



## GENERAL NOTES

- A. REMOVE ALL ASSOCIATED CLAMPS, HANGERS, SUPPORTS, ETC., ASSOCIATED WITH DUCT REMOVAL.
- B. CONTRACTOR TO COORDINATE WITH COR FOR ALL MECHANICAL SERVICE OUTAGES.
- C. GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILING, CEILING TILES, AND CEILING GRIDS ASSOCIATED WITH AREAS OF WORK BY THE CONTRACTORS.
- D. CONTRACTOR SHALL PERFORM AN AIRFLOW TEST ON ALL OUTLETS AND INLETS FROM THE EXISTING AIR HANDLING UNIT SERVING AREA OF WORK AND REPORT TO ARCHITECT AND ENGINEER FOR REVIEW.

## MECHANICAL DEMOLITION KEY NOTES

1. REMOVE ALL DUCTWORK, DIFFUSERS, REGISTERS, HANGERS, INSULATION, ETC. SHOWN DASHED BACK EXISTING AIR HANDLING UNIT.
2. EXISTING DUCTWORK, INSULATION, DIFFUSERS, AND SUPPORTS TO BE REMAIN. PROTECT DURING CONSTRUCTION.
3. EXISTING HVAC EQUIPMENT TO REMAIN.
4. REMOVE EXISTING DUCTWORK AS SHOWN AND PREPARE DUCTWORK FOR NEW CONNECTIONS.
5. CAP EXISTING DUCT AT THIS LOCATION. REMOVE ALL DUCT, DIFFUSERS, AND REGISTERS SHOWN DASH BEYOND THIS POINT.
6. EXISTING SUPPLY DUCT DOWN TO SERVE FLOOR BELOW. PROTECT DURING CONSTRUCTION.
7. PROTECT EXISTING EQUIPMENT DURING CONSTRUCTION PHASE.
8. REMOVE EXISTING EXHAUST FAN AND ALL ASSOCIATED DUCTWORK AND REGISTERS.
9. REMOVE EXHAUST RISER UP THRU ROOF, CAP ROOF CURB AND SEAL WEATHER TIGHT.

## PLAN LEGEND

 AREA NOT INCLUDED IN CONTRACT

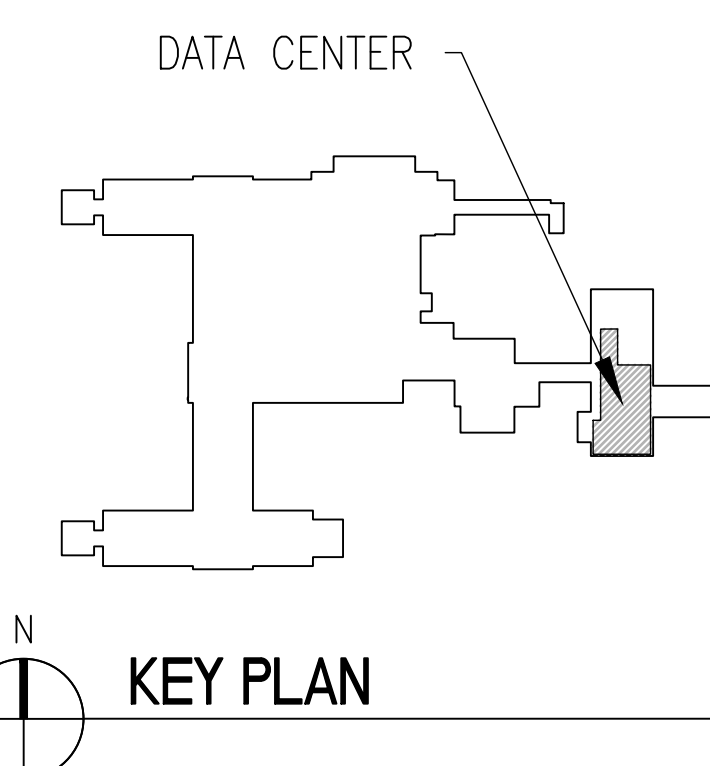
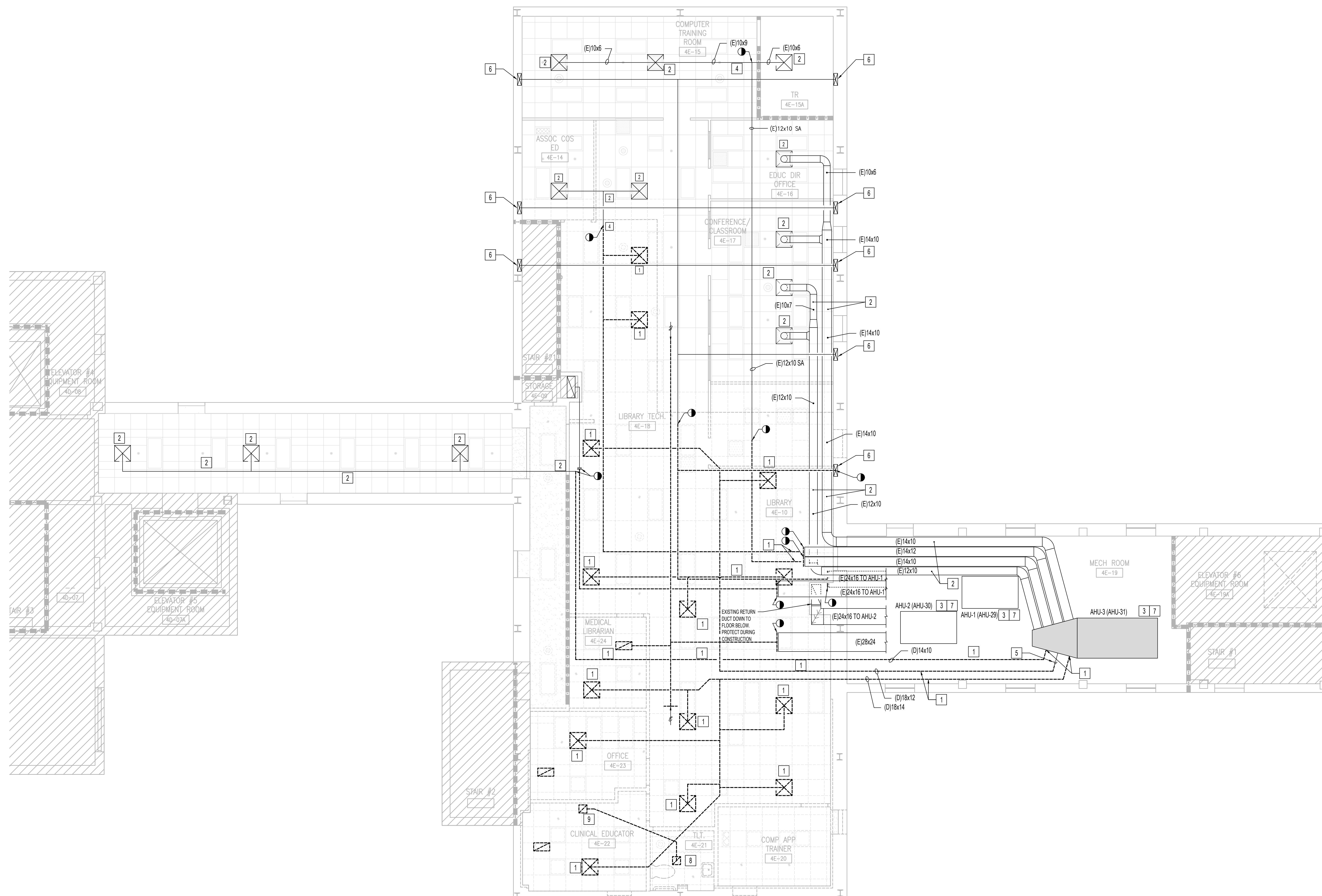
### RATED WALL LEGEND

CONTRACTOR IS REQUIRED TO MAINTAIN ALL RATED PARTITIONS.

■ ■ ■ ■ ■ 1 HR FIRE BARRIER      ■ ■ ■ ■ ■ 1 HR FIRE BARRIER (EXISTING)

2 HR FIRE BARRIER      2 HR FIRE BARRIER (EXISTING)

SMOKE BARRIER      SMOKE BARRIER (EXISTING)



1 MECHANICAL VENTILATION DEMOLITION PLAN - BUILDING 1 - FOURTH FLOOR  
3/16"=1'-0"

ISSUE FOR BID	01-16-24
Revisions:	Date:

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

**STAMP**

Office of  
Construction  
and Facilities  
Management

**VA** | U.S. Department  
of Veterans Affairs

Drawing Title  
MECHANICAL - BLDG 1 - ENLARGED  
PLAN - FOURTH FLOOR - DEMOLITION

Approved: Project Director

Phase	ISSUE FOR BID
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BUILDING FULLY  
SPRINKLERED

Project Title	EHRM INFRASTRUCTURE UPGRADES - TIER 2
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Issue Date	01/16/2024
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Checked
RH

Drawn
MB

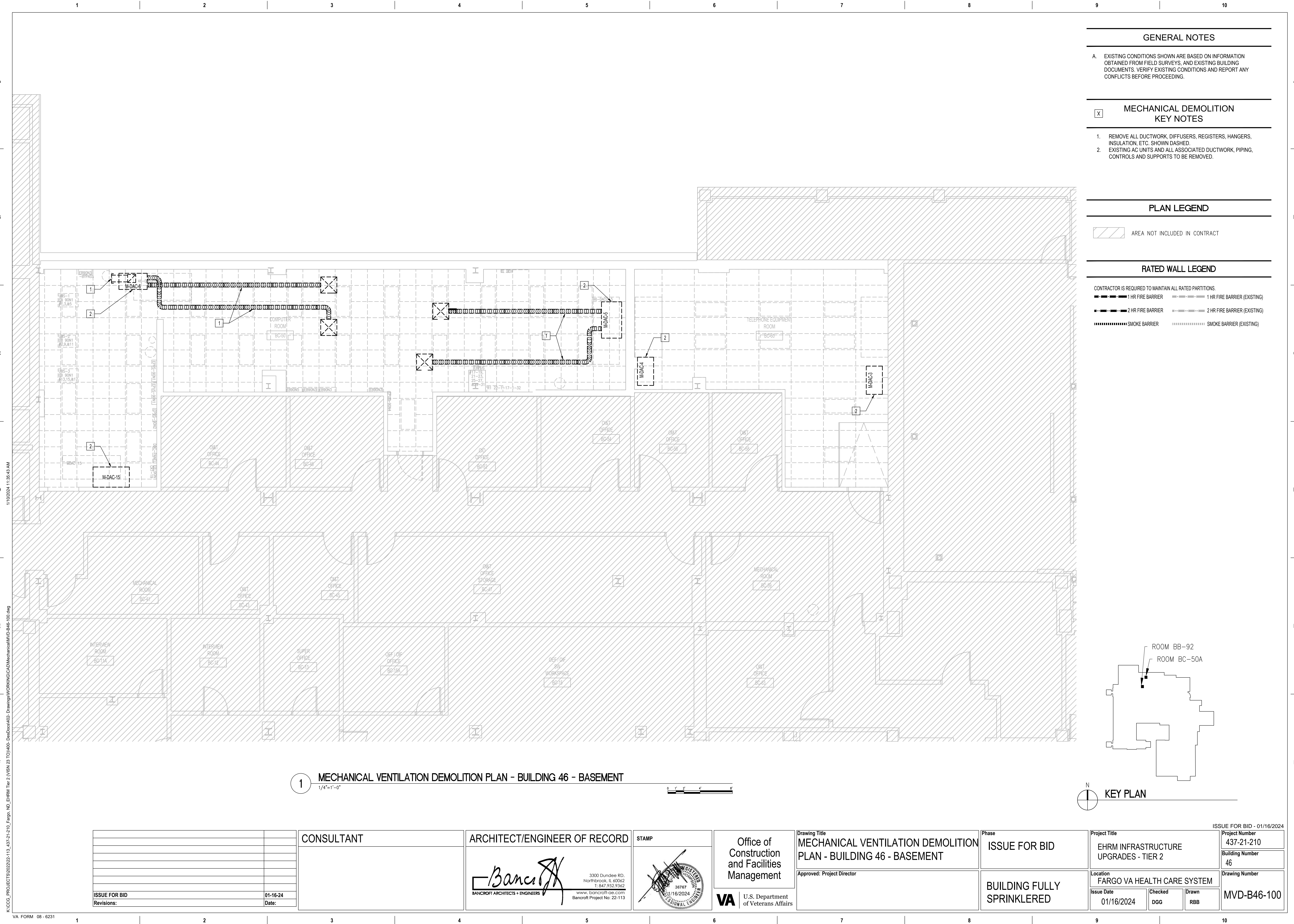
ISSUE FOR BID - 01/16/2024

Project Number	437-21-210
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Building Number	1
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	1
	Drawing Number

MVD-B01-104



GENERAL NOTES

- A. EXISTING CONDITIONS SHOWN ARE BASED ON INFORMATION OBTAINED FROM FIELD SURVEYS, AND EXISTING BUILDING DOCUMENTS. VERIFY EXISTING CONDITIONS AND REPORT ANY CONFLICTS BEFORE PROCEEDING.

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MECHANICAL DEMOLITION KEY NOTES

1. REMOVE ALL DUCTWORK, DIFFUSERS, REGISTERS, HANGERS, INSULATION, ETC. SHOWN DASHED.
2. EXISTING AC UNITS AND ALL ASSOCIATED DUCTWORK, PIPING, CONTROLS AND SUPPORTS TO BE REMOVED.

PLAN LEGEND

AREA NOT INCLUDED IN CONTRACT

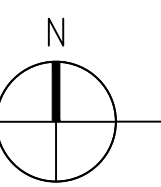
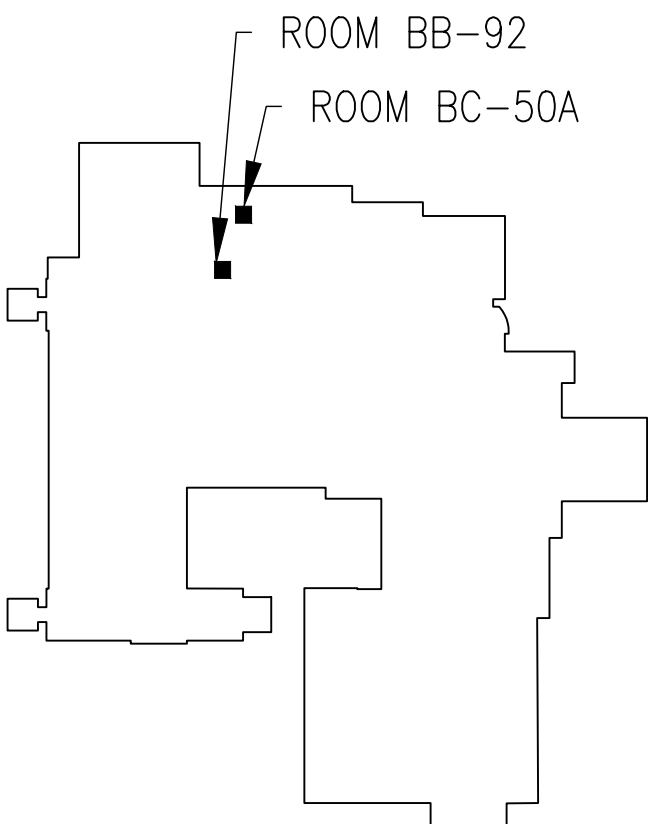
RATED WALL LEGEND

CONTRACTOR IS REQUIRED TO MAINTAIN ALL RATED PARTITIONS.

1 HR FIRE BARRIER (EXISTING)

2 HR FIRE BARRIER (EXISTING)

SMOKE BARRIER (EXISTING)



KEY PLAN

## GENERAL NOTES

- A. ALL ABANDONED OPENINGS TO BE CLOSED, REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- B. REMOVE ALL CLAMPS, HANGERS, SUPPORTS, ETC., ASSOCIATED WITH PIPING REMOVAL.
- C. COORDINATE ALL MECHANICAL SPACE OUTAGES WITH COR.
- D. PIPING MAY BE SHOWN OFFSET FROM ITS ACTUAL LOCATION FOR CLARITY. FIELD VERIFY EXIST LOCATIONS. PIPING AND EQUIPMENT SHOWN ON THIS DRAWING WAS BASED ON AS-BUILT DOCUMENTATION PROVIDED BY THE VA AND A PROJECTOR ON SITE REVIEW OF EXISTING CONDITIONS. IF IT IS DISCOVERED THAT ANY PIPING OR EQUIPMENT, INDICATED TO BE REMOVED, EXISTS OTHER AREAS BEYOND THE PROJECT SCOPE, THE CONTRACTOR MUST BE IMMEDIATELY STOP DEMOLITION OF SAID PIPING OR EQUIPMENT, NOTIFY THE COR AND ENGINEER AND WAIT FOR FURTHER INSTRUCTIONS.

## MECHANICAL DEMOLITION KEY NOTES

1. REMOVE EXISTING MECHANICAL EQUIPMENT. REMOVE ALL PIPING, VALVING, HANGERS, INSULATION, AND SUPPORTS, ETC. SHOWN DASHED.
2. EXISTING HVAC EQUIPMENT TO REMAIN. PROTECT DURING CONSTRUCTION.
3. REMOVE ALL PIPING, VALVING, HANGERS, INSULATION, ETC. SHOWN DASHED. VERIFY ROUTING AND POTENTIAL EXISTING CONNECTIONS PRIOR TO REMOVAL.
4. EXISTING PIPING AND VALVING TO REMAIN. PROTECT DURING CONSTRUCTION.
5. REMOVE ALL PIPING UP THRU ROOF AND PATCH AND SEAL OPENING TO MATCH EXISTING CONDITIONS.
6. REMOVE EXISTING PIPING BELOW FLOOR.

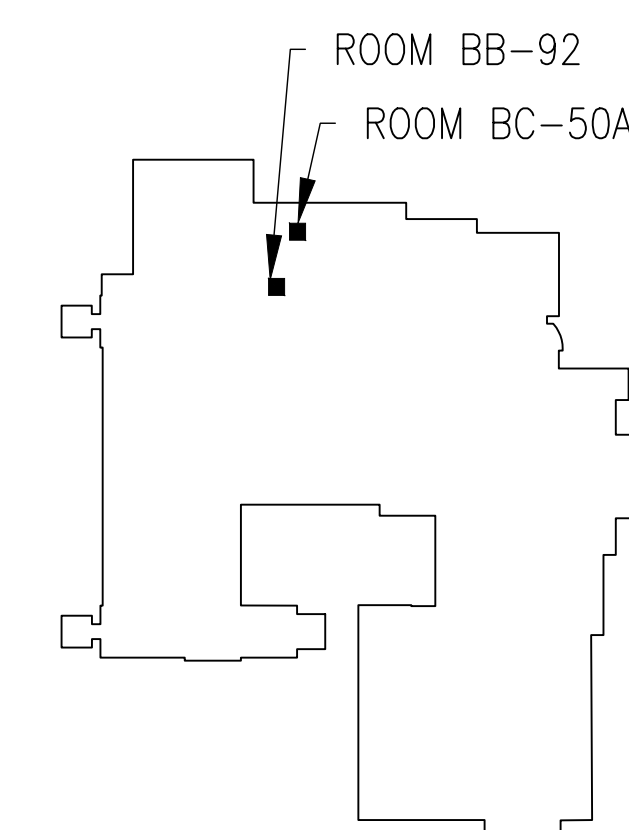
## PLAN LEGEND

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### RATED WALL LEGEND

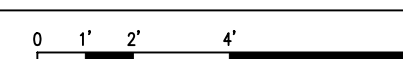
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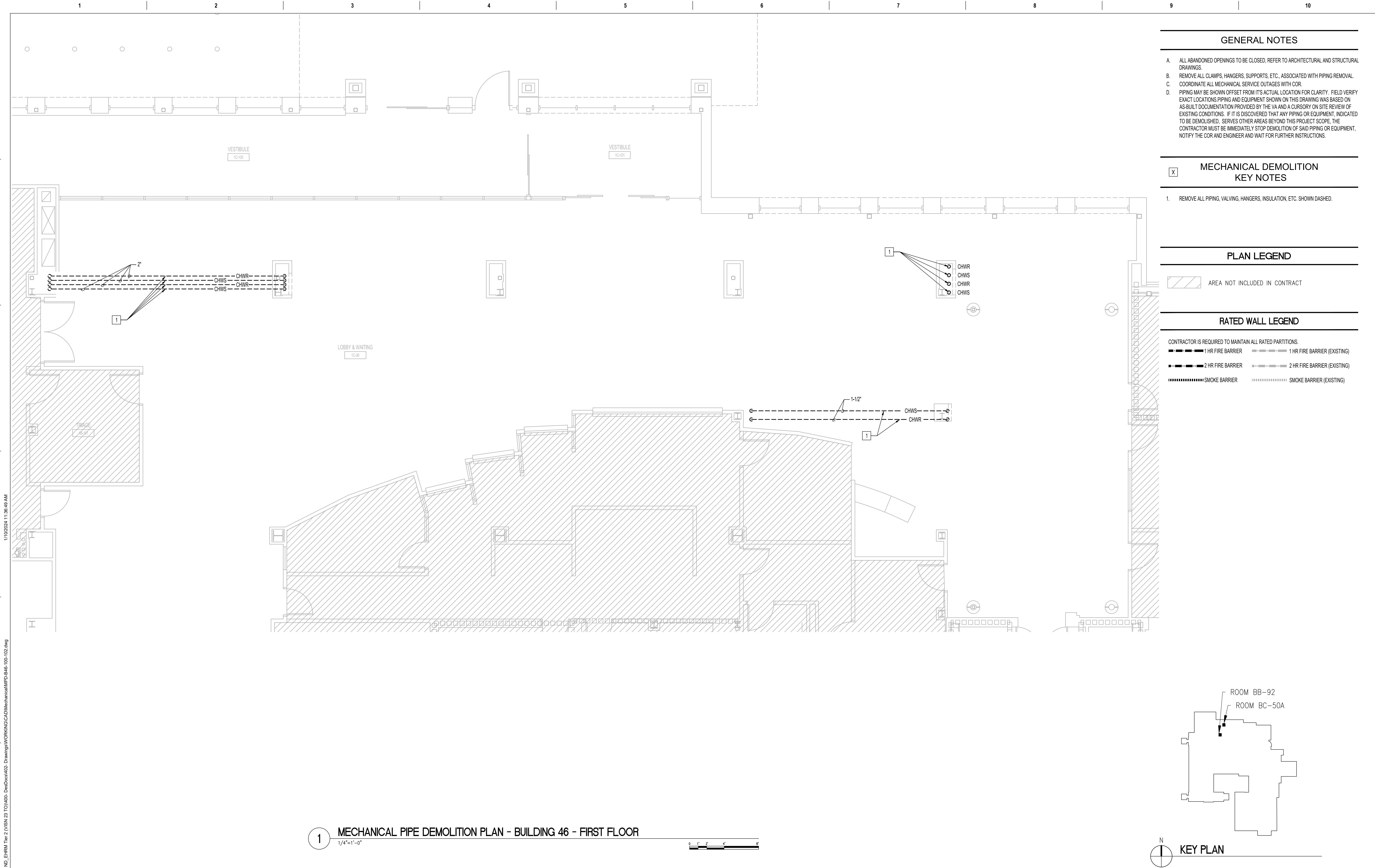
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  2 HR FIRE BARRIER (EXISTING)
-  SMOKE BARRIER
  SMOKE BARRIER (EXISTING)



## KEY PLAN

MECHANICAL PIPE DEMOLITION PLAN - BUILDING 46 - BASEMENT

$$1/4'' = 1' - 0$$
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GENERAL NOTES

- A. ALL ABANDONED OPENINGS TO BE CLOSED. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- B. REMOVE ALL CLAMPS, HANGERS, SUPPORTS, ETC., ASSOCIATED WITH PIPING REMOVAL.
- C. COORDINATE ALL MECHANICAL SERVICE OUTAGES WITH COR.
- D. PIPING MAY BE SHOWN OFFSET FROM ITS ACTUAL LOCATION FOR CLARITY. FIELD VERIFY EXACT LOCATIONS. PIPING AND EQUIPMENT SHOWN ON THIS DRAWING WAS BASED ON AS-BUILT DOCUMENTATION PROVIDED BY THE VA AND A CURSORY ON SITE REVIEW OF EXISTING CONDITIONS. IF IT IS DISCOVERED THAT ANY PIPING OR EQUIPMENT, INDICATED TO BE DEMOLISHED, SERVES OTHER AREAS BEYOND THIS PROJECT SCOPE, THE CONTRACTOR MUST BE IMMEDIATELY STOP DEMOLITION OF SAID PIPING OR EQUIPMENT, NOTIFY THE COR AND ENGINEER AND WAIT FOR FURTHER INSTRUCTIONS.

MECHANICAL DEMOLITION KEY NOTES

1. REMOVE ALL PIPING, VALVING, HANGERS, INSULATION, ETC. SHOWN DASHED.

PLAN LEGEND

AREA NOT INCLUDED IN CONTRACT

RATED WALL LEGEND

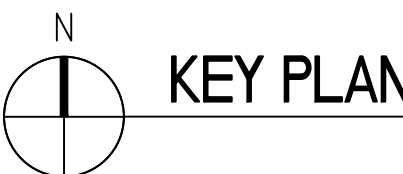
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2 HR FIRE BARRIER 2 HR FIRE BARRIER (EXISTING)

SMOKE BARRIER SMOKE BARRIER (EXISTING)

1 MECHANICAL PIPE DEMOLITION PLAN - BUILDING 46 - FIRST FLOOR  
1/4"=1'-0"

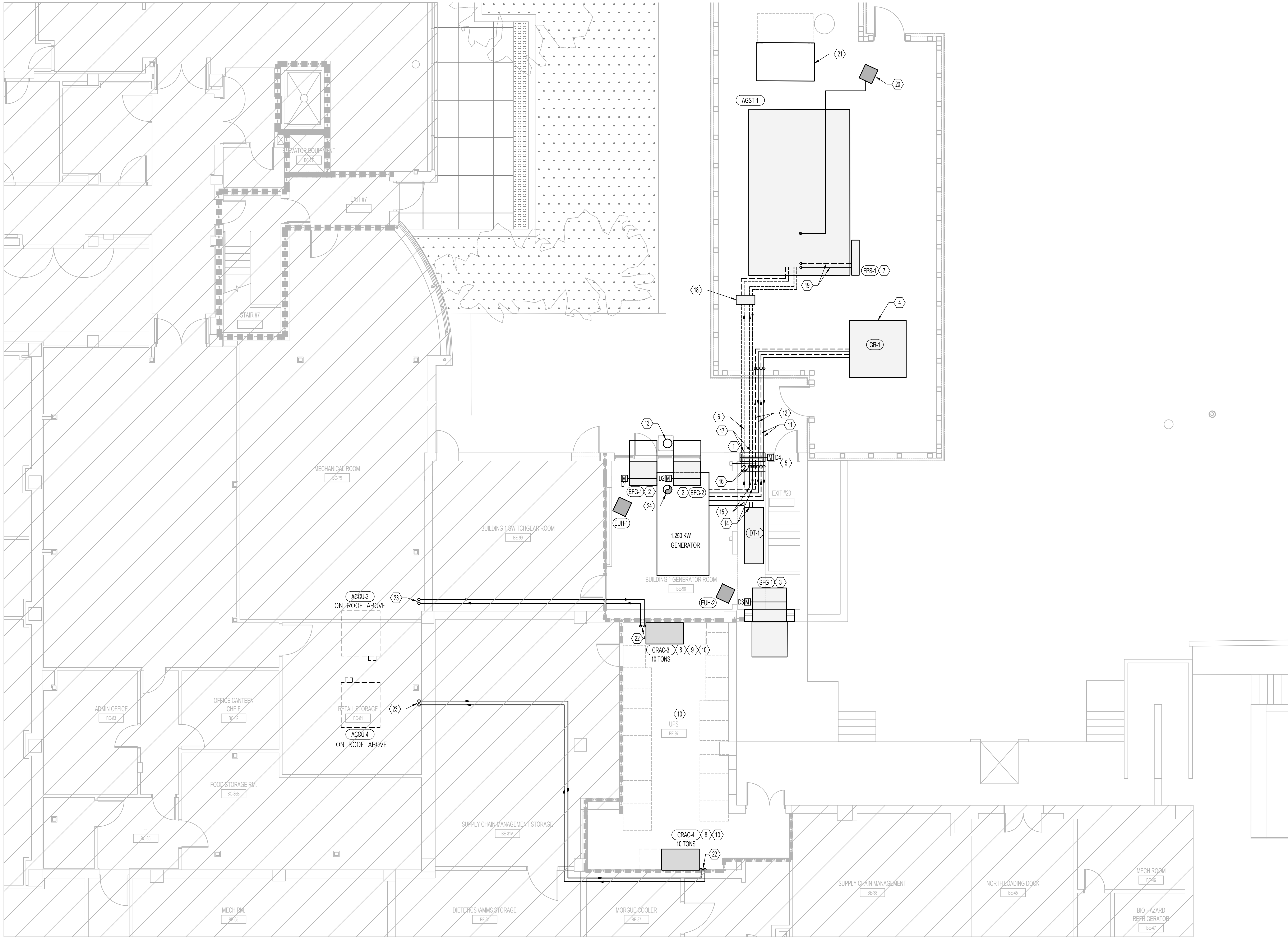


KEY PLAN

KUCG PROJECTS\022023-113_437-21-210																				ISSUE FOR BID - 01/16/2024	
				CONSULTANT		ARCHITECT/ENGINEER OF RECORD		STAMP		Office of Construction and Facilities Management		Drawing Title MECHANICAL PIPE DEMOLITION PLAN BUILDING 46 - FIRST FLOOR		Phase ISSUE FOR BID		Project Title EHRM INFRASTRUCTURE UPGRADES - TIER 2		Project Number 437-21-210			
																		Building Number 46			
										VA U.S. Department of Veterans Affairs		Approved: Project Director				Location FARGO VA HEALTH CARE SYSTEM		Drawing Number			
														BUILDING FULLY SPRINKLERED		Issue Date 01/16/2024		Checked DGG		Drawn RBB	
																				MPD-B46-101	
ISSUE FOR BID																					
Revisions:																					
01-16-24																					
Date:																					



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1 MECHANICAL - BUILDING 1 - EMERGENCY GENERATOR ENLARGED PLAN - BASEMENT  
3/16"=1'-0"

## GENERAL NOTES

- PROVIDE BALANCING DAMPER AT ALL SUPPLY DIFFUSER AND RETURN/EXHAUST GRILLES WHETHER OR NOT SHOWN ON DRAWINGS.
- COORDINATE CEILING MOUNTED GRILLES AND DIFFUSERS, DUCTWORK AND EQUIPMENT WITH SPRINKLER HEADS, LIGHTING FIXTURES AND ALL CEILING MOUNTED DEVICES. REFER TO ARCHITECTURAL CEILING GRID DRAWINGS FOR LOCATIONS.
- CEILING ACCESS SHALL BE PROVIDED FOR ALL HVAC EQUIPMENT AND COMPONENTS LOCATED ABOVE THE CEILING THAT REQUIRE OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION.
- DURING CONSTRUCTION, PROVIDE TEMPORARY CLOSURES ON ALL SUPPLY AND RETURN AIR DUCT OPENINGS BY SEALING WITH A DISPOSABLE POLYETHYLENE SHEETING TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM OR AIR TERMINAL UNITS.
- CONTRACTOR SHALL REPAIR AND/OR REPLACE ALL INSULATION AT EXISTING SHEET METAL DUCTWORK WHICH BECOMES DAMAGED DURING CONSTRUCTION ACTIVITIES AND SHALL REPAIR OR REPLACE ANY INSULATION AT NEW AND OLD DUCT CONNECTIONS AND ANY MISSING OR DAMAGED INSULATION ON REUSED OR EXISTING DUCTWORK.
- ROUTE REFRIGERANT PIPING FROM REMOTE MOUNTED CONDENSING UNIT TO ITS ASSOCIATED COOLING UNIT. SIZE REFRIGERANT PIPING PER MANUFACTURER RECOMMENDATION.
- SEE ARCHITECTURAL AND STRUCTURAL FOR EXHAUST PIPING SUPPORT.
- COORDINATE EXHAUST PIPE INSTALLATION AND LOCATION TO ALLOW FOR STRAIGHT RUN FROM GROUND TO DISCHARGE. COORDINATE WITH ROOF DRAINAGE SCUPPERS AND DOWNSPOUTS.

## MECHANICAL KEY NOTES

- SEE ARCH FOR LOUVERED OPENINGS.
- NEW EXHAUST FANS AS HIGH AS POSSIBLE ABOVE AFTERCOOLER COIL AT FROM OF GENERATOR. SEE ARCHITECTURAL FOR LOUVERS.
- NEW SUPPLY FAN AT LOW WALL BELOW STAIR. PROVIDE 90DEGREE INLET HOOD AND BIRDSCREEN. PROVIDE MIN 36" CLEAR BELOW INLET HOOD.
- LOCATION OF GENERATOR RADIATOR. RADIATOR DISCHARGE TO BE VERTICAL.
- RELOCATE EXISTING FUEL CONTROL SYSTEM PANEL AND MODIFY FOR NEW SYSTEM COMPONENTS.
- 3/4" FOR BACK TO EXTERIOR FUEL STORAGE TANK FROM GENERATOR RETURN.
- GROUND MOUNTED PACKAGED CABINET FILTRATION SYSTEM.
- PROVIDE FLOOR MOUNTED CRAC UNIT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE SUFFICIENT CLEARANCE FOR NORMAL SERVICE AND MAINTENANCE.
- PROVIDE 18" STAND FOR NORTH CRAC UNIT TO BE ABOVE FLOOR MOUNTED ELECTRICAL PULL BOX.
- COORDINATE ALL UTILITIES AND CRAC UNITS FOR REQUIRED CLEARANCES IN UPS/SWITCH GEAR ROOM.
- 4" JACKET COOLING PIPING FROM GENERATOR JACKET TO GROUND MOUNTED RADIATOR.
- 3" AFTERCOOLER COOLANT PIPING FROM GENERATOR COIL TO GROUND MOUNTED RADIATOR.
- 14" Ø GENERATOR EXHAUST ABOVE. UP ALONG EXTERIOR WALL TO ROOF. PROVIDE INSULATION PER SPECIFICATION AND JACKETED WITH ALUMINUM JACKET FROM BUILDING WALL PENETRATION TO EXHAUST OUTLET INCLUDING MUFFLER. STRUCTURAL REINFORCEMENT. REFER TO STRUCTURAL PLANS FOR MORE INFORMATION.
- 1" FOS FROM EXTERIOR TANK.
- 1" FOS TO EXTERIOR TANK.
- FOSFOR PIPING UP FROM BELOW GRADE.
- 1" FOSFOR BELOW GRADE IN DOUBLE WALL SYSTEM WITH LEAK DETECTION. BURY MIN 24" BELOW GRADE. COORDINATE WITH EXISTING AND NEW UTILITIES.
- FOSFOR PIPING TO DROP TO BELOW GRADE IN DOUBLE WALL SYSTEM.
- 3/4" FILTRATION SYSTEM FOSFOR.
- REMOTE FILL BOX WITH 3" CONNECTION.
- NEW LOCATION OF EXISTING ABOVE GRADE TRANSFORMER ABOVE EXISTING UNDERGROUND ELECTRICAL VAULT. SEE ELECTRICAL.
- REFRIGERANT LIQUID/SUCTION PIPING SIZED ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
- REFRIGERANT LIQUID/SUCTION PIPING UP TO ACCU ROOF. REFER TO SHEET MV-B01-103 FOR MORE INFORMATION.
- 14" INSULATED GENERATOR EXHAUST UP THROUGH FLOOR OF INTERSTITIAL SPACE.

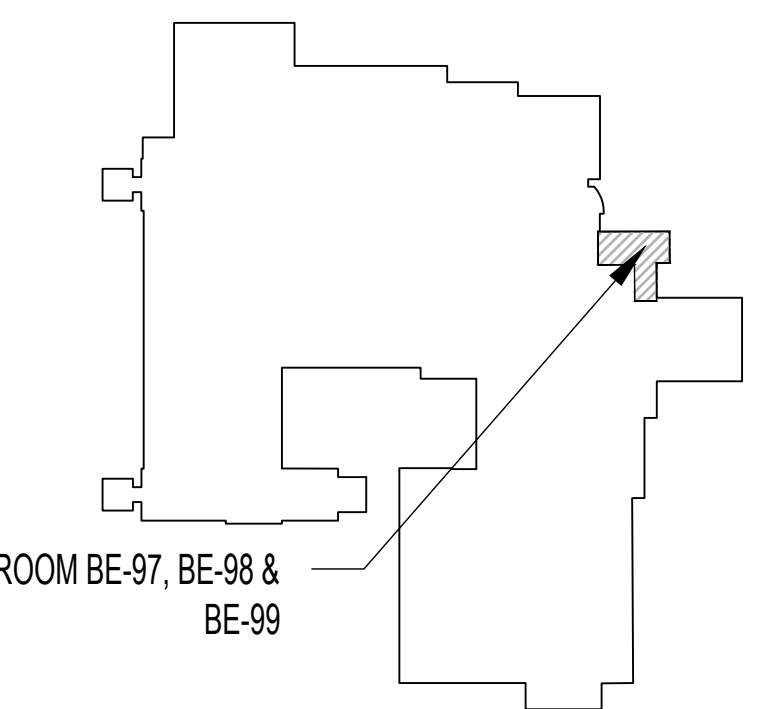
## PLAN LEGEND

AREA NOT INCLUDED IN CONTRACT

## RATED WALL LEGEND

CONTRACTOR IS REQUIRED TO MAINTAIN ALL RATED PARTITIONS.

1 HR FIRE BARRIER	1 HR FIRE BARRIER (EXISTING)
2 HR FIRE BARRIER	2 HR FIRE BARRIER (EXISTING)
SMOKE BARRIER	SMOKE BARRIER (EXISTING)



KEY PLAN

ISSUE FOR BID - 01/16/2024

CONSULTANT		ARCHITECT/ENGINEER OF RECORD		STAMP		Office of Construction and Facilities Management		Drawing Title MECHANICAL - BUILDING 1 - EM. GEN. ENLARGED PLAN - BASEMENT		Phase ISSUE FOR BID		Project Title EHRM INFRASTRUCTURE UPGRADES - TIER 2		Project Number 437-21-210	
ISSUE FOR BID		3300 Dundee RD. Northbrook, IL 60062 T: 847.952.9362 www.bancroft-ae.com Bancroft Project No: 22-113		36767 1/16/2024 NATIONAL ENGINEER		Approved: Project Director		Location FARGO VA HEALTH CARE SYSTEM		Building Number 01		Issue Date 01/16/2024		Checked RH	
Revisions:		Date:		Date:		Date:		Date:		Date:		Date:		Date:	
01-16-24		01-16-24		01-16-24		01-16-24		01-16-24		01-16-24		01-16-24		01-16-24	
BUILDING FULLY SPRINKLERED		Drawing Number MV-B01-100		Drawing Number MV-B01-100		Drawing Number MV-B01-100		Drawing Number MV-B01-100		Drawing Number MV-B01-100		Drawing Number MV-B01-100		Drawing Number MV-B01-100	

## GENERAL NOTES

- A. SEE ARCHITECTURAL AND STRUCTURAL FOR EXHAUST PIPING SUPPORT.
- B. COORDINATE EXHAUST PIPE INSTALLATION AND LOCATION TO ALLOW FOR STRAIGHT RUN WHERE POSSIBLE. COORDINATE WITH ROOF DRAINAGE SCUPPERS AND DOWNSPOUTS.

## MECHANICAL KEY NOTES

1. 14" Ø GENERATOR EXHAUST UP ALONG EXTERIOR WALL TO ROOF.
2. 14" INSULATED GENERATOR EXHAUST THROUGH FLOOR OF INTERSTITIAL , THEN HORIZONTALLY THROUGH EXTERIOR WALL. SEE ARCH FOR LOCATION.
3. EXISTING EQUIPMENT TO REMAIN. PROTECT DURING CONSTRUCTION.

## PLAN LEGEND

 AREA NOT INCLUDED IN CONTRACT

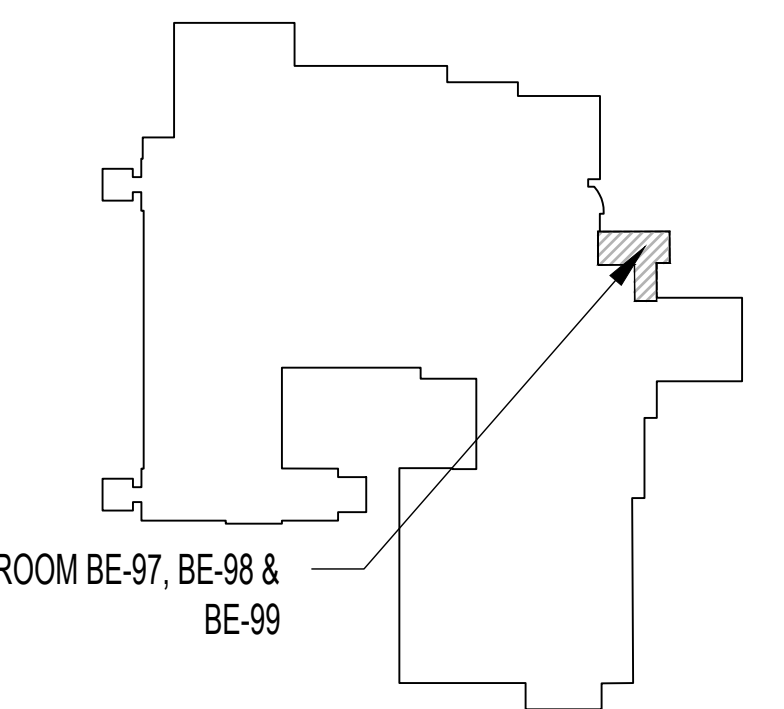
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2 HR FIRE BARRIER      2 HR FIRE BARRIER (EXISTING)

SMOKE BARRIER SMOKE BARRIER (EXISTING)



ROOM BE-97, BE-98 & —  
BE-99

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KEY PLAN

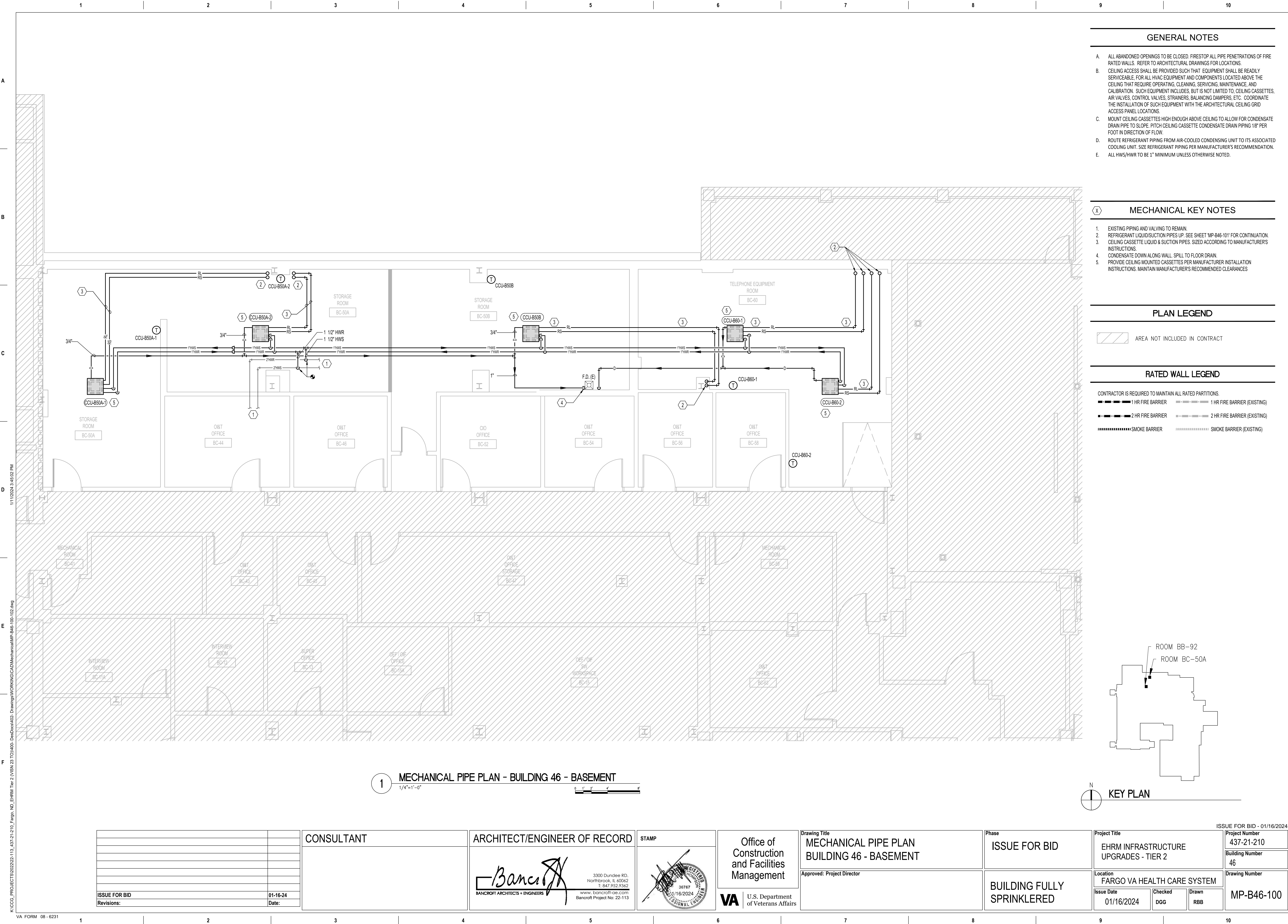
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3/16"=1'-0"

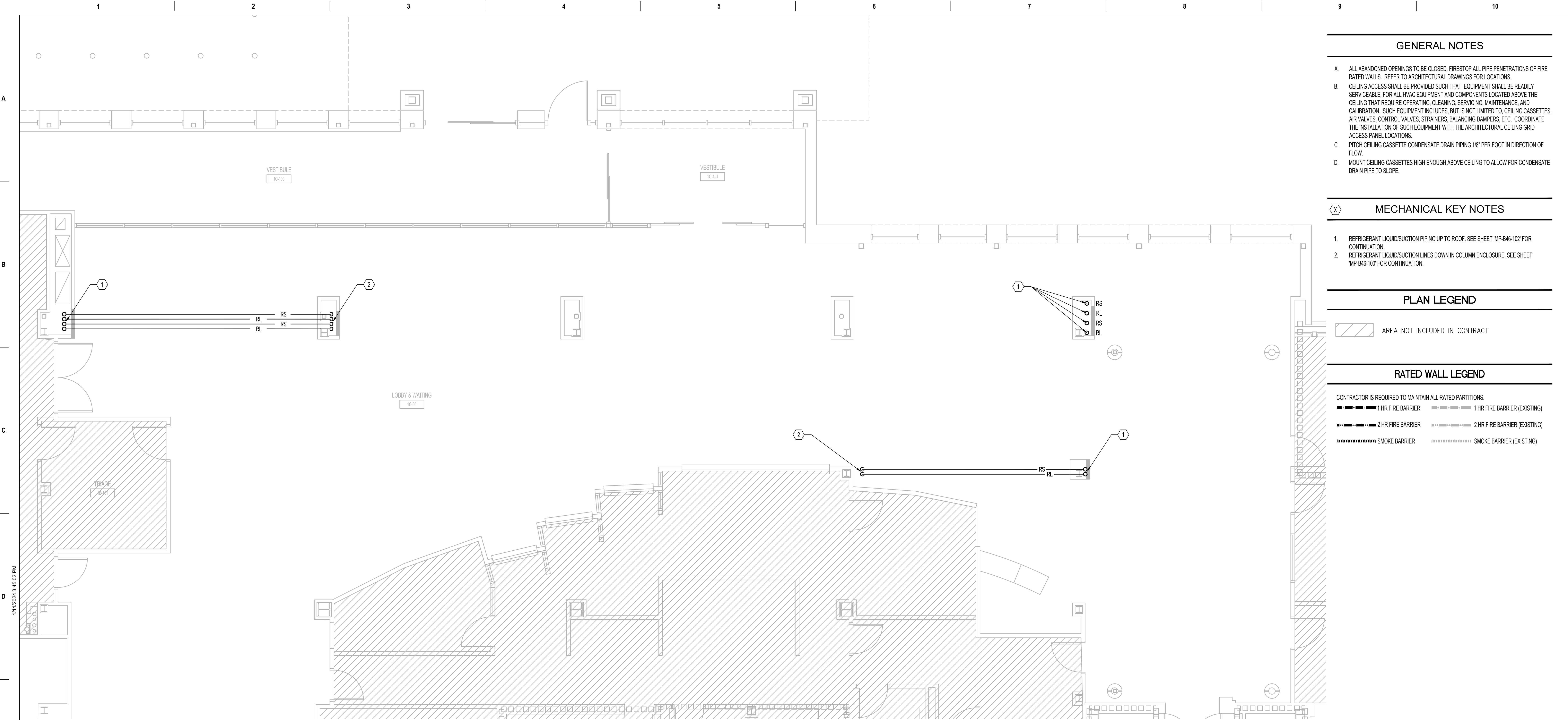
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- GENERAL NOTES**
- A. ALL ABANDONED OPENINGS TO BE CLOSED. FIRESTOP ALL PIPE PENETRATIONS OF FIRE RATED WALLS. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS.
  - B. CEILING ACCESS SHALL BE PROVIDED SUCH THAT EQUIPMENT SHALL BE READILY SERVICEABLE, FOR ALL HVAC EQUIPMENT AND COMPONENTS LOCATED ABOVE THE CEILING THAT REQUIRE OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION. SUCH EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, CEILING CASSETTES, AIR VALVES, CONTROL VALVES, STRAINERS, BALANCING DAMPERS, ETC. COORDINATE THE INSTALLATION OF SUCH EQUIPMENT WITH THE ARCHITECTURAL CEILING GRID ACCESS PANEL LOCATIONS.
  - C. PITCH CEILING CASSETTE CONDENSATE DRAIN PIPING 1/8" PER FOOT IN DIRECTION OF FLOW.
  - D. MOUNT CEILING CASSETTES HIGH ENOUGH ABOVE CEILING TO ALLOW FOR CONDENSATE DRAIN PIPE TO SLOPE.

- MECHANICAL KEY NOTES**
- 1. REFRIGERANT LIQUID/SUCTION PIPING UP TO ROOF. SEE SHEET 'MP-B46-102' FOR CONTINUATION.
  - 2. REFRIGERANT LIQUID/SUCTION LINES DOWN IN COLUMN ENCLOSURE. SEE SHEET 'MP-B46-100' FOR CONTINUATION.

**PLAN LEGEND**

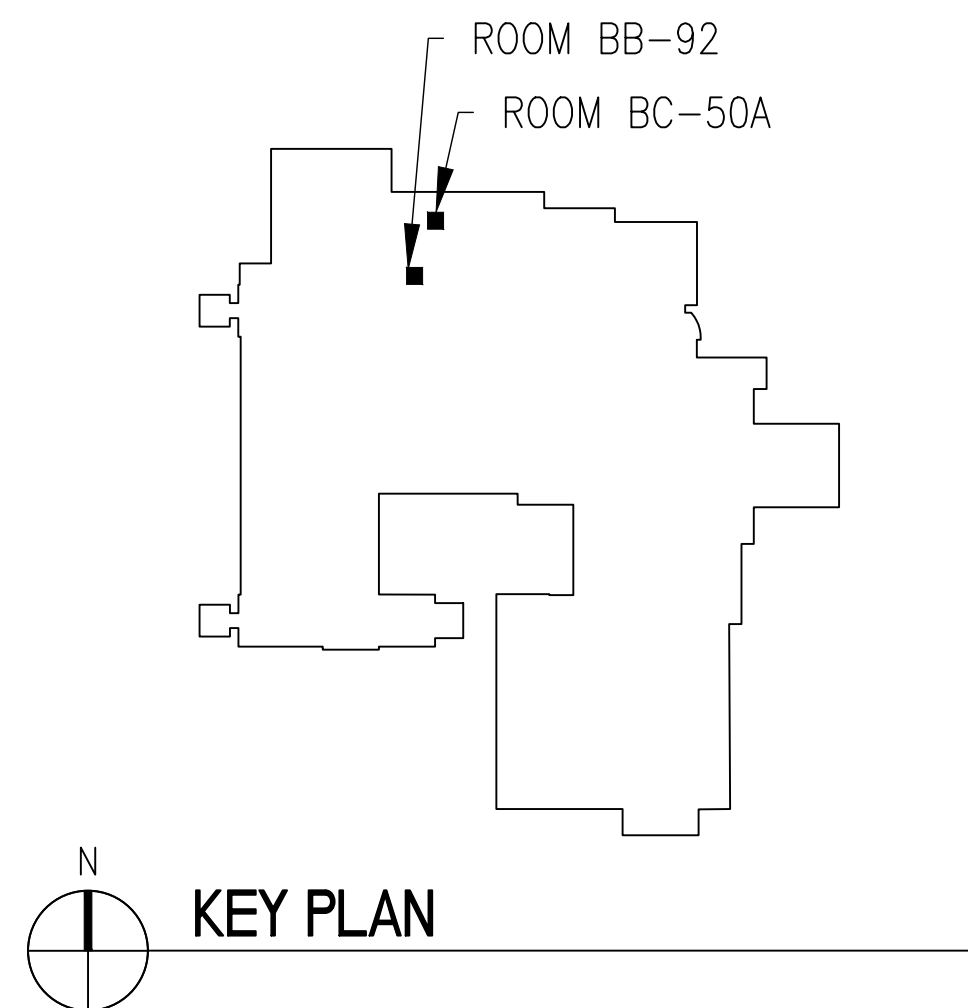
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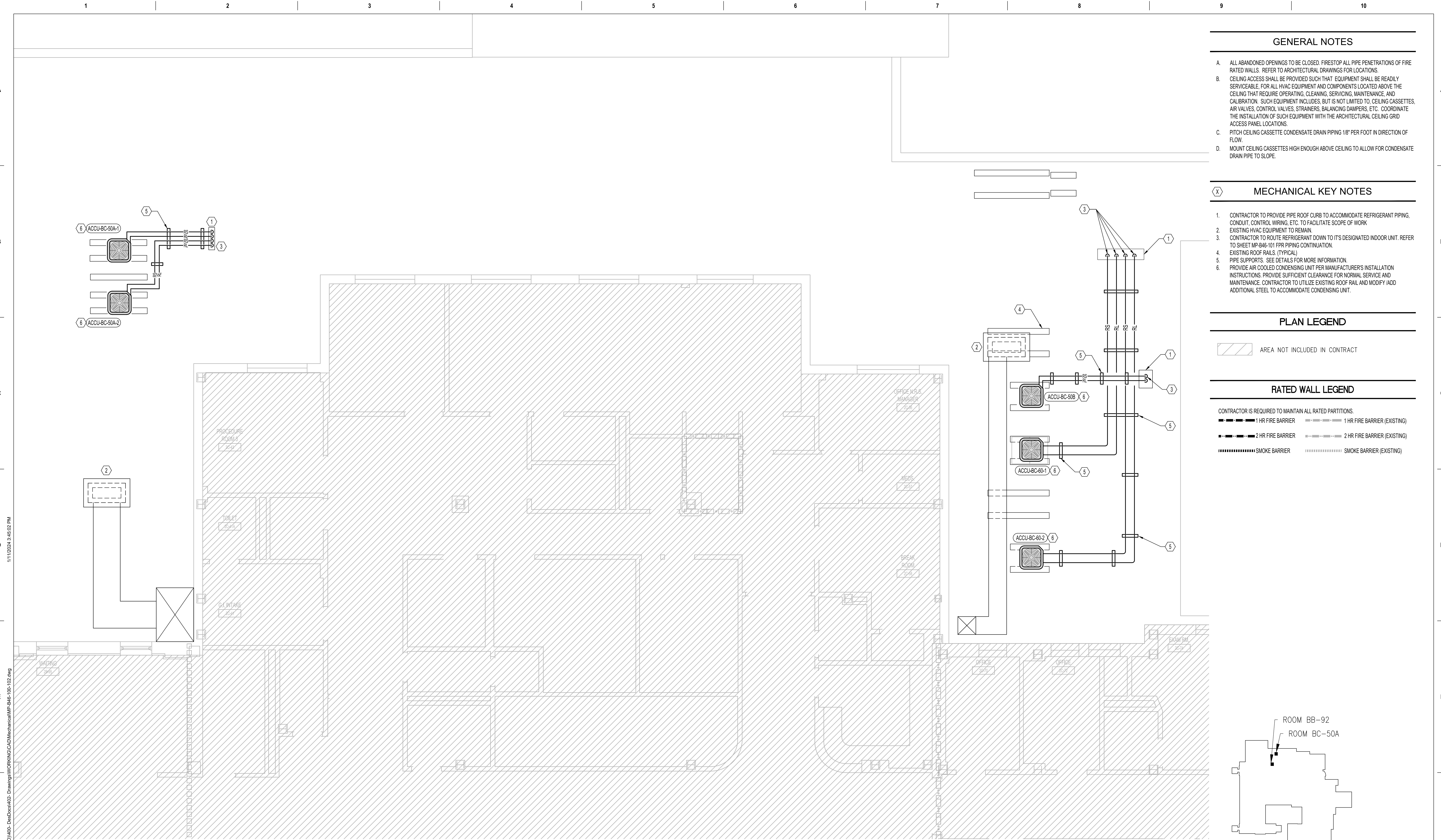
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	SMOKE BARRIER		SMOKE BARRIER (EXISTING)

**1 MECHANICAL PIPE PLAN - BUILDING 46 - FIRST FLOOR**  
1/4"=1'-0"



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		CONSULTANT	ARCHITECT/ENGINEER OF RECORD	STAMP	Office of Construction and Facilities Management	Drawing Title	Phase	Project Title	Project Number		
						MECHANICAL PIPE PLAN	ISSUE FOR BID	EHRM INFRASTRUCTURE UPGRADES - TIER 2	437-21-210		
						BUILDING 46 - FIRST FLOOR			Building Number		
									46		
						Approved: Project Director		Location	Drawing Number		
							BUILDING FULLY SPRINKLERED	FARGO VA HEALTH CARE SYSTEM			
ISSUE FOR BID	01-16-24				VA   U.S. Department of Veterans Affairs			Issue Date	Checked	Drawn	MP-B46-101
Revisions:	Date:							01/16/2024	DGG	RBB	



### GENERAL NOTES

- ALL ABANDONED OPENINGS TO BE CLOSED. FIRESTOP ALL PIPE PENETRATIONS OF FIRE RATED WALLS. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS.
- CEILING ACCESS SHALL BE PROVIDED SUCH THAT EQUIPMENT SHALL BE READILY SERVICEABLE, FOR ALL HVAC EQUIPMENT AND COMPONENTS LOCATED ABOVE THE CEILING THAT REQUIRE OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION. SUCH EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, CEILING CASSETTES, AIR VALVES, CONTROL VALVES, STRAINERS, BALANCING DAMPERS, ETC. COORDINATE THE INSTALLATION OF SUCH EQUIPMENT WITH THE ARCHITECTURAL CEILING GRID ACCESS PANEL LOCATIONS.
- PITCH CEILING CASSETTE CONDENSATE DRAIN PIPING 1/8" PER FOOT IN DIRECTION OF FLOW.
- MOUNT CEILING CASSETTES HIGH ENOUGH ABOVE CEILING TO ALLOW FOR CONDENSATE DRAIN PIPE TO SLOPE.

### MECHANICAL KEY NOTES

- CONTRACTOR TO PROVIDE PIPE ROOF CURB TO ACCOMMODATE REFRIGERANT PIPING, CONDUIT, CONTROL WIRING, ETC. TO FACILITATE SCOPE OF WORK
- EXISTING HVAC EQUIPMENT TO REMAIN.
- CONTRACTOR TO ROUTE REFRIGERANT DOWN TO ITS DESIGNATED INDOOR UNIT. REFER TO SHEET MP-B46-101 FOR PIPING CONTINUATION.
- EXISTING ROOF RAILS (TYPICAL)
- PIPE SUPPORTS. SEE DETAILS FOR MORE INFORMATION.
- PROVIDE AIR COOLED CONDENSING UNIT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE SUFFICIENT CLEARANCE FOR NORMAL SERVICE AND MAINTENANCE. CONTRACTOR TO UTILIZE EXISTING ROOF RAIL AND MODIFY/ADD ADDITIONAL STEEL TO ACCOMMODATE CONDENSING UNIT.

### PLAN LEGEND

AREA NOT INCLUDED IN CONTRACT

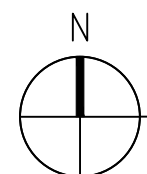
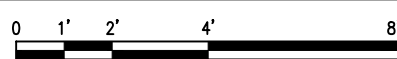
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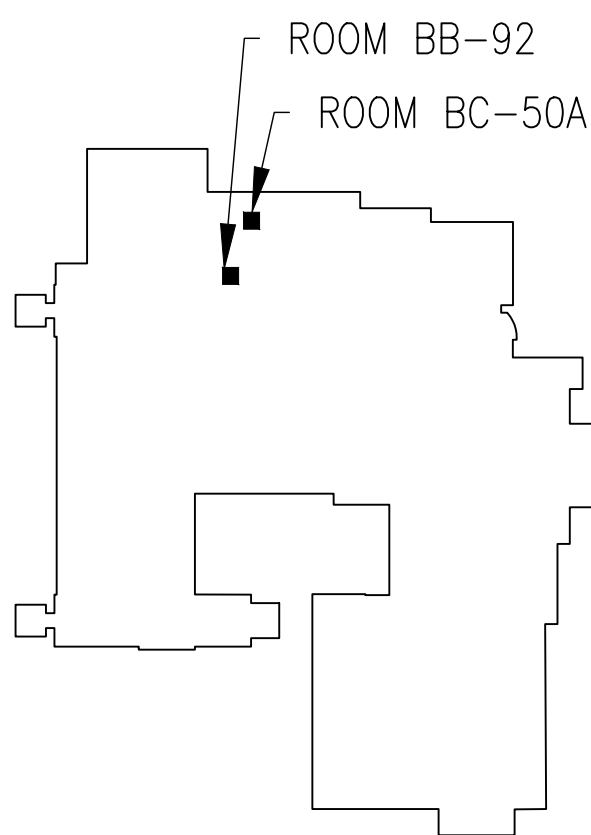
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SMOKE BARRIER	SMOKE BARRIER (EXISTING)

### 1 MECHANICAL PIPE PLAN - BUILDING 46 - SECOND FLOOR - ROOF

1/4"=1'-0"



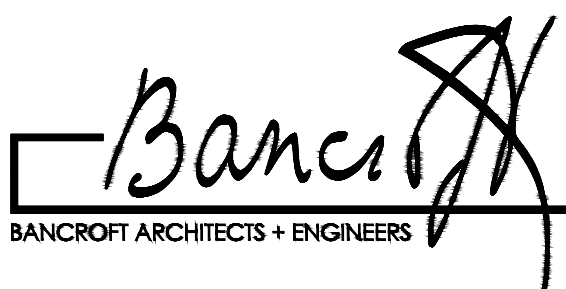
### KEY PLAN




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ISSUE FOR BID	01-16-24
Revisions:	Date:

CONSULTANT
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ARCHITECT/ENGINEER OF RECORD
 BANCROFT ARCHITECTS + ENGINEERS
3300 Dundee RD. Northbrook, IL 60062 T: 847.952.9362 www.bancroft-ae.com Bancroft Project No: 22-113

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VA U.S. Department of Veterans Affairs

Drawing Title MECHANICAL PIPE PLAN BUILDING 46 - SECOND FLOOR - ROOF
Approved: Project Director

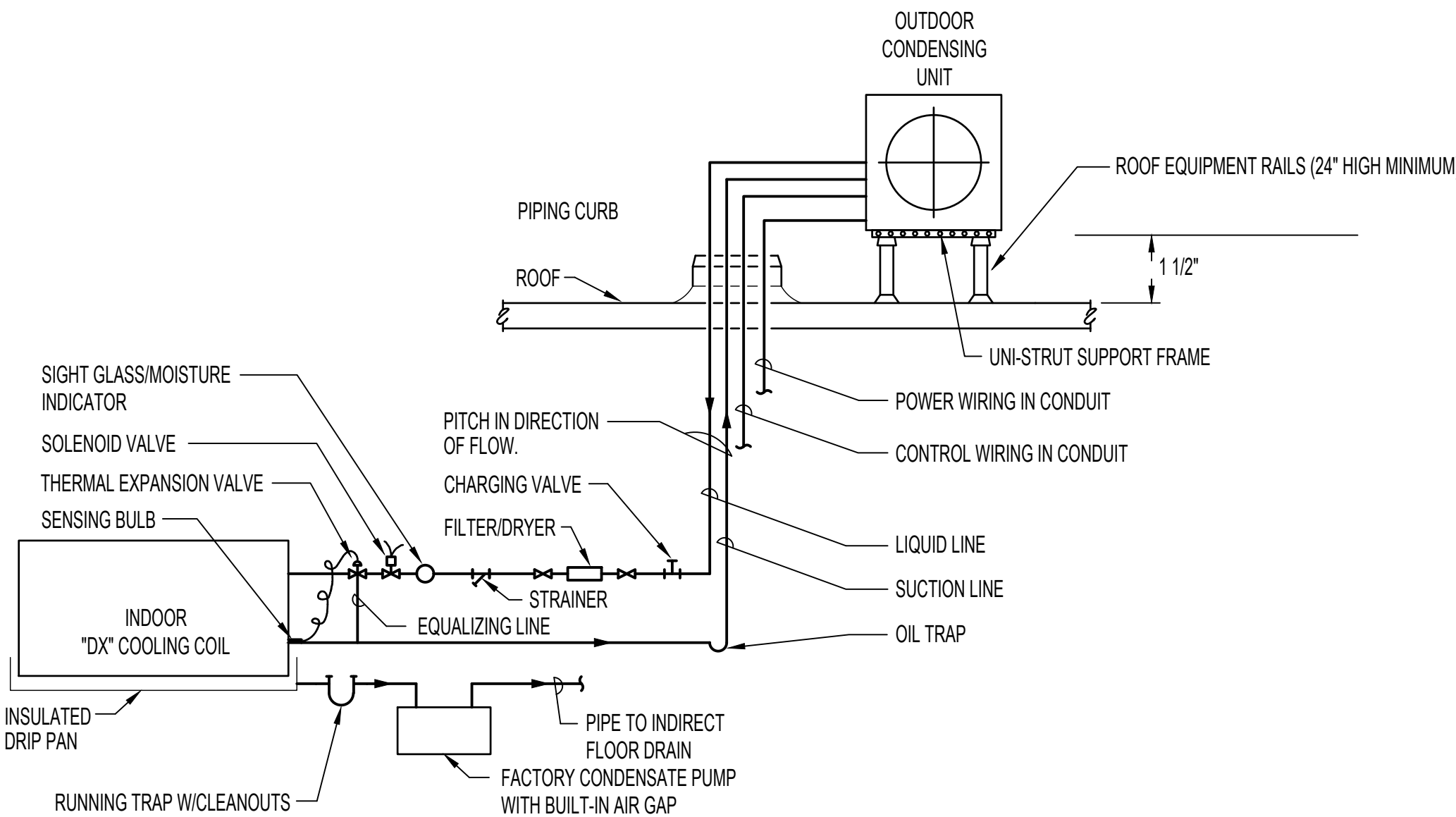
Phase ISSUE FOR BID
BUILDING FULLY SPRINKLERED

Project Title EHRM INFRASTRUCTURE UPGRADES - TIER 2
Location FARGO VA HEALTH CARE SYSTEM
Issue Date 01/16/2024
Checked DGG
Drawn RBB

Project Number 437-21-210
Building Number 46
Drawing Number MP-B46-102

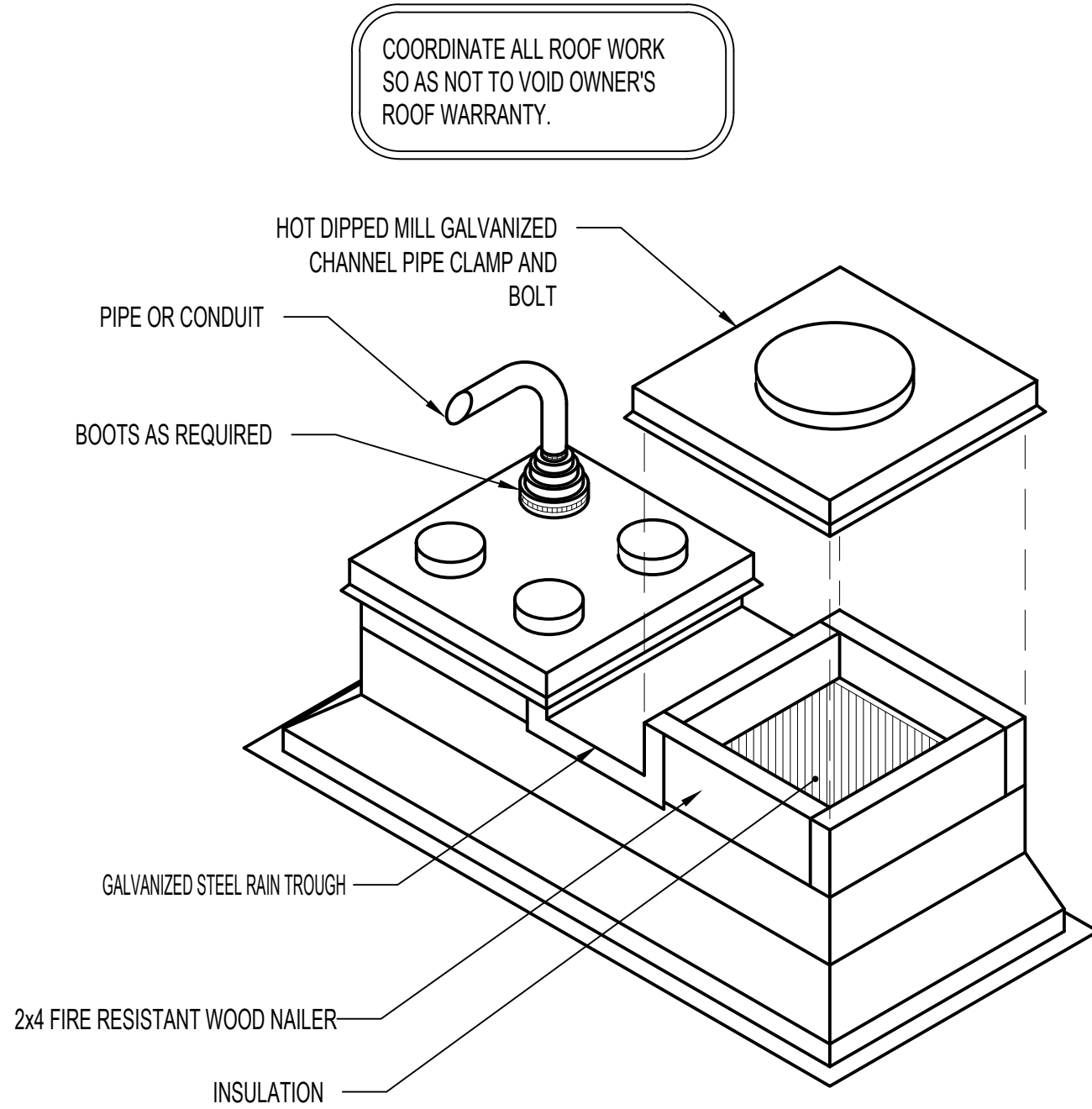
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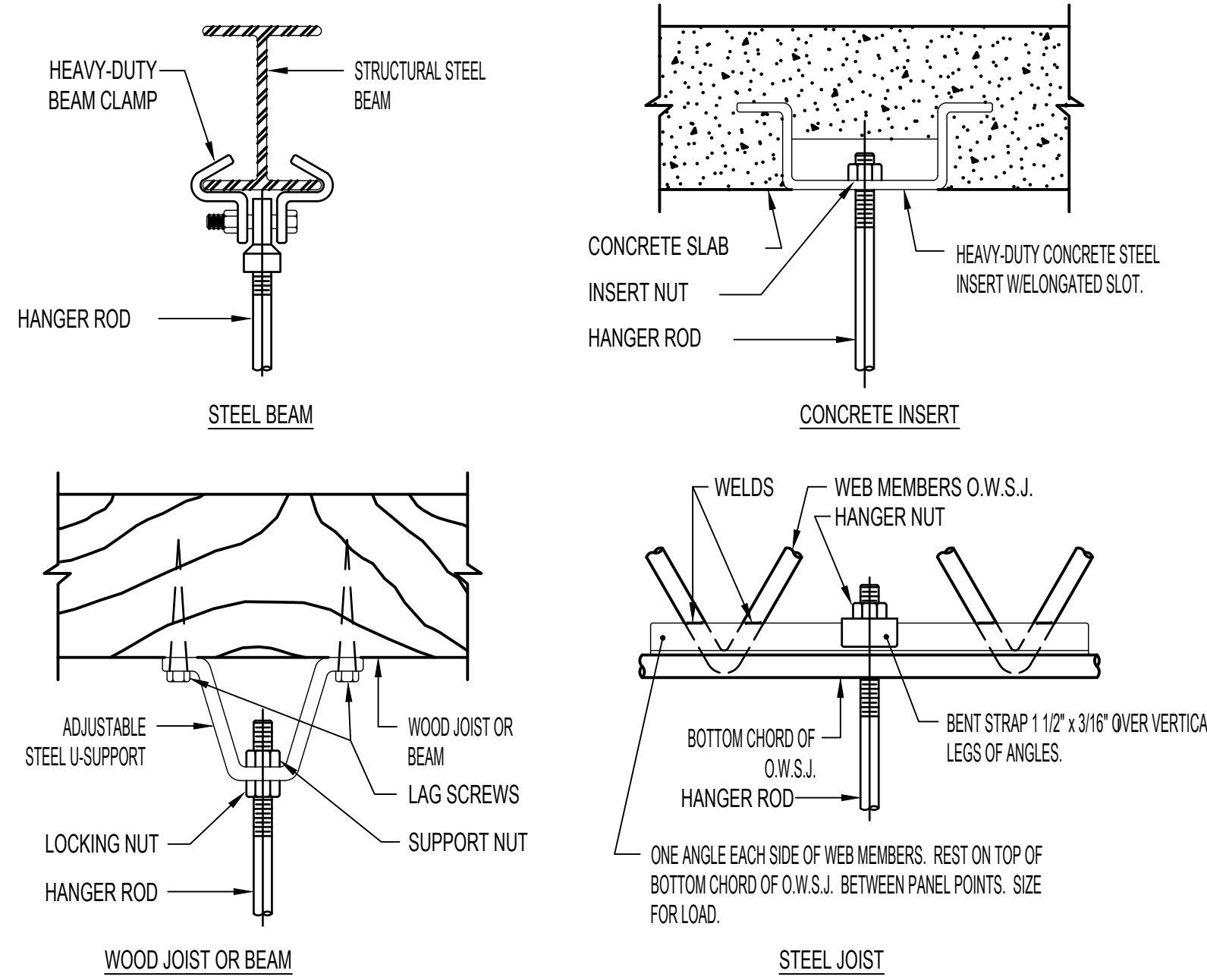


- NOTES:
- REFRIGERANT PIPING AS SHOWN IS TO ILLUSTRATE GENERAL REQUIREMENTS. PIPING SHALL BE SIZED, PITCHED, AND ARRANGED PER CONDENSING UNIT MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.

### 3 TRAC UNIT REFRIGERANT PIPING DETAIL



### 2 PIPING OR CONDUIT ROOF CURB DETAIL



#### PIPE HANGERS AND SUPPORTS

SUPPORT HORIZONTAL STEEL AND COPPER PIPING AS FOLLOWS:

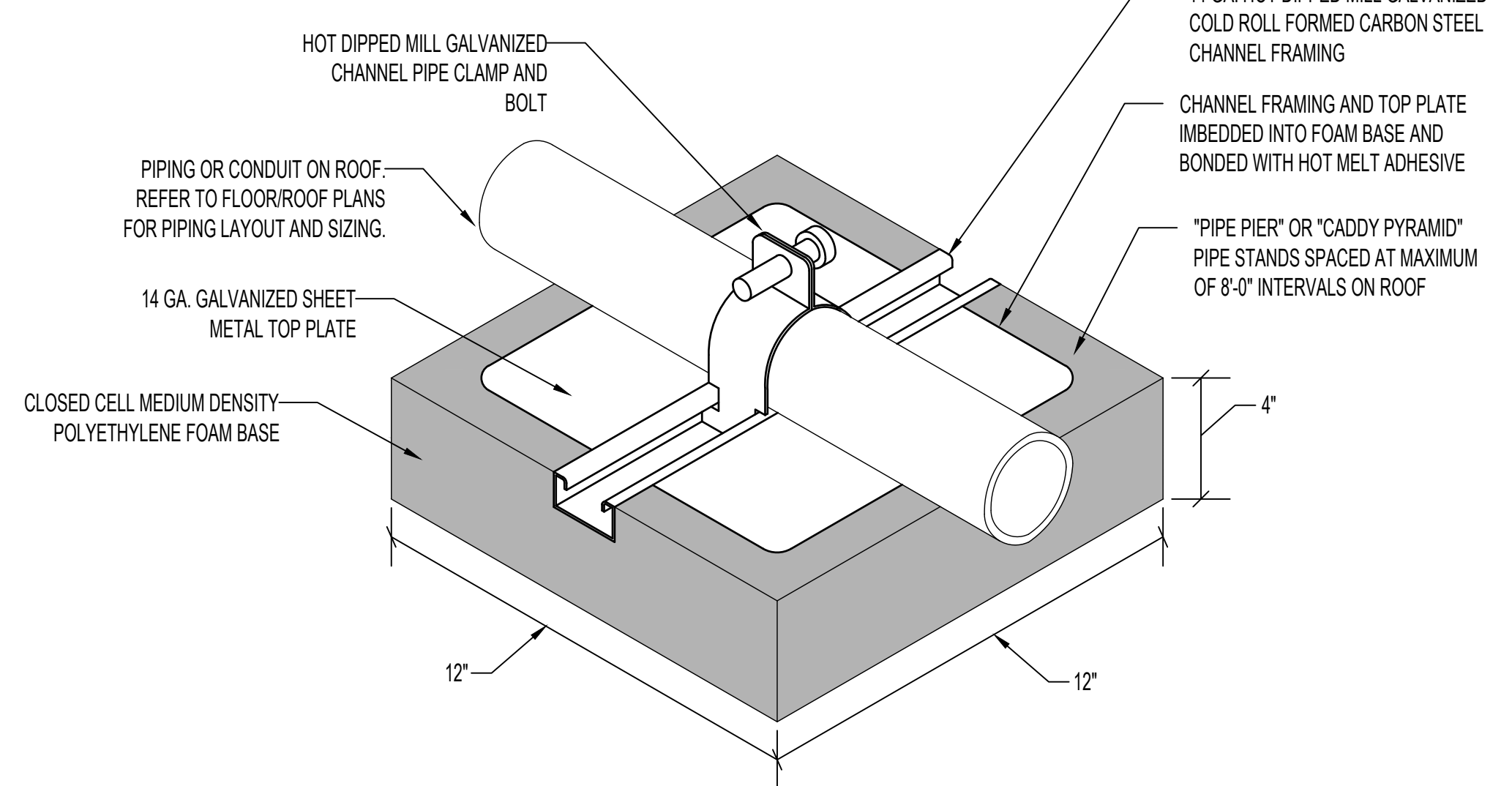
NOMINAL PIPE SIZE	DISTANCE BETWEEN SUPPORTS	HANGER ROD DIAMETERS
1/2"	6'	3/8"
3/4 TO 1-1/2"	6'	1/2"
2" TO 2-1/2"	10'	1/2"
3" AND 4"	12'	5/8"
6" TO 12"	14'	7/8"
14" TO 18"	20'	1"

PLACE HANGER WITHIN 1 FOOT OF EACH HORIZ. ELBOW. SUPPORT HORIZ. SOIL WASTE AND STORM PIPE NEAR EACH HUB, WITH 5 FEET MAXIMUM SPACING BETWEEN HANGERS. VERTICAL PIPING:

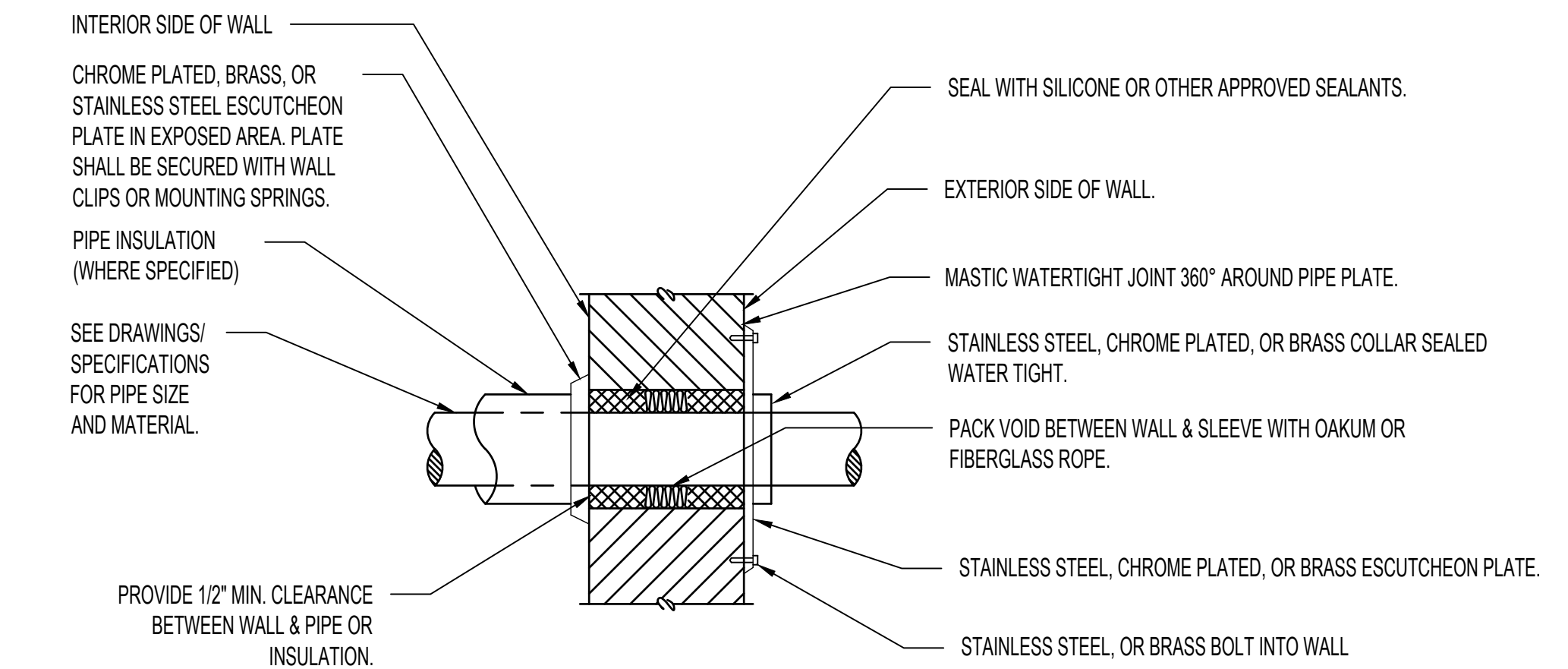
- SUPPORT VERTICAL WATER PIPING AT EVERY FLOOR.
- SUPPORT VERTICAL SOIL PIPE AT EACH FLOOR AT HUB.

WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION PROVIDE MULTIPLE OR TRAPEZE HANGERS. WHERE PRACTICAL, SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZ. PIPING.

### 6 PIPE HANGER

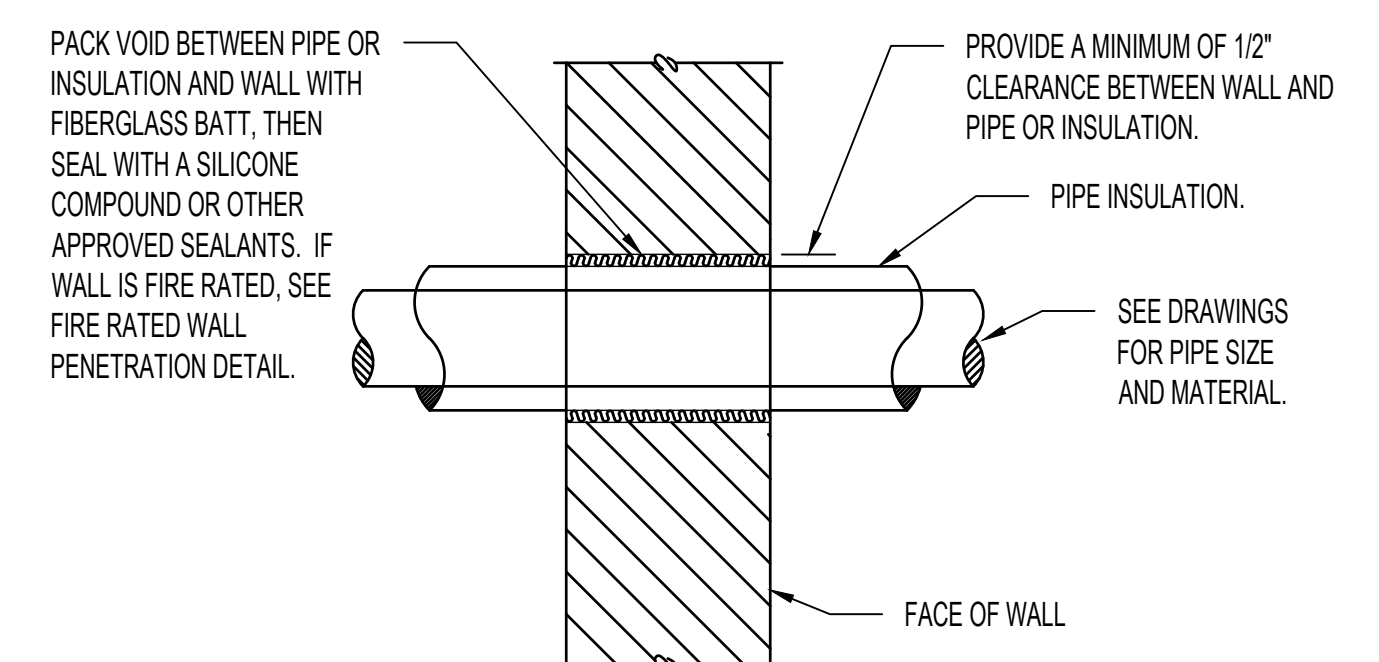


### 1 PIPING-CONDUIT (150 LB. CAPACITY) ROOF SUPPORT



- NOTES:
- CONTRACTOR SHALL ISOLATE ALL PIPES WHICH VIBRATE FROM CONSTRUCTION IN ORDER TO AVOID TRANSMISSION TO STRUCTURE.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THEIR WALL OPENINGS WITH OTHER TRADES AND/OR CONTRACTORS.

### 4 PIPE PENETRATION OF EXTERIOR WALL ABOVE GRADE

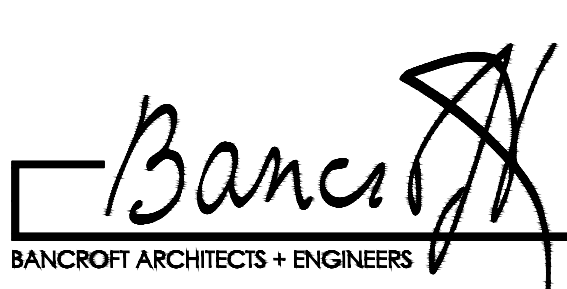


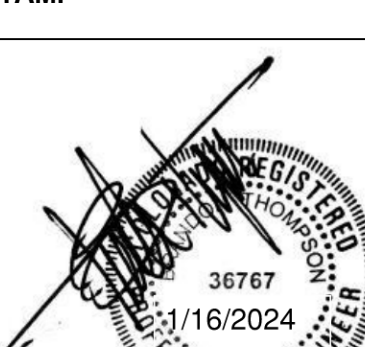
- NOTES:
- I.D. OF WALL OPENING TO BE A MIN. OF 1/2" LARGER THAN O.D. OF PIPE OR INSULATION PASSING THROUGH WALL.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THEIR WALL OPENINGS WITH OTHER TRADES AND/OR CONTRACTORS.
  - PIPE PENETRATIONS OF SMOKE OR FIRE WALLS SHALL BE IN COMPLIANCE WITH NFPA-90A.

### 5 INTERIOR WALL PIPE PENETRATION

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Approved: Project Director

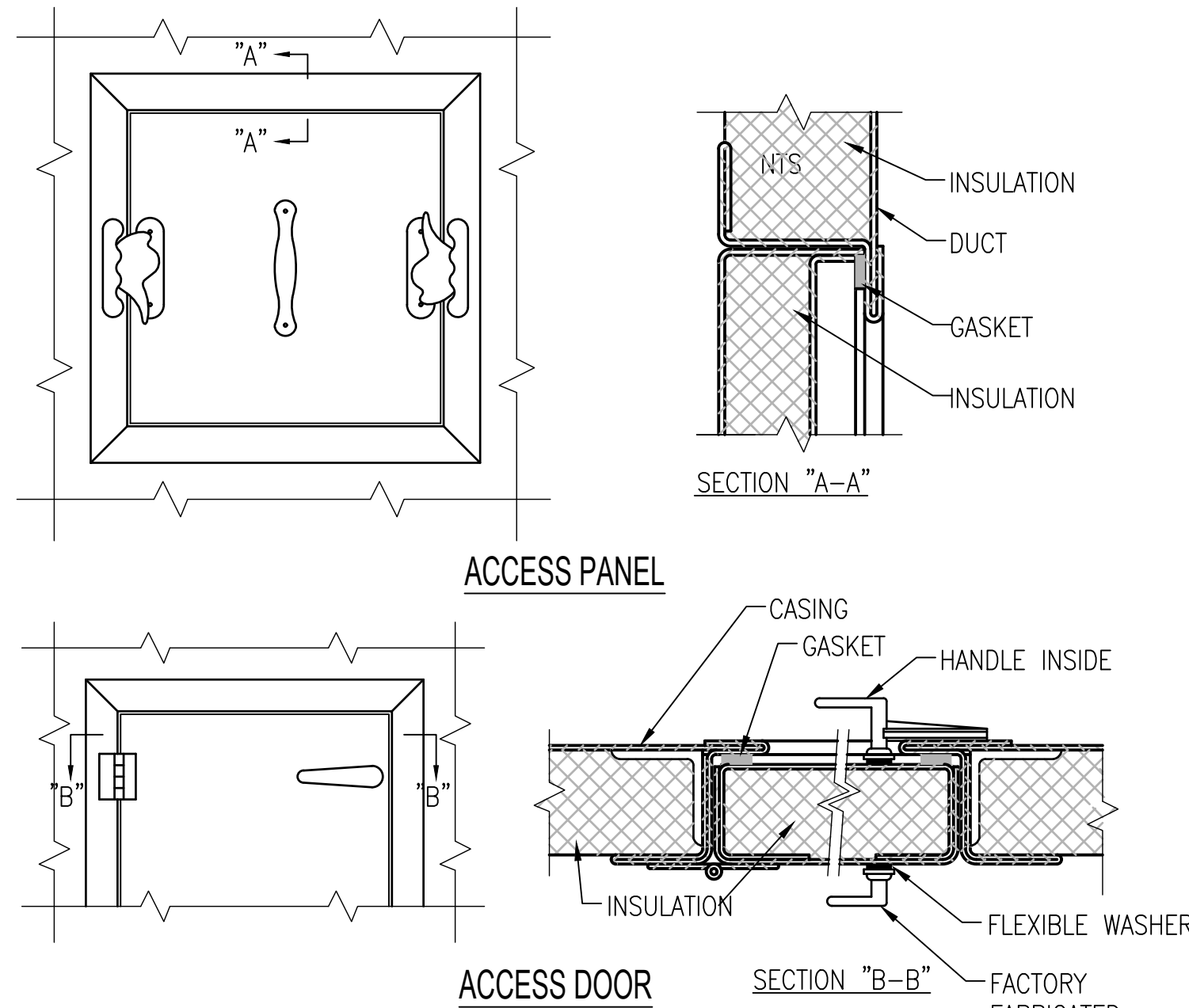
Phase ISSUE FOR BID
BUILDING FULLY SPRINKLERED

Project Title EHRM INFRASTRUCTURE UPGRADES - TIER 2
Location FARGO VA HEALTH CARE SYSTEM
Issue Date 01/16/2024
Checked DGG
Drawn DGG

Project Number 437-21-210
Building Number 1-9-46
Drawing Number M-500

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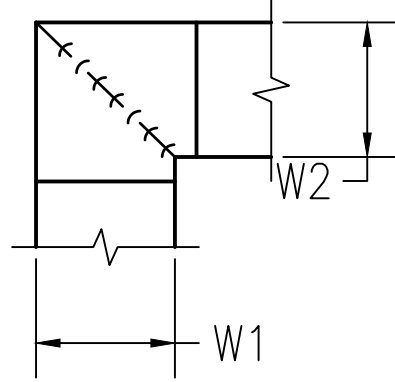
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- NOTES:
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
  2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
  3. SEE SMACNA 2005, FIGURE 9-15

#### 4 ACCESS PANEL AND DOOR DETAIL

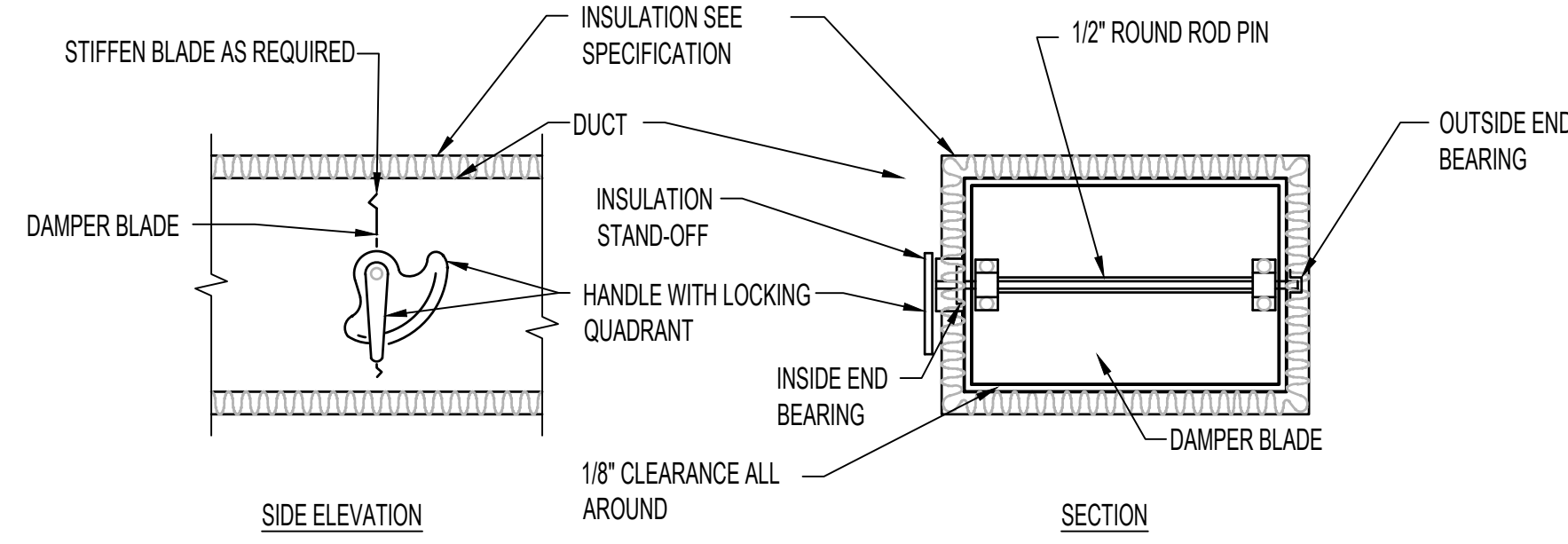
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- NOTE:
1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
  2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
  3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
  4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.

#### 8 DUCTWORK SQUARE VANE ELBOWS

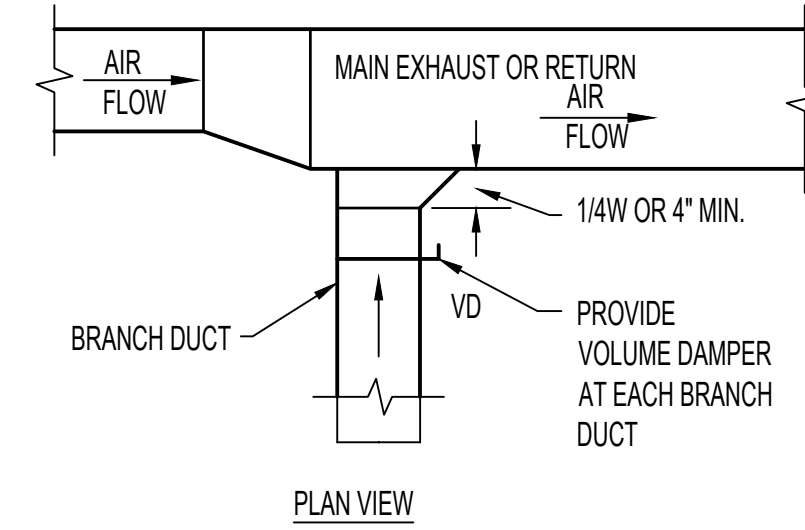
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- NOTE:
1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

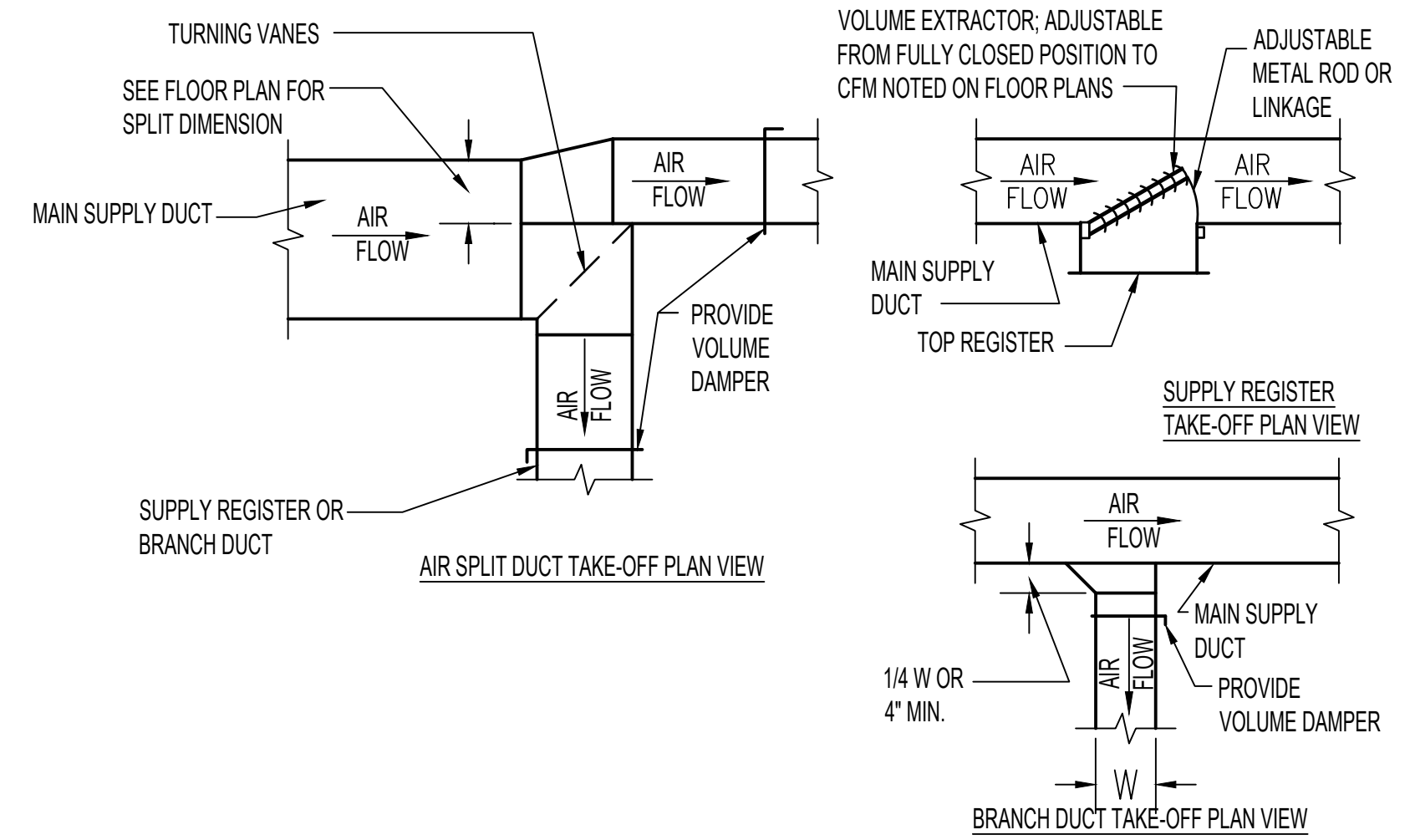
#### 3 VOLUME DAMPER DETAIL

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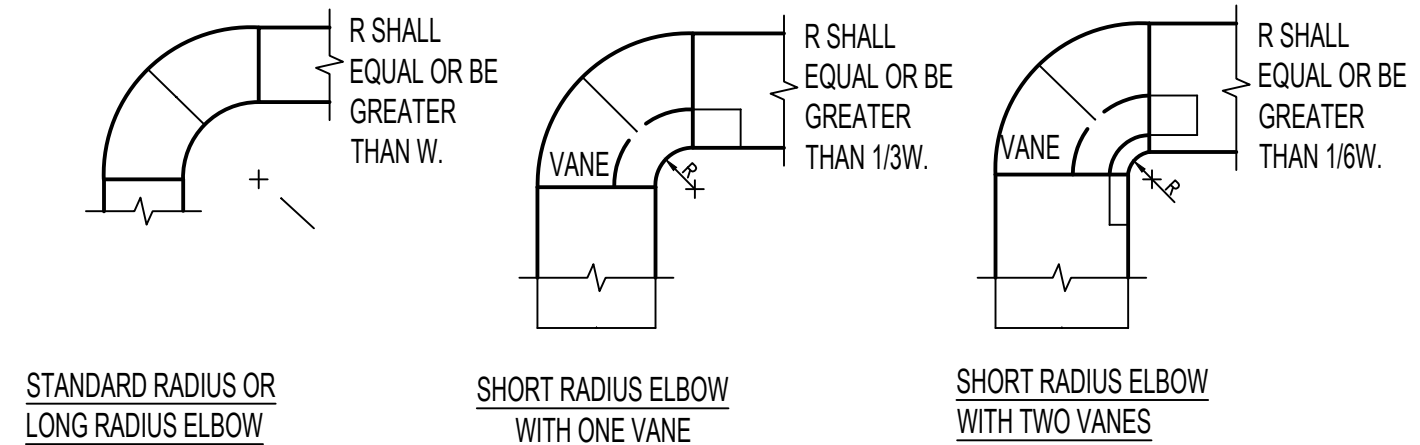
#### 2 EXHAUST OR RETURN BRANCH DUCTWORK

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#### 1 SUPPLY DUCTWORK TAKE-OFFS

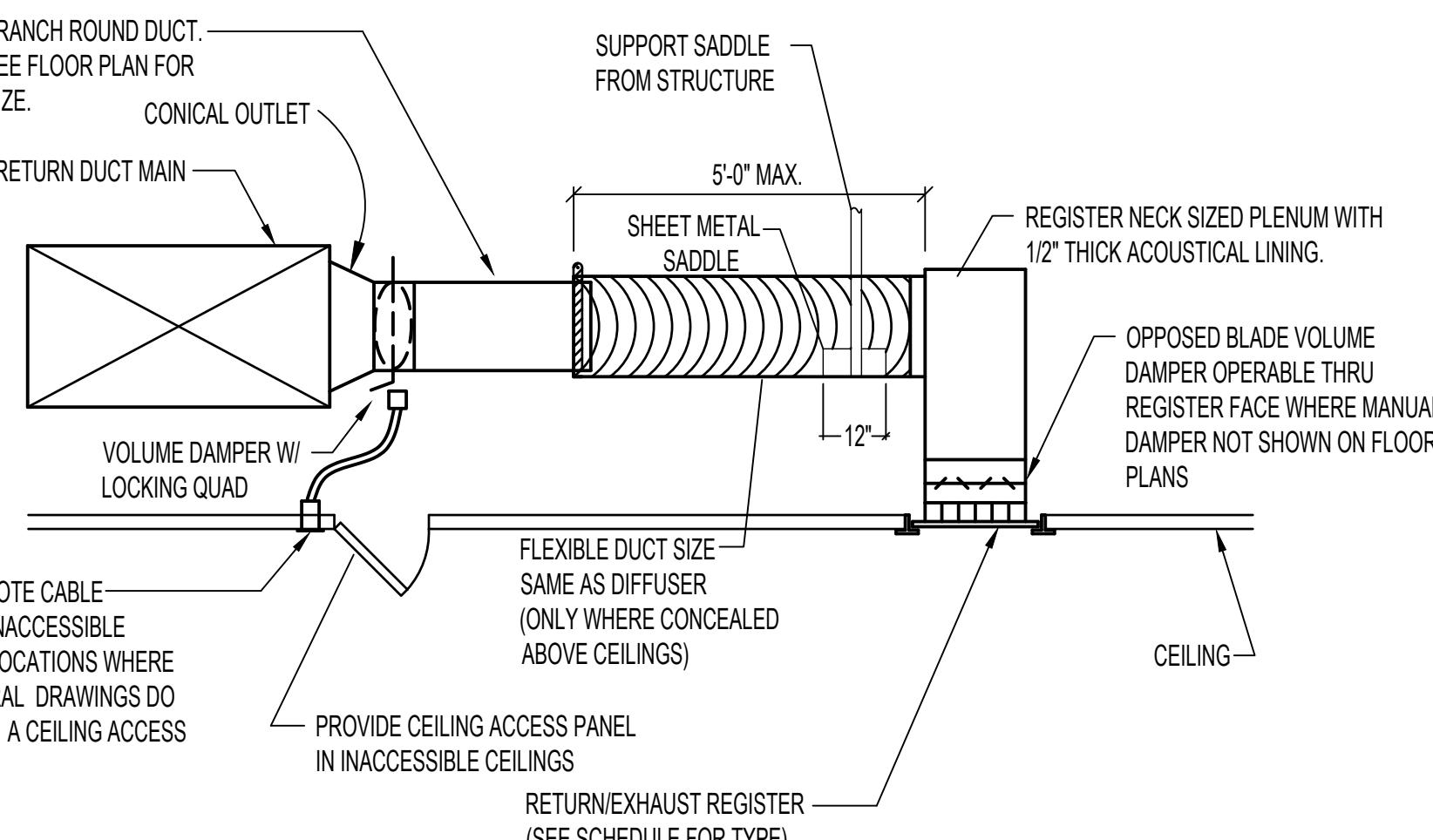
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- NOTE:
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
  2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

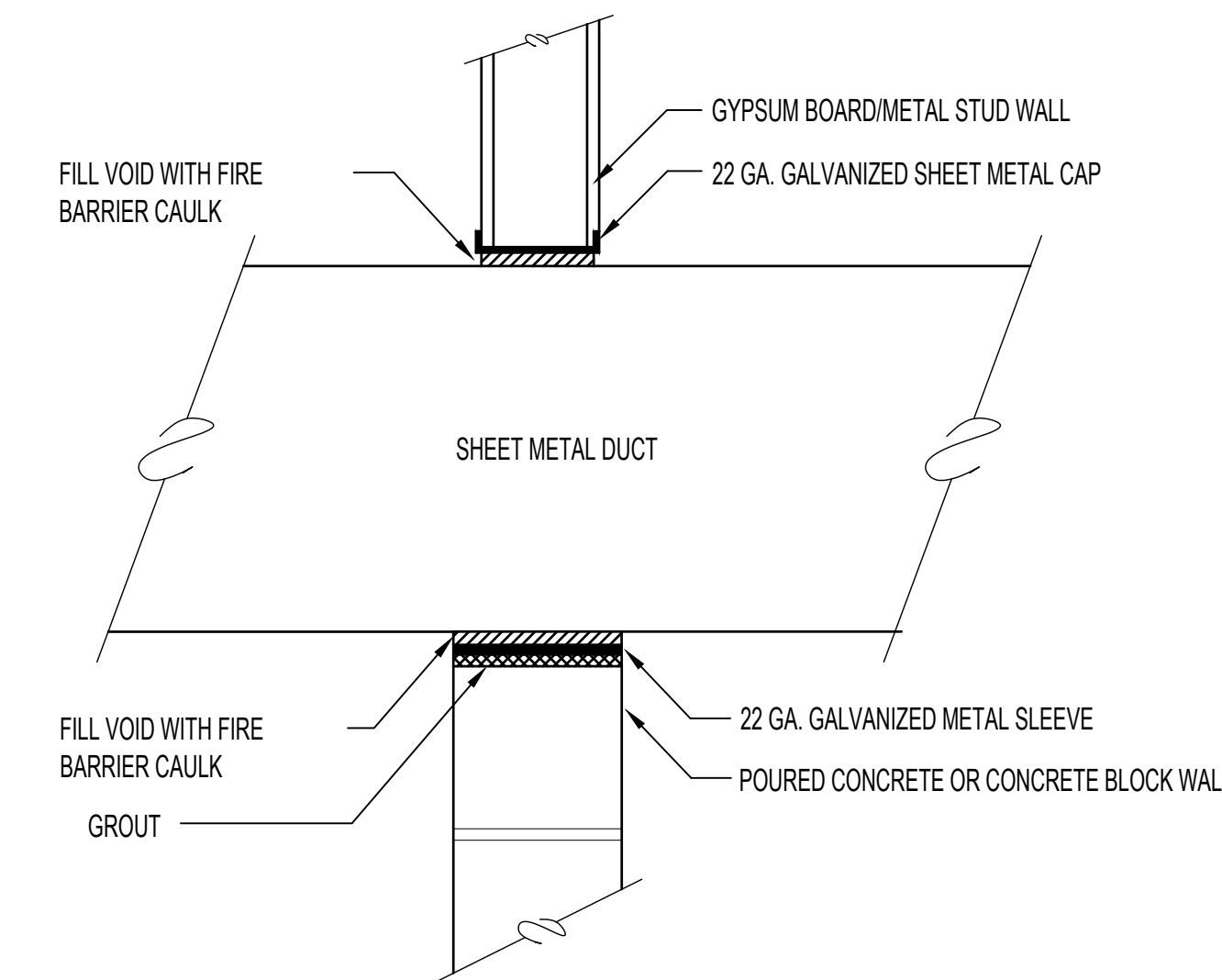
#### 5 DUCTWORK RADIUS ELBOWS

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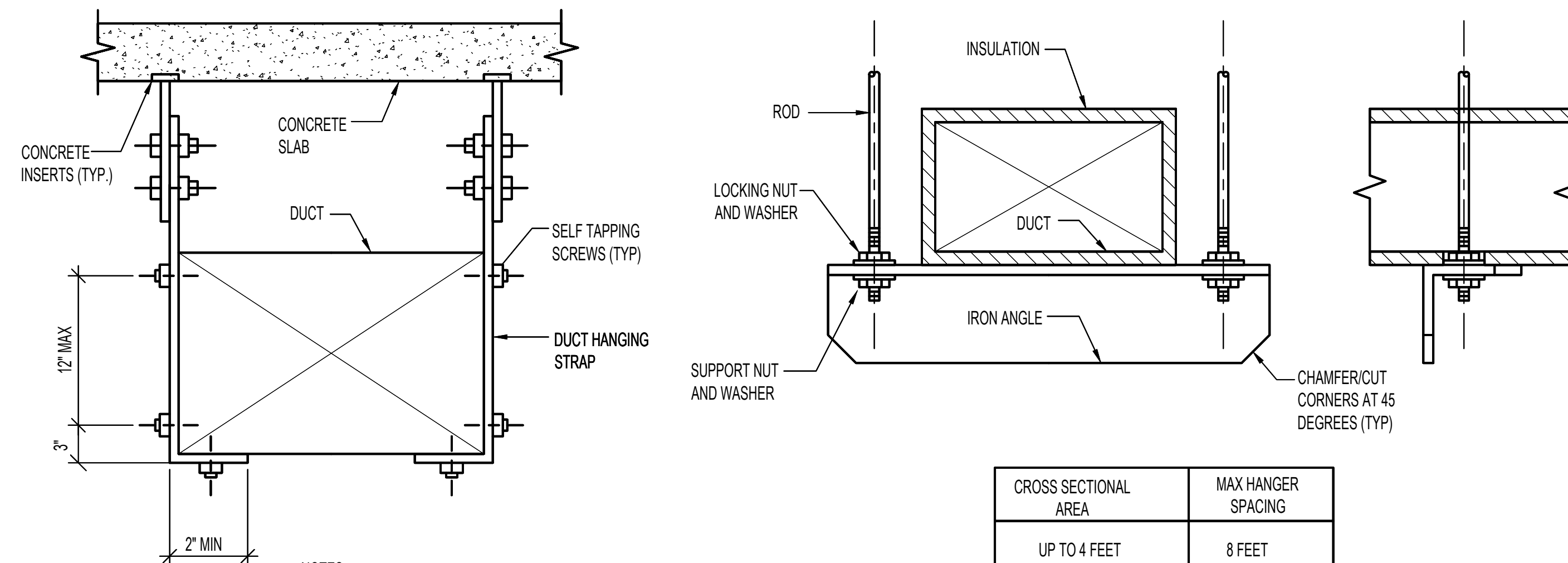
#### 7 GRILLE INSTALLATION DETAIL

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#### 6 DUCT SLEEVE THRU INTERIOR WALL DETAIL

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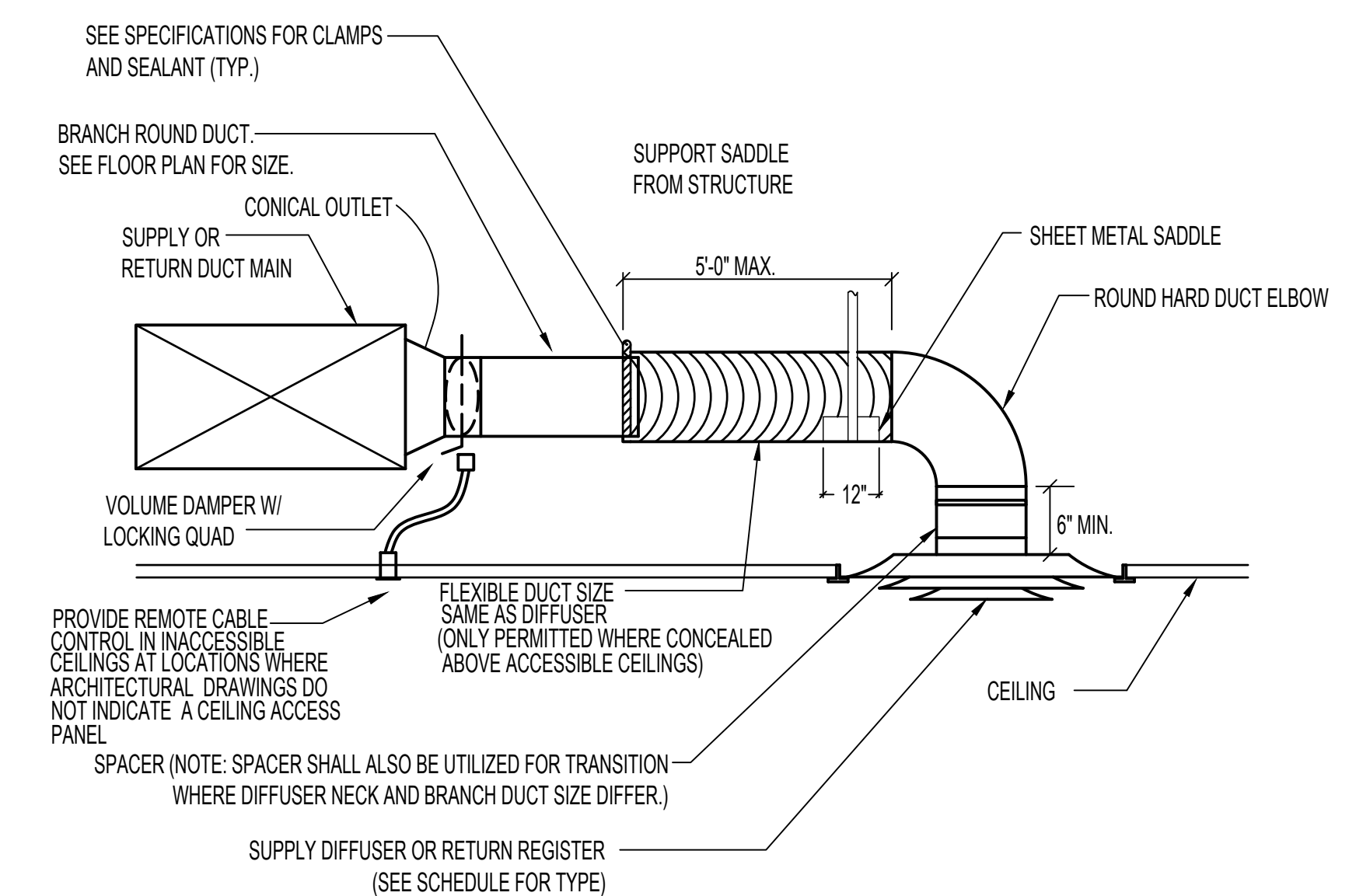


- NOTES:
1. DUCT SHALL BE SUSPENDED WITH GALVANIZED BAND IRON STRAPS SECURELY FASTENED TO THE BOTTOM AND SIDE OF THE DUCT. STRAPS SHALL BE SIZED IN ACCORDANCE WITH SMACNA TABLE 4-1 OR ACCORDING TO LOCAL CODES, WHICHEVER IS MORE STRINGENT.
  2. DUCTS WIDER THAN 60 INCHES SHALL BE SUPPORTED BY TRAPEZOIDAL ANGLES IN ACCORDANCE WITH SMACNA TABLE 4-1.

CROSS SECTIONAL AREA	MAX HANGER SPACING
UP TO 4 FEET	8 FEET
OVER 4 FEET NOT TO	6 FEET
EXCEED 10 FEET OVER 10 FEET	4 FEET

#### 10 RECTANGULAR DUCT INSTALLATION DETAIL

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#### 9 DIFFUSER INSTALLATION DETAIL

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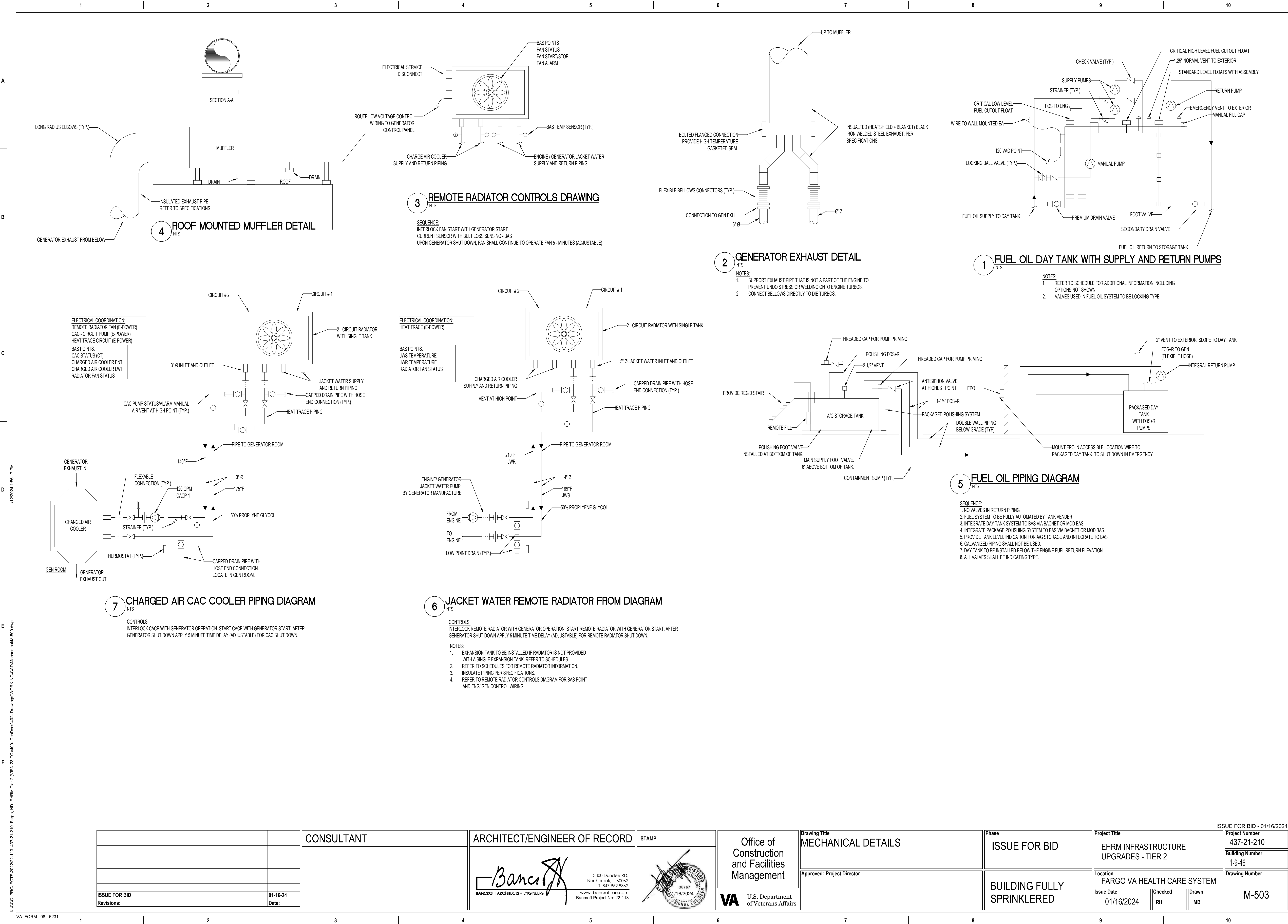
Phase
ISSUE FOR BID
BUILDING FULLY SPRINKLERED

Project Title
EHRM INFRASTRUCTURE UPGRADES - TIER 2
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FARGO VA HEALTH CARE SYSTEM
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DGG

Project Number
437-21-210
Building Number
1-9-46
Drawing Number
M-501

ISSUE FOR BID - 01/16/2024





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COMPUTER ROOM AC UNIT SCHEDULE

GENERAL																									FANS								REHEAT SECTION			HUMIDIFIER SECTION		FILTERS		ELECTRICAL DATA					NOTES
EQUIPMENT TAG	LOCATION	AREA SERVED	MANUFACTURER	TYPE	MODEL	PHYSICAL CHARACTERISTICS			CFM	MOTOR		CAPACITY STEPS	REFRIG. TYPE	NET TOTAL CAPACITY (MBH)	NET SENSIBLE CAPACITY (MBH)	EAT (DB°F/WB°F)	TYPE	STAGES	CAPACITY (KW)	TYPE	STEAM CAPACITY (LBS/HR)	TYPE	FLA	MCA	MOCP	PHASE	VOLT																		
						DIMENSIONS (IN.)				WEIGHT (LBS.)	QTY.																	KW (EACH)																	
						D	W	H																																					
CRAC-1	MAIN COMPUTER ROOM 4E-24	MCR 4E-24	ABOVE AIRE	DOWNFRONT FLOW	MCH-10SD-3-HGHERH-EC-00-DFF-2E	33	107	85	3,420	15,000	3	3.10	VARIABLE	R-410a	378.3	312.1	75/62.5	ELECTRIC	SCR	30	STEAM CANISTER	30.0	MERV 8	132.6	158.7	175	3	208	1, 2, 3, 4, 5, 6, 9																
CRAC-2	MAIN COMPUTER ROOM 4E-24	MCR 4E-24	ABOVE AIRE	DOWNFRONT FLOW	MCH-10SD-3-HGHERH-EC-00-DFF-2E	33	107	85	3,420	15,000	3	3.10	VARIABLE	R-410a	378.3	312.1	75/62.5	ELECTRIC	SCR	30	STEAM CANISTER	30.0	MERV 8	132.6	158.7	175	3	208	1, 2, 3, 4, 5, 6, 9																
CRAC-3	UPS ROOM BE-97	UPS BE-97	ABOVE AIRE	UPFRONT FLOW	MCH-03SD-3-HGER0-EC-00-UF1-2A	34	59	95	1,695	4,400	1	3.10	VARIABLE	R-410a	89.3	89.3	75/62.5	ELECTRIC	SCR	15	N/A	N/A	MERV 8	48.6	60.8	70	3	208	1, 2, 3, 4, 5, 6, 7, 8, 9																
CRAC-4	UPS ROOM BE-97	UPS BE-97	ABOVE AIRE	UPFRONT FLOW	MCH-03SD-3-HGER0-EC-00-UF1-2A	34	59	95	1,695	4,400	1	3.10	VARIABLE	R-410a	89.3	89.3	75/62.5	ELECTRIC	SCR	15	N/A	N/A	MERV 8	48.6	60.8	70	3	208	1, 2, 3, 4, 5, 6, 7, 8, 9																
NOTES: 1. OTHER ACCEPTABLE MANUFACTURERS: VA APPROVED EQUALS. 2. PROVIDE LOCKING DISCONNECT, STARTER, AND CONTROLLER WITH BACnet COMPATIBLE BY MANUFACTURER. 3. PROVIDE SUPPLY AIR SENSOR WITH MULTIPLE RETURN SENSORS FIELD VERIFY EXACT LOCATION. 4. PROVIDE SMOKE SENSOR WITH UNIT ALARM AND SHUTDOWN INCLUDE SUPERVISION CONTACTS 5. PROVIDE DUAL REFRIGERATION CIRCUITS WITH HOT GAS BYPASS AND MUFFLERS, DIGITAL SCROLL COMPRESSOR, AND COMPRESSORS TO INCLUDE CRANKCASE HEATER. 6. BMS CARD COMPATIBLE WITH CURRENT BUILDING CONTROL SYSTEM 7. EACH CRAC SHALL HAVE A LOCAL MONITORING PANEL AFFIXED TO THE UNIT ACCESSING THE FOLLOWING INFORMATION: SYSTEM AUTOMATIC RESTART WITH PROGRAMMABLE DELAY, SEQUENTIAL LOAD ACTIVATION, SENSOR CALIBRATION, CURRENT TEMPERATURE SET POINT AND LOCATION OF THAT SET POINT, CURRENT SUPPLY AND RETURN TEMPERATURE AND HUMIDITY, UNIT DIAGNOSTICS (FAN, VALVE, ALARM), ALARM LOG HISTORY, RUNTIME LOG, AUDIBLE AND VISUAL ALARM 8. 24" FLOOR STAND 9. LOW AMBIENT OPERATION TO -20																																													

DUCT FREE SPLIT SYSTEM SCHEDULE

EQUIPMENT TAG	BUILDING NO.	LOCATION	BASIS OF DESIGN	COOLING CAPACITY (MBH)	HEATING CAPACITY (MBH)	HEATING FLOW RATE (GPM)	ENTERING WATER TEMPERATURE (°F)	INDOOR UNIT																OUTDOOR UNIT												NOTES
								MODEL	TYPE	WEIGHT (LBS)	DIMENSIONS (IN.)			AIRFLOW			FILTERS		ELECTRICAL DATA				EQUIPMENT TAG	MODEL	LOCATION	WEIGHT (LBS)	COMPRESSOR			ELECTRICAL DATA						
											H	W	D	TOTAL CFM	EAT, D.B. (°F)	EAT, W.B. (°F)	TYPE	MCA	MOCP	PHASE	VOLTS	SIZE (TONS)					REF. TYPE	EAT (°F)	MCA	MOCP	PHASE	VOLTS				
CCU-BC50A-1	46	STORAGE ROOM BC-50A	MODINE	19.2	40.4	4.0	180	CSD18BACBNDM	CEILING CASSETTE	84	32.4	32.4	12	590	80	67	CLEANABLE	0.7	15	1	208	ACCU-BC-50A-1	YC2E18	ROOF	150	1.5	R-410A	90	11.8	20	1	208	1, 2, 3, 4, 5, 6, 7, 8			
CCU-BC50A-2	46	STORAGE ROOM BC-50A	MODINE	19.2	40.4	4.0	180	CSD18BACBNDM	CEILING CASSETTE	84	32.4	32.4	12	590	80	67	CLEANABLE	0.7	15	1	208	ACCU-BC-50A-2	YC2E18	ROOF	150	1.5	R-410A	90	11.8	20	1	208	1, 2, 3, 4, 5, 6, 7, 8			
CCU-BC-50B	46	SPLICE ENCLOSURE ROOM BC-50B	MODINE	19.2	40.4	4.0	180	CSD18BACBNDM	CEILING CASSETTE	84	32.4	32.4	12	590	80	67	CLEANABLE	0.7	15	1	208	ACCU-BC-50B	YC2E18	ROOF	150	1.5	R-410A	90	11.8	20	1	208	1, 2, 3, 4, 5, 6, 7, 8			
CCU-BC-60-1	46	TELEPHONE EQUIPMENT ROOM BC-50B	MODINE	19.2	40.4	4.0	180	CSD18BACBNDM	CEILING CASSETTE	84	32.4	32.4	12	590	80	67	CLEANABLE	0.7	15	1	208	ACCU-BC-60-1	YC2E18	ROOF	150	1.5	R-410A	90	11.8	20	1	208	1, 2, 3, 4, 5, 6, 7, 8			
CCU-BC-60-2	46	TELEPHONE EQUIPMENT ROOM BC-50B	MODINE	19.2	40.4	4.0	180	CSD18BACBNDM	CEILING CASSETTE	84	32.4	32.4	12	590	80	67	CLEANABLE	0.7	15	1	208	ACCU-BC-60-2	YC2E18	ROOF	150	1.5	R-410A	90	11.8	20	1	208	1, 2, 3, 4, 5, 6, 7, 8			
NOTES: 1. ACCEPTABLE MANUFACTURERS: VA APPROVED EQUALS 2. INDOOR UNIT SHALL BE INTERLOCKED TO OUTDOOR UNIT FOR POWER AND CONTROL WIRING. 3. FACTORY SHROUD FOR EXPOSED CEILING APPLICATION. 4. PROVIDE DIGITAL WALL STAT, NON-FUSED DISCONNECT, AND CONDENSATE PUMP. 5. PROVIDE THE FOLLOWING FACTORY INSTALLED ACCESSORIES FOR THE OUTDOOR UNIT: LOW AMBIENT KIT MERV 10 FILTER AND SPARE BACNET CARD INDOOR UNITS PROVIDED WITH HEATING WATER COILS																																				

ELECTRIC SUSPENDED HEATER SCHEDULE

GENERAL					HEATER			FAN DATA		ELECTRICAL DATA			NOTES
EQUIPMENT TAG	LOCATION	TYPE	MANUFACTURER	MODEL	KW	PHASE	VOLT	TYPE	CFM	AMPS	PHASE	VOLT	
EUH-1	BUILDING 1 GENERATOR ROOM BE-98	SUSPENDED HORIZONTAL	MODINE	HER200	20	3	208	PROP.	1300	55.6	3	208	1,2,3,4
EUH-2	BUILDING 1 GENERATOR ROOM BE-98	SUSPENDED HORIZONTAL	MODINE	HER200	20	3	208	PROP.	1300	55.6	3	208	1,2,3,4
NOTES: 1. OTHER ACCEPTABLE MANUFACTURERS: VA APPROVED EQUAL 2. DISCONNECT SWITCH. 3. MOUNTING KIT TO MATCH MOUNTING REQUIREMENTS. 4. FAN DELAY SWITCH.													

EXHAUST / SUPPLY FAN SCHEDULE

EQUIPMENT TAG	LOCATION	AREA SERVED	MANUFACTURER	MODEL	TYPE	DRIVE	CFM	ESP (IN.)	MAXIMUM SONES	FAN RPM	BHP	MOTOR				WEIGHT	CONTROL TYPE	NOTES
												HP	RPM	PHASE	VOLT			
EFG-1	GENERATOR ROOM	GENERATOR ROOM	GREENHECK	SBCE-3H36	WALL MOUNTED PROPELLER	BELT	17500	0.25	46.0	1200	4.6	5	-	3	208	250	BAS	1, 3, 4, 5, 7
EFG-2	GENERATOR ROOM	GENERATOR ROOM	GREENHECK	SBE-3H36	WALL MOUNTED PROPELLER	BELT	17500	0.25	46.0	1200	4.6	5	-	3	208	250	BAS	1, 3, 4, 5, 7
SFG-1	GENERATOR ROOM	GENERATOR ROOM	GREENHECK	SBS-3H48	WALL MOUNTED PROPELLER	BELT	25000	0.375	40.0	688	5.1	7 1/2	-	3	208	400	BAS	1, 3, 4, 5, 6
NOTES: 1. OTHER ACCEPTABLE MANUFACTURERS: SEE SPECIFICATIONS. 2. PROVIDE THE FOLLOWING OPTIONS: GRAVITY BACKDRAFT DAMPER AND DISCONNECT SWITCH. 3. PROVIDE GALVANIZED BIRDSCREEN, WALL HOUSING, MOTORIZED DAMPER. 4. PROVIDE VFD AND ROOM SPACE TEMPERATURE SENSOR ON BAS. 5. PROVIDE THE FOLLOWING OPTIONS AND ACCESSORIES: ELECTRICAL DISCONNECT SWITCH, NEOPRENE VIBRATION ISOLATORS. 6. 90 DEGREE INLET HOOD 7. 45 DEGREE OUTLET HOOD																		

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

Bancroft

3300 Dundee RD,  
Northbrook, IL 60062  
T: 847.952.9362  
www.bancroft-ae.com  
Bancroft Project No: 22-113

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01/16/2024

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Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title

MECHANICAL SCHEDULES

Approved: Project Director

Phase

ISSUE FOR BID

BUILDING FULLY SPRINKLERED

Project Title

EHRM INFRASTRUCTURE UPGRADES - TIER 2

Location  
FARGO VA HEALTH CARE SYSTEM

Issue Date  
01/16/2024

Checked  
RH

Drawn  
MB

Project Number

437-21-210

Building Number

1-9-46

Drawing Number

M-600

ISSUE FOR BID

Revisions:

01-16-24

Date:

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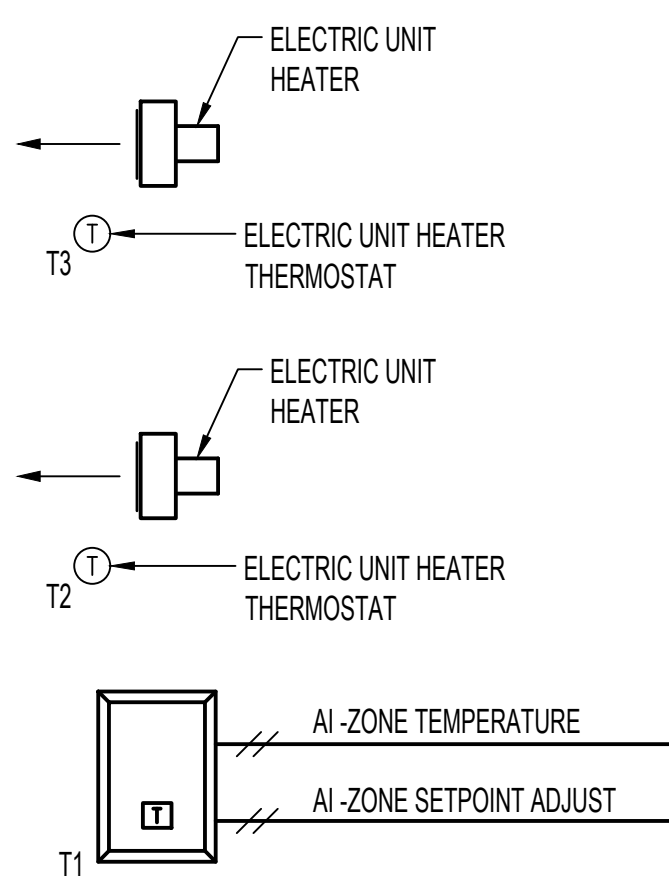
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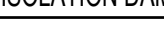






## NTS

## NOTES

- BI - ISOLATION DAMPER STATUS
- 
- D4
- INTAKE LOUVER



## NTS

## DUCTLESS SPLIT SYSTEMS

DUCTLESS SPLIT SYSTEMS SHALL HAVE SYSTEM MANUFACTURER'S STANDARD WALL-MOUNTED PROGRAMMABLE CONTROLLER. SYSTEM SHALL OPERATE UNDER ITS BUILT-IN, FACTORY INSTALLED CONTROL SYSTEM TO MAINTAIN ROOM TEMPERATURE SET POINT (72°F), AN INDEPENDENT, WALL-MOUNTED TEMPERATURE SENSOR SHALL MONITOR ROOM TEMPERATURE AND SEND AN ALARM TO THE BMS PANEL IF ROOM TEMPERATURE RISES ABOVE 86°F (ADJUSTABLE). HIGH TEMPERATURE ALARM SHALL REQUIRE MANUAL RESET. THE BMS SHALL MONITOR COMPRESSOR STATUS.

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## NTS

CONTROL SEQUENCE - MONITORING CONTROL:

BUILDING AUTOMATION SYSTEM (BAS) SHALL MONITOR THE FUEL OIL PURIFICATION ALARM CONTACT PROVIDED WITH THE PANEL. THE EQUIPMENT ALARM CONTROL PANEL SHALL ALSO BE SHOWN ON THE BAS THROUGH A BACNET CONNECTION TO FET ALL THE INFORMATION FROM THE EQUIPMENT ALARM PANEL.

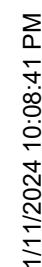
CONTROL CONTRACTOR TO DISPLAY ALL AVAILABLE INFORMATION FROM THE EQUIPMENT ALARM PANEL.

DISPLAY THE FOLLOWING ON BAS

- LOW WATER IN TRAP
- VACUUM AT PRIMARY FILTER (FILTER CHANGE INSTRUCTIONS)
- PRESSURE AT FINAL FILTER (FILTER CHANGE INSTRUCTIONS)
- HIGH WATER IN TRAP
- SYSTEM ON

**ALARMS:**

- HIGH WATER IN TRAP
- HIGH VACUUM (SERVICE PRIMARY FILTERS)
- HIGH PRESSURE (SERVICE FINAL FILTERS)
- NO FLUID FLOW



two

CONSULTANT

ARCHITECT/ENGINEER OF RECORD

**STAMP**

Office of  
Construction  
and Facilities  
Management

**VA**

U.S. Department  
of Veterans Affairs

**Drawing Title**

## MECHANICAL CONTROLS

Approved: Project Director

Phase

## ISSUE FOR BID

## BUILDING FULLY SPRINKLERED

Project Title

## EHRM INFRASTRUCTURE UPGRADES - TIER 2

**Location**

FARGO VA HEALTH CARE SYSTEM

Issue Date  
01/16/2024

Checked
DGG

Drawn
DGG

SUE FOR BID - 01/16/2024

Project Number

Building Number

Drawing Number

M-702