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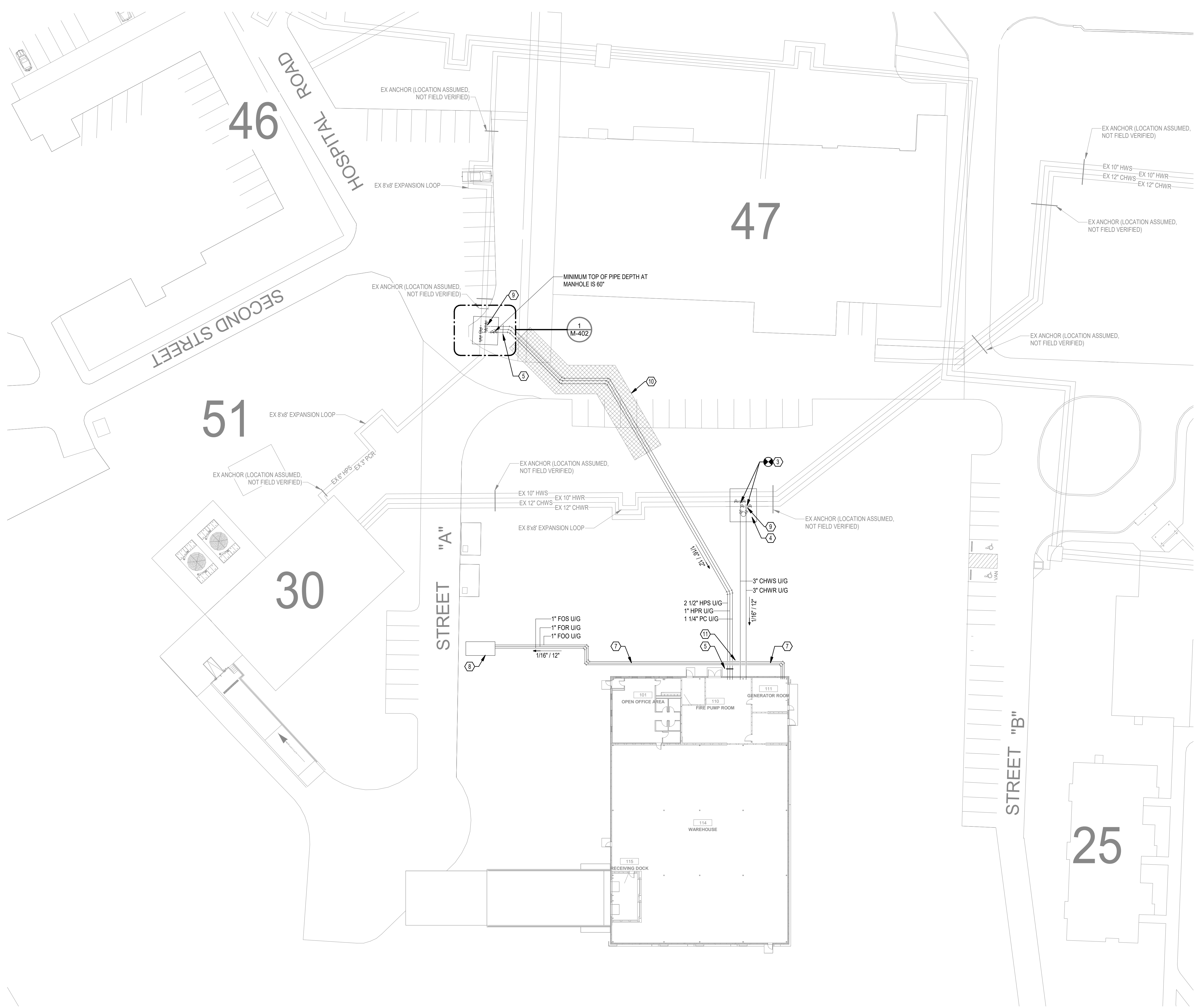
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- DRAWING NOTES:**
- INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE DRAWINGS, VIA DOCUMENTATION, AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. CONTRACTOR SHALL VERIFY EXISTING UTILITIES AND DEPTHS OF EXISTING PIPING CONNECTIONS.
 - PROVIDE 48" MIN. BURY DEPTH FROM TOP OF PIPING TO FINISHED GRADE.
 - UNDERGROUND HPS PIPING SHALL BE PRE-MANUFACTURED SYSTEM, BASIS OF DESIGN: PERMA-PIPE.
 - UNDERGROUND CHWS/R PIPING SHALL BE PRE-MANUFACTURED SYSTEM, BASIS OF DESIGN: PERMA-PIPE.
- CODED NOTES:**
- CONNECT NEW 2-1/2" HPS TO EX 6" HPS UNDERGROUND PIPING WITH (2) TWO NEW ISOLATION VALVES. CONTRACTOR SHALL COORDINATE STEAM OUTAGE WITH COR PRIOR TO DEMOLITION. OUTAGE SHALL INCLUDE SYSTEM COOLDOWN, DEMOLITION OF EX UNDERGROUND PIPING, PREPARING PIPING FOR NEW CONNECTIONS, NEW CONNECTIONS, TESTING, AND WARM-UP AND OPERATION.
 - CONNECT NEW 1-1/4" PCR TO EX 3" PCR UNDERGROUND PIPING WITH (2) TWO NEW ISOLATION VALVES. CONTRACTOR SHALL COORDINATE OUTAGE WITH COR PRIOR TO DEMOLITION. OUTAGE SHALL INCLUDE SYSTEM COOLDOWN, DEMOLITION OF EX UNDERGROUND PIPING, PREPARING PIPING FOR NEW CONNECTIONS, NEW CONNECTIONS, TESTING, AND WARM-UP AND OPERATION.
 - CONNECT TO EX 12" CHWS/R PIPING UNDERGROUND WITH NEW 3" CHWS/R PIPING AND ISOLATION VALVES. CONTRACTOR SHALL COORDINATE CHILLED WATER OUTAGE WITH COR PRIOR TO DEMOLITION. OUTAGE SHALL INCLUDE DEMOLITION OF EX UNDERGROUND PIPING, PREPARING PIPING FOR NEW CONNECTIONS, NEW CONNECTIONS, TESTING, AND OPERATION.
 - PROVIDE MANHOLE WITH POST-UP LADDER AND HIGH / LOW VENT. COORDINATE MANHOLE LOCATION BASED ON THE SURVEY OF THE EXISTING UTILITIES. MANHOLE COVERS SHALL BE 36"Ø MIN. STEEL PLATES. LIDS, REFER TO DETAIL "11 / M-504".
 - STEAM CONDENSATE PIPING ANCHOR. COORDINATE CONCRETE SIZE AND INSTALLATION WITH PIPING SYSTEM MANUFACTURER.
 - PROVIDE MANHOLE WITH POST-UP LADDER AND HIGH / LOW VENT. COORDINATE MANHOLE LOCATION BASED ON THE SURVEY OF THE EXISTING UTILITIES. MANHOLE COVERS SHALL BE 36"Ø MIN. STEEL PLATE. LIDS WITH "STEAM" LABEL ON TOP OF LIDS. REFER TO DETAIL "11 / M-504".
 - 1" FOS, 1" FOR, AND 1 1/2" FOO FROM UNDERGROUND TANK TO DAY TANK. LINES SHOULD BE ENCLOSED IN A PREMANUFACTURED CONDUIT, APPROXIMATELY 12" IN DIAMETER, BURIED WITH AT LEAST TWO FEET OF COVERAGE.
 - 3000 GALLON UNDERGROUND FUEL OIL TANK. INSTALL PER DETAIL "9 / M-504".
 - COORDINATE CHILLED WATER AND STEAM/CONDENSATE SHUTDOWNS WITH COR. SYSTEM DRAINING AND REFILLING, WATER TREATMENT, PIPE CLEANING, AND OFF-HOURS WORK WILL BE REQUIRED AND MUST BE INCLUDED IN CONSTRUCTION SCHEDULE. CHILLED WATER SYSTEM SERVICES A VA COMMUNITY LIVING CENTER (CLC) WHICH IS A CRITICAL UTILITY FACILITY AND REQUIRES SPECIAL COORDINATION FOR LOSS OF UTILITIES.
 - STEAM AND CONDENSATE PIPING IN THIS AREA MUST BE MINIMUM OF 5'-0" BELOW GRADE. PERDMM STANDARDS COMPLIANCE REQUIRES THIS DEPTH WHERE CARS CAN PARK OR WITHIN 8' OF WHERE CARS CAN PARK.
 - AT POINT OF UTILITY INTERSECTION SHOWN, PIPE INVERT ELEVATIONS FROM GRADE TO TOP OF PIPE ARE AS FOLLOWS: (CHWS & CHWS @ 48", HPS, HPR & PCR @ 79.5", AND FOO, FOR, & FOS @ 60")

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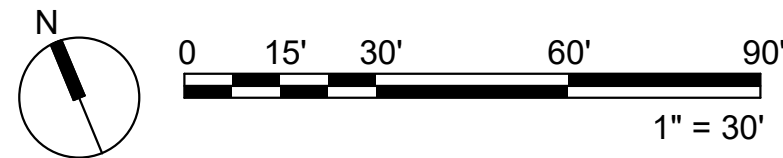
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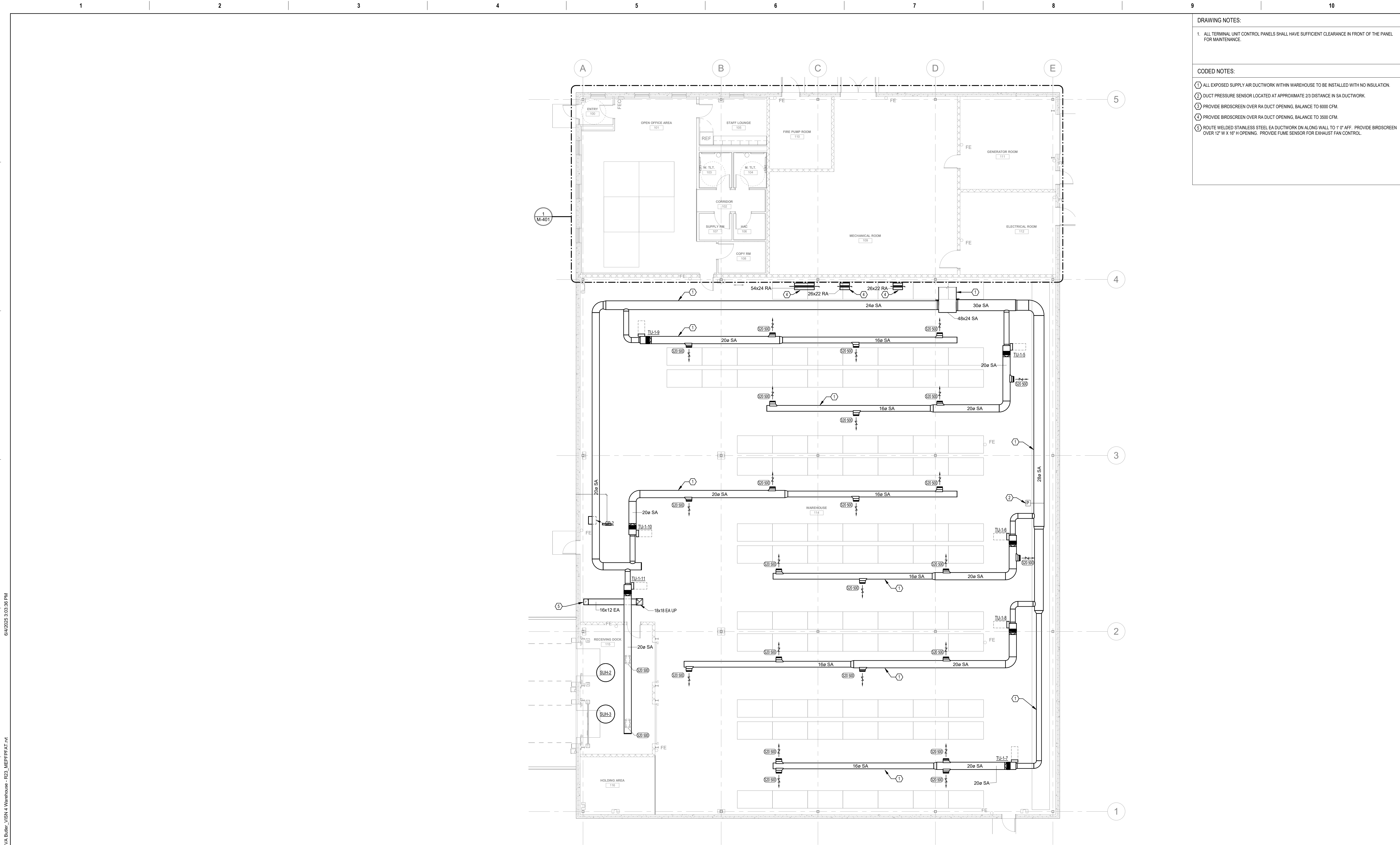
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1 SITE PLAN - MECHANICAL STEAM OPTION
1" = 30'-0"

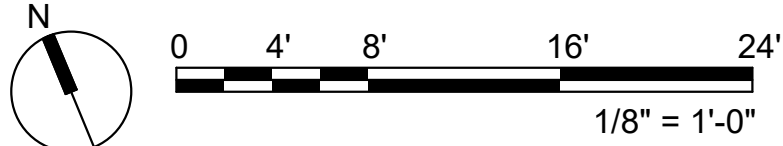


		CONSULTANT	ARCHITECT/ENGINEER OF RECORD  ENGINEERING DESIGN CONSULTING  www.abovegroupinc.com COA/CA Lic. No. 314120 305 East Dr., Suite H, Melbourne, Florida 32904 PH: 321.345.9026	STAMP  Office of Construction and Facilities Management  U.S. Department of Veterans Affairs	Drawing Title	Phase	Project Title	Project Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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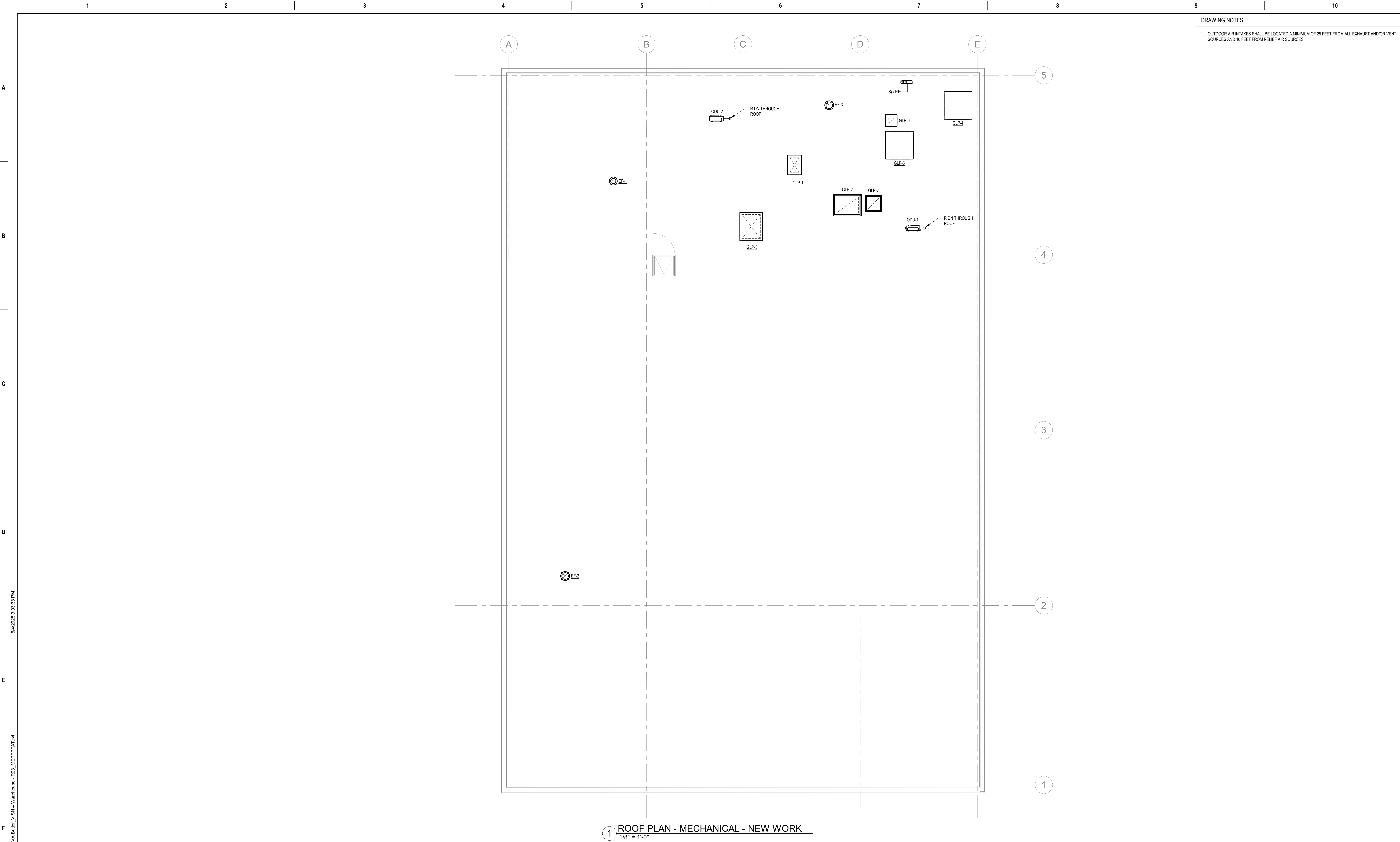


1 FIRST FLOOR PLAN - MECHANICAL
1/8" = 1'-0"

- DRAWING NOTES:
1. ALL TERMINAL UNIT CONTROL PANELS SHALL HAVE SUFFICIENT CLEARANCE IN FRONT OF THE PANEL FOR MAINTENANCE.
- CODED NOTES:
- ① ALL EXPOSED SUPPLY AIR DUCTWORK WITHIN WAREHOUSE TO BE INSTALLED WITH NO INSULATION.
② DUCT PRESSURE SENSOR LOCATED AT APPROXIMATE 2/3 DISTANCE IN SA DUCTWORK.
③ PROVIDE BIRDSCREEN OVER RA DUCT OPENING. BALANCE TO 6000 CFM.
④ PROVIDE BIRDSCREEN OVER RA DUCT OPENING. BALANCE TO 3500 CFM.
⑤ ROUTE WELDED STAINLESS STEEL EA DUCTWORK DN ALONG WALL TO 1' 0" AFF. PROVIDE BIRDSCREEN OVER 12" W X 16" H OPENING. PROVIDE FUME SENSOR FOR EXHAUST FAN CONTROL.



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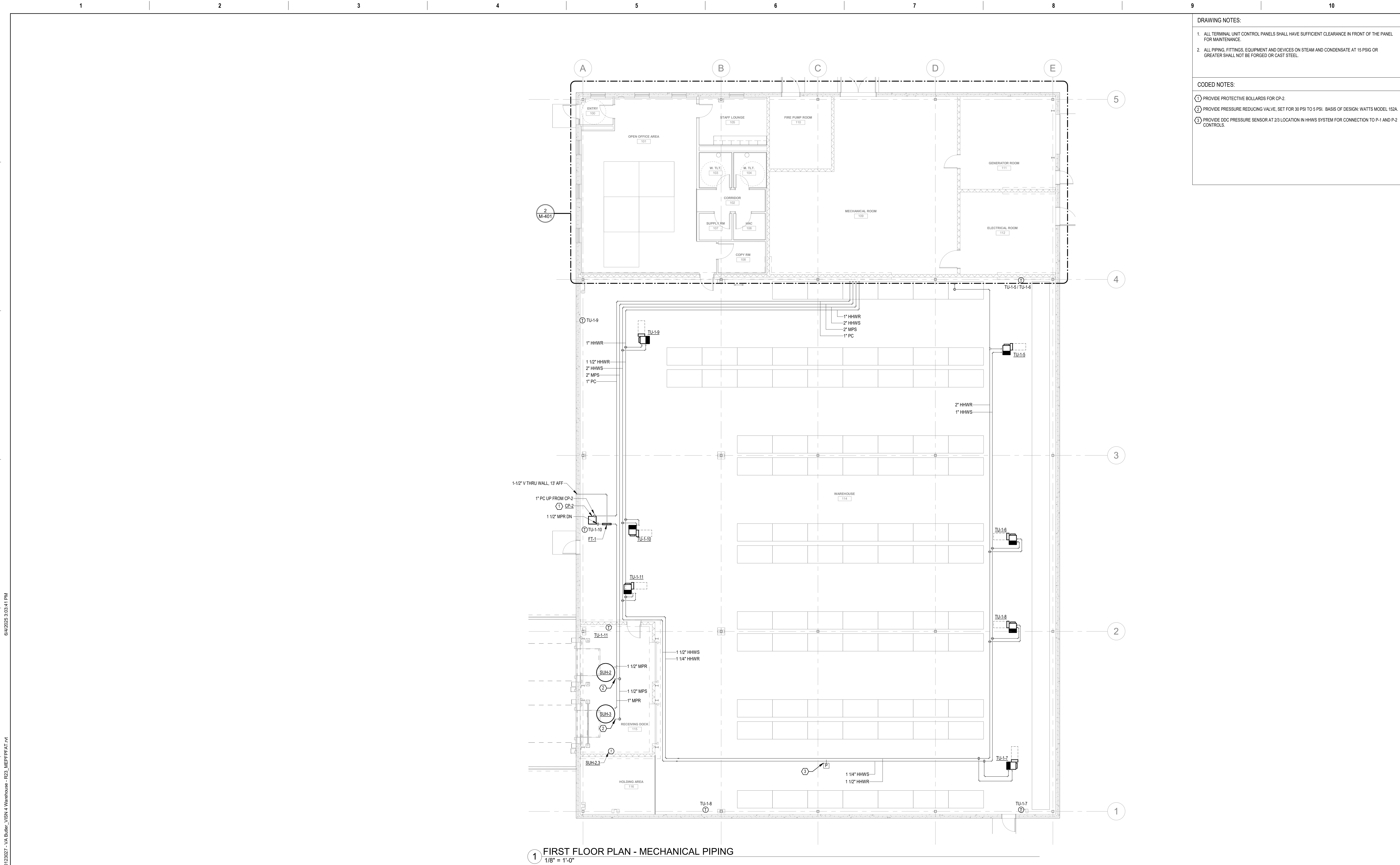
DRAWING NOTES:

1. OUTDOOR AIR INTAKES SHALL BE LOCATED A MINIMUM OF 25 FEET FROM ALL EXHAUST AND/OR VENT SOURCES AND 10 FEET FROM RELIEF AIR SOURCES.

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VA FORM 08 - 6231

CONSULTANT		ARCHITECT/ENGINEER OF RECORD		STAMP	Office of Construction and Facilities Management	Drawing Title ROOF FLOOR PLAN - MECHANICAL	Phase BID DOCUMENTS	Project Title CONSTRUCT A WAREHOUSE FOR VISN 4 WESTERN MARKET DISTRIBUTION	Project Number 529-314
		above Group ENGINEERING DESIGN CONSULTING		ALLEN LANTZ III ENGINEER PE091315	U.S. Department of Veterans Affairs	Approved:	FULLY SPRINKLERED	Location BUTLER, VA	Building Number
Revisions		Date						Issue Date 06/02/2025	Drawing Number MH102
								Checked ADL	
								Drawn JMC	

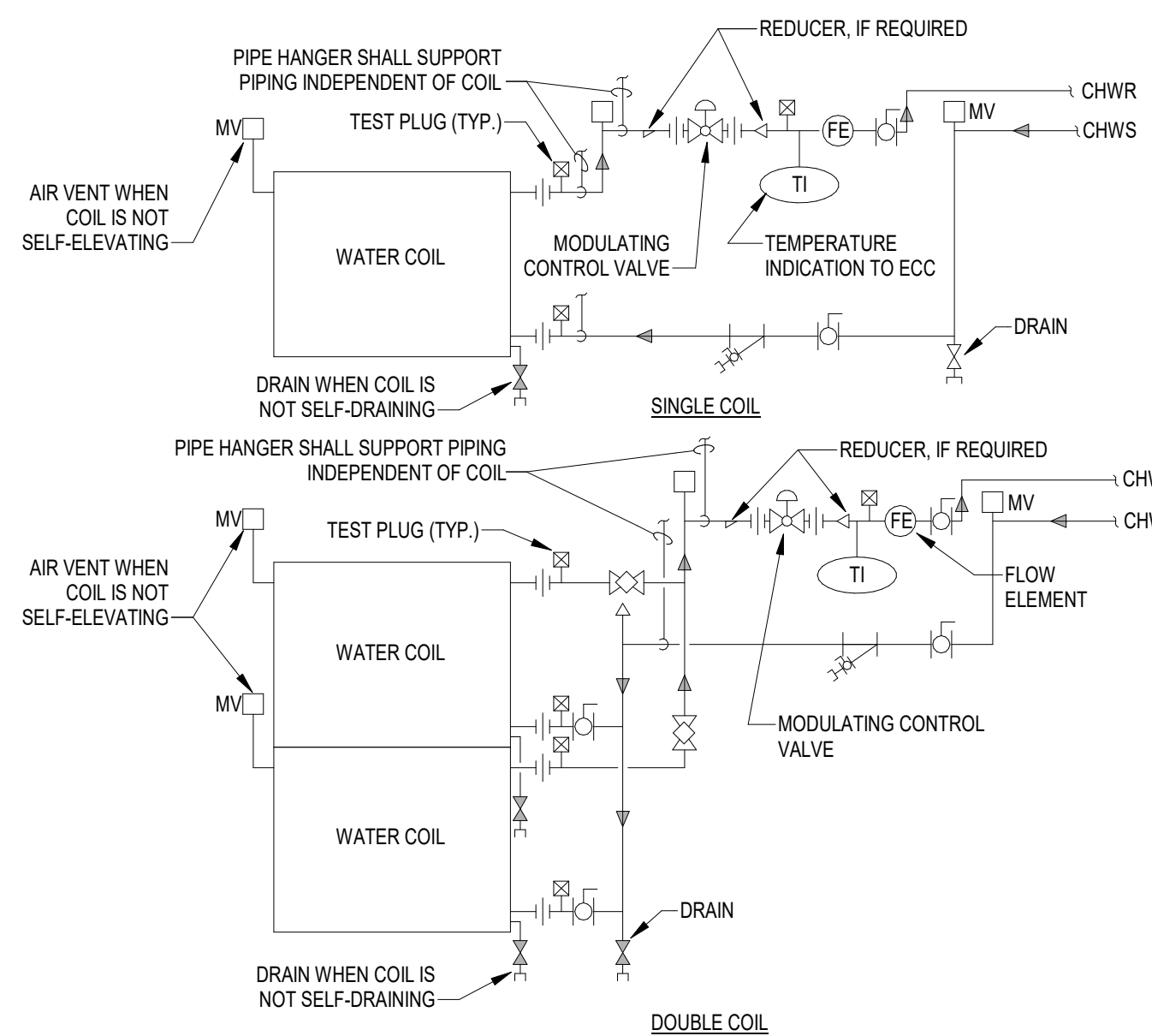
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1/8" = 1'-0"



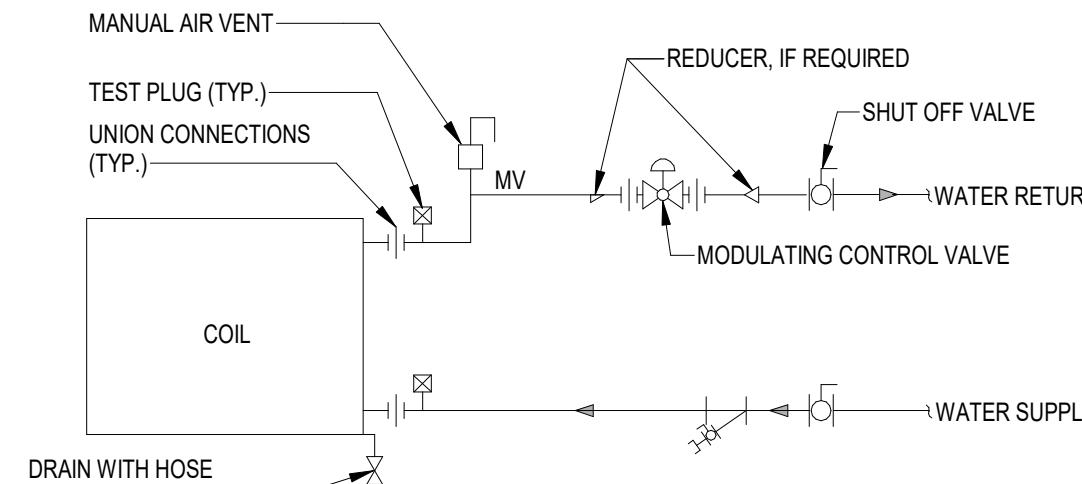
1 FIRST FLOOR PLAN - MECHANICAL PIPING
1/8" = 1'-0"

- DRAWING NOTES:
1. ALL TERMINAL UNIT CONTROL PANELS SHALL HAVE SUFFICIENT CLEARANCE IN FRONT OF THE PANEL FOR MAINTENANCE.
 2. ALL PIPING, FITTINGS, EQUIPMENT AND DEVICES ON STEAM AND CONDENSATE AT 15 PSIG OR GREATER SHALL NOT BE FORGED OR CAST STEEL.
- CODED NOTES:
- 1 PROVIDE PROTECTIVE BOLLARDS FOR CP-2.
 - 2 PROVIDE PRESSURE REDUCING VALVE, SET FOR 30 PSI TO 5 PSI. BASIS OF DESIGN: WATTS MODEL 152A.
 - 3 PROVIDE ODC PRESSURE SENSOR AT 2/3 LOCATION IN HHWS SYSTEM FOR CONNECTION TO P-1 AND P-2 CONTROLS.

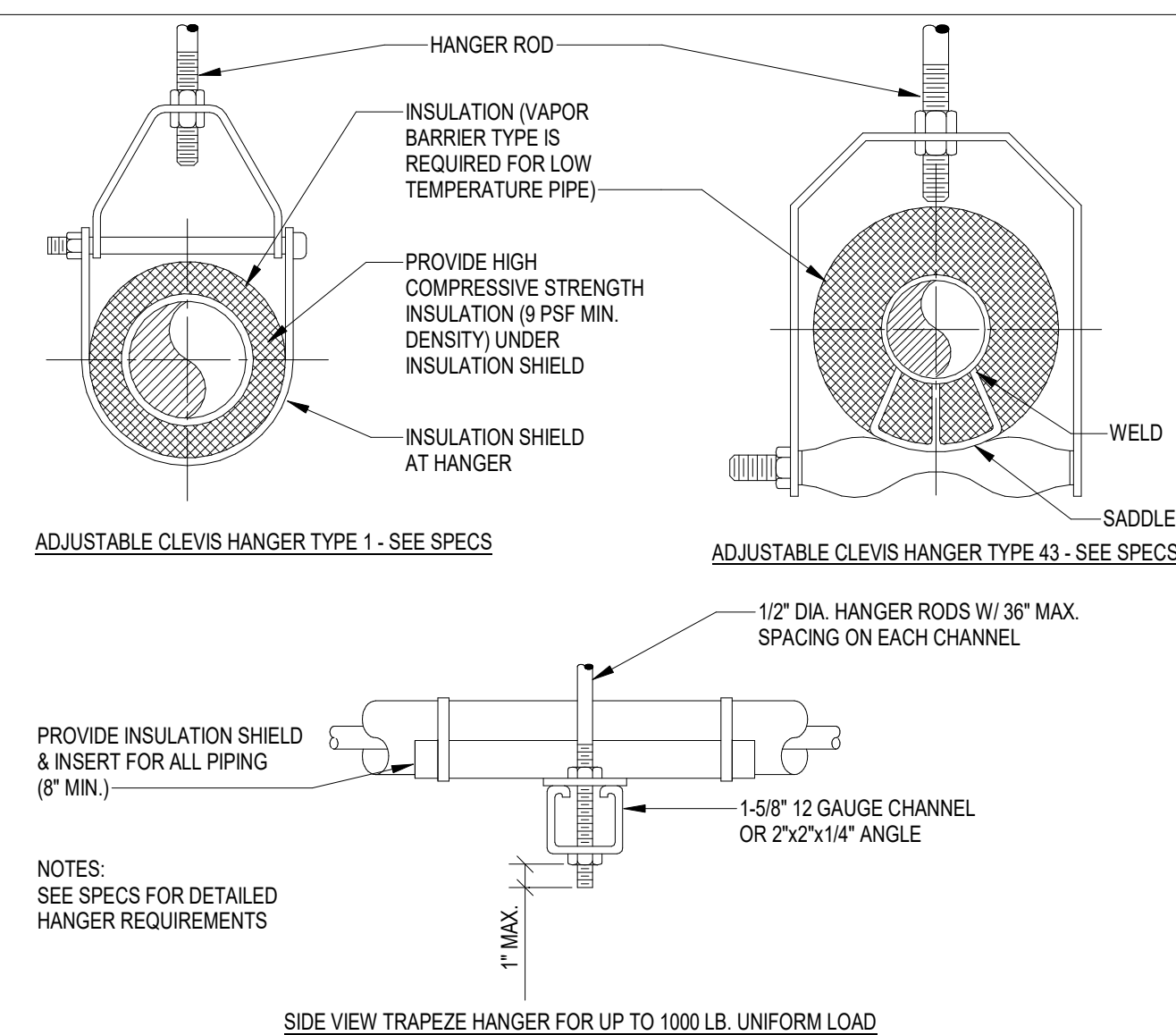
		CONSULTANT	ARCHITECT/ENGINEER OF RECORD		STAMP	Office of Construction and Facilities Management	Drawing Title FIRST FLOOR PLAN - MECHANICAL PIPING	Phase BID DOCUMENTS	Project Title		Project Number
									CONSTRUCT A WAREHOUSE FOR VISN 4 WESTERN MARKET DISTRIBUTION		529-314
						VA	U.S. Department of Veterans Affairs	FULLY SPRINKLERED	Location		Drawing Number
									BUTLER, VA		MP101
						Issue Date		Checked	Drawn		
						06/02/2025		ADL	JMC		
Revisions		Date									



1 WATER COIL PIPING CONNECTION
N.T.S.



2 TERMINAL UNIT WATER COIL PIPING CONNECTION
N.T.S.



3 STEAM COIL PIPING CONNECTION DETAIL
N.T.S.

MAXIMUM PIPE/TUBING SUPPORT SPACING												
NOM. SIZE	IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
PIPE	FT.	7	7	7	9	10	11	12	14	16	17	19
TUBING	FT.	5 FT	6	7	8	8	9	10	12	13	14	16

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE

NOTES:

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATOR UNITS, THE RUNOUT PIPING FOR CONNECTIONS TO COIL SHALL BE INSTALLED WITH SWING JOINTS TO ALLOW FOR THE VIBRATION.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOOR OR PANELS. NEITHER SHALL IT BLOCK THE SERVICES OF FILTERS, VALVES, OR EQUIPMENT.
3. TRAP EACH COIL SEPARATELY WHEN INSTALLED IN A BANK OF TWO OR MORE HIGH. ALSO PROVIDE SEPARATE VACUUM BREAKER FOR EACH COIL.
4. SUPPLY & RETURN PIPES ARE SHOWN FROM SAME END. STEAM COIL MAY HAVE SUPPLY & RETURN PIPES FROM OPPOSITE ENDS.
5. IF ANY FITTING OR CONNECTION DEVICES ON STEAM AND CONDENSATE AT 15 PSIG OR GREATER SHALL BE FORGED OR CAST STEEL.

TEAM COIL PIPING CONNECTION DETAIL
T.S.

Project Number	529-314
Building Number	
Drawing Number	M-501

VA U.S. Department of
Veterans Affairs

FULLY SPRINKLERED

BUTLER, VA

Issue Date	
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Checked	Drawn
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www.abovegroupinc.com
COA/CA Lic. No. 31120

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Melbourne, Florida 32904
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VA FORM 08-6231

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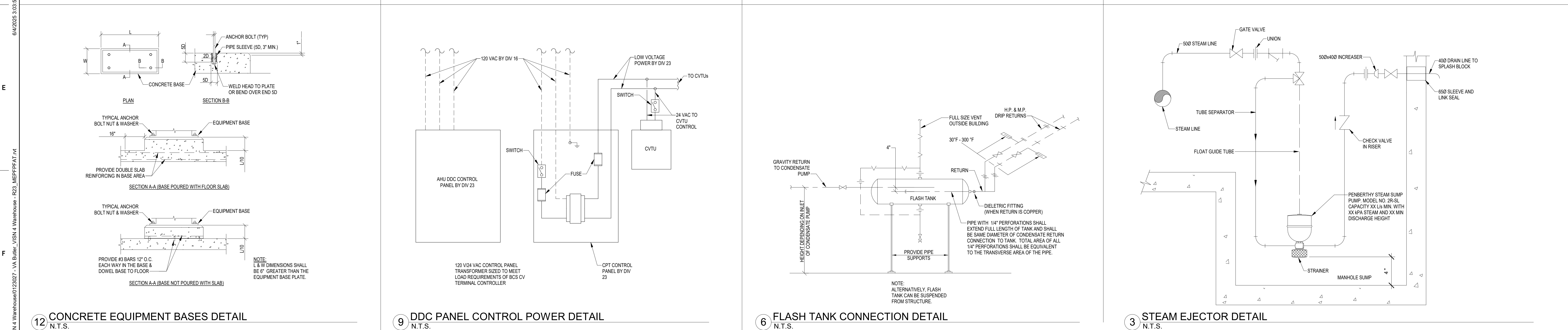
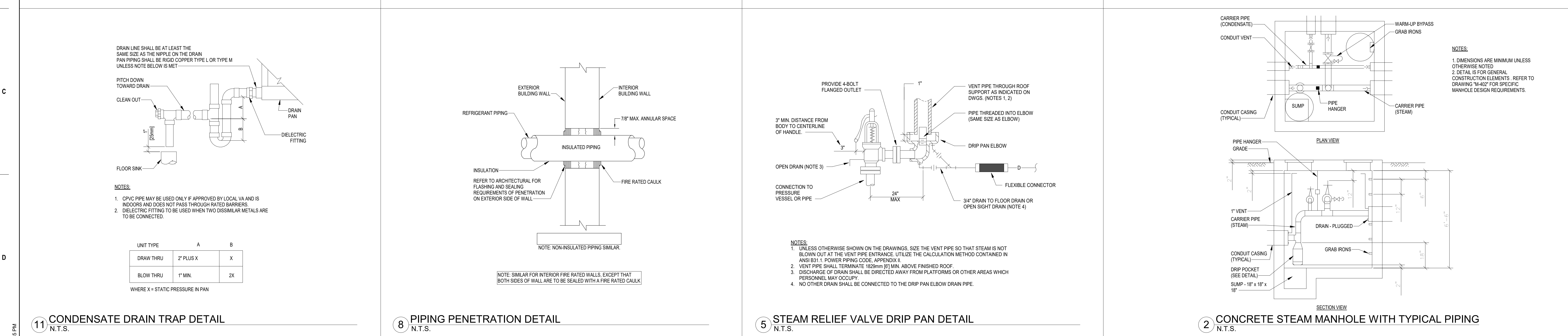
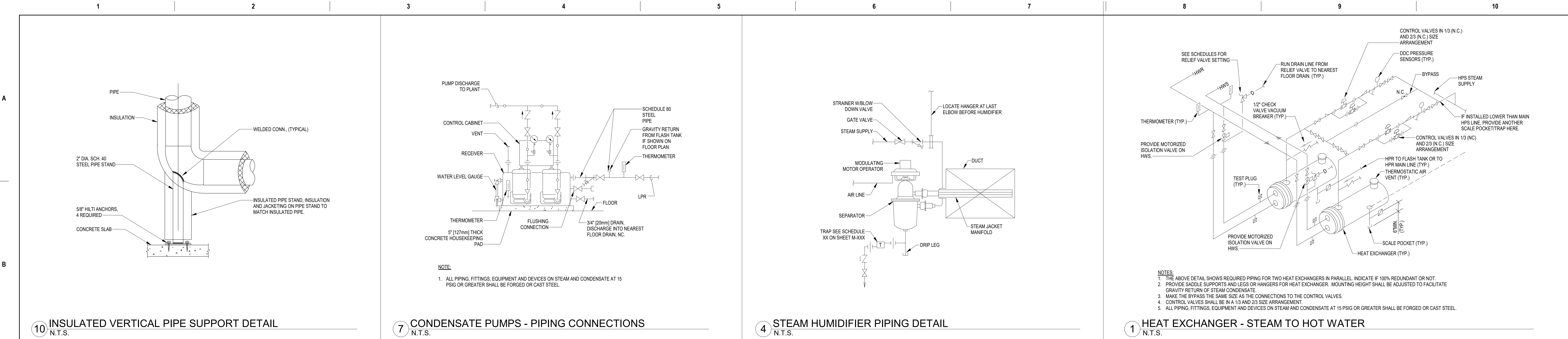
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Revisions

Date

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

bove Group

ENGINEERING | DESIGN | CONSULTING

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cVE

STAMP

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ENGINEER
PENNSYLVANIA
ALLAN LANTZ III
PE091315

Office of
Construction
and Facilities
Management

VA U.S. Department of
Veterans Affairs

Drawing Title

MECHANICAL DETAILS

Approved:

Phase

BID DOCUMENTS

Project Title

CONSTRUCT A WAREHOUSE
FOR VSN 4 WESTERN
MARKET DISTRIBUTION

Location

BUTLER, VA

Issue Date

06/02/2025

Checked

ADL

Drawn

JMC

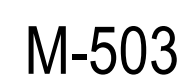
Project Number

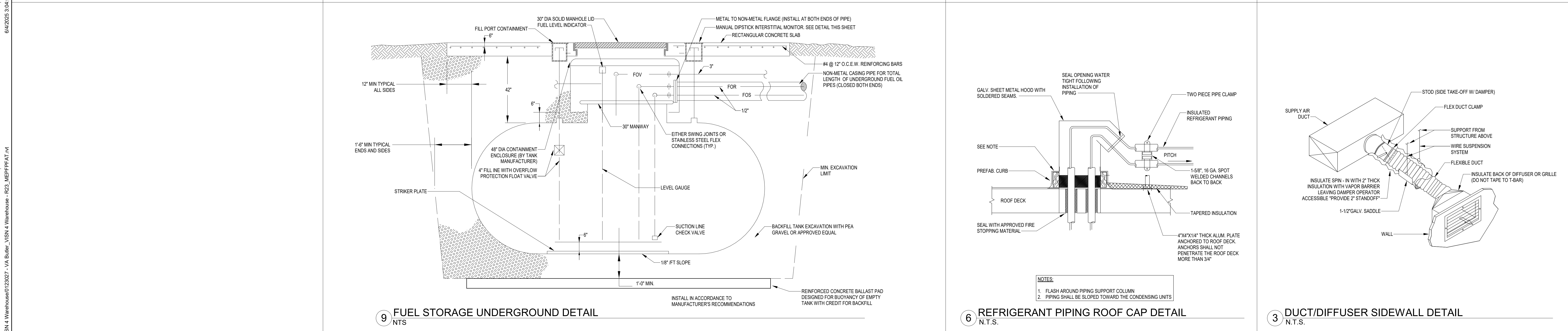
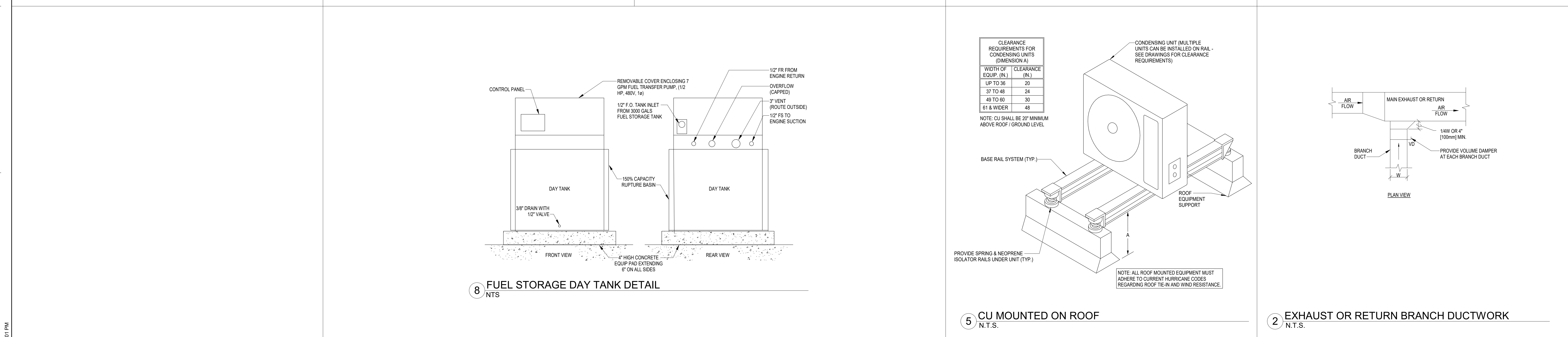
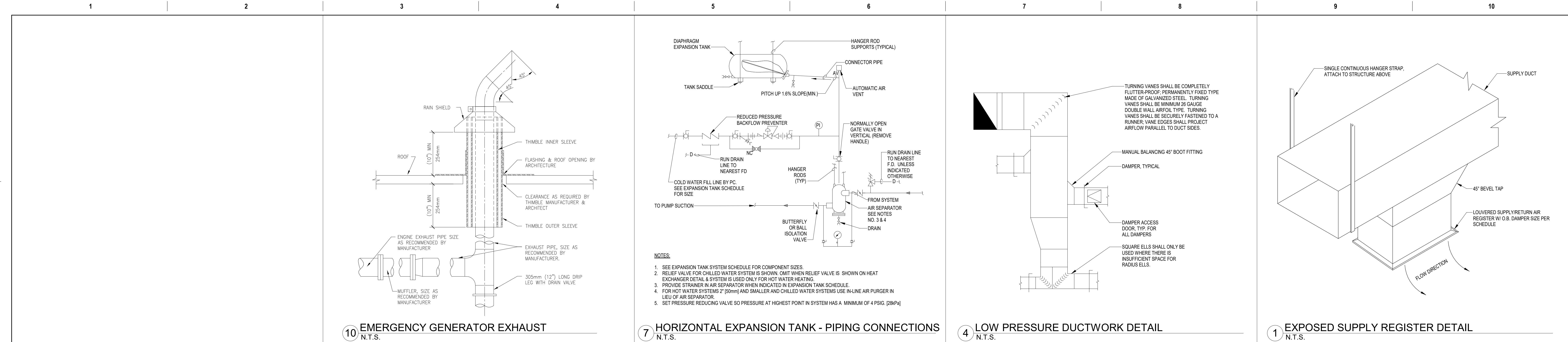
529-314

Building Number

Drawing Number

M-502





CONSULTANT		ARCHITECT/ENGINEER OF RECORD		STAMP	Office of Construction and Facilities Management	Drawing Title MECHANICAL DETAILS	Phase BID DOCUMENTS	Project Title CONSTRUCT A WAREHOUSE FOR VISN 4 WESTERN MARKET DISTRIBUTION	Project Number 529-314
		above Group ENGINEERING DESIGN CONSULTING		ALLEN LANTZ III ENGINEER PE091315	VA U.S. Department of Veterans Affairs	Approved:	FULLY SPRINKLERED	Location BUTLER, VA	Building Number
Revisions		Date		305 East Dr., Suite H, Melbourne, Florida 32904 PH: 321.345.9026				Issue Date 06/02/2025	Drawing Number M-504
								Checked ADL	
								Drawn JMC	

2. AHU AND INTERLOCKED FANS SHALL RESTART TO NORMAL SEQUENCE AND SMOKE DAMPERS SHALL OPEN WHEN FIRE ALARM CIRCUIT IS RESET.

GRAPHICAL USER INTERFACE:

1. PROVIDE A COMPLETE GRAPHIC DISPLAY OF THE SYSTEM AT THE ECC. THE DISPLAY SHALL SHOW ALL POINTS WITH THEIR MEASURED VALUES OR STATES, WHICH SHALL BE UPDATED CONTINUOUSLY AND SHOWN AS CURRENT VALUE.

M-702

NOTES:

1. EMERGENCY GENERATOR SHALL BE INTERLOCKED WITH D-1. WHEN EMERGENCY GENERATOR IS ENERGIZED, D-1 SHALL OPEN. WHEN EMERGENCY GENERATOR IS DEREGED, D-1 SHALL CLOSE PROVIDED THE ROOM EXHAUST FAN IS OFF.
2. ROOM EXHAUST FAN SHALL BE INTERLOCKED WITH D-4 AND ROOM THERMOSTAT T-1. WHEN THE ROOM THERMOSTAT RISES ABOVE 85 DEG F, THE ROOM EXHAUST FAN SHALL RUN AND D-4 SHALL OPEN. WHEN THE ROOM THERMOSTAT DROPS BELOW 80 DEG F, THE ROOM EXHAUST FAN SHALL STOP AND D-4 SHALL CLOSE.
3. DURING EMERGENCY GENERATOR OPERATION, POWER OPERATED, OPPOSED BLADE DAMPERS D-2 AND D-3 SHALL BE INTERLOCKED WITH ROOM THERMOSTAT T-2 SET AT 60 DEG F. ON A RISE IN ROOM TEMPERATURE ABOVE 60 DEG F, D-3 SHALL MODULATE OPEN AND D-2 SHALL MODULATE CLOSE. ON A DROP IN ROOM TEMPERATURE BELOW 60 DEG F, D-2 SHALL MODULATE OPEN AND D-3 SHALL MODULATE CLOSE.
4. UNIT HEATER SHALL BE INTERLOCKED WITH ROOM THERMOSTAT T-3 SET AT 50 DEG F. ON A DROP IN ROOM TEMPERATURE BELOW 48 DEG F, THE UNIT HEATER SHALL BE ENERGIZED. ON A RISE IN ROOM TEMPERATURE ABOVE 52 DEG F, THE UNIT HEATER SHALL BE DEREGED.

NOTES:

1. PUMPS P-3 AND P-4 SHALL OPERATE IN RUN-STANDBY CONFIGURATION. THE BAS SHALL MONITOR PUMP STATUS AND ALTERNATE OPERATING PUMP FOR EQUAL OPERATING TIME.
2. P-3 AND P-4 SHALL MODULATE SPEED TO MAINTAIN SYSTEM DIFFERENTIAL PRESSURE AT DP SENSOR, REFER TO FLOOR PLANS FOR LOCATION.
3. CONTROL VALVE V-1 SHALL MODULATE TO MAINTAIN CHILLED WATER RETURN TEMPERATURE SET POINT OF 55 DEG F (ADJ.)



GENERAL:

1. THE UNIT SHALL BE AVAILABLE FOR OPERATION AT ALL TIMES, BUT IN GENERAL, THE UNIT SHALL RUN 24/7 TO MAINTAIN TEMPERATURE AND HUMIDITY CONDITIONS IN THE SPACE. UNIT SHALL BE NORMALLY STARTED AND STOPPED REMOTELY AT THE ENGINEERING CONTROL CENTER (ECC).
2. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" POSITIONS SHALL BE USED FOR MAINTENANCE ONLY.
3. ALL CONTROLS SHALL BE AUTOMATIC AND ALL SETPOINTS SHALL BE ADJUSTABLE.

SYSTEM START / STOP:

1. WHEN THE AHU IS INDEXED TO OPERATE BY THE ECC, THE ASSOCIATED FIRE/SMOKE DAMPERS SHALL OPEN AND ASSOCIATED EXHAUST FANS SHALL START. AFTER A 2 MINUTE (ADJUSTABLE) TIME DELAY, THE AHU SUPPLY FAN SHALL START AND ALL SAFETIES AND INTERLOCKS SHALL OPERATE THROUGH THE STARTER AND BYPASS CONTRACTOR. SEE INTERLOCK SCHEDULE FOR AHU AND EXHAUST FAN INTERLOCKS.

AIR FLOW CONTROL:
 THE FLOW CONTROLLER SHALL MODULATE THE VFD FREQUENCY BASED ON A SIGNAL FROM THE STATIC PRESSURE SENSOR LOCATED IN THE SUPPLY DUCT TO MAINTAIN THE STATIC PRESSURE SETPOINT AS DETERMINED BY THE TEST AND TUNE CONTRACTOR.
 A. AHU-1 SHALL MAINTAIN A CONSTANT DUCT STATIC PRESSURE SETPOINT TO MAINTAIN CONSTANT AIRFLOW.
 B. AHU-2 SHALL ADJUST THE STATIC PRESSURE SETPOINT FROM THE MAXIMUM VALUE AT FULL AIRFLOW CONDITIONS AS DETERMINED BY THE TEST AND TUNE CONTRACTOR, DOWN TO THE MINIMUM VALUE AS DETERMINED BY THE TEST AND TUNE CONTRACTOR.
 C. THE AIR FLOW SHALL FOLLOW THE VFD SPEED CONTROL LOOP. THE STATIC PRESSURE SETPOINT SHALL BE TRIMMED BY 0.05 INCHES WATER (IN. W.G.) EVERY 15 MINUTES (ADJ) FROM THE MAXIMUM VALUE DOWN TO THE MINIMUM VALUE. IF MORE THAN A DEFAULT OF ONE (ADJ) ZONE'S AIRFLOW CONTROL LOOP (DAMPER POSITION TO MAINTAIN AIRFLOW SETPOINT IS MORE THAN 10% FROM THE (ADJ) ZONE'S AIRFLOW SETPOINT), THE TRIMMING SHALL BE STOPPED AT THE SAME RATE UNTIL NO MORE THAN ONE (ADJ) ZONE'S AIRFLOW CONTROL LOOP IS MORE THAN 80% OPEN (ADJ).

SUPPLY AIR TEMPERATURE CONTROL:

WHEN THE SUPPLY AIR IS ENERGIZED AND THE UNIT IS PROVEN ON, THE SUPPLY AIR TEMPERATURE SHALL BE CONTROLLED TO A SINGLE SETPOINT USING A CONTROL LOOP. THE SUPPLY AIR TEMPERATURE SHALL BE CONTROLLED TO MAINTAIN THE PREHEAT COIL, OUTDOOR AIR DAMPER, RETURN AIR DAMPER, AND COOLING COIL AS SHOWN IN THE FIGURE BELOW.

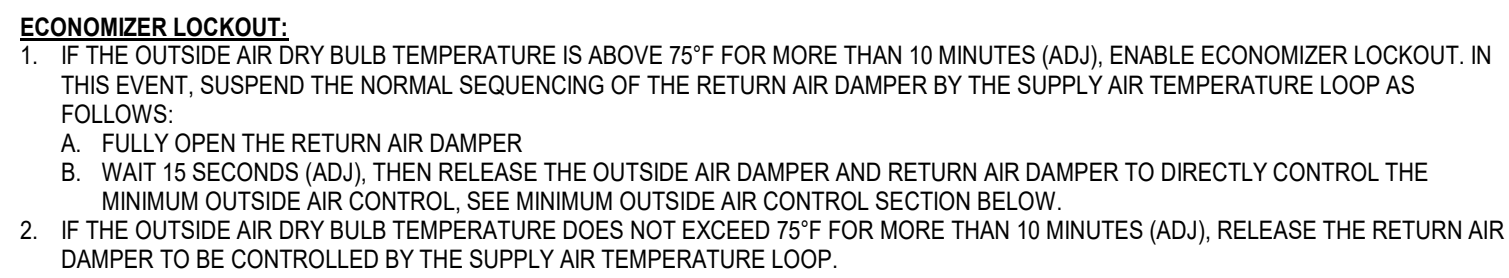
A. STARTING FROM THE COLDEST CONDITION, IF THE AHU CANNOT MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT, THE RETURN AIR TEMPERATURE SHALL BE USED TO CONTROL THE PREHEAT COIL. THE STEAM ISOLATION VALVE SHALL BE OPENED TO 100% (ADJ) TO MAINTAIN A CONSTANT STEAM PRESSURE AT THE INLET OF THE COIL. AT FULL HEATING CONDITIONS, THE FACE AND BYPASS DAMPER SHALL BE FULLY CLOSED TO MAINTAIN FULL CONTACT OF THE AIR WITH THE HEATING COIL. AS THE HEAT DEMAND IS REDUCED, THE BYPASS DAMPER SHALL BE OPENED TO MAINTAIN THE SUPPLY AIR TEMPERATURE.

B. IF THE PREHEAT COIL IS IN FULL BYPASS AND NO MORE HEAT IS REQUIRED AND THE SUPPLY AIR TEMPERATURE IS ABOVE THE SETPOINT, THE UNIT SHALL ENTER ECONOMIZER MODE. THE OUTSIDE AIR DAMPER SHALL FULLY OPEN AND THE RETURN AIR DAMPER SHALL MODULATE CLOSED TO INCREASE OUTSIDE AIR FLOW UNTIL THE RETURN AIR TEMPERATURE IS FULLY CLOSED AND THE SUPPLY AIR TEMPERATURE IS FULLY OPENED TO MAINTAIN THE SUPPLY AIR TEMPERATURE.

C. SEE ECONOMIZER LOCKOUT FOR ADDITIONAL REQUIREMENTS.

D. IF THE SUPPLY AIR TEMPERATURE REMAINS ABOVE SETPOINT AND FURTHER COOLING IS REQUIRED, ENABLE THE CHILLED WATER TEMPERATURE MODULATING VALVE TO MAINTAIN THE SUPPLY AIR TEMPERATURE.

E. THE DEFAULT LEAVING AIR TEMPERATURE SETPOINT SHALL BE RESET LINEARLY BASED ON OUTSIDE AIR TEMPERATURE FROM 55° F (ADJ) AT OUTSIDE AIR TEMPERATURES GREATER THAN 75° F (ADJ) UP TO 65° F AT OUTSIDE AIR TEMPERATURES AT OR BELOW 60° F (ADJ). THE CONTROL LOOP SHALL BE A SOFTWARE INTERLOCK TO PREVENT THE PREHEAT COIL AND COOLING COIL FROM BEING ENABLED AT THE SAME TIME.



MINIMUM OUTSIDE RETURN AIR DAMPER CONTROL:
 THE RETURN AIR DAMPER SHALL BE SPEC'D TO MAXIMIZE RA DAMPER POSITION DETERMINED DURING TESTS AND BALANCE TO MAINTAIN MINIMUM OF 10% RA FLOW, RA FLOW, AND THE OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN THE OUTSIDE AIR VOLUME SETPOINT AS SCHEDULED.

OUTSIDE AIR FLOW CONTROL: LOCKOUT (I.E. WHEN SUPPLY AIR TEMPERATURE CONTROL LOOP DIRECTLY CONTROLS THE RETURN AIR DAMPER), AND THE OUTSIDE AIR DAMPER HAS FULLY OPENED, AND THE OUTSIDE AIR VOLUME IS BELOW SETPOINT, THE OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN THE OUTSIDE AIR FLOW SETPOINT. WHEN THE SUPPLY AIR TEMPERATURE CONTROL LOOP CONTINUES TO CONTROL THE ACTUAL DAMPER POSITION, BUT WITHIN A MORE NARROW RESTRICTED RANGE.

OUTSIDE AIR FLOW RESTRICTION: THE OUTSIDE AIR FLOW IS ABOVE SETPOINT UNTIL THE MAX RA DAMPER POSITION HAS REACHED ITS MAXIMUM VOLUME AND THE OUTSIDE AIR DAMPER IS AT MINIMUM POSITION.

ANNUAL RA FLOW: SHALL BE GUARANTEED AT THE OPERATING WORKPOINT IF THE OUTDOOR AIR FLOW IS MORE THAN 10% FROM SETPOINT FOR MORE THAN 10 MINUTES (ADJUSTABLE).

OUTSIDE AIR DEMAND CONTROL VENTILATION:

1. SYSTEM SHALL SELECT A LOCAL CO2 SENSOR AS PART OF THE WEATHER STATION AND THE ECC SHALL MONITOR AND COMPARE THE MEASURED SPACES CO2 TO THE SPACE CO2 CONCENTRATION SETPOINT (ADJUSTABLE).

2. IF THE CARBON DIOXIDE DIFFERENTIAL BETWEEN ANY SPACE EQUIPPED WITH A CO2 SENSOR AND THE OUTDOOR AIR SENSOR CO2 CONCENTRATION FALLS BELOW 50 PPM (ADJUSTABLE) FOR 10 MINUTES, THE OUTSIDE AIR DEMAND CONTROL VENTILATION SHALL BE ACTIVATED. SENSORS FALLS BELOW 50 PPM (ADJUSTABLE) FOR 10 MINUTES (ADJUSTABLE).

3. IF CARBON DIOXIDE DIFFERENTIAL RISES TO 70 PPM, THE AIR HANDLING UNIT OUTSIDE AIR DAMPER SHALL MODULATE OPEN TOWARDS THE OUTDOOR AIR SENSOR CO2 CONCENTRATION. THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE OUTDOOR AIR SENSOR CO2 CONCENTRATION. ONCE THE CARBON DIOXIDE DIFFERENTIAL FALLS BELOW A DIFFERENTIAL OF 70 PPM, THE OUTSIDE AIR DAMPER SHALL MODULATE TOWARD MINIMUM OUTDOOR AIR POSITION SETPOINT.

4. IF THE OUTSIDE AIR DEMAND CONTROL VENTILATION SYSTEM IS ACTIVATED, THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE OUTDOOR AIR SENSOR CO2 CONCENTRATION. THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE OUTDOOR AIR SENSOR CO2 CONCENTRATION. ONCE THE CARBON DIOXIDE DIFFERENTIAL RISES ABOVE THE MIXED AIR LIMIT SETPOINT, THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE MIXED AIR LIMIT SETPOINT. THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE MIXED AIR LIMIT SETPOINT. ONCE THE CARBON DIOXIDE DIFFERENTIAL RISES ABOVE THE MIXED AIR LIMIT SETPOINT, THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE MIXED AIR LIMIT SETPOINT. ONCE THE CARBON DIOXIDE DIFFERENTIAL RISES ABOVE THE MIXED AIR LIMIT SETPOINT, THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE MIXED AIR LIMIT SETPOINT.

5. WHEN THE MIXED AIR TEMPERATURE RISES ABOVE THE MIXED AIR LOW LIMIT SETPOINT, DEMAND CONTROL OPERATION SHALL BE RESTORED.

LOW TEMPERATURE OPERATION / SHUTDOWN:

1. IF THE AIR TEMPERATURE AS SENSED BY TS-4 DROPS BELOW 50°F (ADJUSTABLE), THE LOW LIMIT ALARM SHALL BE SENT TO THE ECC AND THE ECC SHALL INDEX THE PREHEAT COIL CONTROL LOOP. ALARM SHALL BE REMOVED ONCE DISCHARGE TEMPERATURE RISES ABOVE 50°F.

2. IF THE AIR TEMPERATURE AS SENSED BY TT-4 FALLS BELOW 35°F (ADJUSTABLE), THE SUPPLY FAN SHALL SHUTDOWN AND A CRITICAL #1 ARM SHALL INDICATE AT THE ECC.

HUMIDITY CONTROL:

1. DEHUMIDIFICATION MODE

A. WHENEVER SPACE RELATIVE HUMIDITY IS AT OR ABOVE 60% (ADJUSTABLE), THE UNIT SHALL OVERRIDE THE DEFAULT COOLING COIL LEAVING AIR TEMPERATURE TO BE A MAXIMUM OF 52° (ADJUSTABLE).

B. IF THE VPD IS AT MINIMUM SPEED AND THE SPACE TEMPERATURE DROPS BELOW HEATING SETPOINT OF 70° (ADJUSTABLE), THE VAV BOXES HEATING HOT WATER VALVE SHALL MODULATE TO PREVENT OVERCOOLING OF THE SPACE AND MAINTAIN SPACE TEMPERATURE SETPOINT.

C. WHEN SPACE RELATIVE HUMIDITY HAS DROPPED BACK TO 50% RH (ADJUSTABLE) FOR MORE THAN 20 MINUTES (ADJUSTABLE), THE SUPPLY AIR DISCHARGE TEMPERATURE SHALL INCREASE TO SCHEDULED OPERATION SETPOINT.

2. HUMIDIFICATION MODE

A. WHENEVER THE RETURN AIR RELATIVE HUMIDITY IS BELOW THE SCHEDULED SETPOINT, DEFAULT OF 35% (ADJ), THE HUMIDIFIER SHALL BE ENABLED BY OPENING THE HUMIDIFIER SOLATION VALVE. THE MODULATING STEAM VALVE SHALL THEN MODULATE TO MAINTAIN THE RETURN AIR RELATIVE HUMIDITY SETPOINT.

B. IF THE MODULATING VALVE IS CLOSED AND THE RETURN AIR HUMIDITY IS ABOVE SETPOINT FOR MINIMUM OF 10 MINUTES, DISABLE THE HUMIDIFIER BY CLOSING THE SOLATION VALVE.

C. THE BMS SHALL HAVE A SUSTAINED LOCKOUT TO PREVENT DEHUMIDIFICATION MODE AND HUMIDIFICATION MODE FROM OCCURRING SIMULTANEOUSLY IF CONDITIONS ALLOW.

SMOKE DETECTION SHUTDOWN:

- A HIGH LIMIT STATIC PRESSURE SENSOR BETWEEN THE SUPPLY FAN DISCHARGE AND THE FIRE-SMOKE DAMPER DOWNSTREAM OF THE SUPPLY FAN SHALL PREVENT OVERPRESSURIZATION OF THE SUPPLY DUCTWORK. IF THE DISCHARGE STATIC PRESSURE RISES ABOVE THE HIGH LIMIT SETPOINT, THE STATIC LIMIT, THE AHU UNIT SHALL DE-ENERGIZE AND SEND AN ALARM TO THE ECC. AHU SHALL NOT BE ALLOWED TO RUN UNTIL AN OPERATOR MANUALLY RESETS THE SENSOR AT THE UNIT.
- A LOW LIMIT STATIC PRESSURE SENSOR UPSTREAM OF THE RETURN AIR FIRE-SMOKE DAMPER SHALL PREVENT UNDER PRESSURIZATION OF THE RETURN DUCTWORK. IF THE RETURN DUCT STATIC PRESSURE DROPS 0.75" BELOW ESTABLISHED VALUE FOR AIR BALANCE, THE STATIC LIMIT SETPOINT, THE OPERATOR SHALL BE ALERTED AND THE AHU SHALL SEND AN ALARM.
- AHU SHALL AUTOMATICALLY INCREASE/DECREASE IN SPEED WITH FILTER LOADING BASED UPON STATIC PRESSURE SENSOR SETPOINT (AS DETERMINED BY TAB CONTRACTOR). STATIC PRESSURE SENSOR SHALL BE LOCATED 20' DOWNSTREAM OF SUPPLY DUCT RUN.

SMOKE DETECTION SHUTDOWN:

1. UPON A SIGNAL, FROM THE ASSOCIATED, HARD WIRED, INTERLOCKED, SMOKE DETECTOR (FURNISHED AND WIRED BY DIVISION 28, MOUNTED BY DIVISION 23) THAT SMOKE IS DETECTED IN THE AIR STREAM, THE FIRE ALARM SYSTEM SHALL SHUT DOWN THE AHU AND INTERLOCKED FANS, AND AT THE SAME TIME THE SMOKE DETECTOR SIGNAL SHALL DISPLAY AN ALARM AT THE ECC THAT THE UNIT AND ASSOCIATED FANS WERE SHUTDOWN FOR SMOKE DETECTION.
2. AHU AND INTERLOCKED FANS SHALL RESTART TO NORMAL SEQUENCE AND SMOKE DAMPERS SHALL OPEN WHEN FIRE ALARM CIRCUIT IS RESET.

GRAPHICAL USER INTERFACE:

1. PROVIDE A COMPLETE GRAPHIC DISPLAY OF THE SYSTEM AT THE ECC. THE DISPLAY SHALL SHOW ALL POINTS WITH THEIR MEASURED VALUES OR STATES, WHICH SHALL BE UPDATED CONTINUOUSLY AND SHOWN AS CURRENT VALUE.

CONSULTANT




305 East Dr., Suite H,
Melbourne, Florida 32904
PH: 321.345.9026

VA U.S. Department of
Veterans Affairs

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FULLY SPRINKLERED

Issue Date	06/02/2025
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ADL

JMC

M-703

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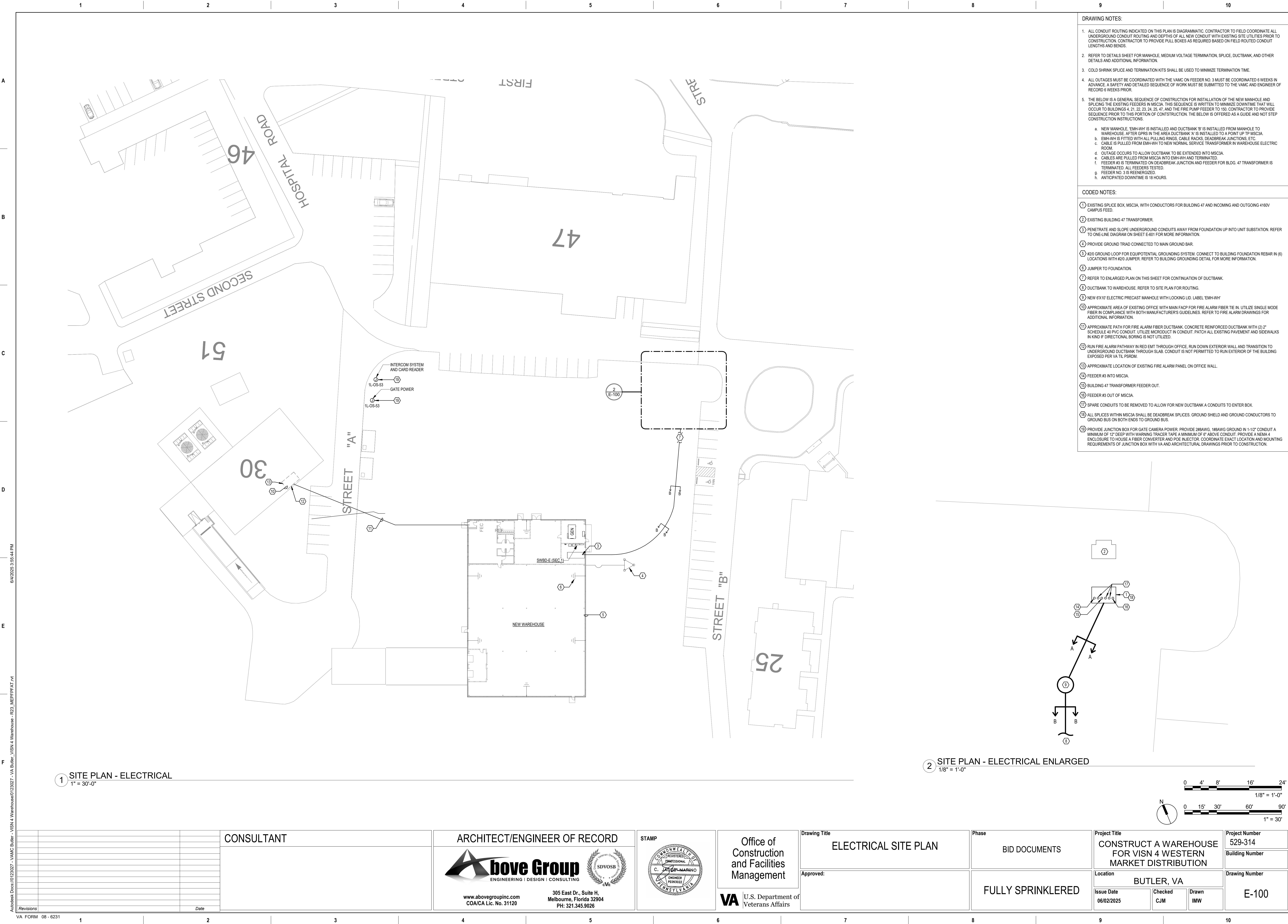
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E

VA U.S. Department of
Veterans Affairs

FCONSULTANTARCHITECT/ENGINEER OF RECORD

Project Number	529-314
Building Number	
Drawing Number	E-001



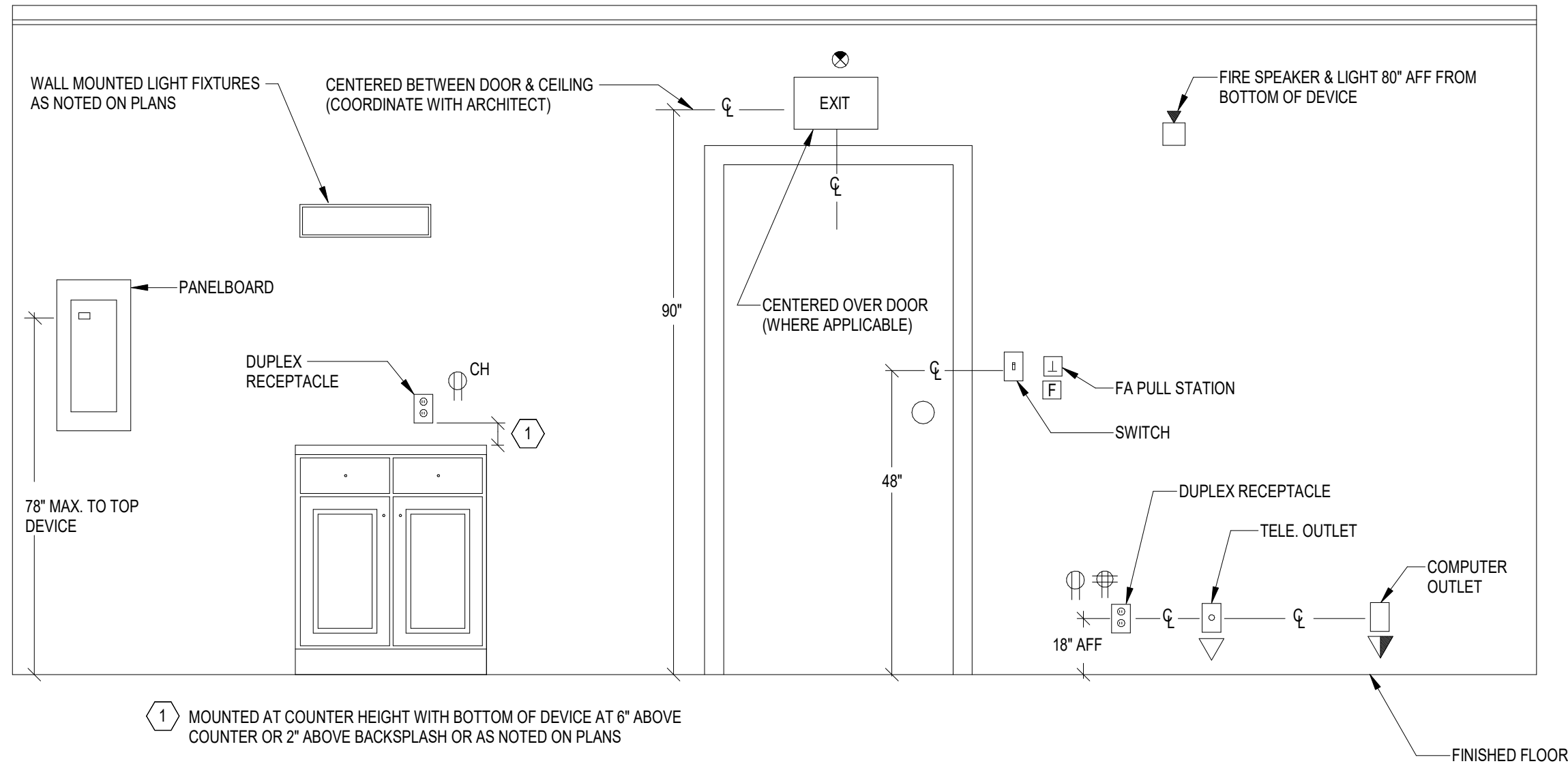


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Autodesk DocuV012302 - VANC Butler Revisions		Date	CONSULTANT	ARCHITECT/ENGINEER OF RECORD  www.abovegroupinc.com CO/CA Lic. No. 31120 305 East Dr., Suite H, Melbourne, Florida 32904 PH: 321.345.9026	STAMP 	Office of Construction and Facilities Management VA U.S. Department of Veterans Affairs	Drawing Title FLOOR PLAN - ELECTRICAL EQUIPMENT - NEW WORK Approved:	Phase BID DOCUMENTS	Project Title CONSTRUCT A WAREHOUSE FOR VSN 4 WESTERN MARKET DISTRIBUTION	Project Number 529-314 Building Number	Drawing Number EP101
								Location BUTLER, VA Issue Date 06/02/2025	Fully Sprinklered BUTLER, VA Checked CJM Drawn IMW		

A

B



5 TYPICAL MOUNTING HEIGHTS
N.T.S.

C

CONDUCTORS:

1. ALL WIRE SHALL BE SIZED AS SHOWN ON THE DRAWINGS. IF NO SIZE IS SHOWN, THEN WIRE SHALL BE #12 AWG, EXCEPT AS MODIFIED FOR VOLTAGE DROP BY THE TABLE BELOW. REFER TO BRANCH CIRCUIT VOLTAGE DROP TABLES BELOW. BRANCH CIRCUIT WIRING SHALL BE SIZED TO LIMIT THE VOLTAGE DROP TO 3% OF NOMINAL VOLTAGE OR LESS.

120V (BASED ON 1500W LOAD) MIN. CONDUCTOR SIZE CIRCUIT LENGTH INCREASE FOR VOLTAGE DROP	
0 FT - 70 FT	#12 AWG
71 FT - 115 FT	#10 AWG
116 FT - 180 FT	#8 AWG

181 FEET AND LONGER: SUBMIT WIRE SIZE TO ENGINEER OF RECORD FOR WRITTEN APPROVAL.

277V (BASED ON 4155W LOAD) MIN. CONDUCTOR SIZE CIRCUIT LENGTH INCREASE FOR VOLTAGE DROP	
0 FT - 70 FT	#12 AWG
71 FT - 115 FT	#10 AWG
116 FT - 180 FT	#8 AWG

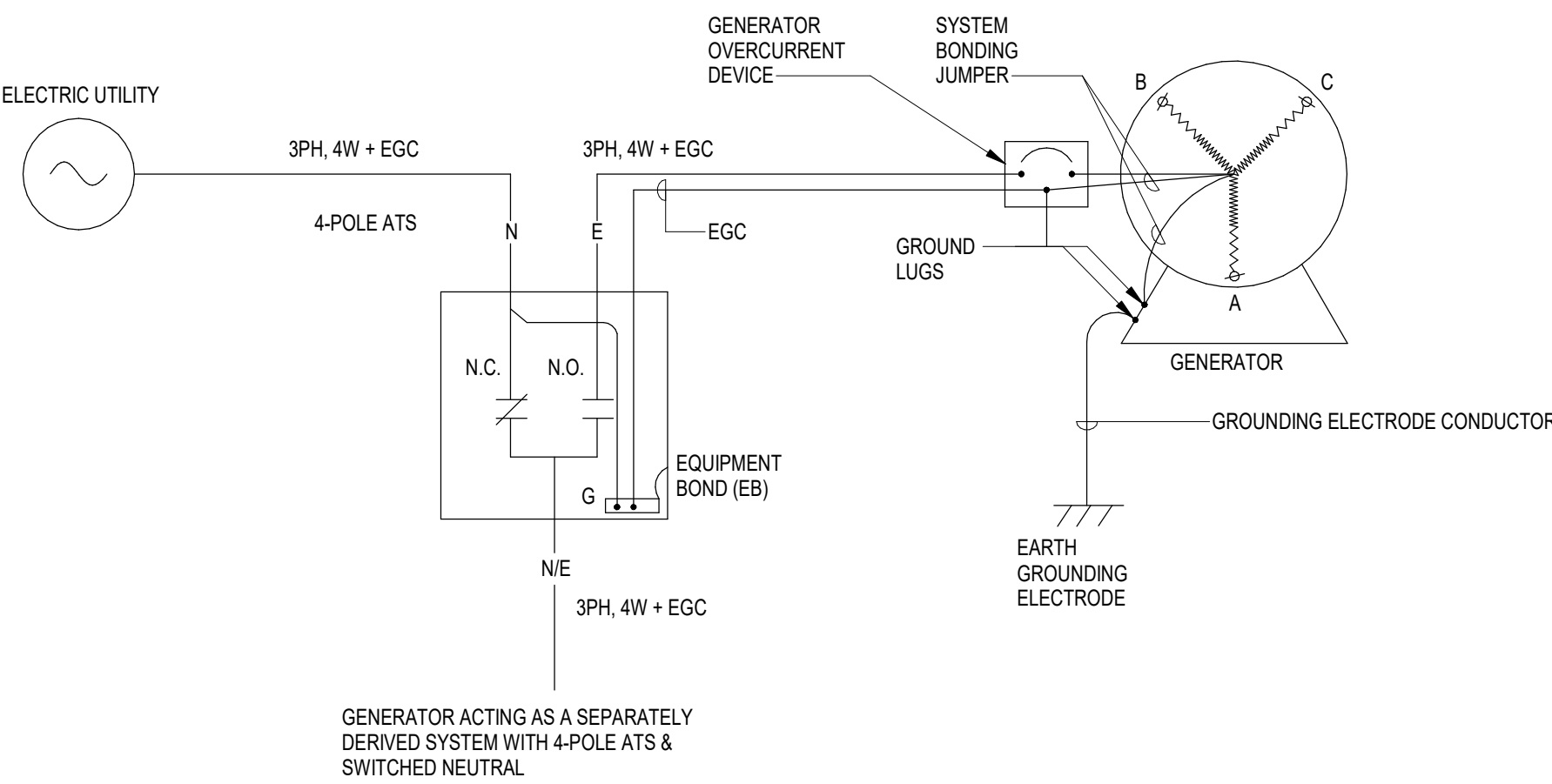
6 CONDUCTORS DETAIL
N.T.S.

D

E

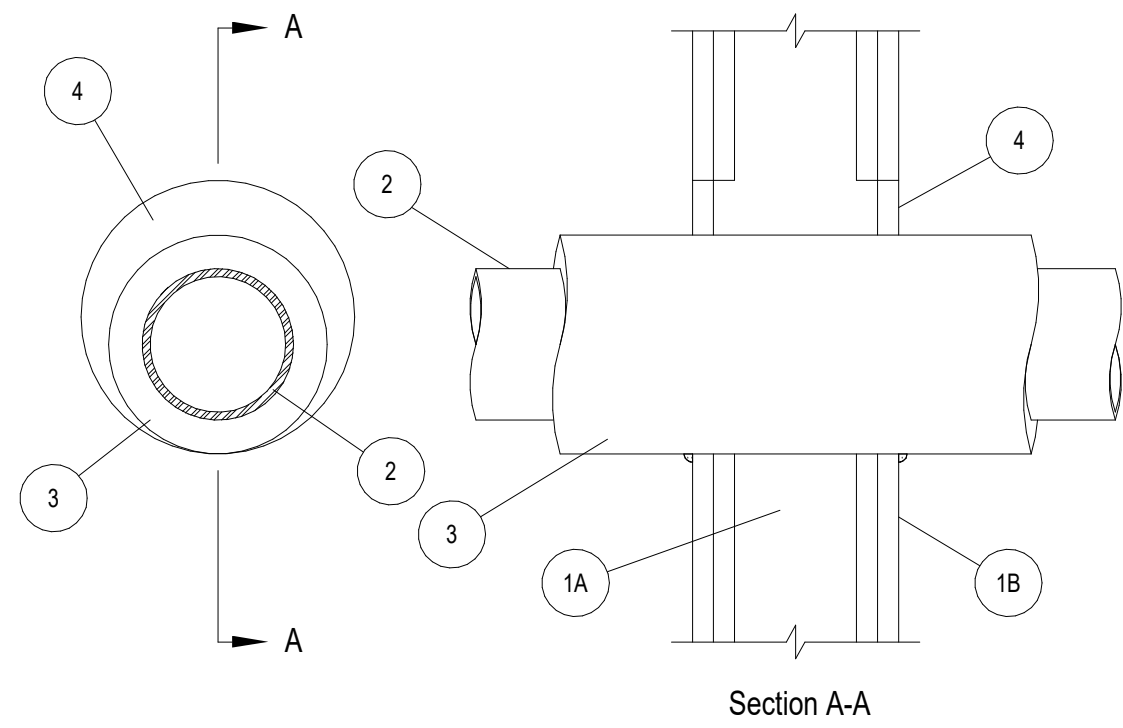
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F



7 GENERATOR GROUNDING 600 VOLTS OR LESS - 4 WIRE
N.T.S.

SPECIFIED TECHNOLOGIES INC. - SPECSEAL LCI SEALANT
* INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA), RESPECTIVELY.



SYSTEM NO. W-L-5122

1 CONDUIT PENETRATION OF FIREWALL
N.T.S.

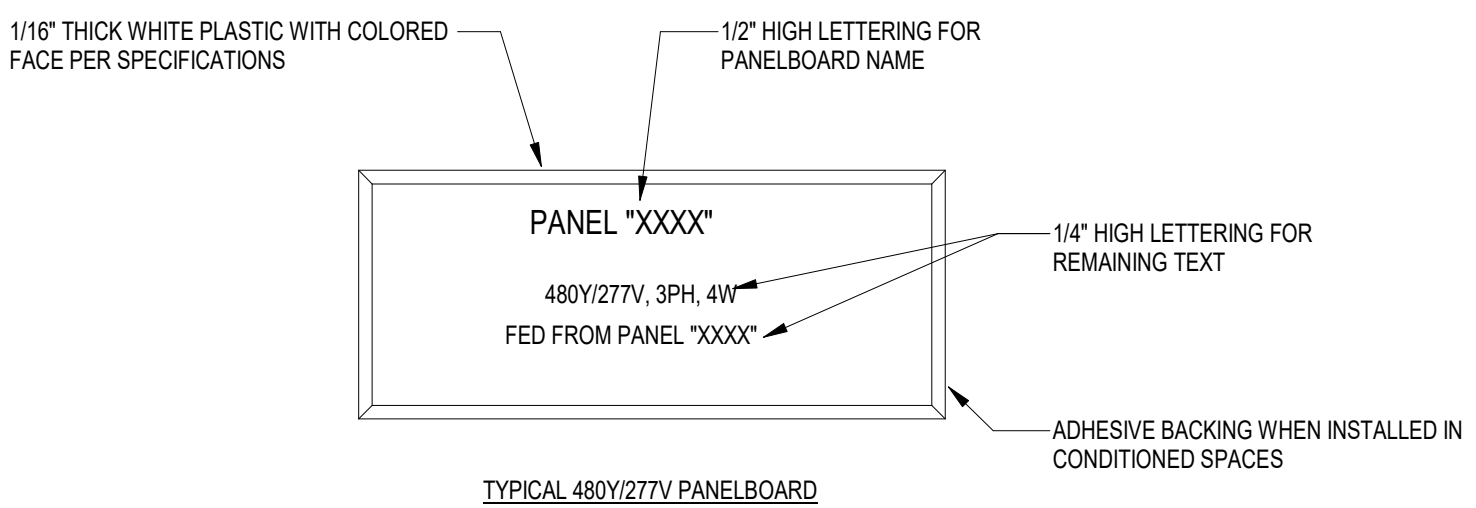
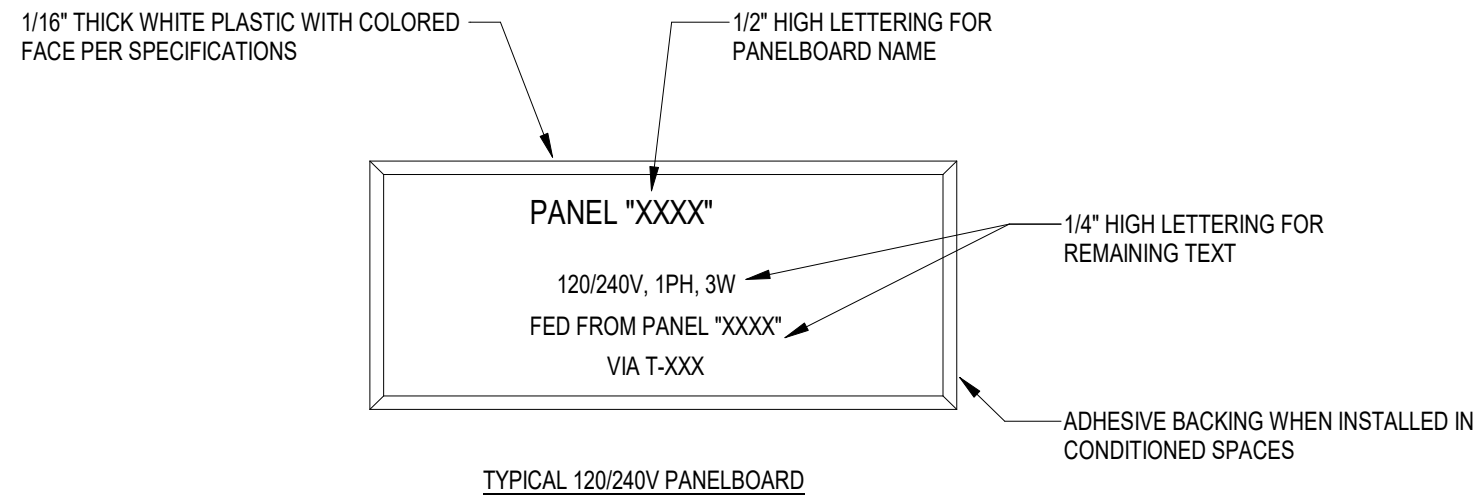
IDENTIFICATION OF GROUNDED CONDUCTORS SHALL BE PERFORMED BASED ON NEC ARTICLE 200.

VOLTAGE 208Y/120V	
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUND	GREEN

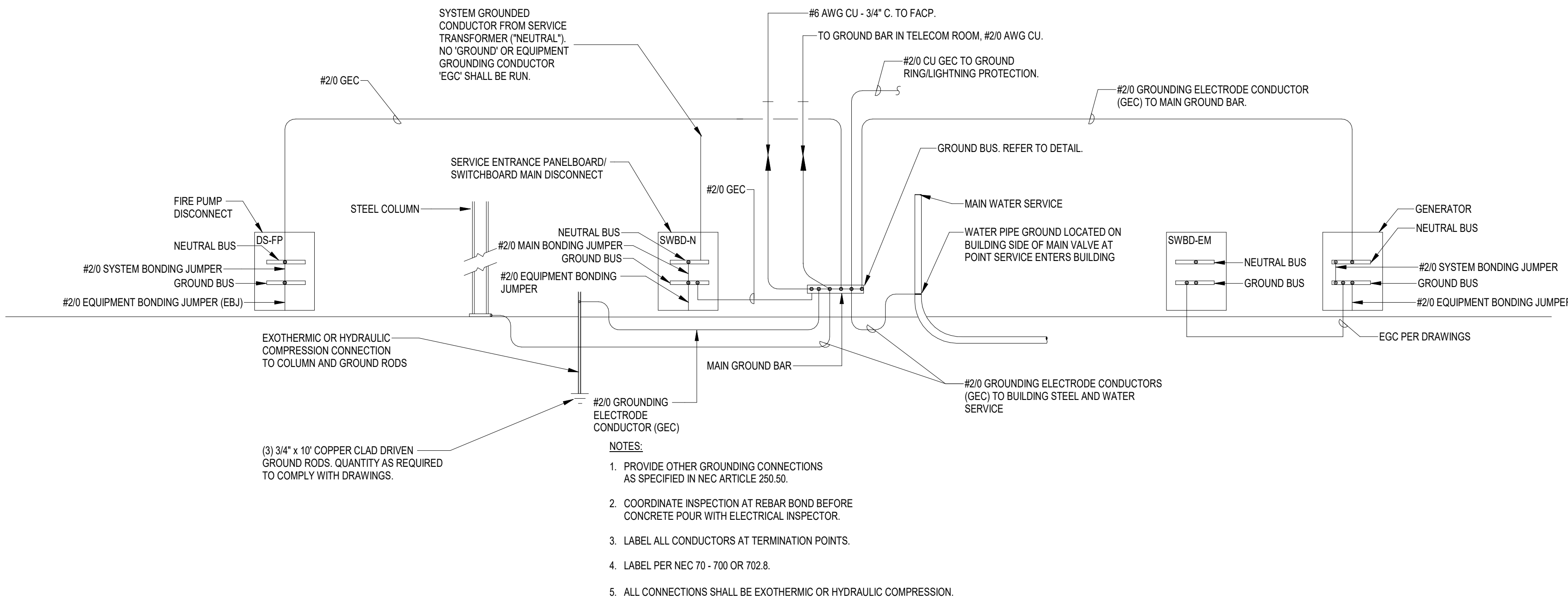
VOLTAGE 480Y/277V	
PHASE A	BROWN
PHASE B	ORANGE
PHASE C	YELLOW
NEUTRAL	GREY
GROUND	GREEN

3 WIRE COLOR TABLE
N.T.S.

- WALL ASSEMBLY - THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
 - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE AND SPACED MAX 24 IN. OC.
 - GYPSUM BOARD* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IS 7-1/2 IN.
THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
- THROUGH PENETRANT - ONE METALLIC PIPE OR TUBE TO BE INSTALLED ECCENTRICALLY OR CONCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES AND TUBES MAY BE USED:
 - STEEL PIPE - NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 5 (OR HEAVIER) STEEL PIPE.
 - IRON PIPE - NOM 4 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
 - COPPER PIPE - NOM 2 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
 - COPPER TUBE - NOM 2 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE.
- TUBE INSULATION - PLASTICS* - NOM 3/4 IN. THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING. ANNULAR SPACE SHALL BE MIN 1/4 IN. POINT CONTACT TO MAX 1-1/2 IN.
SEE PLASTICS (QMFZ2) CATEGORY IN THE PLASTICS RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL 94 FLAMMABILITY CLASSIFICATION OF 94-5V/A MAY BE USED.
- FILL, VOID OR CAVITY MATERIAL* - SEALANT - MIN 5/8 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL ASSEMBLY. AT POINT CONTACT LOCATION, MIN 1/4 IN. DIAM BEAD OF FILL MATERIAL APPLIED AT INSULATED METALLIC PIPE/GYPSUM BOARD INTERFACE ON BOTH SURFACES OF WALL.

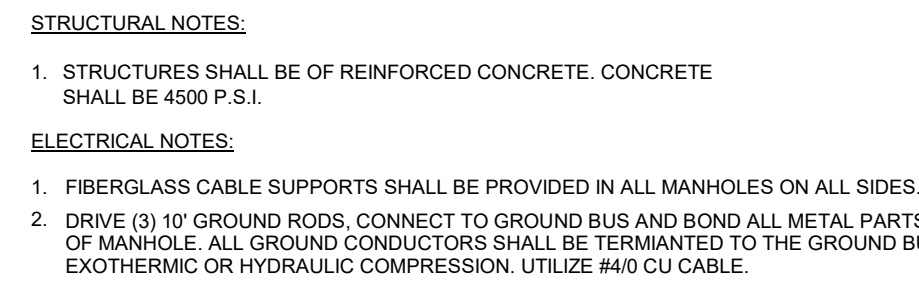


2 PANELBOARD NAMEPLATE
N.T.S.



4 SYSTEM GROUNDING DETAIL
N.T.S.

CONSULTANT		ARCHITECT/ENGINEER OF RECORD		STAMP	Office of Construction and Facilities Management	Drawing Title ELECTRICAL DETAILS	Phase BID DOCUMENTS	Project Title CONSTRUCT A WAREHOUSE FOR VISN 4 WESTERN MARKET DISTRIBUTION	Project Number 529-314
						Approved:		Location BUTLER, VA	Building Number
								Issue Date 06/02/2025	Drawing Number E-501
								Checked CJM	
								Drawn IMW	



VA FORM 08-6231									
1	2	3	4	5	6	7	8	9	10



3 DUCT BANK SECTIONS
N.T.S.

VA FORM 08- 6231									
1	2	3	4	5	6	7	8	9	10

Switchboard: SWBD-N

Location: ELECTRICAL ROOM 112

Supply From: EMH-WH

Mounting: SURFACE

Enclosure: TYPE 1

Volts: 480/277 Wye

Phases: 3

Wires: 4

A.I.C. Rating: 42,000

Mains Type: MCB

Mains Rating: 600 A

MCB Rating: 600 A

Neutral Rating: 100.00%

Notes:
NEW NORMAL POWER SWITCHBOARD.

CKT	Circuit Description	# of Poles	Trip Rating	Load	Remarks
SWBD-N-1	ATS-OS	3	400 A	171.9 kVA	
SWBD-N-2	ATS-LS	3	100 A	6.7 kVA	
SWBD-N-3	SPARE	3	100 A	0.0 kVA	
SWBD-N-4	SPARE	3	100 A	0.0 kVA	
SWBD-N-5	SPD	3	60 A	0.0 kVA	
				178565 VA	
				215 A	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
HVAC	15384 VA	114.32%	17587 VA	
Lighting	5622 VA	100.00%	5622 VA	Total Conn. Load: 178565 VA
Motor	78979 VA	102.89%	81265 VA	Total Est. Demand: 178565 VA
Other	56379 VA	100.00%	56379 VA	Total Conn. Current: 215 A
Receptacle	22200 VA	72.52%	16100 VA	Total Est. Demand Current: 213 A

Notes:
1. SWITCHBOARD IS TO BE FULLY BUSSED.
2. PROVIDE INTEGRAL SURGE PROTECTION DEVICE (SPD).

Switchboard: SWBD-EM

Location: ELECTRICAL ROOM 112

Supply From: GENERATOR

Mounting: SURFACE

Enclosure: TYPE 1

Volts: 480/277 Wye

Phases: 3

Wires: 4

A.I.C. Rating: 42,000

Mains Type: MCB

Mains Rating: 600 A

MCB Rating: 600 A

Neutral Rating: 100.00%

Notes:

NEW EMERGENCY POWER SWITCHBOARD.

CKT	Circuit Description		# of Poles	Trip Rating	Load	Remarks
SWBD-EM-1	ATS-OS		3	400 A	171.9 kVA	
SWBD-EM-2	ATS-LS		3	100 A	6.7 kVA	
SWBD-EM-3	ATS-FP		3	150 A	0.0 kVA	
SWBD-EM-4	SPARE		3	150 A	0.0 kVA	
SWBD-EM-5	SPARE		3	150 A	0.0 kVA	
SWBD-EM-6	SPD		3	60 A	0.0 kVA	
					178565 VA	
					215 A	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	15384 VA	114.32%	17587 VA		
Lighting	5622 VA	100.00%	5622 VA	Total Conn. Load:	178565 VA
Motor	78979 VA	102.89%	81265 VA	Total Est. Demand:	176955 VA
Other	56379 VA	100.00%	56379 VA	Total Conn. Current:	215 A
Receptacle	22200 VA	72.52%	16100 VA	Total Est. Demand Current:	213 A

Notes:

1. SWITCHBOARD IS TO BE FULLY BUSSED.

2. PROVIDE INTEGRAL SURGE PROTECTION DEVICE (SPD).

BRANCH PANEL: 1L-LS

LOCATION: ELECTRICAL ROOM 111

SUPPLY FROM: T-LS

MOUNTING: Surface

ENCLOSURE: Type 1

VOLTS: 120/208 Wye

PHASES: 3

WIRES: 4

A.I.C. RATING: 22,000

MAINS TYPE: MCB

MAINS RATING: 50 A

SERVICE ENTRANCE: NO

GENERAL NOTES:
NEW 208/120V LIFE SAFETY PANELBOARD.

	CIRCUIT DESCRIPTION	NOTE S	TRIP	POLES	A	B	C	POLES	TRIP	NOTE S	CIRCUIT DESCRIPTION	CKT
1	FIRE ALARM CONTROL PANEL	20 A	1		500 VA	500 VA			1	20 A	FIRE ALARM ANNUNCIATOR PANEL	2
3	GENERATOR ANNUNCIATOR PANEL	20 A	1			500 VA	500 VA		1	20 A	ACCESS CONTROL PANELS	4
5	SPARE	20 A	1				0 VA	0 VA	1	20 A	SPARE	6
7	SPARE	20 A	1		0 VA	0 VA			1	20 A	SPARE	8
9	SPARE	20 A	1			0 VA	0 VA		1	20 A	SPARE	10
11	SPARE	20 A	1				0 VA	0 VA	1	20 A	SPARE	12
13	SPARE	20 A	1		0 VA	0 VA			1	20 A	SPARE	14
15	SPARE	20 A	1			0 VA	0 VA		1	20 A	SPARE	16
17	SPARE	20 A	1				0 VA	0 VA	1	20 A	SPARE	18
19	SPARE	20 A	1		0 VA	0 VA			1	20 A	SPARE	20
21	SPARE	20 A	1			0 VA	0 VA		1	20 A	SPARE	22
23	SPACE	--	1				--	--	1	--	SPACE	24
25	SPACE	--	1		--	--			1	--	SPACE	26
27	SPACE	--	1			--	--		1	--	SPACE	28
29	SPACE	--	1				--	--	1	--	SPACE	30
31	SPACE	--	1		--	--			1	--	SPACE	32
33	SPACE	--	1			--	--		1	--	SPACE	34
35	SPACE	--	1				--	--	1	--	SPACE	36
37	SPACE	--	1		--	--			1	--	SPACE	38
39	SPACE	--	1			--	--		1	--	SPACE	40
41	SPACE	--	1				--	--	1	--	SPACE	42
TOTAL...					1000 VA	1000 VA	0 VA					
TOTAL					10 A	10 A	0 A					

LEGEND:

LOAD CLASSIFICATION		CONNECTED LOAD	DEMAND FACTOR		ESTIMATED DEMAND									
Other		2000 VA	100.00%		2000 VA		TOTAL CONNECTED LOAD: 2000 VA							
							TOTAL EST. DEMAND: 2000 VA							
							TOTAL CONNECTED... 6 A							
							TOTAL EST. DEMAND... 6 A							

BRANCH CIRCUIT NOTES:
1. PROVIDE INTEGRAL SURGE PROTECTION DEVICE (SPD).

BRANCH PANEL: 1L-OS

LOCATION: ELECTRICAL 111
SUPPLY FROM: 1H-OS
MOUNTING: Surface
ENCLOSURE: Type 1

VOLTS: 120/208 Wye
PHASES: 3
WIRES: 4

A.I.C. RATING: 22,000
MAINS TYPE: MCB
MAINS RATING: 250 A
SERVICE ENTRANCE: NO

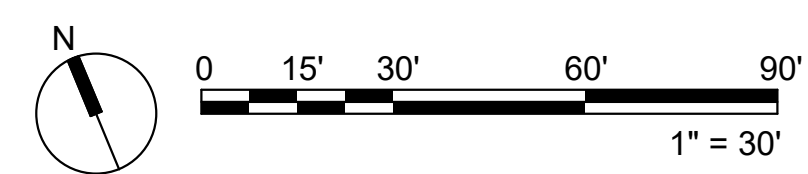
GENERAL NOTES:
NEW 208/120V OPTIONAL STANDBY PANELBOARD.

|--|



1" = 30'-0"

9 PROVIDE TIER 22 TRAFFIC RATED HANDHOLE

[illegible]



- | CODED NOTES: | |
|--------------|--|
| ① | PROVIDE 24" X 30" 4SRU 4-POST EQUIPMENT RACK. BASIS OF DESIGN IS ORTRONICS MIGHTY-MO OR-MM2073038-W, OR APPROVED ALIKE. |
| ② | VERTICAL CABLE MANAGER SIDERAM MINIMUM 6" WIDE X 10" DEEP X 7" TALL. BASIS OF DESIGN IS ORTRONICS OR-MM207MD706, OR APPROVED ALIKE. |
| ③ | 1RU RACK MOUNTED REBER PATCH UNIT. BASIS OF DESIGN IS LEVITON OPT-X UHDX WITH (12) CASSETTES. CASSETTE BASIS OF DESIGN IS LEVITON HDX ENTERPRISE MTP. CORE-4 AND CORE-8 REBER BACKBONE CABLEING MUST BE TERMINATED ON OPPOSITE SIDES OF THE RACK. |
| ④ | 1RU CAT 6A PATCH PANEL - ANGLED, HIGH DENSITY. 48 PORT. BASIS OF DESIGN IS LEVITON CORDLEIGHT CORD 42526-D48. ALL PATCH PANELS MUST BE FROM THE SAME MANUFACTURER. |
| ⑤ | 1RU BLANK COVER PLATE. BLACK. |
| ⑥ | ANGLED, HORIZONTAL, RU CABLE MANAGEMENT. BASIS OF DESIGN IS LEVITON 42654-PM. |
| ⑦ | NETWORK SWITCH, PROVIDED BY VA. CONTRACTOR INSTALLED. COORDINATE WITH VA IT PERSONNEL FOR REQUIREMENTS AS NECESSARY. |
| ⑧ | REFER TO ELECTRICAL PLANS FOR ADDITIONAL INFORMATION ON RACK POWER DISTRIBUTION. |
| ⑨ | NETWORK RACK FRONT AND REAR SECURITY DOOR SHALL BE INSTALLED AT RACKS NOTED AS SECURE ENCLOSURE AND NOT LOCKED WITHIN A SECURE TELECOM ROOM. PROVIDE FIPS 201 COMPLIANT PIV LOCKS WITH AN AUTHORIZED PERSONNEL DEVICE IN PLACE AND ALL OTHER REQUIRED FRONT AND REAR SECURITY DOOR INSTALLATION HARDWARE PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. |

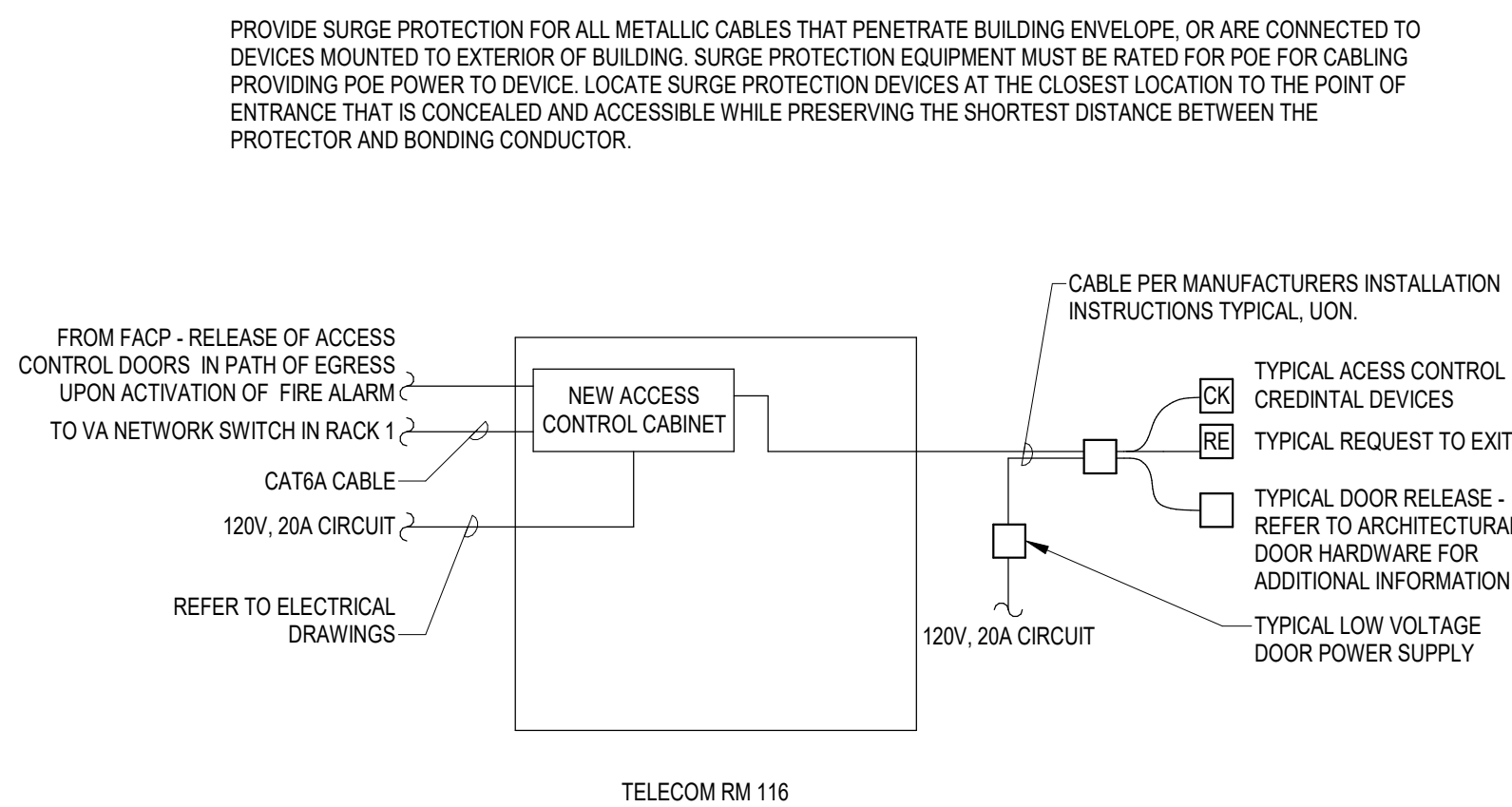
Diagram illustrating the typical equipment placement in a 42U rack. The rack is divided into sections, with typical equipment placement indicated by callouts:

- 1: Top section (1U) for a switch.
- 2: Section 2 (1U) for a switch.
- 3: Section 3 (1U) for a switch.
- 4: Section 4 (1U) for a switch.
- 5: Section 5 (1U) for a switch.
- 6: Section 6 (1U) for a switch.
- 7: Section 7 (1U) for a switch.
- 8: Section 8 (1U) for a switch.
- 9: Section 9 (1U) for a switch.
- 10: Section 10 (1U) for a switch.
- 11: Section 11 (1U) for a switch.
- 12: Section 12 (1U) for a switch.
- 13: Section 13 (1U) for a switch.
- 14: Section 14 (1U) for a switch.
- 15: Section 15 (1U) for a switch.
- 16: Section 16 (1U) for a switch.
- 17: Section 17 (1U) for a switch.
- 18: Section 18 (1U) for a switch.
- 19: Section 19 (1U) for a switch.
- 20: Section 20 (1U) for a switch.
- 21: Section 21 (1U) for a switch.
- 22: Section 22 (1U) for a switch.
- 23: Section 23 (1U) for a switch.
- 24: Section 24 (1U) for a switch.
- 25: Section 25 (1U) for a switch.
- 26: Section 26 (1U) for a switch.
- 27: Section 27 (1U) for a switch.
- 28: Section 28 (1U) for a switch.
- 29: Section 29 (1U) for a switch.
- 30: Section 30 (1U) for a switch.
- 31: Section 31 (1U) for a switch.
- 32: Section 32 (1U) for a switch.
- 33: Section 33 (1U) for a switch.
- 34: Section 34 (1U) for a switch.
- 35: Section 35 (1U) for a switch.
- 36: Section 36 (1U) for a switch.
- 37: Section 37 (1U) for a switch.
- 38: Section 38 (1U) for a switch.
- 39: Section 39 (1U) for a switch.
- 40: Section 40 (1U) for a switch.
- 41: Section 41 (1U) for a switch.
- 42: Section 42 (1U) for a switch.

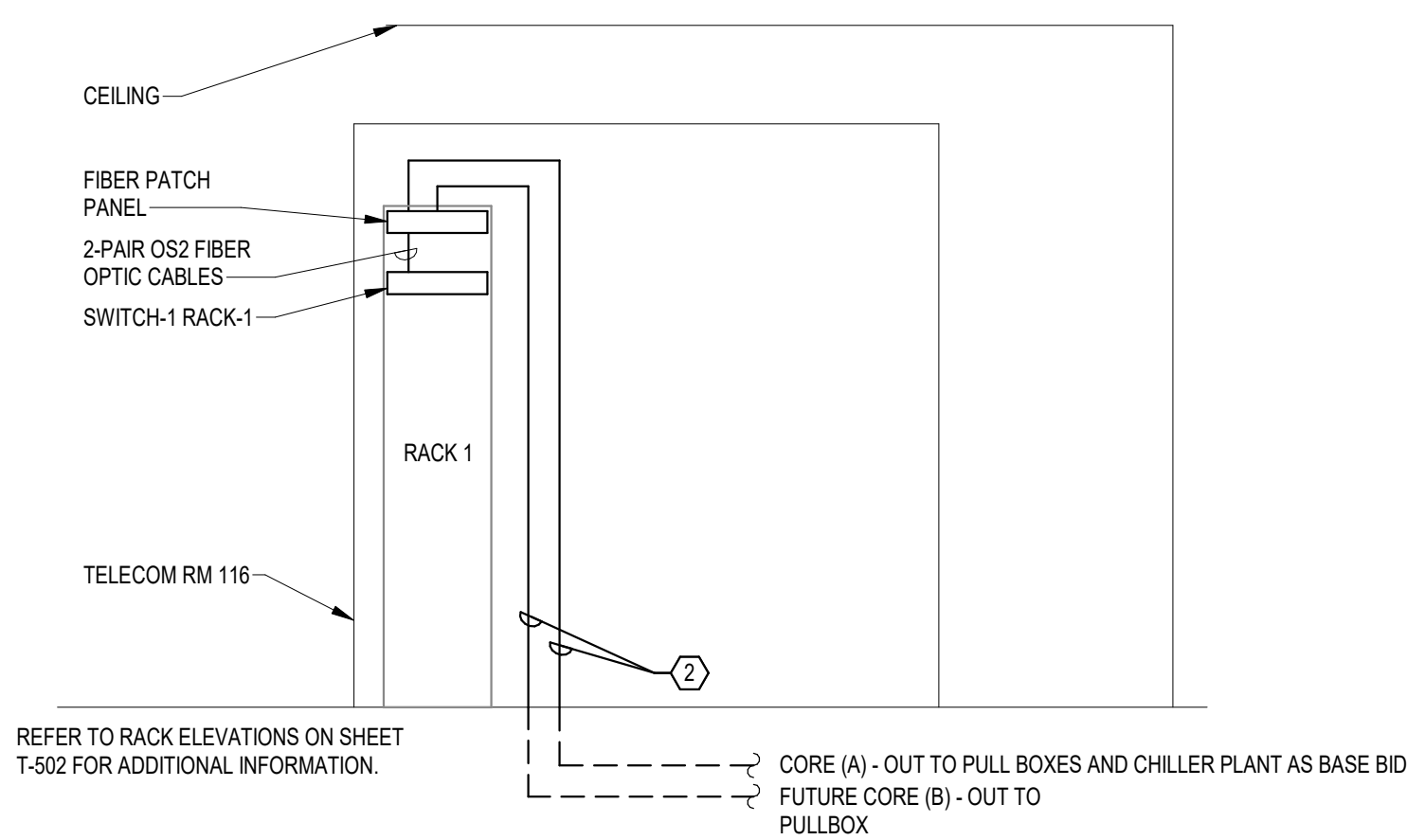
The diagram also shows a "RACK POWER DISTRIBUTION EQUIPMENT" section at the bottom.



- 1 EXISTING CCTV MONITORING STATION - NOT IN SCOPE. COORDINATE CONNECTION REQUIREMENTS WITH VA PRIOR TO CONSTRUCTION. CONTRACTOR TO FACILITATE LICENSING OF CAMERAS AND ASSOCIATED EQUIPMENT AS REQUIRED FOR CONNECTION TO EXISTING VA CCTV SYSTEM.
- 2 PROVIDE (1) 12-STRAND OS2 INDOOR/OUTDOOR FIBER OPTIC CABLES TO VA CHILLER PLANT BUILDING 30 AS PART OF BASE BID. CORE B TO BE FUTURE AS PART OF EHRM PROJECT.
- 3 EXISTING C-CURE 9000 ACCESS CONTROL SYSTEM HEAD END EQUIPMENT LOCATED IN BUILDING 137.
- 4 EXISTING SSTV HEAD END EQUIPMENT AND NETWORK VIDEO RECORDERS LOCATED IN BUILDING 137.

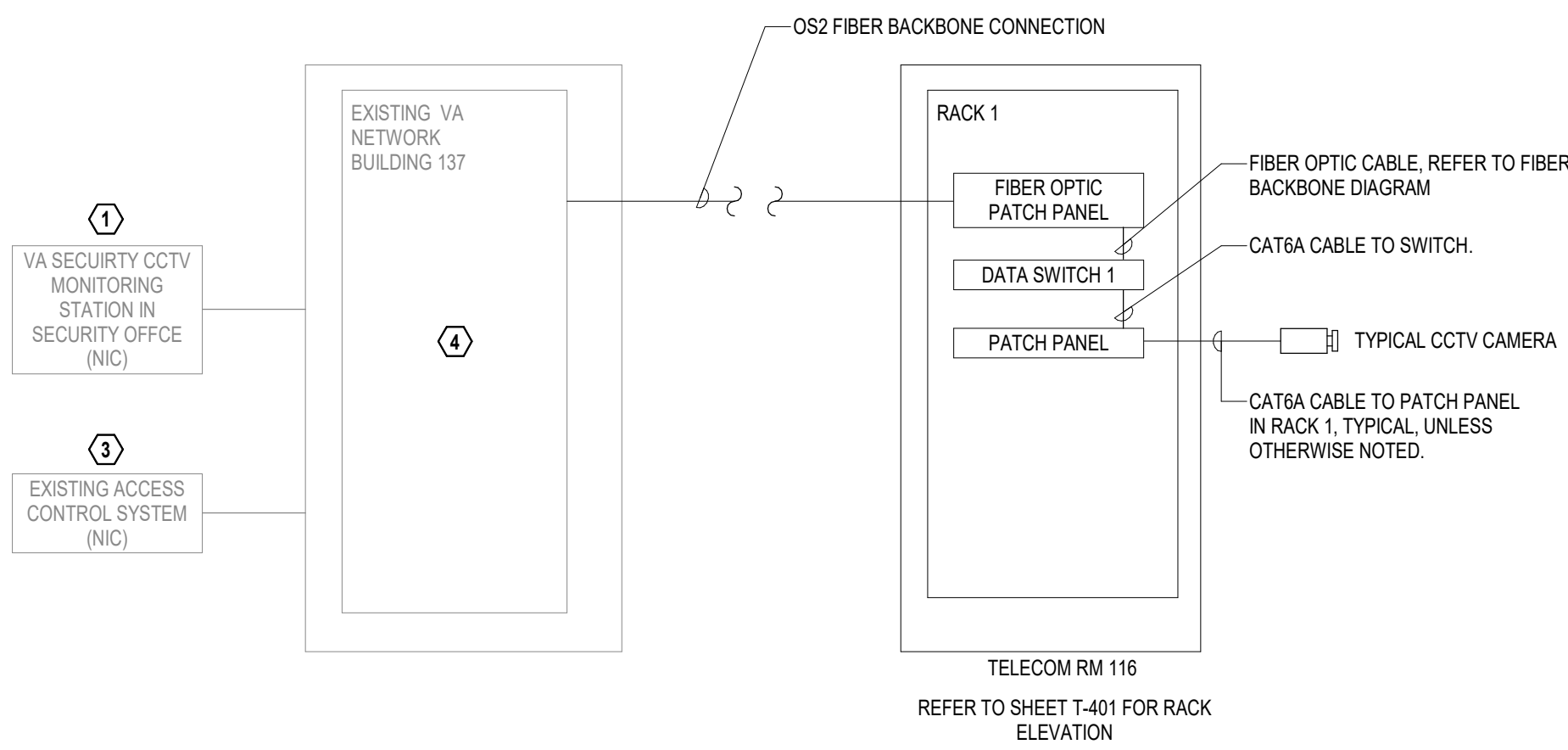


1 ACCESS CONTROL DIAGRAM
N.T.S.



2 FIBER BACKBONE RISER DIAGRAM
N.T.S.

PROVIDE SURGE PROTECTION FOR ALL METALLIC CABLES THAT PENETRATE BUILDING ENVELOPE, OR ARE CONNECTED TO DEVICES MOUNTED TO EXTERIOR OF BUILDING. SURGE PROTECTION EQUIPMENT MUST BE RATED FOR POE FOR CABLING PROVIDING POE POWER TO DEVICE. LOCATE SURGE PROTECTION DEVICES AT THE CLOSEST LOCATION TO THE POINT OF ENTRANCE THAT IS CONCEALED AND ACCESSIBLE WHILE PRESERVING THE SHORTEST DISTANCE BETWEEN THE PROTECTOR AND BONDING CONDUCTOR.



3 SSTV-ACCESS CONTROL DIAGRAM
N.T.S.

[illegible]