

LINCOLN CC- AIR CONDITIONING INSTALLATION

LINCOLN CORRECTIONAL CENTER
464 Roper Dr, Lincolnton, NC 28092

JOB ORDER # 4592
SCO ID # 24-28231-01A

DRAWING INDEX

ARCHITECT/ENGINEERS OF RECORD

MECHANICAL
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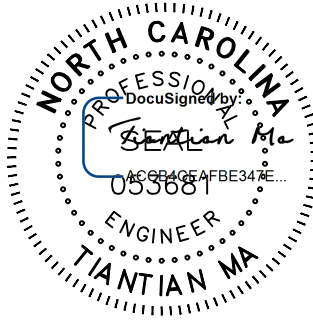
ELECTRICAL
Esmail Movahed, PE (919) 324-1258
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NORTH CAROLINA
DEPARTMENT
OF ADULT
CORRECTION
2020 YONKERS ROAD
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ISSUED FOR
CONSTRUCTION

09.15.2025 ISSUED FOR CONSTRUCTION

NO	DATE	REVISION
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DRAWN BY: MLB
DESIGNED BY: TM
CHECKED BY: MSH
CADD DWG NO: JO4592 G-001
JOB ORDER NO: JO4592
PLOT DATE: 09.15.2025

LINCOLN
CORRECTIONAL
CENTER

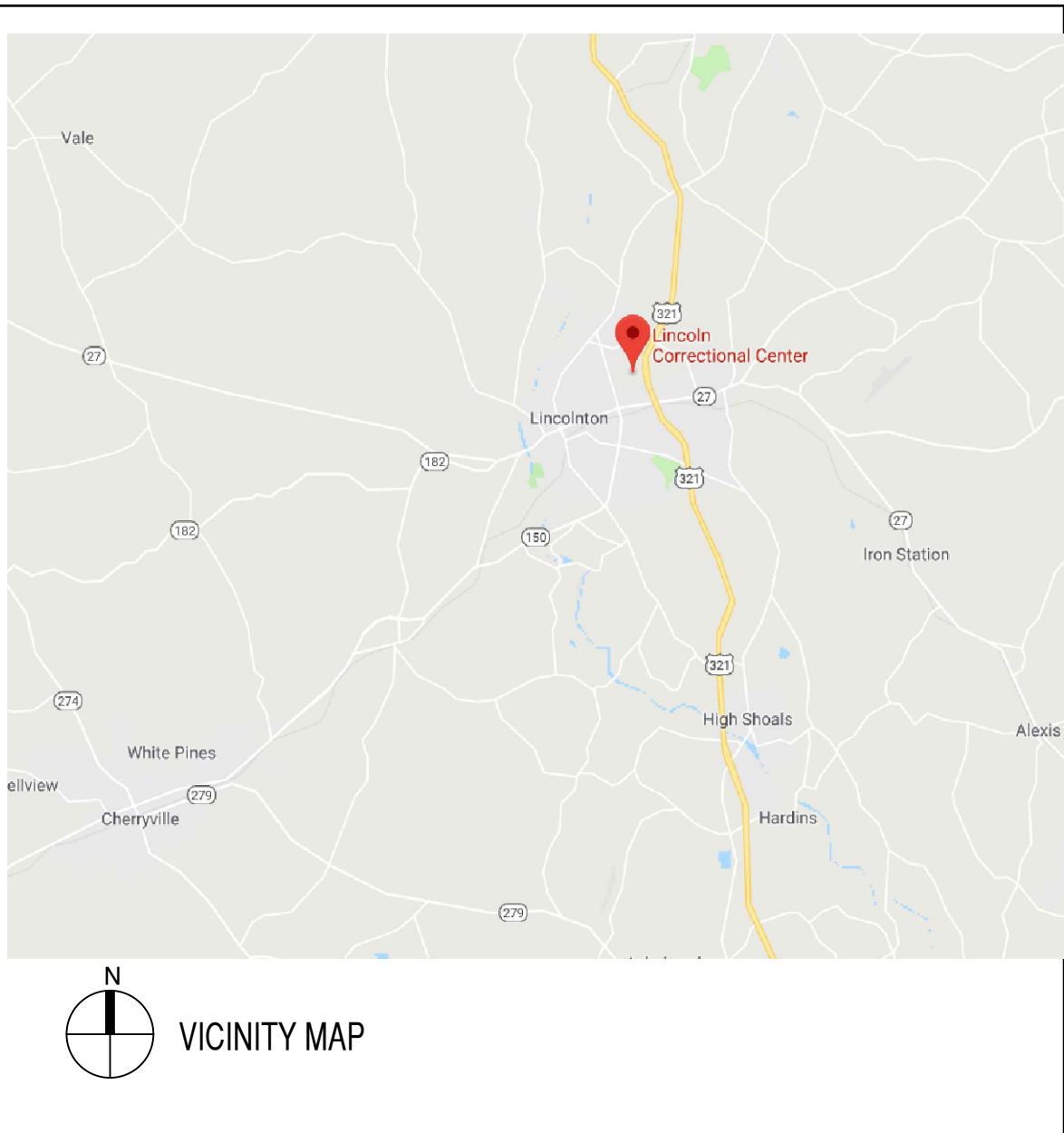
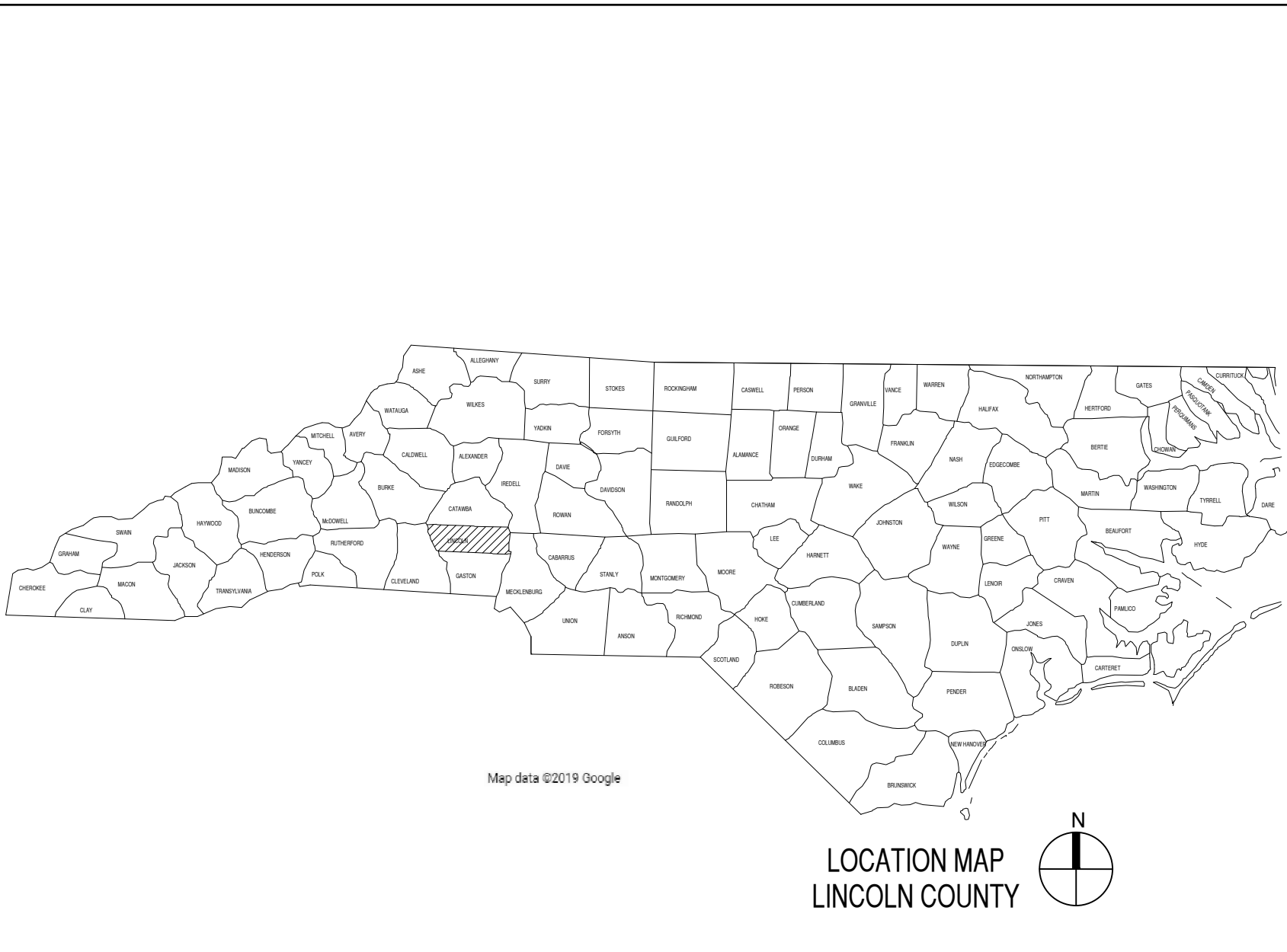
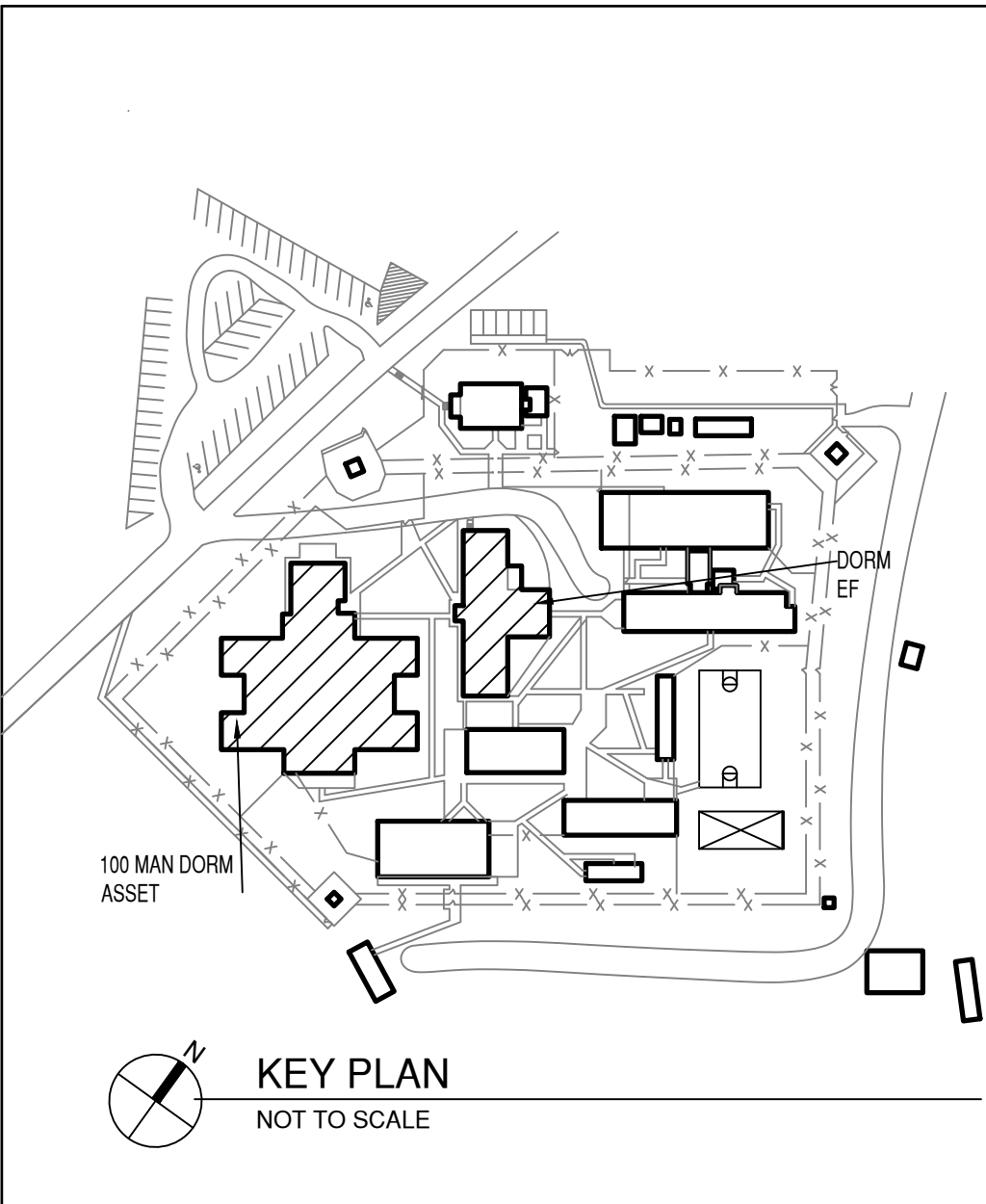
464 Roper Dr, Lincolnton, NC 28092

LINCOLN CC - AIR
CONDITIONING
INSTALLATION

SCO ID # 24-28231-01A

COVER SHEET

G-001



2018 APPENDIX B

BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)

Name of Project:

LINCOLN CC - AIR CONDITIONING INSTALLATION (FORM ABCD)

Address:

464 Roper Drive, Lincoln, NC

Owner/Authorized Agent:

TANTIAN MA Phone # 919-324-1252 E-Mail TANTIAN.MA@nc.gov

Owed By:

☐ City/County

☐ Private

☒ State

Code Enforcement Jurisdiction:

☐ City

☐ County

☒ State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	-	-	-	-	-
Civil	-	-	-	-	-
Electrical	NC DAC	ESMAEL MOVAHED	03379W	919-324-1258	esmael.movahed@nc.gov
Fire Alarm	-	-	-	-	-
Plumbing	-	-	-	-	-
Mechanical	NC DAC	Tantian Ma	053681	919-324-1252	tantian.ma@nc.gov
Sprinkler-Standpipe	-	-	-	-	-
Structural	-	-	-	-	-
Retaining Walls >5 High	-	-	-	-	-
Other	-	-	-	-	-

Other: _____
(Check all that apply: firms and individuals such as: trade, general, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE:

☐ New Building☐ Shell/Core☐ 1st Time Interior Completions

☐ Addition☐ Phased Construction – Shell Core

2018 NC EXISTING BUILDING CODE:

☐ Prescriptive☐ Alteration Level I☐ Historic Property

☐ Repair☒ Alteration Level II☐ Change of Use

☐ Chapter 14☐ Alteration Level III

CONSTRUCTED: (date) 1987CURRENT OCCUPANCY(S) (Ch. 3): INSTITUTIONAL (PERSON DORMITORY)

RENOVATED: (date) N/APROPOSED OCCUPANCY(S) (Ch. 3): NO CHANGE (INC)

RISK CATEGORY (Table 1604.5): Current: IIIProposed: NC

BASIC BUILDING DATA

Construction Type: (check all that apply)

☐ I-A☐ II-B☐ III-A☐ IV☐ V-A☐ I-B☐ II-B☐ III-B☐ V-B

Sprinklers: ☒ No☐ PartialNFPA 13☐ NFPA 13R☐ NFPA 13D

Standpipes: ☒ No Class☐ I☐ II☐ III☐ Wet☐ Dry

Primary Fire District: ☐ No☒ YesFlood Hazard Area: ☒ No☐ Yes

Special Inspections Required: ☐ No☒ Yes

GROSS BUILDING AREA TABLE

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor	12810		12810
Basement			
TOTAL	12810		12810

ALLOWABLE AREA

Primary Occupancy Classification(s):

Assembly☐ A-1☐ A-2☐ A-3☐ A-4☐ A-5

Business☐

Educational☐

Factory☐ F-1 Moderate☐ F-2 Low☐ H-4 Health☐ H-5 HPM

Hazardous☐ H-1 Detonate☐ H-2 Deflagrate☐ I-3 Combust☐ I-4

Institutional☐ I-1I-1 Condition☐ 1☐ 2I-2 Condition☐ 1☐ 2I-3 Condition☐ 1☒ 2☐ 3☐ 4☐ 5

Mercantile☐

Residential☐ R-1☐ R-2☐ R-3☐ R-4

Storage☐ S-1 Moderate☐ Open☐ S-2 Low☐ High-piled

Utility and Miscellaneous☐ Parking Garage☐ Enclosed☐ Repair Garage

Accessory Occupancy Classification(s): _____

Incidental Uses (Table 509): _____

This separation is not exempt as a Non-Separation (See Section 509.2).

NOT APPLICABLE

Special Uses (Chapter 4 – List Code Sections):

Special Provisions: (Chapter 5 – List Code Sections):

Mixed Occupancy: _____ Separation: _____ Exception: _____

Select one

Actual Area of Occupancy A + Actual Area of Occupancy B
Allowable Area of Occupancy A Allowable Area of Occupancy B ≤ 1

+ = ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.24 AREA	(C) AREA FOR FRONTAGE INCREASE x 5	(D) ALLOWABLE AREA PER STORY OR UNLIMITED 3

1 Frontage area increases from Section 506.2 are computed thus:

a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)

b. Total Building Perimeter = _____ (P)

c. Ratio (F/P) = _____ (F/P)

d. W = Minimum width of public way = _____ (W)

2 Unlimited area applicable under conditions of Section 507.

3 Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).

4 The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.

5 Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)			
Building Height in Stories (Table 504.4)			

1 Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

[illegible]

SPECIAL APPROVALS	
Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)	
<u>NORTH CAROLINA DEPARTMENT OF ADMINISTRATION - STATE CONSTRUCTION OFFICE</u>	
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ENERGY SUMMARY	
ENERGY REQUIREMENTS:	
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.	
Existing building envelope complies with code: _____	
Exempt Building: _____ Provide code or statutory reference: _____	
Climate Zone: _____	
Method of Compliance: _____ (If " Other" specify source here) _____	
THERMAL ENVELOPE (Prescriptive method only)	
Roof/ceiling Assembly (each assembly)	
Description of assembly: _____	
U-Value of total assembly: _____	
R-Value of insulation: _____	
Skylights in each assembly: _____	
U-Value of skylight: _____	
total square footage of skylights in each assembly: _____	
Exterior Walls (each assembly)	
Description of assembly: _____	
U-Value of total assembly: _____	
R-Value of insulation: _____	
Openings (windows or doors with glazing)	
U-Value of assembly: _____	
Solar heat gain coefficient: _____	
projection factor: _____	
Door R-Values: _____	
Walls below grade (each assembly)	
Description of assembly: _____	
U-Value of total assembly: _____	
R-Value of insulation: _____	
Floors over unconditioned space (each assembly)	
Description of assembly: _____	
U-Value of total assembly: _____	
R-Value of insulation: _____	
Floors slab on grade	
Description of assembly: _____	
U-Value of total assembly: _____	
R-Value of insulation: _____	
Horizontal/vertical requirement: _____	
slab heated: _____	
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2018 APPENDIX B	
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS	
MECHANICAL DESIGN	
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)	
MECHANICAL SUMMARY	
MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT(FOR ABCD BUILDING)	
Thermal Zone 4A	
winter dry bulb: <u>20.5 DEG F</u>	
summer dry bulb: <u>94.3 DEG F</u>	
Interior design conditions	
winter dry bulb: <u>70 DEG</u>	
summer dry bulb: <u>75 DEG</u>	
relative humidity: <u>50%</u>	
Building heating load: 452 MBH	
Building cooling load: 40Tons	
Mechanical Spacing Conditioning System	
Unitary	
description of unit: <u>SPLIT-SYSTEM AIR HANDLING UNITS (TOTAL OF 4)</u>	
heating efficiency: <u>N/A</u>	
cooling efficiency: <u>11.2 EER, 14.8 IEEER</u>	
size category of unit: <u>AIR CONDITIONERS, AIR COOLED >65 MBH AND <135 MBH</u>	
Boiler	
Size category. If oversized, state reason.: <u>N/A</u>	
Chiller	
Size category. If oversized, state reason.: <u>N/A</u>	
List equipment efficiencies: N/A	

2018 APPENDIX B

BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

ELECTRICAL DESIGN

(NOT APPLICABLE)

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Grade ☐ Performance ☐ Prescriptive
 ASHRAE 90.1 ☐ Performance ☐ Prescriptive

Lighting schedule (each fixture type) N/A

- lamp type required in fixture
- number of lamps in fixture
- ballast type used in the fixture
- number of ballasts in fixture
- total wattage per fixture
- total interior wattage specified
- total exterior wattage specified

NOT APPLICABLE

Additional Prescriptive Compliance

- ☐ C406.2 More Efficient Mechanical Equipment
- ☐ C406.3 Reduced Lighting Power Density
- ☐ C406.4 Energy Recovery Ventilation Systems
- ☐ C406.5 Higher Efficiency Service Water Heating
- ☐ C406.6 On-Site Supply of Renewable Energy
- ☐ C406.7 Automatic Daylighting Control Systems



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NO	DATE	REVISION
DRAWN BY:		MLB
DESIGNED BY:		TM
CHECKED BY:		MSH
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**LINCOLN
CORRECTIONAL
CENTER**

464 Roper Dr, Lincolnton, NC 28092

LINCOLN CC - AIR CONDITIONING INSTALLATION

SCO ID # 24-28231-01A

CODE SUMMARY
(DORM ABCD)

G-002

NOT APPLICABLE

NOT APPLICABLE

--	--

NOT APPLICABLE

Horizontal/vertical requirements:
slab heated:

Building cooling load

NOT APPLICABLE

D

C

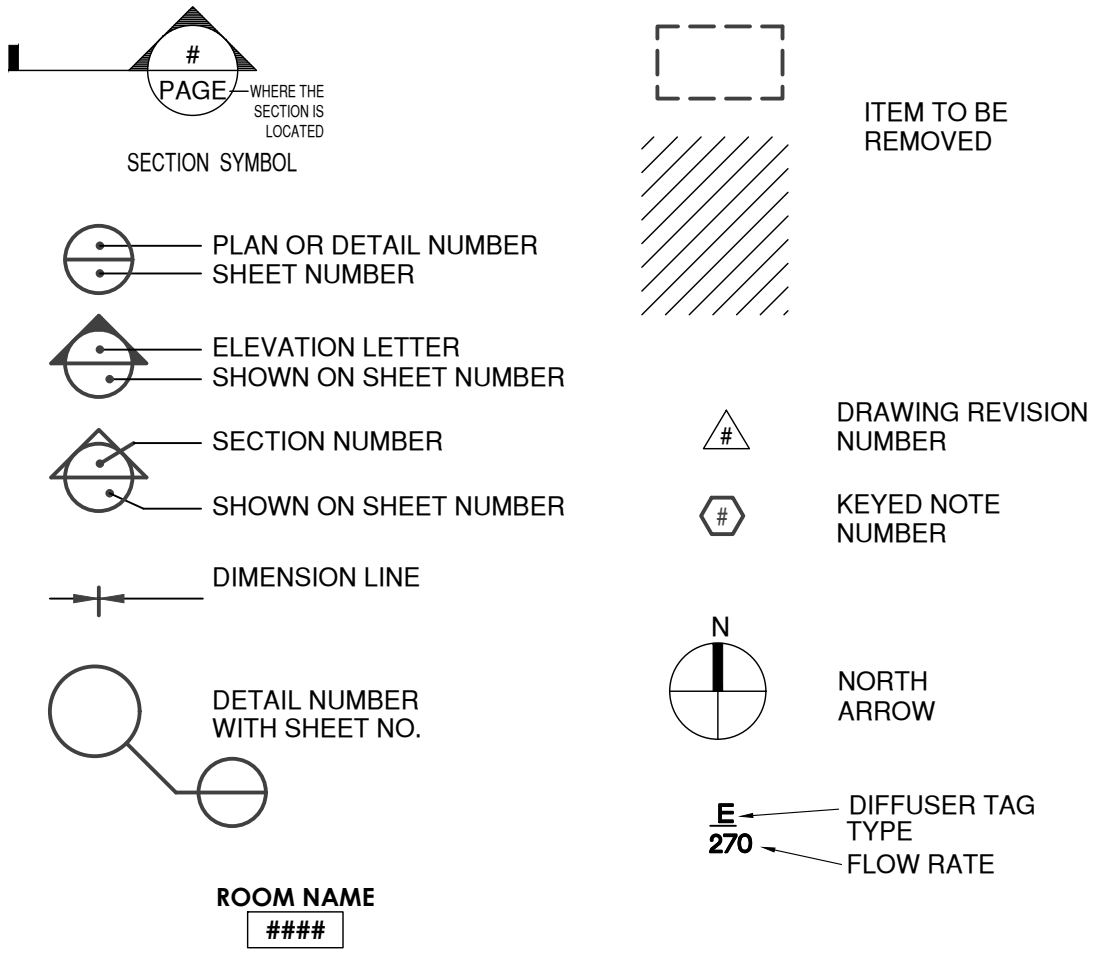
B

A

GENERAL NOTES:

- ENSURE ALL WORK COMPLIES WITH THE 2018 EDITION OF THE NORTH CAROLINA STATE CODE, ALL LOCAL CODES, AND OTHER APPLICABLE CODES, WITH A2L REFRIGERANT USE ADDRESSED PER CHAPTER 11 OF THE 2024 NCMC.
- THE MECHANICAL PLANS AND SPECIFICATIONS SHALL BE THOROUGHLY REVIEWED PRIOR TO PURCHASING MATERIALS AND INSTALLING. ALL DISCREPANCIES OR CONFLICTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
- THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. REFER TO PLANS AND CUT SHEETS FOR EQUIPMENT AND SPACE DIMENSIONS.
- THE MECHANICAL CONTRACTOR SHALL PROVIDE EQUIPMENT DISCONNECT SWITCHES, AND THE CONDUIT AND WIRING FROM THE DISCONNECT SWITCHES TO THE NEW MECHANICAL EQUIPMENT.
- ALL THERMOSTATS, ASSOCIATED WIRING, CONDUIT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR. THERMOSTATS TO BE HOUSED IN A CLEAR LOCKABLE COVER OF STURDY CONSTRUCTION TO PROTECT AGAINST TAMPERING OR DAMAGE. PROVIDE METAL ENCLOSURE FOR WALL MOUNTED ROOM HUMIDITY AND ROOM TEMPERATURE SENSORS. MOUNT THERMOSTATS AND RELATED SENSORS BETWEEN 52 AND 60 INCHES ABOVE FINISHED FLOOR.
- THE MECHANICAL CONTRACTOR SHALL INSURE THAT ALL MECHANICAL EQUIPMENT INSTALLED UNDER THIS CONTRACT SHALL OPERATE FREE OF OBJECTIONABLE NOISE AND VIBRATION.
- THE MECHANICAL CONTRACTOR SHALL KEEP THE PREMISES CLEAR OF DEBRIS FROM THEIR WORK DURING CONSTRUCTION AND LEAVE THE AREA AND BUILDING CLEAN AT THE COMPLETION OF THE PROJECT.
- ALL NEW DUCTWORK SHOWN ARE INSIDE CLEAR DIMENSIONS UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTING, TESTING, AND VERIFYING THE INTEGRATION OF THE HVAC CONTROLS WITH THE FIRE ALARM SYSTEM AND VERIFYING THE OPERATION OF THE EQUIPMENT.
- ALL EQUIPMENT, VALVES, DAMPER ACTUATORS, ETC. SHALL BE FUNCTIONAL BEFORE PROJECT CLOSEOUT. COORDINATE OPERATION WITH THE ELECTRICAL, TEST AND BALANCE AND CONTROLS CONTRACTORS.
- THE MECHANICAL CONTRACTOR SHALL PROVIDE THE ENGINEER WITH TESTING, ADJUSTING AND BALANCING (TAB) REPORT BY A CERTIFIED TEST AND BALANCING COMPANY.
- ALL SUPPLY, RETURN, OR OUTSIDE AIR DUCTS PENETRATING FIRE RATED INTERIOR WALLS WITH A FIRE RATING GREATER THAN ONE (1) HOUR SHALL HAVE FIRE DAMPERS WITH ACCESS DOORS. VERIFY THE POSITION OF THE EXISTING FIRE DAMPERS.
- ALL NEW PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE SLEEVED AND FIRE STOPPED.
- PIPE AND/OR DUCT PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SLEEVED AND SEALED WEATHER TIGHT.
- ALL NEW PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SLEEVED AND SEALED WEATHER TIGHT.
- INSTALL ALL ALL NEW DUCTWORK AND PIPING SO THAT IT DOES NOT IMPEDE WITH COIL PULL AND FILTER AREAS.
- FLEXIBLE DUCT RUNOUTS SHOULD BE A MAXIMUM OF 5'.
- INSPECT EXISTING DUCTWORK AND RECONNECT OR REPAIR IF REQUIRED.
- ALL EXISTING DUCTWORK, DIFFUSERS AND LOUVERS ARE TO REMAIN, UNLESS OTHERWISE INDICATED ON PLANS.
- THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR OTHER ISSUES THAT ARISE DURING CONSTRUCTION.
- THE MECHANICAL CONTRACTOR WILL BE RESPONSIBLE FOR PERFORMANCE FUNCTIONAL TESTING ON ALL NEW MECHANICAL SYSTEMS AND FANS, EXISTING RESTROOM EXHAUST FANS, AND SMOKE PURGE SYSTEMS PER PLANS, AND SPECIFICATIONS.
- THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING FULLY FUNCTIONAL SYSTEMS APPROVED BY ENGINEER OF RECORD.
- THE MECHANICAL CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM FOUR DAY NOTICE TO THE PROJECT MANAGER BEFORE THE STARTUP AND TESTING OF THE HVAC EQUIPMENT, CONTROL SYSTEMS, AND SMOKE PURGE SYSTEMS SO THAT THE ENGINEERS CAN BE PRESENT AT STARTUP.
- MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT. REFER TO M-504 FOR EQUIPMENT CONNECTION RESPONSIBILITIES DIAGRAM. REFER TO E-401 FOR SAFETY DISCONNECT SWITCH INFORMATION FOR BASIS OF DESIGN HVAC EQUIPMENT.

LEGEND- GENERAL



LEGEND - PIPING AND VALVES

	CHEMICAL FEED
	CONDENSATE DRAIN
	COLD WATER
	DRAIN
	GAS
	HOT WATER RETURN
	HOT WATER SUPPLY
	BALL VALVE
	BUTTERFLY VALVE
	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	PLUG VALVE
	TRIPLE DUTY VALVE
	PRESSURE REDUCING VALVE
	THREE WAY CONTROL VALVE
	TWO WAY CONTROL VALVE
	MOTORIZED VALVE
	RELIEF VALVE
	MANUAL VENT
	BALANCING COCK
	VALVE
	FLOW METER
	FLOW SENSOR
	FLOW SWITCH
	CIRCUIT SETTER / SHUT OFF VALVE
	STRAINER WITH BLOW DOWN
	THERMOMETER
	THERMOWELL
	PETE'S PLUG
	GAUGE COCK
	TEMPERATURE SENSOR WITH THERMOWELL
	PRESSURE GAUGE WITH SHUT-OFF COCK
	ELBOW UP
	ELBOW DOWN
	TEE OUTLET DOWN
	TEE OUTLET UP
	PIPE CAP
	UNION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	AIR VENT
	PIPE ANCHOR
	PIPE GUIDE
	BACK FLOW PREVENTER
	PUMP SUCTION DIFFUSER
	PUMP
	FLEXIBLE CONNECTION

LEGEND - DUCTWORK AND ACCESSORIES

	SUPPLY DUCT OR GRILLE - 1ST NUMBER IS TOP SIDE, DIMENSIONS ARE INSIDE CLEAR DISTANCE
	RETURN DUCT OR GRILLE - 1ST NUMBER IS TOP SIDE, DIMENSIONS ARE INSIDE CLEAR DISTANCE
	DUCT SIZE - 1ST NUMBER IS VISIBLE SIDE
	EXHAUST DUCT OR GRILLE
	DUCT ELBOW WITH TURNING VANES
	DUCT TURNING UP
	DUCT TURNING DOWN
	DUCT CHANGE IN ELEVATION
	DIRECTION OF AIR FLOW
	ROOM STATIC PRESSURE SENSOR
	MOTOR OPERATED DAMPER
	BACKDRAFT DAMPER WITH ACCESS DOOR
	MANUAL (BALANCING) DAMPER
	SMOKE DAMPER
	PARALLEL BLADE DAMPER
	OPPOSED BLADE DAMPER
	DUCT MOUNTED SMOKE DETECTOR
	SUPPLY, RETURN, OR EXHAUST GRILLE OR REGISTER
	RECTANGULAR DUCT, INSIDE CLEAR DIMENSIONS
	FLAT OVAL DUCT (WxH)
	ROUND DUCT (IN.)
	THERMOSTAT
	HUMIDISTAT
	TEMPERATURE SENSOR
	HUMIDITY SENSOR
	FIRE DAMPER (IN HORIZONTAL DUCT)
	FIRE DAMPER (IN VERTICAL DUCT)
	RETURN AIR FLOW
	SUPPLY AIR FLOW
	DISCONNECT SWITCH (BY MECHANICAL CONTRACTOR)
	COMBINATION STARTER/DISCONNECT SWITCH (BY MECHANICAL CONTRACTOR)
	DIRECT DIGITAL CONTROL PANEL
	VARIABLE FREQUENCY DRIVE
	BACKDRAFT DAMPER
	DEMOLISH TO INDICATED LOCATION
	CONNECT TO EXISTING

ABBREVIATIONS

AD	ACCESS DOOR	NTS	NOT TO SCALE
AFF	ABOVE FINISHED FLOOR	OA	OUTSIDE AIR
AHU	AIR HANDLING UNIT	OC	ON CENTER
APD	AIR PRESSURE DROP	OBD	OPPOSED BLADE DAMPER
AS	AIR SEPARATOR	P	PUMP
ATM	ATMOSPHERE	PD	PRESSURE DROP
B	BOILER	R	RELAY
BOD	BOTTOM OF DUCT	RA	RETURN AIR
BOP	BOTTOM OF PIPE	RH	RELATIVE HUMIDITY
CFM	CUBIC FEET PER MINUTE	RR	REST ROOM
CI	CAST IRON	SA	SUPPLY AIR
CO	CLEANOUT	SEA	SMOKE EXHAUST AIR
CU	OUTDOOR CONDENSING UNIT	SEF	SMOKE EXHAUST FAN
DB	DRY BULB	SP	STATIC PRESSURE
DDC	DIRECT DIGITAL CONTROL	SD	SMOKE DAMPER
DI	DUCTILE IRON	SS	STAINLESS STEEL 316L
DN	DOWN	TDH	TOTAL DYNAMIC HEAD
EA	EXHAUST AIR	TRANS	TRANSFER DUCT
EAT	ENTERING AIR TEMPERATURE	TSP	TOTAL STATIC PRESSURE
EF	EXHAUST FAN	TYP	TYPICAL
ELEV	ELEVATION	UH	UNIT HEATER
ESP	EXTERNAL STATIC PRESSURE	VSA	VENTILATION SUPPLY AIR
EWI	ENTERING WATER TEMPERATURE	VSD	VARIABLE FREQUENCY DRIVE
FD	FLOOR DRAIN	VTR	VENT THRU ROOF
FLA	FULL LOAD AMPS	WB	WET BULB
FT	FEET OF HEAD	WG	WATER GAUGE
GALV	GALVANIZED	WPD	WATER PRESSURE DROP
GC	GENERAL CONTRACTOR		
GPM	GALLONS PER MINUTE		
HOA	HAND-OFF-AUTOMATIC		
HP	HORSEPOWER		
HWC	HOT WATER COIL		
HWP	HOT WATER PUMP		
HWR	HOT WATER RETURN		
HWS	HOT WATER SUPPLY		
KW	KILOWATT		
LAT	LEAVING AIR TEMPERATURE		
LRA	LOCKED ROTOR AMPS		
LWT	LEAVING WATER TEMPERATURE		
MCC	MOTOR CONTROL CENTER		
MOC	MAXIMUM OVERCURRENT PROTECTION		
MOD	MOTOR OPERATED DAMPER		
MSD	MOTOR OPERATED SMOKE RATED DAMPER		
N/A	NOT APPLICABLE		
NC	NORMALLY CLOSED		
NIC	NOT IN CONTRACT		
NO	NORMALLY OPEN		

LEGEND - CONTROL SYMBOLS

	DIRECT CONNECTION OR MECHANICAL LINK TO INSTRUMENT		ELECTRIC REHEAT COIL
	ANALOG OUTPUT		AIR MEASURING STATION
	ANALOG INPUT		PRESSURE DIFFERENTIAL SWITCH
	DIGITAL OUTPUT		MOTOR OPERATED DAMPER
	DIGITAL INPUT		FAN
	INTERFACE TO FIRE ALARM SYSTEM		COMBINATION STARTER
	DDC CONTROLLER		COIL (COOLING COIL SHOWN)
	AVERAGING TEMPERATURE SENSOR		COIL (HEATING COIL SHOWN)
	TEMPERATURE SENSOR		CURRENT TRANSFORMER / SENSING RELAY
	HUMIDITY SENSOR		FIRE ALARM RELAY
	PRESSURE SENSOR		
	FREEZESTAT		
	PRESSURE SENSOR		

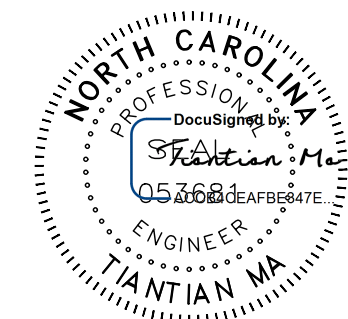
RATED PARTITION LEGEND

- - - - -	4 HR FIRE WALL
- - - - -	3 HR FIRE WALL
- - - - -	2 HR FIRE WALL
- - - - -	4 HR FIRE BARRIER
- - - - -	3 HR FIRE BARRIER
- - - - -	2 HR FIRE BARRIER
- - - - -	1 HR FIRE BARRIER
- - - - -	1 HR FIRE PARTITION
- - - - -	2 HR SMOKE BARRIER
- - - - -	1 HR SMOKE BARRIER
- - - - -	SMOKE PARTITION



NORTH CAROLINA DEPARTMENT OF ADULT CORRECTION

2020 YONKERS ROAD
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LINCOLN CORRECTIONAL CENTER

464 Roper Dr, Lincolnton, NC 28092

LINCOLN CC - AIR CONDITIONING INSTALLATION

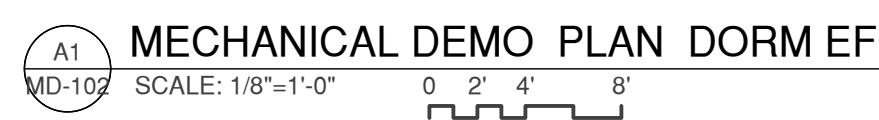
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MECHANICAL LEGEND, ABBREVIATIONS, & SYMBOLS

M-001

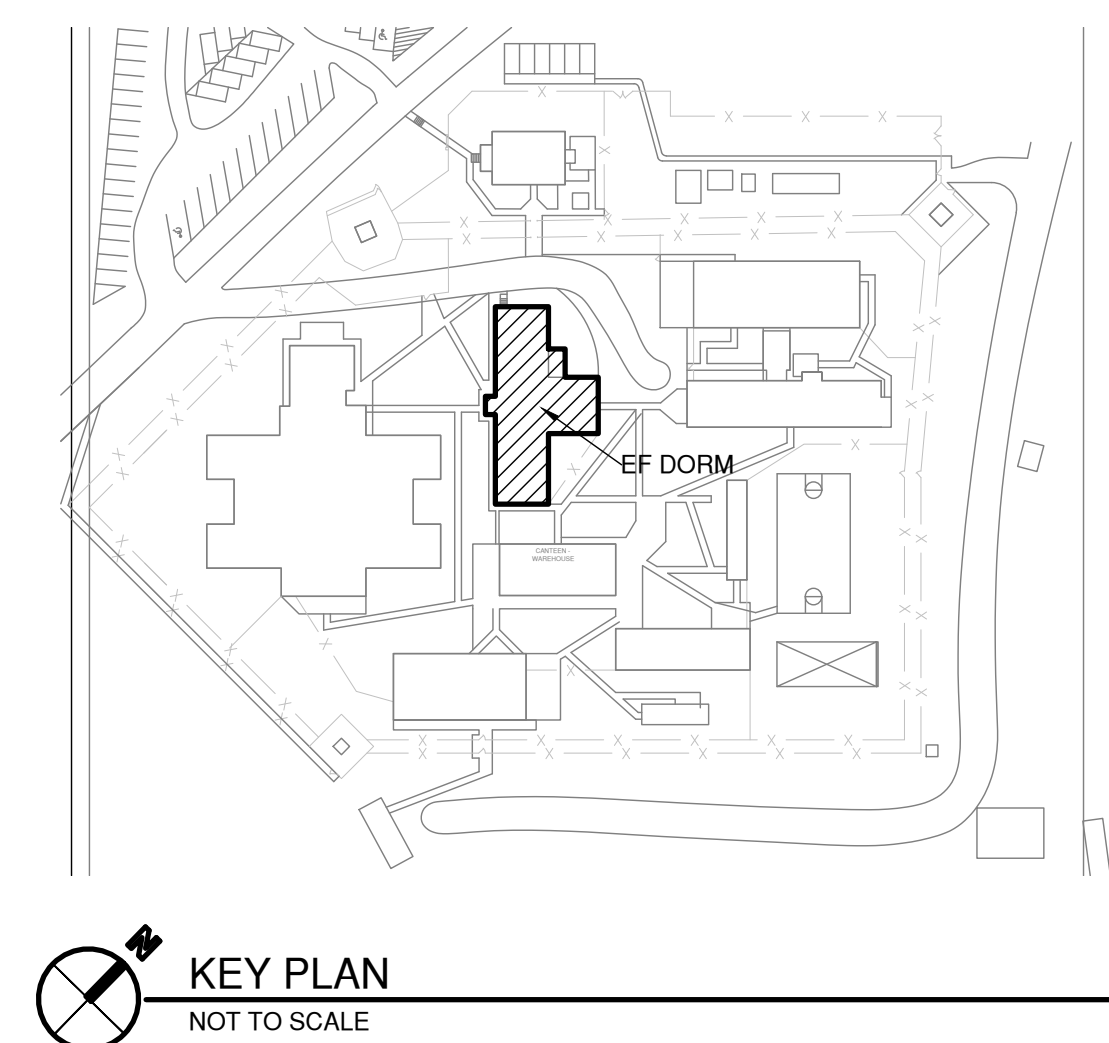


MD101



RATED PARTITION LEGEND

— — — — —	4 HR FIRE WALL
— — — — —	3 HR FIRE WALL
— — — — —	2 HR FIRE WALL
— — — — —	4 HR FIRE BARRIER
— — — — —	3 HR FIRE BARRIER
— — — — —	2 HR FIRE BARRIER
— — — — —	1 HR FIRE BARRIER
— — — — —	1 HR FIRE PARTITION
— — — — —	2 HR SMOKE BARRIER
— — — — —	1 HR SMOKE BARRIER
— — — — —	SMOKE PARTITION

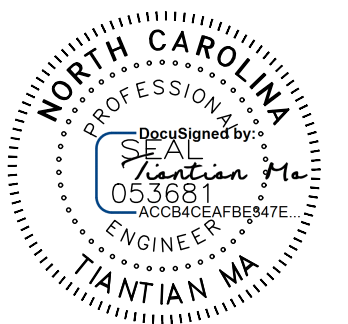


1. THE EXISTING DUCTWORK, DIFFUSERS, AND GRILLES SHOWN ARE BASED ON THE ORIGINAL MECHANICAL DRAWINGS AND FIELD OBSERVATIONS.



2020 YONKERS ROAD
4216 MSC
RALEIGH, N.C. 27699-4216

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FAX (919) 716-3978



ISSUED FOR
CONSTRUCTION

NO	DATE	REVISION
DRAWN BY:	MLB	
DESIGNED BY:	TM	
CHECKED BY:	MSH	
CADD DWG NO:	JO4592-MD102	
JOB ORDER NO:	4592	
PLOT DATE:	09.15.2025	

464 ROPER DR.,
LINCOLNTON
NORTH CAROLINA 28092

LINCOLN CC - AIR CONDITIONING INSTALLATION

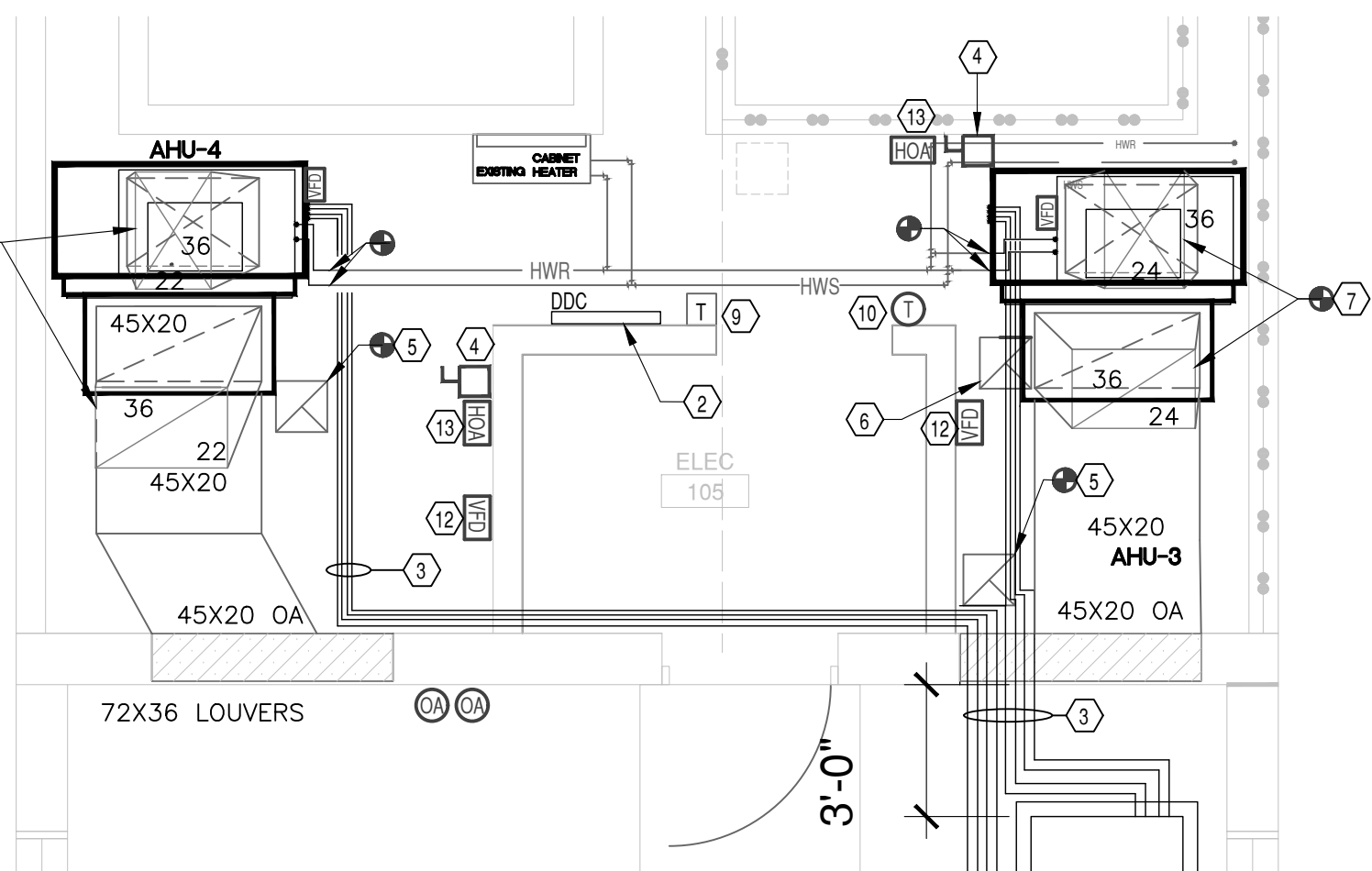
SCO ID # 24-28231-01

MECHANICAL DEMO PLAN
(DORM EF)

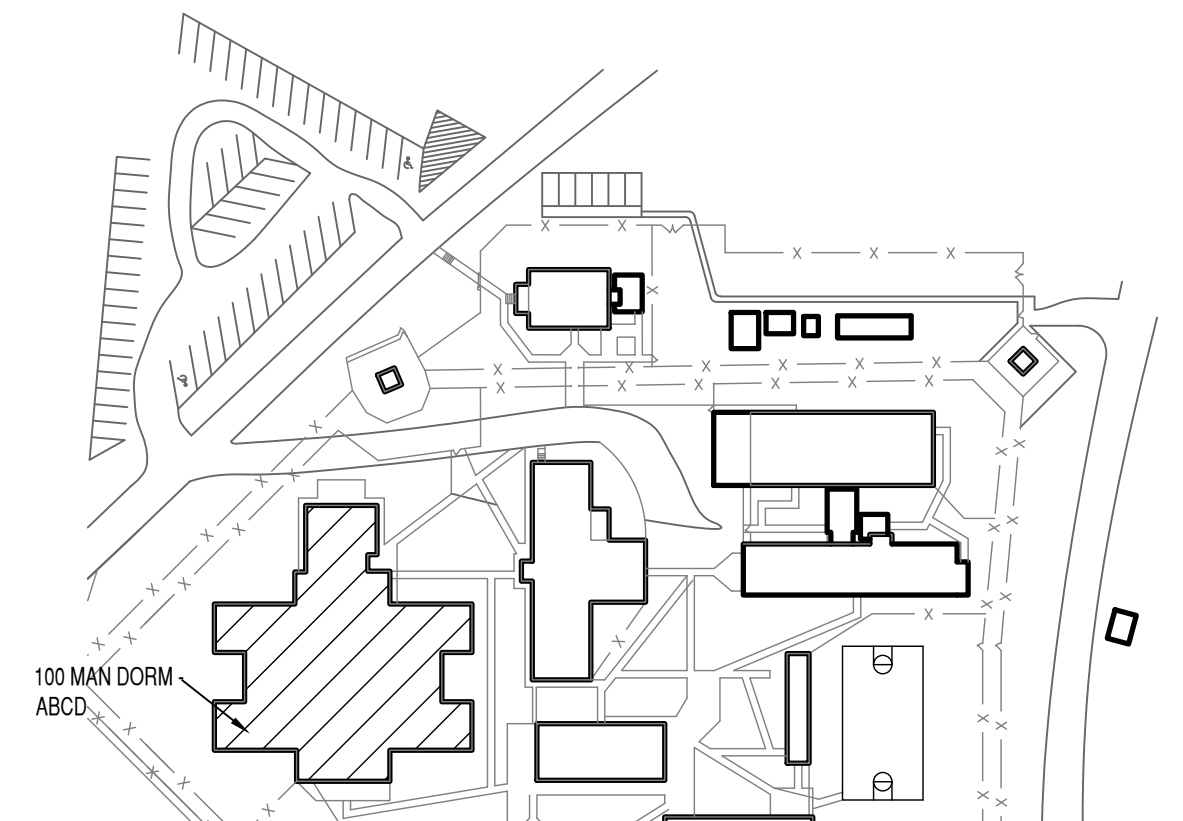
MD102

ENLARGED MECHANICAL PLAN

M-101



- ## **MECHANICAL KEYNOTES:**
- ① PROVIDE AND INSTALL NEW CONDENSING UNIT ON NEW CONCRETE PAD, AND DISCONNECT SWITCHES.
 - ② NEW HEATING, COOLING AND VENTILATING DDC CONTROLLER.
SEE SHEETS M-501 AND M-502 FOR CONTROL DIAGRAMS, POINTS LIST, AND SEQUENCE OF OPERATIONS.
 - ③ REFRIGERANT PIPING FROM CONDENSING UNITS TO AHU COOLING COILS SIZED PER MANUFACTURER'S RECOMMENDATIONS. TWO CIRCUITS PER AHU.
 - ④ PROVIDE NEW DISCONNECT SWITCHES FOR AIR HANDLERS
 - ⑤ PROVIDE BIRD BIRDSCREEN OVER EXISTING DUCT OPENING. EXISTING FIRE DAMPER AND DUCT THRU CEILING TO REMAIN.
 - ⑥ COVER HOLE IN CEILING WITH RATED CEILING MATERIALS TO MATCH EXISTING.
 - ⑦ ADAPT NEW DUCTWORK FROM AHU'S TO EXISTING DUCT AT CEILING PENETRATIONS.
 - ⑧ CONNECT NEW EXHAUST DUCTS TO PLENUM AT EXISTING EXHAUST LOUVER.
 - ⑨ EXISTING THERMOSTAT FOR CABINET HEATER.
 - ⑩ THERMOSTAT FOR MECHANICAL ROOM EXHAUST FAN.
 - ⑪ NEW 4-PLEX HOA SMOKE PURGE SWITCH. SWITCH, ASSOCIATED WIRE, RELAYS AND OTHER RELATED EQUIPMENT FOR SMOKE PURGE SYSTEM WILL BE BY MECHANICAL CONTRACTOR. MATERIAL AND LABOR FROM SMOKE PURGE SWITCH TO FIRE ALARM PANEL WILL BE BY OTHERS.
REFER TO SHEET M-504, AND EP101.
 - ⑫ SMOKE EXHAUST/ ECONOMIZER FAN VFD.
 - ⑬ HOA SWITCH FOR AHU.
 - ⑭ EXISTING ON/OFF SMOKE PURGE FAN FOR RESTROOM EXHAUST FAN EF-S (NOT IN CONTRACT)
 - ⑮ EXISTING ON/OFF SMOKE DAMPER OVERRIDE SWITCH FOR EXISTING SMOKE DAMPERS (NOT IN CONTRACT)
 - ⑯ INSTALL STAINLESS STEEL CEILING MOUNTED ROOM PRESSURE SENSORS FOR ECONOMIZER FAN OPERATION PARAGON CONTROLS MODEL # PE-7000 OR APPROVED EQUAL. FOLLOW MANUFACTURERS INSTALLATION RECOMMENDATIONS.





1. ALL NEW MECHANICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA MECHANICAL CODE.
2. EXISTING WINDOWS ARE OPERABLE WINDOWS. OPERABLE WINDOWS MEET VENTILATION REQUIREMENTS FOR WINTER OPERATION WHEN FURNACE IS SUPPLYING FORCED AIR HEAT. OPERABLE WINDOWS CAN ALSO BE USED TO SUPPLY MAKEUP AIR WHEN VENTILATION FANS ARE RUNNING.
3. ENGINEER OF RECORD SHALL WITNESS A DEMONSTRATION OF THE EQUIPMENT AFTER INSTALLATION TO VERIFY PROPER OPERATION AND CONTROL OF NEW EQUIPMENT.
4. THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. REFER TO PLANS AND CUT SHEETS FOR EQUIPMENT AND SPACE DIMENSIONS.
5. THE MECHANICAL CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING NEW DDC CONTROL SYSTEM AND INTEGRATION WITH THE MAINTENANCE STAFF USER'S INTERFACE LOCATED IN MAINTENANCE OFFICE.
6. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL STARTER, INTERLOCKS, AND CONTROL WIRING.
7. THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL NEW POWER WIRING AND CONDUIT FROM THE DISCONNECT TO THE NEW MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR WILL PROVIDE AND INSTALL NEW DISCONNECT UNLESS PROVIDED AS ACCESSORY UNDER THE MECHANICAL CONTRACT PER THE HVAC EQUIPMENT SCHEDULE.
8. THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING POST-INSTALLATION TESTING AND BALANCING TO VERIFY TOTAL SUPPLY AIRFLOW.
9. ALL EXISTING SUPPLY AND RETURN DUCTS AND AIR DISTRIBUTION DEVICES (DIFFUSERS, GRILLES AND REGISTERS) BEING REUSED IN THIS PROJECT SHALL BE CLEANED PER THE SPECIFICATIONS.

1. WHEN THE BUILDING IS OCCUPIED, THE HEAT PUMP UNITS SHALL RUN CONTINUOUSLY WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 45 DEGREES.
2. HEATING OR COOLING SHALL ONLY BE ENABLED IF THE SUPPLY FAN IS ON AND THE REVERSING VALVE IS IN THE CORRESPONDING HEAT OR COOL POSITION.
3. WHEN THE ZONE TEMPERATURE IS 75 DEGREES AND ABOVE, THE HEAT PUMPS SHALL OPERATE IN THE COOLING MODE AND CYCLE THE COMPRESSOR TO MAINTAIN ITS SETPOINT TO PREVENT SHORT CYCLING, THE STAGE SHALL HAVE A USER DEFINED MINIMUM RUNTIME, THE COMPRESSOR SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.
4. IF THE SPACE RELATIVE HUMIDITY IS ABOVE 65% IN COOLING MODE, INDEX THE HEAT PUMPS TO OPERATE IN THE DEHUMIDIFICATION MODE, WHEN THE SPACE RELATIVE HUMIDITY DROPS BELOW 55% IN COOLING MODE, HEAT PUMPS SHALL RETURN TO NORMAL SPACE TEMPERATURE CONTROL.
5. WHEN THE ZONE TEMPERATURE IS 70 DEGREES AND BELOW AND THE OUTSIDE AIR TEMPERATURE IS ABOVE 45 DEGREES, THE HEAT PUMPS SHALL OPERATE IN HEATING MODE.
6. WHEN THE ZONE TEMPERATURE IS BETWEEN 70 AND 75 DEGREES, THE HEAT PUMP FANS SHALL RUN WITHOUT ENABLING THE HEATING AND COOLING.
7. THE CONTROLLER SHALL START THE FURNACE WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 45 DEGREES AND STOP THE FURNACE WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 45 DEGREES. THE GAS HEAT SHALL MODULATE TO MAINTAIN THE ZONE HEATING TEMPERATURE SET POINT, HEATING SHALL ONLY BE ENABLED IF THE FURNACE FAN IS ON.

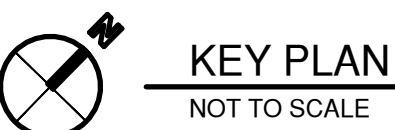
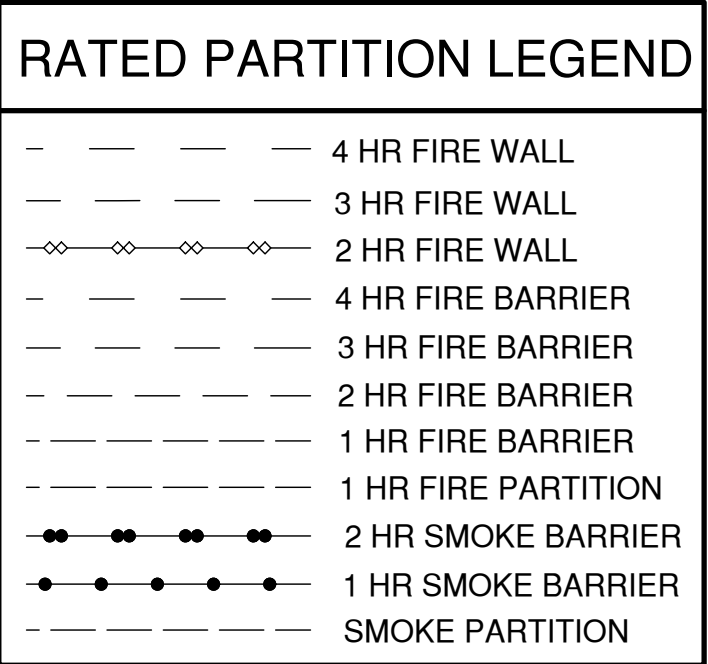
**LINCOLN
CORRECTIONAL
CENTER**

464 ROPER DR.,
LINCOLNTON
NORTH CAROLINA 28092

**LINCOLN CC - AIR
CONDITIONING
INSTALLATION**

MECHANICAL PLAN
(DORM EF)

M-102



SEQUENCE OF OPERATION

HVAC SYSTEM

THE SPLIT SYSTEM AIR CONDITIONING HEATING UNIT SHALL OPERATE CONTINUOUSLY AS THE FACILITY IS FULLY OCCUPIED AND WILL OPERATE IN THREE BASIC MODES: ECONOMIZER COOLING, DX COOLING, AND HEATING. THE SYSTEM WILL OPERATE BASED ON A SEASONAL SCHEDULE AND FULL YEAR ROUND, 24 HOUR, 7 DAYS A WEEK OCCUPANCY.

AIR HANDLER FAN:

THE AHU SUPPLY FAN SHALL BE MANUALLY STARTED AND STOPPED THROUGH THE HAND-OFF-AUTO SWITCH. ONCE SUPPLY FAN IS INITIATED, THE OUTSIDE AIR DAMPER SHALL OPEN TO ITS NORMALLY OPEN POSITION BEFORE FAN ENERGIZES. A FAILURE TO OPEN FROM END SWITCH, SHALL PREVENT THE SUPPLY FAN FROM STARTING. ONCE STARTED IT SHALL RUN CONTINUOUSLY. THE FAN CAN ALSO BE STARTED AND STOPPED THROUGH THE DDC COMPUTER SYSTEM . ONCE THE FAN IS ENERGIZED IT SHALL RUN AT A CONSTANT SPEED AND RUN CONTINUOUSLY. HEATING OR COOLING MODES SHALL BE ENABLED ONLY WHEN THE SUPPLY FAN IS ON.

WHEN THE ZONE TEMPERATURE IS 75 DEGREES (ADJUSTABLE) AND ABOVE, THE AIR HANDLER SHALL OPERATE IN THE COOLING MODE AND CYCLE THE COMPRESSORS TO MAINTAIN SETPOINT. TO PREVENT SHORT CYCLING, THE STAGE SHALL HAVE A USER DEFINED MINIMUM RUNTIME. THE COMPRESSORS SHALL RUN SUBJECT TO THEIR OWN INTERNAL SAFETIES AND CONTROLS.

- WHEN THE ZONE TEMPERATURE IS 70 DEGREES OR BELOW, THE AIR HANDLER SHALL OPERATE IN THE HEATING MODE.
- WHEN THE ZONE TEMPERATURES IS BETWEEN 70 AND 75 DEGREES, THE AIR HANDLER FAN SHALL RUN WITHOUT ENABLING HEATING OR COOLING.
- IF IONIZED COMBUSTION PRODUCTS ARE SENSED BY SMOKE DETECTOR IN THE RETURN AIR DUCT, THE SUPPLY FAN SHALL STAY ENERGIZED TO PROVIDE MAKE-UP AIR TO THE SPACES AS THE SMOKE EXHAUST ECONOMIZER EXHAUST FAN TURNS ON AND THE UNIT GOES INTO SMOKE PURGE MODE.

RETURN AIR DAMPER POSITION:

- UPON START-UP THE RETURN AIR DAMPER SHALL BE IN THE FULLY OPEN POSITION.
- IN ECONOMIZER COOLING MODE THE DDC CONTROLLER SHALL MODULATE RETURN AIR DAMPER AS REQUIRED TO MAINTAIN CONSTANT SPACE TEMPERATURE OF 75°F (ADJUSTABLE).
- IN THE HEATING MODE AND DX COOLING MODE DDC CONTROLLER SHALL MODULATE RETURN AIR DAMPER TO MAXIMUM OPEN POSITION.

OUTDOOR AIR DAMPER POSITION:

UPON START-UP THE OUTDOOR AIR DAMPER SHALL MODULATE TO THE MINIMUM OPEN OA POSITION. IN ECONOMIZER COOLING MODE THE DDC CONTROLLERS SHALL MODULATE OUTDOOR AIR DAMPER FROM MINIMUM OPEN TO FULLY OPEN (DEPENDING ON THE OUTDOOR ENTHALPY CONDITIONS) ON A RISE IN SPACE TEMPERATURE TO MAINTAIN CONSTANT SPACE TEMPERATURE OF 75°F (ADJUSTABLE). IN HEATING MODE AND DX COOLING MODE DDC CONTROLLER SHALL MODULATE OUTDOOR AIR DAMPER TO MINIMUM OUTDOOR AIR POSITION. IN SMOKE PURGE MODE THE OUTSIDE AIR DAMPER SHALL MODULATE TO ITS FULLY OPEN.

HEATING AND COOLING MODE EXHAUST DAMPER POSITION:

- THE EXHAUST FAN EXHAUST DAMPER IS FULLY OPEN OR FULLY CLOSED DEPENDING ON WHETHER OR NOT THE EXHAUST FAN IS ON OR OFF.

TEMPERATURE CONTROL:

THE WALL THERMOSTAT WILL INFORM THE SYSTEMS ON WHAT MODE THE HEATING AND COOLING SYSTEM WILL BE IN. THE INDOOR TEMPERATURE SETPOINTS WILL BE FULLY ADJUSTABLE BUT ONLY BY AUTHORIZED PERSONNEL. PROVIDE IN METAL LOCKABLE THERMOSTAT COVER FOR REMOTE TEMPERATURE SENSORS. PROVED THE OPTIONAL CLEAR PLASTIC LOCKABLE COVERS FOR THE AHU'S THERMOSTAT.

INTEGRATED ECONOMIZER COOLING MODE:

POWER EXHAUST (ECONOMIZER) FAN: THE POWER EXHAUST FAN SHALL BE ENERGIZED WHENEVER EXHAUST AIR DAMPER BEGINS TO MODULATE TOWARD THE FULL OPEN POSITION, AND SHALL BE DE-ENERGIZED BEFORE THE EXHAUST AIR DAMPER IS IN ITS FULLY CLOSED POSITION.

- ECONOMIZER MODE: THE SYSTEM WILL GO INTO ECONOMIZER MODE WHEN THE FOLLOWING CONDITIONS ARE MET.
 - UPON A RISE IN SPACE TEMPERATURE SETPOINT OF 75°F (ADJUSTABLE) AS SENSED BY THE RETURN AIR TEMPERATURE SENSOR
 - WHEN OUTDOOR AIR ENTHALPY IS LESS THAN OR EQUAL TO 28 BTU/LB AS SENSED BY THE OUTDOOR AIR ENTHALPY SENSOR, AND WHEN THE OUTDOOR AIR TEMPERATURE IS 75°F OR LESS AS SENSED BY THE OAT SENSOR.
- THE ECONOMIZER RETURN AIR AND OUTDOOR AIR DAMPERS MODULATE TO MAINTAIN THE SPACE TEMPERATURE SETPOINTS.
- THE ECONOMIZER FAN MODULATES BASED ON THE TO MAINTAIN A SPACE PRESSURE OF GREATER OR EQUAL TO +0.1" WG.
- THE EXHAUST FAN MODULATES TO 100% CAPACITY WHEN THE AHU IS IN ECONOMIZER MODE.
- THE EXHAUST FAN MODULATES TO OFF WHEN THE AHU IS IN MINIMUM OUTSIDE AIR MODE WHEN THE ECONOMIZER EXCEEDS THE MAXIMUM OUTSIDE AIR ENTHALPY SETPOINTS.
- WHILE IN ECONOMIZER MODE, IF THE SPACE TEMPERATURE SENSOR SENSES THAT THE SPACE AIR TEMPERATURE IS GREATER THAN THE OUTDOOR AIR TEMPERATURE THEN THE DX SYSTEM RE ACTIVATES THE DX COIL TO ASSIST IN PROVIDING COOLING TO THE SPACE AS THE ECONOMIZER DEACTIVATES WHEN THE OUTSIDE AIR ENTHALPY IS ABOVE 28BTU/LB.
- WHEN THE OUTDOOR AIR DRY BULB TEMPERATURE IS BELOW 40°F THE OUTDOOR DAMPER WILL MODULATE TO ITS MINIMUM POSITION TO PREVENT FREEZING.

COOLING MODE:

UNIT SHALL OPERATE IN THE DX COOLING MODE WHEN THE FOLLOWING CONDITIONS ARE MET.

- UPON A RISE IN SPACE TEMPERATURE AS SENSED BY THE THERMOSTAT ABOVE THE SETPOINT 75°F (ADJUSTABLE).
- WHEN OUTDOOR AIR TEMPERATURE AS SENSED BY TEMPERATURE TRANSMITTER IS ABOVE THE ECONOMIZER LOW TEMPERATURE SETPOINT 69°F (ADJUSTABLE) THE DDC CONTROLLER SHALL ENERGIZE COMPRESSOR AND CONDENSER FAN MOTOR, AND SHALL DE-ENERGIZE THE LIQUID LINE SOLENOID VALVE CAUSING IT TO OPEN. UPON A FURTHER RISE IN SPACE TEMPERATURE ABOVE THE SET POINT.

HEATING MODE:

OUTDOOR AIR DAMPER SHALL BE IN MINIMUM OUTDOOR AIR POSITION.

RETURN AIR DAMPER SHALL BE IN THE FULLY OPEN POSITION.

EXHAUST AIR DAMPER SHALL BE IN CLOSED POSITION.

UPON A FALL IN SPACE TEMPERATURE AS SENSED BY THE THERMOSTAT BELOW THE SETPOINT 70°F (ADJUSTABLE) DDC CONTROLLER SHALL OPEN THE HOT WATER CONTROL CONTROL VALVE TO THE FULLY OPEN POSITION.

- HEATING HOT WATER VALVE CONTROL:
 - IF THE DISCHARGE AIR TEMPERATURE SET POINT IS EQUAL TO OR LOWER THAN THE SPACE HEATING TEMPERATURE SET POINT THE HEATING VALVE SHOULD BE CLOSED. IF THE RETURN AIR DAMPER IS CLOSED TO THE COIL THE HEATING VALVE SHOULD BE CLOSED. OTHERWISE THE HEATING COIL VALVE MODULATES TO MAINTAIN A HEATING COIL LEAVING AIR TEMPERATURE OF 85°F.
- HOT WATER CIRCULATING PUMP:
 - IF THE HOT WATER CIRCULATION PUMP RUNS FROM ANY SIGNAL FROM ANY 2-WAY OR 3-WAY HOT WATER VALVE. THE HOT WATER PUMP IS TO RUN CONTINUOUSLY ANY TIME THE OUTDOOR AIR TEMPERATURE IS 40°F OR LESS. A HIGH LIMIT OUTDOOR AIR THERMOSTAT SHALL STOP THE PUMP ANY TIME THE TEMPERATURE IS 75°F OR ABOVE.
- HEATING HOT WATER:
 - THE WATER SUPPLY TEMPERATURE SHALL BE RESET AS A FUNCTION OF OUTDOOR AIR TEMPERATURE MODULATING BETWEEN 180°F AND 160°F ADJUSTABLE AS AMBIENT TEMPERATURE VARIES BETWEEN 18°F AND 60°F.

SMOKE PURGE MODE:

- AUXILIARY CONTACTS ON THE DUCT SMOKE DETECTORS SHALL NOTIFY THE DDC SYSTEM AND ALARM FIRE ALARM PANEL.
 - THE DUCT SMOKE DETECTORS ALSO CAUSE THE ECONOMIZER/SMOKE EXHAUST FAN'S SMOKE RATED DAMPER TO OPEN FULLY BEFORE THE SMOKE EXHAUST FAN IS ENERGIZED. A FAILURE TO OPEN BY THE END SWITCH WILL PREVENT THE EXHAUST FAN FROM COMING ON IF ITS CORRESPONDING DAMPER IS NOT OPEN.
 - THE RATED SMOKE DAMPER ON THE RETURN SIDE OF AIR HANDLER WILL CLOSE.
 - THE ECONOMIZER/SMOKE EXHAUST FAN SHALL BE ENABLED TO THE MAXIMUM DESIGN FLOW RATE.
 - THE OUTSIDE AIR DAMPER OPENS FROM ITS MINIMUM POSITION TO 100%.
 - THE AIR-HANDLER FAN WILL RUN AT THE SAME SET MAXIMUM FLOW RATE
 - THE HEATING SYSTEM WILL REMAIN ON IF IT IS IN THE HEATING MODE.
 - THE OUTDOOR CONDENSING UNIT DE-ENERGIZES.
 - ROOM SMOKE DETECTORS ALSO ACTIVATE THE SMOKE PURGE MODE.
- SMOKE PURGE TESTING HAND-OFF-AUTO (HOA) SWITCH:
- THE HOA SWITCH WILL OPERATE THE SMOKE PURGE SYSTEM FOR MAINTENANCE TESTING PURPOSES.

- IN THE HAND POSITION FOR TESTING PURPOSES THE SMOKE PURGE SYSTEM WILL GO INTO THE SMOKE PURGE MODE WITH NO INPUT FROM THE DUCT SMOKE DETECTORS. THE AIR HANDLER REMAINS ON.
- IN THE AUTO POSITION THE SYSTEM WILL RETURN BACK TO ITS NORMAL OPERATION.
- IN THE OFF POSITION THE ECONOMIZER FAN AND ECONOMIZER DAMPER DE-ENERGIZED. THE RETURN AIR DAMPER REMAINS OPEN AND THE OUTSIDE AIR DAMPER REMAINS IN ITS MINIMUM POSITION. IF MAINTENANCE IS REQUIRED ON EXHAUST FANS OR OTHER RELATED EQUIPMENT USE RELATED SAFETY SWITCHES.

DEHUMIDIFICATION MODE:

USING DDC CONTROL INTERFACE THE MAINTENANCE PERSONNEL WILL HAVE THE OPTION OF PUTTING THE HVAC UNITS IN DEHUMIDIFICATION MODE: WHEN NOT IN THE ECONOMIZER MODE OR HEATING MODE. IF THE SPACE AIR RELATIVE HUMIDITY IS ABOVE 65% MAINTAIN A COOLING COIL LEAVING AIR TEMPERATURE OF 55°F OR LESS, AND SLOW FAN SPEED TO 67% OF NOMINAL COOLING VALUE. IF THE SPACE TEMPERATURE FALLS BELOW THE HEATING SETPOINT OR THE RELATIVE HUMIDITY FALLS BELOW 60% THE UNIT SHALL RETURN TO NORMAL SPACE TEMPERATURE CONTROL AND THE AIR HANDLER WILL RETURN TO IS REGULAR SPEED TO MAINTAIN SPACE TEMPERATURE.

MECHANICAL ROOM EXHAUST FAN: THE EXHAUST FANS FOR MECHANICAL ROOMS SHALL BE MANUALLY STARTED AND STOPPED THROUGH THE HAND-OFF-AUTO SWITCH. ONCE THE FAN IS ENERGIZED IN THE HAND MODE THE FAN WILL RUN CONTINUOUSLY UNTIL IT EITHER THE OFF OR AUTO POSITION. IN THE "AUTO" MODE LINE VOLTAGE THERMOSTAT OR TEMPERATURE SWITCH SHALL SENSE THE SPACE TEMPERATURE AND ACTIVATE THE EXHAUST FAN ON A RISE IN SPACE TEMPERATURE OF 80°F (ADJUSTABLE). THE EXHAUST FAN SHALL RUN CONTINUOUSLY UNTIL THE TEMPERATURE DROPS BELOW 73°F.

FREEZE PROTECTION:

MANUAL RESET LOW LIMIT CONTROLLER WITH SENSOR LOCATED UPSTREAM OF THE COOLING COIL SHALL DE-ENERGIZE THE SUPPLY AND EXHAUST FANS AND CLOSE THE OUTDOOR AIR DAMPERS IF THE TEMPERATURE FALLS BELOW 40° F. NOTE THIS SHOULD BE OVERRIDDEN IF SMOKE PURGE IS ACTIVATED. IN ADDITION THE HOT WATER VALVE ACTUATORS SHALL BE DE-ENERGIZED AND THE VALVES WILL SPRING RETURN TO THE OPEN TO COIL POSITION. DE-ENERGIZING SHALL BE ACCOMPLISHED VIA A HARD-WIRED SAFETY NOT THROUGH THE DDC SYSTEM. NOTIFY THE OPERATOR VIA GRAPHIC. ON SYSTEMS WITH SMOKE PURGE, FAILURE MODES MAY NOT PROVIDE FREEZE PROTECTION. ATTENTION SHOULD BE GIVEN TO FAILURE MODES TO ENSURE POWER IS CUTOFF OR SUPPLIED TO DAMPERS AND VALVES AS NEEDED TO PROVIDE FREEZE PROTECTION.

EXISTING CABINET HEATERS: TWO-WAY CONTROL VALVES CONTROLLED BY WALL MOUNTED THERMOSTAT SENDS SIGNAL TO PUMPS.

EXISTING CABINET UNIT VENTILATORS: THREE-WAY CONTROL VALVES CONTROLLED BY WALL MOUNTED THERMOSTAT SENDS SIGNAL TO PUMPS.

EXISTING RESTROOM EXHAUST FANS: NOT IN CONTRACT (N.I.C) RUN CONTINUOUSLY.

EXISTING ATTIC VENTILATION FANS: (N.I.C.) (NOT SHOWN ON PLANS) THEY RUN INTERMITTENTLY AS REQUIRED TO MAINTAIN THERMOSTAT SETTING. (NOT SHOWN)

NIGHT TIME SETBACK SCHEDULE:

HEATING MODE: 7 DAYS A WEEK(ADJ) 9PM-6AM(ADJ) 65°F(ADJ)

COOLING MODE: 7 DAYS A WEEK(ADJ) 9PM-6AM(ADJ) 74°F(ADJ)

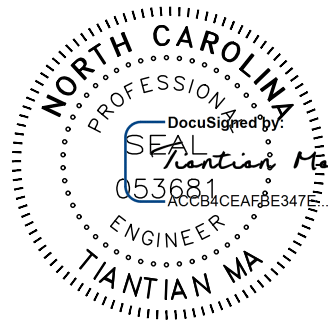
AHU CONTROL STRATEGIES:

- HEATING
- COOLING
- DEHUMIDIFICATION MODE.
- ECONOMIZER.
- FREEZE PROTECTION.
- SMOKE PURGE TESTING.
- SMOKE PURGE
- NIGHT-TIME SETBACK



NORTH CAROLINA DEPARTMENT OF ADULT CORRECTION

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ISSUED FOR CONSTRUCTION

09.15.2025 ISSUED FOR CONSTRUCTION

NO	DATE	REVISION
DRAWN BY:	MLB	
DESIGNED BY:	TM	
CHECKED BY:	MSH	
CADD DWG NO:	JO4592 M-501	
JOB ORDER NO:	4592	
PLOT DATE:	09.15.2025	

LINCOLN CORRECTIONAL CENTER

464 Roper Dr, Lincolnnton, NC 28092

LINCOLN CC - AIR CONDITIONING INSTALLATION

SCO ID # 24-28231-01A

HVAC CONTROL SEQUENCE OF OPERATIONS FOR 100 MAN DORM (ABCD)

M-501

D

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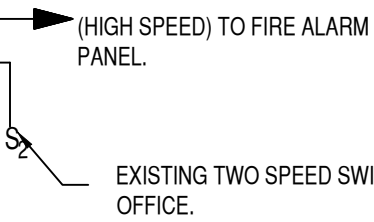
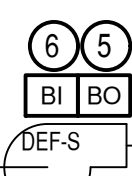
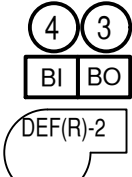
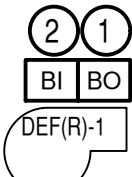
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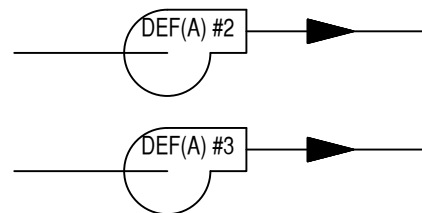
EXISTING BOILER AND VALVES POINTS LIST			
NO.	TYPE	DESCRIPTION	
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2	AI	HEATING SYS.OUTDOOR AIR TEMPERATURE SENSOR	
3	BI	PUMP STATUS	
4	BO	BOILER START /STOP ENABLE	
5		NOT USED	
6	BI	BOILER STATUS	
7	AI	TEMPERATURE BOILER WATER RETURN	ALARM
8	AI	TEMPERATURE BOILER WATER SUPPLY	ALARM
9		NOT USED	
10	BI	SERGEANT OFFICE UNIT VENTILATOR VALVE STATUS FOR PUMP OPERATION	
11	BI	NURSES STATION UNIT VENTILATOR VALVE STATUS FOR PUMP OPERATION	
12	BI	MECHANICAL ROOM VALVE STATUS FOR PUMP OPERATION	
13	BI	BOILER ROOM VALVE STATUS FOR PUMP OPERATION	

EXISTING REST ROOM EXHAUST FANS POINTS LIST			
NO.	TYPE	DESCRIPTION	
1	BO	EF(RR) #1 START/ STOP ENABLE	
2	BI	EF(RR) #1 STATUS	
3	BO	EF(RR) #2 START/ STOP ENABLE	
4	BI	EF(RR) #2 STATUS	
5	BO	EF(RR) #3 START/ STOP ENABLE	
6	BI	EF(RR) #3 STATUS	

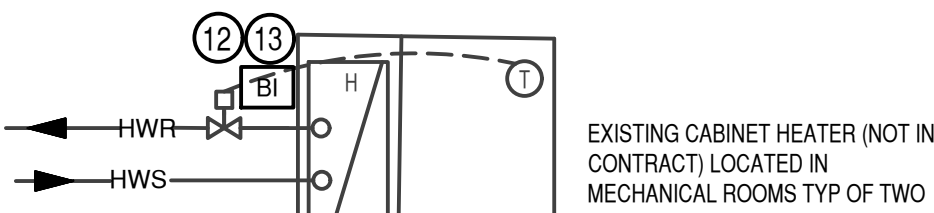
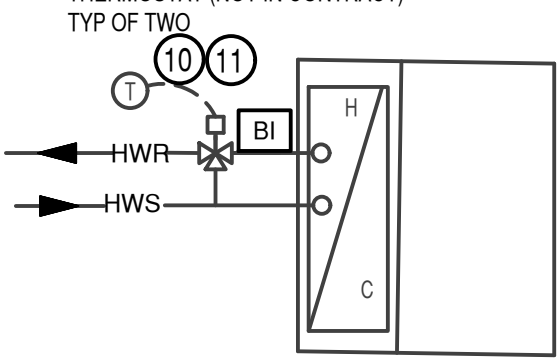
EXISTING RESTROOM EXHAUST FANS (RUNS CONTINUOUSLY)



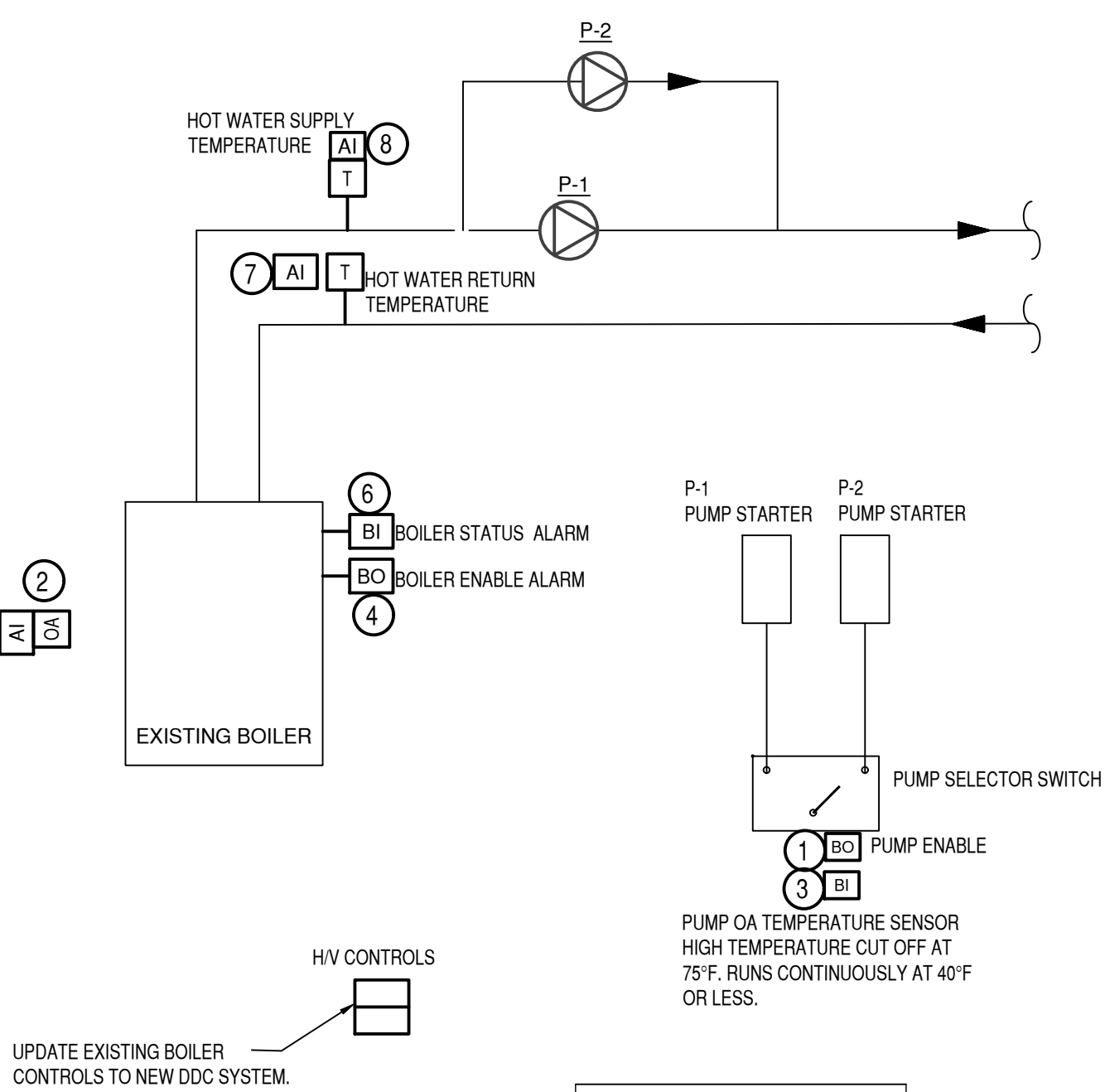
EXISTING ATTIC EXHAUST FANS (RUNS BASED ON ATTIC TEMPERATURE) CONTROLLED BY THERMOSTAT. NOT IN CONTRACT.



EXISTING WALL MOUNTED THERMOSTAT (NOT IN CONTRACT) TYP OF TWO



EXISTING PUMPS TO REMAIN



BOILER RESET SCHEDULE	
OUTSIDE AIR	HOT WATER
18°F	180°F
60°F	160°F

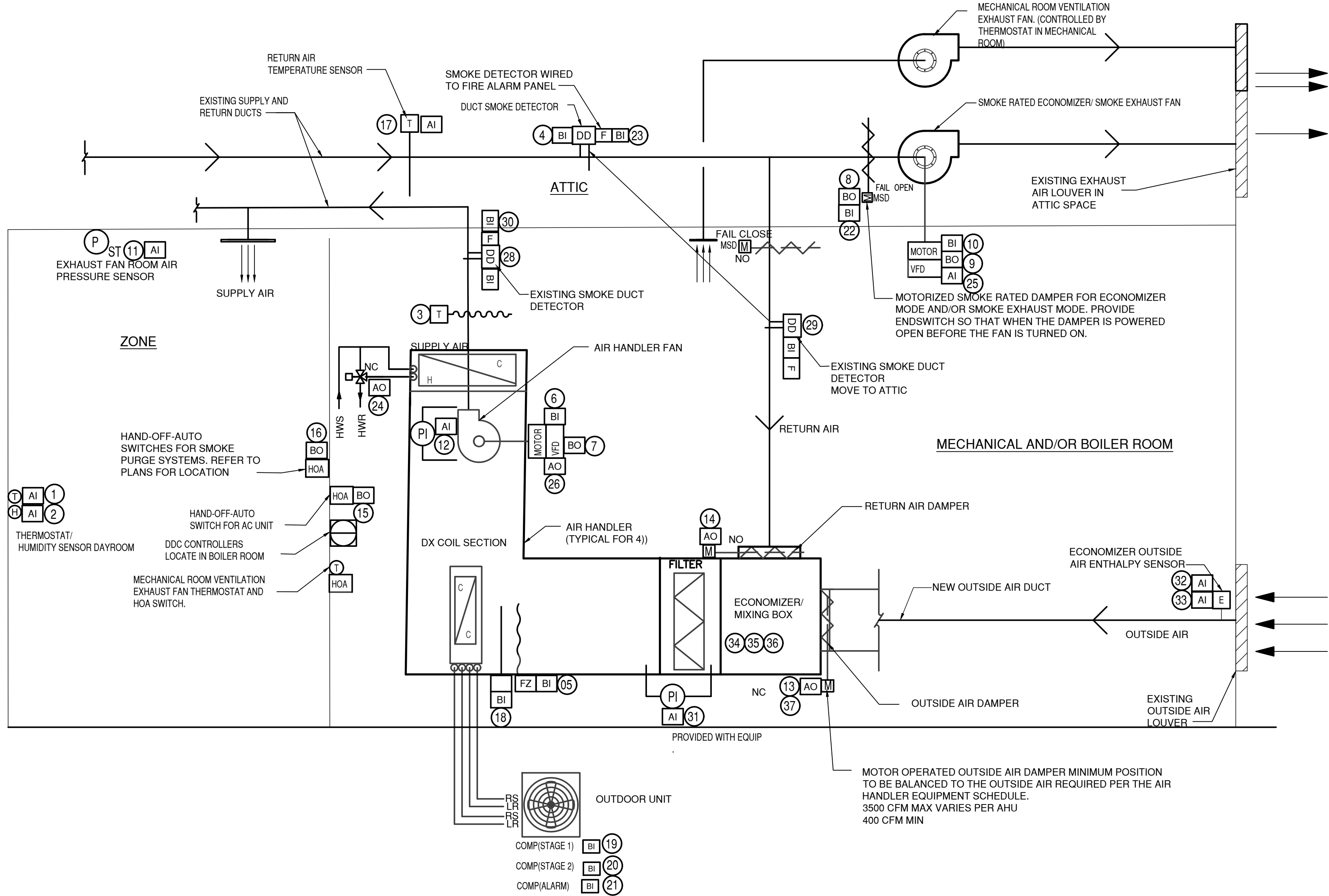
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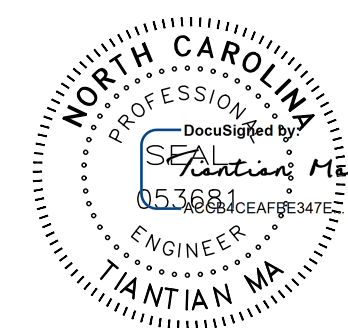
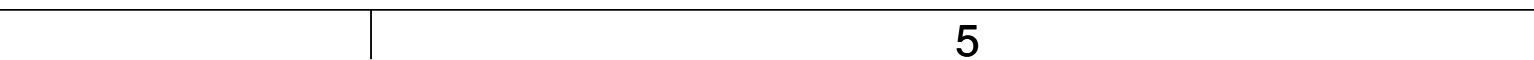
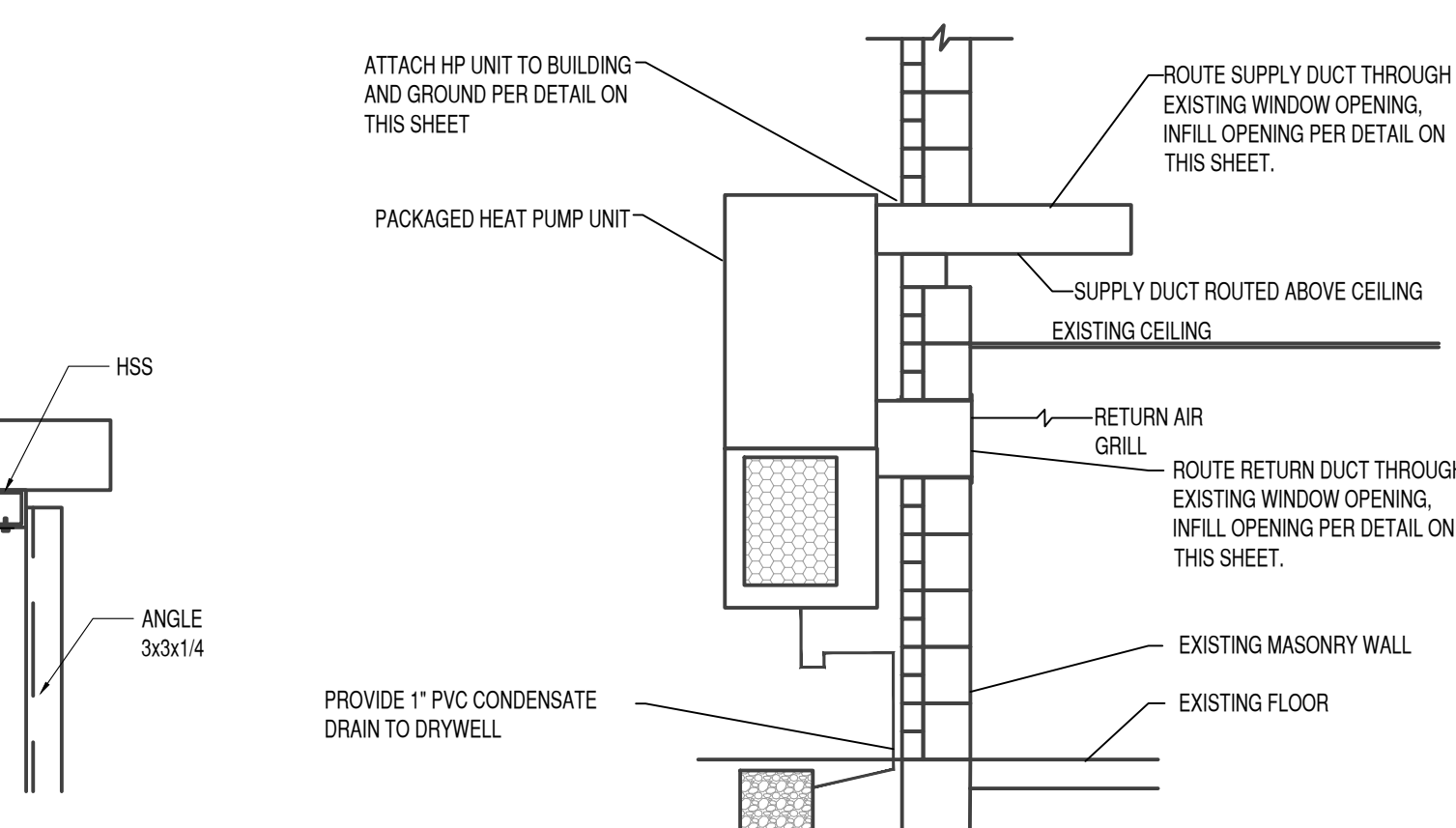
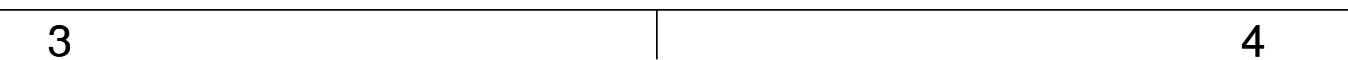
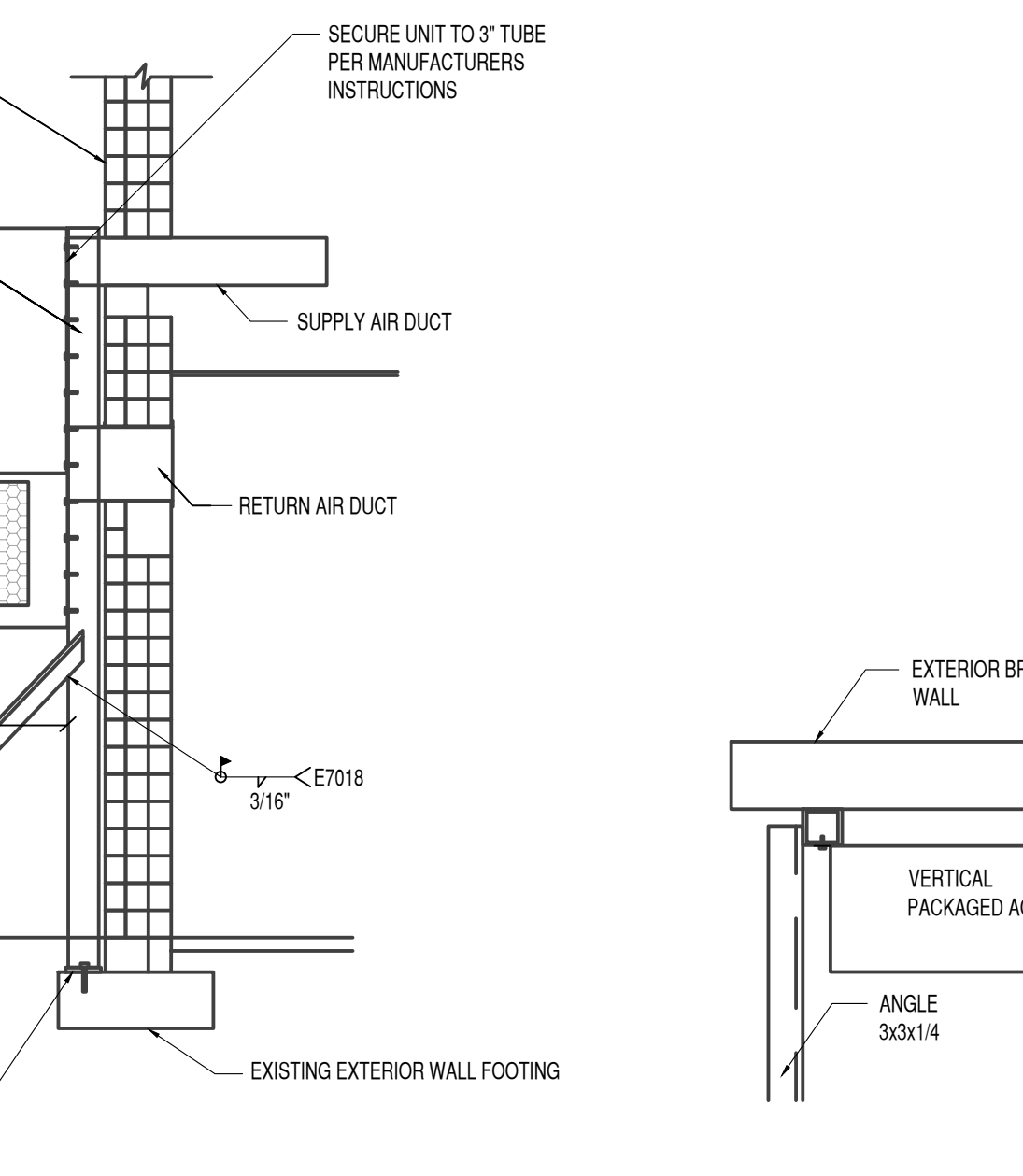
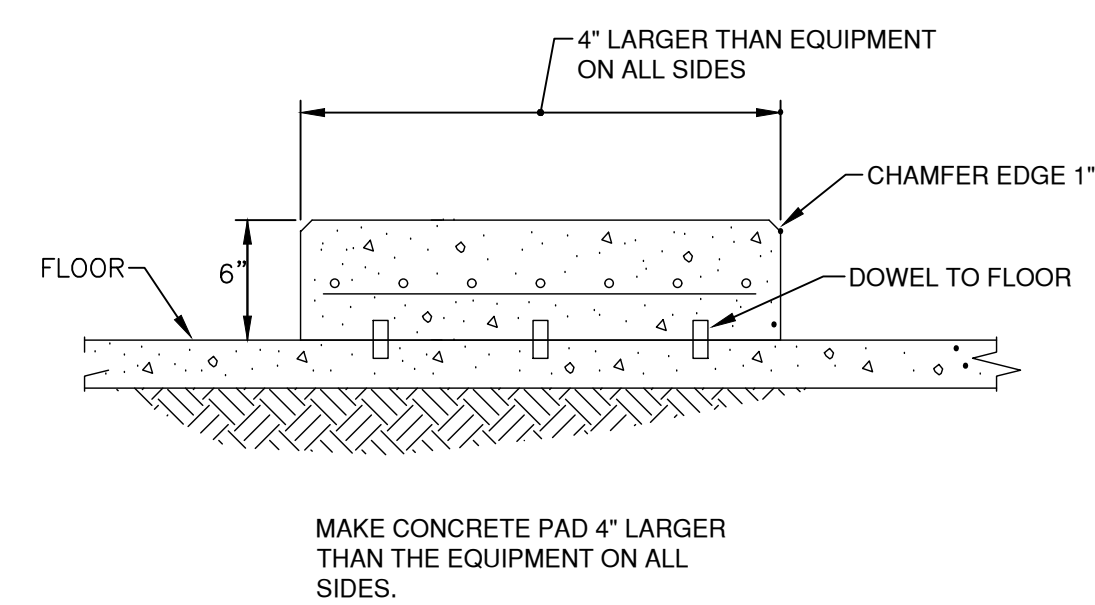
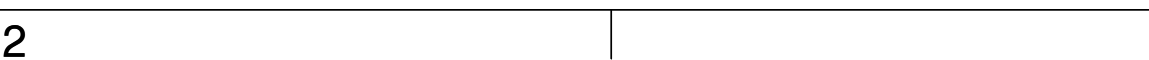
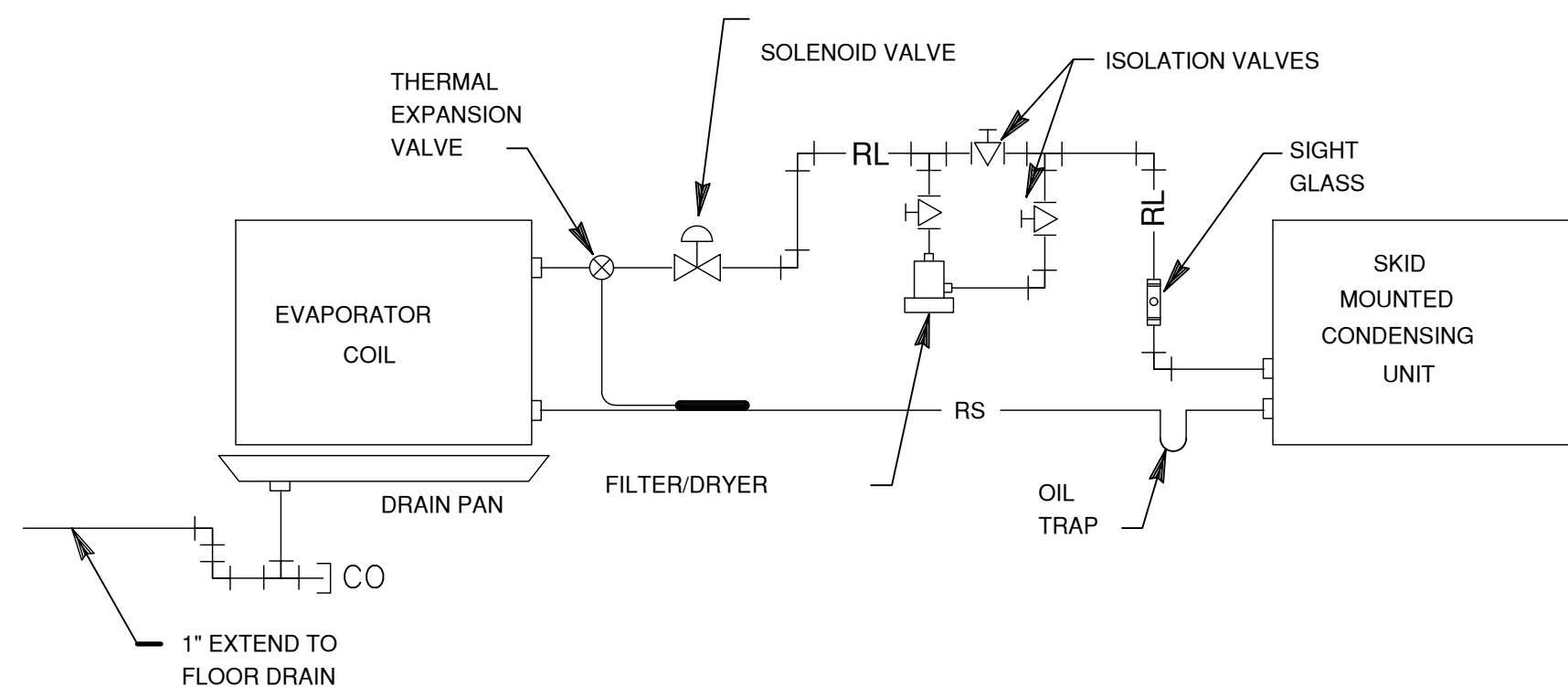
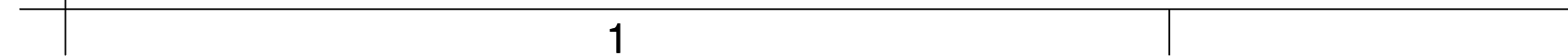
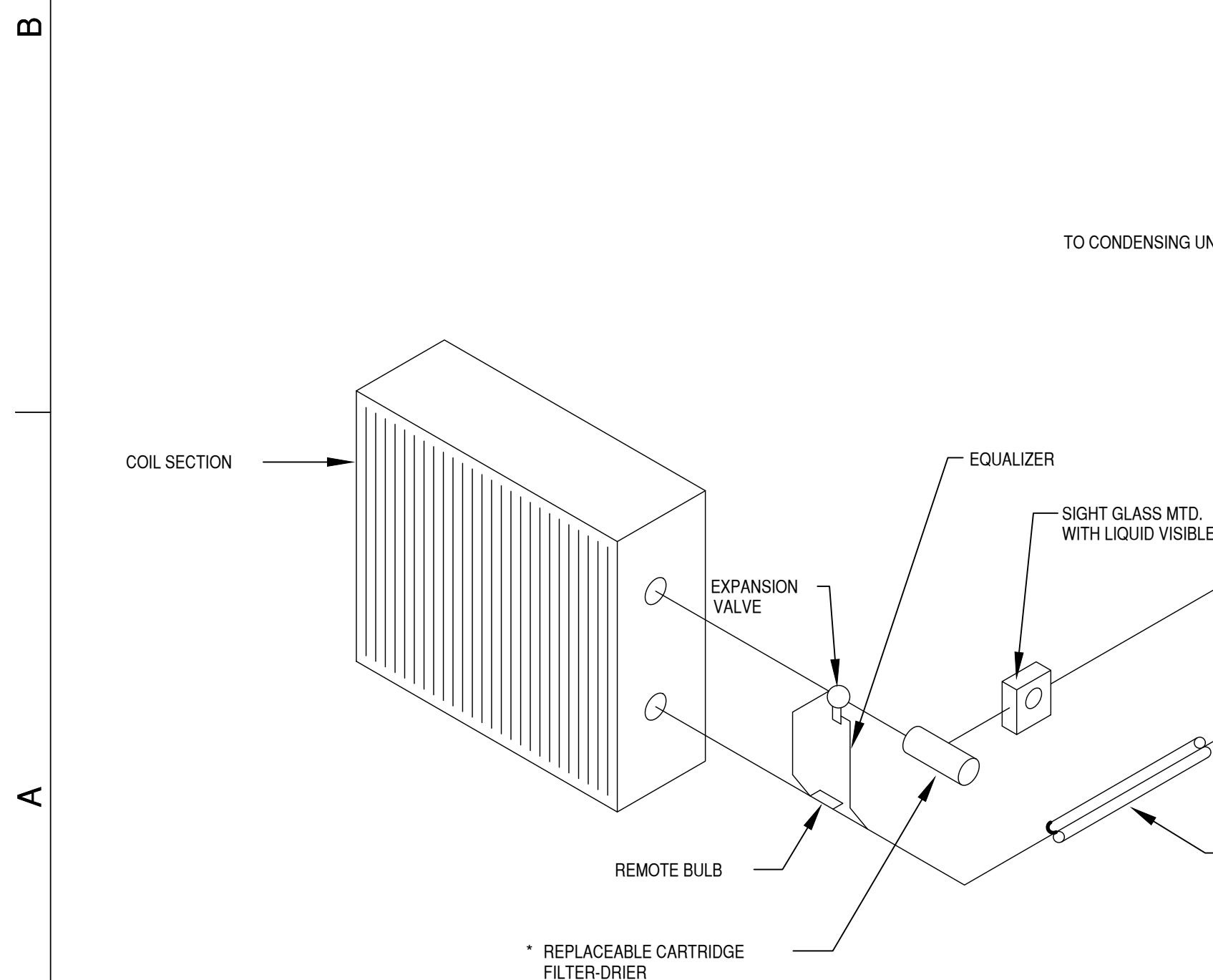
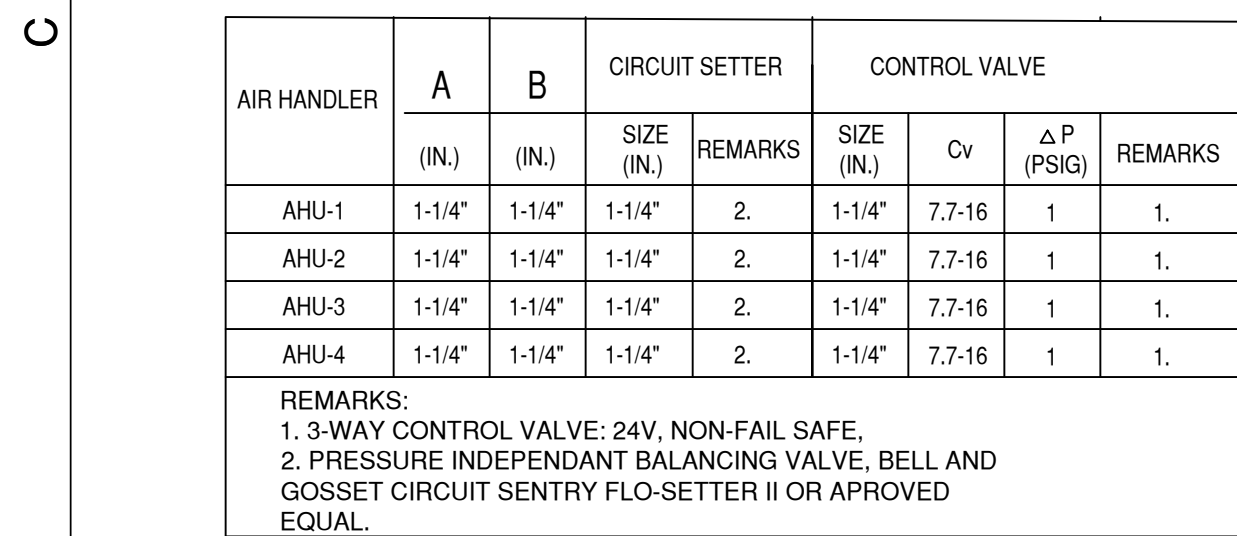
AHU-1/CU-1 POINTS LIST			
NO.	TYPE	DESCRIPTION	
01	AI	ZONE AIR TEMP	ALARM
02	AI	SPACE %RH	
03	AI	DUCT AVERAGING TEMPERATURE SENSOR	
04	BI	DO RA DUCT SMOKE DETECTOR IN ATTIC	
05	BI	FREEZESTAT	
06	BI	SUPPLY FAN STATUS	
07	BO	START/STOP AHU VFD ENABLE	
08	BO	MOTORIZED SMOKE EXHAUST DAMPER ENABLE	
09	BO	SMOKE EXHAUST/ECONOMIZER FAN VFD ENABLE	
10	BI	SMOKE EXHAUST/ECONOMIZER FAN STATUS	
11	AI	ROOM PRESSURE SENSOR	
12	AI	SUPPLY FAN TOTAL PRESSURE	
13	AO	OUTSIDE AIR DAMPER AHU-1	
14	AO	RETURN AIR DAMPER	
15	BO	AC HOA SWITCH	
16	BO	SMOKE PURGE HOA SWITCH	
17	AI	RETURN AIR TEMPERATURE SENSOR	
18	BI	COIL STATUS	
19	BI	COMPRESSOR STAGE 1 STATUS	
20	BI	COMPRESSOR STAGE 2 STATUS	
21	BI	COMPRESSOR ALARM	ALARM
22	BI	SMOKE EXHAUST DAMPER STATUS	
23	BI	SMOKE STATUS TO FIRE PANEL	ALARM
24	AO	AIR HANDLER 3- WAY HOT WATER VALVE	
25	AI	SMOKE EXHAUST/ECONOMIZER FAN SPEED	
26	AI	SUPPLY FAN SPEED	
27	BI	RA DUCT SD IN MECH. RM. (EXIST) TO DDC .	ALARM
28	BI	DD SA DUCT SMOKE DETECTOR IN MECH. RM. (EXIST.)	
29	BI	EXIST. DUCT SMOKE DETECTOR MOVE RA DUCT IN ATTIC	
30	BI	SMOKE STATUS TO FIRE ALARM PANEL	ALARM
31	AI	FILTER	
32	AI	OUTDOOR AIR TEMPERATURE	
33	AI	% RELATIVE HUMIDITY	
34	BI	ECONOMIZER SETPOINT	
35	BI	ECONOMIZER ENABLE	
36	BI	ECONOMIZER OVERRIDE	
37	AI	ECONOMIZER DAMPER MIN. POSITION	
38	BO	ECONOMIZER DAMPER POSITION OUTPUT	
39	BI	ECONOMIZER MODE STATE	

AHU-2/CU-2 POINTS LIST			
NO.	TYPE	DESCRIPTION	
01	AI	ZONE AIR TEMP	ALARM
02	AI	SPACE %RH	
03	AI	DUCT AVERAGING TEMPERATURE SENSOR	
04	BI	RA DUCT SMOKE DETECTOR IN ATTIC	
05	BI	FREEZESTAT	
06	BI	SUPPLY FAN STATUS	
07	BO	START/STOP AHU VFD ENABLE	
08	AO	MOTORIZED SMOKE EXHAUST DAMPER	
09	BO	SMOKE EXHAUST/ECONOMIZER FAN VFD ENABLE	
10	BI	SMOKE EXHAUST/ECONOMIZER FAN STATUS	
11	AI	ROOM PRESSURE SENSOR	
12	AI	SUPPLY FAN TOTAL PRESSURE	
13	AO	OUTSIDE AIR DAMPER AHU-2	
14	AO	RETURN AIR DAMPER	
15	BO	AC HOA SWITCH	
16	BO	SMOKE PURGE HOA SWITCH	
17	AI	RETURN AIR TEMPERATURE SENSOR	
18	BI	COIL STATUS	
19	BI	COMPRESSOR STAGE 1 STATUS	
20	BI	COMPRESSOR STAGE 2 STATUS	
21	BI	COMPRESSOR ALARM	ALARM
22	BI	EXHAUST DAMPER STATUS	
23	BI	SMOKE STATUS TO FIRE PANEL	
24	AO	AIR HANDLER 3- WAY HOT WATER VALVE	
25	AI	SMOKE EXHAUST/ECONOMIZER FAN SPEED	
26	AI	SUPPLY FAN SPEED	
27	BI	RA DUCT SD IN MECH. RM. (EXIST) TO DDC .	
28	BI	SA DUCT SMOKE DETECTOR IN MECH. RM. (EXIST.)	
29	BI	EXIST. DUCT SMOKE DETECTOR MOVE RA DUCT IN ATTIC	
30	BI	SMOKE STATUS TO FIRE ALARM PANEL	
31	AI	FILTER	
32	AI	OUTDOOR AIR TEMPERATURE	
33	AI	% RELATIVE HUMIDITY	
34	BI	ECONOMIZER SETPOINT	
35	BI	ECONOMIZER ENABLE	
36	BI	ECONOMIZER OVERRIDE	
37	AI	ECONOMIZER DAMPER MIN. POSITION	
38	BO	ECONOMIZER DAMPER POSITION OUTPUT	
39	BI	ECONOMIZER MODE STATE	

AHU-3/CU-3 POINTS LIST			
NO.	TYPE	DESCRIPTION	
01	AI	ZONE AIR TEMP	ALARM
02	AI	SPACE %RH	
03	AI	DUCT AVERAGING TEMPERATURE SENSOR	
04	BI	RA DUCT SMOKE DETECTOR IN ATTIC	
05	BI	FREEZESTAT	
06	BI	SUPPLY FAN STATUS	
07	BO	START/STOP AHU VFD ENABLE	
08	AO	MOTORIZED SMOKE EXHAUST DAMPER	
09	BO	SMOKE EXHAUST/ECONOMIZER FAN VFD ENABLE	
10	BI	SMOKE EXHAUST/ECONOMIZER FAN STATUS	
11	AI	ROOM PRESSURE SENSOR	
12	AI	SUPPLY FAN TOTAL PRESSURE	
13	AO	OUTSIDE AIR DAMPER AHU-3	
14	AO	RETURN AIR DAMPER	
15	BO	AC HOA SWITCH	
16	BO	SMOKE PURGE HOA SWITCH	
17	AI	RETURN AIR TEMPERATURE SENSOR	
18	BI	COIL STATUS	
19	BI	COMPRESSOR STAGE 1 STATUS	
20	BI	COMPRESSOR STAGE 2 STATUS	
21	BI	COMPRESSOR	ALARM
22	BI	EXHAUST DAMPER STATUS	
23	BI	SMOKE STATUS TO FIRE PANEL	
24	AO	AIR HANDLER 3- WAY HOT WATER VALVE	
25	AI	SMOKE EXHAUST/ECONOMIZER FAN SPEED	
26	AI	SUPPLY FAN SPEED	
27	BI	RA DUCT SD IN MECH. RM. (EXIST) TO DDC .	
28	BI	SA DUCT SMOKE DETECTOR IN MECH. RM. (EXIST.)	
29	BI	EXIST. DUCT SMOKE DETECTOR MOVE RA DUCT IN ATTIC	
30	BI	SMOKE STATUS TO FIRE ALARM PANEL	
31	AI	FILTER	
32	AI	OUTDOOR AIR TEMPERATURE	
33	AI	% RELATIVE HUMIDITY	
34	BI	ECONOMIZER SETPOINT	
35	BI	ECONOMIZER ENABLE	
36	BI	ECONOMIZER OVERRIDE	
37	AI	ECONOMIZER DAMPER MIN. POSITION	
38	BO	ECONOMIZER DAMPER POSITION OUTPUT	
39	BI	ECONOMIZER MODE STATE	

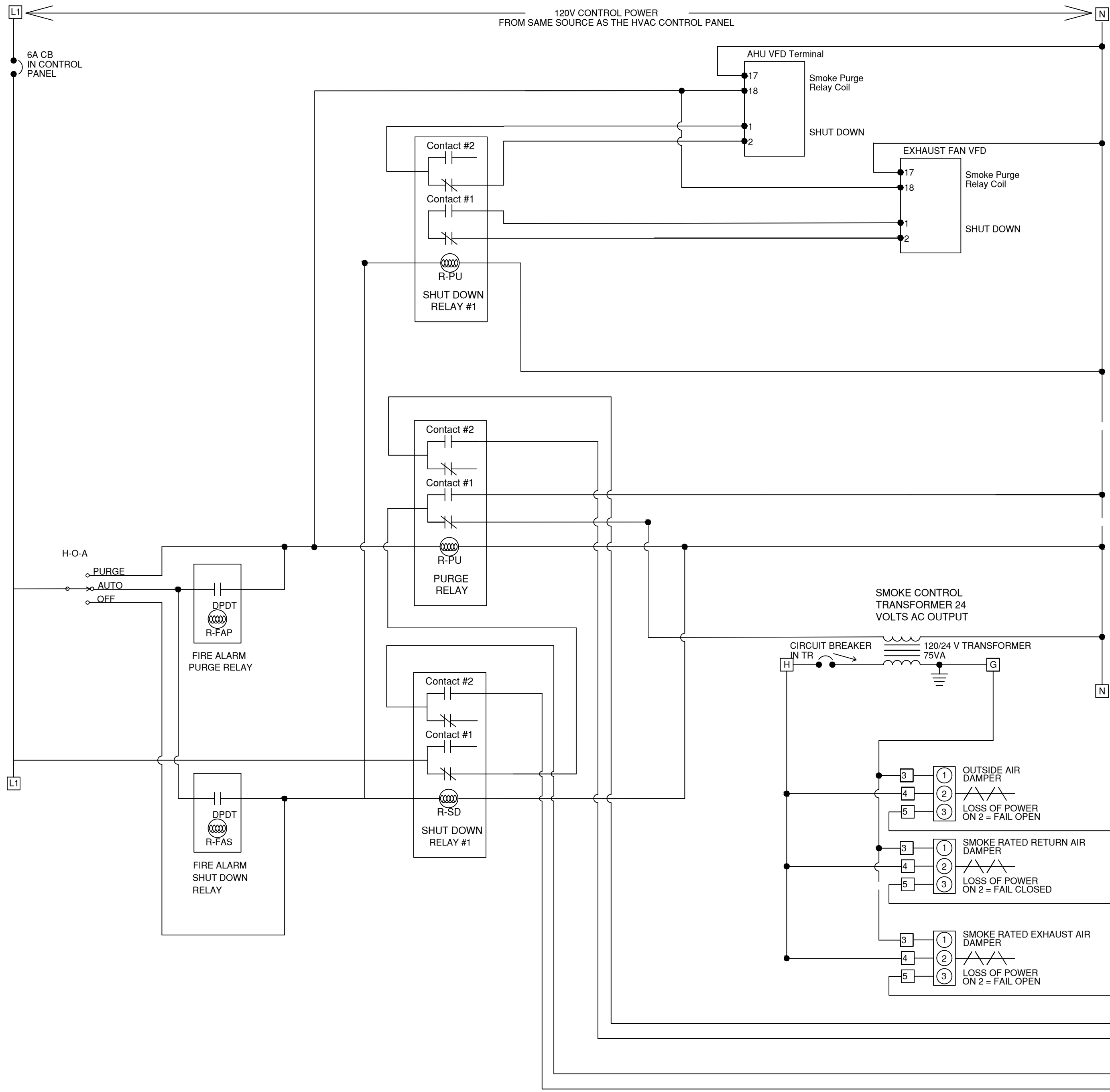
AHU-4/CU-4 POINTS LIST			
NO.	TYPE	DESCRIPTION	
01	AI	ZONE AIR TEMP	ALARM
02	AI	SPACE %RH	
03	AI	DUCT AVERAGING TEMPERATURE SENSOR	
04	BI	RA DUCT SMOKE DETECTOR IN ATTIC	
05	BI	FREEZESTAT	
06	BI	SUPPLY FAN STATUS	
07	BO	START/STOP AHU VFD	
08	AO	MOTORIZED SMOKE EXHAUST DAMPER	
09	BO	SMOKE EXHAUST/ECONOMIZER FAN VFD ENABLE	
10	BI	SMOKE EXHAUST/ECONOMIZER FAN STATUS	
11	AI	ROOM PRESSURE SENSOR	
12	AI	SUPPLY FAN TOTAL PRESSURE	
13	AO	OUTSIDE AIR DAMPER AHU-4	
14	AO	RETURN AIR DAMPER	
15	BI	AC HOA SWITCH	
16	BI	SMOKE PURGE HOA SWITCH	
17	AI	RETURN AIR TEMPERATURE SENSOR	
18	BI	COIL STATUS	
19	BI	COMPRESSOR STAGE 1 STATUS	
20	BI	COMPRESSOR STAGE 2 STATUS	
21	BI	COMPRESSOR ALARM	
22	BI	EXHAUST DAMPER STATUS	
23	BI	SMOKE STATUS TO FIRE PANEL	
24	AO	AIR HANDLER 3- WAY HOT WATER VALVE	
25	AI	SMOKE EXHAUST/ECONOMIZER FAN SPEED	
26	AI	SUPPLY FAN SPEED	
27	BI	RA DUCT SD IN MECH. RM. (EXIST) TO DDC .	
28	BI	SA DUCT SMOKE DETECTOR IN MECH. RM. (EXIST.)	
29	BI	EXIST. DUCT SMOKE DETECTOR MOVE RA DUCT IN ATTIC	
30	BI	SMOKE STATUS TO FIRE ALARM PANEL	
31	AI	FILTER	
32	AI	OUTDOOR AIR TEMPERATURE	
33	AI	% RELATIVE HUMIDITY	
34	BI	ECONOMIZER SETPOINT	
35	BI	ECONOMIZER ENABLE	
36	BI	ECONOMIZER OVERRIDE	
37	AI	ECONOMIZER DAMPER MIN. POSITION	
38	BO	ECONOMIZER DAMPER POSITION OUTPUT	
39	BI	ECONOMIZER MODE STATE	





MECHANICAL DETAILS

D
C
B
A



THIS WORK IS RELATED TO THE ADDITION OF AIR CONDITIONING AND IS INTENDED TO PRESERVE THE ORIGINAL SEQUENCE OF OPERATION. THIS ARRANGEMENT IS TYPICAL FOR ALL FOUR AIR HANDLERS AND THE NEW EXHAUST FANS ASSOCIATED WITH THEM.

THE MANUAL SWITCH HAS PRIORITY OVER THE AUTOMATIC FIRE ALARM PANEL RESPONSE.

THE PURGE AND SHUT DOWN RELAYS ARE MR 201 UL 864 LISTED RELAYS BY AIR PRODUCTS INC.

THE NEW DAMPER OPERATORS, BELIMO FSAFB24-SR, ARE UL 555S LISTED (WHEN INSTALLED ON A NEW SMOKE DAMPER) AND SPRING TO THE SMOKE PURGE POSITION BASED ON THEIR INSTALLATION ORIENTATION ON A LOSS OF 24 VAC POWER.

THE EXISTING FIRE ALARM SYSTEM IS PROGRAMMED TO ACTIVATE THE SMOKE PURGE BY THE EXISTING FIRE ALARM PURGE RELAY WHEN THE RETURN AIR DUCT DETECTOR IS ACTIVATED.

THE SUPPLY DETECTOR ACTIVATES A SUPERVISORY SIGNAL AT THE FIRE ALARM PANEL.

THE MANUAL SWITCH OVERRIDES EITHER AUTOMATIC FUNCTION.

IN PURGE THE EXHAUST FAN IS ON HIGH SPEED, THE AIR HANDLER IS IN HIGH SPEED, THE OUTSIDE AIR DAMPER IS OPEN, THE RETURN AIR DAMPER IS CLOSED, THE EXHAUST DAMPER IS OPEN.

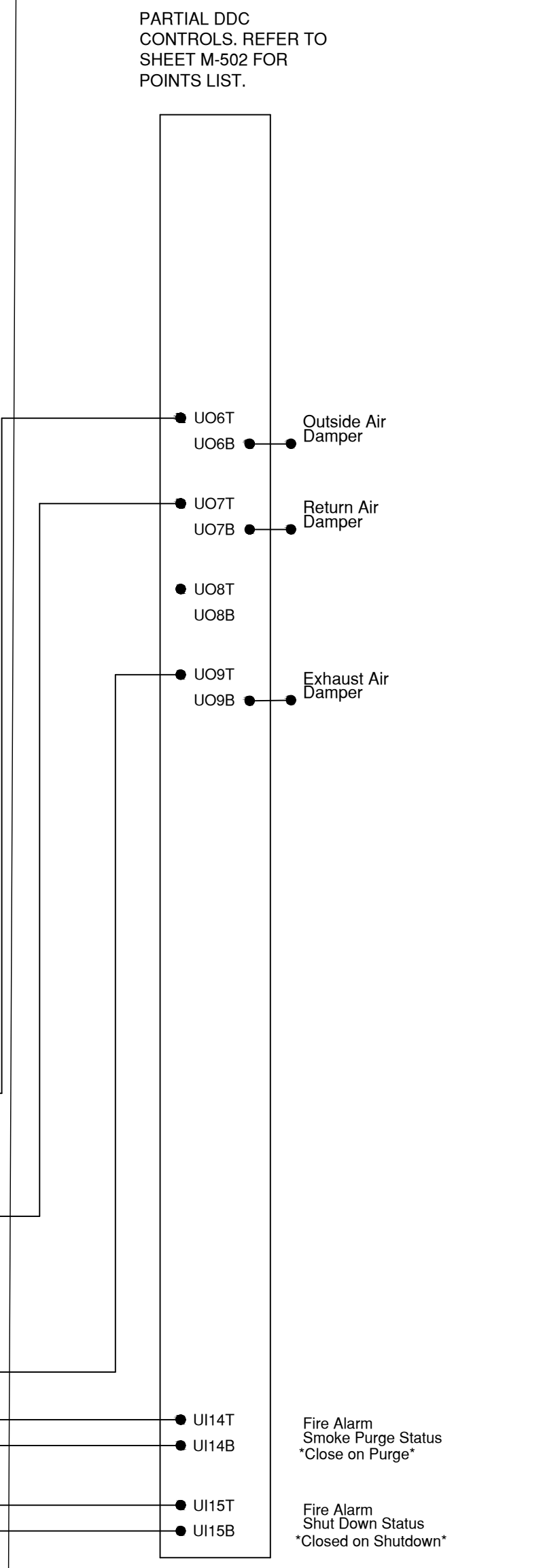
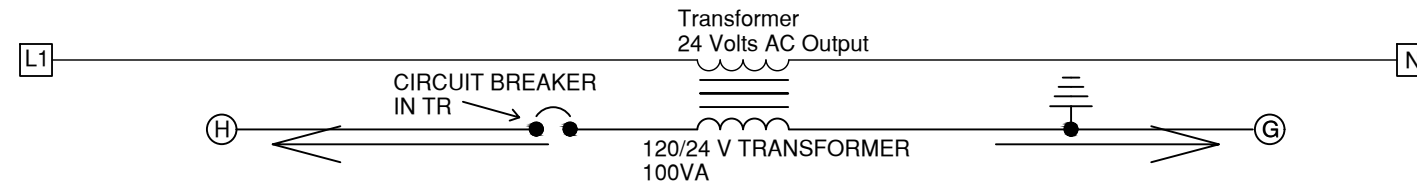
AS A NON-LIFE SAFETY FUNCTION THE NORMAL CONTROLS WILL OPEN THE HOT WATER VALVE TO THE HEATING COIL TO PREVENT FREEZING.

IN NORMAL CONTROLS SHUT DOWN THE FANS ARE ALL OFF AND THE DAMPERS ARE CONTROLLED BY THE NORMAL CONTROLS WHICH CAN CLOSE THE OUTSIDE AIR DAMPER AS A NON-LIFE SAFETY FUNCTION.

THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ELECTRICAL CODE AND BE INSPECTED BY THE ELECTRICAL INSPECTOR PRIOR TO ACCEPTANCE.

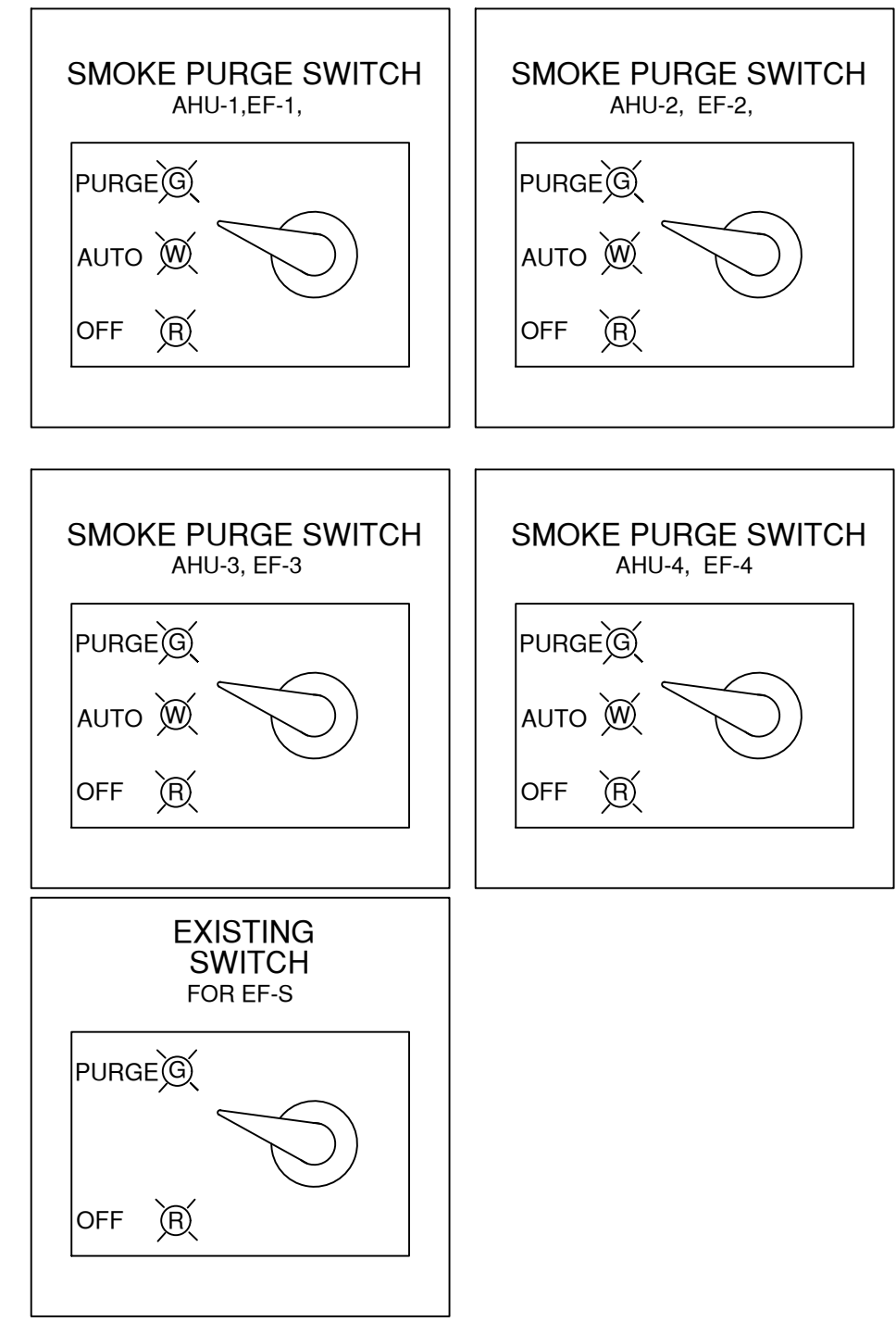
A FUNCTIONAL TEST WILL BE PERFORMED BY THE MECHANICAL CONTRACTOR TO VERIFY THE

RELAY BASED SMOKE PURGE CONTROLS PER TYPICAL AIR HANDLER/ SMOKE EXHAUST FAN ← + → SOLID STATE DIGITAL HVAC CONTROLS FOR NORMAL OPERATION TYPICAL



SMOKE PURGE SCHEDULE			
ACTUATED EQUIPMENT	SMOKE PURGE ACTUATION		
	MANUALLY SWITCHED TO AUTO(ON)	SWITCH IN PURGE	MANUALLY SWITCHED TO OFF
AHU-1	HVAC CONTROL PNL	HIGH SPEED	OFF
AHU-2	HVAC CONTROL PNL	HIGH SPEED	OFF
AHU-3	HVAC CONTROL PNL	HIGH SPEED	OFF
AHU-4	HVAC CONTROL PNL	HIGH SPEED	OFF
EF-1	HVAC CONTROL PNL	HIGH SPEED	OFF
EF-2	HVAC CONTROL PNL	HIGH SPEED	OFF
EF-3	HVAC CONTROL PNL	HIGH SPEED	OFF
EF-4	HVAC CONTROL PNL	HIGH SPEED	OFF
EXHAUST SMOKE CONTROL DAMPERS FOR EF-1 TO EF-4	HVAC CONTROL PNL	FULLY OPEN	N/A (NC)
RETURN SMOKE CONTROL DAMPERS FOR EF-1 TO EF-4	HVAC CONTROL PNL	FULLY CLOSED	N/A (NO)
INTAKE AIR DAMPER AT ECONOMIZER	HVAC CONTROL PNL	FULLY OPEN	N/A (NO)

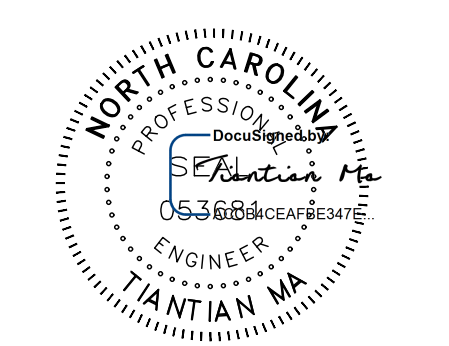
- NOTES:
- THE EXISTING FIRE ALARM SYSTEM SHALL INTERFACE WITH THE NEW HVAC SYSTEM CONTROLS FOR THE OPERATION OF THE SMOKE PURGE SYSTEM. SEE SHEET M-501 FOR DETAILED SEQUENCE.
 - DOOR HOLD DEVICES SHALL RELEASE UPON EITHER AUTOMATIC OR MANUAL ACTIVATION OF THE SMOKE EXHAUST SYSTEM.



NORTH CAROLINA DEPARTMENT OF ADULT CORRECTION

2020 YONKERS ROAD
4216 MSC
RALEIGH, N.C. 27699-4216

TEL (919) 733-2126
FAX (919) 716-3978



ISSUED FOR CONSTRUCTION

09.15.2025 ISSUED FOR CONSTRUCTION

NO	DATE	REVISION
DRAWN BY:	MLB	
DESIGNED BY:	TM	
CHECKED BY:	MSH	
CADD DWG NO:	JO4592-M505	
JOB ORDER NO:	4592	
PLOT DATE:	09.15.2025	

LINCOLN CORRECTIONAL CENTER

464 Roper Dr, Lincoln, NC 28092

LINCOLN CC - AIR CONDITIONING INSTALLATION

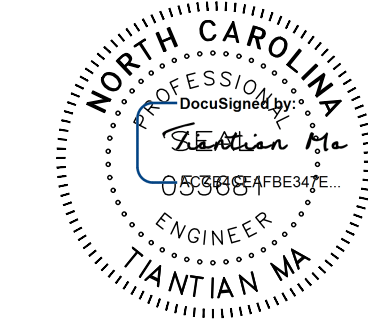
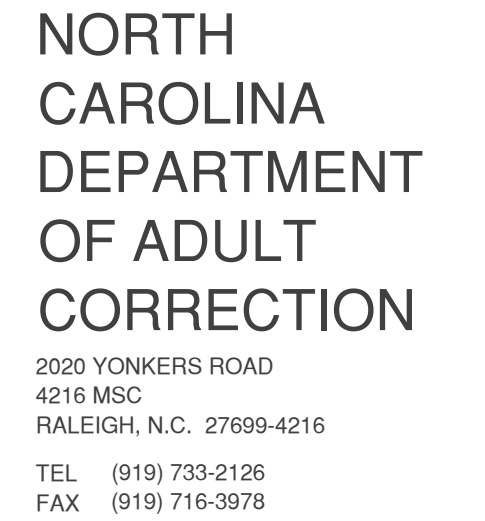
SCO ID # 24-28231-01A

SMOKE PURGE DIAGRAM (ABCD)

M-504

DESIGNATION	MANUFACTURER	MODEL NO.	OA CFM	FAN						COOLING COIL				HEATING COIL			REMARKS
				CFM	TSP	RPM	ELECTRICAL DATA			EDB(F)	EWB(F)	MINIMUM	MINIMUM	EDB(F)	LAT	MINIMUM	
							FLA	MOP	VOLTAGE/PH			TOTAL CAP	SENS. CAP			CAPACITY	
												(MBH)	(MBH)			(MBH)	
AHU1	TRANE	TWE120K3BAA	700	3280	1	949	6.8	15	208/3	80	67	122	89	65	100	113 1,2,3,4,5,6	
AHU2	TRANE	TWE120K3BAA	700	3546	1	949	6.8	15	208/3	80	67	122	89	65	100	113 1,2,3,4,5,6	
AHU3	TRANE	TWE120K3BAA	700	3165	1	949	6.8	15	208/3	80	67	122	89	65	100	113 1,2,3,4,5,6	
AHU4	TRANE	TWE120K3BAA	700	3244	1	949	6.8	15	208/3	80	67	122	89	65	100	113 1,2,3,4,5,6	
REMARKS:																	
1. PROVIDE VARIABLE FREQUENCY DRIVE. FAN MOTOR SHALL BE LABELED "SUITABLE FOR VARIABLE FREQUENCY DRIVE".																	
2. PROVIDE PREMIUM EFFICIENCY FAN MOTORS.																	
3. TRANE, CARRIER, JCI, DAIKIN, OR APPROVED EQUAL.																	
4. PROVIDE COMBINATION STARTER/DISCONNECT SIZED PER NEC.																	
5. FAN SELECTION SHOWN IS FOR TWO-SPEED FAN OPERATION VIA VARIABLE FREQUENCY DRIVE. HIGH SPEED FAN OPERATION IS FOR SMOKE EXHAUST MODE. LOW SPEED OPERATION IS FOR STANDARD HEATING AND COOLING MODE. CFM SHOWN ON PLANS IS FOR STANDARD HEATING AND COOLING MODE OPERATION.																	
6. ENSURE AHU ARE LISTED PER UL 60335-2-40 AS EQUIPMENT UTILIZES A2L REFRIGERANT.																	

100 MAN DORM EXHAUST FAN SCHEDULE (DORM ABCD)															
EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	FAN TYPE	FAN LOCATION	AHU AND AREA SERVED	AIR FLOW (CFM)	ESP IN.W.G.)	FAN RPM	MOTOR				ELECTRIC VOLTS/HZ/PHASE	ACCESSORIES AND NOTES	
									HP	FLA (AMPS)	MCA	MOP (AMPS)			DRIVE TYPE
EF-1	GREENHECK	QEID-16-100	IN-LINE	ATTIC	AHU-1&DORM C	3280	1	1500	1	4.6	5.8	15	DIRECT	208/60/3	1,2,3,4,5,6,7,8
EF-2	GREENHECK	QEID-16-100	IN-LINE	ATTIC	AHU-2&DORM A	3280	1	1500	2	7.5	9.4	15	DIRECT	208/60/3	1,2,3,4,5,6,7,8
EF-3	GREENHECK	QEID-16-100	IN-LINE	ATTIC	AHU-1&DORM B	3362	1	1500	1	4.6	5.8	15	DIRECT	208/60/3	1,2,3,4,5,6,7,8
EF-4	GREENHECK	QEID-16-100	IN-LINE	ATTIC	AHU-1&DORM D	3332	1	1500	1	4.6	5.8	15	DIRECT	208/60/3	1,2,3,4,5,6,7,8
EF-5	GREENHECK	SQ-120	IN-LINE	ATTIC	MECHANICAL RM 104,106	775	0.5	1140	1/6	4.4	5.5	15	DIRECT	208/60/1	2,3
EF-6	GREENHECK	SQ-120	IN-LINE	ATTIC	BOILER ROOM 13&14	950	0.5	1725	1/4	5.8	7.2	15	DIRECT	208/60/1	2,3
REMARKS:															
1 THESE EXHAUST FANS MUST BE UL LISTED FOR SMOKE CONTROL.															
2 PROVIDE A MINIMUM 1 YR WARRANTY .															
3 PROVIDE NEMA 12 OR 1 DISCONNECT SWITCH AS PER EQUIPMENT RESPONSIBILITIES DIAGRAM ON SHEET															
4 PROVIDE THE OPTIONAL FACTORY VFD PACKAGE.															
5 DIRECT MOUNT VIBRATION ISOLATORS, ISOLATOR SPRING, RESTRAINED, 1" INDOOR RATED															
6 QUICK OPENING INSPECTION DOOR															
7 MOTOR WITH CLASS F OR GREATER INSULATION.															
8 MATCH THE EXHAUST AIR SPEED TO THE ECONOMIZER MODE SPEED. NOTE THAT THE EXHAUST FAN ONLY OPERATES IN THE ECONOMIZER OR SMOKE CONTROL MODES .															



ISSUED FOR
CONSTRUCTION

09.15.2025 ISSUED FOR CONSTRUCTION

NO	DATE	REVISION
DRAWN BY:	MLB	
DESIGNED BY:	TM	
CHECKED BY:	MSH	
CADD DWG NO:	JO4592 M-601	
JOB ORDER NO:	4592	
PLOT DATE:	09.15.2025	

**LINCOLN
CORRECTIONAL
CENTER**

464 Roper Dr, Lincolnton, NC 28092

LINCOLN CC - AIR CONDITIONING INSTALLATION

SCO ID # 24-28231-01A

MECHANICAL SCHEDULES

M-601

ABBREVIATIONS

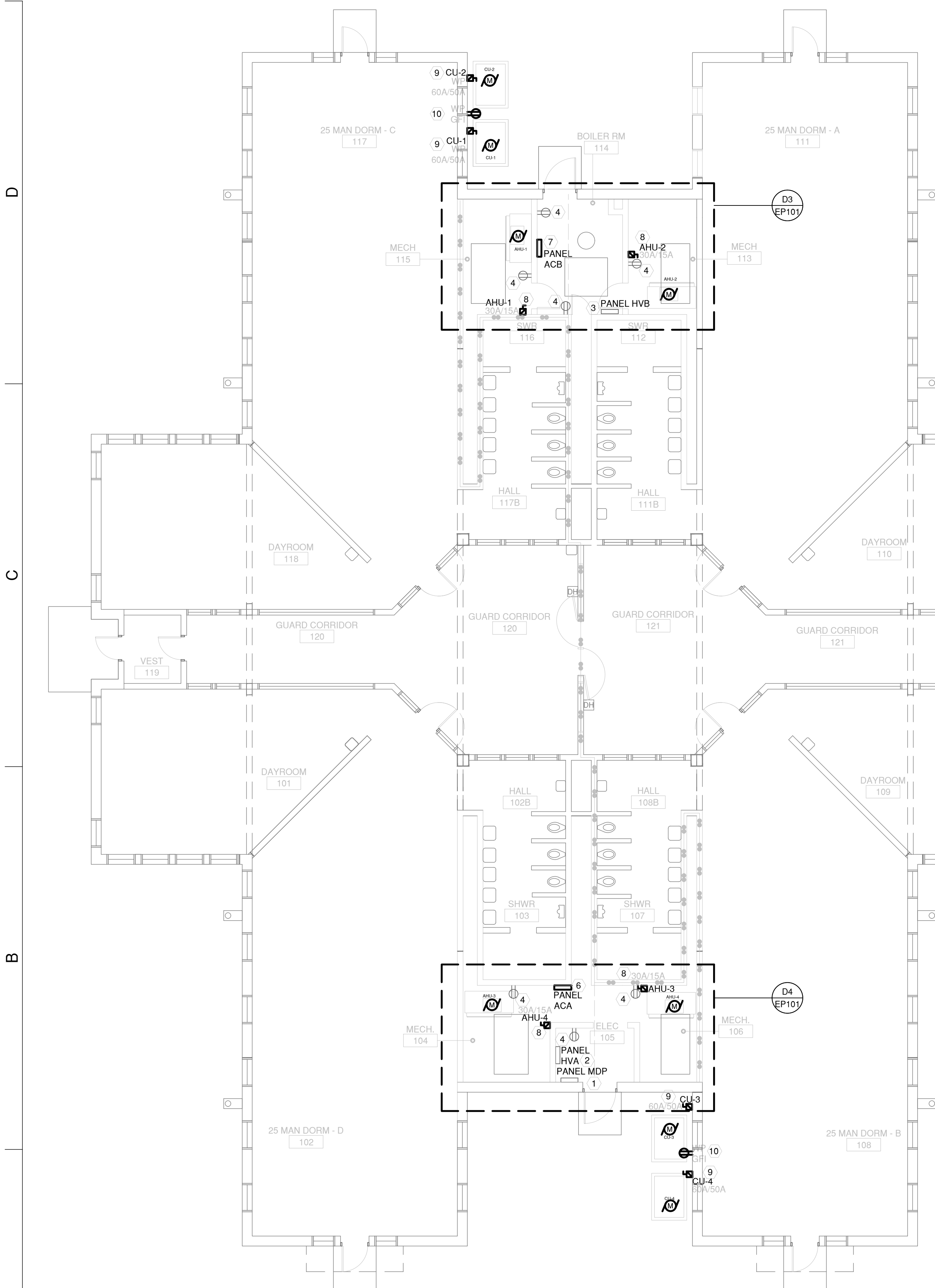
ASD AMPERE
 ASH ADJUSTABLE SPEED DRIVE
 AFF ABOVE FINISHED FLOOR
 AFG ABOVE FINISHED GRADE
 AIC AMPERES INTERRUPTING CAPACITY
 AL ALUMINUM
 ARCH ARCHITECT
 ATC AUTOMATIC TRANSFER SWITCH
 AWS AMERICAN WIRE GAUGE
 BFC BELOW FINISHED CEILING
 BFG BELOW FINISHED GRADE
 BLD BUILDING
 C CELSIUS
 C CONDUNIT
 CB CIRCUIT BREAKER
 CKT CIRCUIT
 CT CURRENT TRANSFORMER
 CU COPPER
 CU DIRECT CURRENT
 DEG DEGREES
 DISC DISCONNECT
 DN DOWN
 DWG DRAWING
 EC ELECTRICAL CONTRACTOR
 ELV ELECTRICAL
 EMT ELECTRICAL METALLIC TUBING
 ENG ENGINEER
 EX EXISTING TO BE RELOCATED
 EWC ELECTRIC WATER COOLER
 EX (E), EXIST EXISTING
 F FAHRENHEIGHT
 FACU FIRE ALARM CONTROL UNIT (PANEL)
 FIXT FIXTURE
 FLA FULL LOAD AMPS
 FLR FLOOR
 FLUOR FLUORESCENT
 FT FEET
 G, GND GROUND
 GC GENERAL CONTRACTOR
 GEC GROUNDING ELECTRODE CONDUCTOR
 GVS GALVANIZED IRON STEEL
 HOA HAND-OFF-AUTOMATIC
 HHA HANDLE
 HID HIGH INTENSITY DISCHARGE
 HHP HORSEPOWER
 HPF HIGH POWER FACTOR
 HMR HEATER
 HTR HEATER
 HZ HERTZ
 IMC INTERMEDIATE METAL CONDUIT
 INCANDESCENT INCANDESCENT
 JB JUNCTION BOX
 JB (K) THOUSAND (KILO) THOUSAND
 KC MIL THOUSAND CIRCULAR MILS
 KV KILVOOLT(S)
 KVA KILOWATT AMPERE(S)
 KWH KILOWATT(S)
 KW KILOWATT HOUR(S)
 LED LIGHT EMITTING DIODE
 LT(S) LIGHT(S)
 LTG LIGHTING
 MC MECHANICAL CONTRACTOR
 MECH MECHANICAL
 MFG MANUFACTURED
 MHF MANHOLE
 MISCS MISCELLANEOUS
 MTD MOUNTED
 MTS MANUAL TRANSFER SWITCH
 NA NOT APPLICABLE
 NC NORMALLY CLOSED
 NEC NATIONAL ELECTRICAL CODE
 NL NIGHT LIGHT
 NO NORMALLY OPEN
 NTS NOT TO SCALE
 OC ON CENTER
 P POLE
 PH, Ø PHASE
 PNL PANELBOARD
 PVC POLYVINYL CHLORIDE
 RECEPT(S) RECEPTACLE(S)
 SE SERVICE ENTRANCE
 SF SQUARE FEET
 SW SWITCH
 SWBD SWITCHBOARD
 SWGR SWITCHGEAR
 TBD TO BE DETERMINED
 UL UNDERWRITERS LABORATORIES
 UN UNLESS OTHERWISE NOTED
 UPS UNINTERRUPTABLE POWER SUPPLY
 V VOLTS
 VA VOLT AMPERE(S)
 W WATTS, WIRE
 WPT WEATHERPROOF
 XFMR TRANSFORMER

- A. CONTRACTOR SHALL INSTALL CONDUITS AND BACK BOXES FOR ALL COMMUNICATION DEVICES.
- B. 3/4" CONDUIT FROM EACH DEVICE IS REQUIRED AS HOME RUN BACK TO TELEPHONE BOARD FOR ADMINISTRATION AREA DEVICES.
- C. 3/4" CONDUIT FROM EACH DEVICE IS REQUIRED TO BE HOME RUN BACK TO COMMUNICATION J-BOX IN MECHANICAL ROOM FOR DORM AREA DEVICES.
- D. CONTRACTOR SHALL PURCHASE AND INSTALL THE TELEPHONE BACKBOARD.
- E. SINGLE GANG BACK BOX IS REQUIRED FOR EACH V/D OUTLET.
- F. MOUNT SPEAKERS 10'-12" AFF (EACH FLOOR) OR ON THE CEILING.
- G. WIRES WILL BE PROVIDED AND INSTALLED BY OTHERS.
- H. FACE PLATES, ACTUAL DEVICES AND TERMINATION WILL BE BY OTHERS.

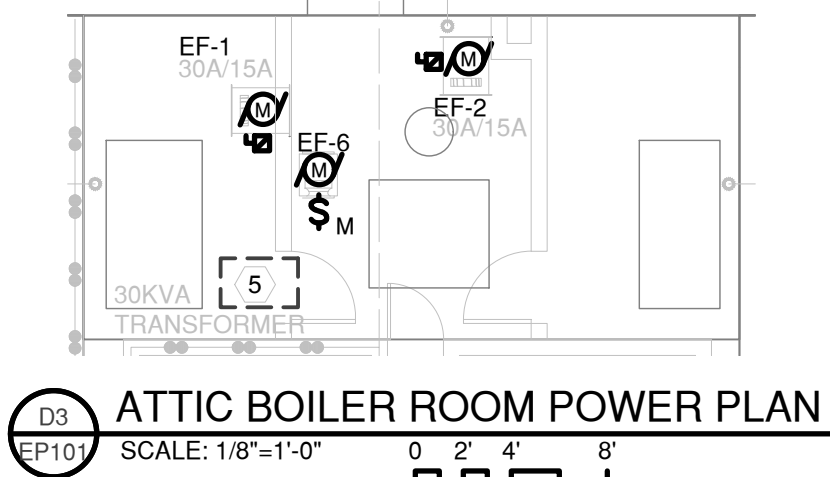
Legend for electrical symbols and line types:

- Light Lineweight:** Indicates existing UON.
- Heavy Dashed Lineweight:** On demolition plans, indicates existing to be removed UON.
- Heavy Solid Lineweight:** Indicates new to be provided UON.
- Circle with '1':** Drawing note.
- Rectangle with 'A':** Indicates fixture type.
- Circle with '12' and 'a':** Indicates switching designation.
- Circle with '12':** Indicates circuit.
- Rectangle with '28,269A' and '42,000A':** Indicates fault current available at the equipment.
- Circle with '12' and 'a':** Indicates distribution equipment fault current rating.

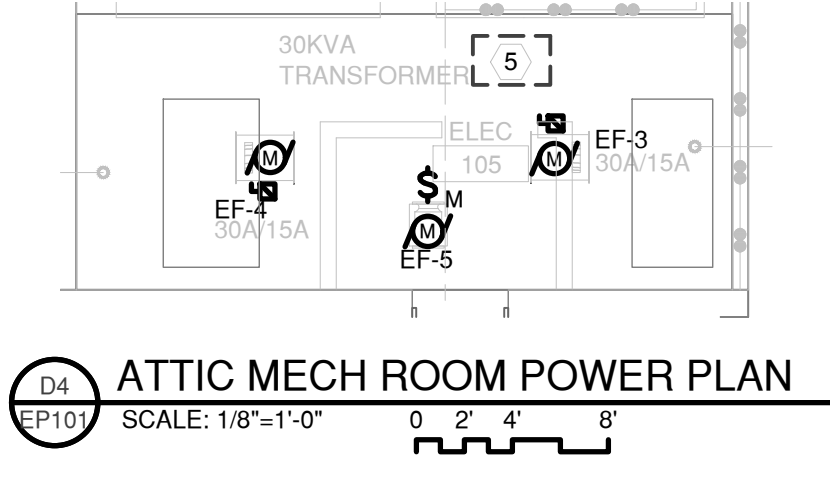
A1
E002



1A ELECTRICAL POWER PLAN - 100 MAN DORM
SCALE: 1/8"=1'-0"



D3 ATTIC BOILER ROOM POWER PLAN
SCALE: 1/8"=1'-0"



D4 ATTIC MECH ROOM POWER PLAN
SCALE: 1/8"=1'-0"

EQUIPMENT CONNECTION SCHEDULE									
M PLAN SYMBOL									
EQUIPMENT					SUPPLY			DISC. SW.	
UNIT ID	DESCRIPTION	HP/A/KW	VOLT.	PHASE	PANEL	CIRCUIT BREAKER /DESIGNATION	WIRING	SWITCH AMPS.	FUSE SIZE
CU-1	CONDENSING UNIT	32.8 A	208	3Ø	HVB	50A-3P/25,27,29	3#6 AWG,1#10G.,1 ½" C	60A	50
CU-2	CONDENSING UNIT	32.8 A	208	3Ø	HVB	50A-3P/2,4,6	3#6 AWG,1#10G.,1 ½" C	60A	50
CU-3	CONDENSING UNIT	32.8 A	208	3Ø	HVA	50A-3P/2,4,6	3#6 AWG,1#10G.,1 ½" C	60A	50
CU-4	CONDENSING UNIT	32.8 A	208	3Ø	HVA	50A-3P/25,27,29	3#6 AWG,1#10G.,1 ½" C	60A	50
AHU-1	AIR HANDLING UNIT	10.6 A	208	3Ø	ACB	20A-3P/1,3,5	3#12 AWG,1#12G., 3/4" C	30A	15
AHU-2	AIR HANDLING UNIT	10.6 A	208	3Ø	ACB	20A-3P/2,4,6	3#12 AWG,1#12G., 3/4" C	30A	15
AHU-3	AIR HANDLING UNIT	10.6 A	208	3Ø	ACA	20A-3P/1,3,5	3#12 AWG,1#12G., 3/4" C	30A	15
AHU-4	AIR HANDLING UNIT	10.6 A	208	3Ø	ACA	20A-3P/2,4,6	3#12 AWG,1#12G., 3/4" C	30A	15
EF-1	EXHAUST FAN	4.6 A	208	3Ø	ACB	20A-3P/7,9,11	3#12 AWG,1#12G., 3/4" C	30A	15
EF-2	EXHAUST FAN	7.5 A	208	3Ø	ACB	20A-3P/8,10,12	3#12 AWG,1#12G., 3/4" C	30A	15
EF-3	EXHAUST FAN	4.6 A	208	3Ø	ACA	20A-3P/7,9,11	3#12 AWG,1#12G., 3/4" C	30A	15
EF-4	EXHAUST FAN	4.6 A	208	3Ø	ACA	20A-3P/8,10,12	3#12 AWG,1#12G., 3/4" C	30A	15
EF-5	EXHAUST FAN	4.4 A	208	1Ø	ACA	15A-1P/13	2#12 AWG,1#12G., 3/4" C	MOTOR RATED TOGGLE SW.	
EF-6	EXHAUST FAN	5.8 A	208	1Ø	ACB	15A-1P/13	2#12 AWG,1#12G., 3/4" C		
GENERAL NOTES:									
A. PROVIDE LAMACOID LABEL WITH EQUIPMENT DESIGNATION AND POWER SOURCE AT EACH DISCONNECT SWITCH AND STARTER.									
B. REFER TO EQUIPMENT CONNECTION RESPONSIBILITIES DIAGRAM.									
C. EXTERIOR MOUNTED STARTERS, DISCONNECT SWITCHES, ETC. SHALL BE NEMA-3R.									
D. USE THE SAME SIZE WIRING BETWEEN DISCONNECT SWITCH AND EQUIPMENT.									

GENERAL/KEYED ELECTRICAL NOTES:

- A. ALL EXTERIOR EQUIPMENT SHALL BE NEMA-3R.
- B. 290.76 KW PEAK DEMAND LOAD INFORMATION OBTAINED FROM UTILITY OCTOBER , 2022.
- C. FOLLOWING STATE CONSTRUCTION OFFICE AND UTILITY COMPANY REQUIREMENTS FOR INSPECTION BEFORE POWER IS TURN ON TO THE NEWLY ADDED EQUIPMENT WILL BE REQUIRED.
- D. SCHEDULE IN ADVANCE ANY ELECTRICAL UTILITY SHUTDOWNS NEEDED FOR THE CONNECTION OF THIS NEW EQUIPMENT.
- E. ALL ELECTRICAL WORK SHALL COMPLY WITH 2020 EDITION OF THE NATIONAL ELECTRIC CODE.
- F. ALL EQUIPMENT AND MATERIAL SHALL BE NEW AND LISTED.
- G. COORDINATE EXACT LOCATION WITH FACILITY AND MECHANICAL CONTRACTOR. MAINTAIN ALL CODE REQUIRED CLEARANCES.

SHEET KEYED NOTES:

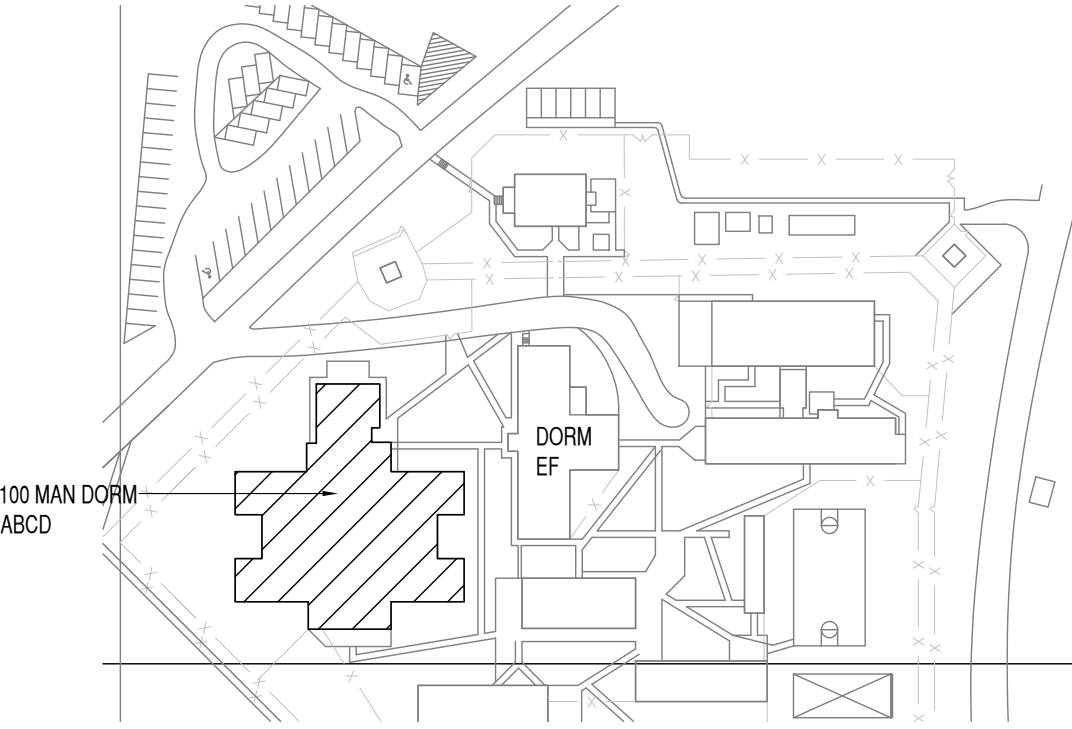
1. EXISTING SE RATED PANEL 'MDP', 400A, 400 MCB, 208Y/120V 3 PHASE, 4 WIRE.
2. EXISTING PANEL 'HVA', 225A, MLO, 208Y/120V 3 PHASE, 4 WIRE.
3. EXISTING PANEL 'HVB', 225A, MLO, 208Y/120V 3 PHASE, 4 WIRE.
4. EXISTING GFCI RECEPTACLE FOR THE REFERENCE ONLY.
5. DEMO 30 KVA TRANSFORMER ASSOCIATE LOAD, WIRING AND CONDUIT BACK TO THE PANEL.
6. PROVIDE AND INSTALL NEW PANEL 'ACA' 100A, MLO, 208Y/120V 3 PHASE, 4 WIRE.
7. PROVIDE AND INSTALL NEW PANEL 'ACB' 100A, MLO, 208Y/120V 3 PHASE, 4 WIRE.
8. PROVIDE AND INSTALL 240V, 3ØA, 3P, HEAVY DUTY FUSIBLE DISCONNECT SWITCH WITH 15A FUSE. COORDINATE WITH MECHANICAL CONTRACTOR FOR MANUFACTURER RECOMMENDED FUSE SIZE.
9. PROVIDE AND INSTALL 240V, 6ØA, 3P, NEMA 3R HEAVY DUTY FUSIBLE DISCONNECT SWITCH WITH 5ØA FUSE. COORDINATE WITH MECHANICAL CONTRACTOR FOR MANUFACTURER RECOMMENDED FUSE SIZE.
10. CIRCUIT WEATHER PROOF GFI RECEPTACLE TO NEAREST 120V RECEPTACLE CIRCUIT WITH 2#12AWG THHN/THWN,1-12#G,3/4" C.

ELECTRICAL EQUIPMENT SCHEDULE	
EQUIPMENT	DESCRIPTION
6ØA SAFETY SWITCH (CU-1, CU-2, CU-3 AND CU-4) AT 100 MAN DORM	240V/3 POLE/6Ø AMPERE -NEMA-3R, SINGLE THROW FUSIBLE, HEAVY DUTY SAFETY SWITCH WITH 5ØA FUSE. TYPICAL CATALOG NUMBER: SQ D TYPE H222NRB, 14.88"(H)x6.63"(W)x4.88"(D)
3ØA SAFETY SWITCH (AHU-1, AHU-2, AHU-3, AHU-4, EF-1, EF-2, EF-3, AND EF-4) AT 100 MAN DORM	240V/3 POLE/3Ø AMPERE -NEMA-1, SINGLE THROW FUSIBLE, HEAVY DUTY SAFETY SWITCH WITH 15A FUSE. TYPICAL CATALOG NUMBER: SQ D TYPE H221, 14.88"(H)x6.63"(W)x4.88"(D)
100A, PANEL (PANEL AC-A, PANEL AC-B) AT 100 MAN DOORM	208Y/120 VOLT, 3 PHASE, 4 WIRE, COPPER BUS RATED 100 AMPERE MAIN LUGS, 18 POLE SPACES. SCHNEIDER ELECTRIC NQ418L1C WITH NEMA-1 ENCLOSURE, CU BUS, PANEL HEIGHT 27" (H), WIDTH 10.44" (W), DEPTH 5.75" (D). RATED INTERRUPT CAPACITY: 10 KAIC.

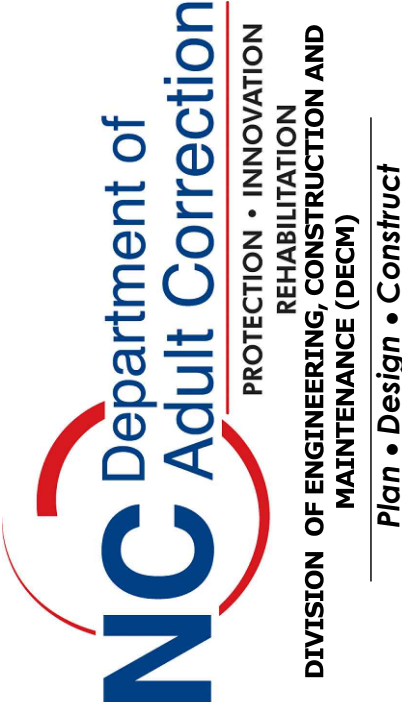
CATALOG NUMBERS ARE SHOWN FOR SQ D EQUIPMENT. APPROVED EQUALS FROM ABB, OR CUTLER HAMMER EATON ARE ALSO ACCEPTABLE

RATED PARTITION LEGEND

- — — — 4 HR FIRE WALL
- — — — 3 HR FIRE WALL
- — — — 2 HR FIRE WALL
- — — — 4 HR FIRE BARRIER
- — — — 3 HR FIRE BARRIER
- — — — 2 HR FIRE BARRIER
- — — — 1 HR FIRE BARRIER
- — — — 1 HR FIRE PARTITION
- — — — 2 HR SMOKE BARRIER
- — — — 1 HR SMOKE BARRIER
- — — — SMOKE PARTITION

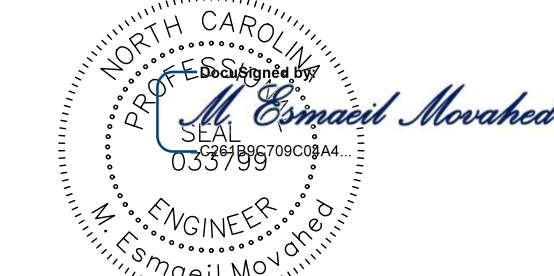


KEY PLAN
NOT TO SCALE



NORTH CAROLINA DEPARTMENT OF ADULT CORRECTION

2020 YONKERS ROAD
4216 MSC
RALEIGH, N.C. 27699-4216
TEL (919) 733-2126
FAX (919) 716-3978



ISSUED FOR CONSTRUCTION
09.15.2025 ISSUED FOR CONSTRUCTION

NO	DATE	REVISION
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DRAWN BY: EM

DESIGNED BY: EM

CHECKED BY: EM

CADD DWG NO: JO4592-EP101

JOB ORDER NO: 4592

PLOT DATE: 09.15.2025

LINCOLN CORRECTIONAL CENTER

464 ROPER DR.,
LINCOLNTON
NORTH CAROLINA 28092

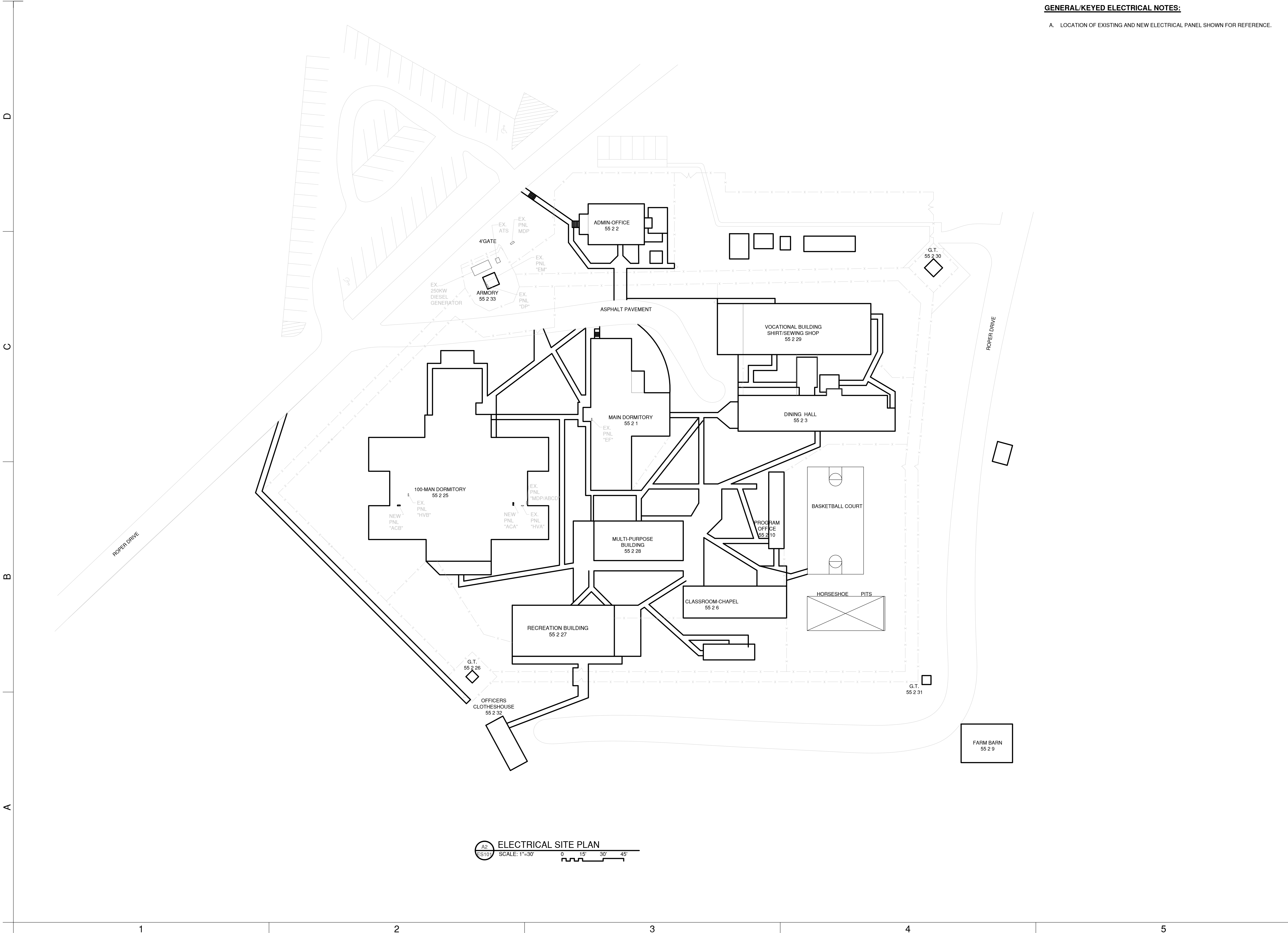
LINCOLN CC - AIR CONDITIONING INSTALLATION

SCO ID # 24-28231-01

ELECTRICAL POWER PLAN
100 MAN DORM

EP101

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ELECTRICAL SITE PLAN
SCALE: 1"=30'
0 15' 30' 45'

GENERAL/KEYED ELECTRICAL NOTES:

A. LOCATION OF EXISTING AND NEW ELECTRICAL PANEL SHOWN FOR REFERENCE.



NORTH CAROLINA DEPARTMENT OF ADULT CORRECTION

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RALEIGH, N.C. 27699-4216
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FAX (919) 716-3978



ISSUED FOR CONSTRUCTION
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PLOT DATE: 09.15.2025

LINCOLN CORRECTIONAL CENTER

464 ROPER DR.,
LINCOLNTON
NORTH CAROLINA 28092

LINCOLN CC - AIR CONDITIONING INSTALLATION

SCO ID # 24-28231-01

ELECTRICAL SITE PLAN

ES101

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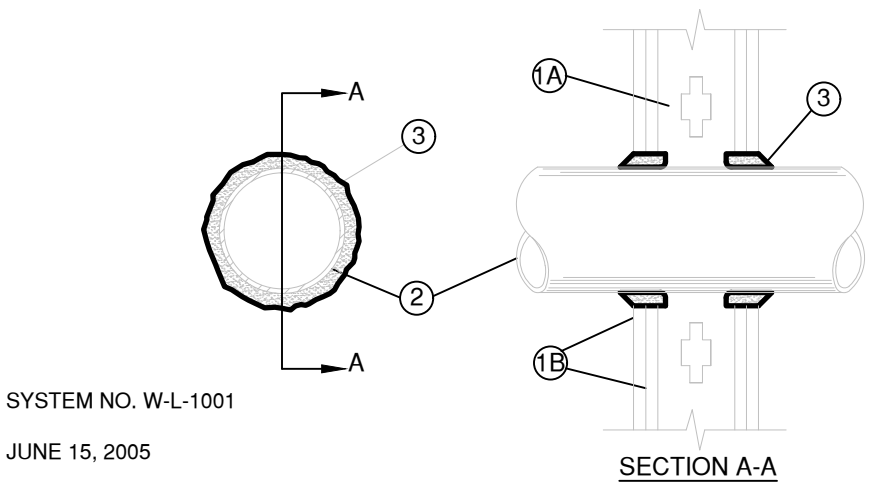
D

C

B

A

UL DESIGN #W-L-1001



SYSTEM NO. W-L-1001
JUNE 15, 2005
F RATINGS - 1, 2, 3 AND 4 HR (SEE ITEMS 2 AND 3)
T RATINGS - 0, 1, 2, 3, AND 4 HR (SEE ITEM 3)
L RATING AT AMBIENT - LESS THAN 1 CFMSQ FT
L RATING AT 400 F - LESS THAN 1 CFMSQ FT
1. WALL ASSEMBLY - THE 1, 2, 3 OR 4 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS (MAX 2 H FIRE RATED ASSEMBLIES) OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC WITH NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. (92 MM) WIDE BY 1-3/8 IN. (35 MM) DEEP CHANNELS SPACED MAX 24 IN. (610 MM) OC.
B. GYPSUM BOARD* - NOM 1/2 OR 5/8 IN. (13 OR 16 MM) THICK, 4 FT. (122 CM) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 26 IN. (660 MM).

2. THROUGH-PENETRANT - ONE METALLIC PIPE, CONDUIT OR TUBING INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN OF 0 IN / (0 MM), (POINT CONTACT) TO MAX 2 IN. (51 MM) PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
A. STEEL PIPE - NOM 24 IN. (610 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. IRON PIPE - NOM 24 IN. (610 MM) DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12 IN (305 MM) DIAM (OR SMALLER) OR CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE.
C. CONDUIT - NOM 6 IN. (152 MM) DIAM (OR SMALLER) STEEL CONDUIT OR NOM 4 IN (102 MM) DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING
D. COPPER TUBING - NOM 6 IN. (152 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING
E. COPPER PIPE - NOM 6 IN. (152 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
F. THROUGH PENETRATING PRODUCT* - FLEXIBLE METAL PIPING THE FOLLOWING TYPES OF STEEL FLEXIBLE METAL GAS PIPING MAY BE USED:
1. NOM 2 IN. (51 MM) DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
OMEGA FLEX INC
2. NOM 1 IN. (25 MM) DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
TITERFLEX CORP A BUNDY CO
3. NOM 1 IN. (25 MM) DIAM (OR SMALLER) STEEL FLEXIBLE METAL GAS PIPING. PLASTIC COVERING ON PIPING MAY OR MAY NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
WARD MFG INC
3. FILL, VOID OR CAVITY MATERIAL* - CAULK OR SEALANT - MIN 5/8" - 1-1/4-1-7/8 AND 2-1/2 IN. (16, 32, 48 AND 64 MM) THICKNESS OF CAULK FOR 1, 2, 3 AND 4 HR RATED ASSEMBLIES, RESPECTIVELY, APPLIED WITHIN ANNULUS. FLUSH WITH BOTH SURFACES OF WALL. MIN 1/4 IN. (6 MM) DIAM BEAD OF CAULK APPLIED TO GYPSUM BOARD/PENETRANT INTERFACE AT POINT CONTACT LOCATION ON BOTH SIDES OF WALL. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE PIPE OR CONDUIT AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS TABULATED BELOW:

Max Pipe or Conduit Diam in. (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+WHEN COPPER PIPE IS USED, T RATING IS 0 H.

3M COMPANY - CP 25WB+ OR FB-3000 WT.

*BEARING THE UL CLASSIFICATION MARK

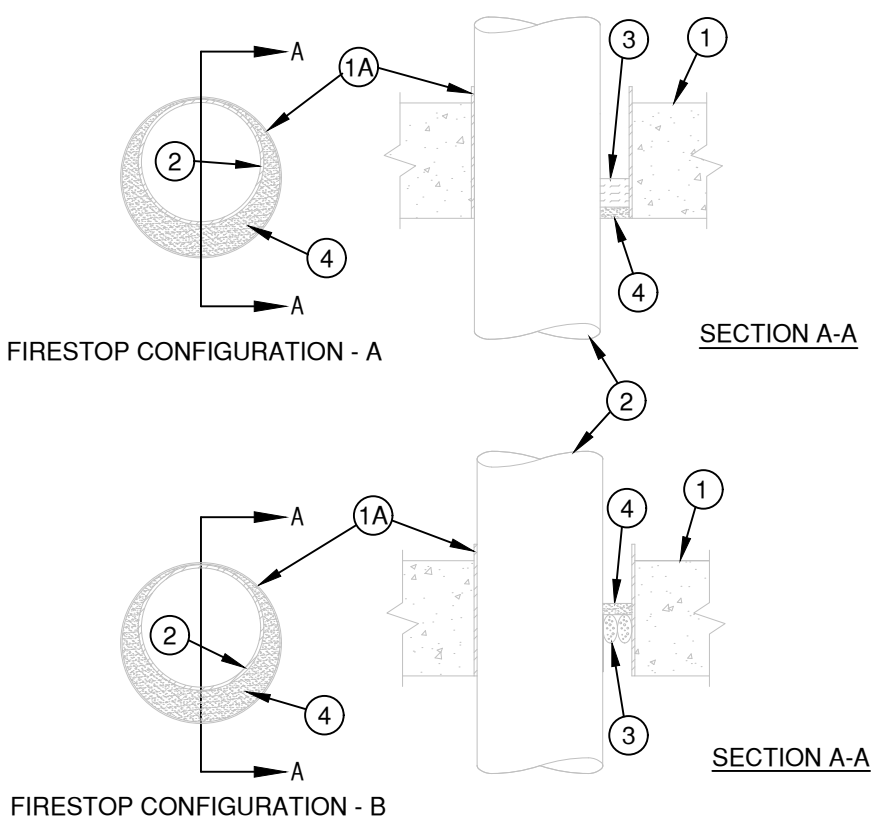
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UL DESIGN #C-AJ-1175



System No. C-AJ-1175

March 05,2007

F Rating-2Hr
T rating-0 Hr
W Rating-Class 1 (See Item 4)

1. FLOOR OR WALL ASSEMBLY - MIN 2-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WHEN CONFIGURATION A IS USED, ON CONFIGURATION B IS USED IN CONJUNCTION WITH THE STEEL SLEEVE (ITEM 1A), FLOOR MAY BE CONSTRUCTED OF ANY MIN 6 IN. THICK UL CLASSIFIED HOLLOW CORE **PRECAST CONCRETE UNITS***. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED **CONCRETE BLOCKS***. MAX DIAM OF CIRCULAR THROUGH OPENING IS 10 IN.
SEE **CONCRETE BLOCKS** (CAZT) AND **PRECAST CONCRETE UNITS** (CFTV) CATEGORIES IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

1A. STEEL SLEEVE (OPTIONAL) - NO. 10 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE SLEEVE CAST INTO CONCRETE FLOOR OR WALL. SLEEVE TO BE FLUSH WITH OR PROJECT MAX 2 IN. FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL.

2. THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. MAX ANNULAR SPACE BETWEEN PIPE, CONDUIT OR TUBING AND EDGE OF THROUGH OPENING NOT TO EXCEED 1-3/8 IN. MIN ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING IS ZERO IN. (POINT CONTACT). PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

A. STEEL PIPE - NOM 8 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. CONDUIT - NOM 6 IN. DIAM (OR SMALLER) RIGID STEEL CONDUIT.
C. CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.
D. IRON PIPE - NOM 4 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
E. COPPER TUBING - NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE.
F. COPPER PIPE - NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

FIRESTOP CONFIGURATION A

3. PACKING MATERIAL - MIN 1 IN. THICKNESS OF TIGHTLY-PACKED MINERAL WOOL BATT MATERIAL USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP OR BOTTOM SURFACE OF FLOOR OR FROM EITHER SURFACE OF SOLID CONCRETE WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4). WHEN WALL IS CONSTRUCTED OF CONCRETE BLOCK, PACKING MATERIAL IS TO BE INSTALLED ON BOTH SIDES OF WALL ASSEMBLY. WHEN PRECAST HOLLOW CORE FLOOR IS USED, PACKING MATERIAL MUST BE INSTALLED ON BOTTOM SURFACE OF FLOOR.

4. FILL,VOID OR CAVITY MATERIALS* - CAULK OR SEALANT - APPLIED TO FILL THE ANNULAR SPACE TO A MIN DEPTH OF 1/2 IN. FLUSH WITH THE TOP OR BOTTOM SURFACE OF THE FLOOR OR EITHER SURFACE OF THE SOLID CONCRETE WALL. A MIN 1/4 IN. DIAM BEAD OF CAULK SHALL BE APPLIED TO THE FLOOR OR WALL SURFACE WHERE THE PIPE, CONDUIT OR EMT IS INSTALLED IN POINT CONTACT WITH THE EDGE OF THE THROUGH OPENING. WHEN WALL IS CONSTRUCTED OF CONCRETE BLOCK, CAULK TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. WHEN PRECAST HOLLOW CORE FLOOR IS USED, CAULK FILL MATERIAL MUST BE INSTALLED ON BOTTOM SURFACE OF FLOOR.

3M COMPANY - CP 25WB+ CAULK OR FB-3000 WT SEALANT. (THE W RATING APPLIES ONLY WHEN FB-3000 WT IS USED FLUSH WITH THE TOP SURFACE OF FLOOR.)

FIRESTOP CONFIGURATION B

3. PACKING MATERIAL - POLYETHYLENE BACKER ROD OR NOM 1 IN. THICKNESS OF TIGHTLY-PACKED MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED MIN 1/2 IN. FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4).

4. FILL,VOID OR CAVITY MATERIALS* - CAULK OR SEALANT - APPLIED TO FILL THE ANNULAR SPACE TO A MIN DEPTH OF 1/2 IN. FLUSH WITH THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL. A MIN 1/4 IN. DIAM BEAD OF CAULK SHALL BE APPLIED TO THE FLOOR OR WALL SURFACE WHERE THE PIPE, CONDUIT OR EMT IS INSTALLED IN POINT CONTACT WITH THE EDGE OF THE THROUGH OPENING.

3M COMPANY - CP 25WB+ CAULK OR FB-3000 WT SEALANT. (THE W RATING APPLIES ONLY WHEN FB-3000 WT IS USED.)

*BEARING THE UL CLASSIFICATION MARK

LAST UPDATED ON March 05,2007

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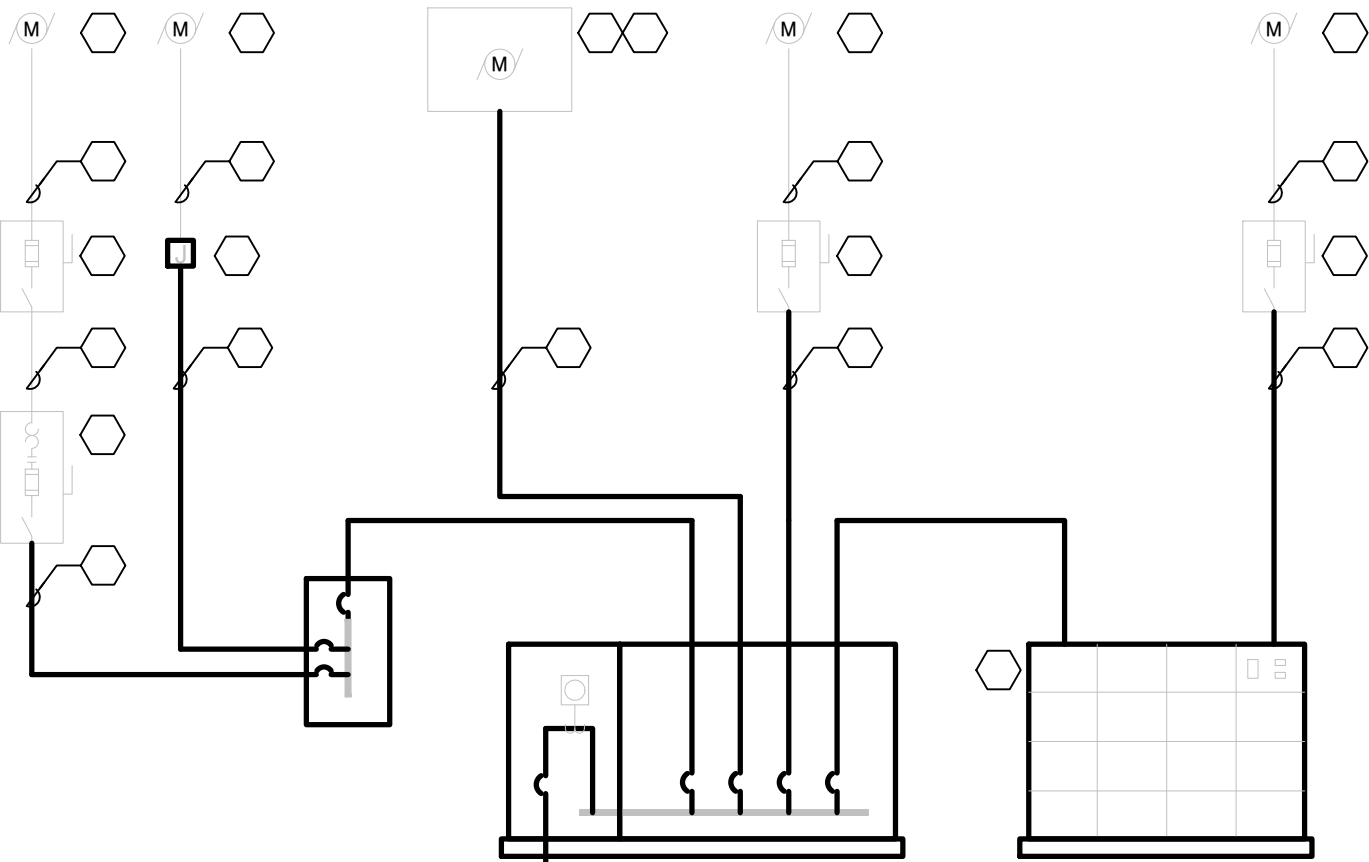
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GENERAL DIAGRAM NOTES:

- A. IN ALL CASES THE EQUIPMENT CONTRACTOR SHALL MAKE FINAL CONNECTIONS, START-UP, AND TEST THE EQUIPMENT.
- B. IN A SINGLE PRIME CONTRACT IT IS THE RESPONSIBILITY OF THE PRIME CONTRACTOR TO COORDINATE BETWEEN THE ELECTRICAL AND OTHER TRADES.
- C. UL WALL PENETRATION DETAILS PERTAIN EXCLUSIVELY TO THE MAIN ELECTRICAL ROOM.

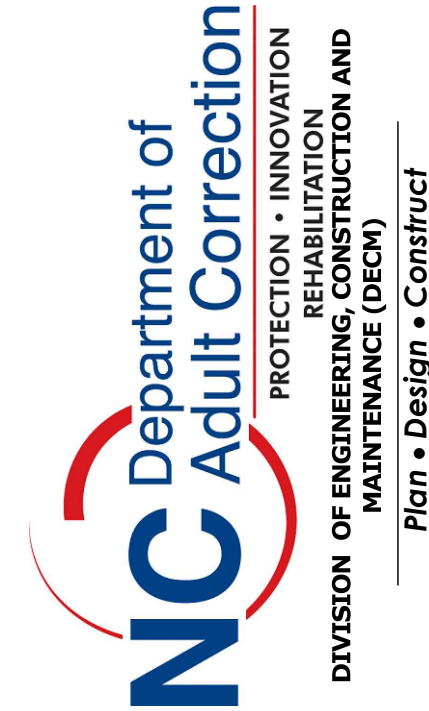
DIAGRAM KEYNOTES:

- 1 EQUIPMENT OF TRADES OTHER THAN ELECTRICAL.
- 2 CONDUIT AND WIRING BY HVAC, PLUMBING, OR OTHER TRADES.
- 3 IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR PROVIDING THE EQUIPMENT.
- 4 A COMBINATION STARTER OR ADJUSTABLE SPEED DRIVE MAY BE USED IN LIEU OF A SEPARATE DISCONNECT SWITCH AND STARTER. LOCATE ADJACENT TO THE EQUIPMENT.
- 5 FEEDER CIRCUIT WIRING AND CONDUIT IN ELECTRICAL WORK. REFER TO PLANS AND SCHEDULES FOR WIRE AND BREAKER SIZES.
- 6 JUNCTION BOX MAY BE SHOWN ON ELECTRICAL PLANS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS SUPPLIED, A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX. LOAD SIDE WIRING WILL BE PROVIDED BY MECHANICAL CONTRACTOR OR OTHER TRADES.
- 7 FOR PROJECTS UTILIZING A MOTOR CONTROL CENTER (MCC), THE STARTER, CIRCUIT BREAKER, OR THE ADJUSTABLE SPEED DRIVE IN THE MCC SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- 8 IF THE ROOFTOP FAN IS NOT PROVIDED WITH A BUILT IN SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.



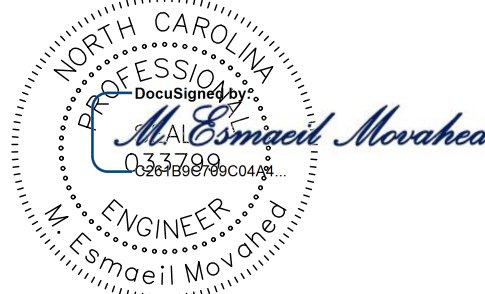
EQUIPMENT CONNECTION RESPONSIBILITIES DIAGRAM

NOT TO SCALE



NORTH CAROLINA DEPARTMENT OF ADULT CORRECTION

2020 YONKERS ROAD
4216 MSC
RALEIGH, N.C. 27699-4216
TEL (919) 733-2126
FAX (919) 716-3978



ISSUED FOR CONSTRUCTION
09.15.2025 ISSUED FOR CONSTRUCTION

NO	DATE	REVISION
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DRAWN BY: EM
DESIGNED BY: EM
CHECKED BY: EM
CADD DWG NO: JO4592-E501
JOB ORDER NO: 4592
PLOT DATE: 09.15.2025

LINCOLN CORRECTIONAL CENTER

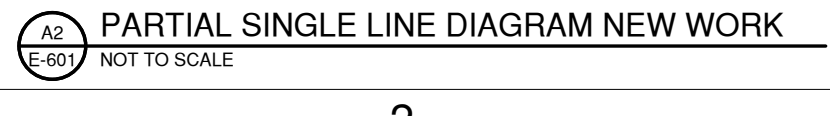
464 ROPER DR.,
LINCOLNTON
NORTH CAROLINA 28092

LINCOLN CC - AIR CONDITIONING INSTALLATION

SCO ID # 24-28231-01

ELECTRICAL DETAILS & UL DETAILS

E501



	PANEL TOTALS			
PHASE A	32.2	KVA	268.3	AMP
PHASE B	32.0	KVA	266.7	AMP
PHASE C	31.6	KVA	263.3	AMP
TOTAL	95.8	KVA	266.1	AMP

	PANEL TOTALS			
PHASE A	9.10	KVA	75.8	AMP
PHASE B	8.10	KVA	67.5	AMP
PHASE C	9.20	KVA	76.7	AMP
TOTAL	26.40	KVA	73.3	AMP

VOLTAGE:	208/120V	TOTAL AMP	491.7
MAXIMUM DEMAND LOAD ON MAIN DISTRIBUTION PANEL LAST 12 MONTHS IN JULY 2024: 86.66KW=108.32KVA			

A

FA101