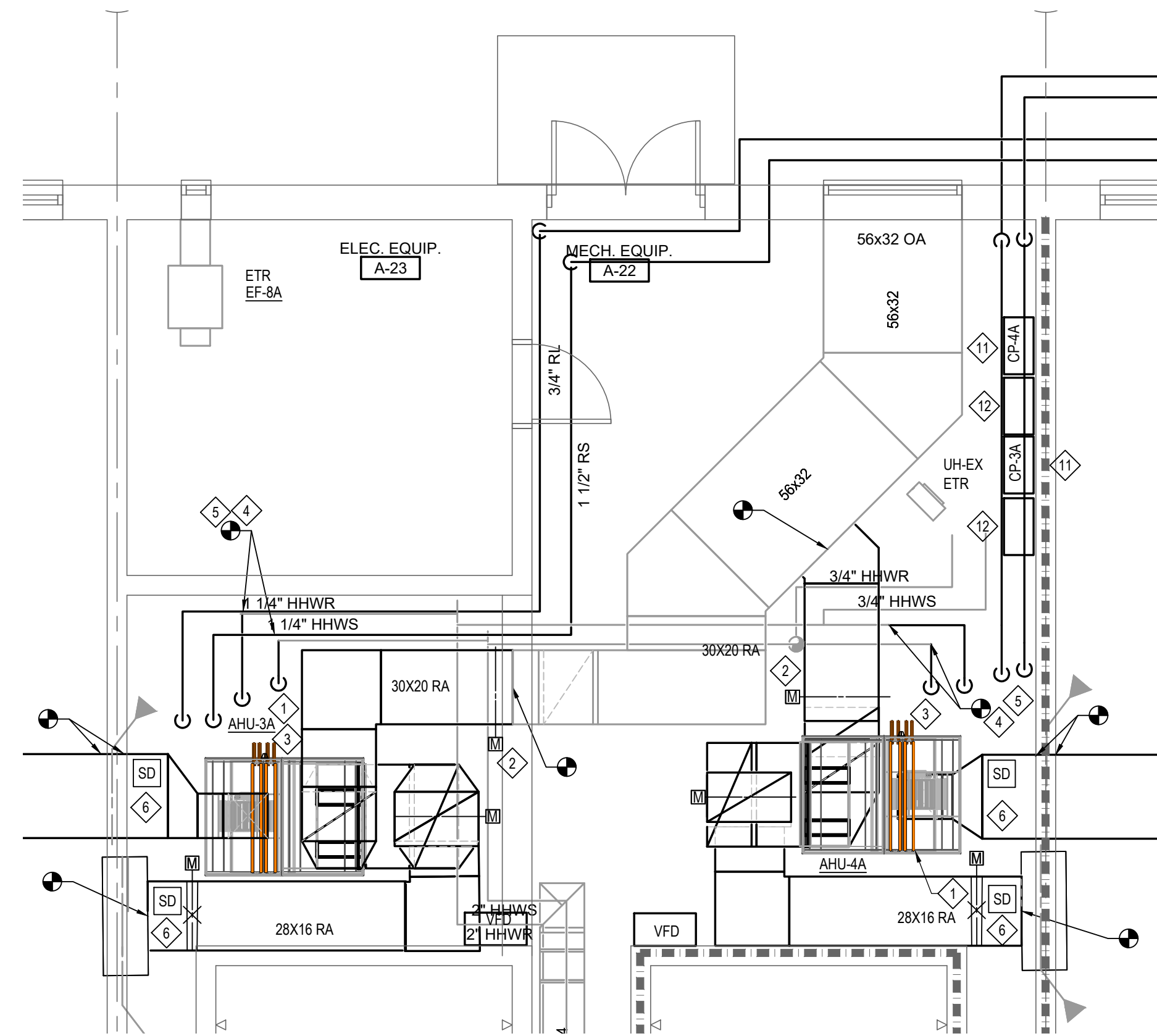
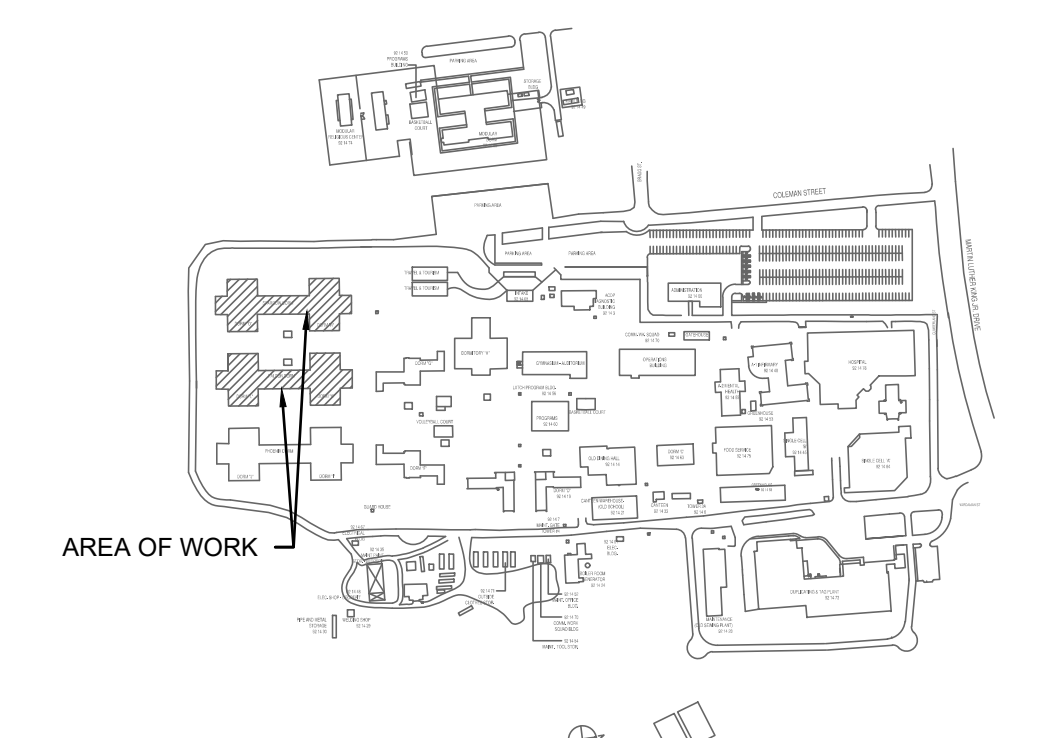
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- ANY CONFLICT BETWEEN INFORMATION ON DRAWINGS AND ACTUAL FIELD "AS BUILT" CONDITIONS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION PRIOR TO COMMENCING WORK.
- CONTRACTOR IS RESPONSIBLE TO REMOVE THE EXISTING CEILINGS, AND OTHER ITEMS WHICH MAY BE MOUNTED ON THE CEILING TO MAKE WAY FOR THE INSTALLATION OF THE HVAC EQUIPMENT AND DUCTWORK AND THEN RE-INSTALL UPON COMPLETION OF THE WORK.

KEY NOTES

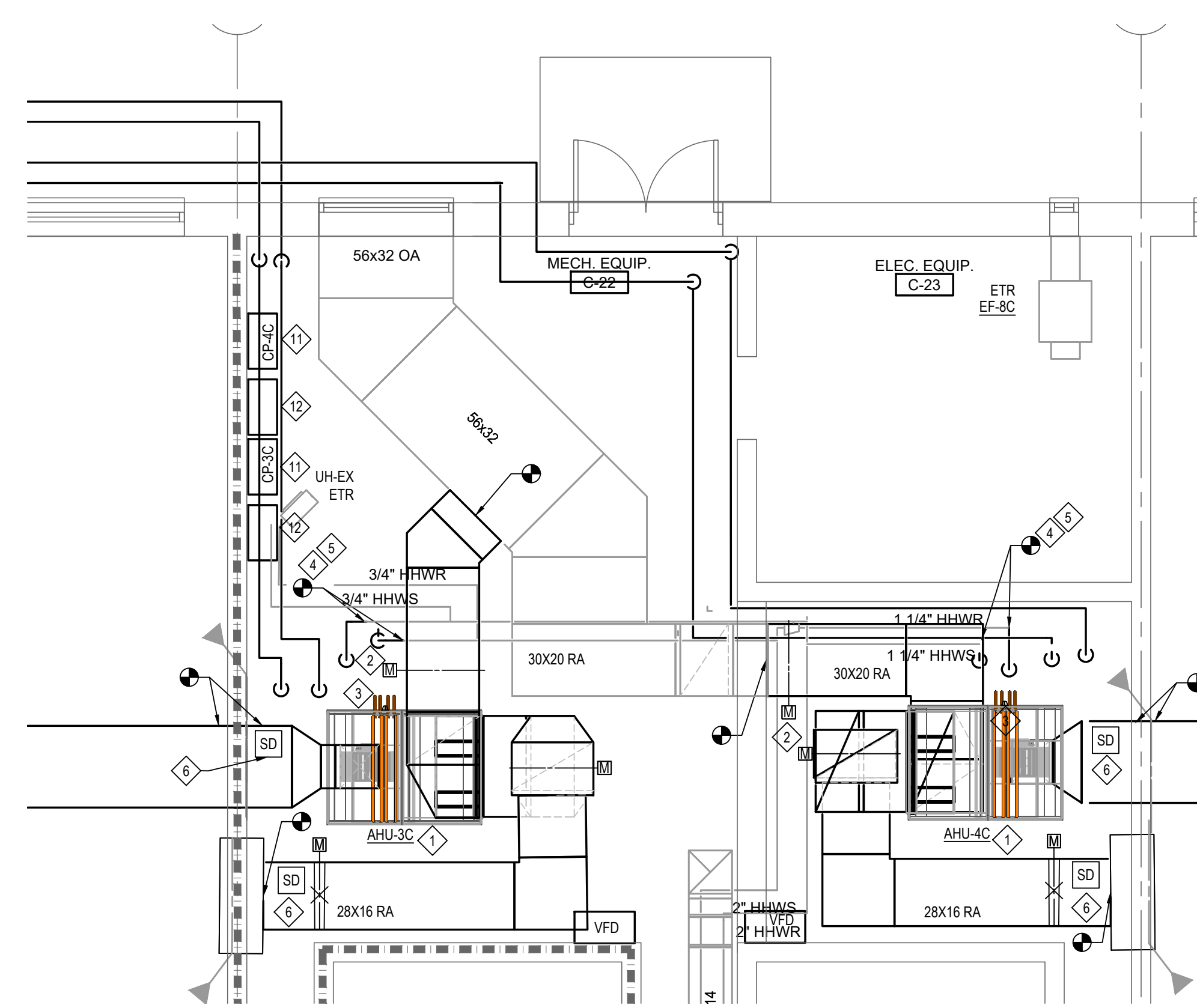
- INSTALL NEW UNITS ON EXISTING CONCRETE PAD. PROVIDE NEOPRENE PADS BETWEEN AHU AND EXISTING CONCRETE PAD. CONNECT TO EXISTING DUCTS. ROUTE NEW REFRIGERANT LINES FROM INDOOR UNIT TO ASSOCIATED OUTDOOR UNIT. PROVIDE NEW MOTOR-OPERATED DAMPERS AS PART OF AHU MIXING BOX.
- NEW OUTSIDE AIR DAMPER IS PART OF THE UNIT. ROUTE NEW 1 1/4" CONDENSATE P-TRAP AND PIPING TO EXISTING FLOOR DRAIN. DISCHARGE WITH 1" AIR GAP MINIMUM. REFER TO DETAILS FOR P-TRAP DIMENSIONS.
- CONNECT NEW HOT WATER COIL TO EXISTING HW PIPING. PROVIDE NEW BRANCH PIPING. VALVES TO BE INSTALLED DURING THE HHW SYSTEM SHUTDOWN.
- INSTALL NEW DUCT SMOKE DETECTOR FURNISHED BY ELECTRICAL CONTRACTOR. CONTROLS CONTRACTOR SHALL CONFIRM THAT NEW FANS IN THE UNIT ARE INTERLOCKED WITH ITS RESPECTIVE NEW SMOKE DETECTORS AND SHUT DOWN UPON THE DETECTION OF SMOKE.
- PROVIDE NEW AIR HEAT PUMP WITH 4" HIGH CONCRETE HOUSEKEEPING PADS. ROUTE NEW REFRIGERANT LINES FROM THE CONDENSING UNITS TO THE NEW AIR HANDLING UNIT. ALL REFRIGERANT LINES SHALL BE INSULATED WITH ELASTOMERIC INSULATION WITH AN ALUMINUM JACKET.
- NEW RETURN AIR DAMPER IS PART OF THE UNIT.
- INSTALL NEW BOILER CONTROLLER IN EXISTING CONTROL PANEL.
- EXISTING BACNET ROUTER AND ASSOCIATED CONTROL WIRING TO REMAIN.
- PROVIDE NEW CONTROL PANEL FOR AHU.
- NEW PURGE/SHUTDOWN RELAY BOX FOR AHU.

WALL CHART	
	1 HR FIRE PARTITION
	1 HR SMOKE PARTITION
	2-HR FIRE BARRIER

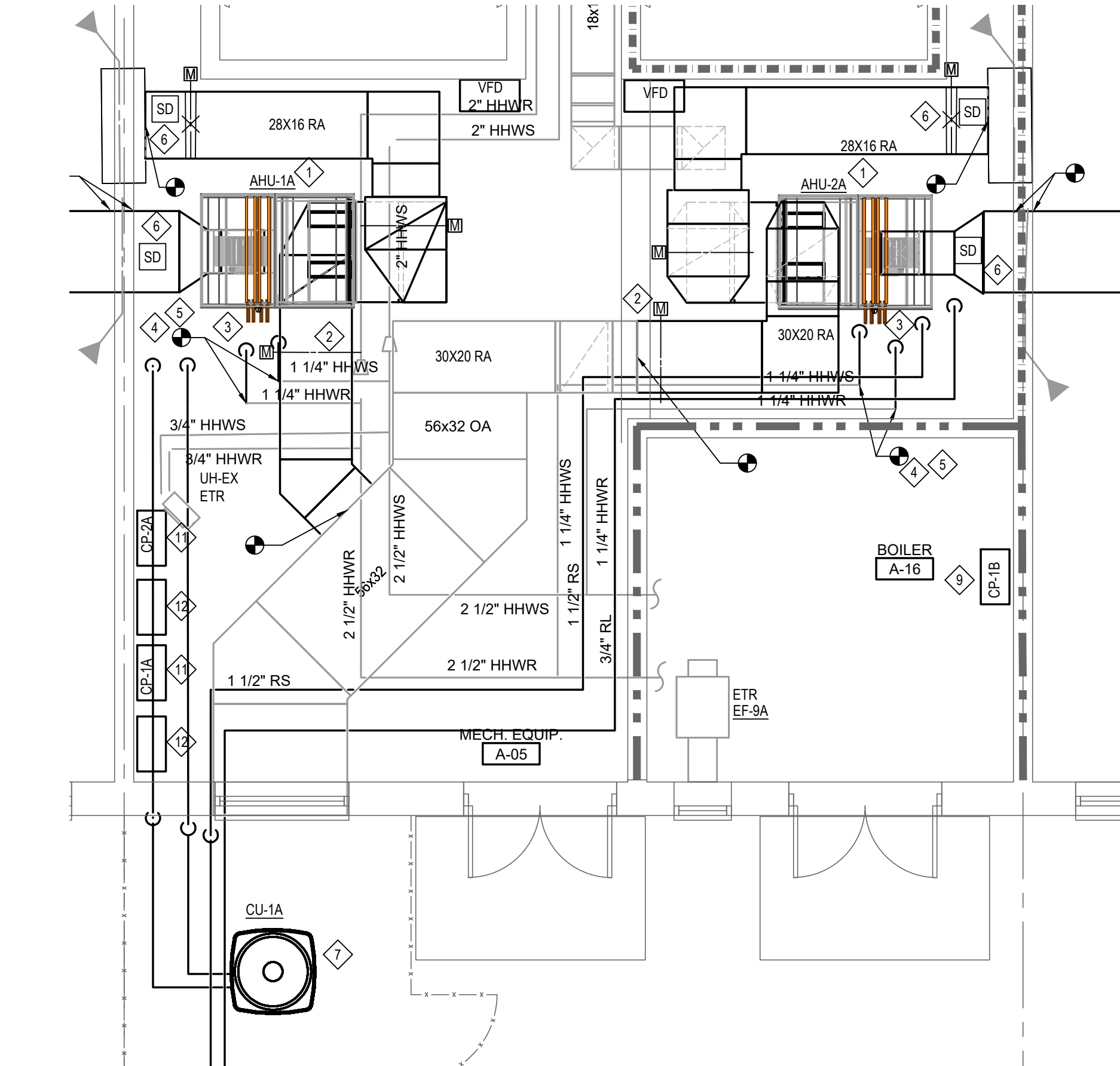
KEY PLAN



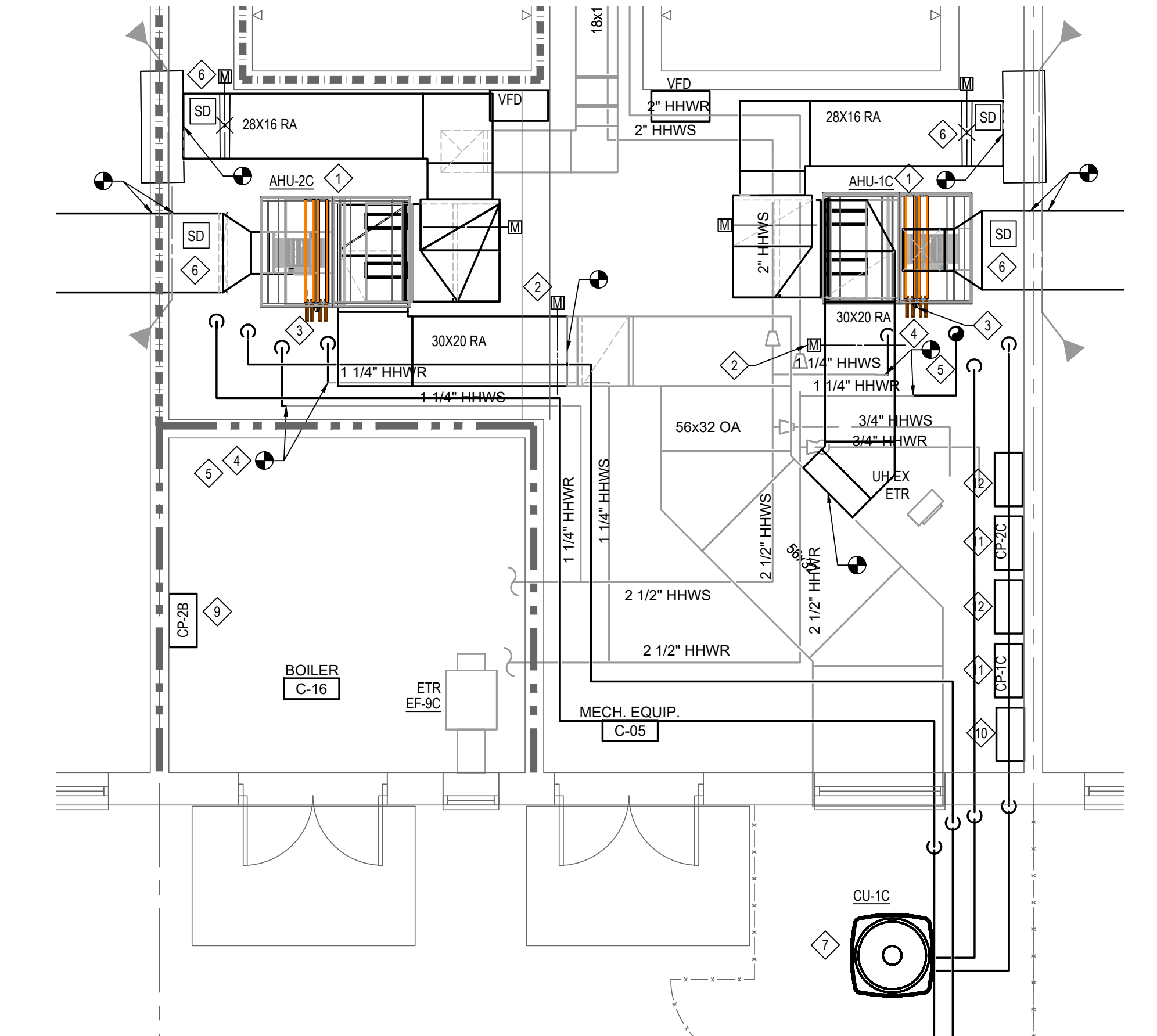
1 DORMITORY ENLARGED MECHANICAL ROOM A-22
M101 Scale: 1/4" = 1'-0"



3 DORMITORY ENLARGED MECHANICAL ROOM C-22
M102 Scale: 1/4" = 1'-0"

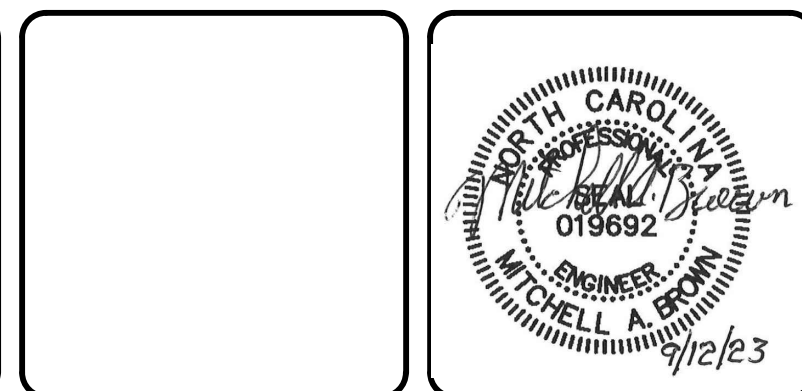


3 DORMITORY ENLARGED MECHANICAL ROOM A-05
M101 Scale: 1/4" = 1'-0"



4 DORMITORY ENLARGED MECHANICAL ROOM C-05
M102 Scale: 1/4" = 1'-0"

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023



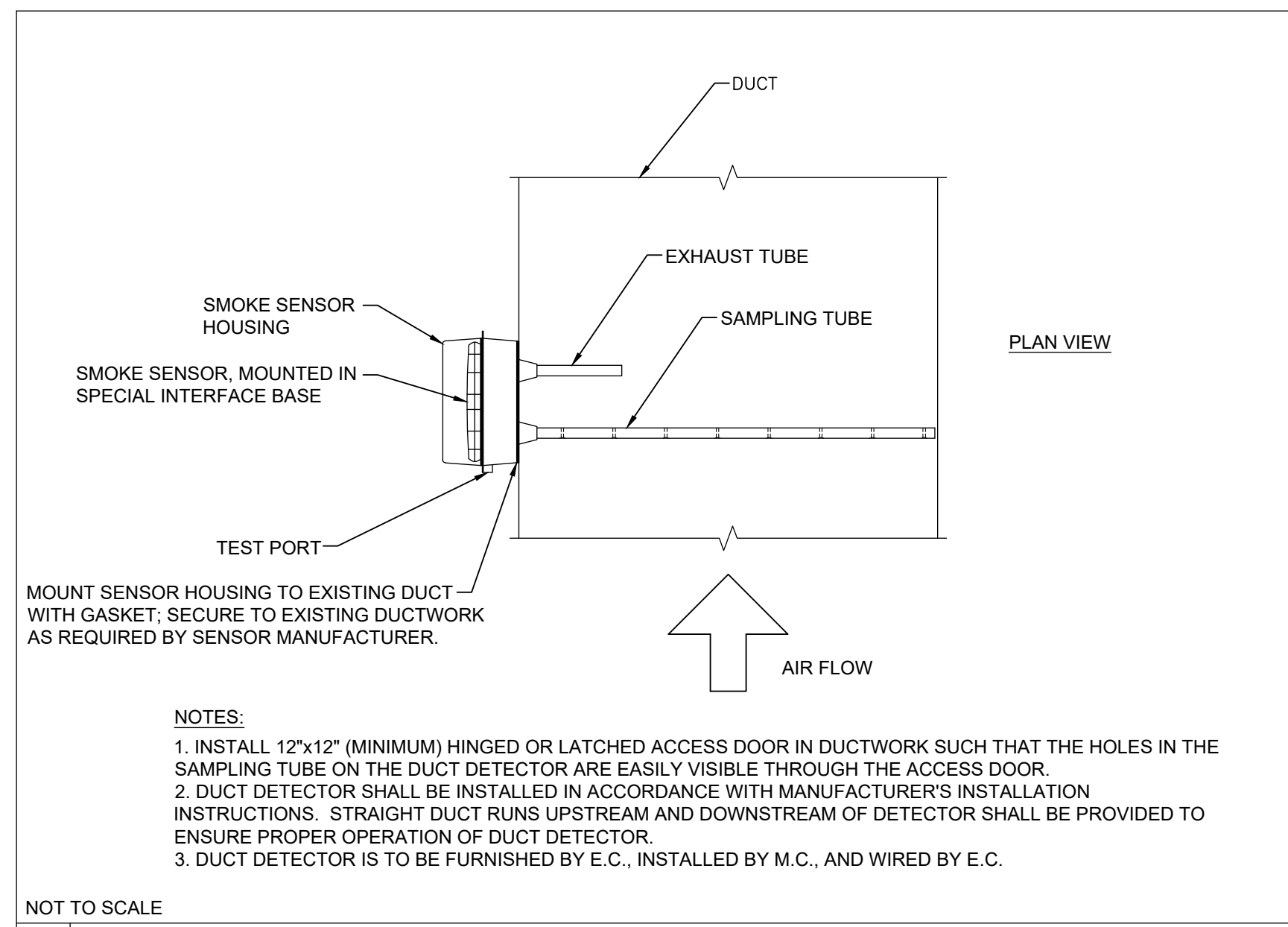
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Air Conditioning Installation
 SCO ID: 22-24913-02A Code: 42107 Item: 4112

MECHANICAL ENLARGED PLANS -
 FALCON, SPARROW BUILDINGS

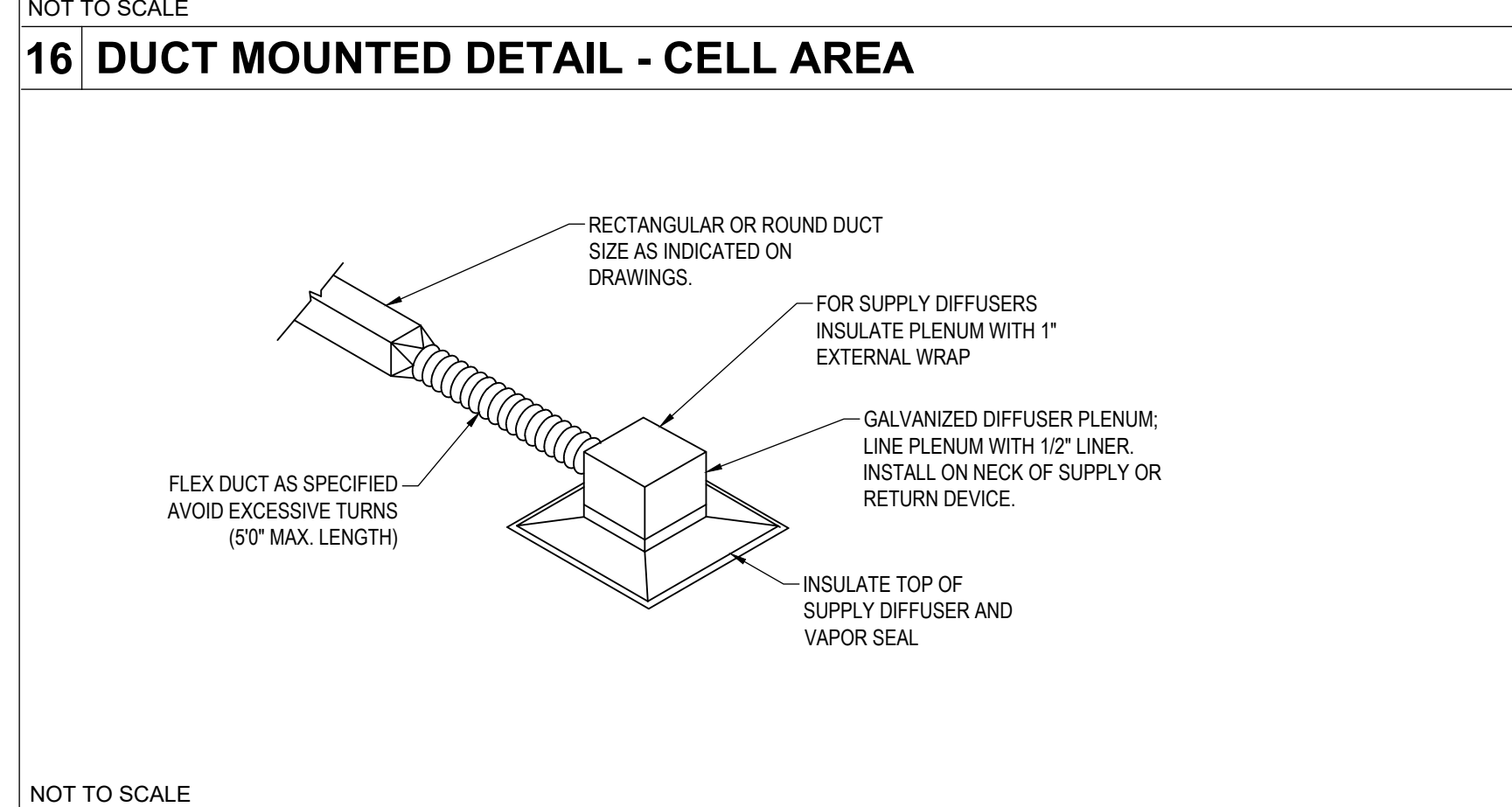
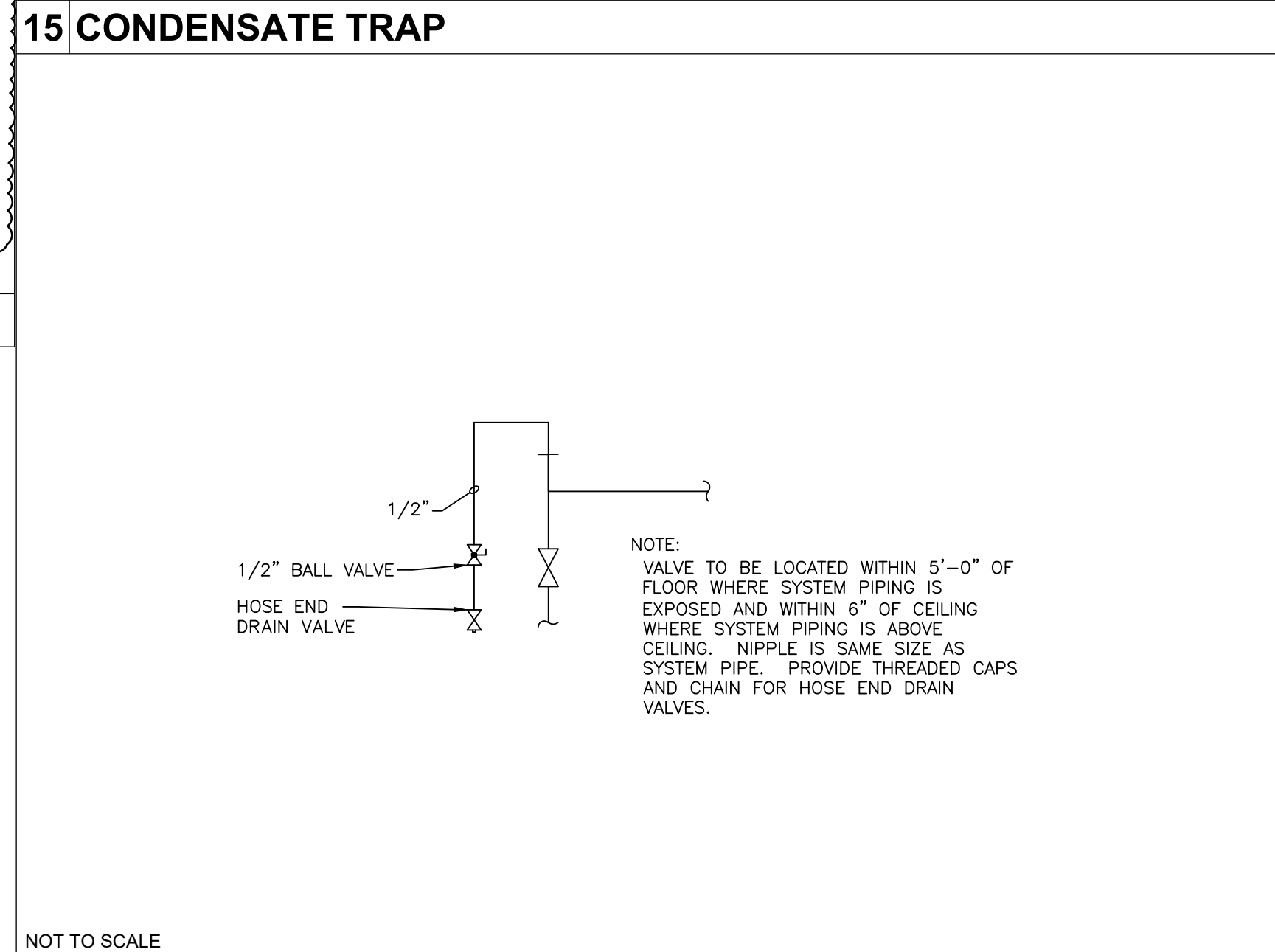
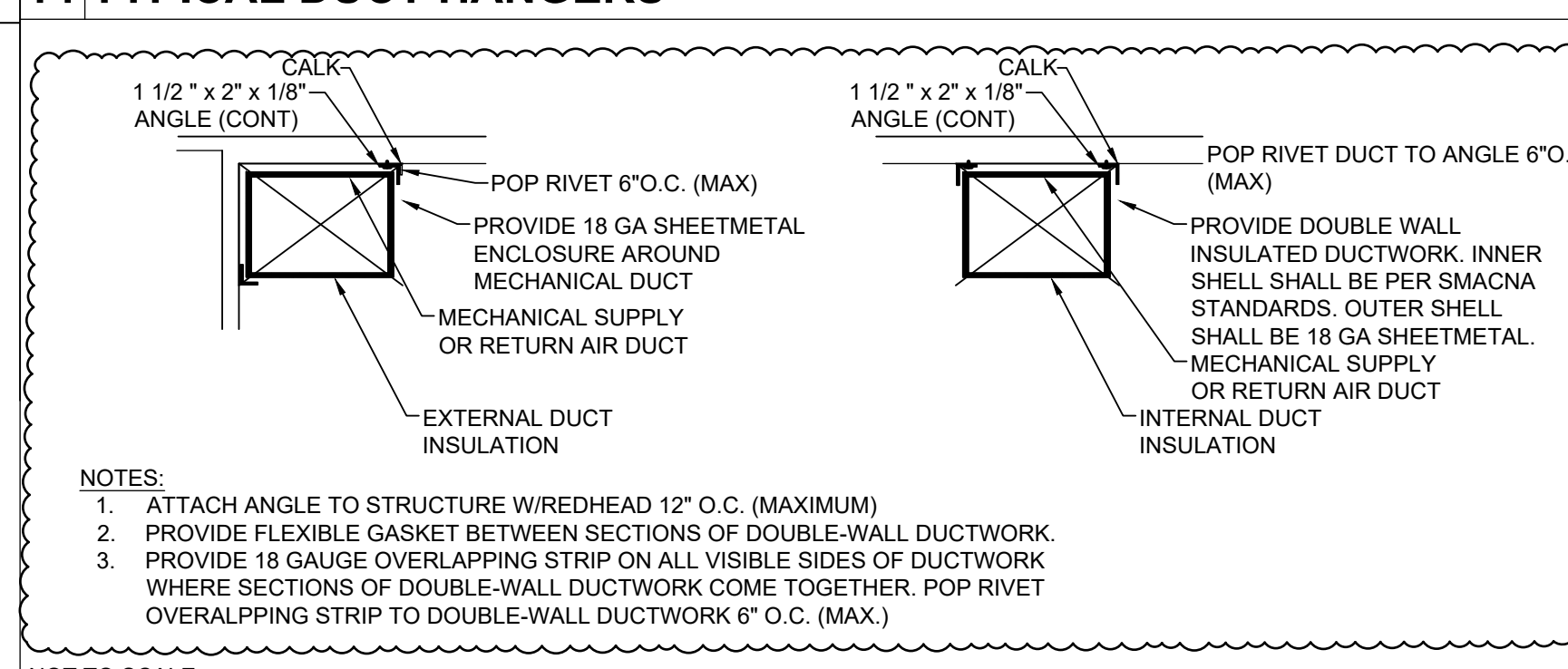
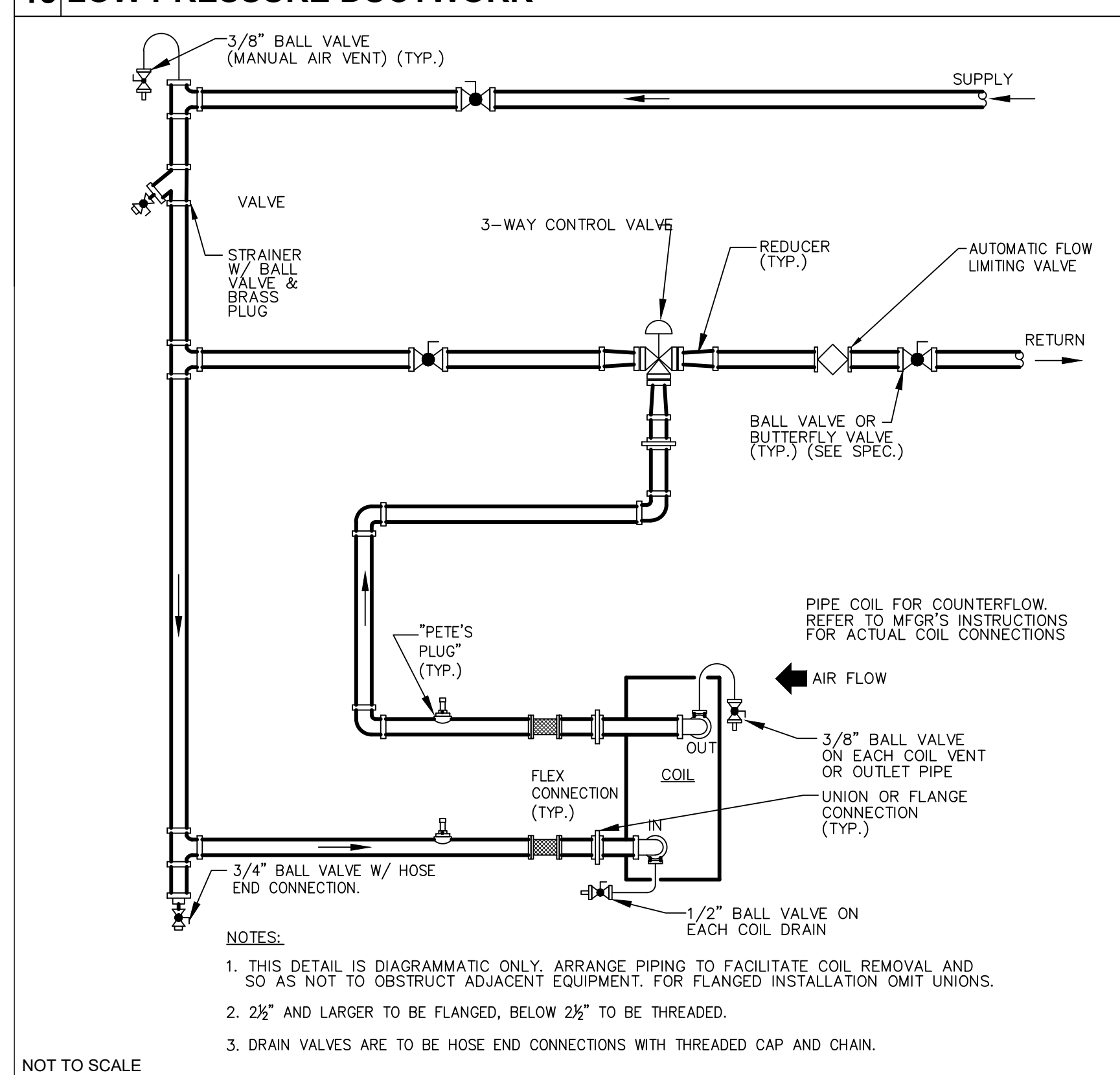
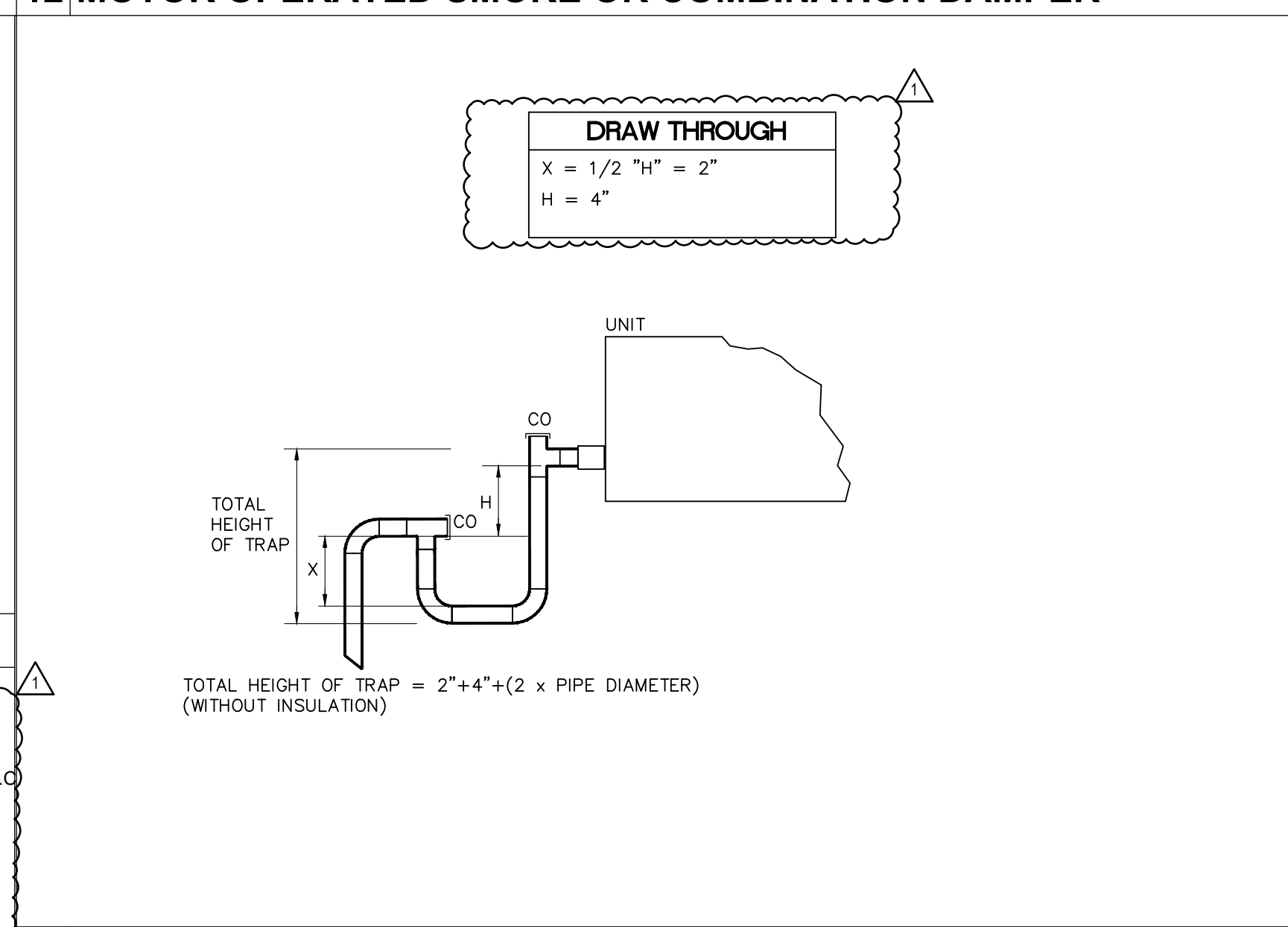
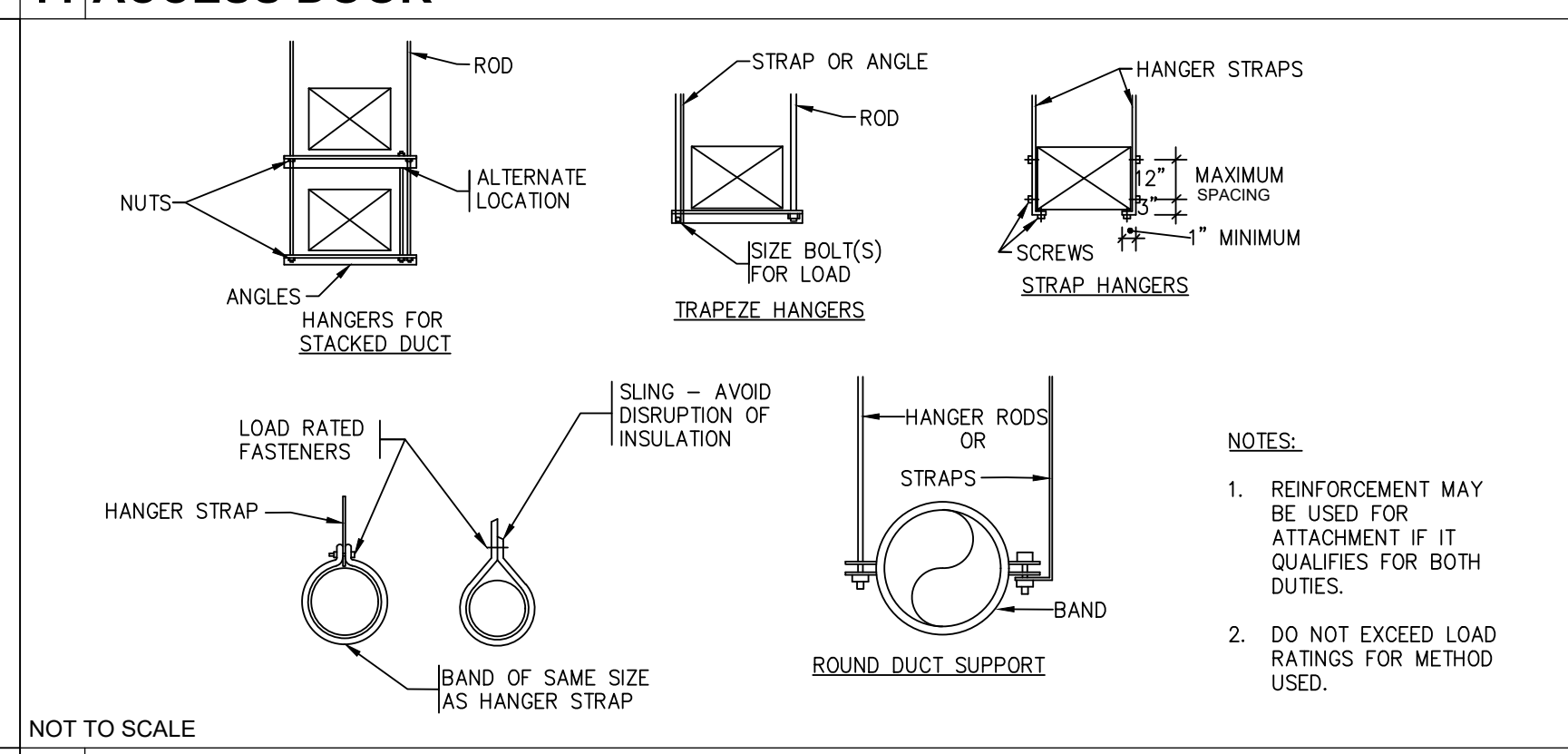
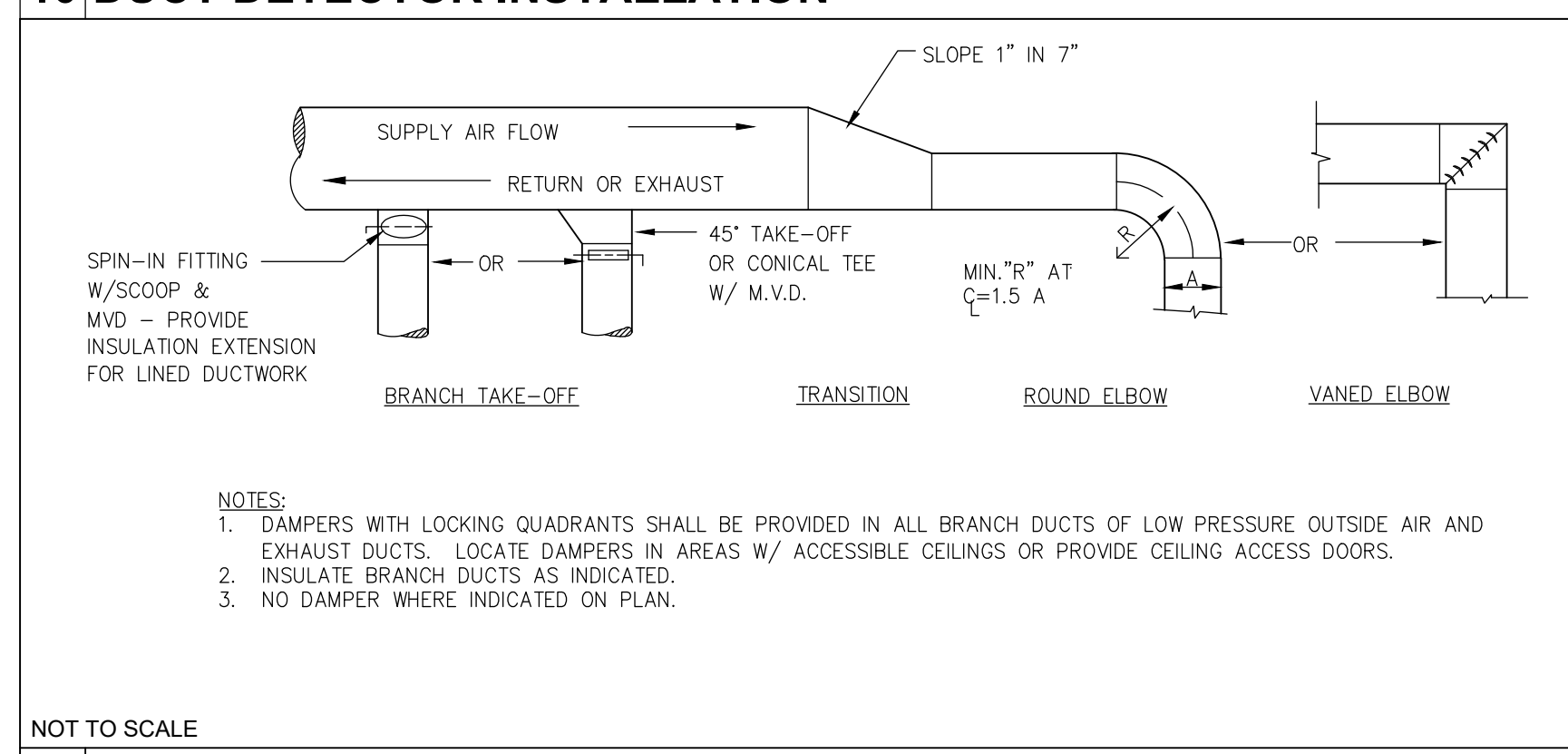
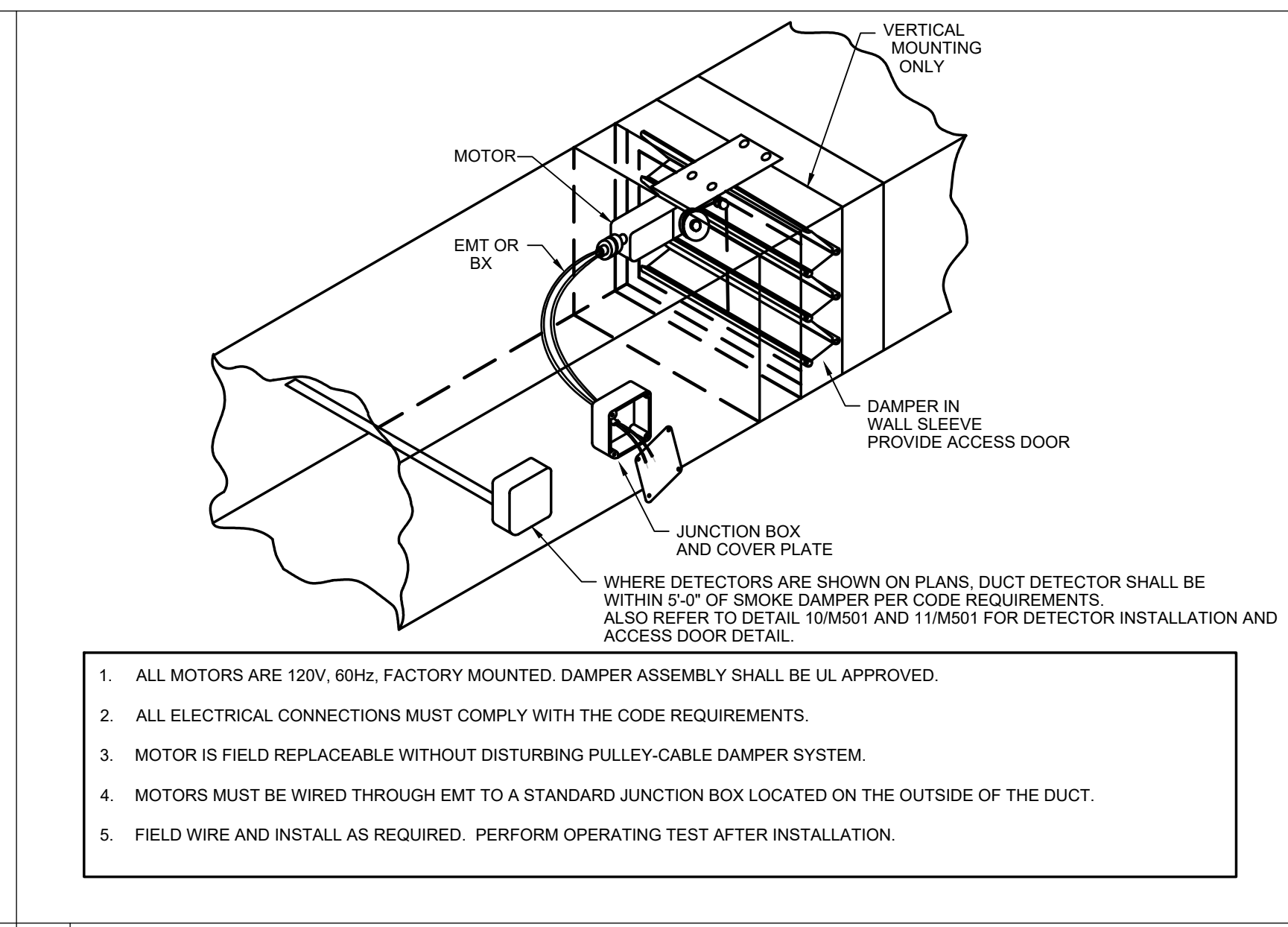
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DRAWN: EIK	VERTICAL: N/A
DESIGNED: EIK	REVISION: 0
CHECKED: UG	
PROJ. MGR. MAB	
STATUS: BID DOCUMENTS	



DUCT SIZE	MINIMUM DOOR SIZE	MAXIMUM LEAKAGE
< 18"	12" x 6"	0.064 CFM
18" TO 28"	18" x 10"	0.133 CFM
> 28"	21" x 14"	0.206 CFM
BODY ACCESS	25" x 17"	0.286 CFM

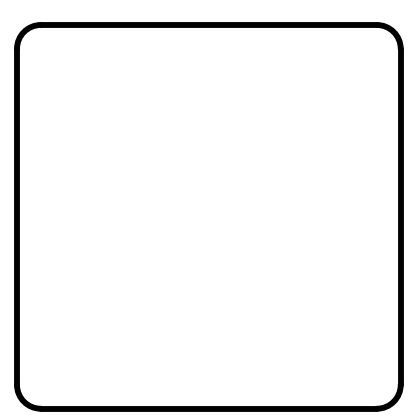
11 ACCESS DOOR

NOT TO SCALE



REV NO	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023

REVISIONS



MCKIM & CREED

Venture IV Building, Suite 500
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NC Department of Adult Correction

NC Correctional Institution for Women
Air Conditioning Installation

SCO ID: 22-24913-02A Code: 42107 Item: 4112

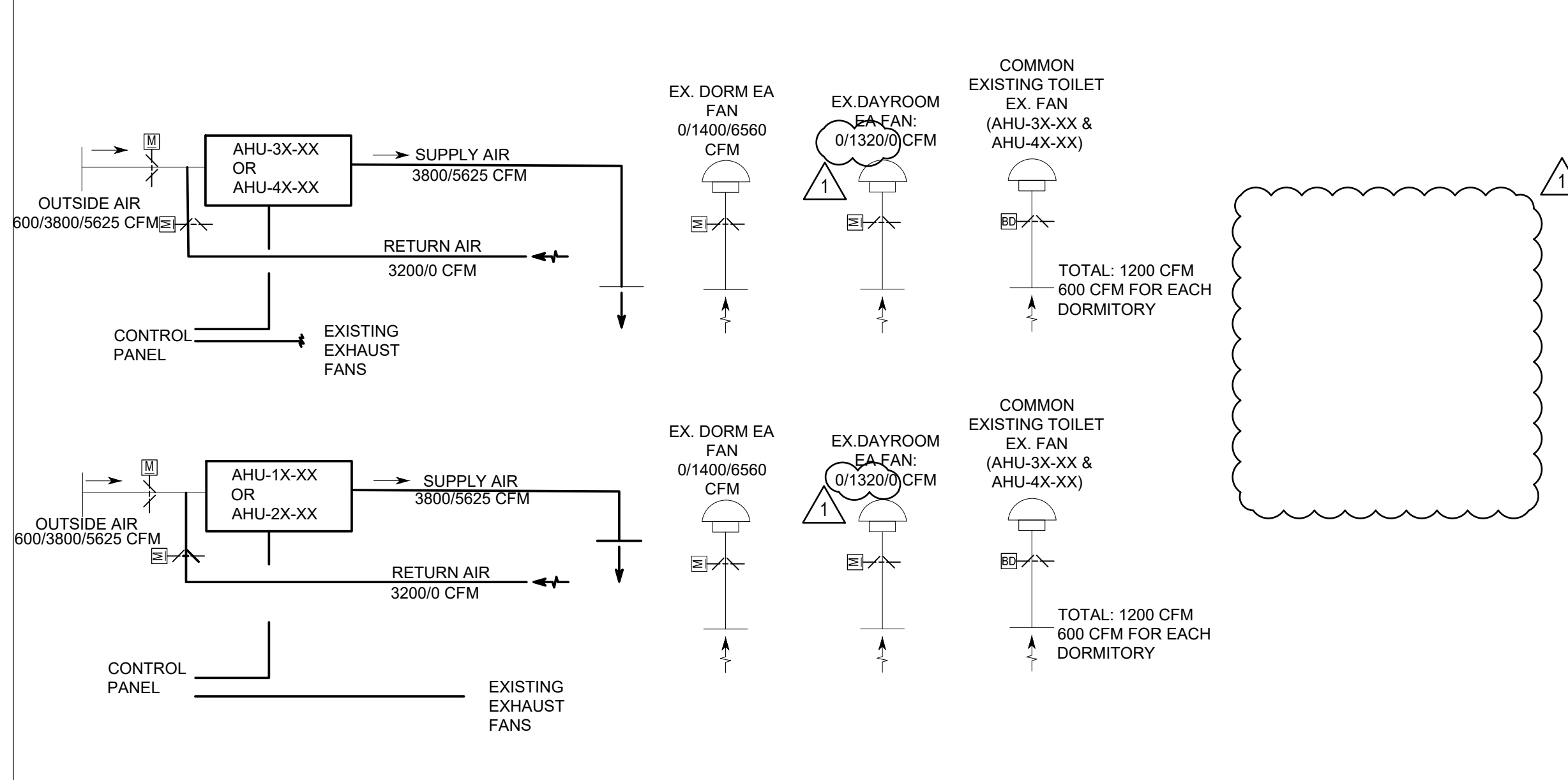
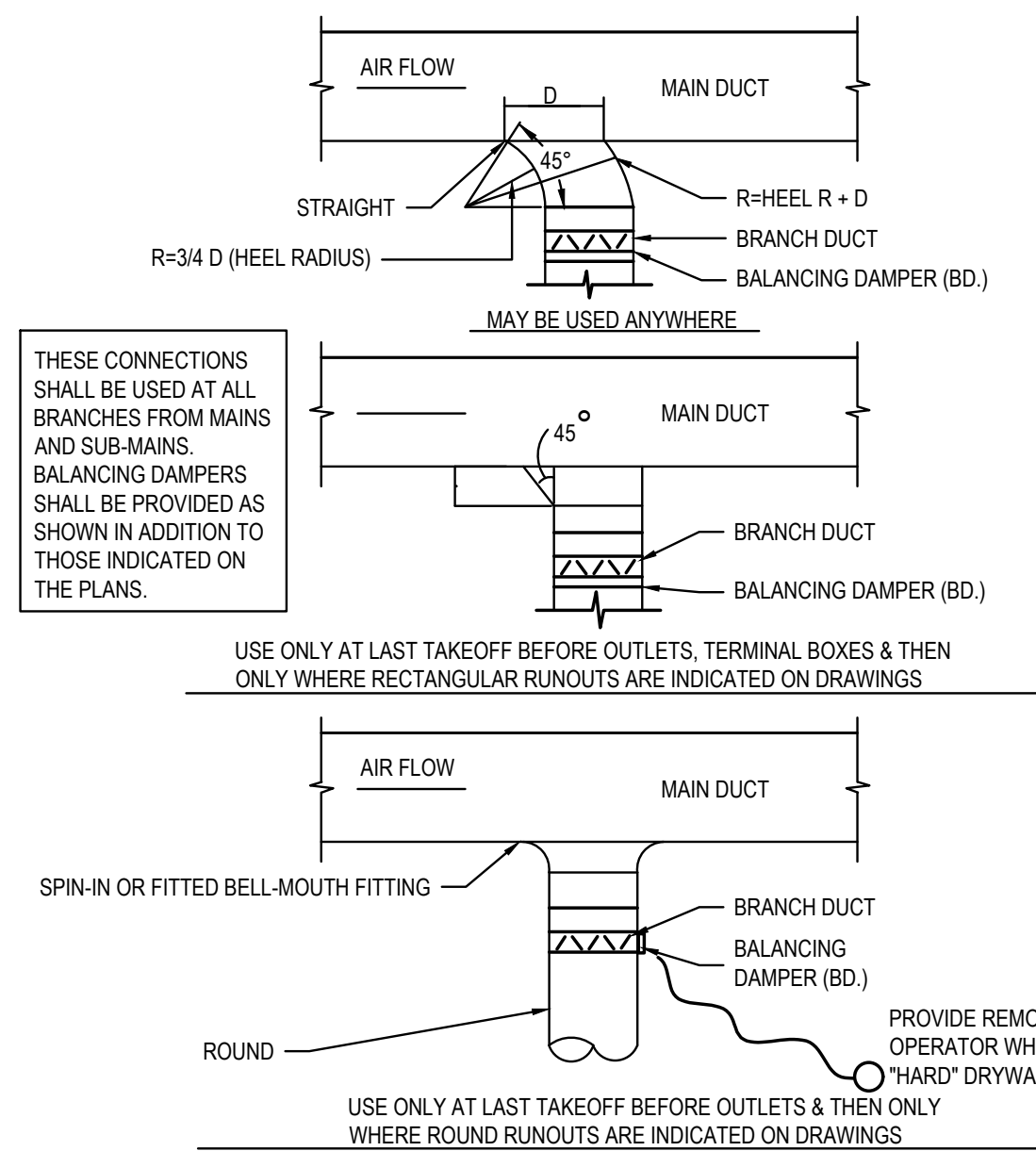
MECHANICAL - DETAILS

PROJ. START DATE: 08/11/2023
MCE PROJ. #: 08914-0002
DRAWN: EIK
DESIGNED: EIK
CHECKED: MAB
PROJ. MGR: MAB

SCALE: HORIZONTAL: AS NOTED VERTICAL: N/A

M501
DRAWING NUMBER: 0 REVISION

STATUS: **BID DOCUMENTS**



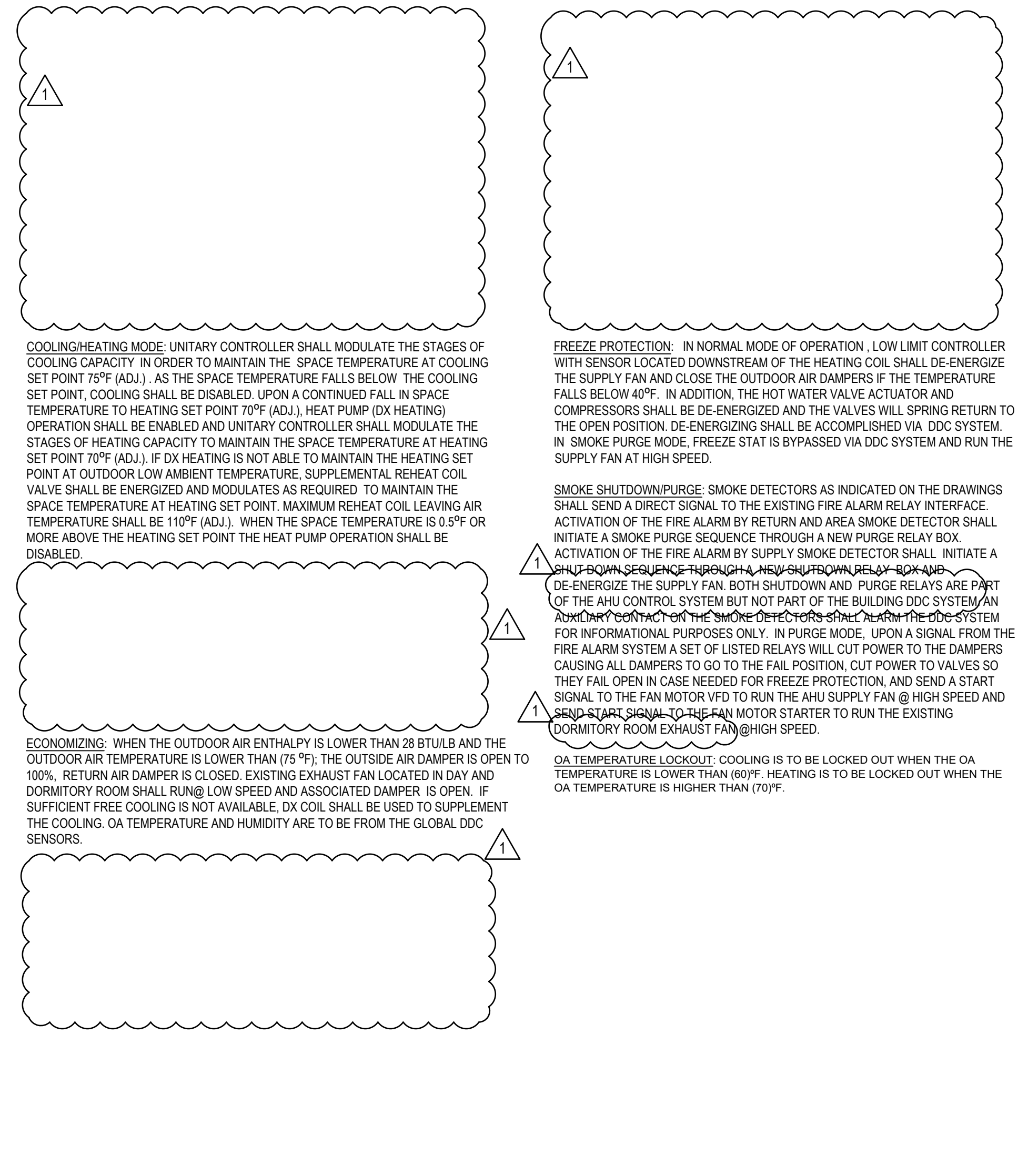
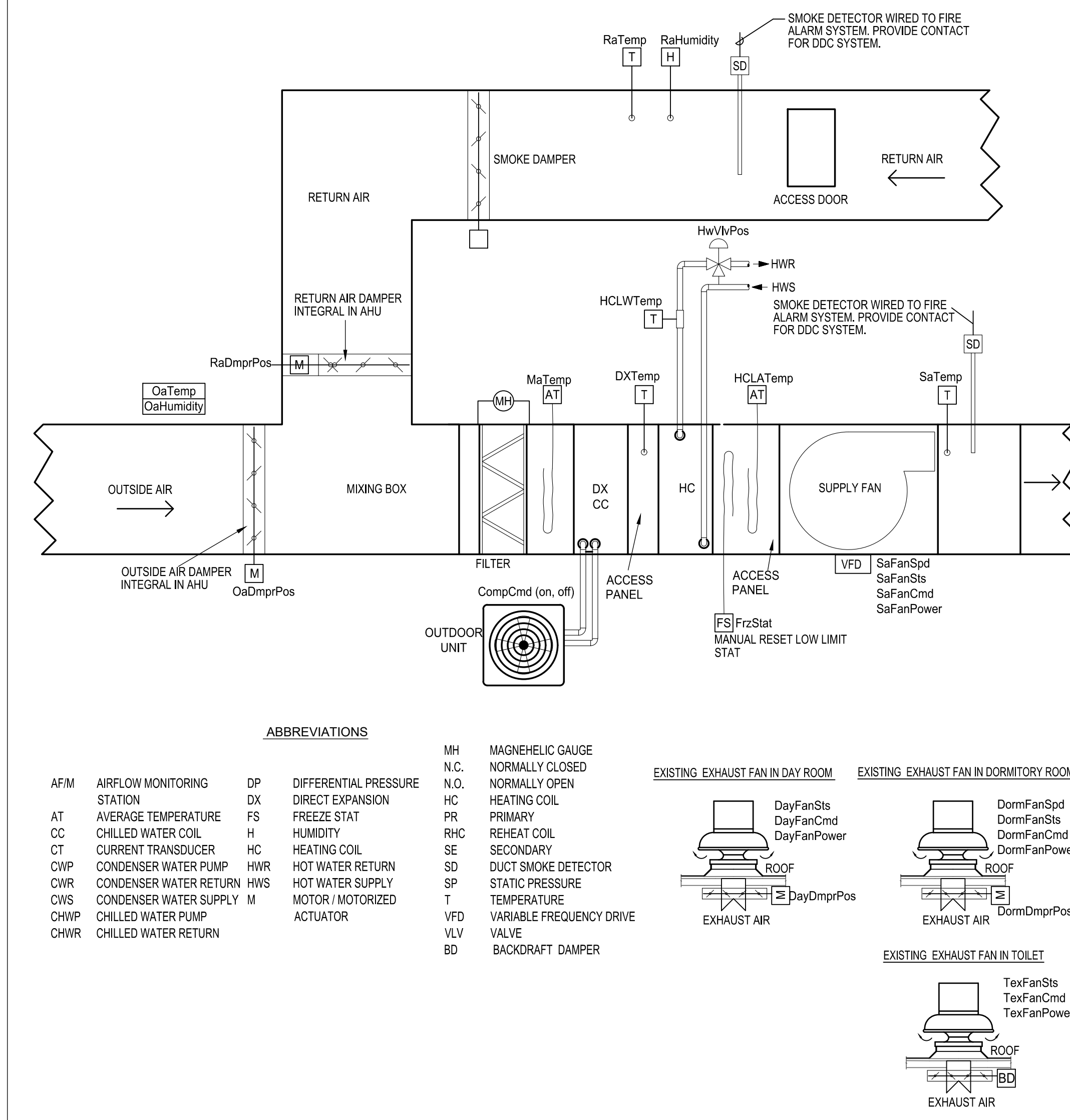
AIRFLOW BALANCE/MODES FOR EACH AHU						
MODE	SUPPLY AIR CFM	OUTSIDE AIR CFM	RETURN AIR CFM	TOILET EXHAUST CFM	ROOM EXHAUST CFM	NOTES
NORMAL COOLING/ HEATING	3800	600	3200	600	0	EXISTING DAY AND DORMITORY EXHAUST FANS ARE OFF. EXISTING COMMON TOILET EXHAUST FAN IS ALWAYS ON. OUTSIDE AIR DAMPER IS OPEN FOR 600 CFM.
ECONOMIZER	3800	3800	0	600	EX. DORMITORY EF - 1400 EX. DAYROOM EF - 1320. TOTAL: 2720	EXISTING DAY AND DORMITORY AND SAFETY VESTIBULE EXHAUST FANS ARE RUN @ LOW SPEED. EXISTING COMMON TOILET FAN IS ALWAYS ON. ADDITIONAL EXHAUST AIR IS OUT THROUGH THE VESTIBULE DOORS. OUTSIDE AIR DAMPER IS OPEN FOR 3800 CFM.
SMOKE PURGE	5625	5625	0	600	EX. DORMITORY EF - 6560	EXISTING DORMITORY EXHAUST FAN IS ON AND RUN @ HIGH SPEED. AHU SUPPLY FAN IS ON AND RUN AT HIGH SPEED @ 5625 CFM. EXISTING COMMON TOILET FAN IS ALWAYS ON. OUTSIDE AIR DAMPER IS OPEN TO 100% FOR 5625 CFM. ADDITIONAL MAKEUP AIR FOR PURGE OPERATION IS THROUGH DOORS, OPERABLE WINDOWS ETC.

NOTE:
 THE NEW AHUS (TYP. OF 24) ARE TO BE PROVIDED WITH VFDs FOR FAN SPEED CONTROL. THESE AHUS ARE INTENDED TO OPERATE AT TWO (2) DISTINCT AIRFLOW RATES:
 - "HIGH" SHALL CORRESPOND TO THE FAN SPEED REQUIRED TO DELIVER 5625 CFM.
 - "LOW" SHALL CORRESPOND TO THE FAN SPEED REQUIRED TO DELIVER 3800 CFM.

TAB CONTRACTOR SHALL TEST EACH SYSTEM TO DETERMINE THE BAS VFD SPEED COMMAND (%) NECESSARY FOR EACH SYSTEM TO DELIVER THESE SPECIFIC AIR FLOWS AND RECORD IN TAB REPORT. BAS CONTRACTOR SHALL PROVIDE AN ENGRAVED PHOENIX PLACARD (MIN. 3"8" LETTERING) AT EACH AHU/VFD INDICATING THIS INFORMATION, AND SHALL UTILIZE THE INFORMATION IN PROGRAMMING THE "HIGH" AND "LOW" BAS SPEED COMMANDS AS DESCRIBED IN THESE DRAWINGS.

1 DUCT BRANCH TAKE-OFF

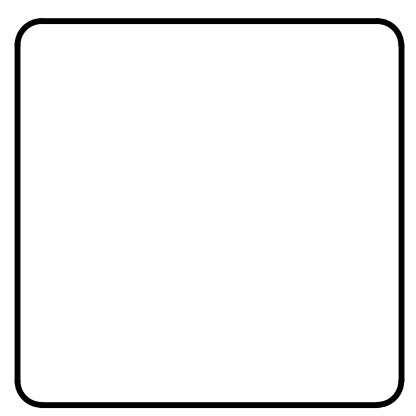
2 AIRFLOW SCHEMATIC (TYPICAL) PHOENIX, SPARROW, FALCON BUILDINGS



3 AHU CONTROL SCHEMATIC (FOR PHOENIX, SPARROW AND FALCON BUILDING)

4 AHU SEQUENCE OF OPERATION AND POINT LIST (FOR PHOENIX, SPARROW AND FALCON BUILDING)

REVNO	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023



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NC Department of Adult Correction

NC Correctional Institution for Women
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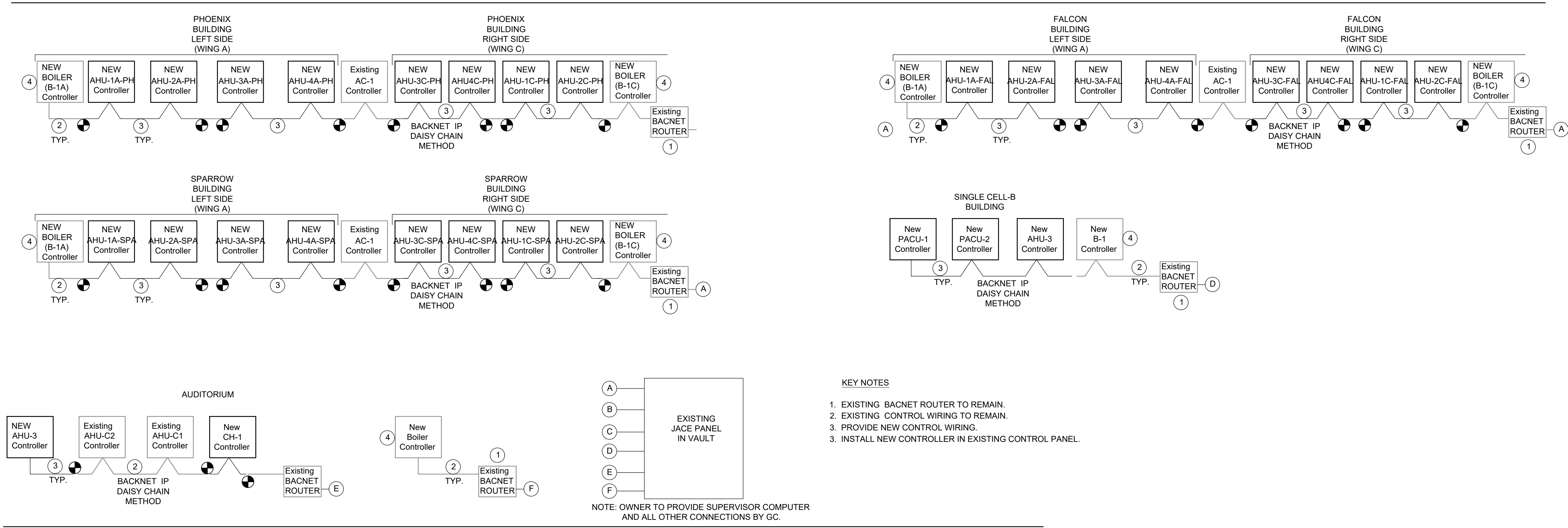
MECHANICAL - CONTROLS

PROJ. START DATE: 08/11/2023
 MCE PROJ. # 08914-0002
 DRAWN: UG
 DESIGNED: UG
 CHECKED: MAB
 PROJ. MGR.: MAB

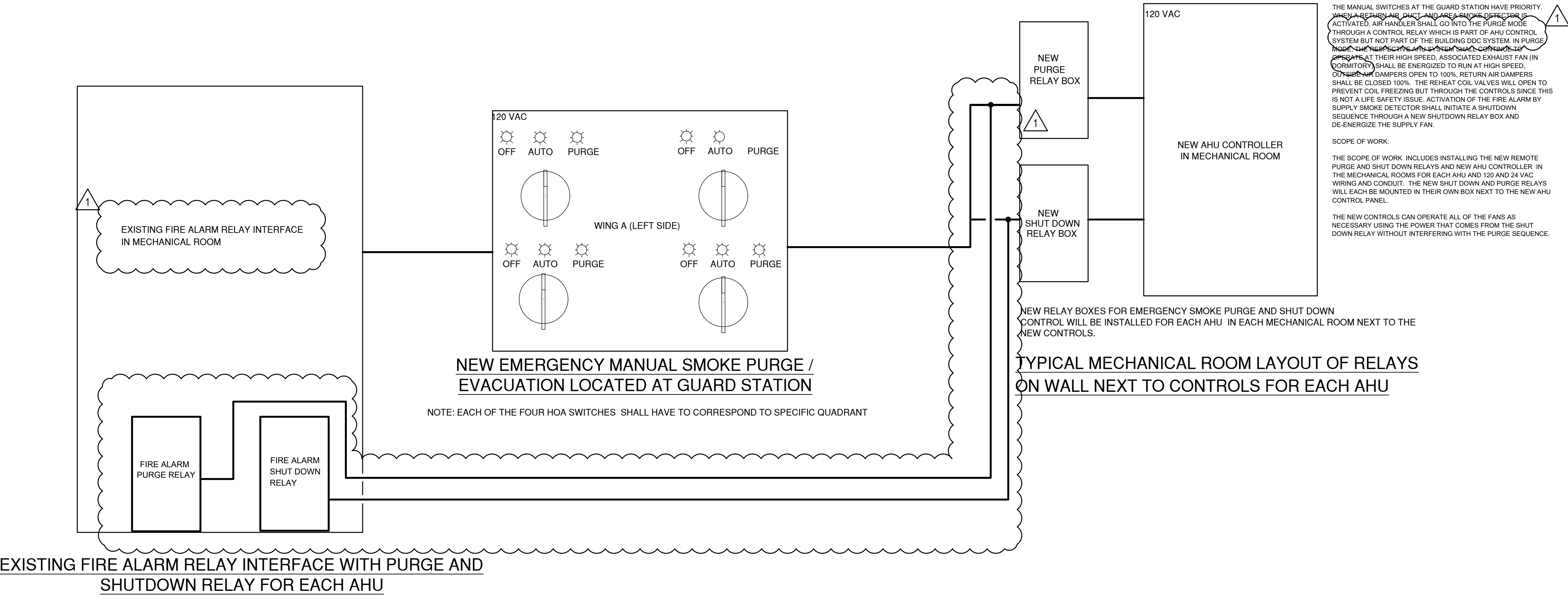
SCALE: HORIZONTAL: AS NOTED
 VERTICAL: N/A

M600
 DRAWING NUMBER
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 REVISION

BID DOCUMENTS

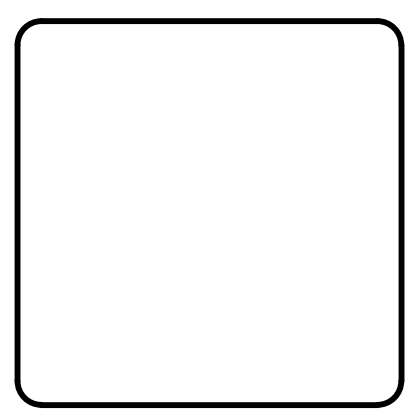


1 CONTROLS NETWORK ARCHITECTURE
NOT TO SCALE



2 SCHEMATIC OF MANUAL SWITCHES AND RELAY MODULES (TYPICAL FOR SPARROW, FALCON AND PHONEIX BUILDING)

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023
REVISIONS		



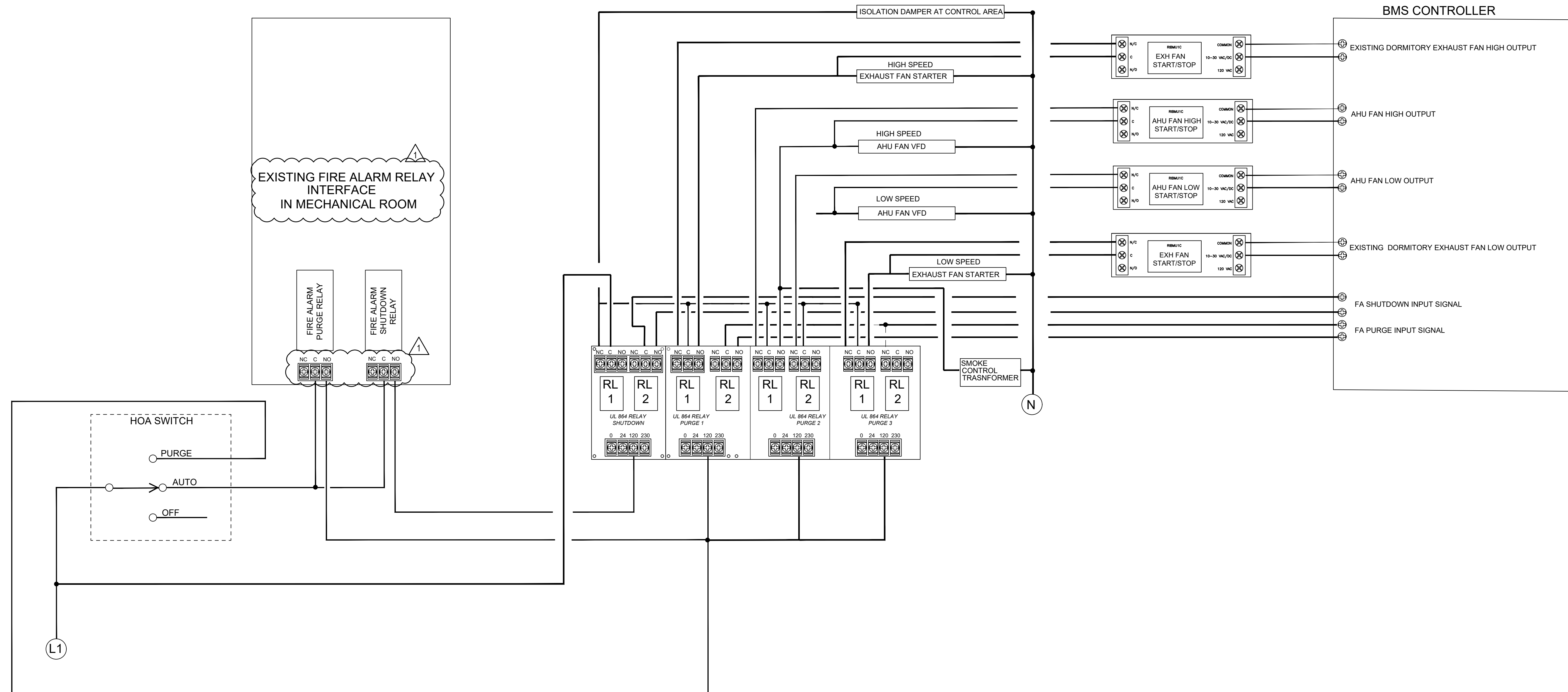
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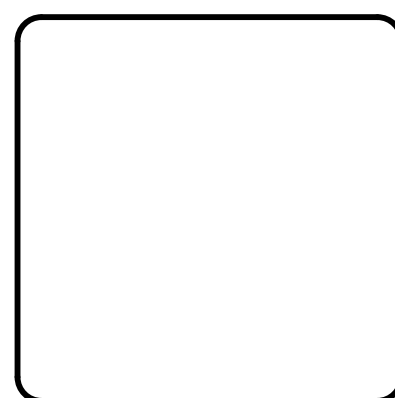
MECHANICAL - CONTROLS

PROJ. START DATE: 08/11/2023	SCALE: M601
MCE PROJ. #: 08914-0002	HORIZONTAL: AS NOTED
DRAWN: UG	VERTICAL: N/A
CHECKED: MAB	REVISION: 0
PROJ. MGR.: MAB	BID DOCUMENTS



1 SIMPLIFIED FIRE ALARM SMOKE CONTROL INTERFACE MODEL (TYPICAL FOR SPARROW , FALCON, AND PHONEIX BUILDING)
NOT TO SCALE

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023



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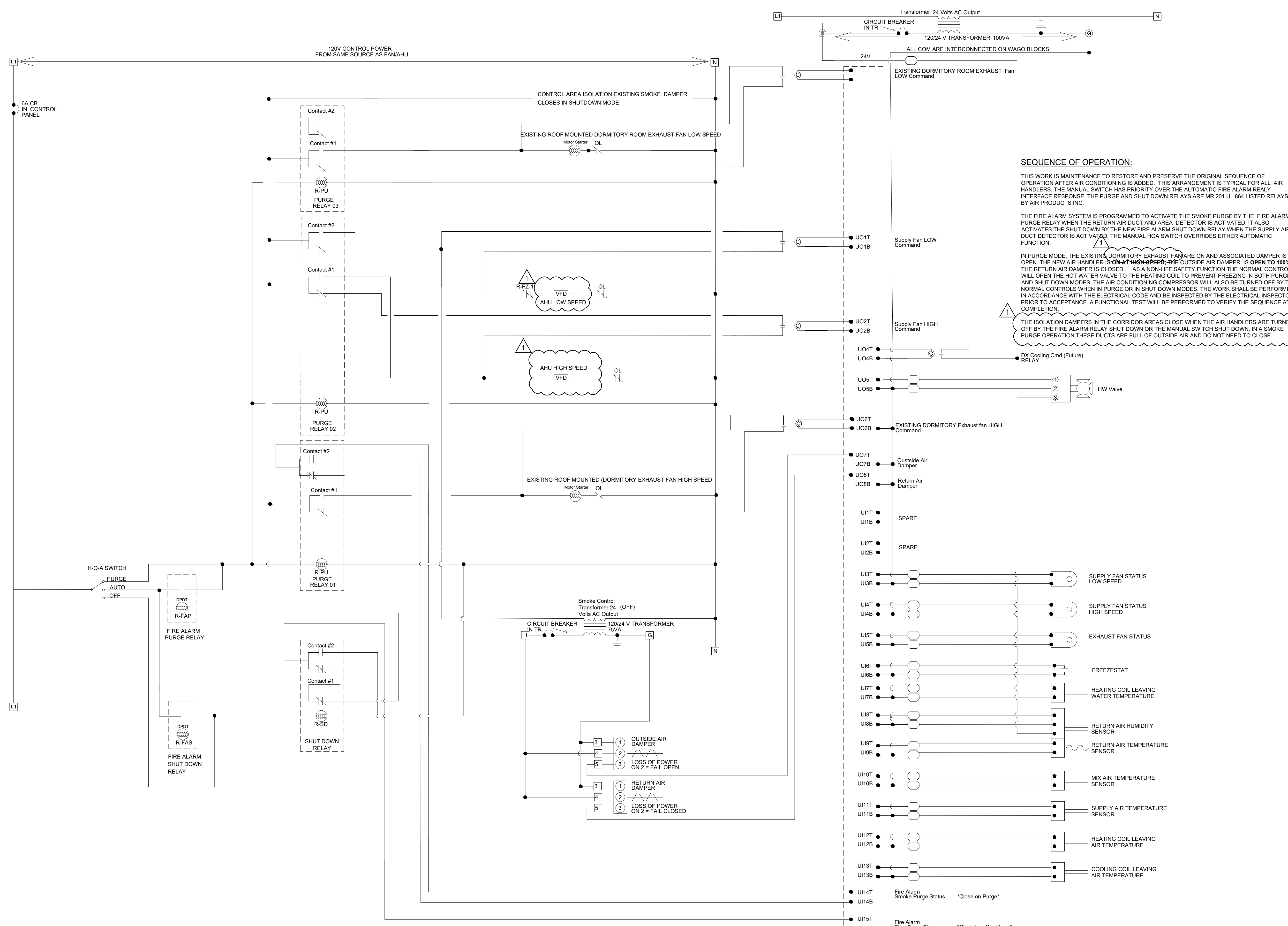


**NC Correctional Institution for Women
 Air Conditioning Installation**
 SCO ID: 22-24913-02A Code: 42107 Item: 4112

MECHANICAL - CONTROLS

PROJ. START DATE: 08/11/2023	SCALE
MCE PROJ. # 08914-0002	HORIZONTAL: AS NOTED
DRAWN: UG	VERTICAL: N/A
DESIGNED: UG	
CHECKED: MAB	
PROJ. MGR: MAB	

M602
 DRAWING NUMBER
 0
 REVISION
BID DOCUMENTS



SEQUENCE OF OPERATION:

THIS WORK IS MAINTENANCE TO RESTORE AND PRESERVE THE ORIGINAL SEQUENCE OF OPERATION AFTER AIR CONDITIONING IS ADDED. THIS ARRANGEMENT IS TYPICAL FOR ALL AIR HANDLERS. THE MANUAL SWITCH HAS PRIORITY OVER THE AUTOMATIC FIRE ALARM RELAY INTERFACE RESPONSE. THE PURGE AND SHUT DOWN RELAYS ARE MR 201 UL 864 LISTED RELAYS BY AIR PRODUCTS INC.

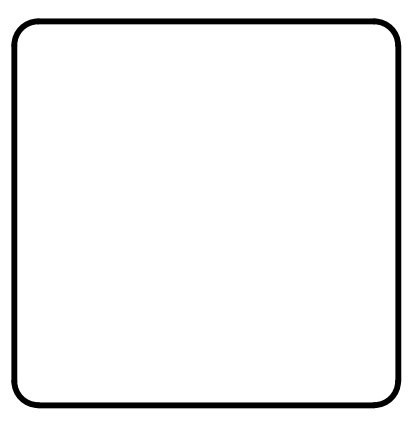
THE FIRE ALARM SYSTEM IS PROGRAMMED TO ACTIVATE THE SMOKE PURGE BY THE FIRE ALARM PURGE RELAY WHEN THE RETURN AIR DUCT AND AREA DETECTOR IS ACTIVATED. IT ALSO ACTIVATES THE SHUT DOWN BY THE NEW FIRE ALARM SHUT DOWN RELAY WHEN THE SUPPLY AIR DUCT DETECTOR IS ACTIVATED. THE MANUAL HOA SWITCH OVERRIDES EITHER AUTOMATIC FUNCTION.

IN PURGE MODE, THE EXISTING DORMITORY EXHAUST FAN ARE ON AND ASSOCIATED DAMPER IS OPEN. THE NEW AIR HANDLER IS ON AT HIGH SPEED. THE OUTSIDE AIR DAMPER IS OPEN TO 100%, THE RETURN AIR DAMPER IS CLOSED. AS A NON-LIFE SAFETY FUNCTION THE NORMAL CONTROLS WILL OPEN THE HOT WATER VALVE TO THE HEATING COIL TO PREVENT FREEZING IN BOTH PURGE AND SHUT DOWN MODES. THE AIR CONDITIONING COMPRESSOR WILL ALSO BE TURNED OFF BY THE NORMAL CONTROLS WHEN IN PURGE OR IN SHUT DOWN MODES. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ELECTRICAL CODE AND BE INSPECTED BY THE ELECTRICAL INSPECTOR PRIOR TO ACCEPTANCE. A FUNCTIONAL TEST WILL BE PERFORMED TO VERIFY THE SEQUENCE AT COMPLETION.

THE ISOLATION DAMPERS IN THE CORRIDOR AREAS CLOSE WHEN THE AIR HANDLERS ARE TURNED OFF BY THE FIRE ALARM RELAY SHUT DOWN OR THE MANUAL SWITCH SHUT DOWN. IN A SMOKE PURGE OPERATION THESE DUCTS ARE FULL OF OUTSIDE AIR AND DO NOT NEED TO CLOSE.

1 FIRE ALARM SMOKE CONTROL INTERFACE CONTROL DETAIL (TYPICAL FOR SPARROW , FALCON AND PHONEIX BUILDING)
NOT TO SCALE

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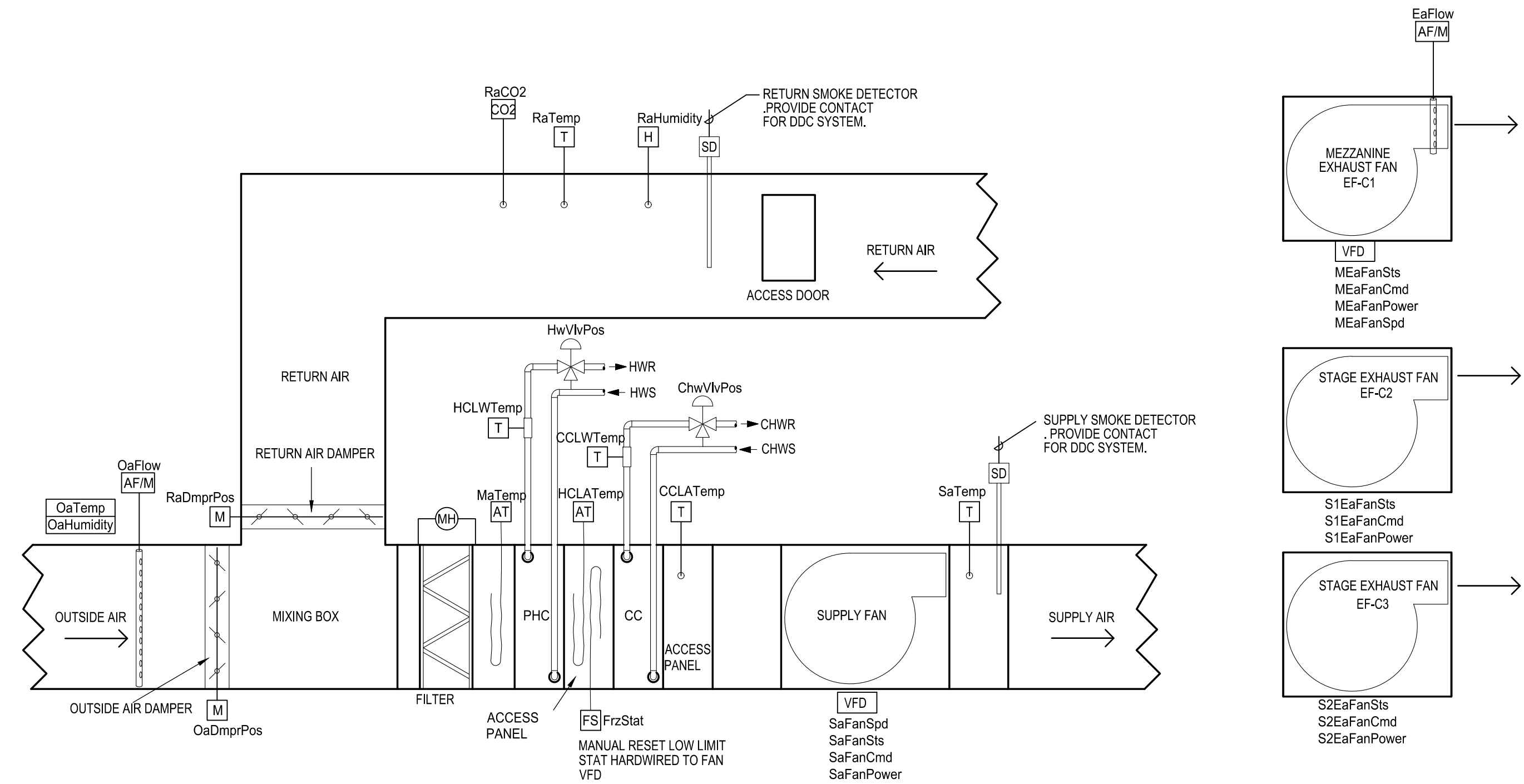
MECHANICAL - CONTROLS

PROJ. START DATE: 08/11/2023	SCALE	M603 DRAWING NUMBER
MCE PROJ. # 08914-0002	HORIZONTAL: AS NOTED	
DRAWN UG	VERTICAL: N/A	
DESIGNED UG	REVISION 0	
CHECKED MAB	STATUS: BID DOCUMENTS	
PROJ. MGR. MAB		

AIRFLOW BALANCE/MODES					
MODE	SUPPLY AIR CFM	OUTSIDE AIR CFM	RETURN AIR CFM	EXHAUST AIR CFM	NOTES
COOLING/ HEATING	20000	5000	15000	MEZZ. EF (EF-C1) - 5000	MEZZANINE LEVEL EXHAUST FAN IS ON. STAGE EXHAUST FANS ARE OFF. OUTSIDE AIR DAMPER IS OPEN FOR 5000 CFM.
ECONOMIZER	15000	15000	0	MEZZ. EF (EF-C1)- 5000 STAGE EF (EF-C2) - 5000 STAGE EF (EF-C3)-5000 TOTAL: 15000	STAGE AND MEZZANINE LEVEL EXHAUST FANS ARE ON. OUTSIDE AIR DAMPER IS OPEN TO 100% AND RETURN AIR DAMPER IS CLOSED. AHU SUPPLY FAN SHALL MODULATE DOWN TO 15,000 CFM.
VENT MODE	15000	15000	0	MEZZ. EF (EF-C1)-5000 STAGE EF (EF-C2) - 5000 STAGE EF (EF-C3) - 5000 TOTAL: 15000	STAGE AND MEZZANINE LEVEL EXHAUST FANS ARE ON. OUTSIDE AIR DAMPER IS OPEN TO 100% AND RETURN AIR DAMPER IS CLOSED. AHU SUPPLY FAN SHALL MODULATE DOWN TO 15000 CFM.

NOT TO SCALE

1 AIRFLOW BALANCE TABLE FOR AUDITORIUM



AFM	AIRFLOW MONITORING STATION	DP	DIFFERENTIAL PRESSURE	N.O.	NORMALLY OPEN
AT	AVERAGE TEMPERATURE	DX	DIRECT EXPANSION	PHC	PREHEAT COIL
CC	CHILLED WATER COIL	FS	FREEZE STAT	PR	PRIMARY
CT	CURRENT TRANSDUCER	H	HUMIDITY	RHC	REHEAT COIL
CWP	CONDENSER WATER PUMP	HC	HEATING COIL	SE	SECONDARY
CWR	CONDENSER WATER RETURN	HWR	HOT WATER RETURN	SD	DUCT SMOKE DETECTOR
CWS	CONDENSER WATER SUPPLY	HWS	HOT WATER SUPPLY	SP	STATIC PRESSURE
CHWP	CHILLED WATER PUMP	M	MOTOR / MOTORIZED	T	TEMPERATURE
CHWR	CHILLED WATER RETURN	ACT	ACTUATOR	VFD	VARIABLE FREQUENCY DRIVE
				VLV	VALVE

2 AHU CONTROL SCHEMATIC (FOR AUDITORIUM)

Equipment	Equipment Name	Equipment Tags
AUDITORIUM AHU (heating coil, cooling coil, supply fan)		dis, id, siteRef, equip, hvac, ahu hotWaterHeat, chilledWaterCool directZone, singleDuct, variableVolume
Points	AI AO DI DO VP	Point Name Point Tags Trending
Supply Fan Speed	x	SaFanSpd discharge, air, fan, speed, cmd Int, 10min
Supply Fan Status	x	SaFanSts discharge, air, fan, run, sensor COV, 24
Supply Fan Command	x	SaFanCmd discharge, air, fan, run, cmd COV, 24
Supply Fan Power	x	SaFanPower discharge, air, fan, power, sensor Int, 10min
Chilled Water Valve Position	x	ChWVvPos chilled, water, valve, cmd Int, 10min
Hot Water Valve Position	x	HwVvPos hot, water, valve, cmd Int, 10min
Cooling Coil Leaving Water Temperature	x	CCLWTemp chilled, water, temp, sensor Int, 10min
Heating Coil Leaving Water Temperature	x	HCLWTemp hot, water, temp, sensor Int, 10min
FreezeStat	x	FrzStat freezeStat COV, 24
Supply Air Temperature	x	SaTemp discharge, air, temp, sensor Int, 10min
Cooling Coil Leaving Air Temperature	x	CCLATemp air, temp, sensor Int, 10min
Heating Coil Leaving Air Temperature	x	HCLATemp air, temp, sensor Int, 10min
Return Air Temperature	x	RaTemp return, air, temp, sensor Int, 10min
Return Air Humidity	x	RaHumidity return, air, humidity, sensor Int, 10min
Return Air CO ₂	x	RaCO2 return, air, co2, sensor Int, 10min
Outside Air Flow	x	OaFlow outside, air, flow, sensor Int, 10min
Outside Air Temperature	x	OaTemp outside, air, temp, sensor Int, 10min
Outside Air Humidity	x	OaHumidity outside, air, humidity, sensor Int, 10min
Outside Air Flow	x	OaFlow outside, air, flow, sensor Int, 10min
Mixed Air Temperature	x	MaTemp mixed, air, temp, sensor Int, 10min
Return Air Damper Position	x	RaDmprPos return, air, damper, cmd Int, 10min
Outside Air Damper Position	x	OaDmprPos outside, air, damper, cmd Int, 10min
Relief Air Damper Position	x	RaDmprPos relief, air, damper, cmd Int, 10min
Exhaust Air Flow	x	EaFlow Exhaust air, flow, sensor Int, 10min
Supply Air Static Pressure	x	SaPress discharge, air, pressure, sensor Int, 10min

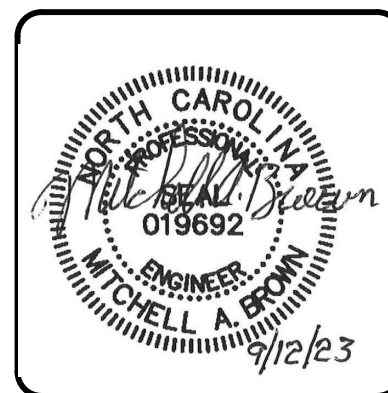
Equipment	Equipment Name	Equipment Tags
Exhaust Fan (fan and Damper)		fan, damper Constant volume/ Exhaust
Mezzanine Fan Speed	x	MeaFanSpd Mezzanine exhaust, air, fan, speed, cmd Int, 10min
Mezzanine Fan Status	x	MeaFanSts Mezzanine exhaust, air, fan, run, sensor COV, 24
Mezzanine Fan Command	x	MeaFanCmd Mezzanine exhaust, air, fan, run, cmd COV, 24
Mezzanine Fan Power	x	MeaFanPower Mezzanine exhaust, air, fan, power, sensor Int, 10min
Stage Fan 1 Status	x	Sea1FanSts Stage exhaust1, air, fan, run, sensor COV, 24
Stage Fan 1 Command	x	Sea1FanCmd Stage exhaust1, air, fan, run, cmd COV, 24
Stage Fan 1 Power	x	Sea1FanPower Stage exhaust1, air, fan, power, sensor Int, 10min
Stage Fan 2 Status	x	Sea2FanSts Stage exhaust2, air, fan, run, sensor COV, 24
Stage Fan 2 Command	x	Sea2FanCmd Stage exhaust2, air, fan, run, cmd COV, 24
Stage Fan 2 Power	x	Sea2FanPower Stage exhaust2, air, fan, power, sensor Int, 10min

3 AHU (AUDITORIUM) POINT LIST

- UNOCCUPIED MODE: OA DAMPERS TO REMAIN FULLY CLOSED. SUPPLY AIR FAN SHALL CYCLE ON WHEN THERE IS A CALL FOR HEATING. OTHERWISE THE FAN IS TO REMAIN OFF.
- WARMUP: OA DAMPERS REMAIN FULLY CLOSED. THE MORNING WARM UP PERIODS SHALL BE OPTIMIZED DEPENDING ON THE OUTDOOR AND INDOOR AIR CONDITIONS.
- COOLDOWN: OA DAMPERS REMAIN FULLY CLOSED EXCEPT WHEN ECONOMIZING. THE MORNING COOLDOWN PERIODS SHALL BE OPTIMIZED DEPENDING ON THE OUTDOOR AND INDOOR AIR CONDITIONS.
- COOLING/HEATING MODE: THERE ARE TO BE SEPARATE HEATING AND COOLING TEMPERATURE SET POINTS FOR THE SPACE. INITIAL SPACE TEMPERATURE SET POINTS ARE 70°F HEATING AND 75°F COOLING WITH A 2 DEGREE ADJUSTMENT ON THE DIAL. IF THE SPACE IS ABOVE COOLING SET POINT THE DISCHARGE AIR TEMPERATURE SET POINT IS TO BE 55°F. IF THE SPACE IS BELOW HEATING SET POINT THE DISCHARGE AIR TEMPERATURE IS TO BE 110°F. IF THE SPACE IS AT OR BETWEEN COOLING AND HEATING TEMPERATURE SET POINTS THE DISCHARGE AIR TEMPERATURE SET POINT IS TO BE DETERMINED BASED ON A PID LOOP WITH A MINIMUM OF 55°F AND A MAXIMUM OF 110°F. THE PID LOOP SHOULD BE WRITTEN SUCH THAT WHEN THE SPACE TEMPERATURE IS 0.5°F OR MORE BELOW THE COOLING SET POINT THE COOLING VALVE IS CLOSED. SIMILARLY, WHEN THE SPACE TEMPERATURE IS 0.5°F OR MORE ABOVE THE HEATING SET POINT THE HEATING VALVE SHOULD BE CLOSED.
- ECONOMIZING: WHEN THE OUTDOOR AIR ENTHALPY IS LOWER THAN 28 BTU/LB AND THE OUTDOOR AIR TEMPERATURE IS LOWER THAN (75 °F), SUPPLY FAN SPEED SHALL MODULATE DOWN TO 15,000 CFM. THE OUTSIDE AIR DAMPER IS OPEN TO 100%. RETURN AIR DAMPER IS CLOSED; EXISTING EXHAUST FANS LOCATED AT MEZZANINE LEVEL AND STAGE SHALL RUN AT MAXIMUM AIR FLOW. IF SUFFICIENT FREE COOLING IS NOT AVAILABLE, CHILLED WATER COIL SHALL BE USED TO SUPPLEMENT THE COOLING. OA TEMPERATURE AND HUMIDITY ARE TO BE FROM THE GLOBAL DDC SENSORS.
CHW OPTIMIZATION WHEN ECONOMIZING: WHEN ECONOMIZING CONTROL OF THE CHW VALVE SHALL BE INITIALLY OVERRIDDEN TO STAY CLOSED, ALLOWING THE FAN TO SPEED UP AS NECESSARY TO MEET THE LOAD. ONCE THE FAN REACHES 15,000 CFM THE CHW VALVE OVERRIDE WILL BE DISCONTINUED AND NORMAL CHW VALVE CONTROL WILL RESUME.
- DEMAND CONTROL VENTILATION: VENTILATION RATE SET POINT SHALL BE BASED ON RETURN AIR CO₂ SENSOR. VENTILATION SHALL BE REDUCED WHEN RETURN AIR CO₂ LEVELS ARE BELOW THE ESTABLISHED THRESHOLD (1000 PPM). A MINIMUM ALLOWABLE VENTILATION RATE SHALL BE ESTABLISHED BASED ON THE MINIMUM REQUIRED TO MEET LOW- OR NO-OCCUPANCY VENTILATION REQUIREMENTS OR MAKEUP AIR REQUIREMENTS, WHICHEVER IS GREATER. THE MAXIMUM ALLOWABLE VENTILATION RATE SHALL BE EQUAL TO THE SCHEDULED DESIGN VENTILATION RATE. IN THIS MODE OUTSIDE AIR FLOW SENSOR AND MEZZANINE LEVEL EXHAUST FAN AIR FLOW SENSOR TRACK TOGETHER AND MODULATE THE SPEED OF EXHAUST FAN TO MEET THE VENTILATION DEMAND.
- DELAYED VENTILATION: WHEN TRANSITIONING FROM WARMUP OR COOLDOWN MODE TO OCCUPIED MODE, VENTILATION RATE SET POINT SHALL INITIALLY BE (X)% OF THE MINIMUM ALLOWABLE VENTILATION RATE. AFTER (X) HOURS INCREASE VENTILATION RATE SET POINT TO THE MINIMUM ALLOWABLE VENTILATION RATE.
- FREEZE PROTECTION: IN NORMAL MODE OF OPERATION, LOW LIMIT CONTROLLER WITH SENSOR (FREEZE STAT) LOCATED DOWNSTREAM OF THE DUCT REHEAT COIL SHALL DE-ENERGIZE THE SUPPLY FAN AND CLOSE THE OUTDOOR AIR DAMPERS IF THE TEMPERATURE FALLS BELOW 40°F. IN ADDITION, THE HOT AND CHILLED WATER CONTROL VALVE ACTUATORS SHALL BE DE-ENERGIZED AND THE VALVES WILL SPRING RETURN TO THE OPEN POSITION. DE-ENERGIZING SHALL BE ACCOMPLISHED VIA DDC SYSTEM. IN VENT MODE, WHEN AMBIENT TEMPERATURE IS LOWER THAN 40°F, FREEZE STAT IS BYPASSED AND ENERGIZE THE SUPPLY FAN TO REMOVE TEAR OR MACE GAS FROM THE BUILDING.
- SMOKE SHUTDOWN/MANUAL VENTILATION MODE: ACTIVATION OF THE RETURN AIR OR OR AREA OR SUPPLY SMOKE DETECTOR SHALL DE-ENERGIZE THE SUPPLY FAN AND RETURN TO THE OPEN POSITION. THE SMOKE DETECTOR SHALL CONTACT THE DDC SYSTEM FOR INFORMATIONAL PURPOSES.
THE MANUAL SWITCH AT GUARD STATION SHALL BE USED TO RUN THE UNIT IN VENT MODE. IN THIS MODE, AHU SUPPLY FAN IS MODULATED TO 15,000 CFM. EXHAUST FANS LOCATED AT MEZZANINE LEVEL AND STAGE SHALL BE ENERGIZED. OUTSIDE AIR DAMPER IS OPEN TO 100% AND RETURN AIR DAMPER IS CLOSED. HOT WATER VALVE SHALL OPEN 100% IF OUTSIDE TEMPERATURE IS BELOW 45 DEGREES. IF OUTSIDE TEMPERATURE IS ABOVE 45 DEGREES CONTROL VALVE REMAINS CLOSED. THE CHILLED WATER COIL CONTROL VALVE ALSO REMAINS CLOSED IN THIS MODE.

4 AHU (AUDITORIUM) POINT LIST

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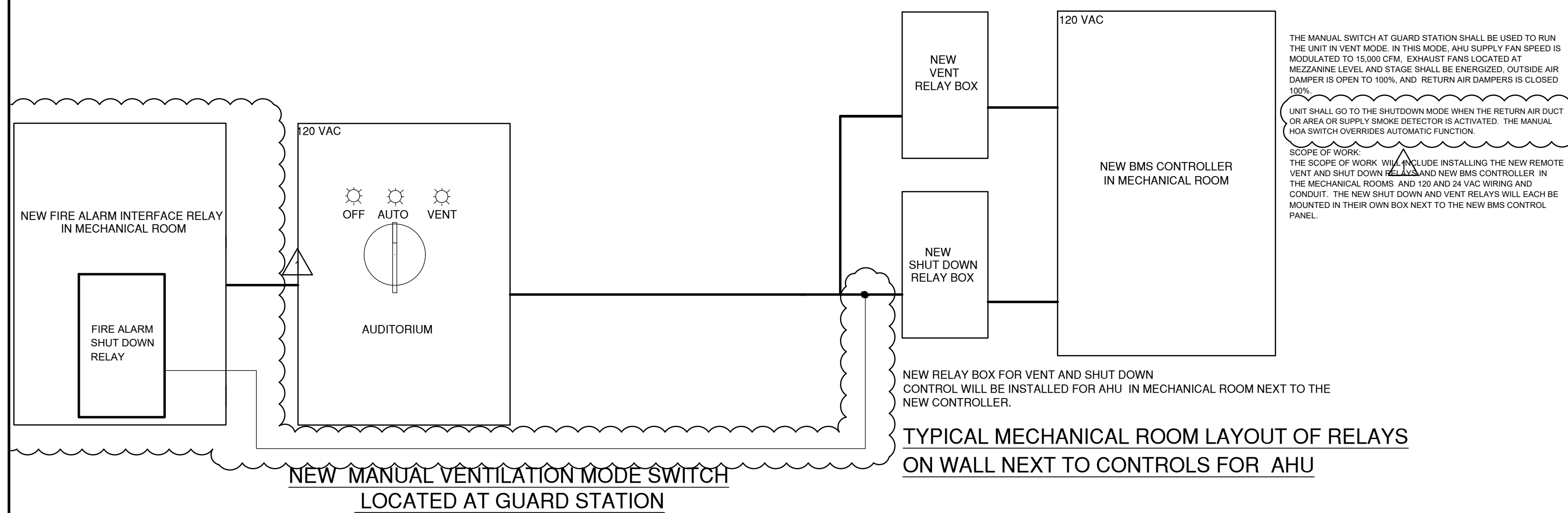
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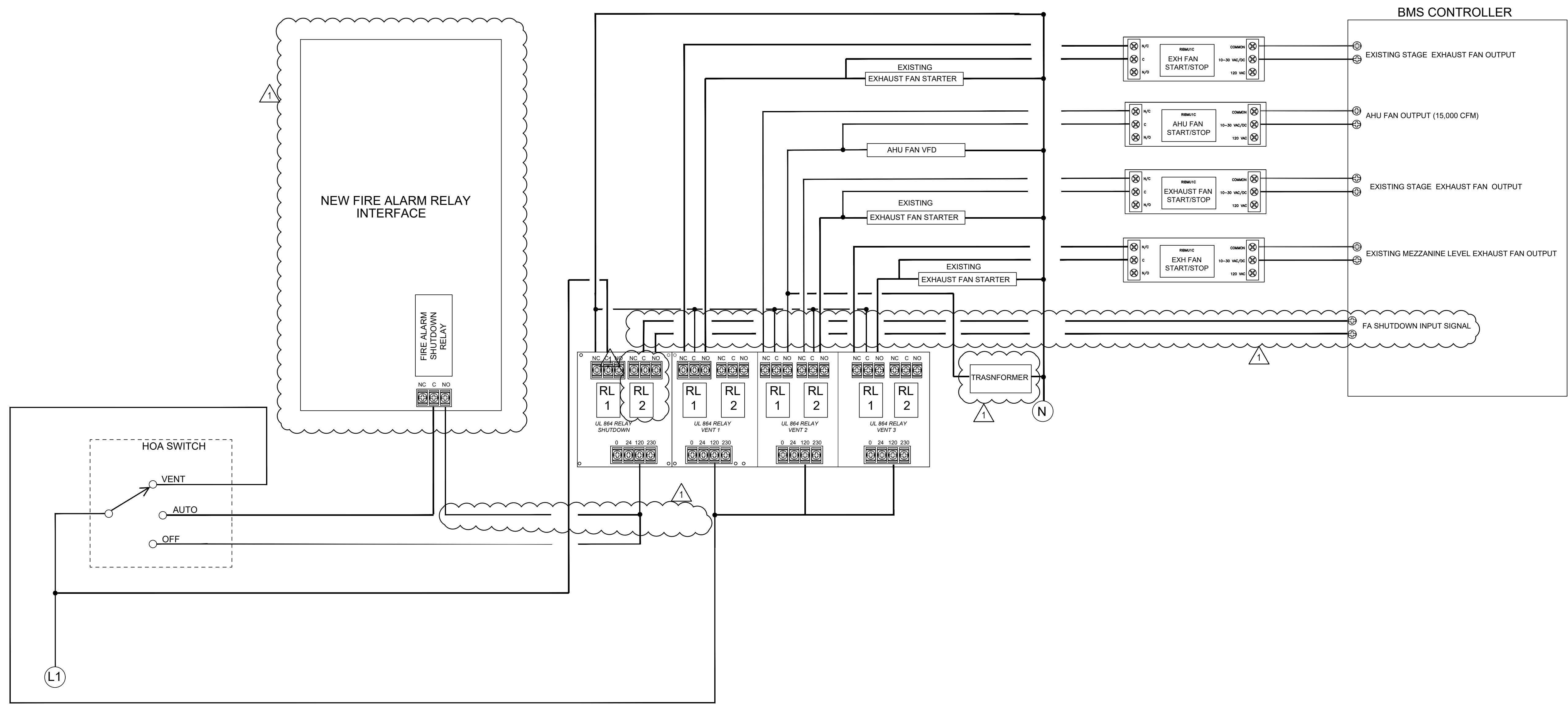
SCALE: HORIZONTAL: AS NOTED VERTICAL: N/A

M604
 DRAWING NUMBER
 0 REVISION

STATUS: BID DOCUMENTS

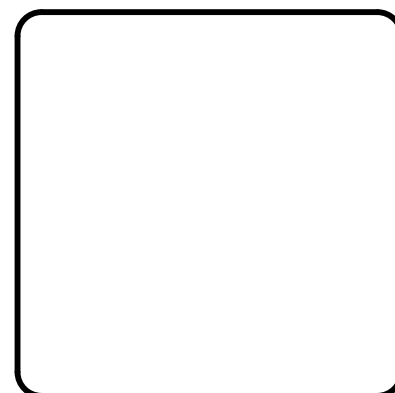


2 SCHEMATIC OF MANUAL SWITCHES AND RELAY MODULES (AUDITORIUM)



2 SIMPLIFIED VENT MODE MANUAL SWITCH INTERFACE MODEL (AUDITORIUM) NOT TO SCALE

REV. NO.	DESCRIPTION	DATE
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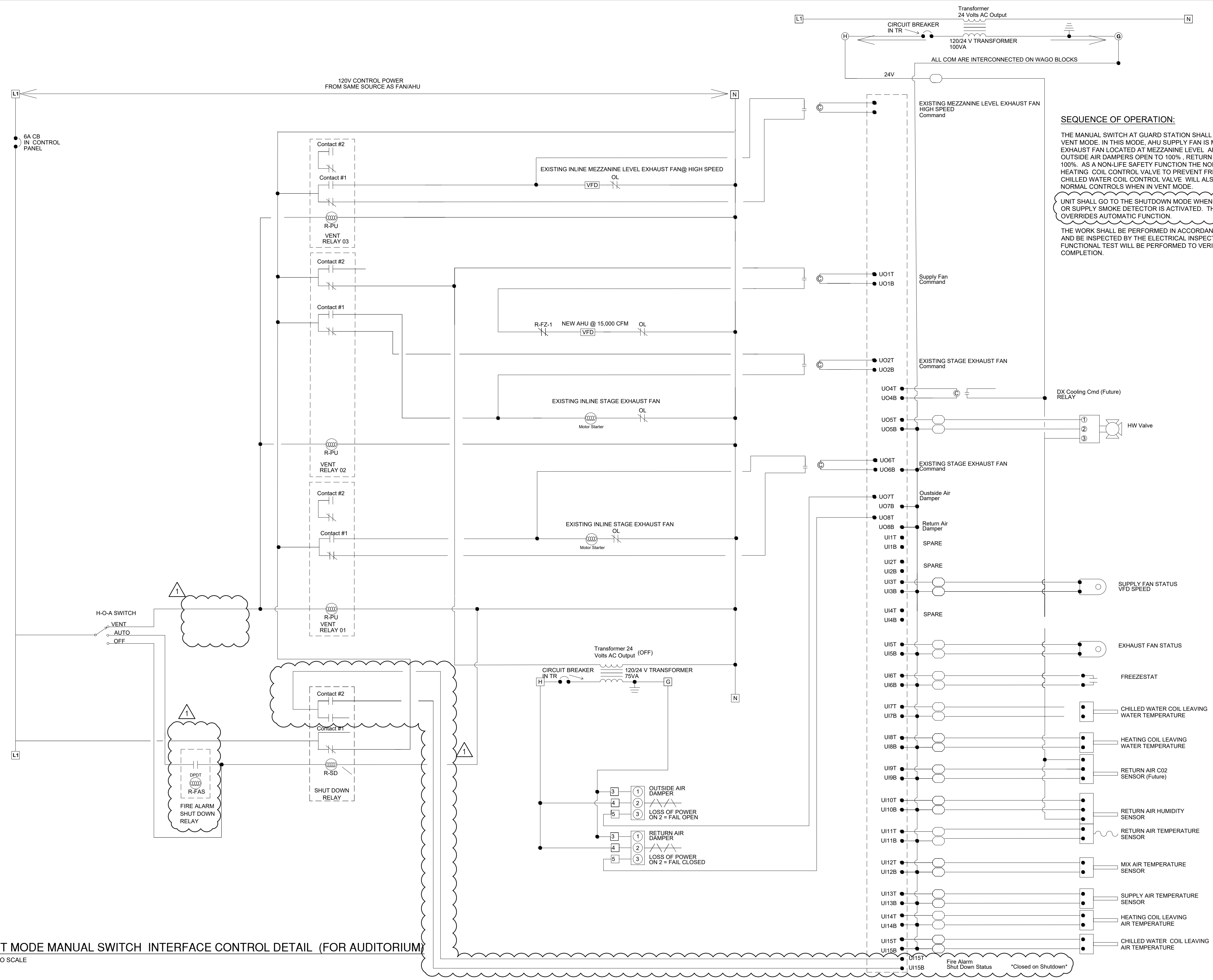
NC Department of Adult Correction

**NC Correctional Institution for Women
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 SCO ID: 22-24913-02A Code: 42107 Item: 4112

MECHANICAL - CONTROLS

PROJ. START DATE: 08/11/2023	SCALE: AS NOTED
MCE PROJ. # 08914-0002	HORIZONTAL: N/A
DRAWN: UG	VERTICAL: N/A
DESIGNED: UG	
CHECKED: MAB	
PROJ. MGR: MAB	

M605
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 REVISION
BID DOCUMENTS



SEQUENCE OF OPERATION:

THE MANUAL SWITCH AT GUARD STATION SHALL BE USED TO RUN THE UNIT IN VENT MODE. IN THIS MODE, AHU SUPPLY FAN IS MODULATED TO 15,000 CFM, EXHAUST FAN LOCATED AT MEZZANINE LEVEL AND STAGE SHALL BE ENERGIZED. OUTSIDE AIR DAMPERS OPEN TO 100%. RETURN AIR DAMPERS SHALL BE CLOSED 100%. AS A NON-LIFE SAFETY FUNCTION THE NORMAL CONTROLS WILL OPEN THE HEATING COIL CONTROL VALVE TO PREVENT FREEZING IN VENT MODE. THE CHILLED WATER COIL CONTROL VALVE WILL ALSO BE TURNED OFF BY THE NORMAL CONTROLS WHEN IN VENT MODE.

UNIT SHALL GO TO THE SHUTDOWN MODE WHEN THE RETURN AIR DUCT OR AREA OR SUPPLY SMOKE DETECTOR IS ACTIVATED. THE MANUAL HOA SWITCH OVERRIDES AUTOMATIC FUNCTION.

THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ELECTRICAL CODE AND BE INSPECTED BY THE ELECTRICAL INSPECTOR PRIOR TO ACCEPTANCE. A FUNCTIONAL TEST WILL BE PERFORMED TO VERIFY THE SEQUENCE AT COMPLETION.

1 VENT MODE MANUAL SWITCH INTERFACE CONTROL DETAIL (FOR AUDITORIUM)
NOT TO SCALE

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023
REVISIONS		



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NC Correctional Institution for Women
Air Conditioning Installation
 SCO ID: 22-24913-02A Code: 42107 Item: 4112

MECHANICAL - CONTROLS

PROJ. START DATE: 08/11/2023	SCALE: HORIZONTAL: AS NOTED	M607
MCE PROJ. #: 08914-0002	VERTICAL: N/A	
DRAWN: UG	REVISION: 0	BID DOCUMENTS
DESIGNED: MAB		
CHECKED: MAB		
PROJ. MGR.: MAB		

AIRFLOW BALANCE/MODES (FOR PACU-1)					
MODE	SUPPLY AIR CFM	OUTSIDE AIR CFM	RETURN AIR CFM	EXHAUST AIR CFM	NOTES
COOLING/HEATING	2400	980	1420	EF-S1-490 EF-S2-490	EXHAUST FANS ARE ON ALWAYS
ECONOMIZER	2400	2400	0	EF-S1-490 EF-S2-490 BAROMETRIC RELIEF DAMPER AT PACU-1: 1420 TOTAL: 2400	EXHAUST FANS ARE ON ALWAYS. OUTSIDE AIR DAMPER IS OPEN FOR 2400 CFM.
PURGE MODE	2400	2400	0	EF-S1-490 EF-S2-490 BAROMETRIC RELIEF DAMPER AT PACU-1: 1420 TOTAL: 2400	EXHAUST FANS ARE ON ALWAYS. OUTSIDE AIR DAMPER IS OPEN FOR 2400 CFM.

AIRFLOW BALANCE/MODES (FOR PACU-2)					
MODE	SUPPLY AIR CFM	OUTSIDE AIR CFM	RETURN AIR CFM	EXHAUST AIR CFM	NOTES
COOLING/HEATING	2400	980	1420	EF-S3-490 EF-S4-490	EXHAUST FANS ARE ON ALWAYS
ECONOMIZER	2400	2400	0	EF-S3-490 EF-S4-490 BAROMETRIC RELIEF DAMPER AT PACU-2: 1420 TOTAL: 2400	EXHAUST FANS ARE ON ALWAYS. OUTSIDE AIR DAMPER IS OPEN FOR 2400 CFM.
PURGE MODE	2400	2400	0	EF-S3-490 EF-S4-490 BAROMETRIC RELIEF DAMPER AT PACU-2: 1420 TOTAL: 2400	EXHAUST FANS ARE ON ALWAYS. OUTSIDE AIR DAMPER IS OPEN FOR 2400 CFM.

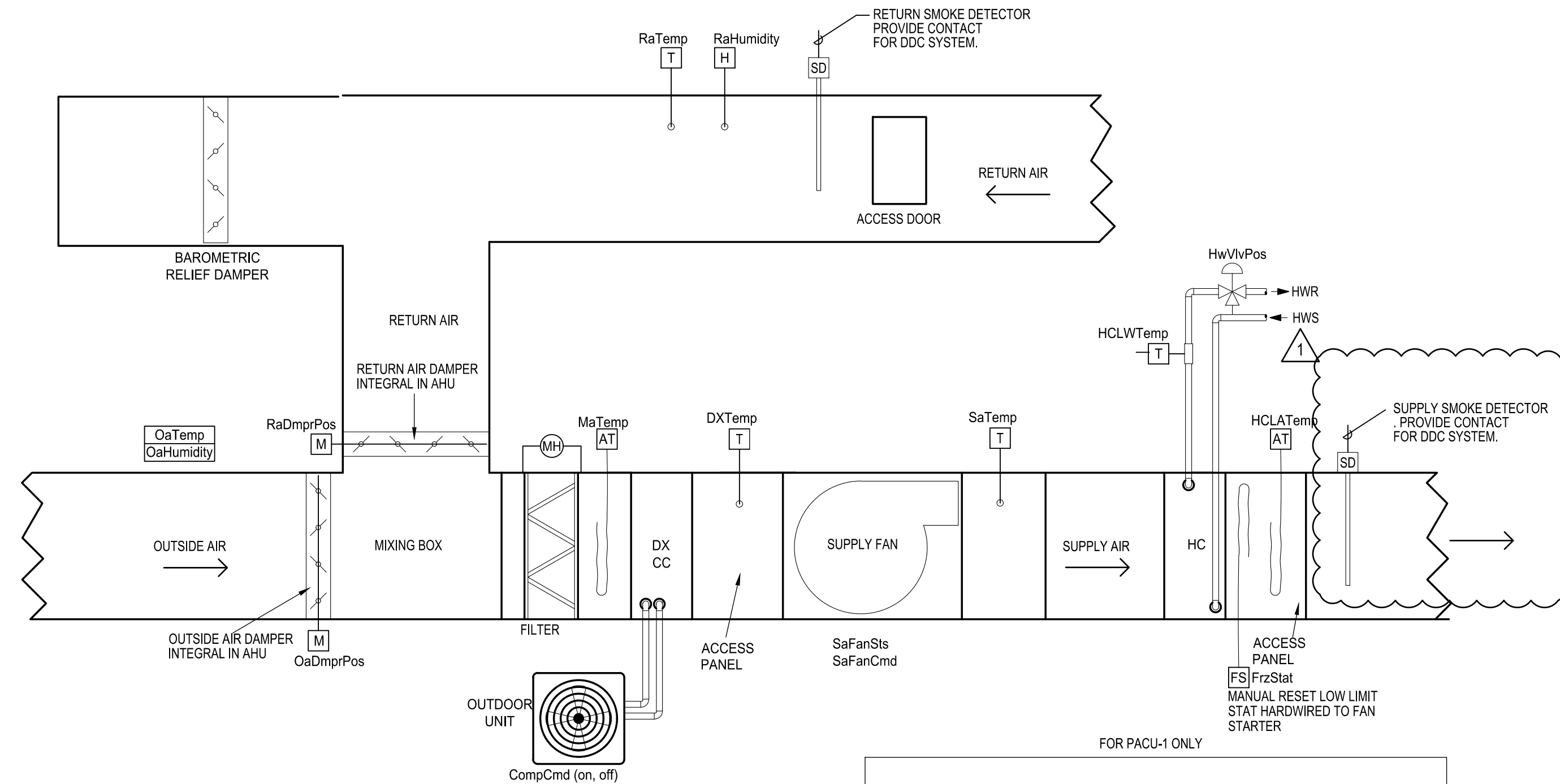
Equipment	Equipment Name	Equipment Tags		
PACKAGED AIR CONDITIONING UNIT (PACU) (DX coil, Supply fan)		dis, id, siteRef, equip, hvac, ahu , Dx Cool directZone, singleDuct, constantVolume		
Points	AI AO DI DO VP	Point Name	Point Tags	Trending
Supply Fan Status		SaFanSts	discharge, air, fan, run, sensor	COV, 24
Supply Fan Command		SaFanCmd	discharge, air, fan, run, cmd	COV, 24
Compressor		CompCmd	cmd	COV, 24
DX Leaving Air Temperature	x	DXTemp	air, temp, sensor	Int, 10min
Supply Air Temperature	x	SaTemp	discharge, air, temp, sensor	Int, 10min
Return Air Temperature	x	RaTemp	return, air, temp, sensor	Int, 10min
Return Air Humidity	x	RaHumidity	return, air, humidity, sensor	Int, 10min
Outside Air Temperature	x	OaTemp	outside, air, temp, sensor	Int, 10min
Outside Air Humidity	x	OaHumidity	outside, air, humidity, sensor	Int, 10min
Mixed Air Temperature	x	MaTemp	mixed, air, temp, sensor	Int, 10min
Return Air Damper Position	x	RaDmprPos	return, air, damper, cmd	Int, 10min
Outside Air Damper Position	x	OaDmprPos	outside, air, damper, cmd	Int, 10min
Zone Temperature	x	ZoneTemp	zone, air, temperature, sensor	Int, 10min
Zone Temperature Setpoint Adjust	x	ZoneTempAdjust	zone, air, temperature, cmd	Int, 10min
Zone Unoccupied Mode Override		ZoneOverride	zone, air, temperature, cmd	COV, 24

Equipment	Equipment Name	Equipment Tags
DUCTMOUNTED REHEAT COIL		
FreezeStat	FrzStat	freezeStat COV, 24
Hot Water Valve Position	HwVlvPos	hot, water, valve, cmd Int, 10min
Heating Coil Leaving Water Temperature	HCLWTemp	hot, water, temp, sensor Int, 10min
Heating Coil Leaving Air Temperature	HCLATemp	air, temp, sensor Int, 10min

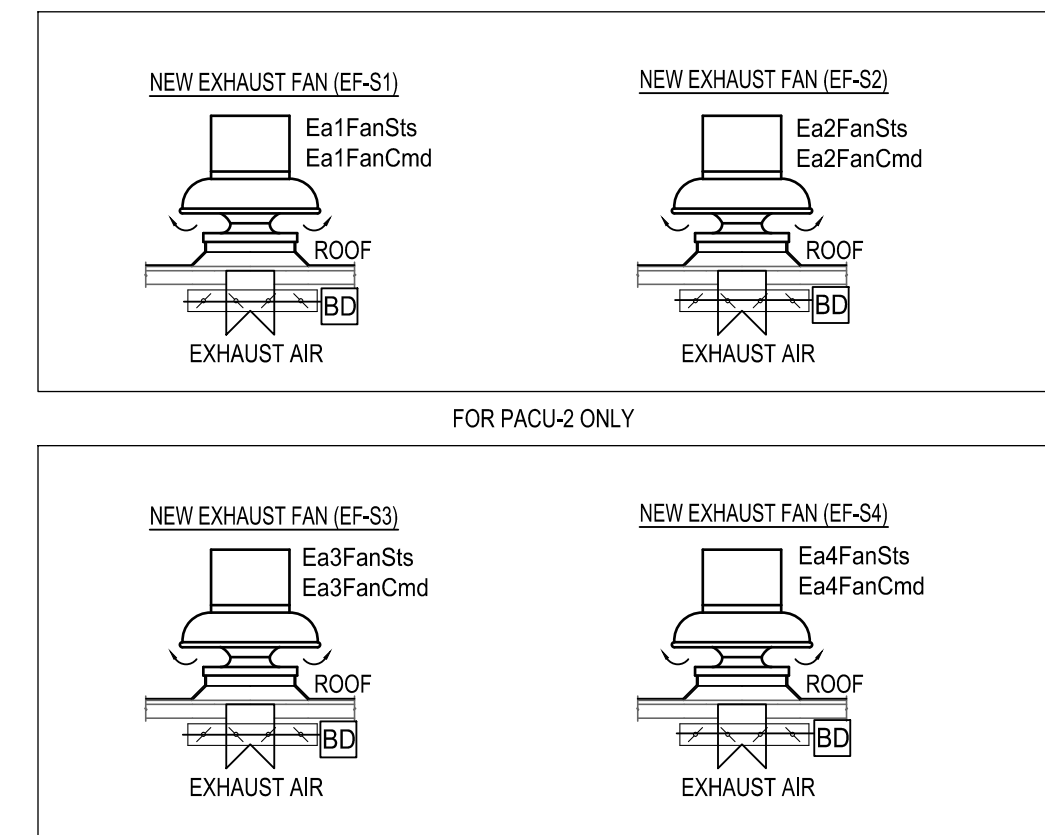
Equipment	Equipment Name	Equipment Tags
Exhaust fans (fan and Damper)		fan, damper Constant volume/ Exhaust
Exhaust Fan 1 Status	Ea1FanSts	Exhaust 1, air, fan, run, sensor COV, 24
Exhaust Fan 1 Command	Ea1FanCmd	Exhaust 1, air, fan, run, cmd COV, 24
Exhaust Fan 2 Status	Ea2FanSts	Exhaust 2, air, fan, run, sensor COV, 24
Exhaust Fan 2 Command	Ea2FanCmd	Exhaust 2, air, fan, run, cmd COV, 24

NOT TO SCALE

1 AIRFLOW BALANCE TABLE FOR SINGLE CELL B



ABBREVIATIONS		N.C.	NORMALLY CLOSED
AFM	AIRFLOW MONITORING STATION	DP	DIFFERENTIAL PRESSURE
AT	AVERAGE TEMPERATURE	DX	DIRECT EXPANSION
CC	CHILLED WATER COIL	FS	FREEZE STAT
CT	CURRENT TRANSDUCER	H	HUMIDITY
CWP	CONDENSER WATER PUMP	HC	HEATING COIL
CWR	CONDENSER WATER RETURN	HWR	HOT WATER RETURN
CWS	CONDENSER WATER SUPPLY	HWS	HOT WATER SUPPLY
CHWP	CHILLED WATER PUMP	M	MOTOR / MOTORIZED ACTUATOR
CHWR	CHILLED WATER RETURN	MH	MAGNETIC GAUGE
N.O.	NORMALLY OPEN		
HC	HEATING COIL		
PR	PRIMARY		
RHC	REHEAT COIL		
SE	SECONDARY		
SD	DUCT SMOKE DETECTOR		
SP	STATIC PRESSURE		
T	TEMPERATURE		
VFD	VARIABLE FREQUENCY DRIVE		
VLV	VALVE		
PACU	PACKAGED AIR CONDITIONING UNIT		
BD	BACKDRAFT DAMPER		



3 PACU (SINGLE CELL B, TYPICAL FOR PACU-1 AND PACU-2) POINT LIST

UNOCCUPIED MODE: WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 55.0 DEG. F (ADJ.), THE SUPPLY FAN SHALL RUN, THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED AND THE DUCT REHEAT CONTROL VALVE SHALL OPEN. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 55.0 DEG. F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 2.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE DUCT REHEAT CONTROL VALVE SHALL CLOSE.

WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.), THE SUPPLY FAN SHALL START. THE OUTSIDE AIR DAMPER SHALL OPEN IF ECONOMIZING IS ENABLED AND REMAIN CLOSED IF ECONOMIZING IS DISABLED AND THE DX COOLING SHALL BE ENABLED. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 85.0 DEG. F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL STOP, THE DX COOLING SHALL BE DISABLED AND THE OUTSIDE AIR DAMPER SHALL CLOSE.

OPTIMAL START WARMUP/COOL DOWN: NEAR THE END OF THE UNOCCUPIED PERIOD AND PRIOR TO THE BEGINNING OF THE OCCUPIED PERIOD THE SYSTEM SHALL ENTER OPTIMAL START WARMUP/COOL DOWN MODE TO BRING THE SPACE TEMPERATURE TO THE OCCUPIED PERIOD SET POINT. THE TIME AT WHICH THE OPTIMAL START WARMUP/COOL DOWN PERIOD BEGINS SHALL BE AS CLOSE TO THE BEGINNING OF THE OCCUPIED PERIOD AS POSSIBLE WHILE STILL ENSURING THE OCCUPIED PERIOD SET POINTS ARE REACHED. THIS START TIME SHALL BE OPTIMIZED BASED ON THE OUTDOOR AND INDOOR AIR CONDITIONS. OA DAMPERS REMAIN FULLY CLOSED UNLESS ECONOMIZING

COOLING/HEATING MODE: UNITARY CONTROLLER SHALL MODULATE THE STAGES OF COOLING CAPACITY IN ORDER TO MAINTAIN THE RETURN AIR TEMPERATURE AT COOLING SET POINT 75°F (ADJ.). AS THE RETURN AIR TEMPERATURE FALLS BELOW THE COOLING SET POINT, COOLING SHALL BE DISABLED. UPON A CONTINUED FALL IN RETURN AIR TEMPERATURE TO HEATING SET POINT 70°F (ADJ.), THE DUCT REHEAT COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN RETURN AIR TEMPERATURE AT HEATING SET POINT. MAXIMUM REHEAT COIL LEAVING AIR TEMPERATURE SHALL BE 110°F (ADJ.). WHEN THE RETURN AIR TEMPERATURE IS 0.5°F OR MORE ABOVE THE HEATING SET POINT THE DUCT REHEAT CONTROL VALVE SHALL BE CLOSED.

ECONOMIZING: WHEN THE OUTDOOR AIR ENTHALPY IS LOWER THAN 28 BTU/LB AND THE OUTDOOR AIR TEMPERATURE IS LOWER THAN (75 °F), THE OUTSIDE AIR DAMPER IS OPEN TO 100% AND RETURN AIR DAMPER IS CLOSED. NEW EXHAUST FAN LOCATED IN CORRIDOR SHALL RUN AND ASSOCIATED DAMPER IS OPEN. IF SUFFICIENT FREE COOLING IS NOT AVAILABLE, DX COIL SHALL BE USED TO SUPPLEMENT THE COOLING. OA TEMPERATURE AND HUMIDITY ARE TO BE FROM THE GLOBAL DDC SENSORS.

DEMAND LIMITING: TO LOWER POWER CONSUMPTION, THE RETURN AIR TEMPERATURE/HUMIDITY SET POINTS SHALL AUTOMATICALLY RELAX WHEN THE FACILITY POWER CONSUMPTION EXCEEDS DEFINABLE THRESHOLDS. THE AMOUNT OF RELAXATION SHALL BE INDIVIDUALLY CONFIGURABLE FOR EACH PACU UNIT. THE RETURN AIR TEMPERATURE/HUMIDITY SET POINTS SHALL AUTOMATICALLY RETURN TO THEIR PREVIOUS SETTINGS WHEN THE FACILITY POWER CONSUMPTION DROPS BELOW THE THRESHOLDS.

DELAYED VENTILATION: WHEN TRANSITIONING FROM WARMUP OR COOLDOWN MODE TO OCCUPIED MODE, VENTILATION RATE SET POINT SHALL INITIALLY BE (50% OF THE MINIMUM ALLOWABLE VENTILATION RATE. AFTER (1) HOURS INCREASE VENTILATION RATE SET POINT TO THE MINIMUM ALLOWABLE VENTILATION RATE.

FREEZE PROTECTION: IN NORMAL MODE OF OPERATION, LOW LIMIT CONTROLLER WITH SENSOR (FREEZE STAT) LOCATED DOWNSTREAM OF THE DUCT REHEAT COIL SHALL DE-ENERGIZE THE SUPPLY FAN AND CLOSE THE OUTDOOR AIR DAMPERS IF THE TEMPERATURE FALLS BELOW 40°F. IN ADDITION, THE DUCT REHEAT HOT WATER CONTROL VALVE ACTUATOR AND COMPRESSORS SHALL BE DE-ENERGIZED AND THE VALVES WILL SPRING RETURN TO THE OPEN POSITION. DE-ENERGIZING SHALL BE ACCOMPLISHED VIA DDC SYSTEM. IN VENT MODE, WHEN AMBIENT TEMPERATURE IS LOWER THAN 40°F, FREEZE STAT IS BYPASSED AND ENERGIZE THE SUPPLY FAN TO REMOVE TEAR OR MACE GAS FROM THE BUILDING.

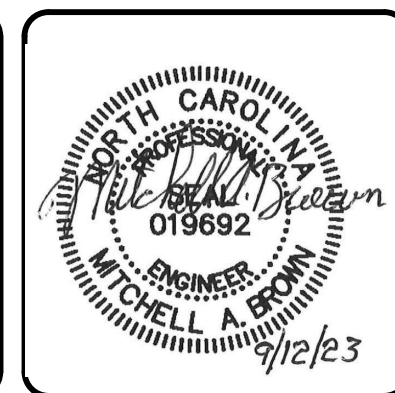
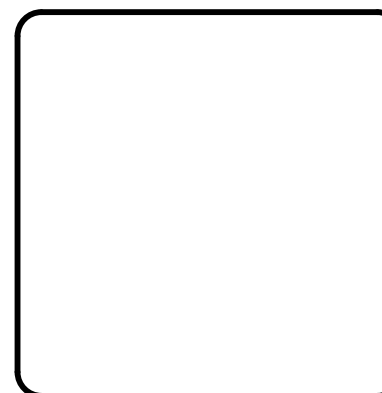
SMOKE SHUTDOWN/PURGE MODE: SMOKE DETECTORS AS INDICATED ON THE DRAWINGS SHALL SEND A DIRECT SIGNAL TO THE NEW FIRE ALARM RELAY INTERFACE. ACTIVATION OF THE FIRE ALARM BY RETURN AND AREA SMOKE DETECTOR SHALL INITIATE A SMOKE PURGE SEQUENCE THROUGH A NEW PURGE RELAY BOX. ACTIVATION OF THE FIRE ALARM BY SUPPLY SMOKE DETECTOR SHALL INITIATE A SHUT DOWN SEQUENCE THROUGH A NEW SHUTDOWN RELAY BOX AND DE-ENERGIZE THE SUPPLY FAN. BOTH SHUTDOWN AND PURGE RELAYS ARE PART OF THE AHU CONTROL SYSTEM BUT NOT PART OF THE BUILDING DDC SYSTEM. AN AUXILIARY CONTACT ON THE SMOKE DETECTORS SHALL ALARM THE DDC SYSTEM FOR INFORMATIONAL PURPOSES ONLY. IN PURGE MODE, UPON A SIGNAL FROM THE FIRE ALARM SYSTEM A SET OF LISTED RELAYS WILL CUT POWER TO THE DAMPERS CAUSING ALL DAMPERS TO GO TO THE FAIL POSITION, CUT POWER TO HOT WATER REHEAT COIL VALVES SO THEY FAIL OPEN IN CASE NEEDED FOR FREEZE PROTECTION, AND RESPECTIVE PACU UNIT AND ASSOCIATED EXHAUST FANS SHALL CONTINUE TO OPERATE.

OA TEMPERATURE LOCKOUT:
COOLING IS TO BE LOCKED OUT WHEN THE OA TEMPERATURE IS LOWER THAN (60°F). HEATING IS TO BE LOCKED OUT WHEN THE OA TEMPERATURE IS HIGHER THAN (70°F).

2 PACU CONTROL SCHEMATIC (FOR SINGLE CELL B, TYPICAL FOR PACU-1 AND PACU-2)

4 PACU (SINGLE CELL B, TYPICAL PACU-1 AND PACU-2) SEQUENCE OF OPERATION

REVNO	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023

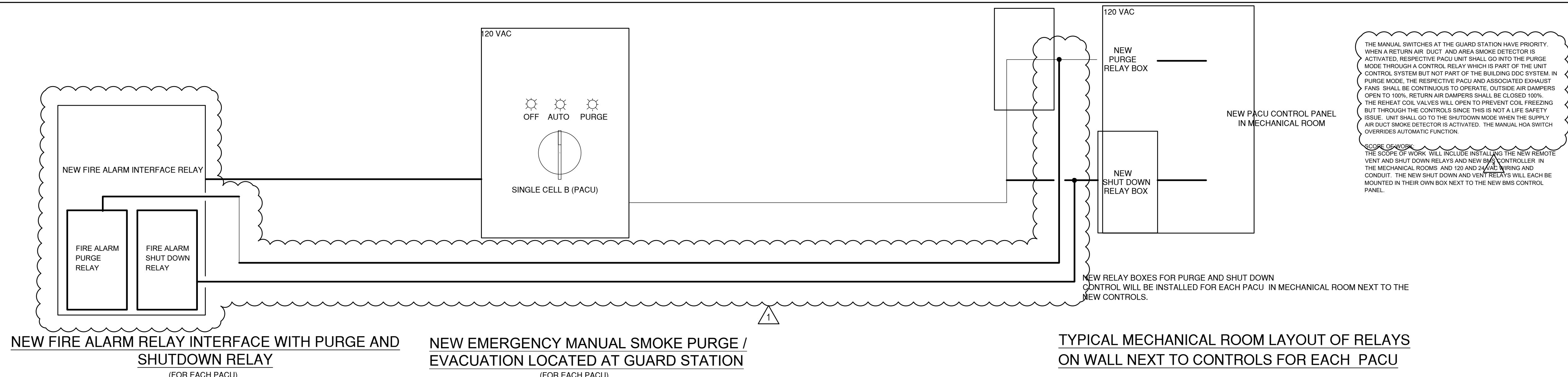


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NC Department of Adult Correction

NC Correctional Institution for Women
Air Conditioning Installation
 SCO ID: 22-24913-02A Code: 42107 Item: 4112
 MECHANICAL - CONTROLS

PROJ. START DATE: 08/11/2023
 MCE PROJ. #: 08914-0002
 DRAWN: UG
 DESIGNED: UG
 CHECKED: MAB
 PROJ. MGR.: MAB
 SCALE: HORIZONTAL: AS NOTED
 VERTICAL: N/A
M608
 DRAWING NUMBER
 0
 REVISION
 STATUS: BID DOCUMENTS

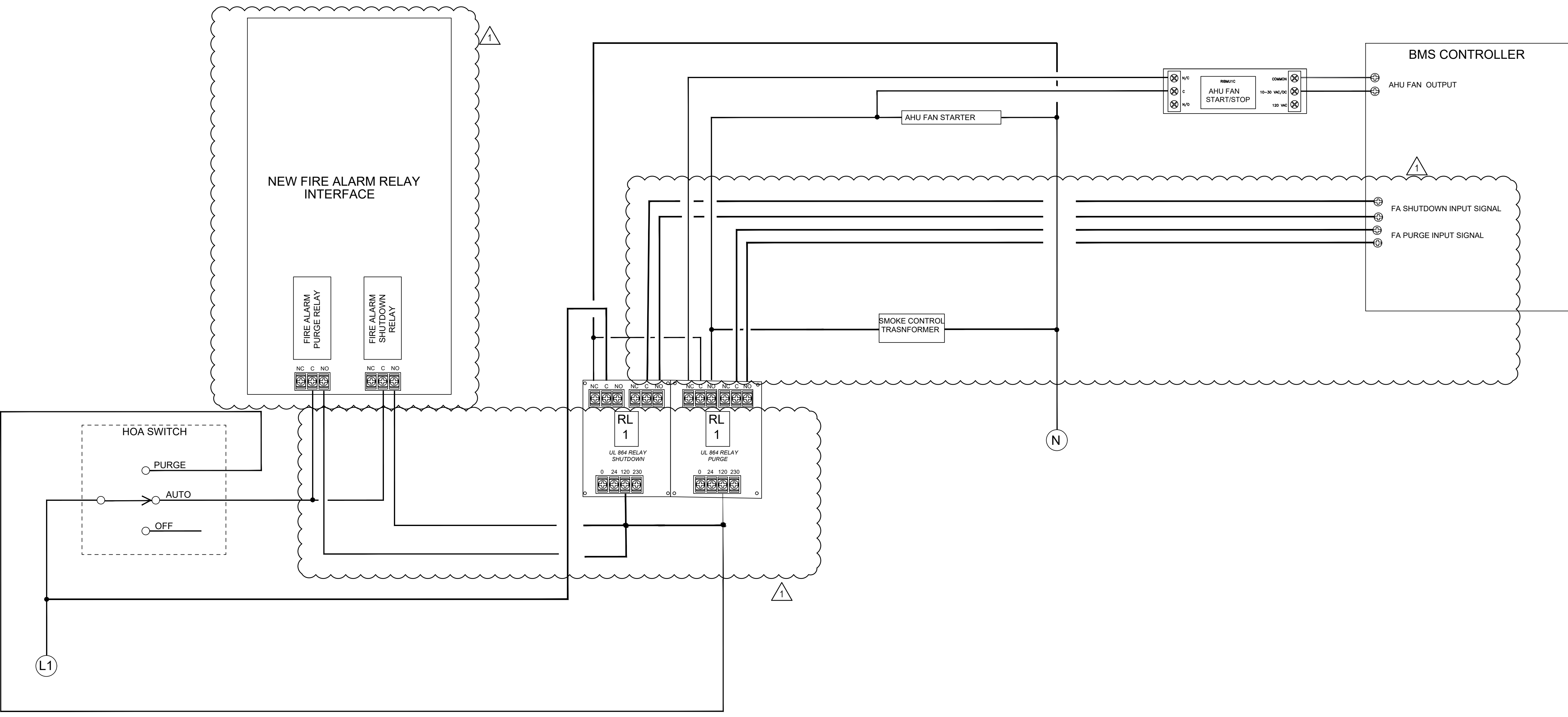


NEW FIRE ALARM RELAY INTERFACE WITH PURGE AND SHUTDOWN RELAY (FOR EACH PACU)

NEW EMERGENCY MANUAL SMOKE PURGE / EVACUATION LOCATED AT GUARD STATION (FOR EACH PACU)

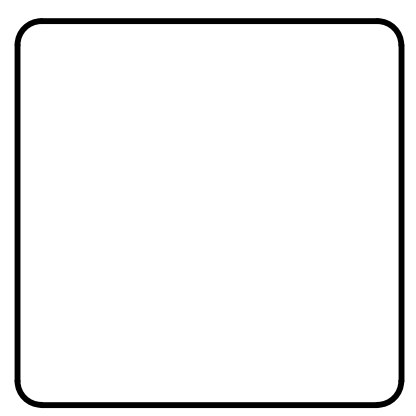
TYPICAL MECHANICAL ROOM LAYOUT OF RELAYS ON WALL NEXT TO CONTROLS FOR EACH PACU

1 SCHEMATIC OF MANUAL SWITCHES AND RELAY MODULES (SINGLE CELL B)



2 SIMPLIFIED PURGE MODE MANUAL SWITCH INTERFACE MODEL (SINGLE CELL B, TYPICAL FOR EACH PACU NOT TO SCALE

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023

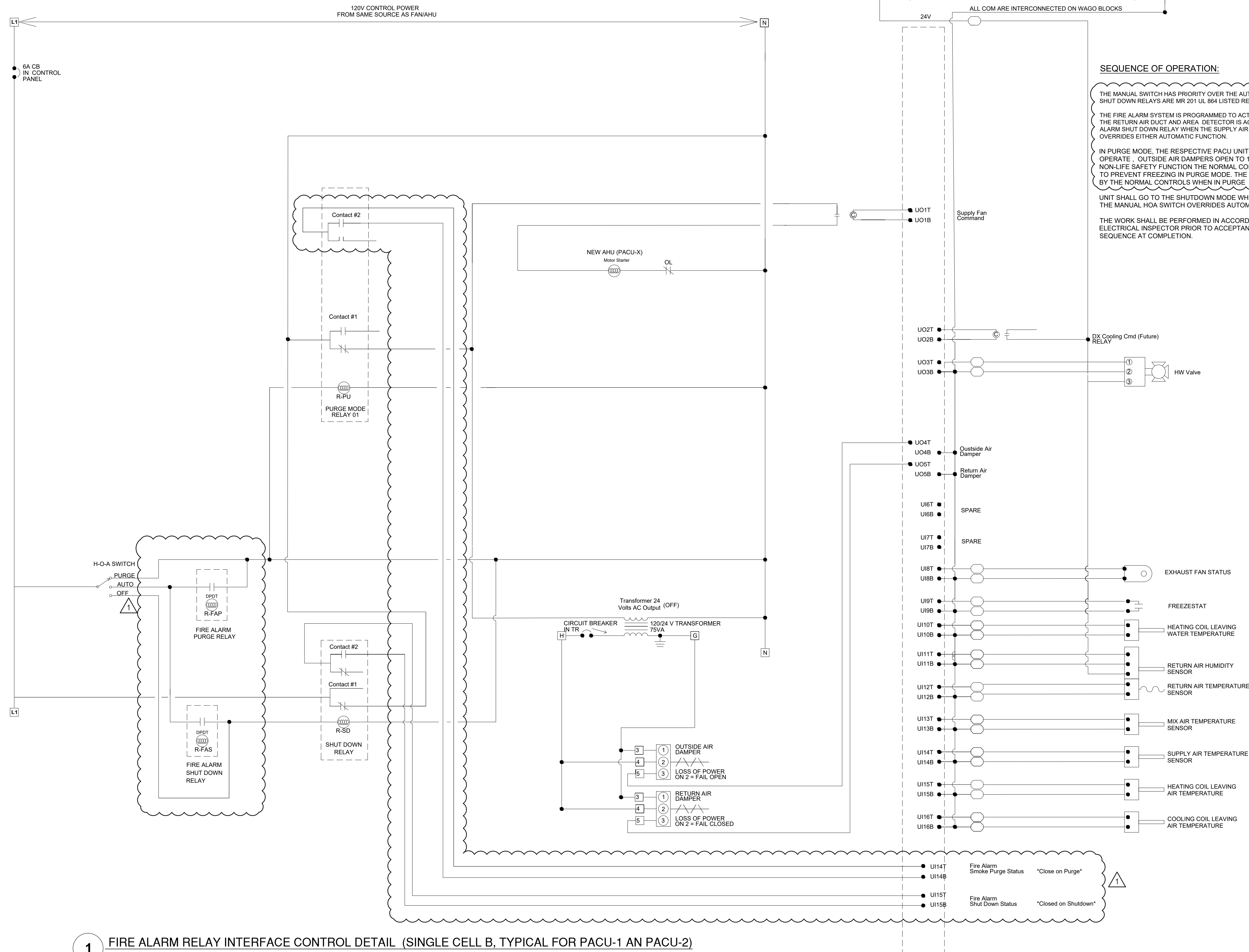


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NC Department of Adult Correction

**NC Correctional Institution for Women
 Air Conditioning Installation**
 SCO ID: 22-24913-02A Code: 42107 Item: 4112
 MECHANICAL - CONTROLS

PROJ. START DATE: 08/11/2023	SCALE: AS NOTED	M609 DRAWING NUMBER
MCE PROJ. #: 08914-0002	HORIZONTAL: AS NOTED	
DRAWN: UG	VERTICAL: N/A	0 REVISION
DESIGNED: UG	STATUS: BID DOCUMENTS	
CHECKED: MAB		
PROJ. MGR: MAB		



SEQUENCE OF OPERATION:

THE MANUAL SWITCH HAS PRIORITY OVER THE AUTOMATIC FIRE ALARM RELAY INTERFACE RESPONSE. THE PURGE AND SHUT DOWN RELAYS ARE MR 201 UL 864 LISTED RELAYS BY AIR PRODUCTS INC.

THE FIRE ALARM SYSTEM IS PROGRAMMED TO ACTIVATE THE SMOKE PURGE BY THE FIRE ALARM PURGE RELAY WHEN THE RETURN AIR DUCT AND AREA DETECTOR IS ACTIVATED. IT ALSO ACTIVATES THE SHUT DOWN BY THE NEW FIRE ALARM SHUT DOWN RELAY WHEN THE SUPPLY AIR DUCT DETECTOR IS ACTIVATED. THE MANUAL HOA SWITCH OVERRIDES EITHER AUTOMATIC FUNCTION.

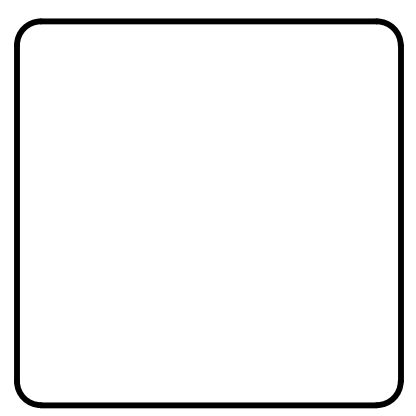
IN PURGE MODE, THE RESPECTIVE PACU UNIT AND ASSOCIATED NEW EXHAUST FANS SHALL CONTINUE TO OPERATE. OUTSIDE AIR DAMPERS OPEN TO 100%. RETURN AIR DAMPERS SHALL BE CLOSED 100%. AS A NON-LIFE SAFETY FUNCTION THE NORMAL CONTROLS WILL OPEN THE DUCT REHEAT COIL CONTROL VALVE TO PREVENT FREEZING IN PURGE MODE. THE AIR CONDITIONING COMPRESSOR WILL ALSO BE TURNED OFF BY THE NORMAL CONTROLS WHEN IN PURGE MODE.

UNIT SHALL GO TO THE SHUTDOWN MODE WHEN THE RETURN AIR DUCT SMOKE DETECTOR IS ACTIVATED. THE MANUAL HOA SWITCH OVERRIDES AUTOMATIC FUNCTION.

THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ELECTRICAL CODE AND BE INSPECTED BY THE ELECTRICAL INSPECTOR PRIOR TO ACCEPTANCE. A FUNCTIONAL TEST WILL BE PERFORMED TO VERIFY THE SEQUENCE AT COMPLETION.

1 FIRE ALARM RELAY INTERFACE CONTROL DETAIL (SINGLE CELL B, TYPICAL FOR PACU-1 AN PACU-2)
NOT TO SCALE

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023



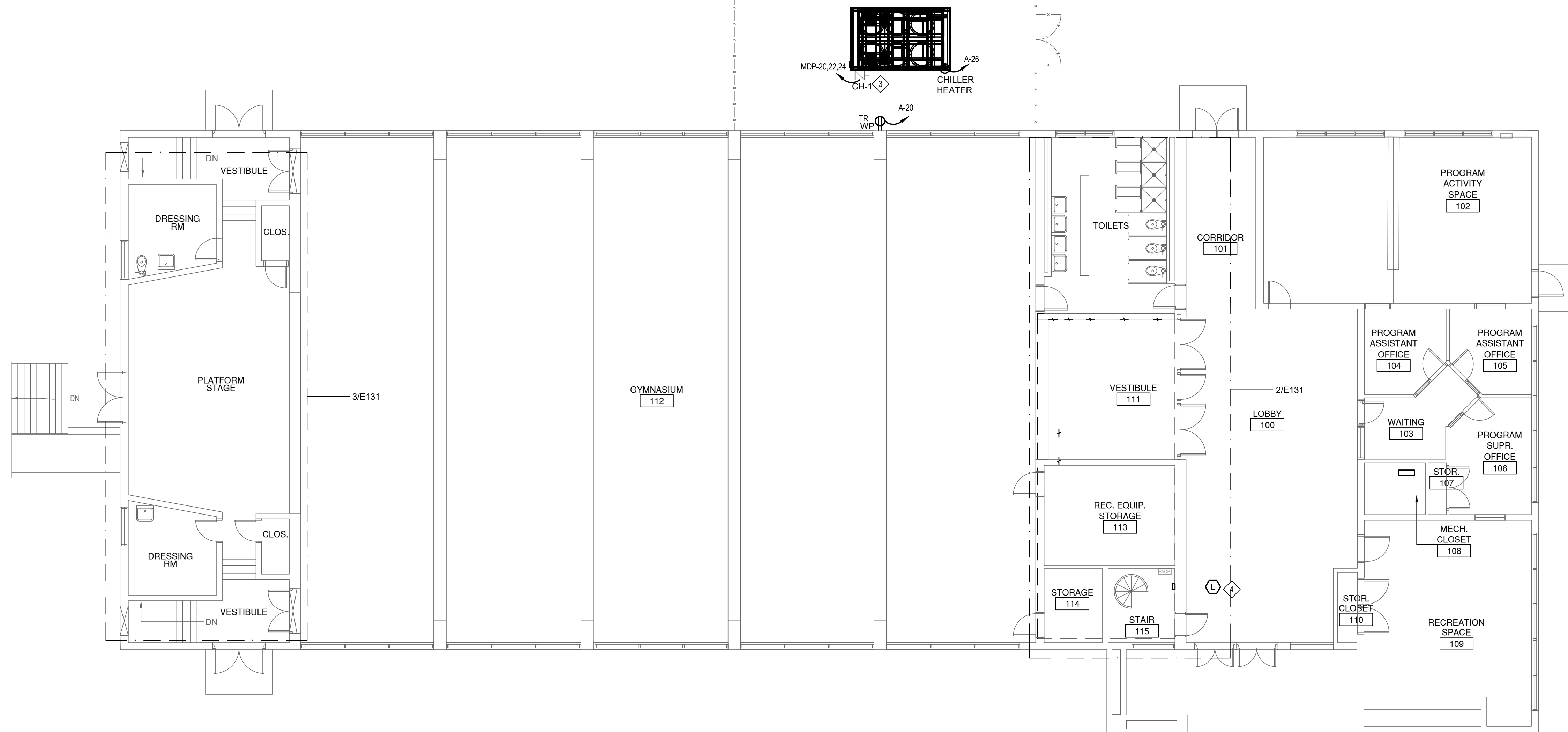
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**NC Correctional Institution for Women
 Air Conditioning Installation**
 SCO ID: 22-24913-02A Code: 42107 Item: 4112

MECHANICAL - CONTROLS

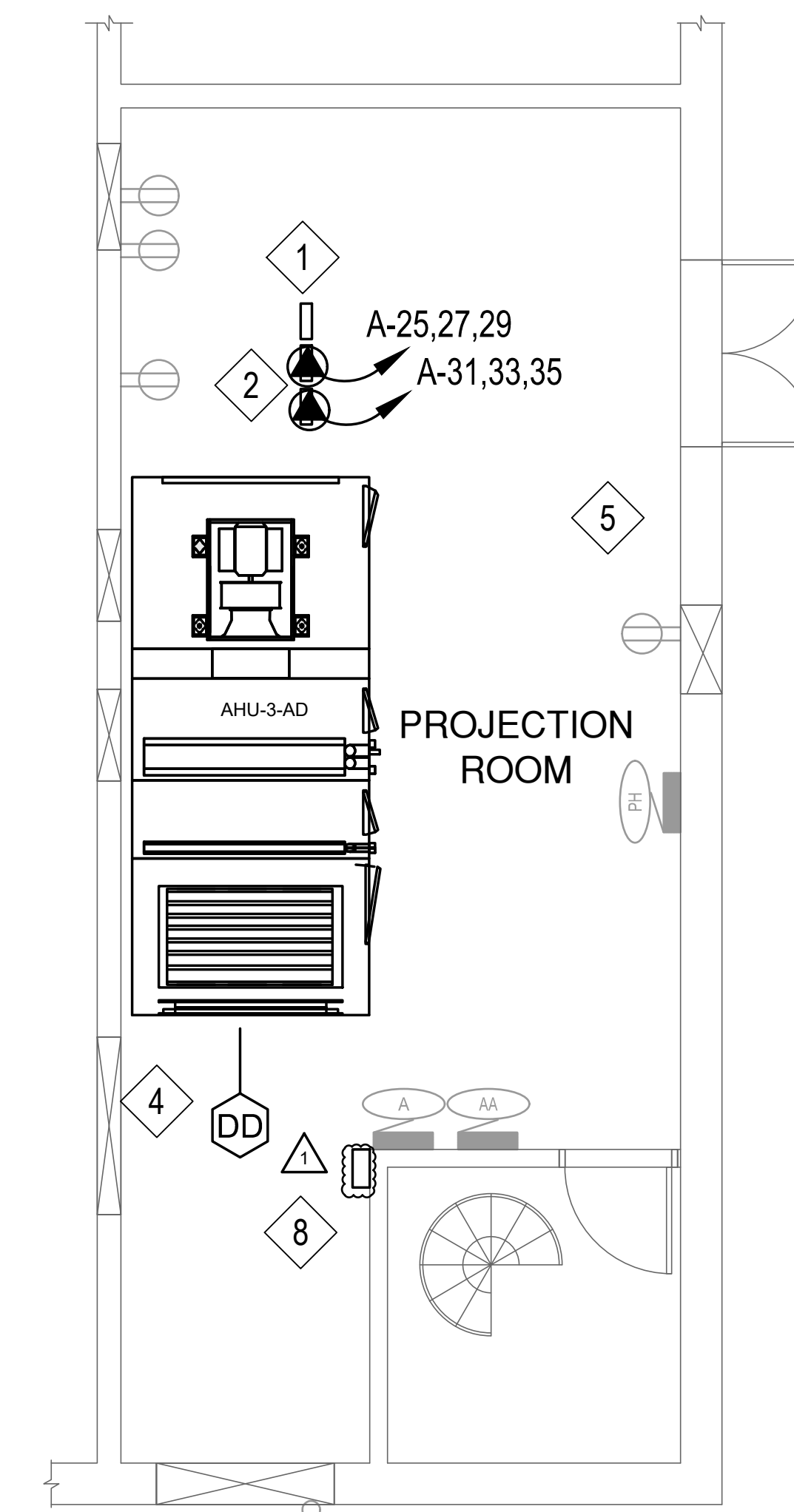
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CHECKED: MAB	STATUS: BID DOCUMENTS	
PROJ. MGR.: MAB		



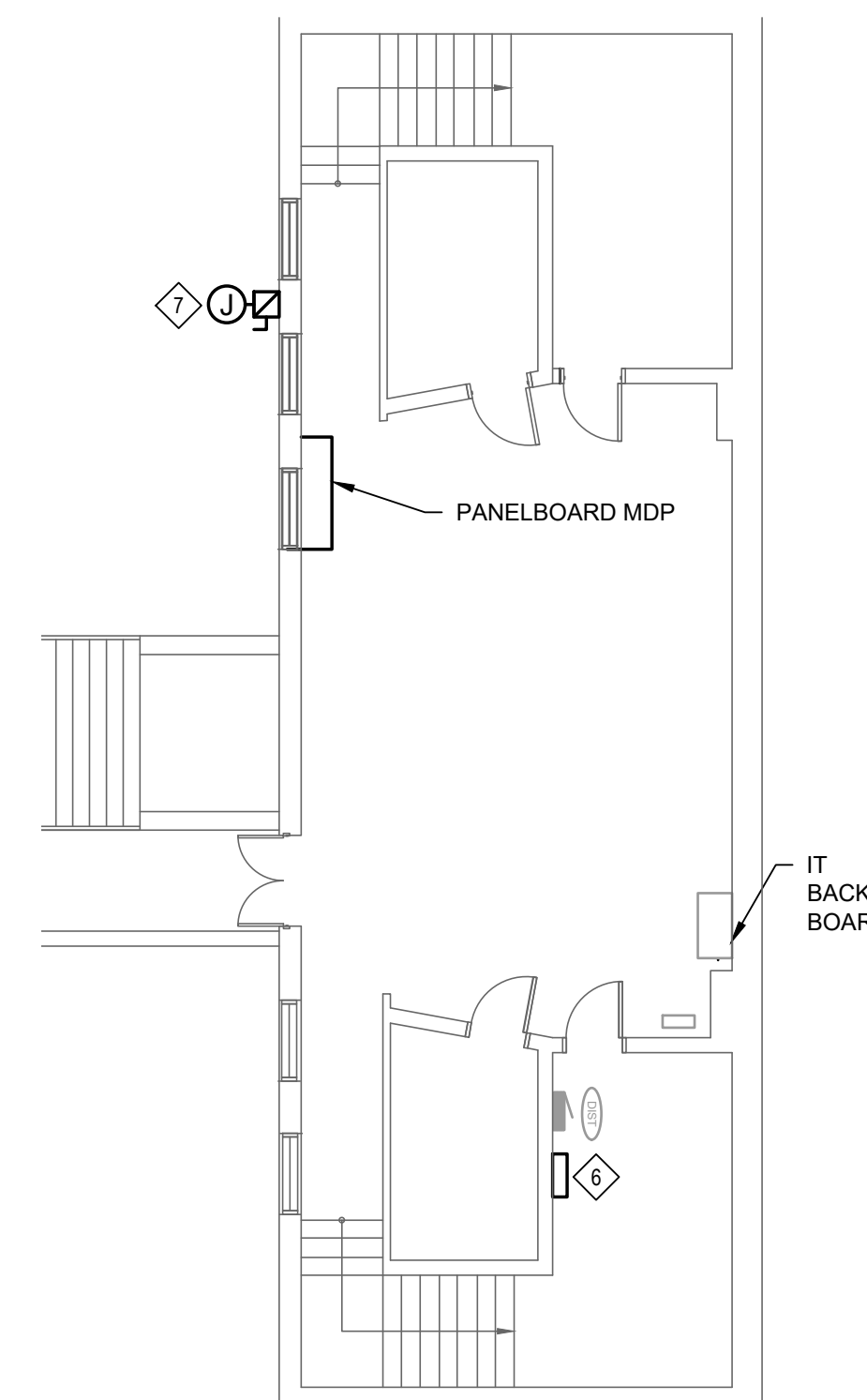
1 AUDITORIUM ELECTRICAL NEW WORK
E131 Scale: 1/8" = 1'-0"

KEY NOTES

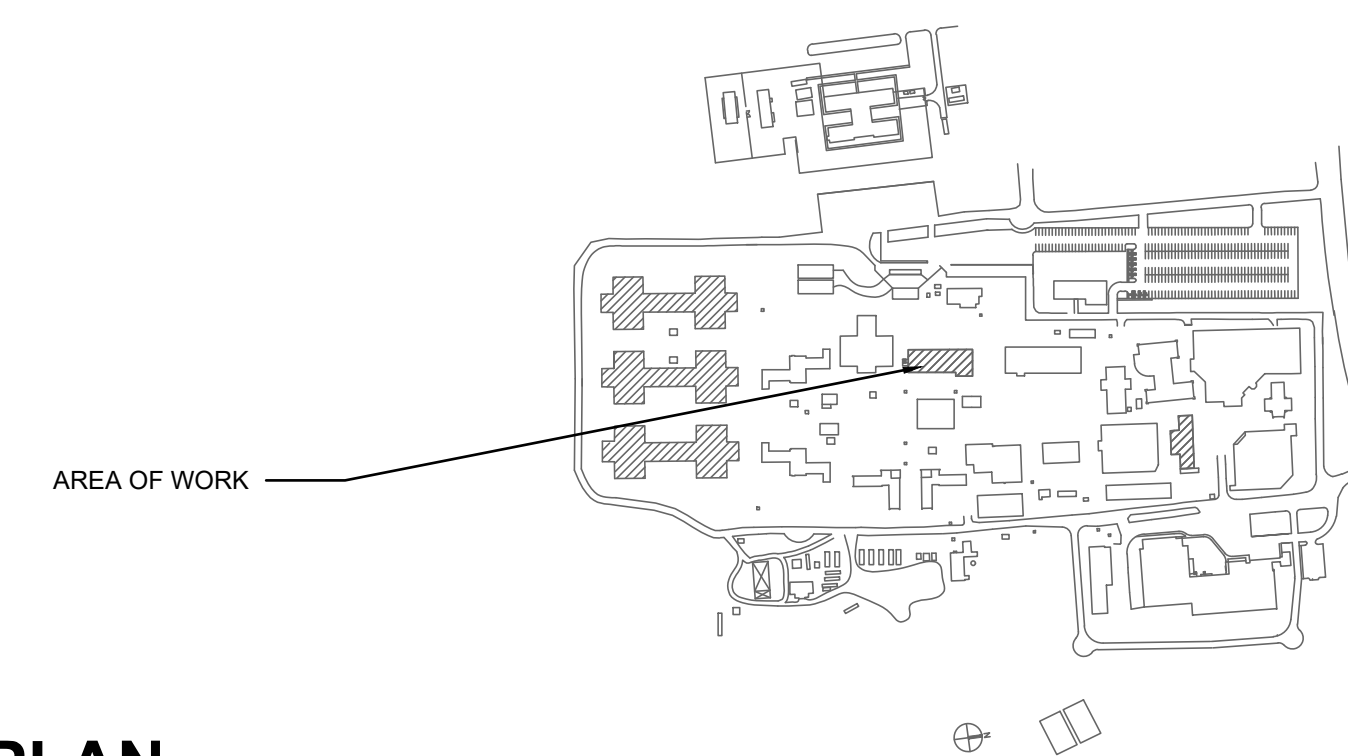
1. MECHANICAL CONTRACTOR SHALL REPLACE EXHAUST FAN C-1 MOTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE NEW VFD/DISCONNECT, LOAD SIDE CONDUIT, WIRING, AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL UTILIZE EXISTING LINE SIDE CONDUIT, WIRING, PROTECTIVE DEVICE, AND ASSURE CIRCUIT IS SAFE PRIOR TO ENERGIZATION. .
2. NEW AIR HANDLING UNIT AND VFD(S) SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE NEW DISCONNECT(S)/VFD(S), LOAD SIDE CONDUIT, WIRING, AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICE(S) AS NOTED IN THE PANEL SCHEDULES, LINE SIDE CONDUIT AND WIRING TO NEW VFD(S) FOR BOTH AHU FANS, AND ASSURE CIRCUIT IS SAFE PRIOR TO ENERGIZATION.
3. NEW CHILLER SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE NEW VFD/DISCONNECT, LOAD SIDE CONDUIT, WIRING, AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICE AS NOTED IN THE PANEL SCHEDULES, LINE SIDE CONDUIT AND WIRING TO NEW VFD/DISCONNECT, AND ASSURE CIRCUIT IS SAFE PRIOR TO ENERGIZATION.
4. MECHANICAL CONTRACTOR SHALL PROVIDE NEW DUCT SMOKE DETECTORS(RETURN AND SUPPLY) AND RAIL INDICATING LIGHTS AS SHOWN. FIRE ALARM CONTRACTOR SHALL ADDRESS NEW DUCT SMOKE DETECTOR AND RAIL LIGHT TO EXISTING FACP.
5. NEW AIR HANDLING UNIT CONTROL PANEL SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL RE-CONNECT LINE SIDE CONDUIT AND WIRING TO NEW CONTROL PANEL. EXTEND AS NECESSARY. ELECTRICAL CONTRACTOR SHALL ASSURE CIRCUIT IS SAFE PRIOR TO ENERGIZATION.
6. NEW BOILER UNIT CONTROL PANEL SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL RE-CONNECT LINE SIDE CONDUIT AND WIRING TO NEW CONTROL PANEL. EXTEND AS NECESSARY. ELECTRICAL CONTRACTOR SHALL ASSURE CIRCUIT IS SAFE PRIOR TO ENERGIZATION.
7. NEW SERVICE ENTRANCE DISCONNECT SWITCH AND JUNCTION BOX. SEE RISER DIAGRAM AND NEW WORK SITE PLAN FOR MORE INFORMATION.
8. FA CONTRACTOR SHALL PROVIDE A NEW FIRE ALARM RELAY INTERFACE FOR THE AIR HANDLING UNIT SHUTDOWN RELAY. SEE E602 AND MECHANICAL CONTROL SHEETS FOR MORE DETAILS.



2 AUDITORIUM ENLARGED MECHANICAL ROOM NEW WORK
E131 Scale: 1/4" = 1'-0"

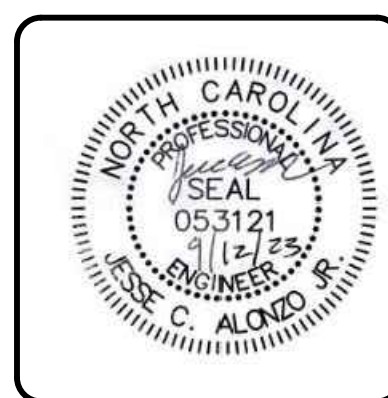


KEY PLAN



3 AUDITORIUM BASEMENT MECHANICAL ROOM NEW WORK PLAN
E131 Scale: 1/8" = 1'-0"

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023
REVISIONS		



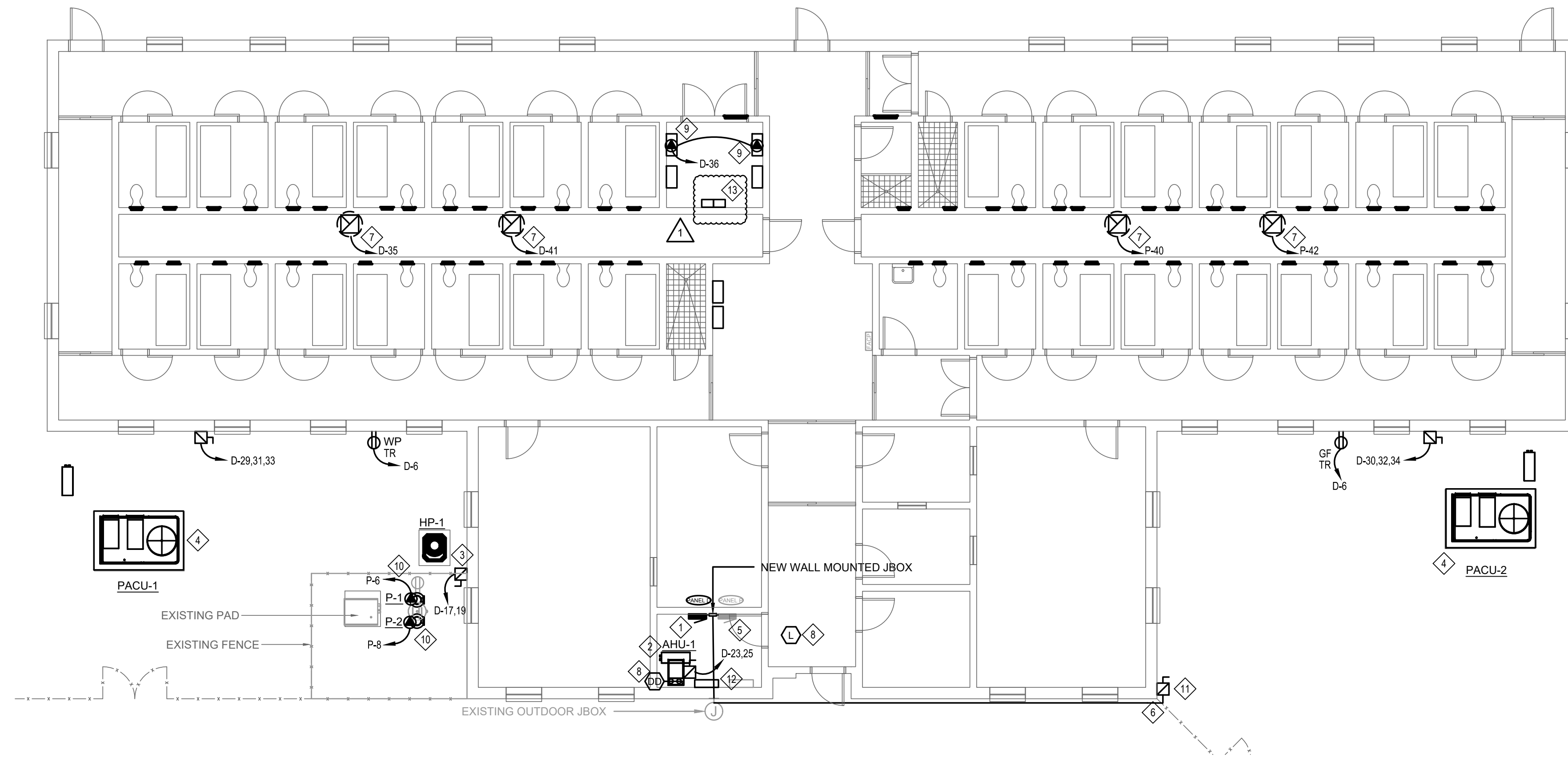
NC Correctional Institution for Women
Air Conditioning Installation
SCO ID: 22-24913-02A Code: 42107 Item: 4112
AUDITORIUM
AUDITORIUM ELECTRICAL NEW WORK

PROJ. START DATE: 08/11/2023	SCALE
MCE PROJ. # 08914-002	HORIZONTAL: E131
DRAWN: OWN	AS NOTED
DESIGNED: OWN	VERTICAL: 0
CHECKED: JCA	REVISION
PROJ. MGR. MAB	

E131
DRAWING NUMBER
0
REVISION
BID DOCUMENTS

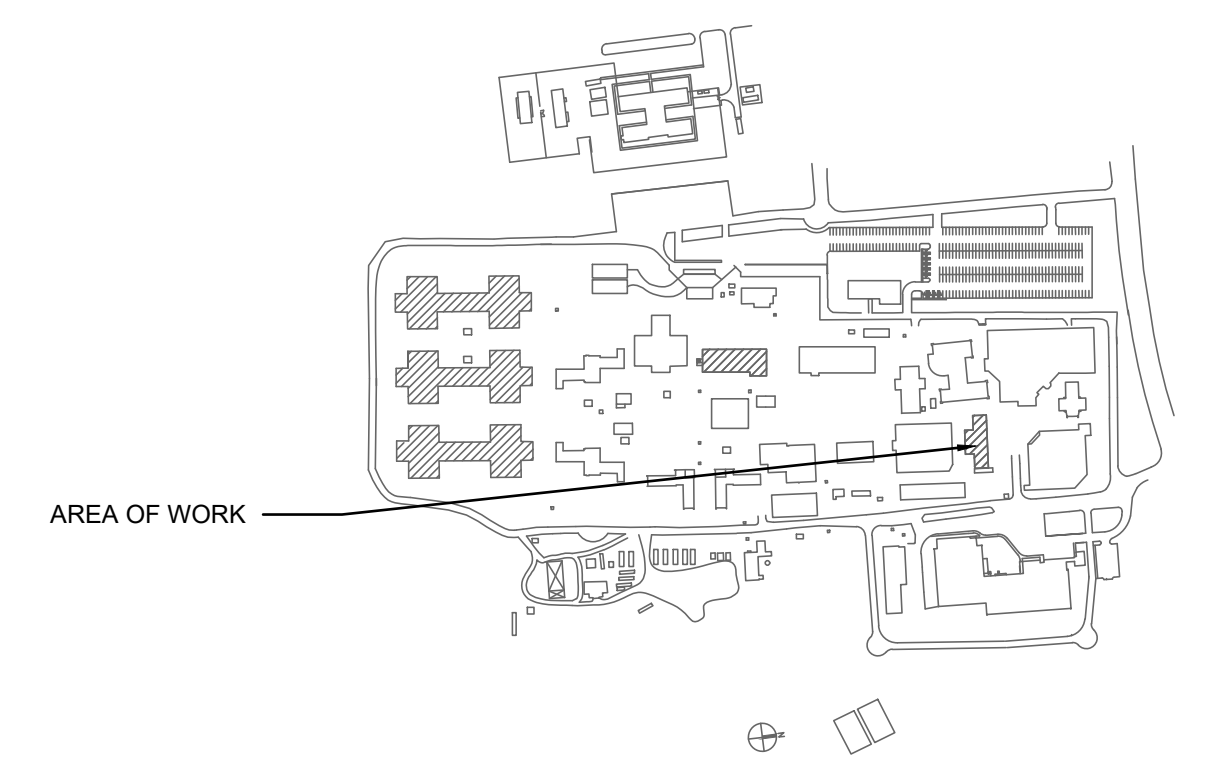
KEY NOTES

1. PROVIDE NEW 200A, 240/120V, 3 PHASE, 42KAIC NEMA 1 PANEL. PANEL SHALL BE WIRED FOR A HIGH LEG DELTA CONFIGURATION. B LEG SHALL BE HIGH LEG.
2. NEW SPLIT SYSTEM INDOOR AIR HANDLING UNIT AHU-1 TO BE PROVIDED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE DISCONNECT, LOAD SIDE CONDUIT, WIRING AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICE AS NOTED IN THE PANEL SCHEDULES, LINE SIDE CONDUITS AND WIRING TO NEW DISCONNECT.
3. NEW SPLIT SYSTEM OUTDOOR CONDENSING UNIT HP-1 TO BE PROVIDED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE DISCONNECT, LOAD SIDE CONDUIT, WIRING AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICE AS NOTED IN THE PANEL SCHEDULES, LINE SIDE CONDUITS AND WIRING TO NEW DISCONNECT.
4. NEW PACKAGED UNITS PACU-1 AND PACU-2 TO BE PROVIDED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE DISCONNECT, LOAD SIDE CONDUIT, WIRING AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICE AS NOTED IN THE PANEL SCHEDULES, LINE SIDE CONDUITS AND WIRING TO NEW DISCONNECT.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE NEW 3" CONDUIT FROM WALL PENETRATION IN MECHANICAL ROOM TO A NEW WALL MOUNTED JUNCTION BOX BETWEEN PANEL D AND PANEL P. CONDUIT SHALL RUN FLUSH WITH CEILING.
6. SEE ELECTRICAL SITE PLAN FOR LOCATION OF MANHOLES ALONG RACEWAY AND TRANSFORMER T-16
7. NEW EXHAUST FAN SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL RE-CONNECT LINE SIDE CONDUIT AND WIRING TO NEW EXHAUST FAN. EXTEND AS NECESSARY. ELECTRICAL CONTRACTOR SHALL ASSURE CIRCUIT IS SAFE PRIOR TO ENERGIZATION.
8. MECHANICAL CONTRACTOR SHALL PROVIDE NEW DUCT SMOKE DETECTORS(RETURN AND SUPPLY) AND RAIL INDICATING LIGHTS AS SHOWN. FIRE ALARM CONTRACTOR SHALL ADDRESS NEW DUCT SMOKE DETECTORS AND RAIL LIGHTS TO EXISTING FACP.
9. NEW BMS CONTROL PANEL SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE NEW DISCONNECT, LOAD SIDE CONDUIT, WIRING AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICE AS NOTED IN THE PANEL SCHEDULES, LINE SIDE CONDUIT AND WIRING TO NEW DISCONNECT, AND ASSURE CIRCUIT IS SAFE PRIOR TO ENERGIZATION.
10. NEW HOT WATER PUMP(S) P-1 AND P-2 TO BE PROVIDED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE DISCONNECT, LOAD SIDE CONDUIT, WIRING AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICE AS NOTED IN THE PANEL SCHEDULES, LINE SIDE CONDUITS AND WIRING TO NEW DISCONNECT.
11. NEW SERVICE ENTRANCE DISCONNECT. SEE RISER DIAGRAM FOR MORE INFORMATION.
12. NEW BOILER UNIT CONTROL PANEL SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL RE-CONNECT LINE SIDE CONDUIT AND WIRING TO NEW CONTROL PANEL. EXTEND AS NECESSARY. ELECTRICAL CONTRACTOR SHALL ASSURE CIRCUIT IS SAFE PRIOR TO ENERGIZATION.
13. FA CONTRACTOR SHALL PROVIDE A NEW FIRE ALARM RELAY INTERFACE FOR EACH OF THE NEW PACKAGED AIR HANDLING UNITS SHUTDOWN AND PURGE RELAYS. SEE E602 AND MECHANICAL CONTROL SHEETS FOR MORE DETAILS.



1 SINGLE CELL B - ELECTRICAL NEW WORK
E141 Scale: 1/8" = 1'-0"

KEY PLAN



REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023
REVISIONS		

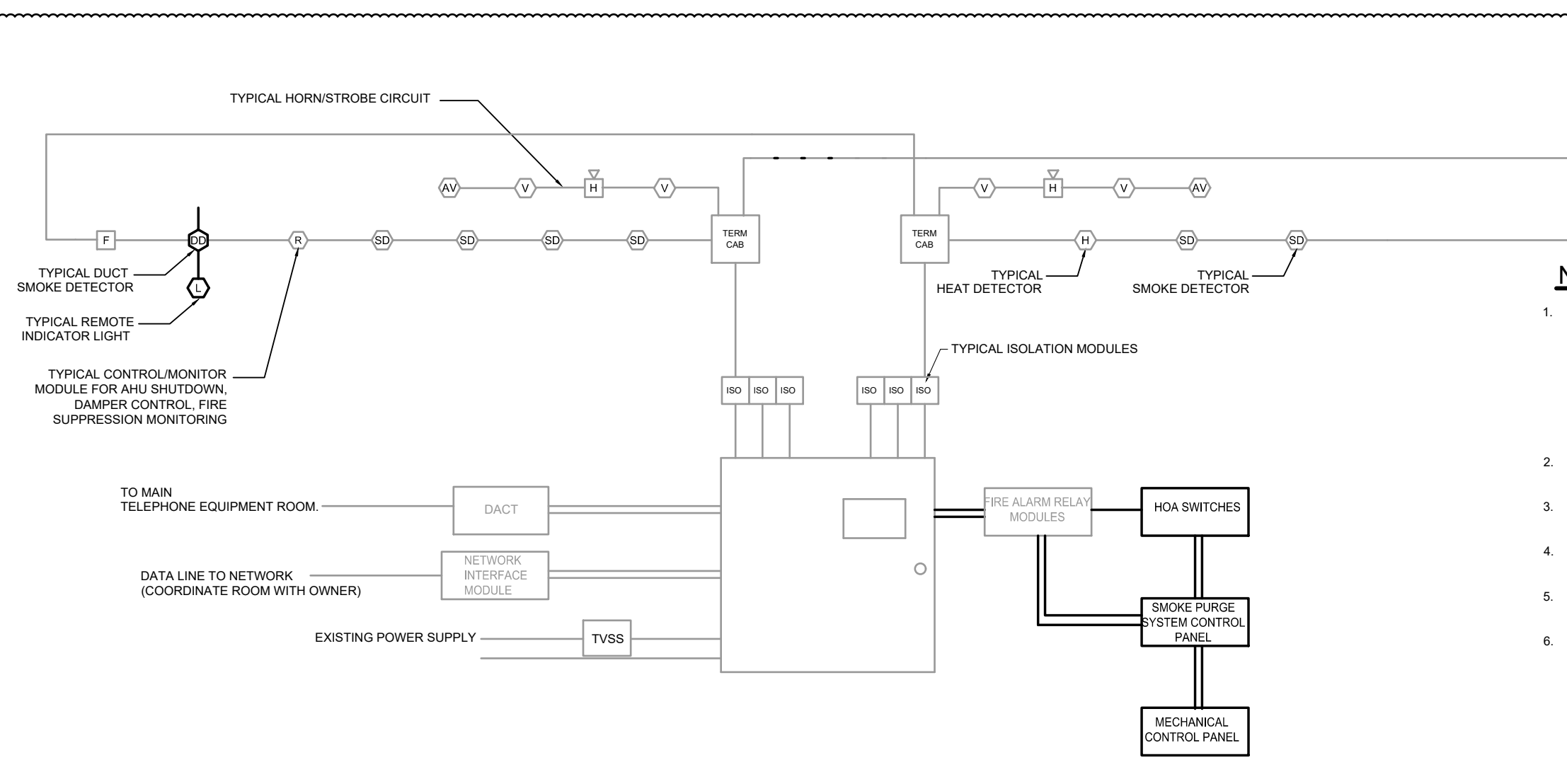


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NC Correctional Institution for Women
Air Conditioning Installation
 SCO ID: 22-24913-02A Code: 42107 Item: 4112
SINGLE CELL B
SINGLE CELL B - ELECTRICAL NEW WORK

PROJ. START DATE: 08/11/2023	SCALE: HORIZONTAL: AS NOTED	E141 DRAWING NUMBER
MCE PROJ. # 08914-0002	VERTICAL: N/A	
DRAWN: OWN	STATUS: BID DOCUMENTS	0 REVISION
DESIGNED: OWN		
CHECKED: JCA		
PROJ. MGR: MB		



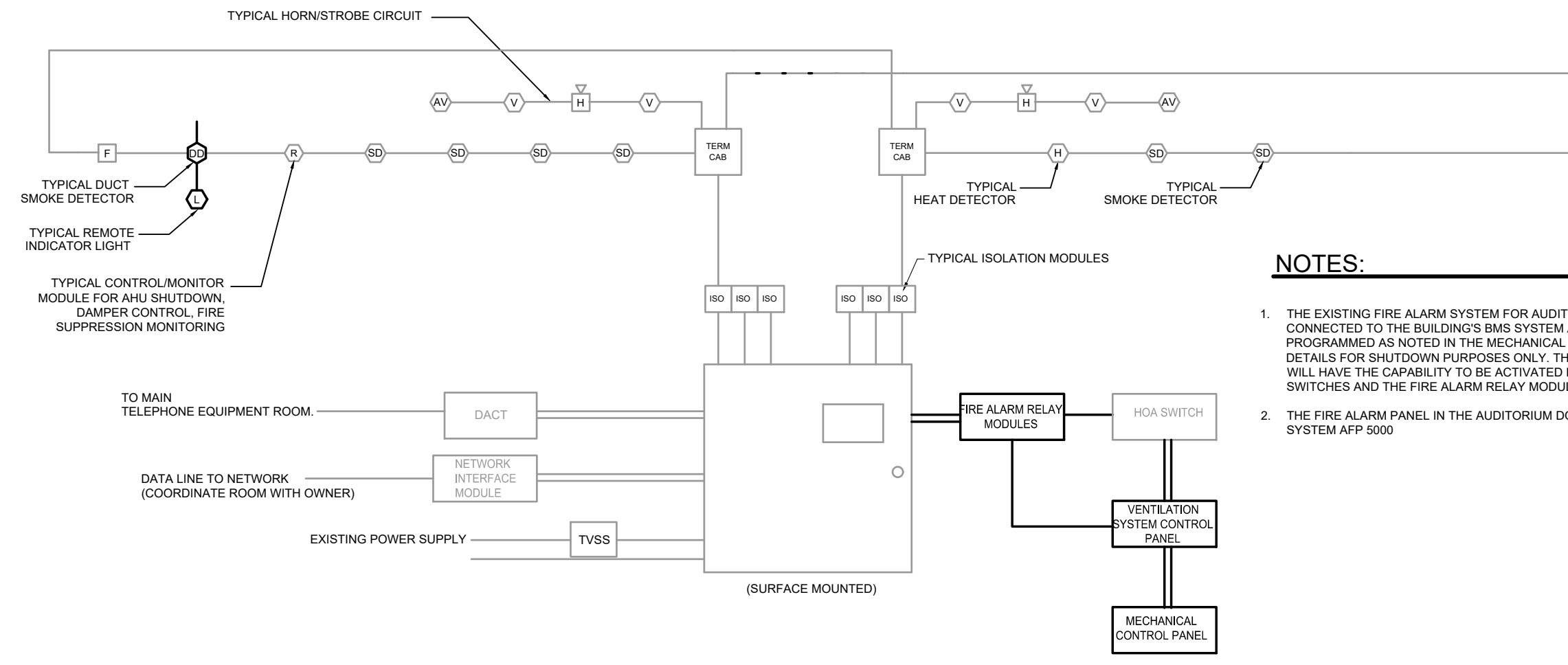
- NOTES:**
1. THE EXISTING FIRE ALARM SYSTEMS FOR SINGLE CELL B, PHOENIX, FALCON, AND SPARROW DORMS SHALL BE CONNECTED TO THE BUILDING'S BMS SYSTEM AND PROGRAMMED AS NOTED IN THE MECHANICAL SMOKE CONTROL DETAILS. THE MR01 RELAYS WILL HAVE THE CAPABILITY TO BE ACTIVATED BY THE HOA SWITCHES AND THE FIRE ALARM RELAY MODULES. CONTRACTOR SHALL CONFIRM THE EXISTING AREA SMOKE DETECTORS ARE TIED TO THE FACP TO INITIATE SMOKE PURGE MODE.
 2. THE FIRE ALARM PANEL IN PHOENIX DORM IS A NOTIFIER SYSTEM AFP 5000.
 3. THE FIRE ALARM PANEL IN FALCON DORM IS A SIMPLEX FIRE CONTROL 4100ES.
 4. THE FIRE ALARM PANEL IN SPARROW DORM IS A NOTIFIER SYSTEM AFP 5000.
 5. THE FIRE ALARM PANEL IN SINGLE CELL B IS A SIMPLEX FIRE CONTROL 4100ES.
 6. THE FIRE ALARM EXISTING MODULES ARE EXISTING IN PHOENIX, FALCON, AND SPARROW DORMS AND SHALL BE REUSED. A NEW FIRE ALARM RELAY MODULE SHALL BE PROVIDED FOR SINGLE CELL B.

1 PHOENIX, FALCON, AND SPARROW DORMS - MODIFIED FIRE ALARM SYSTEM RISER DIAGRAM
E602 NO SCALE

FIRE ALARM/MNS INPUT/OUTPUT MATRIX	SYSTEM OUTPUTS																					
	FACP ANNUNCIATION							NOTIFICATION							REQUIRED FIRE SAFETY CONTROL							
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1 AREA SMOKE DETECTORS																						
2 RETURN AIR DUCT SMOKE DETECTORS																						
3 SUPPLY AIR DUCT SMOKE DETECTORS																						
4 THERMAL DETECTORS																						
5 THERMAL DETECTOR SHAFT/MECH. RM.																						
6 PULL STATIONS																						
7 LOOP OPEN/SHORT CIRCUIT																						
8 LOOP GROUND FAULT																						
9 LOOP FAILURE																						
10 NIAC OPEN/SHORT CIRCUIT																						
11 NIAC GROUND FAULT																						
12 NIAC FAILURE																						
13 LOSS OF AC POWER																						
14 LOSS OF AC POWER (3PHS)																						
15 BATTERY CHARGER FAILURE																						
16 LOW BATTERY																						
17 AHU SHUTDOWN AND DAMPER OVERRIDE																						
18 HOLD OPEN DOOR RELEASE TROUBLE																						
19																						
20																						
21																						

- NOTES:**
1. THE EXISTING FIRE ALARM SYSTEMS FOR PHOENIX, FALCON, AND SPARROW DORMS SHALL BE CONNECTED TO THE BUILDING'S BMS SYSTEM AND PROGRAMMED AS NOTED IN THE MECHANICAL SMOKE CONTROL DETAILS. THE MR01 RELAYS WILL HAVE THE CAPABILITY TO BE ACTIVATED BY THE HOA SWITCHES AND THE FIRE ALARM RELAY MODULES. CONTRACTOR SHALL CONFIRM THE EXISTING AREA SMOKE DETECTORS ARE TIED TO THE FACP TO INITIATE SMOKE PURGE MODE.
 2. THE FIRE ALARM PANEL IN PHOENIX DORM IS A NOTIFIER SYSTEM AFP 5000.
 3. THE FIRE ALARM PANEL IN FALCON DORM IS A SIMPLEX FIRE CONTROL 4100ES.
 4. THE FIRE ALARM PANEL IN SPARROW DORM IS A NOTIFIER SYSTEM AFP 5000.
 5. THE FIRE ALARM PANEL IN SINGLE CELL B IS A SIMPLEX FIRE CONTROL 4100ES.

3 SINGLE CELL B, PHOENIX, FALCON, AND SPARROW DORMS MODIFIED FIRE ALARM SYSTEM MATRIX
E602 SCALE : NTS



- NOTES:**
1. THE EXISTING FIRE ALARM SYSTEM FOR AUDITORIUM SHALL BE CONNECTED TO THE BUILDING'S BMS SYSTEM AND PROGRAMMED AS NOTED IN THE MECHANICAL SMOKE CONTROL DETAILS FOR SHUTDOWN PURPOSES ONLY. THE MR01 RELAYS WILL HAVE THE CAPABILITY TO BE ACTIVATED BY THE HOA SWITCHES AND THE FIRE ALARM RELAY MODULES.
 2. THE FIRE ALARM PANEL IN THE AUDITORIUM DORM IS A NOTIFIER SYSTEM AFP 5000.

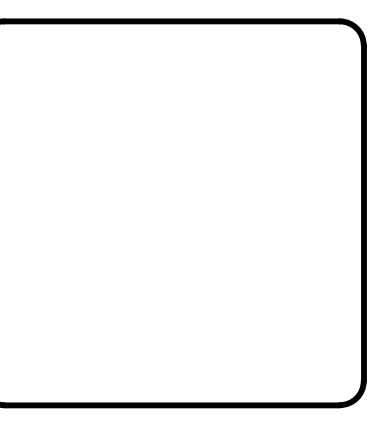
2 SINGLE CELL B, AUDITORIUM - MODIFIED FIRE ALARM SYSTEM RISER DIAGRAM
E602 NO SCALE

FIRE ALARM/MNS INPUT/OUTPUT MATRIX	SYSTEM OUTPUTS																					
	FACP ANNUNCIATION							NOTIFICATION							REQUIRED FIRE SAFETY CONTROL							
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1 AREA SMOKE DETECTORS																						
2 RETURN AIR DUCT SMOKE DETECTORS																						
3 SUPPLY AIR DUCT SMOKE DETECTORS																						
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16 LOW BATTERY																						
17 AHU SHUTDOWN AND DAMPER OVERRIDE																						
18 HOLD OPEN DOOR RELEASE TROUBLE																						
19																						
20																						
21																						

- NOTES:**
1. THE EXISTING FIRE ALARM SYSTEM AUDITORIUM SHALL BE CONNECTED TO THE NEW SHUT DOWN RELAY FOR THE NEW AHU.
 2. THE FIRE ALARM PANEL IN THE AUDITORIUM DORM IS A NOTIFIER SYSTEM AFP 5000.

3 AUDITORIUM MODIFIED FIRE ALARM SYSTEM MATRIX
E602 SCALE : NTS

REV. NO.	DESCRIPTION	DATE
1	ADDENDUM 3	09.12.2023



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NC Department of Adult Correction

NC Correctional Institution for Women
Air Conditioning Installation
 SCO ID: 22-24913-02A Code: 42107 Item: 4112
 ELECTRICAL
ELECTRICAL DETAILS

PROJ. START DATE: 08/11/2023
 MCE PROJ. # 08914-0002
 DRAWN: OWN
 DESIGNED: OWN
 CHECKED: JCA
 PROJ. MGR.: MAB

SCALE: AS NOTED
 HORIZONTAL: AS NOTED
 VERTICAL: N/A

E602
 DRAWING NUMBER
 0
 REVISION

STATUS: **BID DOCUMENTS**