

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.

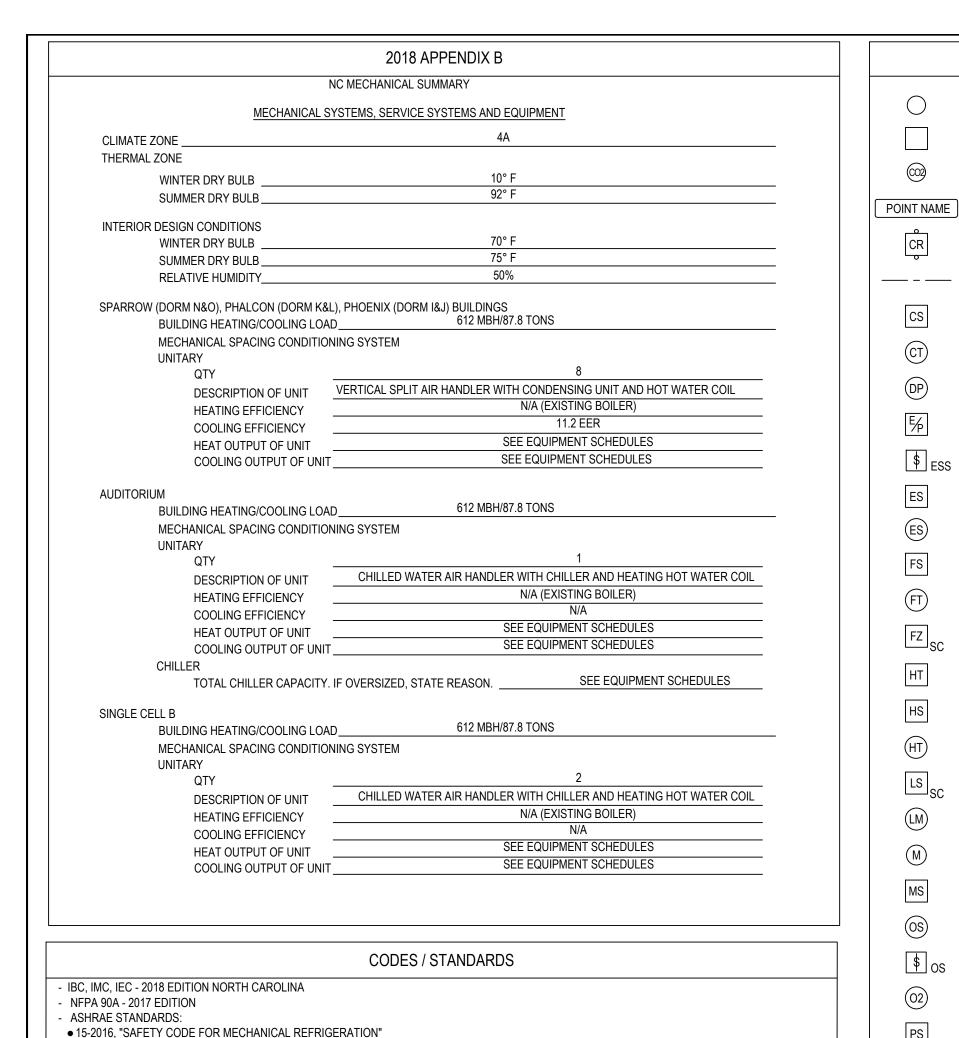
Specifications

- 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. <u>Section 23 05 13, Part 2.2 B, Item 15</u>: 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. <u>Section 23 05 13, Part 2.2 B:</u> 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 indicated on drawings for each mode of operation."
- 6. <u>Section 23 09 00, Part 2.6 C Relays</u>: Add the following: "Relays indicated on the drawings for the Smoke Purge control sequence shall be MR201, UL864 listed multivoltage, 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. <u>Section 23 73 00, Part 2.9:</u> Delete item B. (All dampers shall be low leakage design.)
- 10. <u>Section 26 05 73</u>, <u>Part 1.3 D</u>: 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. <u>Sheet M001:</u> 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. <u>Sheet M401</u>: Revised keyed note 6. See revisions on attached sheet.
- 8. <u>Sheet M501:</u> 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.

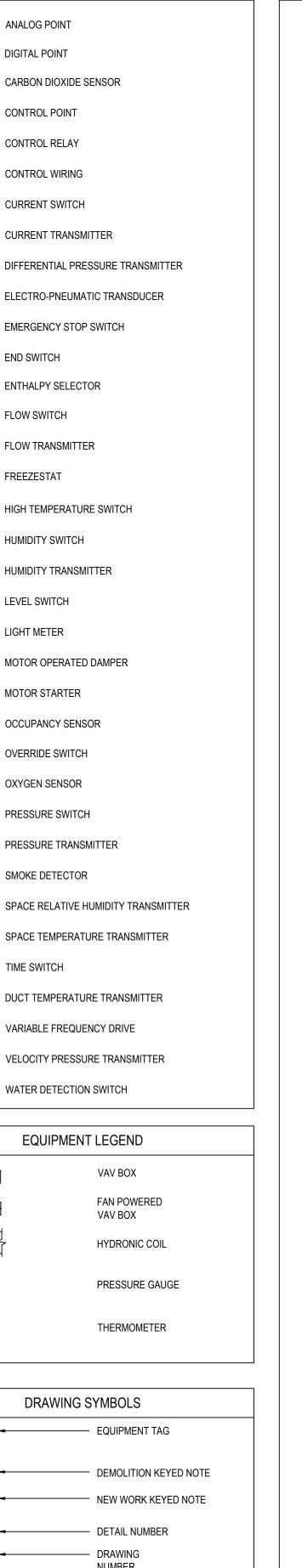


	MECHAN	NICAL ABBREVIATION	NS
AAV	AUTOMATIC AIR VENT	HX	HEAT EXCHANGER
ADJ	ADJUSTABLE OR ADJUSTMENT	IND	INDUCTION UNIT
Al	ANALOG IN	IWC	INCHES WATER COLUMN
AO	ANALOG OUT	JB	JUNCTION BOX
AFF	ABOVE FINISHED FLOOR	LAT	LEAVING AIR TEMPERATURE
AFG	ABOVE FINISHED GRADE	LWT	LEAVING WATER TEMPERATURE
AHU	AIR HANDLING UNIT	MAV	MANUAL AIR VENT
APD	AIRSIDE PRESSURE DROP	MC	MECHANICAL CONTRACTOR
BFF	BELOW FINISHED FLOOR	MTD	MONTH TO DATE
BLDG	BUILDING	N/A	NOT AVAILABLE / NOT APPLICABLE
BMP	BOILER MANAGEMENT PANEL	NC	NORMALLY CLOSED
CFM	CUBIC FEET PER MINUTE	NIC	NOT IN CONTRACT
CMD	COMMAND	NO	NORMALLY OPEN
COND	CONDENSATE DRAINAGE	NTS	NOT TO SCALE
CV	CONSTANT VOLUME	occ	OCCUPANT OR OCCUPANCY
CWMU	COLD WATER MAKEUP UNIT	OA	OUTSIDE AIR
CHWR	CHILLED WATER RETURN	PC	PLUMBING CONTRACTOR
CHWS	CHILLED WATER SUPPLY	PSI	POUNDS PER SQUARE INCH
CWS	CONDENSER WATER SUPPLY	RA	RETURN AIR
CWR	CONDENSER WATER RETURN	RAG-X	RETURN AIR GRILLE - TYPE
DI	DIGITAL IN	RTU	ROOF TOP UNIT
DO	DIGITAL OUT	SA	SUPPLY AIR
DN	DOWN	SAD-X	SUPPLY AIR DIFFUSER - TYPE
EA	EXHAUST AIR	SC	SAFETY CIRCUIT
EAG-X	EXHAUST AIR GRILLE - TYPE	S/S	START/STOP
EAT	ENTERING AIR TEMPERATURE	TAB	TEST AND BALANCE
EC	ELECTRICAL CONTRACTOR	TEMP	TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE	TSP	TOTAL STATIC PRESSURE
ETR	EXISTING TO REMAIN	TYP	TYPICAL
EWT	ENTERING WATER TEMPERATURE	UH	UNIT HEATER
EX	EXISTING	VEL	VELOCITY
FACP	FIRE ALARM CONTROL PANEL	VAV	VARIABLE AIR VOLUME
FCU	FAN COIL UNIT	VP	VIRTUAL POINT
FPM	FEET PER MINUTE	WPD	WATERSIDE PRESSURE DROP
GC	GENERAL CONTRACTOR	XFMR	TRANSFORMER
GPM	GALLONS PER MINUTE		
HWS	HEATING HOT WATER SUPPLY		
		I	

• 62-2016. "VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY"

• 90.1-2016, "ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE"

•55-2017 "THERMAL ENVIRONMENTAL CONDITIONS FOR HUMAN OCCURANCY"NI"



CONTROLS LEGEND

ANALOG POINT

DIGITAL POINT

CONTROL POINT

CONTROL RELAY

CONTROL WIRING

CURRENT SWITCH

END SWITCH

FLOW SWITCH

FREEZESTAT

FLOW TRANSMITTER

HUMIDITY SWITCH

LEVEL SWITCH

LIGHT METER

MOTOR STARTER

OCCUPANCY SENSOR

OVERRIDE SWITCH

OXYGEN SENSOR

PRESSURE SWITCH

SMOKE DETECTOR

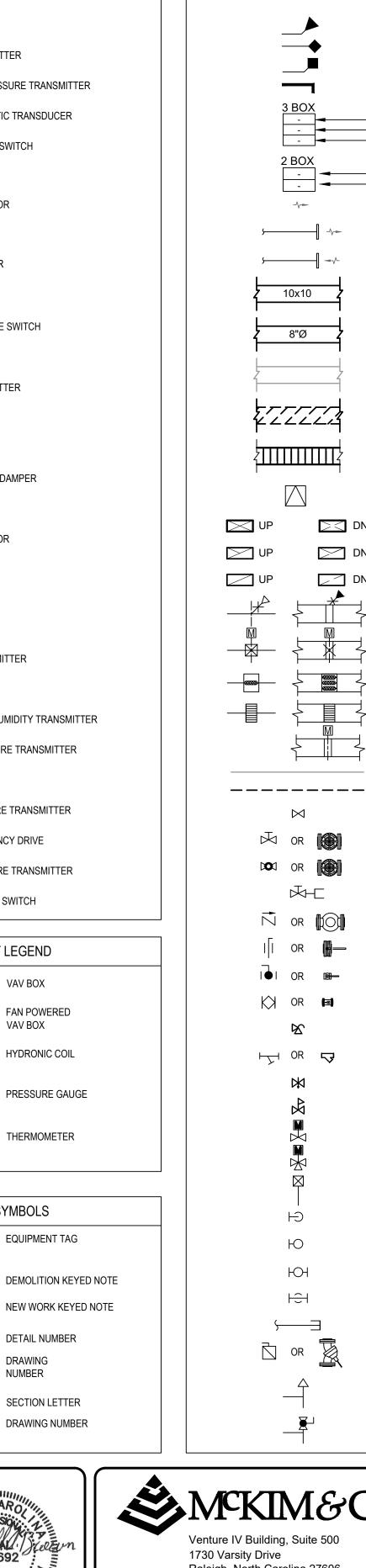
TIME SWITCH

VFD

PSI

\ M1.1 ∠

ENTHALPY SELECTOR



GENERAL NOTES

MECHANICAL LEGEND

ROOM TEMPERATURE SENSOR

BEACON STROBE LIGHT FOR

OCCUPANCY SENSOR

HVAC ALARM SYSTEMS.

SUPPLY DIFFUSER

10x10

8"Ø

 $\forall \vdash$

OR

LIMITS OF DEMOLITION

(H)

VERTICAL FIRE DAMPER

VOLUME DAMPER

DIFFUSER/GRILLE TAG

- DIFFUSER/GRILLE TAG

AIRFLOW DIRECTION

SUPPLY REGISTER OR GRILLE

EXHAUST OR RETURN GRILLE

RECTANGULAR DUCTWORK

ROUND DUCTWORK

EXISTING DUCTWORK

DUCT ACCESS DOOR

SUPPLY DUCT (UP & DOWN)

EXHAUST DUCT (UP & DOWN)

RETURN DUCT (UP & DOWN)

COMBINATION FIRE SMOKE DAMPER

SOUND ATTENUATOR TAG - MARK (X)

GATE VALVE WITH 3/4" HOSE ADAPTER

(PNEUMATIC - ▼ ELECTRIC - ▼)

MOTORIZED SMOKE DAMPER

AIRFLOW MEASURING STATION

EXISTING PIPING TO REMAIN

PIPING TO BE DEMOLISHED

TAG - MARK (X)

MOTORIZED DAMPER

ISOLATION VALVE

GATE VALVE

GLOBE VALVE

CHECK VALVE

BALL VALVE

RELIEF VALVE

WYE STRAINER

BOILER DRAIN VALVE

CONTROL VALVE (2-WAY)

CONTROL VALVE (3-WAY)

PIPING DOWN

PIPING UP

TEE UP

TEE DOWN

CAPPED PIPING

IN LINE TRIPLE DUTY VALVE

AUTOMATIC AIR VENT

MANUAL AIR VENT

PRESSURE REGULATING VALVE

TEST PLUG (PRESSURE/TEMPERATURE)

BUTTERFLY VALVE

BALANCING VALVE

DUCTWORK TO BE DEMOLISHED

FLEXIBLE DUCTWORK (INSULATED)

HORIZONTAL FIRE DAMPER

POINT OF CONNECTION TO EXISTING

\$ ESS SWITCH

COMBINATION FIRE/SMOKE DAMPER

HUMIDITY TRANSMITTER

CARBON DIOXIDE SENSOR

RETURN GRILLE

EXHAUST GRILLE

EMERGENCY STOP

THE DRAWINGS SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES. THE SCALE,

- WHEN INDICATED IS INTENDED FOR GENERAL REFERENCE ONLY THE MECHANICAL CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE PROJECT PLANS, SCHEDULES, AND DETAILS PRIOR TO INSTALLATION OF THE MECHANICAL SYSTEMS AND REVIEW ANY CONFLICTS WITH THE ENGINEER
- ALL WORK SHALL CONFORM TO ALL LOCAL, STATE, AND NATIONAL CODES. REFER TO CODES/STANDARDS SECTION. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS. ANY EQUIPMENT OR MATERIAL DEVIATIONS FROM THAT SPECIFIED OR DETAILED ON THIS DRAWING SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER. ALL PROPOSED EQUIPMENT DEVIATIONS SUBMITTED SHALL BE SIMILAR BOTH IN QUALITY AND CAPACITY TO THAT EQUIPMENT SPECIFIED.
- DESIGN IS BASED ON THE MANUFACTURER AND MODEL SCHEDULED OR THE FIRST MANUFACTURER LISTED IN THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL BEAR ANY AND ALL COSTS FOR ALTERING ANY OTHER CONTRACT OR SUB-CONTRACT RESULTING FROM THE USE OF ANY MANUFACTURER OR MODEL OTHER THAN THE

COORDINATE WITH OTHER TRADES.

- DESIGN BASIS INCLUDING LISTED EQUALS. PRIOR TO CONSTRUCTION, FABRICATING DUCTWORK, ORDERING EQUIPMENT, ETC., THE CONTRACTOR SHALL FIELD VERIFY SPACE LIMITATIONS AT THE JOB SITE AND
- ALL MATERIALS, EQUIPMENT AND PRODUCTS INCORPORATED IN THE WORK UNDER THE CONTRACT SHALL BE NEW, OF A SUITABLE GRADE FOR THE PURPOSES INTENDED, AND TO THE EXTENT POSSIBLE, STANDARD PRODUCTS OF THE VARIOUS MANUFACTURES EXCEPT WHERE SPECIAL CONSTRUCTION OR PERFORMANCE FEATURES ARE CALLED FOR. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
- THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY THEIR ACTIONS. SUCH DAMAGE SHALL BE RETURNED TO ORIGINAL NORMAL WORKING CONDITION, SUBJECT TO ACCEPTANCE OF THE OWNER AND ENGINEER, WITHOUT EXTRA COST TO THE OWNER.
- THE MECHANICAL CONTRACTOR SHALL KEEP THEIR WORK SITE AND ALL ACCESS POINTS OF THE BUILDING FREE OF RUBBISH AND WASTE MATERIAL. ALL ROOF OPENINGS IN THE BUILDING REQUIRED FOR THE MECHANICAL CONTRACT SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. ALL FRAMING AROUND OPENINGS SHALL BE BY THE GENERAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL COORDINATE SIZE OF OPENINGS AND LOCATION OF OPENINGS WITH THE GENERAL CONTRACTOR. ALL ROOF CURBS AND ROOF SUPPORT RAILS FOR MECHANICAL EQUIPMENT INSTALLED ON THE ROOF SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
- ALL OPENINGS IN WALLS AS REQUIRED BY THE MECHANICAL SYSTEM IN THE BUILDING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE SIZE AND LOCATION OF ALL
- OPENINGS WITH THE GENERAL CONTRACTOR AT THE JOB SITE IN A TIMELY MANNER. REFER TO ARCHITECTURAL DRAWINGS, AS AVAILABLE, FOR LOCATIONS OF ALL RATED WALL AND FLOOR ASSEMBLIES. PROVIDE FIRE DAMPERS AND/OR U.L. LISTED ASSEMBLIES AND/OR SEALANTS PER DRAWINGS, SPECIFICATIONS, AND APPLICABLE CODES AT ALL PENETRATIONS.
- THE MECHANICAL CONTRACTOR SHALL FURNISH ACCESS DOORS FOR ALL GYPSUM BOARD CEILINGS AT VOLUME DAMPERS, EQUIPMENT, MOTOR OPERATED DAMPERS, FIRE DAMPERS, BALANCING DEVICES OR OTHER ITEMS REQUIRING BALANCING OR SERVICE. ACCESS DOORS SHALL BE INSTALLED BY THE GENERAL CONTRACTOR. SEE PLANS AND GENERAL CONSTRUCTION SPECIFICATIONS FOR ACCESS DOOR REQUIREMENTS.
- MECHANICAL CONTRACTOR SHALL PROVIDE 6" HIGH HOUSEKEEPING PADS UNDER MAJOR MECHANICAL EQUIPMENT (I.E. CHILLERS) AND 4" HIGH HOUSEKEEPING PADS UNDER ALL OTHER FLOOR MOUNTED EQUIPMENT UNLESS NOTED OTHERWISE. PADS SHALL EXTEND BEYOND EQUIPMENT BY THE SAME DIMENSION AS THE HEIGHT OF THE PAD, UNLESS NOTED OTHERWISE.
- ALL PIPING AND DUCTWORK (EXCEPT IN MECHANICAL ROOMS, BOILER ROOM, ETC.) SHALL BE CONCEALED UNLESS OTHERWISE SHOWN OR NOTED.
- DO NOT INSTALL PIPING OR DUCTWORK OVER ANY ELECTRICAL SWITCHGEAR; SEE MECHANICAL DETAIL SHEET(S).
- MC SHALL BLANK OFF UNUSED PORTIONS OF LOUVERS WITH DOUBLE WALL INSULATED
- REFER TO SPECIFICATIONS FOR EQUIPMENT STARTUP PROCEDURES AND
- REQUIREMENTS THE MECHANICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS REQUIRED FOR HIS WORK. ALL MATERIALS REQUIRED FOR TESTING (E.G. SMOKE GENERATORS) SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT. IF A PROJECT FAILS AN INSPECTION, THE CONTRACTOR SHALL
- BE RESPONSIBLE FOR ANY AND ALL COSTS ASSOCIATED WITH THE RE-INSPECTION. ANY EQUIPMENT OR MATERIAL DEVIATIONS FROM THAT SPECIFIED OR DETAILED ON THIS DRAWING SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER. ALL PROPOSED EQUIPMENT DEVIATIONS SUBMITTED SHALL BE SIMILAR BOTH IN QUALITY AND CAPACITY TO THAT EQUIPMENT SPECIFIED.
- ALL MECHANICAL EQUIPMENT SHALL BE LISTED AND LABELED BY APPROVED THIRD
- PARTY LISTING AGENT THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL THEIR OWN SUPPORT EQUIPMENT. SUPPORT ALL EQUIPMENT FROM STRUCTURAL MEMBERS, UNLESS NOTED OTHERWISE. LOCATIONS SHALL BE COORDINATED WITH ALL CONTRACTORS PRIOR TO INSTALLATION.
- DUCTWORK AND PIPING LAYOUTS AND LOCATIONS ARE SCHEMATIC. DO NOT SCALE THESE DRAWINGS. EXACT ROUTING OF DUCTWORK AND PIPING MUST BE DETERMINED IN THE FIELD. ALL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR BY ACTUAL MEASUREMENT AND OBSERVATION BEFORE ORDERING OR FABRICATING ANY DUCTWORK, PIPING OR EQUIPMENT. ANY DISCREPANCIES BETWEEN THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND THE EXISTING CONDITIONS OR DIMENSIONS SHALL BE REPORTED TO THE ENGINEER BEFORE THE PERFORMANCE OF ANY WORK. FAILURE TO VERIFY AND REPORT SHALL CONSTITUTE THE CONTRACTOR'S ACCEPTANCE OF THE EXISTING CONDITIONS AS FIT FOR THE PROPER EXECUTION OF
- DUCTWORK AND PIPING SHALL BE KEPT AS CLOSE AND HIGH AS POSSIBLE TO THE BUILDING WALLS, CEILING AND FLOOR AND ROOF STRUCTURE IN ORDER THAT THE MAXIMUM AMOUNT OF SPACE IS AVAILABLE. ADDITIONAL OFFSETS, FITTINGS, ETC. NOT SHOWN BUT REQUIRED TO MAINTAIN MAXIMUM CLEARANCE SHALL BE PROVIDED AT NO ADDITIONAL COST
- THE MECHANICAL CONTRACTOR SHALL COORDINATE RESPONSIBILITY FOR ALL PATCHING AND CLEANING ASSOCIATED WITH THIS PROJECT WITH THE GENERAL CONTRACTOR.
- EXISTING FLOOR DRAINS SHOULD BE COVERED DURING DEMOLITION AND NEW WORK

<u>COMMISSIONING</u>

A COMMISSIONING PLAN SHALL BE DEVELOPED BY A NORTH CAROLINA REGISTERED DESIGN PROFESSIONAL REFER TO SPECIFICATIONS FOR FULL REQUIREMENTS.

THE COMMISSIONING REPORT SHALL BE PROVIDED TO THE BUILDING OWNER.

- 1. DUCT SIZES SHOWN ON PLANS ARE FREE AREA DIMENSIONS. CONTRACTOR SHALL INCREASE SIZES AS NECESSARY TO ACCOMMODATE LINING, IF SPECIFIED.
- 2. BEFORE FABRICATING OR INSTALLING DUCTWORK, COORDINATE DUCT LOCATIONS WITH THE ELECTRICAL CONTRACTOR'S PANELS, CONDUIT AND RECESSED LIGHT FIXTURES, PLUMBING PIPING, AND ALL STRUCTURAL MEMBERS. THESE DRAWINGS ARE DIAGRAMMATIC AND ARE NOT SHOP DRAWINGS. ALL OFFSETS AND TRANSITIONS REQUIRED FOR THIS PROJECT MAY NOT BE SHOWN ON THESE DRAWINGS; HOWEVER, THEY SHALL BE PROVIDED WITHOUT CHANGE TO THE BID CONTRACTS.
- 3. BEFORE FABRICATING OR INSTALLING DUCTWORK, COORDINATE FINAL LOCATION OF CEILING GRILLES, REGISTERS AND DIFFUSERS WITH REFLECTED CEILING PLANS AND ELECTRICAL LIGHTING PLANS.
- ALL SURFACES SEEN THOUGH GRILLES AND DIFFUSERS SHALL BE PAINTED MATTE BLACK.
- 5. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO KEEP ACCESS TO THE VOLUME DAMPERS WITHIN THE LAY-IN CEILING OR EXPOSED AREAS.
- 6. PROVIDE FLEXIBLE CONNECTIONS TO ALL AIR MOVING EQUIPMENT.
- 7. INSTALL DIFFUSERS WITH 3-WAY OR 2-WAY THROW AS REQUIRED TO AVOID BLOWING DIRECTLY ON THERMOSTATS.
- 8. MC SHALL CONFIRM ALL CEILING TYPES, HARD OR LAY-IN, INCLUDING NARROW TEE AND REGULAR, PRIOR TO SUBMITTAL OF SHOP DRAWINGS TO ENGINEER. ANY AIR DEVICES REQUIRING REPLACEMENT DUE TO LACK OF MC'S CONFIRMATION SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- 9. ALL FIRE DAMPERS AND U.L. FIRE STOPS SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH MANUFACTURER'S U.L. LISTING AND INSTALLATION INSTRUCTIONS. REGARDLESS OF DUCT SIZE, FIRE DAMPERS SHALL BE MINIMUM 12"x12" OR 12"Ø IN SIZE. TRANSITION BEYOND ACCESS DOOR AS REQUIRED TO MATCH ACTUAL DUCT SIZE.

10. FLEXIBLE PIPE CONNECTIONS SHALL BE PROVIDED AT ALL HYDRONIC PIPING CONNECTIONS AT ROTATING EQUIPMENT, INCLUDING AIR HANDLING UNITS, BASE-MOUNTED PUMPS, CHILLERS, ETC.

11. ANY INSULATION DAMAGED DURING THE PROJECT SHALL BE REPAIRED AND ALL VAPOR BARRIERS RESTORED.

BUILDING AUTOMATION SYSTEM (CONTROLS)

- 12. SOME VIRTUAL POINTS ARE SHOWN ON THE CONTROL POINTS LISTS. THESE POINTS ARE INTENDED TO SHOW MAJOR VIRTUAL POINTS BUT IS NOT AN ALL-ENCOMPASSING LIST. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING FINAL POINT COUNTS AND SHALL ENSURE THAT THE CONTROLLERS PROVIDED ARE CAPABLE OF HANDLING ANY ADDITIONAL VIRTUAL POINTS THAT MAY BE NEEDED TO PROVIDE A FULLY FUNCTIONAL SYSTEM.
- 13. MOTOR CONNECTIONS AT MOTOR TERMINALS SHALL NOT BE MADE UNTIL ROTATION, HORSEPOWER, PHASE RATINGS, AND RATINGS OF ANY REQUIRED THERMAL HEATERS HAVE BEEN VERIFIED AND APPROVED AS CORRECT FOR THE INSTALLATION BY THE MC.
- 14. INSTALL THERMOSTATS AT THE SAME HEIGHT AS THE LIGHT SWITCH WHERE INSTALLED ADJACENT AND NO HIGHER THAN PERMITTED BY ADA GUIDELINES. PROVIDE INSULATED PLATES BEHIND THERMOSTATS INSTALLED ON EXTERIOR WALLS. COORDINATE LOCATION OF WALL MOUNTED THERMOSTATS, TEMPERATURE SENSORS, WALL SWITCHES, ETC. WITH OTHER CONTRACTORS TO AVOID CONFLICTS WITH DRAWING BOARDS, ELECTRICAL DEVICES TACK BOARDS, ETC. ALL WIRING TO WALL MOUNTED DEVICES SHALL BE CONCEALED IN WALL UNLESS NOTED OTHERWISE.

COORDINATION

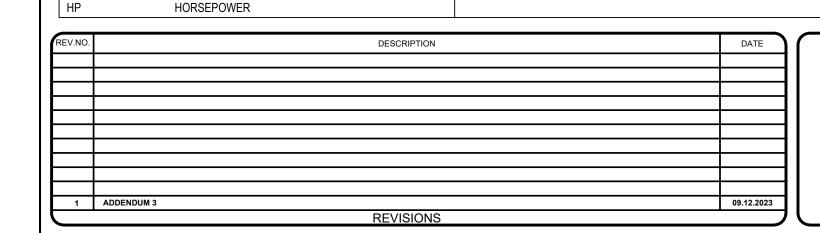
- 15. ALL SHUTDOWNS SHALL BE COORDINATED AND APPROVED THROUGH THE OWNERS' REPRESENTATIVE AND WILL REQUIRE ADVANCE NOTICE OF ONE WEEK MINIMUM. THIS TIME/LENGTH MAY BE LONGER OR SHORTER FOR SOME SHUTDOWNS AND SHALL BE AT THE OWNER'S DISCRETION.
- 16. ALL ROOF MOUNTED UNITS SHALL BE CAREFULLY COORDINATED WITH THE STRUCTURE. MC AND GC SHALL COORDINATE ROOF STEEL PLACEMENT AND ROOF OPENINGS WHICH SHALL MATCH UP WITH THE ACTUAL UNIT OPENING LOCATION, SIZE, WEIGHTS AND DIMENSIONS, NO WORK SHALL OCCUR UNTIL CONTRACTOR HAS APPROVED SHOP DRAWINGS.

DEMOLITION

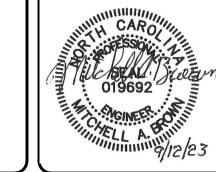
- 17. THESE DRAWINGS DEFINE THE BASIC AREA OF DEMOLITION AND ARE AS ACCURATE AS WAS POSSIBLE FROM SITE INVESTIGATIONS MADE DURING THE DESIGN PROCESS. NOT ALL EXISTING MATERIALS AND EQUIPMENT ARE SHOWN. ANY MECHANICAL MATERIALS AND EQUIPMENT THAT ARE NOT BEING USED AFTER THE RENOVATION SHALL BE REMOVED WHETHER SHOWN OR NOT. NO MATERIALS OR EQUIPMENT SHALL BE ABANDONED IN PLACE UNLESS OTHERWISE NOTED.
- 18. ALL EQUIPMENT TO BE REUSED IS TO BE CLEANED. ANY EQUIPMENT FOUND TO BE NON-FUNCTIONING SHALL BE DOCUMENTED AND BROUGHT TO THE ATTENTION OF THE OWNER PRIOR TO COMMENCEMENT OF DEMOLITION. IF PROPER NOTIFICATION IS NOT PROVIDED THEN REPAIR OR REPLACEMENT OF THE EQUIPMENT SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

HAZARDOUS MATERIALS WARNING

HAZARDOUS MATERIALS, INCLUDING ASBESTOS CONTAINING MATERIALS, ARE EITHER NOT PRESENT OR WERE REMOVED PRIOR TO CONSTRUCTION, TO THE BEST OF THIS CONSULTANT'S KNOWLEDGE. THERE IS ALWAYS THE RISK OF REMAINING, UNDISCOVERED HAZARDOUS MATERIALS PRESENT IN THE CONSTRUCTION SITE HOWEVER. DURING THE COURSE OF THE PROJECT, SHOULD SUSPECT REGULATED MATERIALS BE LOCATED AND/OR IDENTIFIED, THE CONTRACTOR SHALL CEASE ALL WORK AND NOTIFY THE OWNER/DESIGNER/ENVIRONMENTAL CONSULTANT FOR CONFIRMATION AND TESTING IF NECESSARY.



HEATING HOT WATER RETURN





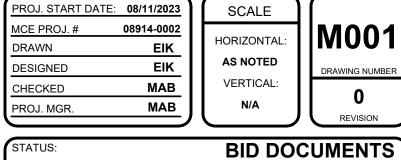
Venture IV Building, Suite 500 1730 Varsity Drive Raleigh, North Carolina 27606 Phone: (919) 233-8091, Fax: (919) 233-8031 NC License# F-1222 www.mckimcreed.com

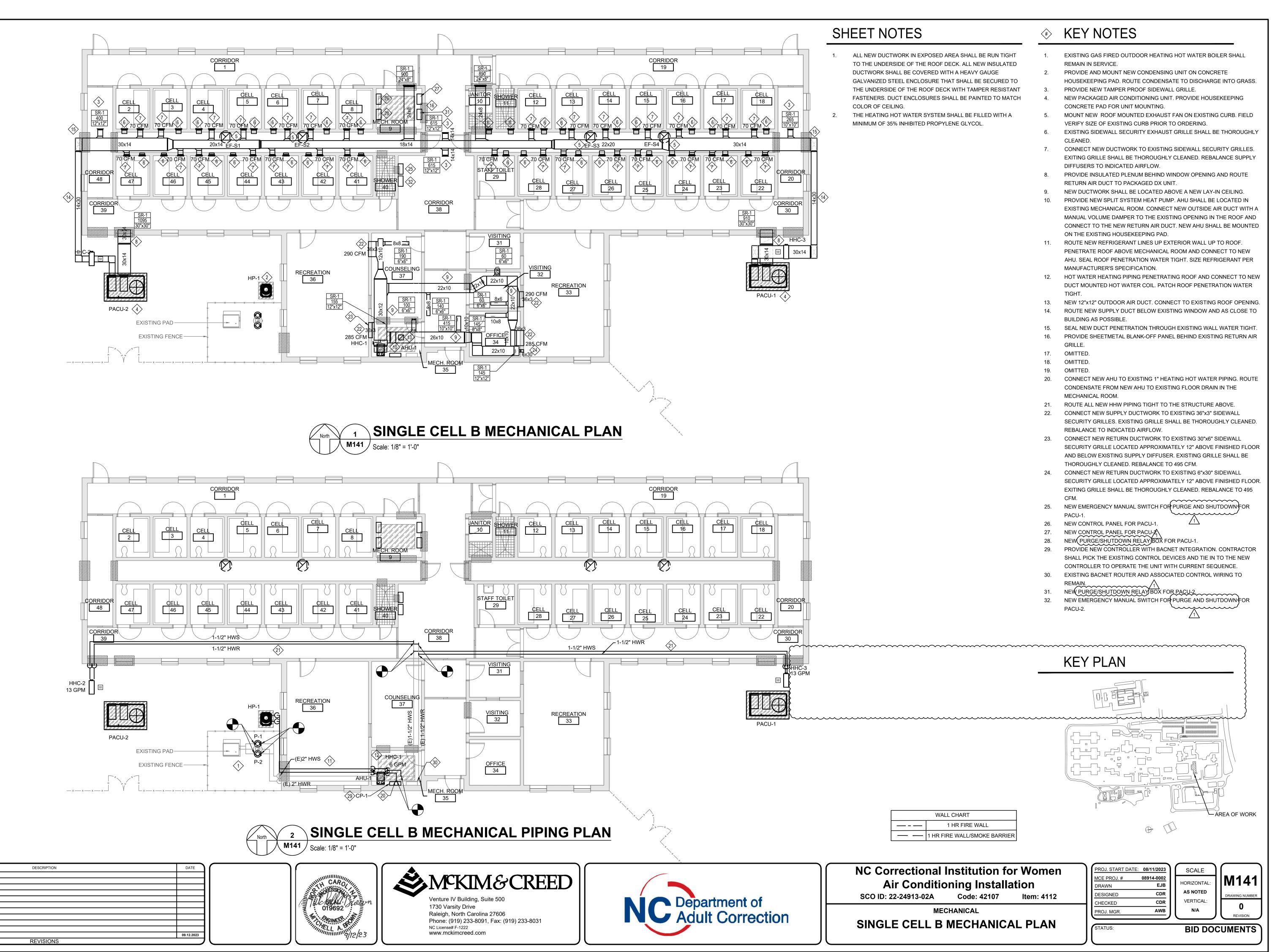


NC Correctional Institution for Women Air Conditioning Installation

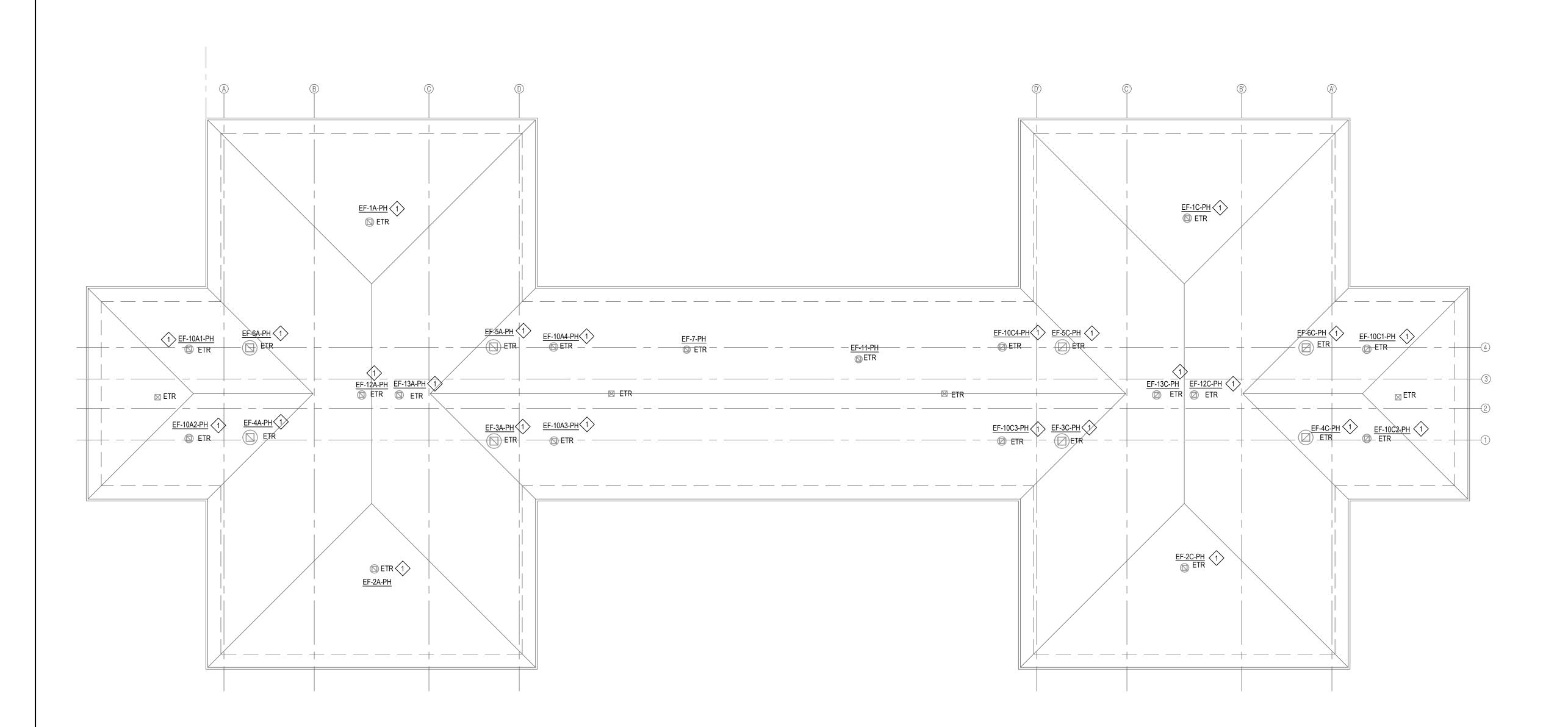
SCO ID: 22-2

CO ID: 22-24913-02A	Code: 42107	Item: 4112	DESIGNED	EIK
			CHECKED	MAE
			PROJ. MGR.	MAE
MECHANICAL - GI	ENERAL NOTES	S AND		
ABBRE	VIATIONS		STATUS:	





1 ADDENDUM 3



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

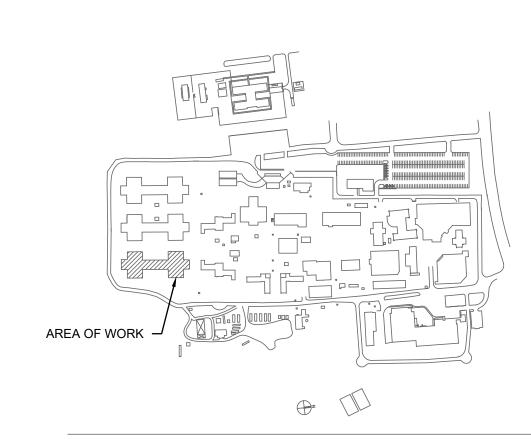
SHEET NOTES

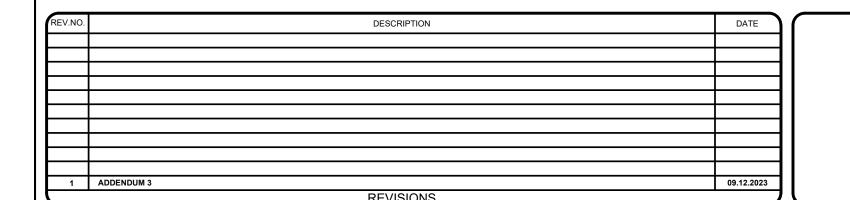
- 1. REFER TO M001 FOR ALL SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES.
- 2. ALL NOTES SHALL BE REVIEWED TO ESTABLISH THE OVERALL SCOPE OF WORK
- 3. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED AT THE BUILDING AND SITE.
- 4. ANY CONFLICT BETWEEN INFORMATION ON DRAWINGS AND ACTUAL FIELD "AS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

♦ KEY NOTES

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)

KEY PLAN









www.mckimcreed.com



NC Correctional Institution for Women Air Conditioning Installation

SCO ID: 22-24913-02A Code: 42107 Item: 4

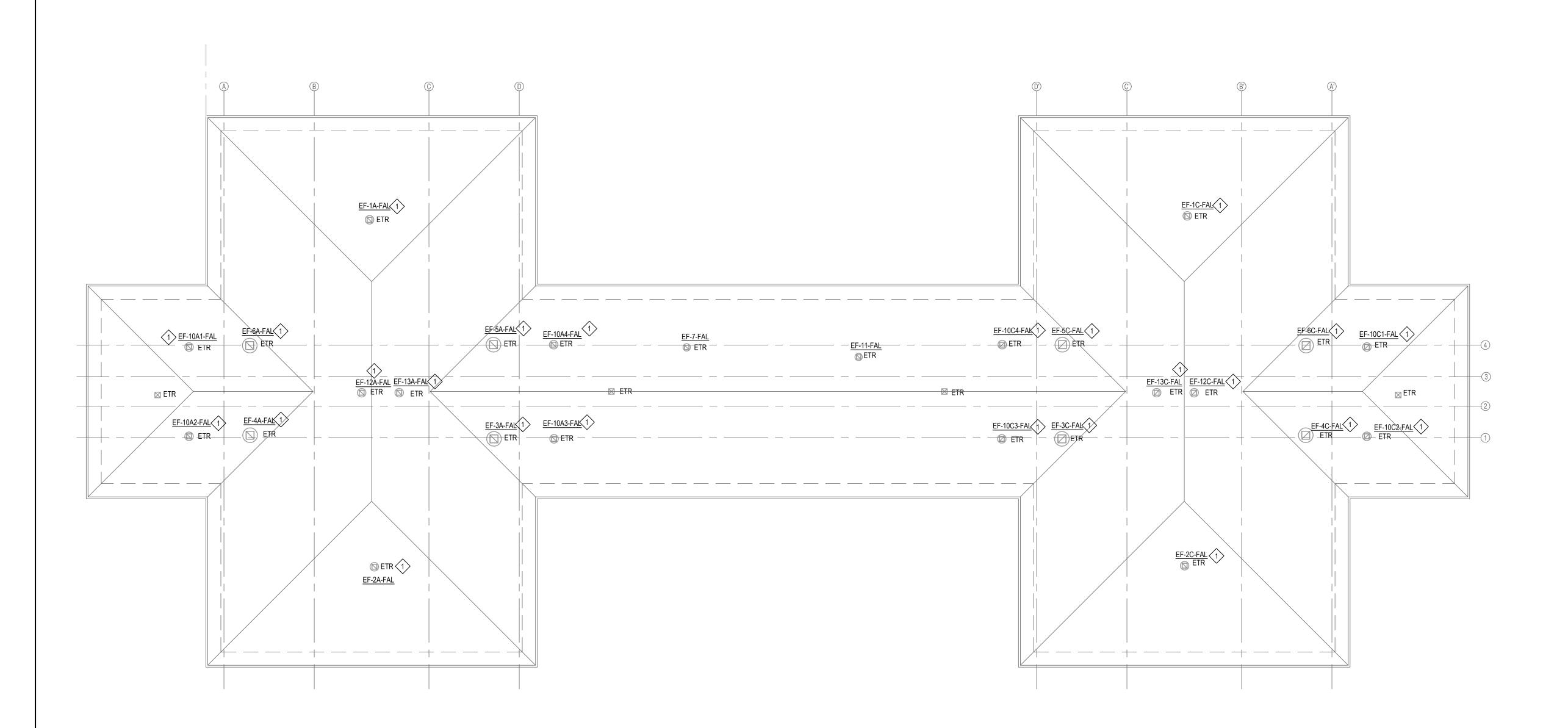
DORMITORY I & J ROOF MECHANICAL PLAN - PHOENIX BUILDING

Ì	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

REV



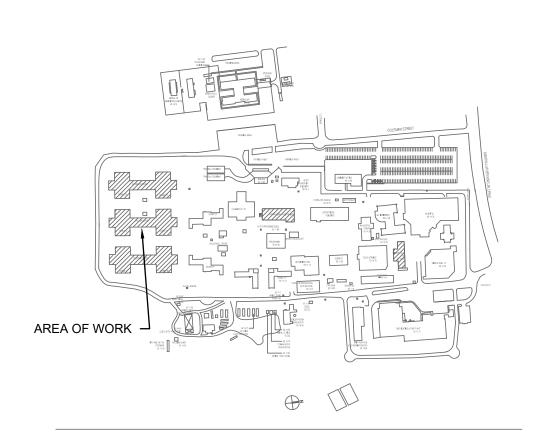
1 DORMITORY K & L MECHANICAL ROOF PLAN

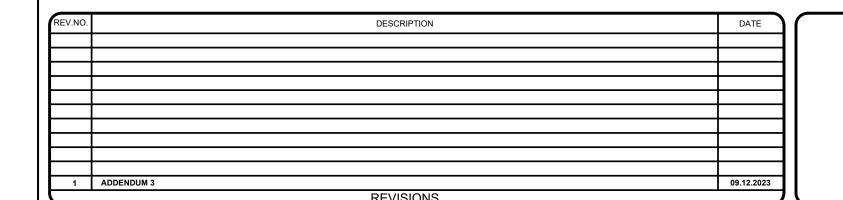
SHEET NOTES

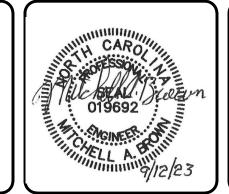
- 1. REFER TO M001 FOR ALL SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES.
- ALL NOTES SHALL BE REVIEWED TO ESTABLISH THE OVERALL SCOPE OF WORK
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED AT THE BUILDING AND SITE.
- ANY CONFLICT BETWEEN INFORMATION ON DRAWINGS AND ACTUAL FIELD "AS BUILT" CONDITIONS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

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)

KEY PLAN









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NC Correctional Institution for Women **Air Conditioning Installation**

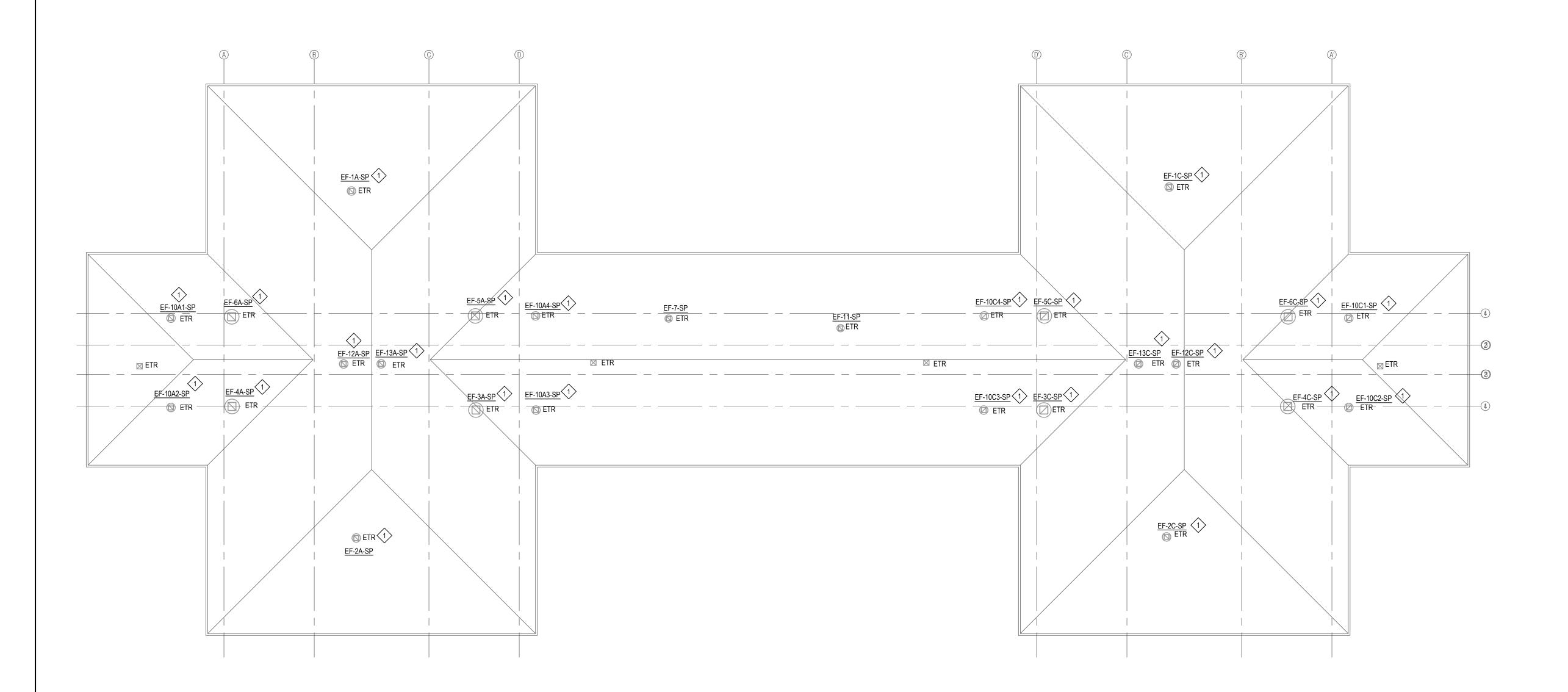
SCO ID: 22-24913-02A Code: 42107

DORMITORY K & L ROOF MECHANICAL PLAN -	
FALCON BUILDING	

08/11/202	PROJ. START DATE:
08914-000	MCE PROJ. #
EIK	DRAWN
EIK	DESIGNED
MAB	CHECKED
MAB	PROJ. MGR.

BID DOCUMENTS

I:\08914\0002\ENG\80-DRAWINGS\86-DESIGN\86H-HVAC DESIGN\CONSTRUCTION DOCUMENTS\DORM K AND L (FALCON)\M210.DWG 09/12/2023 16:07:51 EVGENIA KROZ



DORMITORY N & O MECHANICAL ROOF PLAN | M220 | Scale: 1/16" = 1'-0"

SHEET NOTES

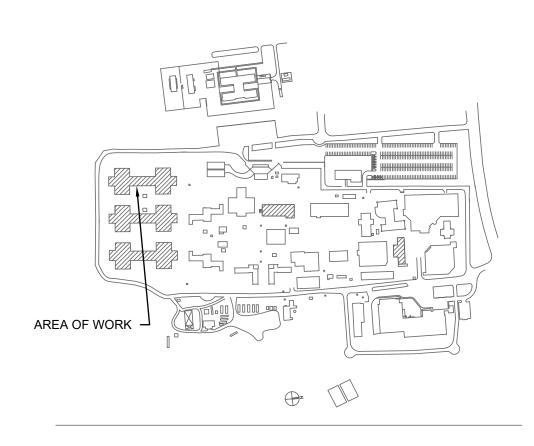
- 1. REFER TO M001 FOR ALL SYMBOLS, ABBREVIATIONS, AND
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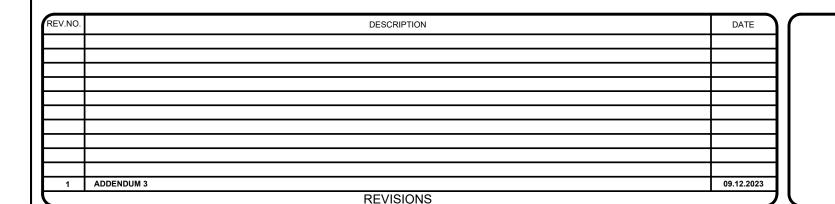
 ALL NOTES SHALL BE REVIEWED TO ESTABLISH THE OVERA
- 2. ALL NOTES SHALL BE REVIEWED TO ESTABLISH THE OVERALL SCOPE OF WORK
- 3. ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE VERIFIED AT THE BUILDING AND SITE.
- 4. ANY CONFLICT BETWEEN INFORMATION ON DRAWINGS AND ACTUAL FIELD "AS BUILT" CONDITIONS SHALL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

***** KEY NOTES

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)

KEY PLAN









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NC Correctional Institution for Women Air Conditioning Installation

SCO ID: 22-24913-02A Code: 42107 Iter

DORMITORY N & O ROOF MECHANICAL PLAN - SPARROW BUILDING

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

SCALE

HORIZONTAL:

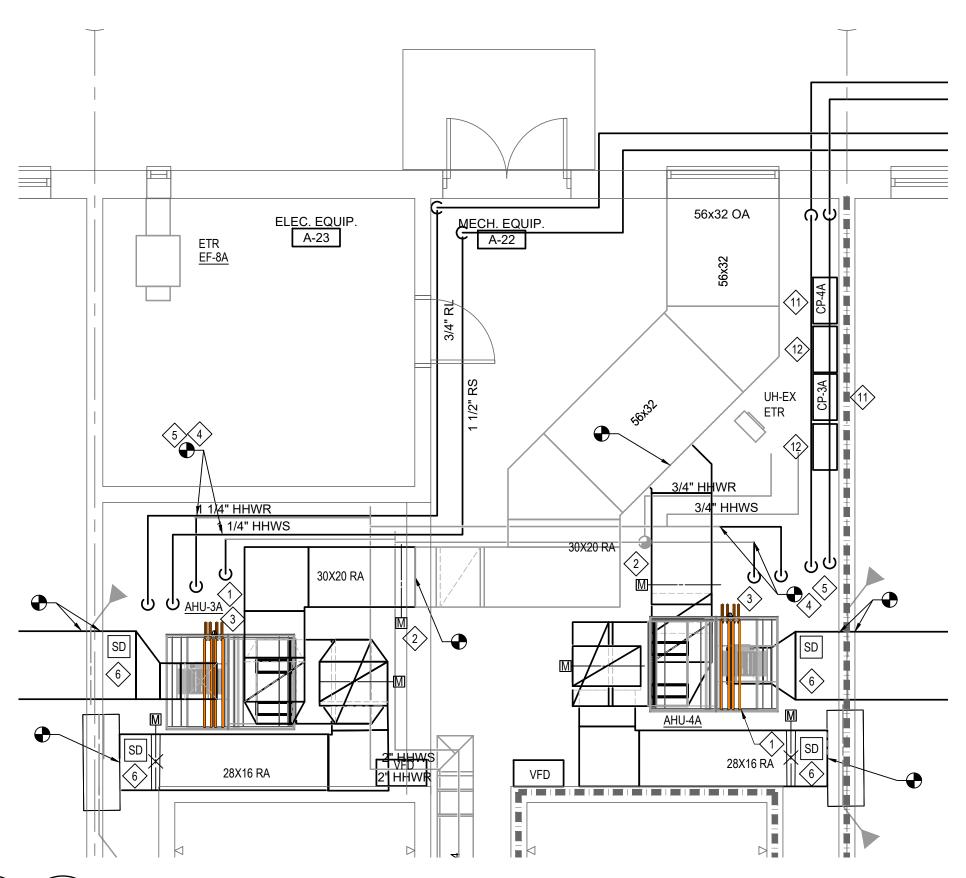
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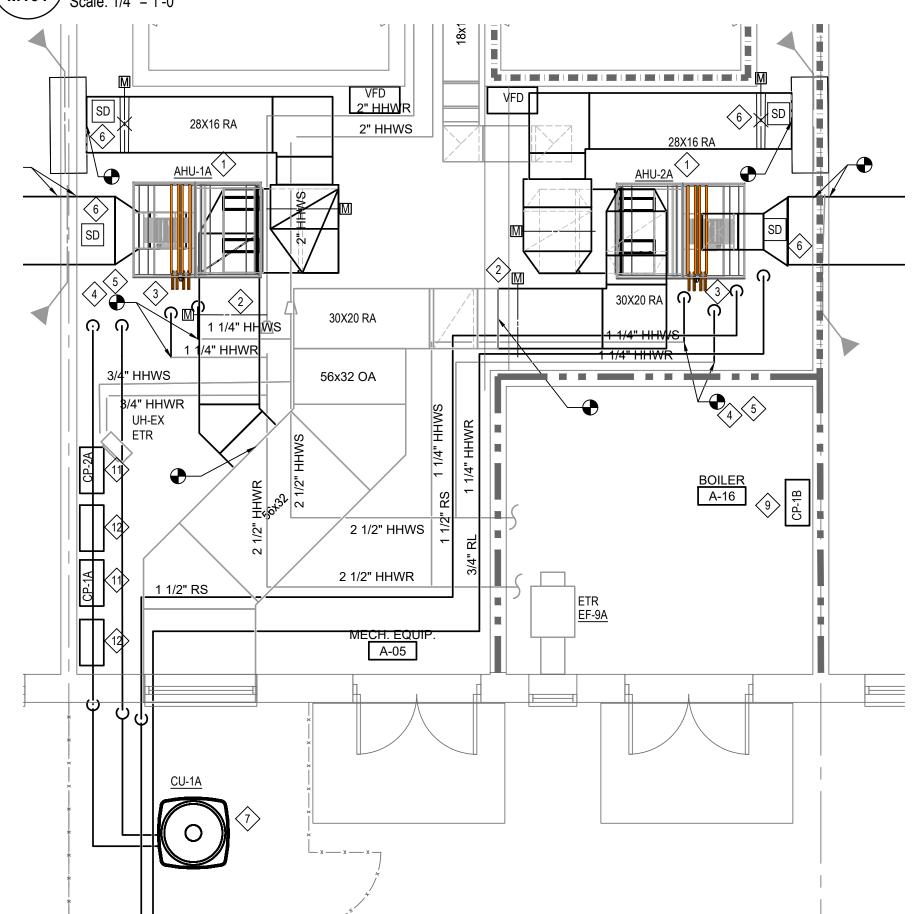
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BID DOCUMENTS

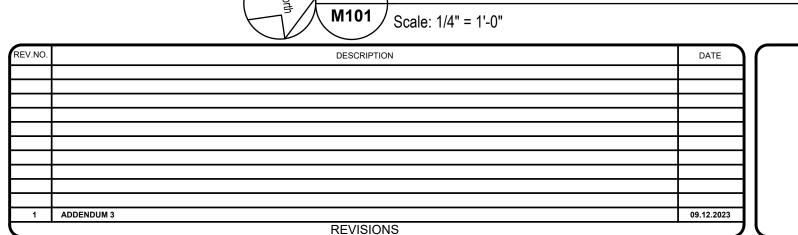
I:\08914\0002\ENG\80-DRAWINGS\86-DESIGN\86H-HVAC DESIGN\CONSTRUCTION DOCUMENTS\DORM N AND 0 (SPARROW)\M220.DWG 09/12/2023 16:17:20 EVGENIA KROZ

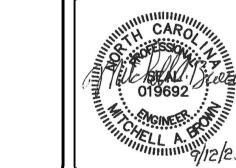


DORMITORY ENLARGED MECHANICAL ROOM A-22 M101 / Scale: 1/4" = 1'-0"



DORMITORY ENLARGED MECHANICAL ROOM A-05







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56x32 OA

28X16 RA

BOILER C-16

M102 | Scale: 1/4" = 1'-0"

ETR EF-9C

30X20 RA

C-23

30X20 RA

28X16 RA

DORMITORY ENLARGED MECHANICAL ROOM C-22

2 1/2" HHWS

2 1/2" HHWR

DORMITORY ENLARGED MECHANICAL ROOM C-05

28X16 RA

ETR EF-8C



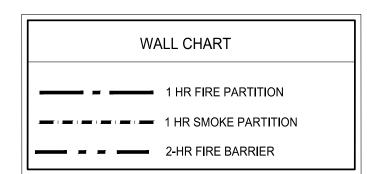
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- ANY CONFLICT BETWEEN INFORMATION ON DRAWINGS AND ACTUAL FIELD "AS BUILT" CONDITIONS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION PRIOR TO COMMENCING WORK.
- CONTRACTOR IS REPONSIBLE TO REMOVE THE EXISTING CEILINGS, AND OTHER ITEMS 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

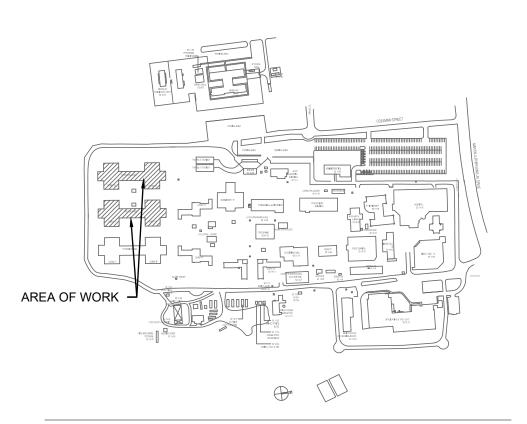
- INSTALL NEW UNITS ON EXISTING CONCRETE PAD. PROVIDE NEOPRENE PADS BETWEEN AHU AND EXISTING CONCRETE PAD.CONNECT TO EXISTING DUCTS. ROUTE NEW REFRIGERANT LINES FROM INDOOR UNIT TO ASSOCIATED OUTDOOR UNIT. PROVIDE NEW MOTOR-OPERATED DAMPERS AS PART OF AHU MIXING BOX.
- NEW OUTSIDE AIR DAMPER IS PART OF THE UNIT. ROUTE NEW 1 1/4" CONDENSATE P-TRAP AND PIPING TO EXISTING FLOOR DRAIN. DISCHARGE WITH 1" AIR GAP MINIMUM.
- CONNECT NEW HOT WATER COIL TO EXISTING HW PIPING
- PROVIDE NEW BRANCH PIPING. VALVES TO BE INSTALLED DURING THE HHW SYSTEM SHUTDOWN.

REFER TO DETAILS FOR P-TRAP DIMENSIONS.

- MISTALL 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.



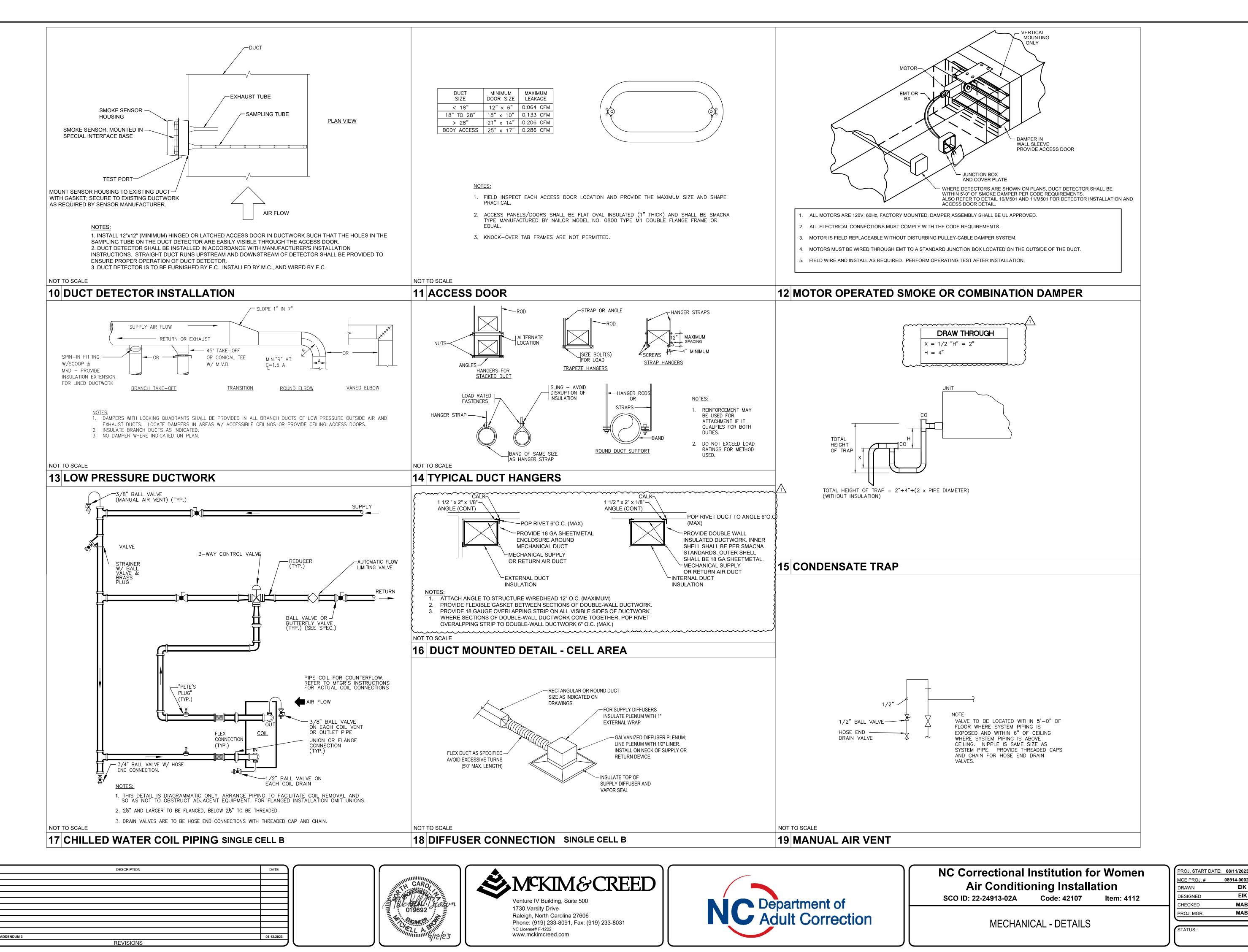
KEY PLAN



NC Correctional Institution for Women Air Conditioning Installation Item: 4112

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

> MECHANICAL ENLARGED PLANS -FALCON, SPARROW BUILDINGS



SCALE

AS NOTED

VERTICAL:

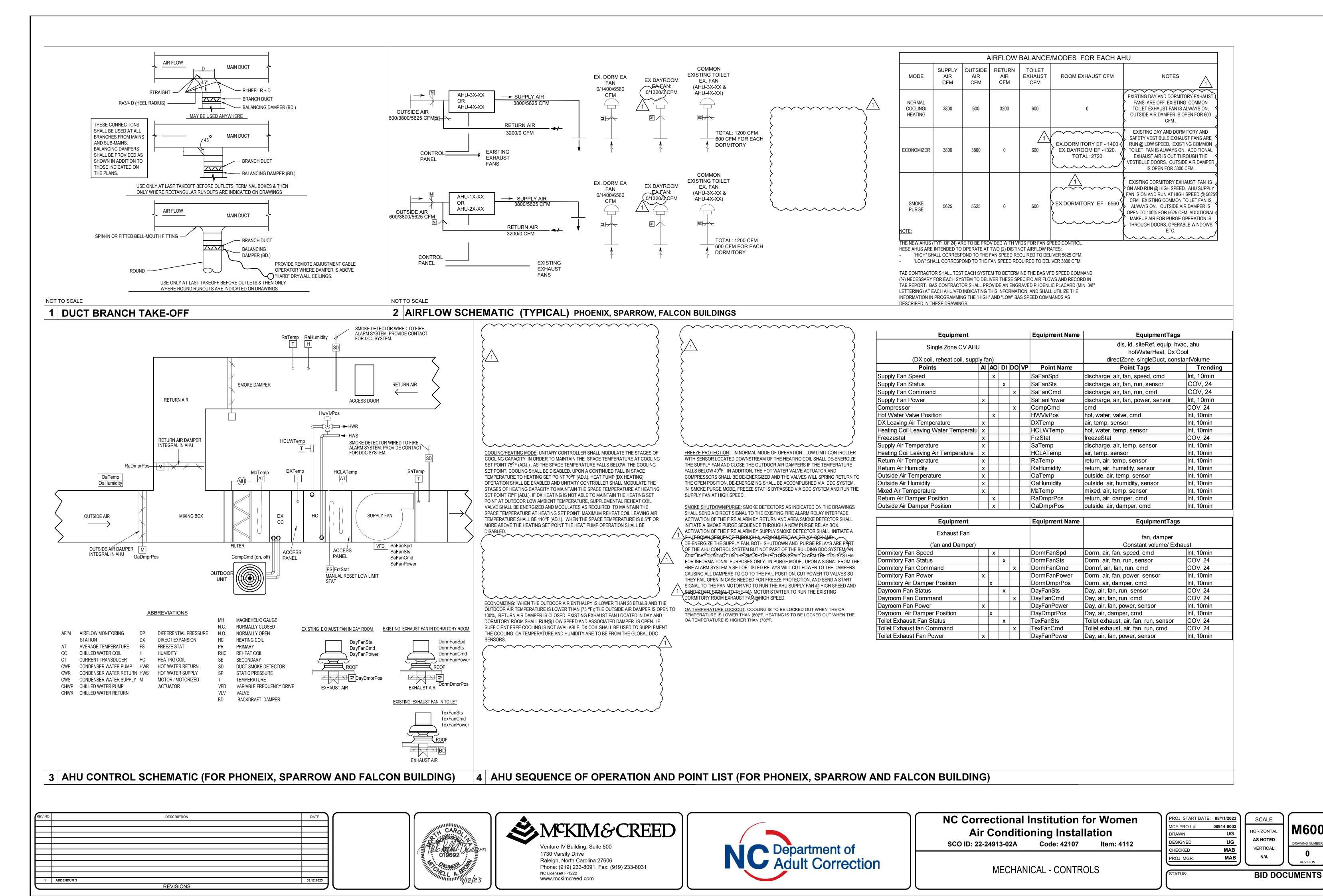
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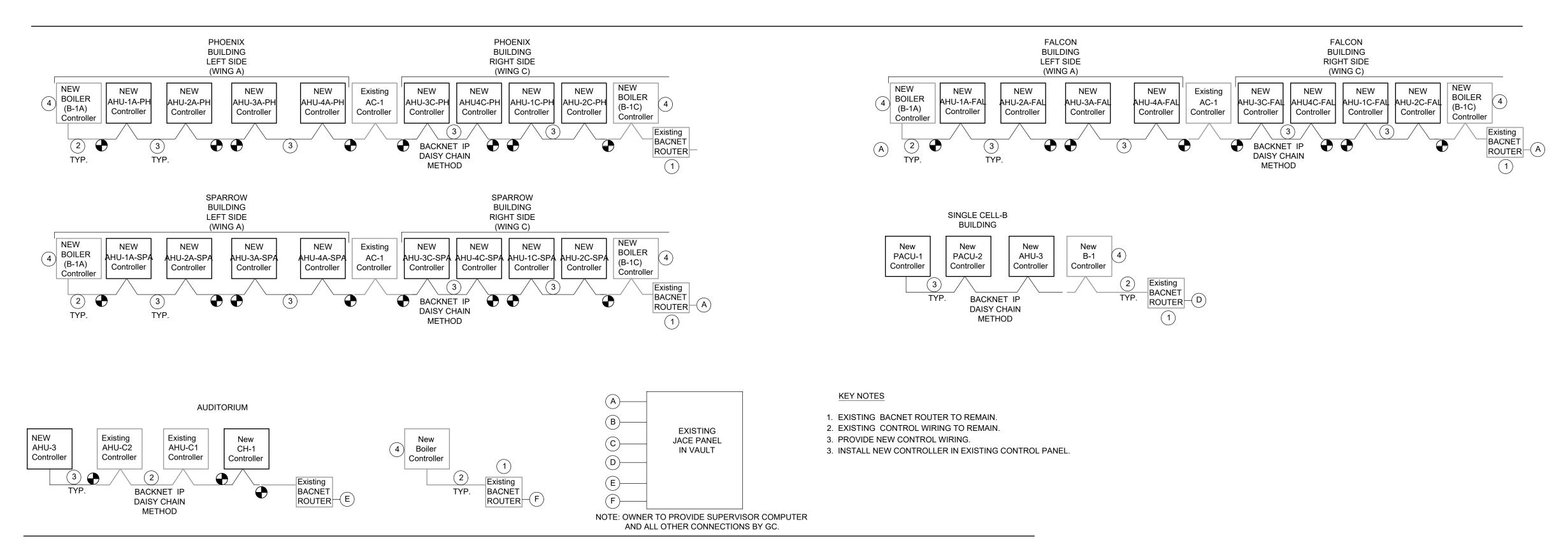
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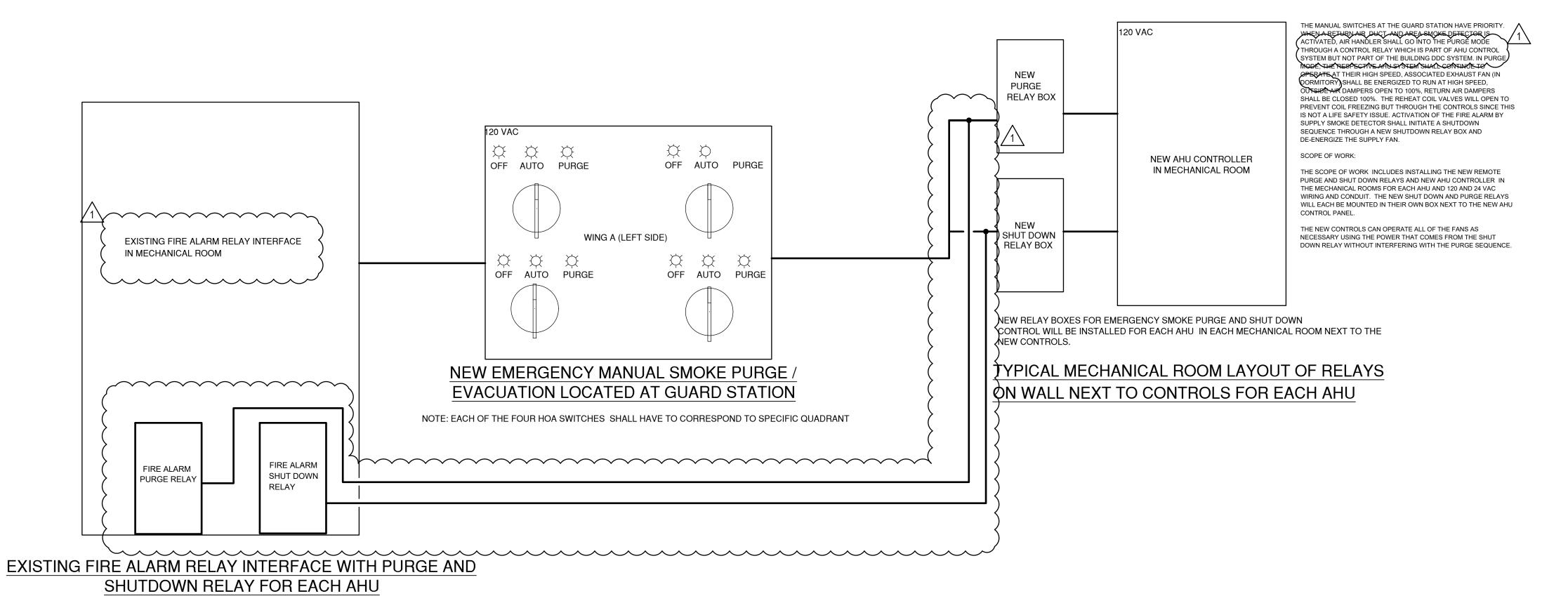
MAB

MAB

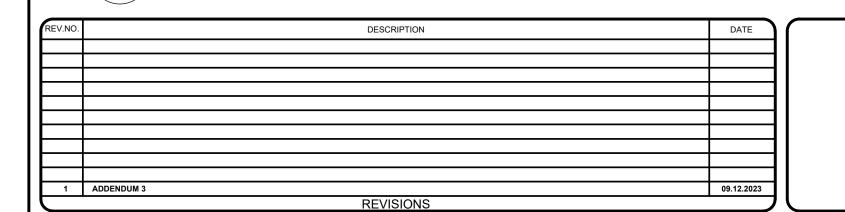


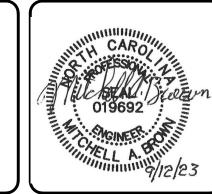






SCHEMATIC OF MANUAL SWITCHES AND RELAY MODULES (TYPICAL FOR SPARROW, FALCON AND PHONEIX BUILDING)







NC License# F-1222 www.mckimcreed.com



NC Correctional Institution for Women Air Conditioning Installation

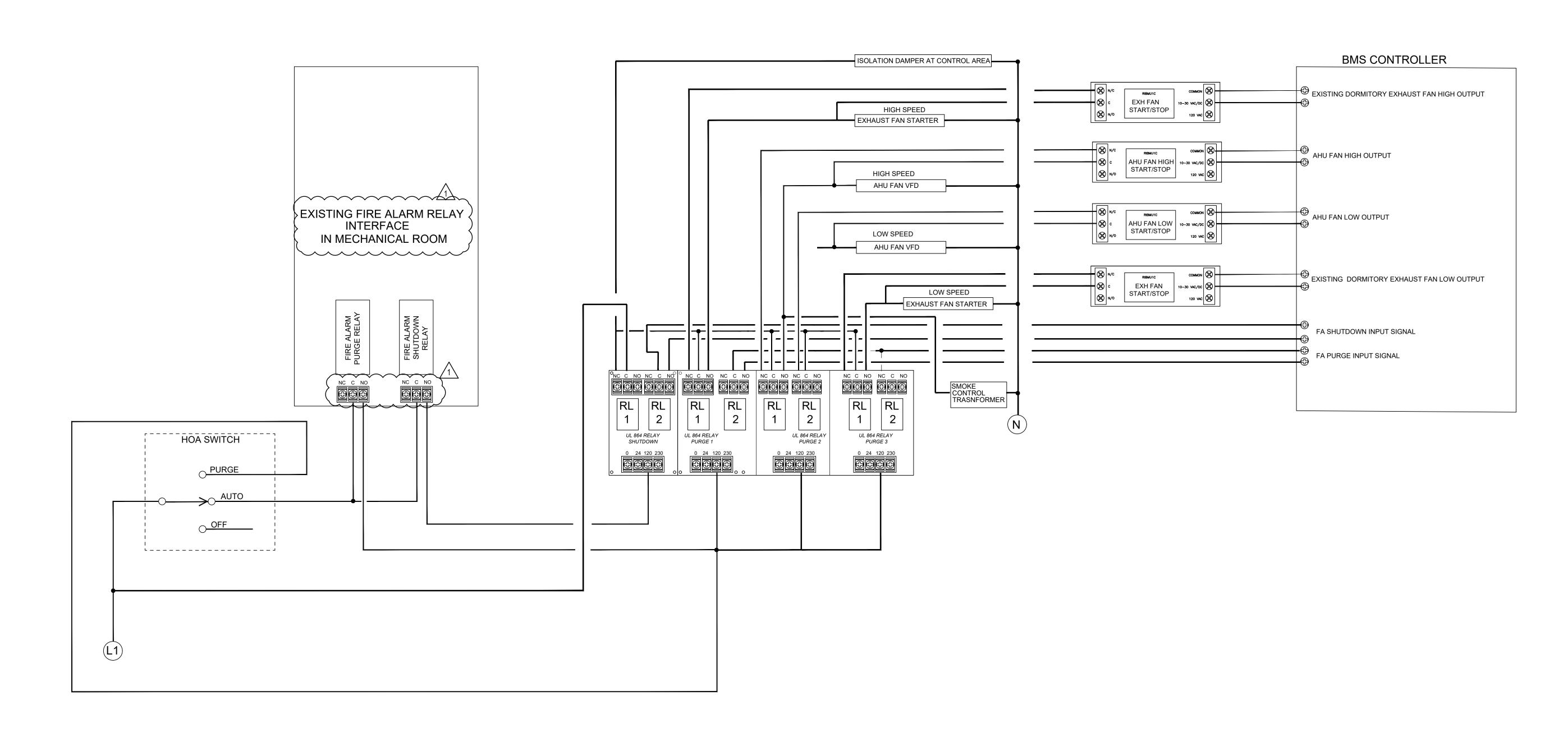
SCO ID: 22-24913-02A Code: 42107 Item: 4112

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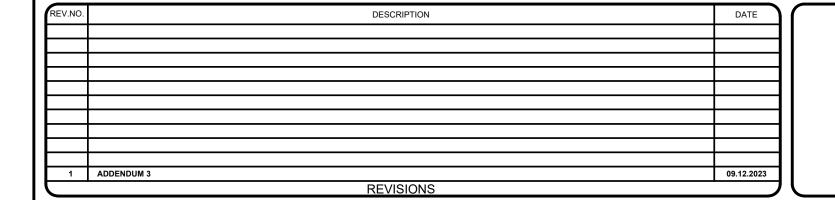
PROJ. START DATE: 08/11/2023

MECHANICAL - CONTROLS

SCALE



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









NC Correctional Institution for Women Air Conditioning Installation

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

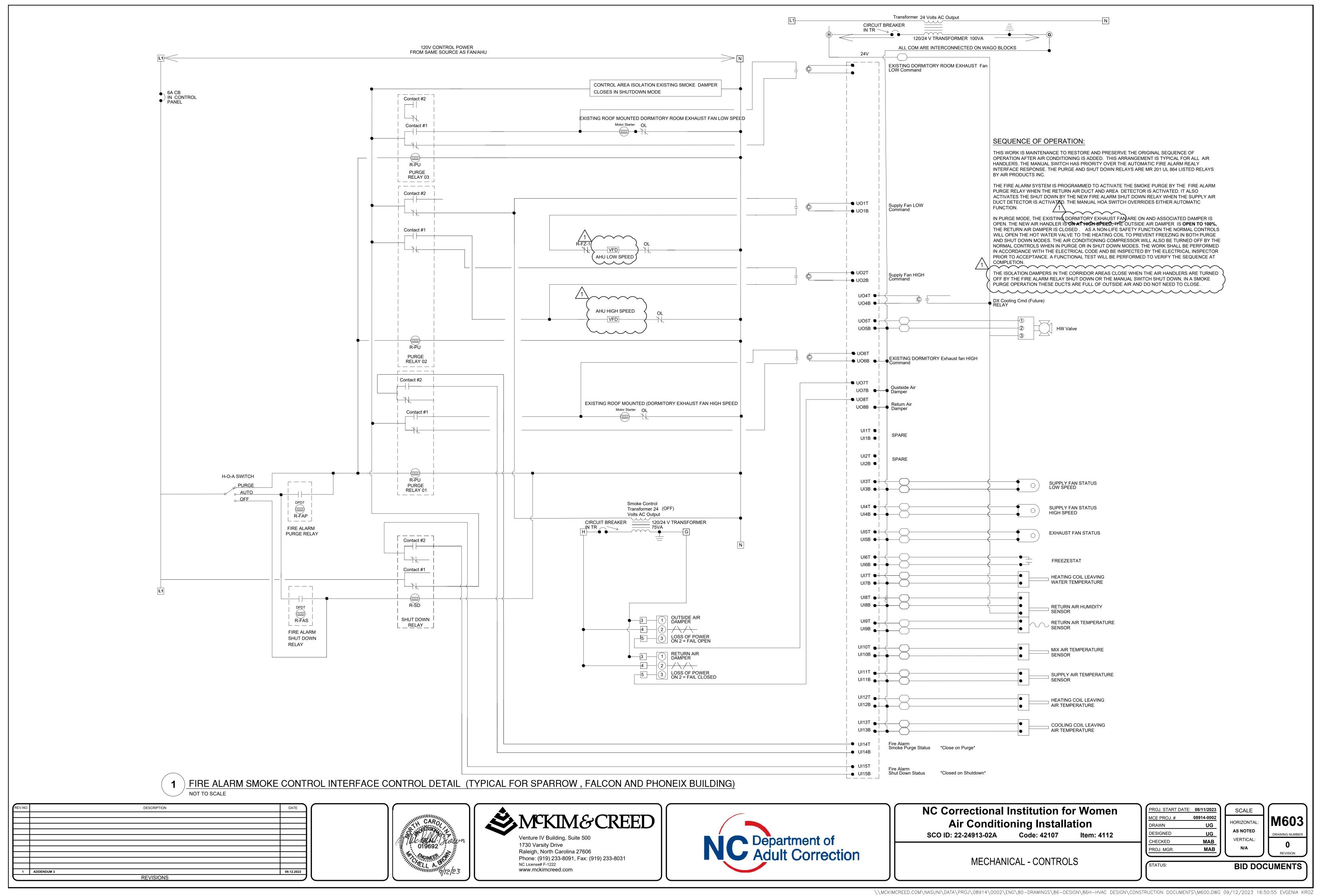
DRAWN UG MAB MAB

PROJ. START DATE: 08/11/2023

HORIZONTAL: **AS NOTED** VERTICAL:

BID DOCUMENTS

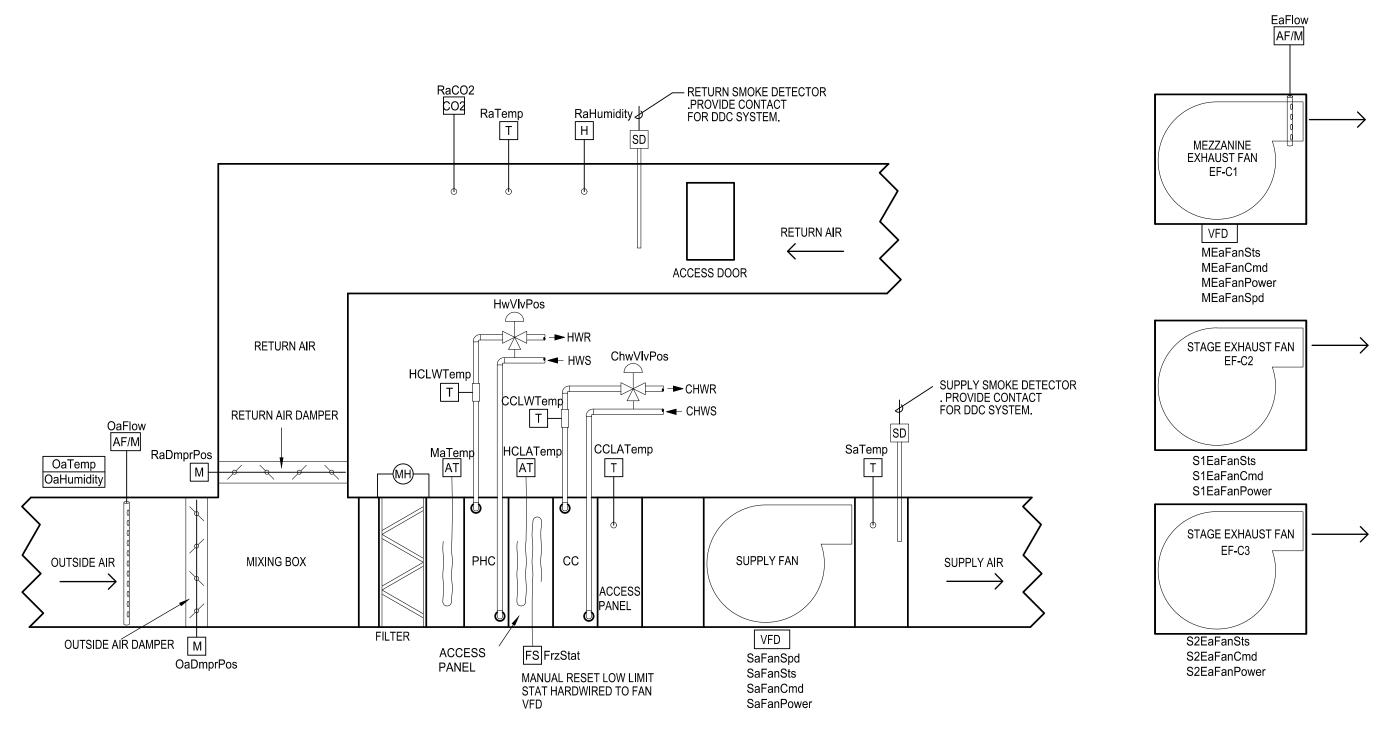
MECHANICAL - CONTROLS



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

NOT TO SCALE

1 AIRFLOW BALANCE TABLE FOR AUDITORIUM



MIXING BOX		Pr	O ,		ACCE PANEI	SUF	PPLY FAN		SUPPLY ———	$\stackrel{AIR}{\rightarrow}$				
1 mprPos	FILTER	ACCESS PANEL	M.A	AT HARD	eset LOW DWIRED TO	S S	VFD aFanSpd aFanSts aFanCmd aFanPower				· ·	S2EaFa S2EaFa S2EaFa		
										CHWS	CHILLED WATER SUPPLY ABBREVIATIONS	MH N.C.	MAGNEHELIC GAU NORMALLY CLOSE	
							AF/M STATIOI	AIRFLOW MONI N	TORING	DP	DIFFERENTIAL PRESSURI	E		
							AT	AVERAGE TEM	PERATURE	DX	DIRECT EXPANSION	N.O.	NORMALLY OPEN	
							CC	CHILLED WATE		FS	FREEZE STAT	PHC	PREHEAT COIL	
							CT	CURRENT TRAI		Н	HUMIDITY	PR	PRIMARY	
							CWP CWR	CONDENSER W		HC	HEATING COIL HOT WATER RETURN	RHC SE	REHEAT COIL SECONDARY	
							CWR	CONDENSER W		HWR HWS	HOT WATER RETURN HOT WATER SUPPLY	SD	DUCT SMOKE DET	ECTOR

Equipment **Equipment Name** EquipmentTags dis, id, siteRef, equip, hvac, ahu AUDITORIUM AHU hotWaterHeat, chilledWaterCool directZone, singleDuct, variableVolume (heating coil, cooling coil, supply fan) Point Tags Al AO DI DO VP Point Name Trending discharge, air, fan, speed, cmd Int, 10min Supply Fan Speed SaFanSpd Supply Fan Status SaFanSts discharge, air, fan, run, sensor COV, 24 COV, 24 Supply Fan Command SaFanCmd discharge, air, fan, run, cmd SaFanPower Int, 10min Supply Fan Power discharge, air, fan, power, sensor Chilled Water Valve Position IChWVIvPos chilled, water, valve, cmd Int. 10min | X | Hot Water Valve Position hot, water, valve, cmd HWVIvPos Int. 10min Cooling Coil Leaving Water Temperatul x CCLWTemp chilled, water, temp, sensor Int, 10min | Heating Coil Leaving Water Temperatu x HCLWTemp hot, water, temp, sensor Int. 10min COV. 24 FrzStat SaTemp Supply Air Temperature 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 RaTemp return, air, temp, sensor Int, 10min | x | | Return Air Humidity RaHumidity return, air, humidity, sensor Int. 10min | x | | Return Air CO₂ | x | | RaCO2 return, air, co2, sensor Int, 10min Outside Air Flow OaFlow outside, air, flow, sensor Int, 10min | x | Outside Air Temperature | x | OaTemp outside, air, temp, sensor Int, 10min outside, air, humidity, sensor Outside Air Humidity Int, 10min | x | | OaHumidity Outside Air Flow OaFlow outside, air, flow, sensor Int, 10min | X | Mixed Air Temperature MaTemp mixed, air, temp, sensor Int, 10min X Return Air Damper Position Int, 10min | X | RaDmprPos return, air, damper, cmd **Outside Air Damper Position** Int, 10min X OaDmprPos outside, air, damper, cmd Relief Air Damper Position Int, 10min X RlfDmprPos relief, air, damper, cmd Exhaust Air Flow EaFlow Exhaust air, flow, sensor Int, 10min Supply Air Static Pressure | x | | discharge, air, pressure, sensor Int, 10min

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

3 AHU (AUDITORIUM) POINT LIST

- 1. 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
- 2. WARMUP: OA DAMPERS REMAIN FULLY CLOSED. THE MORNING WARM_UP PERIODS SHALL BE OPTIMIZED DEPENDING ON THE OUTDOOR AND INDOOR AIR CONDITIONS.
- 3. COOLDOWN: OA DAMPERS REMAIN FULLY CLOSED EXCEPT WHEN ECONOMIZING. THE MORNING COOLDOWN PERIODS SHALL BE OPTIMIZED DEPENDING ON THE OUTDOOR AND INDOOR AIR CONDITIONS.
- 4. 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.
- 5. 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 MODULATED 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
- CHW OPTIMIZATION WHEN ECONOMIZING: WHEN ECONOMIZING CONTROL OF THE CHW VALVE SHALL BE INITIALLY OVERRIDDEN TO STAY CLOSED, ALLOWING THE FAN TO 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.

- 6. DEMAND CONTROL VENTILATION: VENTILATION RATE SET POINT SHALL BE BASED ON RETURN AIR ${\rm CO_2}$ SENSOR. VENTILATION SHALL BE REDUCED WHEN RETURN AIR ${\rm CO_2}$ 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 MODULATES THE SPEED OF EXHAUST FAN TO MEET THE VENTILATION DEMAND.
- 7. 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.
- 8. 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.

 CONTACT ON THE SMOKE DETECTOR SHALL ALARM THE DDC SYSTEM FOR 1
 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) SEQUENCE OF OPERATION

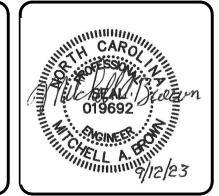
REV.NO. DESCRIPTION DATE

DATE

1 ADDENDUM 3

REVISIONS

2 AHU CONTROL SCHEMATIC (FOR AUDITORIUM)



CHWP CHILLED WATER PUMP M MOTOR / MOTORIZED

CHWR CHILLED WATER RETURN ACTUATOR



STATIC PRESSURE

VFD VARIABLE FREQUENCY DRIVE

TEMPERATURE

VLV VALVE

Venture IV Building, Suite 500 1730 Varsity Drive Raleigh, North Carolina 27606 Phone: (919) 233-8091, Fax: (919) 233-8031 NC License# F-1222 www.mckimcreed.com



NC Correctional Institution for Women Air Conditioning Installation

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

MECHANICAL - CONTROLS

PROJ. START DATE:	08/11/20
MCE PROJ. #	08914-00
DRAWN	U
DESIGNED	U
CHECKED	MA
PROJ. MGR.	MA
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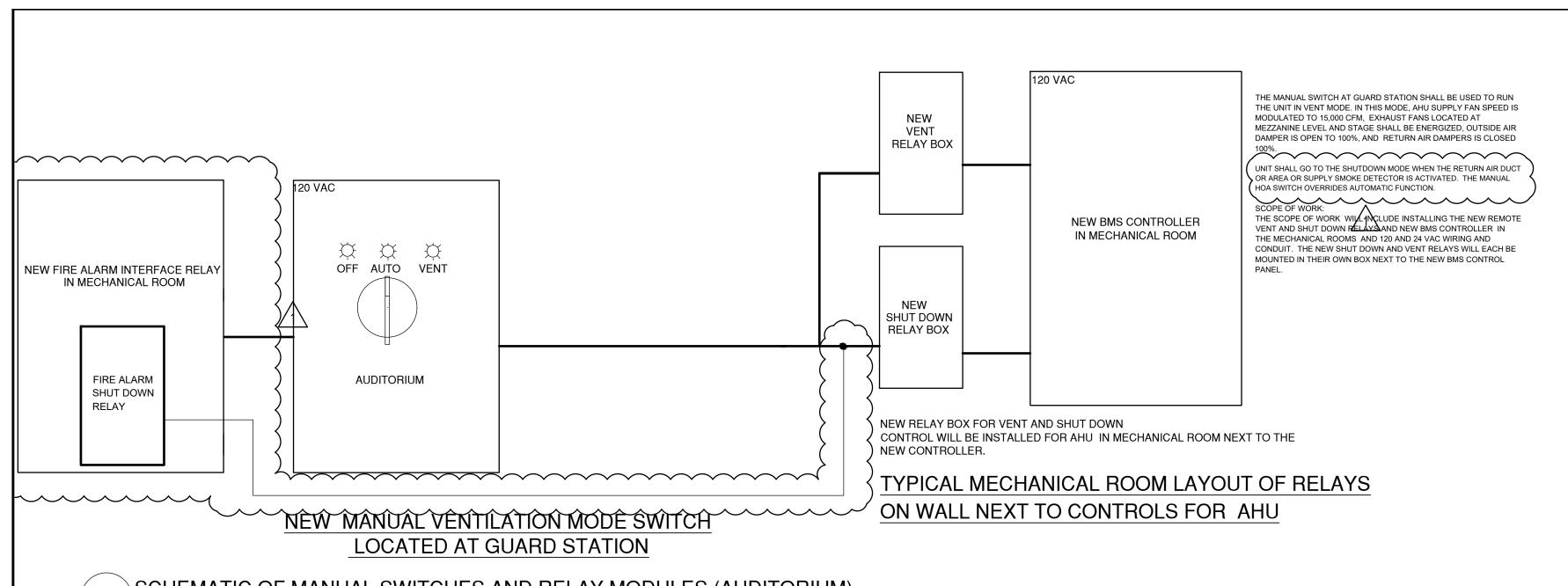
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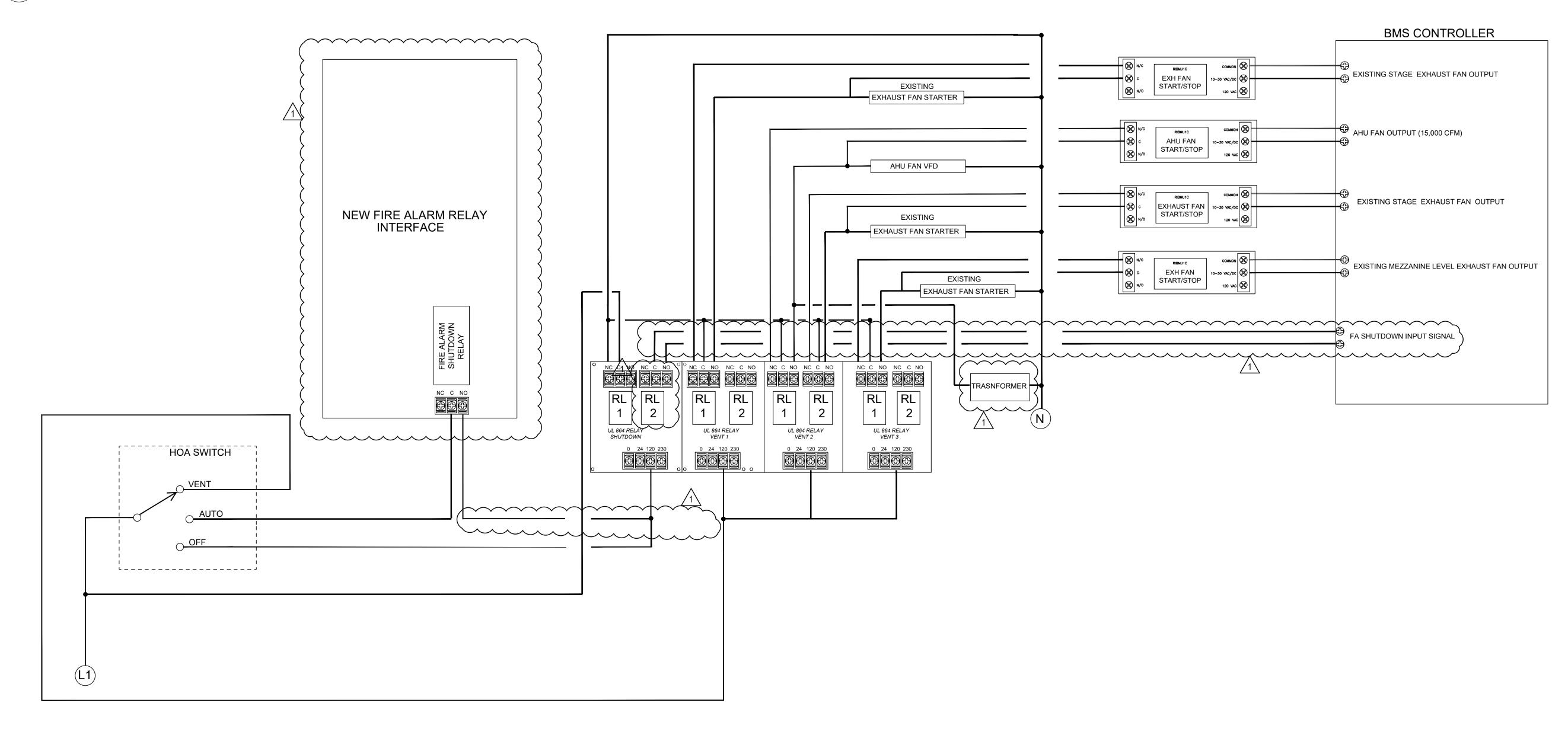
AS NOTED

VERTICAL:

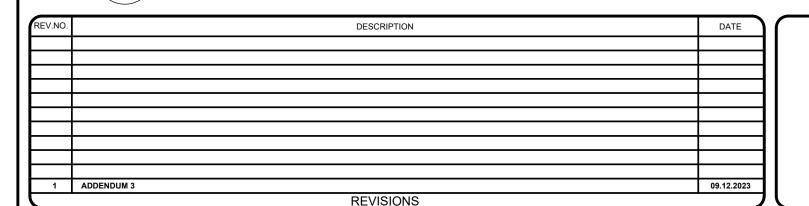
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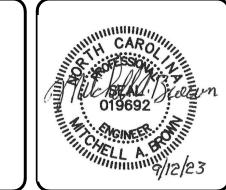


SCHEMATIC OF MANUAL SWITCHES AND RELAY MODULES (AUDITORIUM)



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







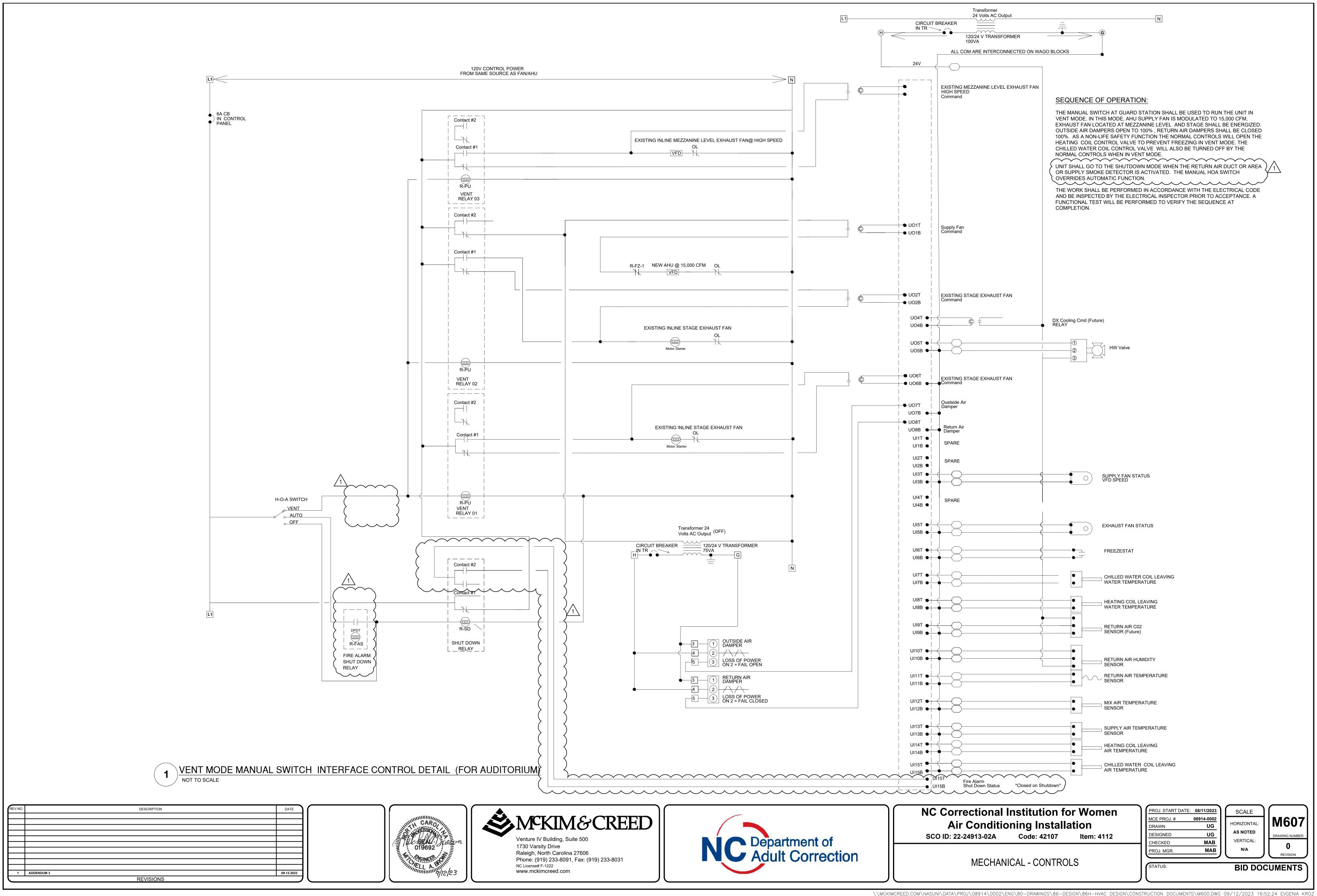
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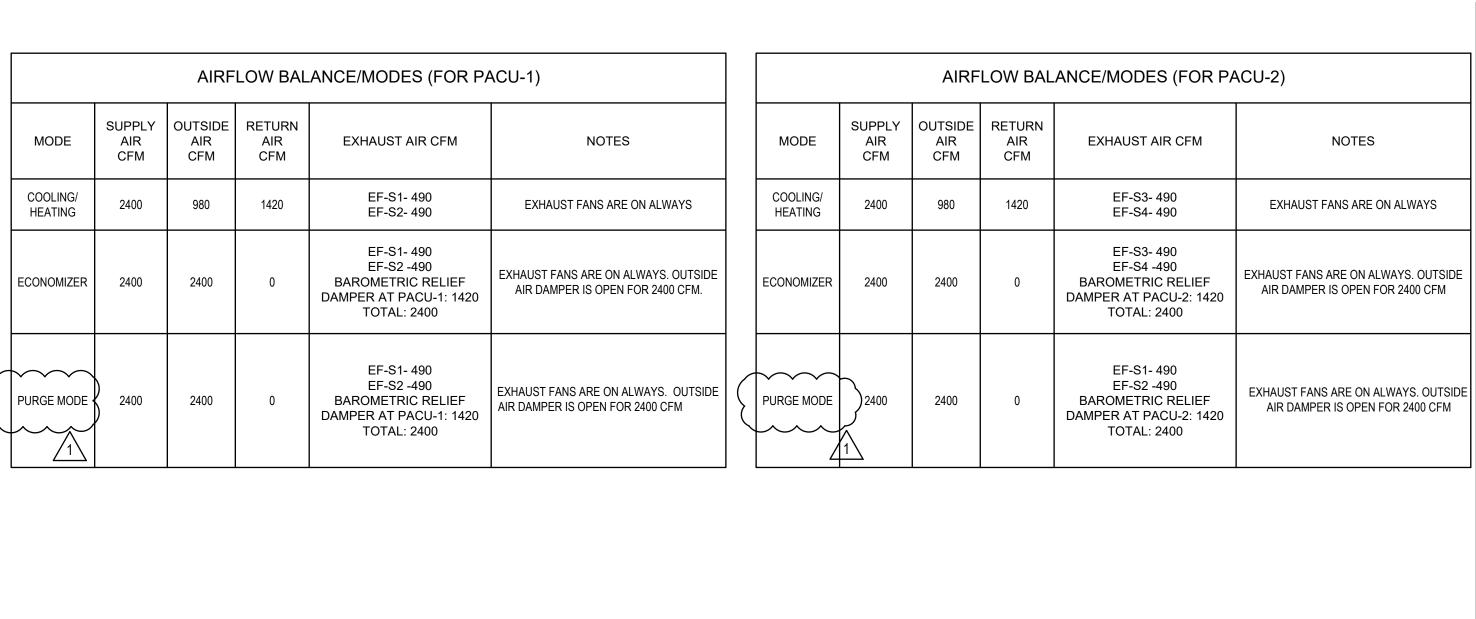


NC Correctional Institution for Women Air Conditioning Installation SCO ID: 22-24913-02A Code: 42107 Item: 4112

MECHANICAL - CONTROLS

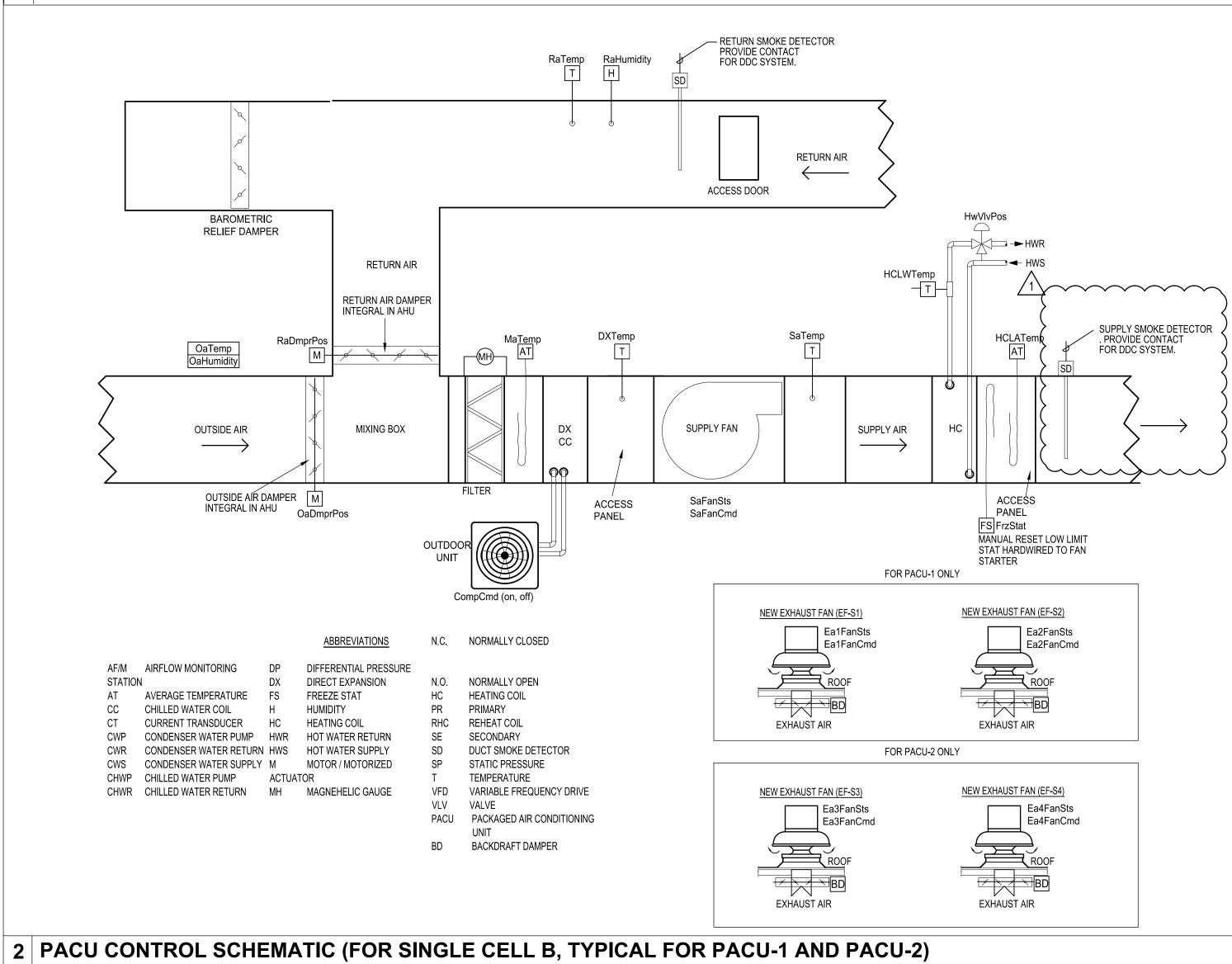
١	PROJ. START DATE:	08/11/2023	١.	SCALE	1	
Ш	MCE PROJ. #	08914-0002		SCALE		NACOE
	DRAWN	UG		HORIZONTAL:		M605
	DESIGNED	UG		AS NOTED		DRAWING NUMBER
┩┃	CHECKED	MAB		VERTICAL:		0
Ц	PROJ. MGR.	MAB		N/A		REVISION
'			_			REVIOION
11	STATUS:			BID DO	C	UMENTS





NOT TO SCALE

1 AIRFLOW BALANCE TABLE FOR SINGLE CELL B



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

Equipment					Equipment Name	EquipmentTags	3
DUCTMOUNTED REHEAT	COI	L					
Freezestat	Х				FrzStat	freezeStat	COV, 24
Hot Water Valve Position		Х			HWVIvPos	hot, water, valve, cmd	Int, 10min
Heating Coil Leaving Water Temperature	Х				HCLWTemp	hot, water, temp, sensor	Int, 10min
Heating Coil Leaving Air Temperature	Х				HCLATemp	air, temp, sensor	Int, 10min
Equipment					Equipment Name	EquipmentTags	5
Exhaust fans							
						fan, damper	
(fan and Damper)						Constant volume/ Ext	naust
Exhaust Fan 1 Status			Х		Ea1FanSts	Exhaust 1, air, fan, run, sensor	COV, 24
Exhaust Fan 1 Command				х	Ea1FanCmd	Exhaust 1, air, fan, run, cmd	COV, 24
Exhaust Fan 2 Status			Х		Ea2FanSts	Exhaust 2, air, fan, run, sensor	COV, 24
Exhaust Fan 2 Command				х	Ea2FanCmd	Exhaust 2,air, fan, run, cmd	COV, 24

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

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/COOLDOWN 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.

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.

<u>DELAYED VENTILATION</u>: 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

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.

ECONOMIZING: WHEN THE OUTDOOR AND 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.

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

REV.NO. DESCRIPTION DATE

DATE

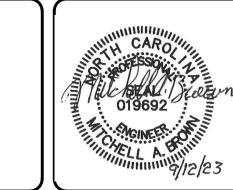
ADDENDUM 3

DESCRIPTION

DATE

DATE

DATE





Venture IV Building, Suite 500 1730 Varsity Drive Raleigh, North Carolina 27606 Phone: (919) 233-8091, Fax: (919) 233-8031 NC License# F-1222 www.mckimcreed.com



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

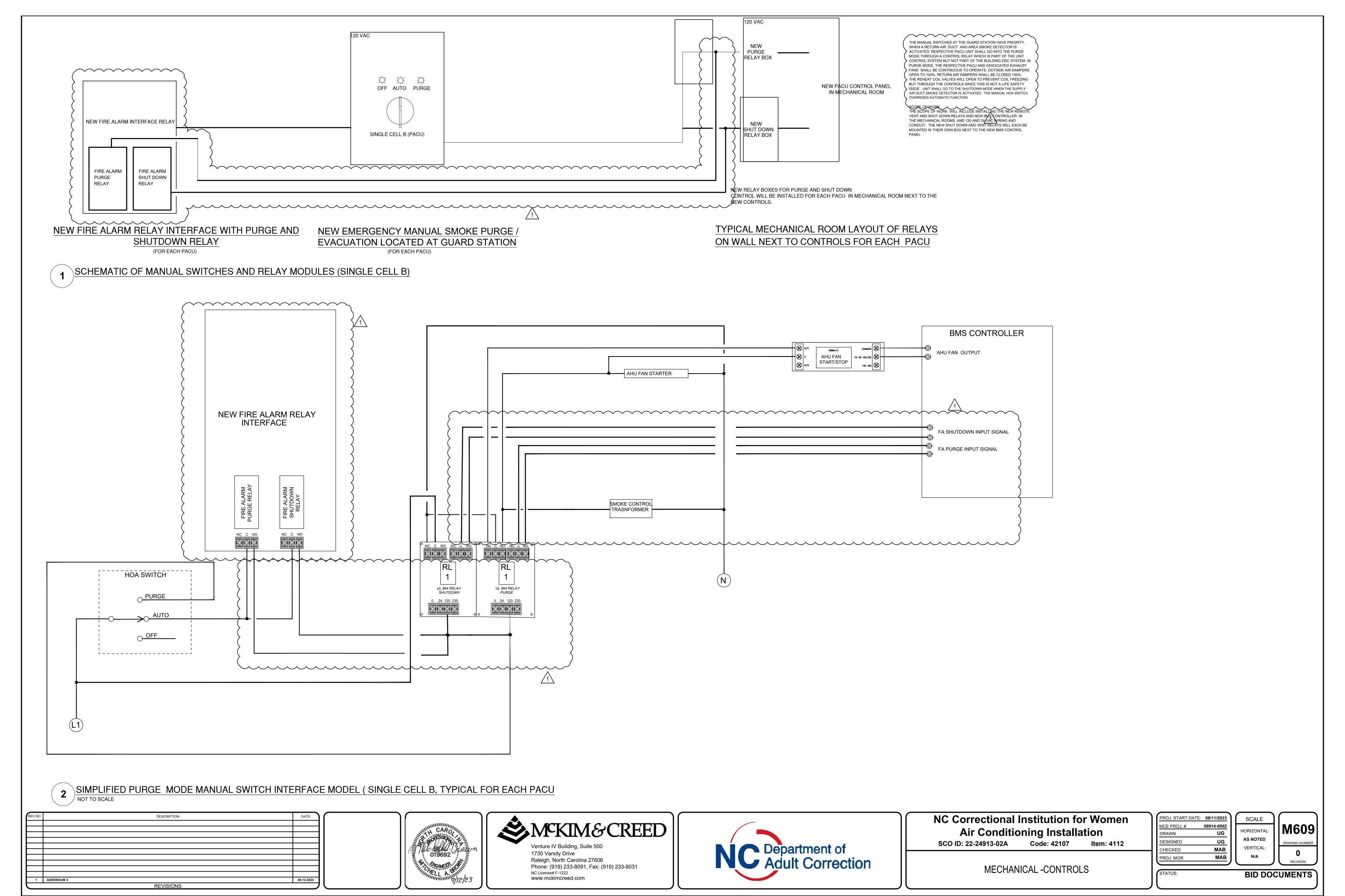
AS NOTED

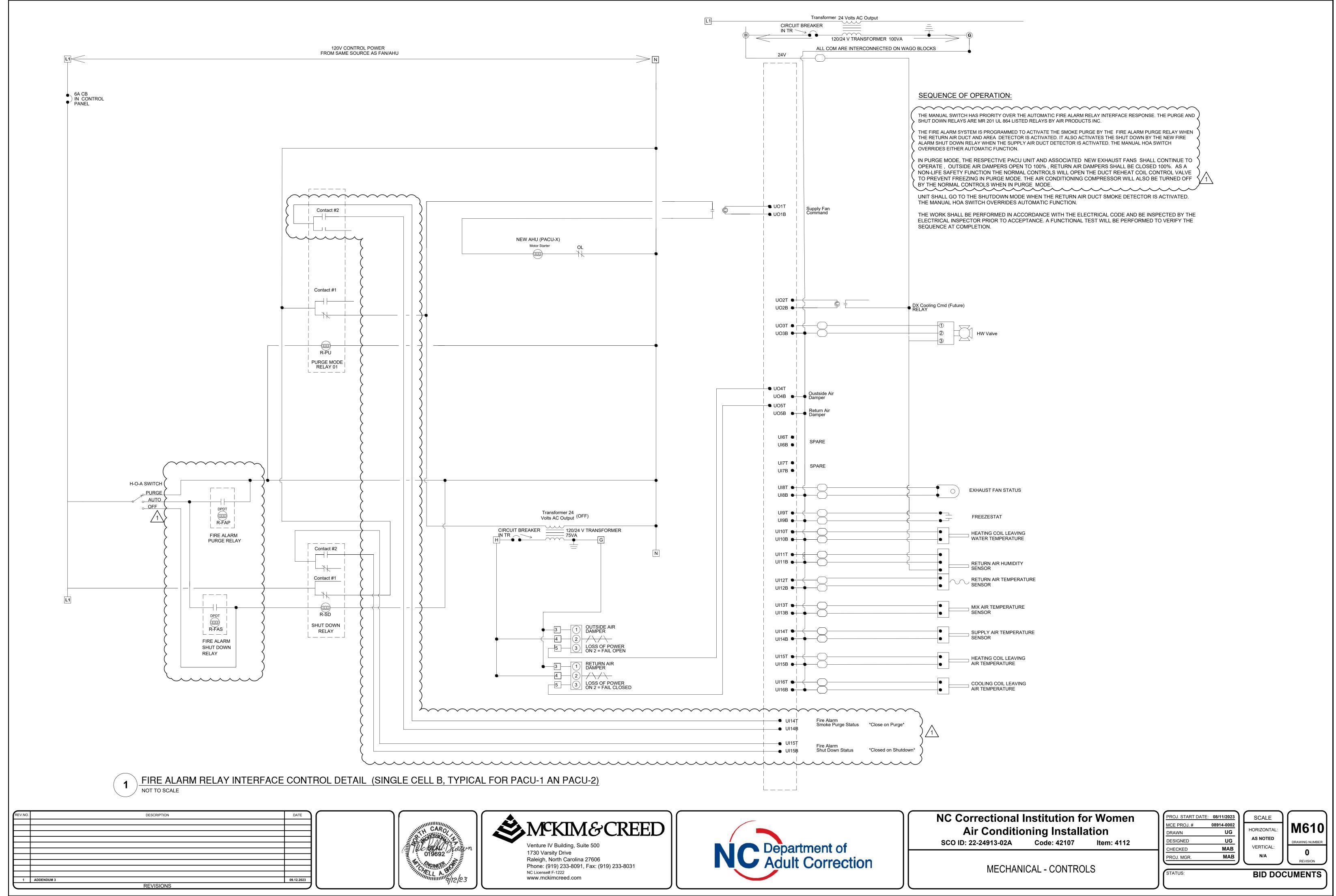
VERTICAL:

N/A

BID DOCUMENTS

\\MCKIMCREED.COM\NASUNI\DATA\PROJ\08914\0002\ENG\80-DRAWINGS\86-DESIGN\86H-HVAC DESIGN\CONSTRUCTION DOCUMENTS\M600.DWG 09/12/2023 16:52:48 EVGENIA KROZ





										AIR HA	NDLING	3 UNIT	Γ SCHEDULE (P	HOENIX,	SPARRO'	W, FALC	ON BUILE	DINGS)													
			HIGH SPEED	LOW SPEED				SUF	PLY FAN				CO	OLING COIL	SECTION (L	OW SPEED	FAN)			HEATING C	OIL SECTIO	N (LOW SP	EED FAN)		FILTER DATA	ELE	CTRICAL		BASIS C	OF DESIGN	
TAG	UNIT TYPE	AREA SERVED	(PURGE) SUPPLY AIR (CFM)	(NORMAL) SUPPLY AIR (CFM)	MIN OA (CFM)	HIGH SPEED SUPPLY AIR (CFM)	LOW SPEED SUPPLY AIR (CFM)	FAN HIGH SPEED (RPM)	FAN LOW SPEED (RPM)	TOTAL / EXT SP (IN WG) @ LOW SPEED	MOTOR HP	FLA	CAP TOT/ SENS (MBH)	EAT DB / WB (°F)	LAT DB /WB (°F)	APD (IN. WG)	REFRIG.	EER	CAP (MBH)	EAT/ LAT (°F DB)	APD	WATER TEMP ENT/LVG (°F)	FLOW (GPM)	WPD (FT H20)	PRE- FILTER EFF	VOLTAGE / PH	MCA	MOP	MANUF	MODEL	NOTES
AHU-1A-PH	INDOOR	PHOENIX BUILDING	5,625	3,800	600	5,625	3,800	1,422	1,025	1.21 / 0.75	7.5	9.3	126,022/ 96,722	77.8/64.4	54.5/53.2	0.25	R-410A	11.2	175	61.5/103.7	0.07	180/152.5	13.0	1.16	MERV8	460/3/60	11.6	20	DAIKIN	BCVD0501	1-10
AHU-2A-PH	INDOOR	PHOENIX BUILDING	5,625	3,800	600	5,625	3,800	1,422	1,025	1.21 / 0.75	7.5	9.3	126,022/ 96,722	77.8/64.4	54.5/53.2	0.25	R-410A	11.2	175	61.5/103.7	0.07	180/152.5	13.0	1.16	MERV8	460/3/60	11.6	20	DAIKIN	BCVD0501	1-10
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AHU-1A-SP	INDOOR	SPARROW BUILDING	5,625	3,800	600	5,625	3,800	1,422	1,025	1.21 / 0.75	7.5	9.3	126,022/ 96,722	77.8/64.4	54.5/53.2	0.25	R-410A	11.2	175	61.5/103.7	0.07	180/152.5	13.0	1.16	MERV8	460/3/60	11.6	20	DAIKIN	BCVD0501	1-10
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NOTES: HOT WATER COILS SELECTED FOR EWT/LWT = 180°F/150°F

1. SEE SPECIFICATIONS FOR UNIT CONSTRUCTION. SEE PLANS FOR UNIT ARRANGEMENT.

2. PROVIDE INTERNAL VIBRATION ISOLATION FOR SUPPLY FANS.

3. COIL CAPACITIES DO NOT INCLUDE HEAT FROM FAN MOTOR. 4. PROVIDE VFD FAN. THESE AHUS ARE INTENDED TO OPERATE AT TWO (2) DISTINCT AIRFLOW RATES. "HIGH" SHALL CORRESPOND TO THE FAN SPEED REQUIRED TO DELIVER 3,000 CFM.

5. PROVIDE NEMA PREMIUM EFFICIENCY MOTORS.

6. COILS ARE RATED AT LOW SPEED. 7. COMBINATION FILTER/MIXING BOX.

8. BASIS OF DESIGN DAIKIN. SEE SPECIFICATIONS FOR APPORVED MANUFACTURERS

9. HEATING COIL WATER VELOCITY SHALL BE SELECTED FOR 4-6.4 FPS AT DESIGN CONDITIONS.

10. FACTORY MOUNTED OVERFLOW SWITCH AND FREEZESTAT.

									HEAT PUM	P SCHEDUI	LE							
	2-71/-2		NOMINAL		NOMINAL CAPACITY		COMPRESSO	OR CIRCUITS			ELECTRICAL		BASIS OF DESIGN		APPROXIMATE PHYSICAL SIZE			
TAG	SERVES	AREA SERVED	(TONS)	EER/IEER	HEATING AT 16F (MBH)	NO. OF COMPR.	TYPE OF COMPR.	TYPE OF REFRIGERANT	REFRIG. CHARGE (OZ)	RLA	MCA	MOP	VOLTS/ PHASE/ HERTZ	MANUF.	MODEL	(IN.) WxHxL	OPERATING WEIGHT (LBS)	NOTES
CU-1A-PH	AHU-1A-PH	PHOENIX BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-1C-PH	AHU-2A-PH	PHOENIX BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-2A-PH	AHU-3A-PH	PHOENIX BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-2C-PH	AHU-4A-PH	PHOENIX BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-3A-PH	AHU-1C-PH	PHOENIX BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-3C-PH	AHU-2C-PH	PHOENIX BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-4A-PH	AHU-3C-PH	PHOENIX BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-4C-PH	AHU-4C-PH	PHOENIX BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-1A-SP	AHU-1A-SP	SPARROW BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-1C-SP	AHU-2A-SP	SPARROW BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-2A-SP	AHU-3A-SP	SPARROW BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-2C-SP	AHU-4A-SP	SPARROW BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-3A-SP	AHU-1C-SP	SPARROW BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-3C-SP	AHU-2C-SP	SPARROW BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-4A-SP	AHU-3C-SP	SPARROW BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-4C-SP	AHU-4C-SP	SPARROW BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-1A-FAL	AHU-1A-FAL	FALCON BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-1C-FAL	AHU-2A-FAL	FALCON BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-2A-FAL	AHU-3A-FAL	FALCON BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-2C-FAL	AHU-4A-FAL	FALCON BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
U-3A-FAL	AHU-1C-FAL	FALCON BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
U-3C-FAL	AHU-2C-FAL	FALCON BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
U-4A-FAL	AHU-3C-FAL	FALCON BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1
CU-4C-FAL	AHU-4C-FAL	FALCON BUILDING	10	11.0/14.1	58.8	1	TWO-STAGE	R-410A	55	14.8	22	35	460/3/60	DAIKIN	DZ14XA1204	41-1/2" X 35-1/2" X 35-1/2	340	1

REV.NO.	DESCRIPTION	DATE
1 ADDENDUM 3		09.12.2023





Venture IV Building, Suite 500 1730 Varsity Drive Raleigh, North Carolina 27606 Phone: (919) 233-8091, Fax: (919) 233-8031 NC License# F-1222 www.mckimcreed.com



NC Correctional	Institution fo	or Women
Air Condition	oning Installa	ation
CCO ID: 22 24042 024	Codo: 42407	Itami 4442

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

	MCE PROJ. #	08914-0002	
	DRAWN	EIK	
	DESIGNED	EIK	
_	CHECKED	MAB	
	PROJ. MGR.	MAB	
	STATUS:		

PROJ. START DATE: 08/11/2023 SCALE HORIZONTAL: **AS NOTED** VERTICAL: BID DOCUMENTS

I:\08914\0002\ENG\80-DRAV	VINGS\86-DESIGN\86H-HVA	C DESIGN\CONSTRUCTION	DOCUMENTS\M700.DWG	09/12/2023	16:00:55 EVGENIA	KROZ

EF-5A&C-PH	SMOKE PURGE, ECONOMIZER MODE	A21 & C21 DOMITORYA/4	AHU-4A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	7
EF-6A&C-PH	SMOKE PURGE, ECONOMIZER MODE	A24 & C24 DOMITOR A/3	AHU-3A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	1 /
EF-10A1&C1-PH	ECONOMIZER MODE	A25 & C25 DAYROOM A/3	AHU-3A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	1
EF-10A2&C2-PH	ECONOMIZER MODE	A03 & C03 DAYROOM A/2	AHU-1A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	1 {
EF-10A3&C3-PH	ECONOMIZER MODE	A18 & C18 DAYROOM A/3	AHU-2A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	1 {
EF-10A4&C4-PH	ECONOMIZER MODE	A20 & C18 DAYROOM A/4	AHU-4A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	7 {
EF-12A&C-PH	SMOKE PURGE	A02/A08 VESTIBULE, C02/C08 VESTIBULE	AHU-1A&C-PH AHU-3A&C-PH	BELT	1320	-	1/4	120/1/60	1,2	$\Big] \Big\}$
EF-12A&C-PH	SMOKE PURGE	A13/A19 VESTIBULE, C13/C19 VESTIBULE	AHU-2A&C-PH AHU-4A&C-PH	BELT	1320	-	1/4	120/1/60	1,2	$\Big] \Big\}$
ÉF-3A&C-SP	SMOKE PÜRGE, ECONOMIZER MODE	A17 & C17 DORMITORY A/1	AHU-2A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	\int
EF-4A&C-SP	SMOKE PURGE, ECONOMIZER MODE	A04 & C04 DOMITORY A/2	AHU-1A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	
EF-5A&C-SP	SMOKE PURGE, ECONOMIZER MODE	A21 & C21 DOMITORYA/4	AHU-4A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	1
EF-6A&C-SP	SMOKE PURGE, ECONOMIZER MODE	A24 & C24 DOMITOR A/3	AHU-3A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	\downarrow
EF-10A1&C1-SP	ECONOMIZER MODE	A25 & C25 DAYROOM A/3	AHU-3A&C-PH	BELT	-	1320	1/4	120/1/60	1,2] '
EF-10A2&C2-SP	ECONOMIZER MODE	A03 & C03 DAYROOM A/2	AHU-1A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	
EF-10A3&C3-SP	ECONOMIZER MODE	A18 & C18 DAYROOM A/3	AHU-2A&C-PH	BELT	-	1320	1/4	120/1/60	1,2]
EF-10A4&C4-SP	ECONOMIZER MODE	A20 & C18 DAYROOM A/4	AHU-4A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	
EF-12A&C-SP	SMOKE PURGE	A02/A08 VESTIBULE, C02/C08 VESTIBULE	AHU-1A&C-PH AHU-3A&C-PH	BELT	1320	-	1/4	120/1/60	1,2	
EF-12A&C-SP	SMOKE PURGE	A13/A19 VESTIBULE, C13/C19 VESTIBULE	AHU-2A&C-PH AHU-4A&C-PH	BELT	1320	-	1/4	120/1/60	1,2	
EF-3A&C-FAL	SMOKE PURGE, ECONOMIZER MODE	A17 & C17 DORMITORY A/1	AHU-2A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	
EF-4A&C-FAL	SMOKE PURGE, ECONOMIZER MODE	A04 & C04 DOMITORY A/2	AHU-1A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	
EF-5A&C-FAL	SMOKE PURGE, ECONOMIZER MODE	A21 & C21 DOMITORYA/4	AHU-4A&C-PH	BELT	6560	1400	3/4	460/3/60	1,2	
EF-6A&C-FAL	SMOKE PURGE, ECONOMIZER MODE	A24 & C24 DOMITOR A/3	AHU-3A&C-PH	BELT	6560	1400	3/4~~	460/3/60	1,2	$\sqrt{1}$
EF-10A1&C1-FAL	ECONOMIZER MODE	A25 & C25 DAYROOM A/3	AHU-3A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	}
EF-10A2&C2-FAL	ECONOMIZER MODE	A03 & C03 DAYROOM A/2	AHU-1A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	3
EF-10A3&C3-FAL	ECONOMIZER MODE	A18 & C18 DAYROOM A/3	AHU-2A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	3
EF-10A4&C4-FAL	ECONOMIZER MODE	A20 & C18 DAYROOM A/4	AHU-4A&C-PH	BELT	-	1320	1/4	120/1/60	1,2	3
EF-12A&C-FAL	SMOKE PURGE	A02/A08 VESTIBULE, C02/C08 VESTIBULE	AHU-1A&C-PH AHU-3A&C-PH	BELT	1320	-	1/4	120/1/60	1,2	}
EF-12A&C-FAL	SMOKE PURGE	A13/A19 VESTIBULE, C13/C19 VESTIBULE	AHU-2A&C-PH AHU-4A&C-PH	BELT	1320	-	1/4	120/1/60	1,2	}
	OCK FAN WITH ASSOCIATED AIR HANDLI CE AIRFLOWS TO CFM AS INDICATED ON									

EXISTING FAN SCHEDULE (PHOENIX, SPARROW, FALCON BUILDINGS)

AREA SERVED

A17 & C17 DORMITORY A/1

A04 & C04 DOMITORY A/2

TAG

SERVICE

EF-3A&C-PH SMOKE PURGE, ECONOMIZER MODE

EF-4A&C-PH SMOKE PURGE, ECONOMIZER MODE

ASSOCIATED FAN MAX UNIT TYPE (SMOKE

PURGE)

UNIT

AHU-2A&C-PH BELT

AHU-1A&C-PH BELT

EXISTING MOTOR DATA

HP VOLTS/ OR PHASE/

(W)

3/4

3/4

PHASE/

HERTZ

460/3/60

460/3/60

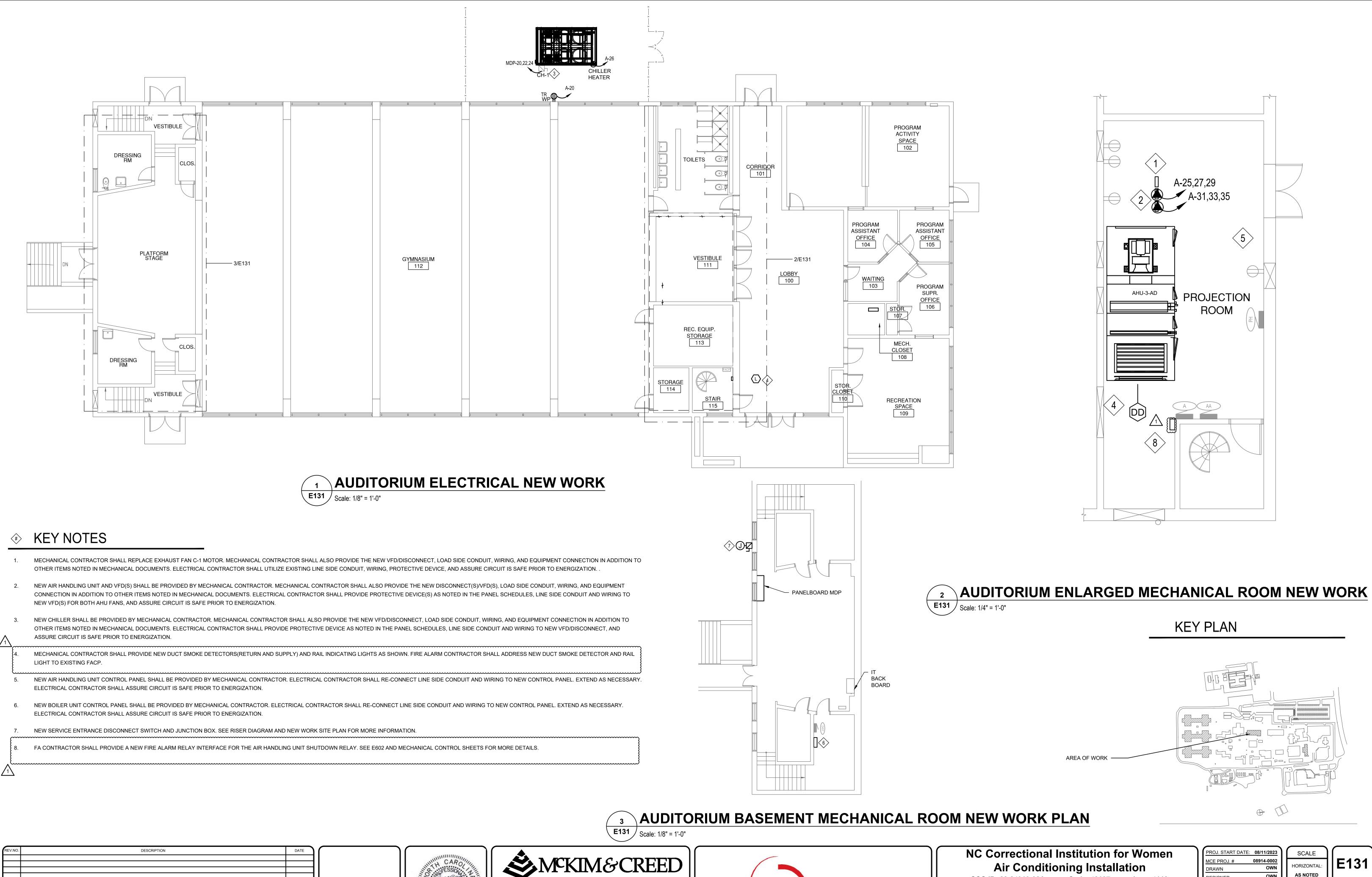
(ECONOMIZER)

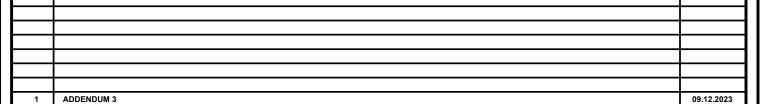
1400

1400

NOTES

1,2





REVISIONS





Phone: (919) 233-8091, Fax: (919) 233-8031

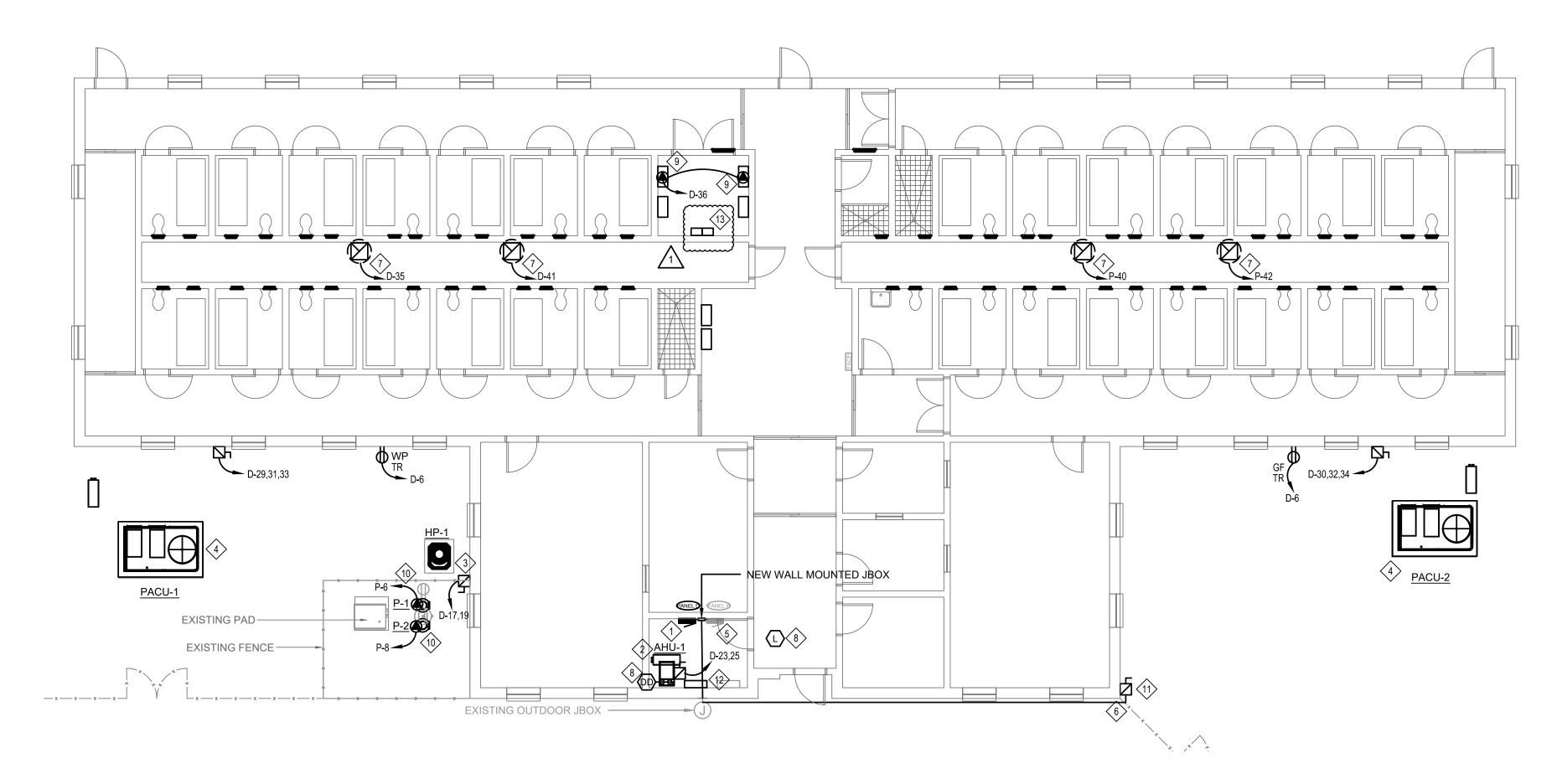
Raleigh, North Carolina 27606

NC License# F-1222

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Department of Adult Correction

AUDITORIUM	PR
AUDITORIUM ELECTRICAL NEW WORK	ST



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

REVISIONS







NC Correctional Institution for Women Air Conditioning Installation

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

SINGLE CELL B - ELECTRICAL NEW WORK

PROJ. START DATE:	08/11/2023	1	SCALE
MCE PROJ. #	08914-0002		
DRAWN	OWN		HORIZONTAL:
DESIGNED	OWN		AS NOTED
CHECKED	JCA		VERTICAL:
PROJ. MGR.	МВ		N/A

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.

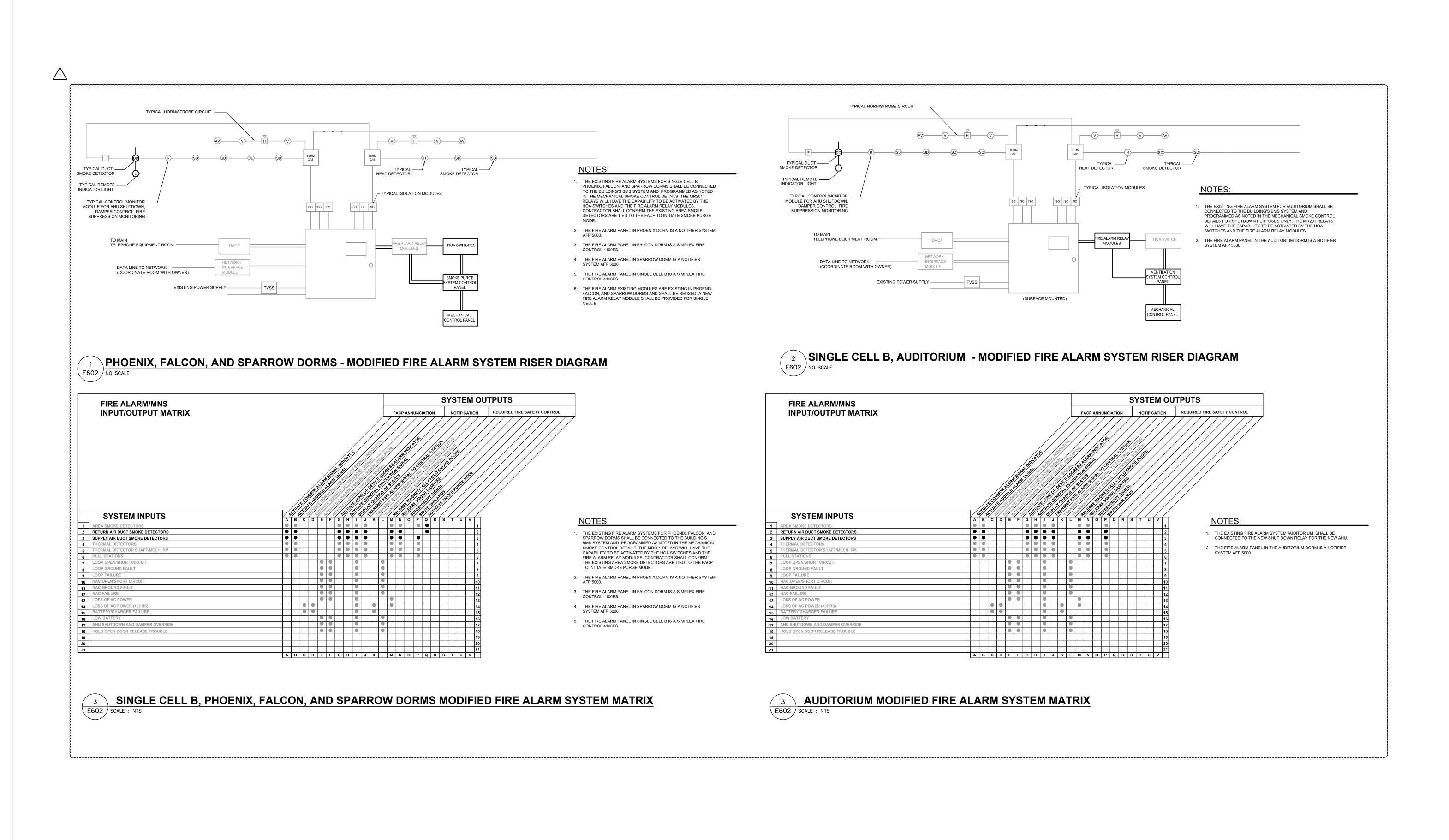
MECHANICAL CONTRACTOR SHALL PROVIDE NEW DUCT SMOKE DETECTORS(RETURN AND SUPPLY) AND RAIL INDICATING LIGHTS AS SHOWN. FIRE ALARM CONTRACTOR SHALL ADDRESS NEW DUCT SMOKE DETECTORS AND RAIL LIGHTS TO EXISTING FACP.

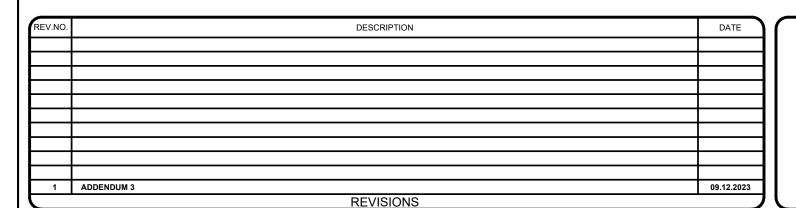
- 9. NEW BMS CONTROL PANEL SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL ALSO PROVIDE THE NEW DISCONNECT, LOAD SIDE CONDUIT, WIRING, AND EQUIPMENT CONNECTION IN ADDITION TO OTHER ITEMS NOTED IN MECHANICAL DOCUMENTS. ELECTRICAL CONTRACTOR SHALL PROVIDE PROTECTIVE DEVICE AS NOTED 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.
- 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.

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.

KEY PLAN

SINGLE CELL B









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

ELECTRICAL DETAILS

913-02A Code: 42107 Item:

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

SCALE

HORIZONTAL:

AS NOTED

VERTICAL:

N/A