

**REDFORD UNION
MECHANICAL /
ELECTRICAL
IMPROVEMENTS**

REDFORD UNION HIGH SCHOOL
17711 KINLOCH
REDFORD, MI 48240

**REDFORD UNION SCHOOL
DISTRICT**
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engineers**
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Royal Oak, MI 48067 mail@woldae.com

GENERAL NOTES

- MECHANICAL CONTRACTOR SHALL PERFORM A SITE OBSERVATION SURVEY TO DETERMINE LIMITATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF HIS WORK PRIOR TO BID. VERIFY EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN WITHIN SFAGE INTENDED.
- ALL EXISTING SERVICES SHALL BE MAINTAINED AT ALL TIMES, UNLESS OTHERWISE INDICATED ON THE PLANS. COORDINATE DISRUPTION OF SERVICES WITH OWNER TO PROVIDE AN ACCEPTABLE TIME FOR DOWN TIME.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF EXISTING CONSTRUCTION UNLESS OTHERWISE NOTED ON PLANS. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH WILL DETERIORATE THE INTEGRITY AND STRENGTH OF THE BUILDING WILL BE ALLOWED WITH OUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.
- THE MECHANICAL CONTRACTOR SHALL REMOVE ALL EXISTING CEILING TILES AND GRIDS AS REQUIRED FOR INSTALLATION OF NEW WORK. ANY DAMAGED TILES AND OR GRIDS SHALL BE REPLACED WITH NEW TO MATCH AT THE CONTRACTORS EXPENSE.
- PATCH AND REPAIR OPENINGS THROUGH WALLS AND FLOORS WHERE MECHANICAL SYSTEMS WERE REMOVED TO MATCH EXISTING AND TO MAINTAIN 1 HR FIRE RATING. WALL FINISHED BY OTHERS.
- MECHANICAL CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING EXACT LOCATION, CONDITION, AND EQUIPMENT CONTROLLED BY EXISTING THERMOSTATS.

DEMOLITION KEYED NOTES:

- REMOVE EXISTING ABANDONED STEAM AND CONDENSATE BRANCHES AND PORTIONS OF MAINS AS SHOWN TO FACILITATE INSTALLATION OF NEW HYDRONIC PIPING. CAP REMOVED BRANCHES AT MAINS, AND CAP BOTH SIDES OF OPEN MAINS AT DEMOLITION POINTS.
- REMOVE EXISTING CONDENSATE RECEIVER SET COMPLETE INCLUDING TANK, ALL PUMPS, CONTROLS, PIPING RISERS AND PIPING CONNECTIONS. CAP ALL ABANDONED PIPING OVERHEAD. ELECTRICAL DISCONNECT BY OTHERS.
- REMOVE EXISTING CONVECTOR OR CABINET UNIT HEATER COMPLETE. REMOVE STEAM AND CONDENSATE PIPING CONNECTIONS THROUGH FLOOR. REMOVE AND SALVAGE PNEUMATIC CONTROLS FOR REUSE. SEE NEW WORK PLANS FOR NEW INSTALLATION. ELECTRICAL DISCONNECT BY OTHERS.
- REMOVE EXISTING UNIT HEATER COMPLETE. REMOVE ALL EXPOSED BRANCH STEAM AND CONDENSATE PIPING. REMOVE AND SALVAGE PNEUMATIC CONTROLS FOR REUSE. CAP PIPING ABOVE CEILING, BELOW FLOOR OR BEHIND WALL. PATCH CEILING, FLOOR OR WALL TO MATCH EXISTING CONSTRUCTION.
- REMOVE EXISTING CONVECTOR COVER AND SALVAGE FOR RE-USE. REMOVE ALL STEAM AND CONDENSATE PIPING THROUGH FLOOR, PIPING COMPONENTS, AND STEAM COIL WITHIN EXISTING CONVECTOR FOR CONVERSION TO HOT WATER UNIT. SALVAGE EXISTING PNEUMATIC CONTROLS FOR REUSE. REFER TO NEW WORK PLANS FOR NEW INSTALLATION REQUIREMENTS. PROVIDE NEW FASTENERS FOR EXISTING COVERS AS NEEDED.
- REMOVE ALL EXPOSED STEAM AND CONDENSATE PIPING AND PIPING COMPONENTS TO EXISTING HEATING & VENTILATING UNIT COIL FOR CONVERSION TO HOT WATER COIL. PREP COIL FOR FLUSH/CLEAN. SALVAGE EXISTING PNEUMATIC CONTROLS FOR REUSE. REFER TO NEW WORK PLANS FOR NEW INSTALLATION REQUIREMENTS.
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- REMOVE EXISTING FIN TUBE RADIATION, STEAM AND CONDENSATE PIPING, AND PIPING COMPONENTS COMPLETE. CAP PIPING ABOVE CEILING OR BEHIND WALL. PATCH CEILING OR WALL TO MATCH EXISTING CONSTRUCTION. REMOVE AND SALVAGE PNEUMATIC CONTROLS FOR REUSE. SEE NEW WORK PLANS FOR NEW INSTALLATION.
- REMOVE EXISTING STEAM AND CONDENSATE RISER PIPING. PATCH BOTH FLOORS TO MATCH EXISTING CONSTRUCTION.
- REMOVE PORTION OF STEAM AND CONDENSATE PIPING AS SHOWN THAT IS BEING EXPOSED BY CEILING REMOVAL. CAP PIPING AT WALL. SEE NEW WORK PLANS FOR NEW PIPE ROUTING THROUGH SAME AREA.
- REMOVE EXISTING H & V UNIT, AND ASSOCIATED LOWER, DUCTWORK, COIL, PIPING BRANCHES THROUGH FLOOR, AND ALL SUPPORTS. ELECTRICAL DISCONNECT BY OTHERS. SEE NEW WORK PLANS FOR NEW INSTALLATION REQUIREMENTS.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed

ENGINEER under the laws of the State of MICHIGAN

Jonathan Loose
Registration Number 622025908 Date 10/31/13

Revisions

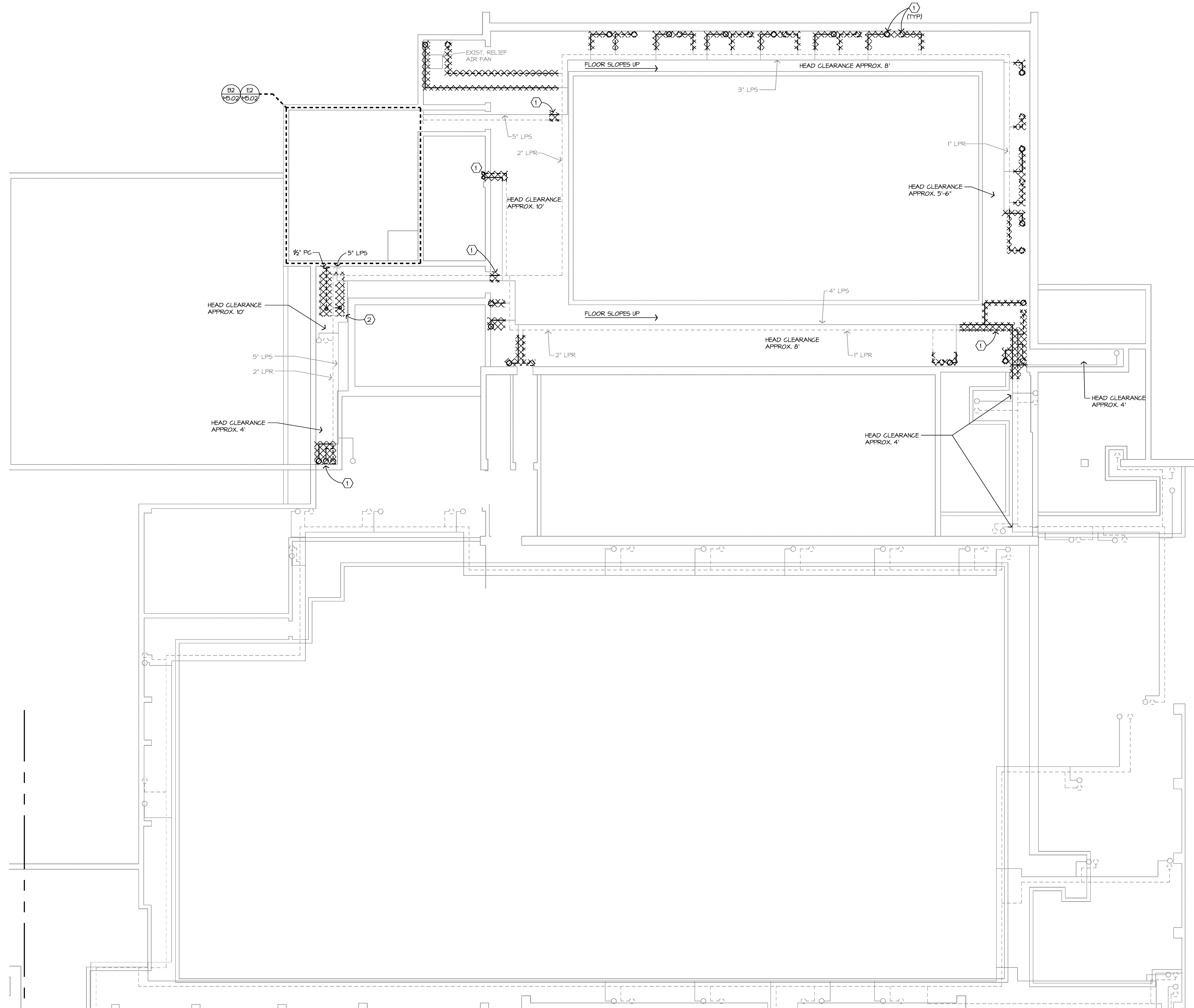
Description	Date	Rev

Comm: 12/4/21
Date: 4/16/2013
Drawn: JL
Check: JL North

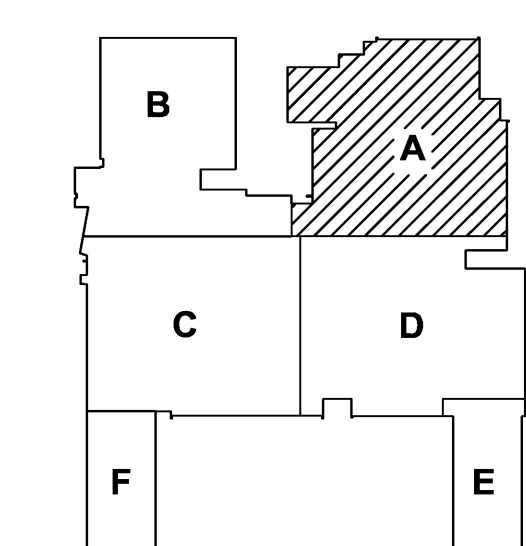
**BASEMENT LEVEL
MECHANICAL
DEMOLITION
PLAN - AREA 'A'**

Scale: 1/8" = 1'-0"

MO.01H



(H1) BASEMENT LEVEL MECHANICAL DEMOLITION PLAN - AREA 'A'
1/8" = 1'-0"



KEY PLAN

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 CHICAGO, IL 60602
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 WWW.PWILL.COM

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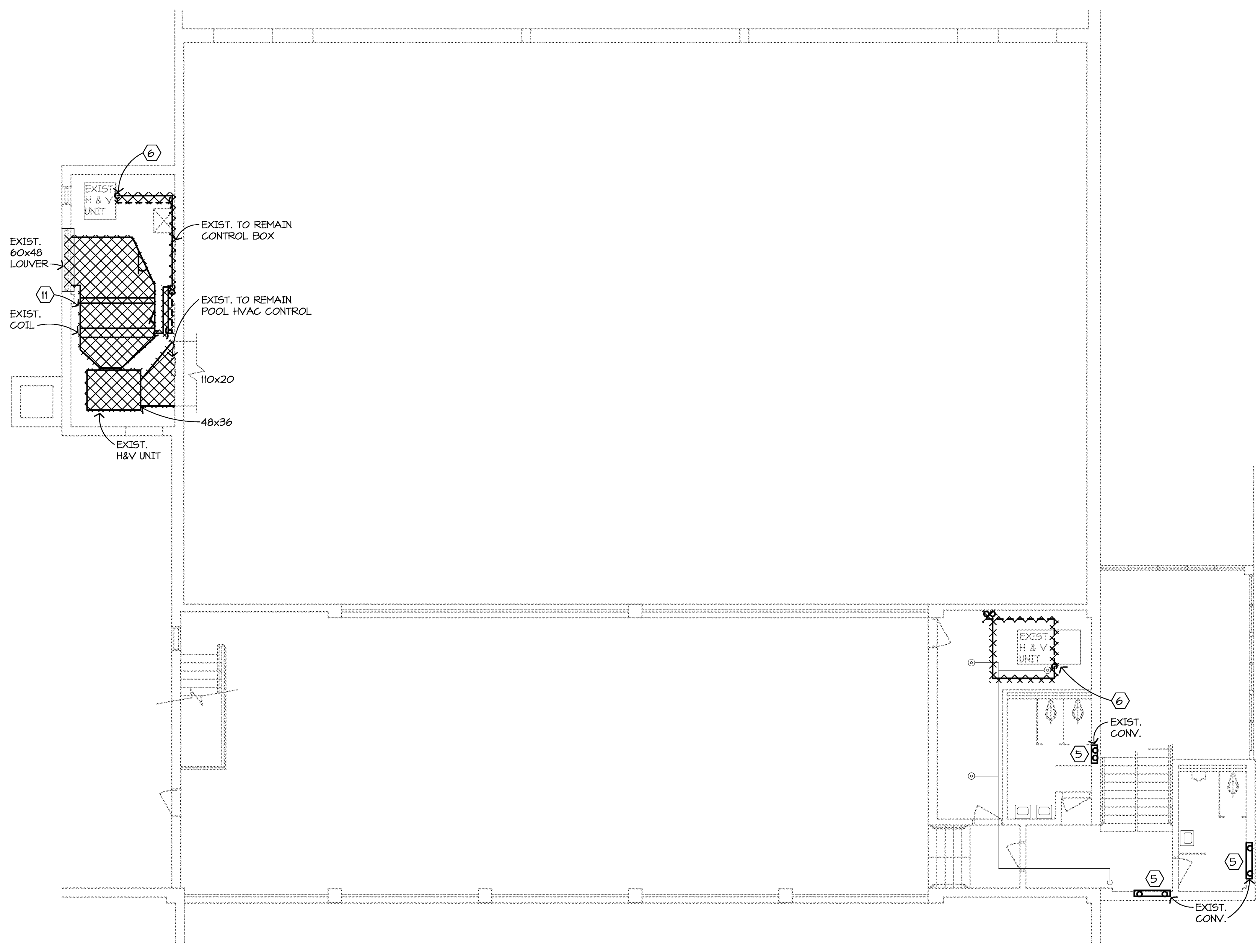
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Royal Oak, MI 48067
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4. THE MECHANICAL CONTRACTOR SHALL REMOVE ALL EXISTING CEILING TILES AND GRIDS AS REQUIRED FOR INSTALLATION OF NEW WORK. ANY DAMAGED TILES AND OR GRIDS SHALL BE REPLACED WITH NEW TO MATCH AT THE CONTRACTORS EXPENSE.
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6. MECHANICAL CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING EXACT LOCATION, CONDITION, AND EQUIPMENT CONTROLLED BY EXISTING THERMOSTATS.

DEMOLITION KEYED NOTES

- ① REMOVE EXISTING ABANDONED STEAM AND CONDENSATE BRANCHES, AND PORTIONS OF MAINS AS SHOWN TO FACILITATE INSTALLATION OF NEW HYDRONIC PIPING. CAP REMOVED BRANCHES AT MAINS, AND CAP BOTH SIDES OF OPEN MAINS AT DEMOLITION POINTS.
- ② REMOVE EXISTING CONDENSATE RECEIVER. SET COMPLETE INCLUDING TANK, ALL PUMPS, CONTROLS, PIPING RISERS AND PIPING CONNECTIONS. CAP ALL ABANDONED PIPING OVERHEAD. ELECTRICAL DISCONNECT BY OTHERS.
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- ⑥ REMOVE ALL EXPOSED STEAM AND CONDENSATE PIPING AND PIPING COMPONENTS TO EXISTING HEATING & VENTILATING UNIT COIL FOR CONVERSION TO HOT WATER COIL. PREP COIL FOR FLUSH/CLEAN. SALVAGE EXISTING PNEUMATIC CONTROLS FOR REUSE. REFER TO NEW WORK PLANS FOR NEW INSTALLATION REQUIREMENTS.
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- ⑧ REMOVE EXISTING FIN TUBE RADIATION, STEAM AND CONDENSATE PIPING, AND PIPING COMPONENTS COMPLETE. CAP PIPING ABOVE CEILING OR BEHIND WALL. PATCH CEILING OR WALL TO MATCH EXISTING CONSTRUCTION. REMOVE AND SALVAGE PNEUMATIC CONTROLS FOR REUSE. SEE NEW WORK PLANS FOR NEW INSTALLATION.
- ⑨ REMOVE EXISTING STEAM AND CONDENSATE RISER PIPING. PATCH BOTH FLOORS TO MATCH EXISTING CONSTRUCTION.
- ⑩ REMOVE PORTION OF STEAM AND CONDENSATE PIPING AS SHOWN THAT IS BEING EXPOSED BY CEILING REMOVAL. CAP PIPING AT WALL. SEE NEW WORK PLANS FOR NEW PIPE ROUTING THROUGH SAME AREA.
- ⑪ REMOVE EXISTING H & V UNIT, AND ASSOCIATED LOUVER, DUCTWORK, COIL, PIPING BRANCHES THROUGH FLOOR, AND ALL SUPPORTS. ELECTRICAL DISCONNECT BY OTHERS. SEE NEW WORK PLANS FOR NEW INSTALLATION REQUIREMENTS.



ES UPPER LEVEL MECHANICAL DEMOLITION PLAN - 'AREA A'
1/8" = 1'-0"

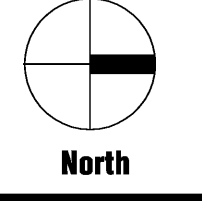
REDFORD UNION HIGH SCHOOL DISTRICT
 17711 KINLOCH
 REDFORD, MI 48240
 PROJECT NO. 17711KINLOCH
 MECHANICAL/ELECTRICAL IMPROVEMENTS
 FLOOR PLAN - DEMOLITION PLAN - AREA A
 DATE: 4/16/2013
 DRAWN BY: JLL
 CHECKED BY: JLL

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 FLOOR PLAN - DEMOLITION PLAN - AREA A
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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed ENGINEER under the laws of the State of MICHIGAN

Registration Number	Jonathan Loose	Date	10/3/13
	6201055908		
Description	Date	Num	

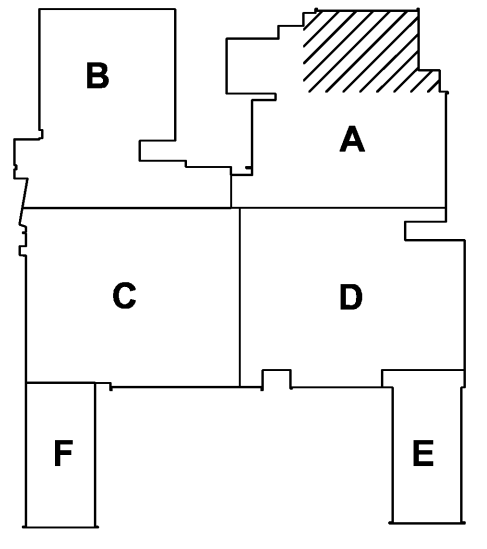
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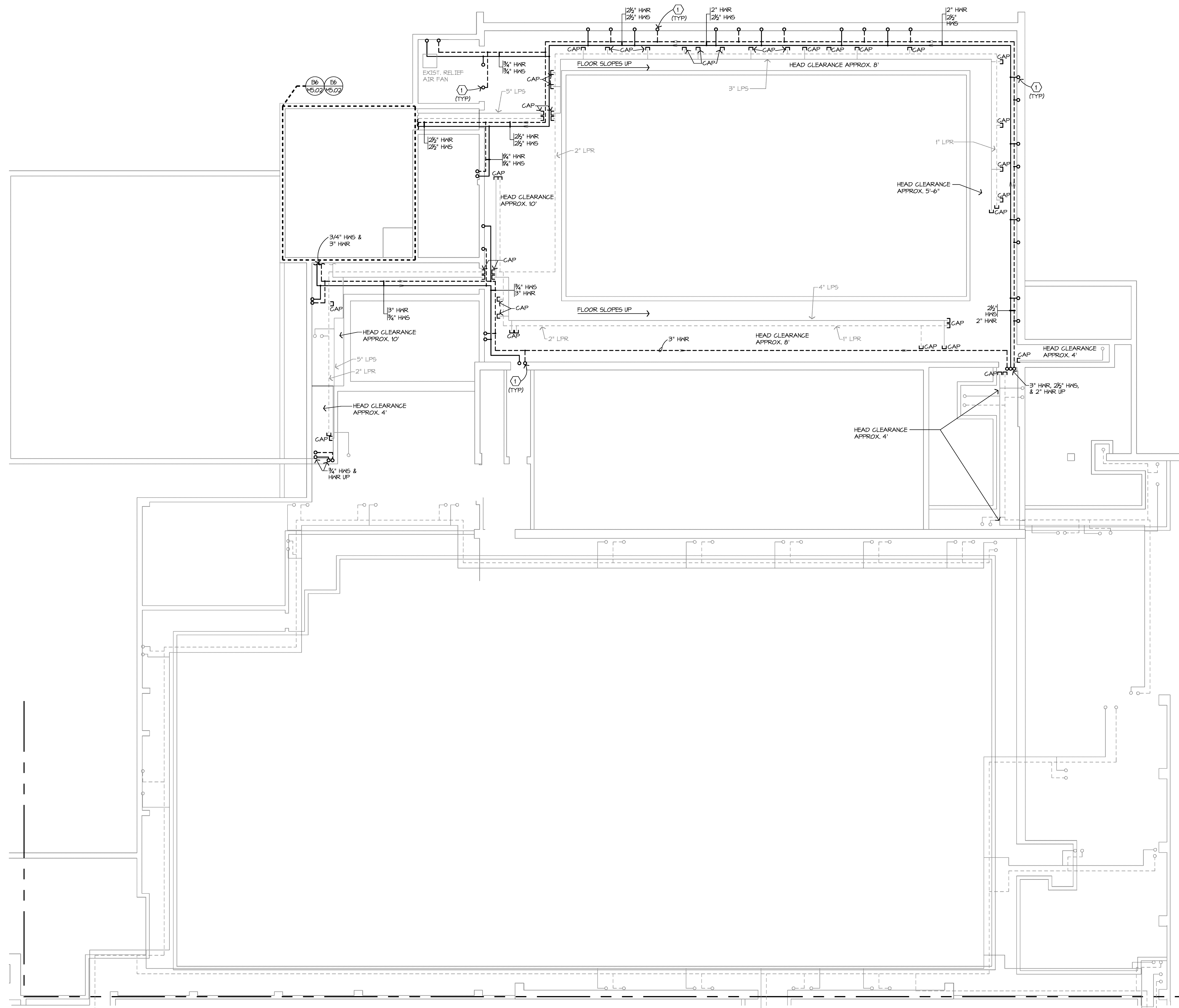
UPPER LEVEL MECHANICAL DEMOLITION PLAN - AREA 'A'

Scale: 1/8" = 1'-0"

M0.21H



KEY PLAN



(H1) BASEMENT LEVEL MECHANICAL PIPING PLAN - AREA 'A'
 1/8" = 1'-0"

GENERAL NOTES:

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- PATCH AND REPAIR OPENINGS THROUGH WALLS AND FLOORS WHERE MECHANICAL SYSTEMS WERE REMOVED TO MATCH EXISTING AND TO MAINTAIN ALL FIRE & SMOKE RATINGS. WALL AND FLOOR FINISH BY OTHERS.
- COORDINATE LOCATIONS OF ANY ACCESS PANELS REQUIRED IN WALLS OR CEILINGS WITH GENERAL CONTRACTOR.
- DIFFUSER DUCT RUNOUTS AND FLEXIBLE DUCT CONNECTIONS SHALL BE THE SAME SIZE AS THE DIFFUSER NECK.
- ALL HYDRONIC BRANCH PIPING TO HEATING UNITS SHALL BE 3/4" UNLESS OTHERWISE NOTED.
- ALL NEW MAIN AND UPPER LEVEL HOT WATER SUPPLY AND RETURN PIPING SHOWN TO BE ROUTED TIGHT TO UNDERSIDE OF EXISTING CEILING UNLESS OTHERWISE NOTED. COORDINATE ROUTING WITH EXISTING LIGHTING. RACK PIPING TO WALL AS HIGH AS POSSIBLE IF NECESSARY TO AVOID CONFLICTS.
- CHECK ALL EXISTING COILS INDICATED TO BE CLEANED AND FLUSHED FOR LEAKS PRIOR TO FINAL CONNECTIONS.
- TEST ALL RECONNECTED AIR LINES TO CONTROL VALVES TO VERIFY FULL FUNCTIONING CAPABILITY. REPAIR LEAKS AND REPLACE TUBING AS REQUIRED.

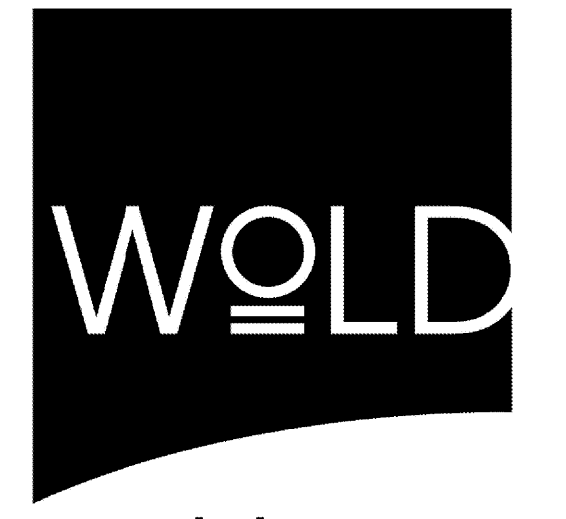
NEW WORK KEYED NOTES:

- CORE DRILL NEW HOLES AS NECESSARY IF EXISTING HOLES CANNOT BE UTILIZED TO SERVE HEATING EQUIPMENT ABOVE. FILL UNUSED CORES WITH FOAM INSULATION.
- PROVIDE NEW BARE FINNED ELEMENT WITHIN EXISTING ENCLOSURE. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL PIPING COMPONENTS SHOWN IN DETAIL #9 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PROVIDE NEW FASTENERS/BRACKETS AS REQUIRED TO RE-INSTALL EXISTING ENCLOSURE COVER.
- PROVIDE NEW HEATING EQUIPMENT AT LOCATION OF EXISTING EQUIPMENT. COORDINATE MODIFICATIONS/CUTOUT OF WALL BY OTHERS. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL #6 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE.
- FLUSH AND CLEAN EXISTING HEATING AND VENTILATING UNIT COIL. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL #6 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW 3-WAY CONTROL VALVE.
- PROVIDE NEW 3/4" HOT WATER SUPPLY AND RETURN BRANCHES TO NEW CUH AND FTR FROM MAIN RISERS THRU WALL TO UNITS.
- PROVIDE HWS & HWR PIPING OFFSETS AS REQUIRED TO ROUTE AROUND EXISTING FIRE PROTECTION PIPING.
- PROVIDE NEW CEILING MOUNTED CABINET UNIT HEATER. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PIPING IN THIS CORRIDOR TO BE CONCEALED ABOVE LOWER CEILING. SEE DETAIL #6 ON SHEET M5.02 FOR PIPING CONNECTION REQUIREMENTS.
- PROVIDE NEW WALL MOUNTED UNIT HEATER AS HIGH AS POSSIBLE. PROVIDE MANUFACTURERS WALL MOUNTING BRACKET. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. SEE DETAIL #4 ON SHEET M5.02 FOR PIPING CONNECTION REQUIREMENTS.
- RE-INSTALL EXISTING FLUSHED AND CLEANED COIL WITHIN EXISTING HEATING ENCLOSURE. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL #6 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PROVIDE NEW FASTENERS/BRACKETS AS REQUIRED TO RE-INSTALL EXISTING ENCLOSURE COVER.
- PROVIDE NEW FIN TUBE RADIATION AT SAME ELEVATION AS EXISTING REMOVED UNIT (APPROX. 7'-0" AFF.). EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. SEE DETAIL #9 ON SHEET M5.02 FOR PIPING CONNECTION REQUIREMENTS.
- NEW PIPING TO BE CONCEALED ABOVE CEILING IN AREA OF CEILING REPLACEMENT.
- UTILIZE EXISTING PNEUMATIC CONTROL BOX FOR NEW MAKE-UP AIR UNIT CONTROL. PROVIDE ALL REQUIRED RELAYS WITHIN NEW POOL THERMOSTAT, CONTROL BOX, AND MAKE-UP AIR UNIT. RESTORE INTERLOCK BETWEEN MAKE-UP AIR FAN OPERATION AND BASEMENT RELIEF AIR FAN OPERATION.

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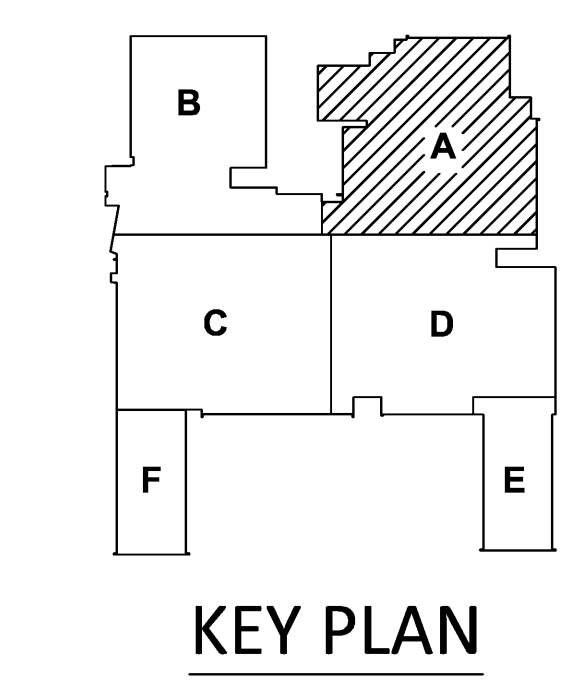
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Jonathan Loose
 Registration Number 622025908 Date 10/31/13

Revisions		
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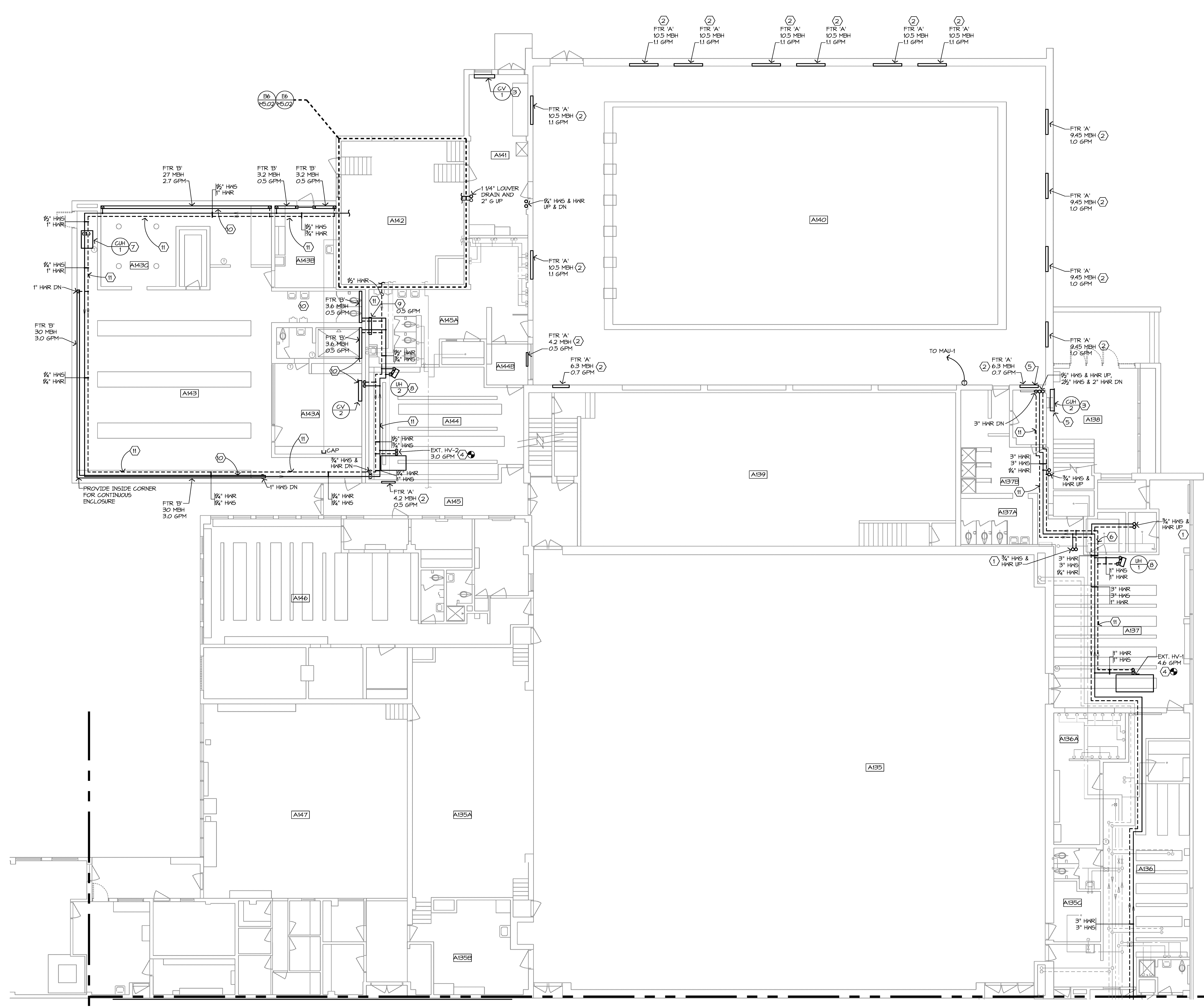
Comm: 12/4/21
 Date: 4/16/2023
 Drawn: JL
 Check: JL

Scale: 1/8" = 1'-0"

BASEMENT LEVEL MECHANICAL PIPING PLAN - AREA 'A'

Scale: 1/8" = 1'-0"

M1.01H



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- CORE DRILL NEW HOLES AS NECESSARY IF EXISTING HOLES CANNOT BE UTILIZED TO SERVE HEATING EQUIPMENT ABOVE. FILL UNUSED CORES WITH FOAM INSULATION.
- PROVIDE NEW BARE FINNED ELEMENT WITHIN EXISTING ENCLOSURE. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL PIPING COMPONENTS SHOWN IN DETAIL H9 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PROVIDE NEW FASTENERS/BRACKETS AS REQUIRED TO RE-INSTALL EXISTING ENCLOSURE COVER.
- PROVIDE NEW HEATING EQUIPMENT AT LOCATION OF EXISTING EQUIPMENT. COORDINATE MODIFICATION/SKANGUT OF WALL BY OTHERS. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL H6 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE.
- FLUSH AND CLEAN EXISTING HEATING AND VENTILATING UNIT COIL. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL H6 ON SHEET M5.03. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW 3-WAY CONTROL VALVE.
- PROVIDE NEW 3/4" HOT WATER SUPPLY AND RETURN BRANCHES TO NEW CUH AND FTR FROM MAIN RISERS THRU WALL TO UNITS.
- PROVIDE HNS & HNR PIPING OFFSETS AS REQUIRED TO ROUTE AROUND EXISTING FIRE PROTECTION PIPING.
- PROVIDE NEW CEILING MOUNTED CABINET UNIT HEATER. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PIPING IN THIS CORRIDOR TO BE CONCEALED ABOVE LOWER CEILING. SEE DETAIL H6 ON SHEET M5.02 FOR PIPING CONNECTION REQUIREMENTS.
- PROVIDE NEW WALL MOUNTED UNIT HEATER AS HIGH AS POSSIBLE. PROVIDE MANUFACTURERS WALL MOUNTING BRACKET. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. SEE DETAIL H4 ON SHEET M5.02 FOR PIPING CONNECTION REQUIREMENTS.
- RE-INSTALL EXISTING FLUSHED AND CLEANED COIL WITHIN EXISTING HEATING ENCLOSURE. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL H6 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PROVIDE NEW FASTENERS/BRACKETS AS REQUIRED TO RE-INSTALL EXISTING ENCLOSURE COVER.
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- NEW PIPING TO BE CONCEALED ABOVE CEILING IN AREA OF CEILING REPLACEMENT.
- UTILIZE EXISTING PNEUMATIC CONTROL BOX FOR NEW MAKE-UP AIR UNIT CONTROL. PROVIDE ALL REQUIRED RELAYS BETWEEN NEW POOL THERMOSTAT, CONTROL BOX, AND MAKE-UP AIR UNIT. RESTORE INTERLOCK BETWEEN MAKE-UP AIR FAN OPERATION AND BAGMENT RELIEF AIR FAN OPERATION.

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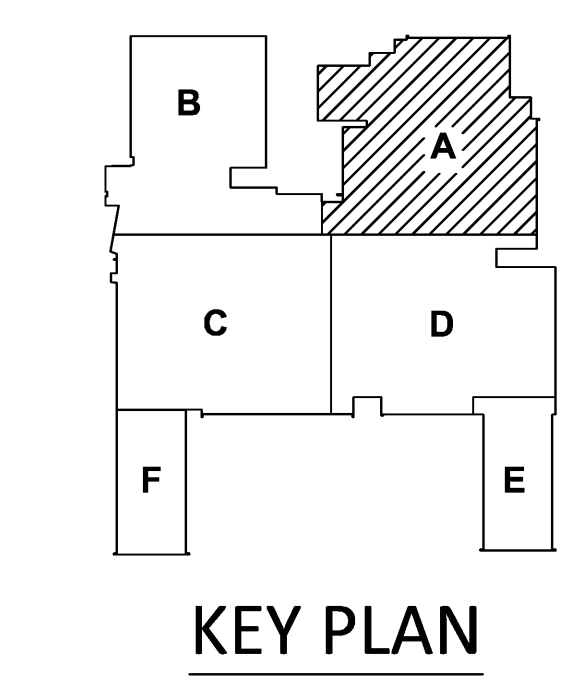
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Jonathan Loose
6220259208 Date 10/31/13

Revisions	Date	Num

Comm: 124021
Date: 4/16/2013
Drawn: JL
Check: JL

MAIN LEVEL HVAC, PIPING, AND EMCS PLAN - AREA 'A'

Scale: 1/8" = 1'-0"

M1.11H

REFER TO M1.12 FOR CONTINUATION

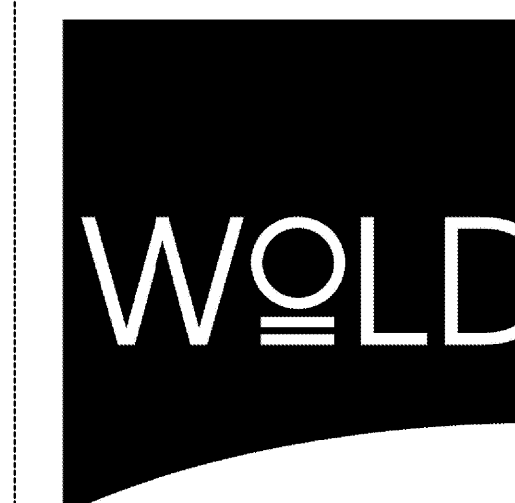
(H1) MAIN LEVEL HVAC, PIPING, AND EMCS PLAN - AREA 'A'
1/8"=1'-0"

REDFORD UNION HIGH SCHOOL HVAC/MECHANICAL 11.DWG

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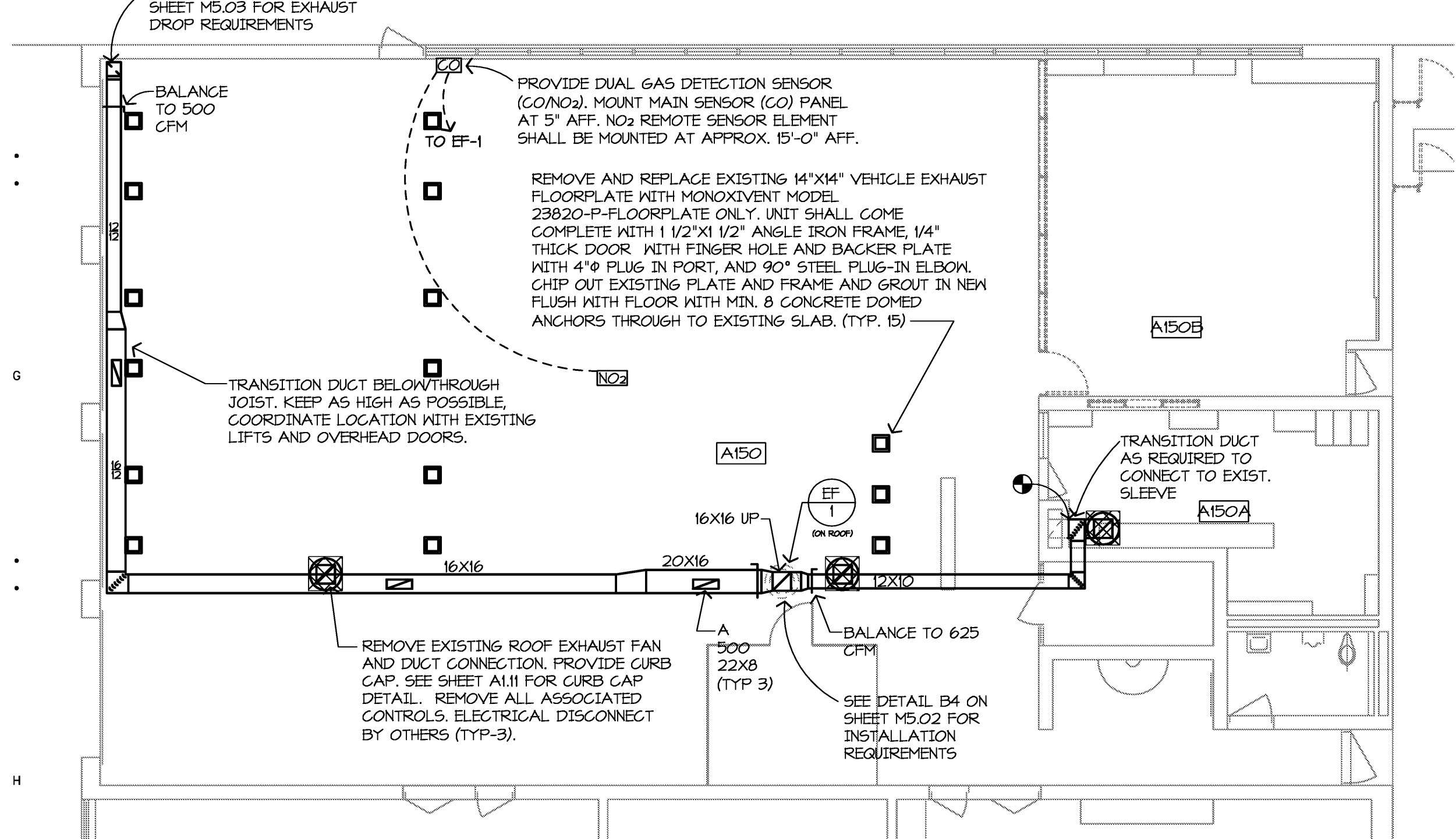
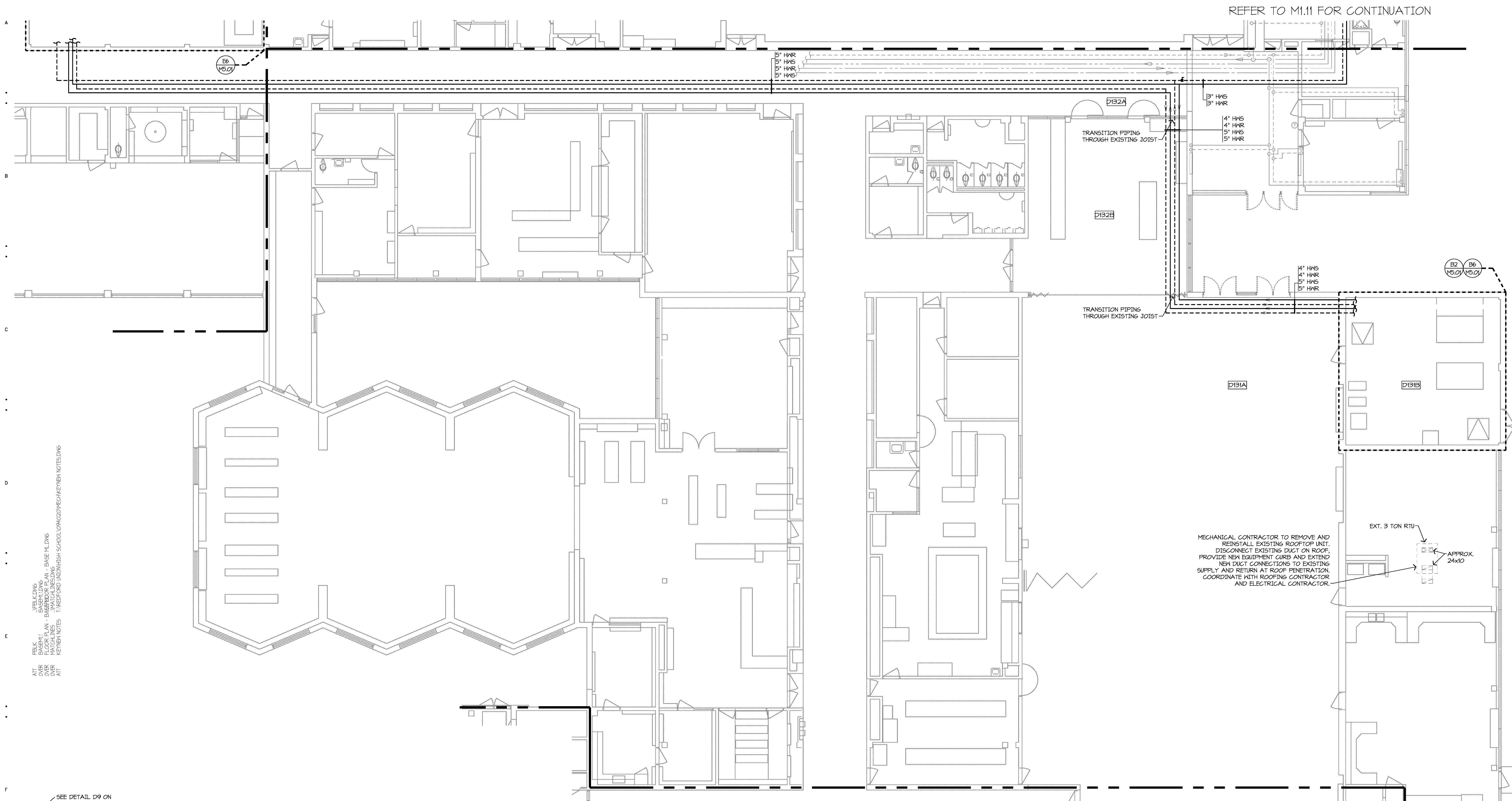
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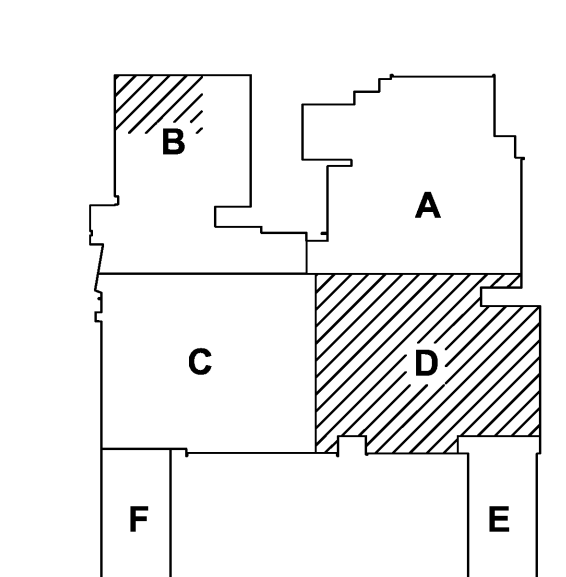


(G1) PARTIAL MAIN LEVEL HVAC, PIPING, AND EMCS PLAN - AREA 'B'
1/8"=1'-0"

(D6) PARTIAL MAIN LEVEL HVAC, PIPING, AND EMCS PLAN - AREA 'D'
1/8"=1'-0"

MECHANICAL CONTRACTOR TO REMOVE AND REINSTALL EXISTING ROOFTOP UNIT. DISCONNECT EXISTING DUCT ON ROOF. PROVIDE NEW EQUIPMENT CURBS AND EXTEND NEW DUCT CONNECTIONS TO EXISTING SUPPLY AND RETURN AT ROOF PENETRATION. COORDINATE WITH ROOFING CONTRACTOR AND ELECTRICAL CONTRACTOR.

EXT. 3 TON RTU
APPROX. 24x10



KEY PLAN

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Jonathan Loose
Registration Number 622025908 Date 10/31/13

Revisions		
Description	Date	Rev

Comm: 124021
Date: 4/16/2013
Drawn: JL
Check: JL

North

**PARTIAL MAIN LEVEL
HVAC, PIPING,
AND EMCS
PLANS - AREA 'B'
AND AREA 'D'**

Scale: 1/8" = 1'-0"

M1.12H

GENERAL NOTES:

- DRAWINGS ARE DIAGNOSTIC AND DO NOT NECESSARILY SHOW ALL REQUIRED RISERS, DROP, AND OFFSETS. LAYOUT PIPING AND DUCT ROUTING AND COORDINATE WORK WITH OTHER TRADES PRIOR TO STARTING CONSTRUCTION.
- MECHANICAL CONTRACTOR SHALL PERFORM A SITE OBSERVATION SURVEY TO DETERMINE LIMITATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF WORK PRIOR TO BID. VERIFY EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN WITHIN SPACE INTENDED.
- ALL EXISTING SERVICES SHALL BE MAINTAINED AT ALL TIMES, UNLESS OTHERWISE INDICATED ON THE PLANS. COORDINATE DISRUPTION OF SERVICES WITH OWNER TO PROVIDE AN ACCEPTABLE TIME FOR DOWN TIME.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF EXISTING CONSTRUCTION UNLESS OTHERWISE NOTED ON PLANS. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH WILL DEGRADATE THE INTEGRITY AND STRENGTH OF THE BUILDING WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.
- THE MECHANICAL CONTRACTOR SHALL REMOVE ALL EXISTING CEILING TILES AND GRIDS AS REQUIRED FOR INSTALLATION OF NEW WORK. ANY DAMAGED TILES AND OR GRIDS SHALL BE REPLACED WITH NEW TO MATCH AT THE CONTRACTORS EXPENSE.

- PATCH AND REPAIR OPENINGS THROUGH WALLS AND FLOORS WHERE MECHANICAL SYSTEMS WERE REMOVED TO MATCH EXISTING AND TO MAINTAIN ALL FIRE & SMOKE RATINGS, WALL AND FLOOR FINISH BY OTHERS.
- COORDINATE LOCATIONS OF ANY ACCESS PANELS REQUIRED IN WALLS OR CEILING WITH GENERAL CONTRACTOR.
- DIFFUSER DUCT RUNOUTS AND FLEXIBLE DUCT CONNECTIONS SHALL BE THE SAME SIZE AS THE DIFFUSER NECK.
- ALL HYDRONIC BRANCH PIPING TO HEATING UNITS SHALL BE 3/4" UNLESS OTHERWISE NOTED.
- ALL NEW MAIN AND UPPER LEVEL HOT WATER SUPPLY AND RETURN PIPING SHOWN TO BE ROUTED TIGHT TO UNDERSIDE OF EXISTING CEILING UNLESS OTHERWISE NOTED. COORDINATE ROUTING WITH EXISTING LIGHTING. RACK PIPING TO WALL AS HIGH AS POSSIBLE IF NECESSARY TO AVOID CONFLICTS.
- CHECK ALL EXISTING COILS INDICATED TO BE CLEANED AND FLUSHED FOR LEAKS PRIOR TO FINAL CONNECTIONS.
- TEST ALL RECONNECTED AIR LINES TO CONTROL VALVES TO VERIFY FULL FUNCTIONING CAPABILITY. REPAIR LEAKS AND REPLACE TUBING AS REQUIRED.

REDFORD UNION HIGH SCHOOL HVAC MECHANICAL 12.DWG

**REDFORD UNION
MECHANICAL /
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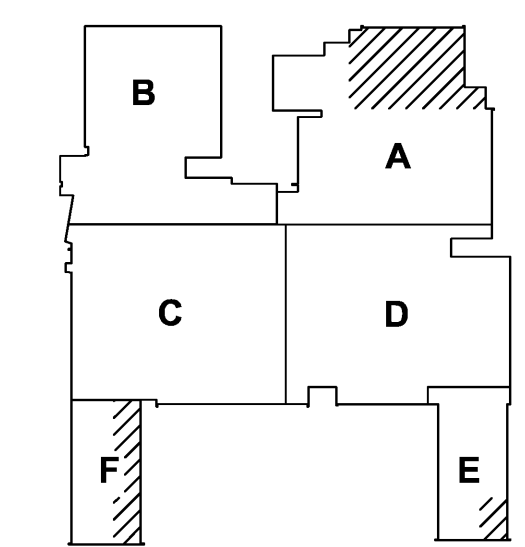
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GENERAL NOTES:

1. DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL REQUIRED RISERS, DROP, AND OFFSETS. LAYOUT PIPING AND DUCT ROUTING AND COORDINATE WORK WITH OTHER TRADES PRIOR TO STARTING CONSTRUCTION.
2. MECHANICAL CONTRACTOR SHALL PERFORM A SITE OBSERVATION SURVEY TO DETERMINE LIMITATIONS AND/OR CONFLICTS RELATIVE TO THE EXECUTION OF WORK PRIOR TO BID. VERIFY EXACT DETAIL OF INSTALLATION REQUIRED TO PROVIDE SYSTEMS SHOWN WITHIN SPACE INTENDED.
3. ALL EXISTING SERVICES SHALL BE MAINTAINED AT ALL TIMES, UNLESS OTHERWISE INDICATED ON THE PLANS. COORDINATE DISRUPTION OF SERVICES WITH OWNER TO PROVIDE AN ACCEPTABLE TIME FOR DOWN TIME.
4. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING OF EXISTING CONSTRUCTION UNLESS OTHERWISE NOTED ON PLANS. NO CUTTING OF STRUCTURAL MEMBERS OR STRUCTURE WHICH WILL DETERIORATE THE INTEGRITY AND STRENGTH OF THE BUILDING WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER.
5. THE MECHANICAL CONTRACTOR SHALL REMOVE ALL EXISTING CEILING TILES AND GRIDS AS REQUIRED FOR INSTALLATION OF NEW WORK. ANY DAMAGED TILES AND GRIDS SHALL BE REPLACED WITH NEW TO MATCH AT THE CONTRACTORS EXPENSE.
6. PATCH AND REPAIR OPENINGS THROUGH WALLS AND FLOORS WHERE MECHANICAL SYSTEMS WERE REMOVED TO MATCH EXISTING AND TO MAINTAIN ALL FIRE & SMOKE RATINGS. WALL AND FLOOR FINISH BY OTHERS.
7. COORDINATE LOCATIONS OF ANY ACCESS PANELS REQUIRED IN WALLS OR CEILING WITH GENERAL CONTRACTOR.
8. DIFFUSER DUCT RUNOUTS AND FLEXIBLE DUCT CONNECTIONS SHALL BE THE SAME SIZE AS THE DIFFUSER NECK.
9. ALL HYDRONIC BRANCH PIPING TO HEATING UNITS SHALL BE 3/4" UNLESS OTHERWISE NOTED.
10. ALL NEW MAIN AND UPPER LEVEL HOT WATER SUPPLY AND RETURN PIPING SHOWN TO BE ROUTED TIGHT TO UNDERSIDE OF EXISTING CEILING UNLESS OTHERWISE NOTED. COORDINATE ROUTING WITH EXISTING LIGHTING. RACK PIPING TO WALL AS HIGH AS POSSIBLE IF NECESSARY TO AVOID CONFLICTS.
11. CHECK ALL EXISTING COILS INDICATED TO BE CLEANED AND FLUSHED FOR LEAKS PRIOR TO FINAL CONNECTIONS.
12. TEST ALL RECONNECTED AIR LINES TO CONTROL VALVES TO VERIFY FULL FUNCTIONING CAPABILITY. REPAIR LEAKS AND REPLACE TUBING AS REQUIRED.

NEW WORK KEYED NOTES:

1. CORE DRILL NEW HOLES AS NECESSARY IF EXISTING HOLES CANNOT BE UTILIZED TO SERVE HEATING EQUIPMENT ABOVE. FILL UNUSED CORES WITH FOAM INSULATION.
2. PROVIDE NEW BARE FINNED ELEMENT WITHIN EXISTING ENCLOSURE. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL PIPING COMPONENTS SHOWN IN DETAIL H9 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PROVIDE NEW FASTENERS/BRACKETS AS REQUIRED TO RE-INSTALL EXISTING ENCLOSURE COVER.
3. PROVIDE NEW HEATING EQUIPMENT AT LOCATION OF EXISTING EQUIPMENT. COORDINATE MODIFICATIONS/CUTOUT OF WALL BY OTHERS. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL H6 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE.
4. FLUSH AND CLEAN EXISTING HEATING AND VENTILATING UNIT COIL. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL H6 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW 3-WAY CONTROL VALVE.
5. PROVIDE NEW 3/4" HOT WATER SUPPLY AND RETURN BRANCHES TO NEW CUH AND FTR FROM MAIN RISERS THRU WALL TO UNITS.
6. PROVIDE HHS & HHR PIPING OFFSETS AS REQUIRED TO ROUTE AROUND EXISTING FIRE PROTECTION PIPING.
7. PROVIDE NEW CEILING MOUNTED CABINET UNIT HEATER. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PIPING IN THIS CORRIDOR TO BE CONCEALED ABOVE LOWER CEILING. SEE DETAIL H6 ON SHEET M5.02 FOR PIPING CONNECTION REQUIREMENTS.
8. PROVIDE NEW WALL MOUNTED UNIT HEATER AS HIGH AS POSSIBLE. PROVIDE MANUFACTURERS WALL MOUNTING BRACKET. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. SEE DETAIL H4 ON SHEET M5.02 FOR PIPING CONNECTION REQUIREMENTS.
9. RE-INSTALL EXISTING FLUSHED AND CLEANED COIL WITHIN EXISTING HEATING ENCLOSURE. CONNECT NEW HOT WATER SUPPLY AND RETURN PIPING INCLUDING ALL COMPONENTS SHOWN IN DETAIL H6 ON SHEET M5.02. EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. PROVIDE NEW FASTENERS/BRACKETS AS REQUIRED TO RE-INSTALL EXISTING ENCLOSURE COVER.
10. PROVIDE NEW FIN TUBE RADIATOR AT SAME ELEVATION AS EXISTING REMOVED UNIT (APPROX. 7'-0" AFF.). EXTEND EXISTING AIR LINE FROM EXISTING THERMOSTAT TO NEW CONTROL VALVE. SEE DETAIL H9 ON SHEET M5.02 FOR PIPING CONNECTION REQUIREMENTS.
11. NEW PIPING TO BE CONCEALED ABOVE CEILING IN AREA OF CEILING REPLACEMENT.
12. UTILIZE EXISTING PNEUMATIC CONTROL BOX FOR NEW MAKE-UP AIR UNIT CONTROL. PROVIDE ALL REQUIRED RELAYS BETWEEN NEW POOL THERMOSTAT, CONTROL BOX AND MAKE-UP AIR UNIT. RESTORE INTERLOCK BETWEEN MAKE-UP AIR FAN OPERATION AND BASEMENT RELIEF AIR FAN OPERATION.



KEY PLAN

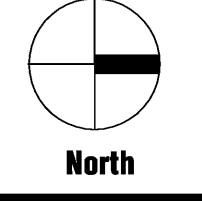
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under the laws of the State of MICHIGAN

Jonathan Loose
622025908 Date 10/31/13

Revisions		
Description	Date	Rev

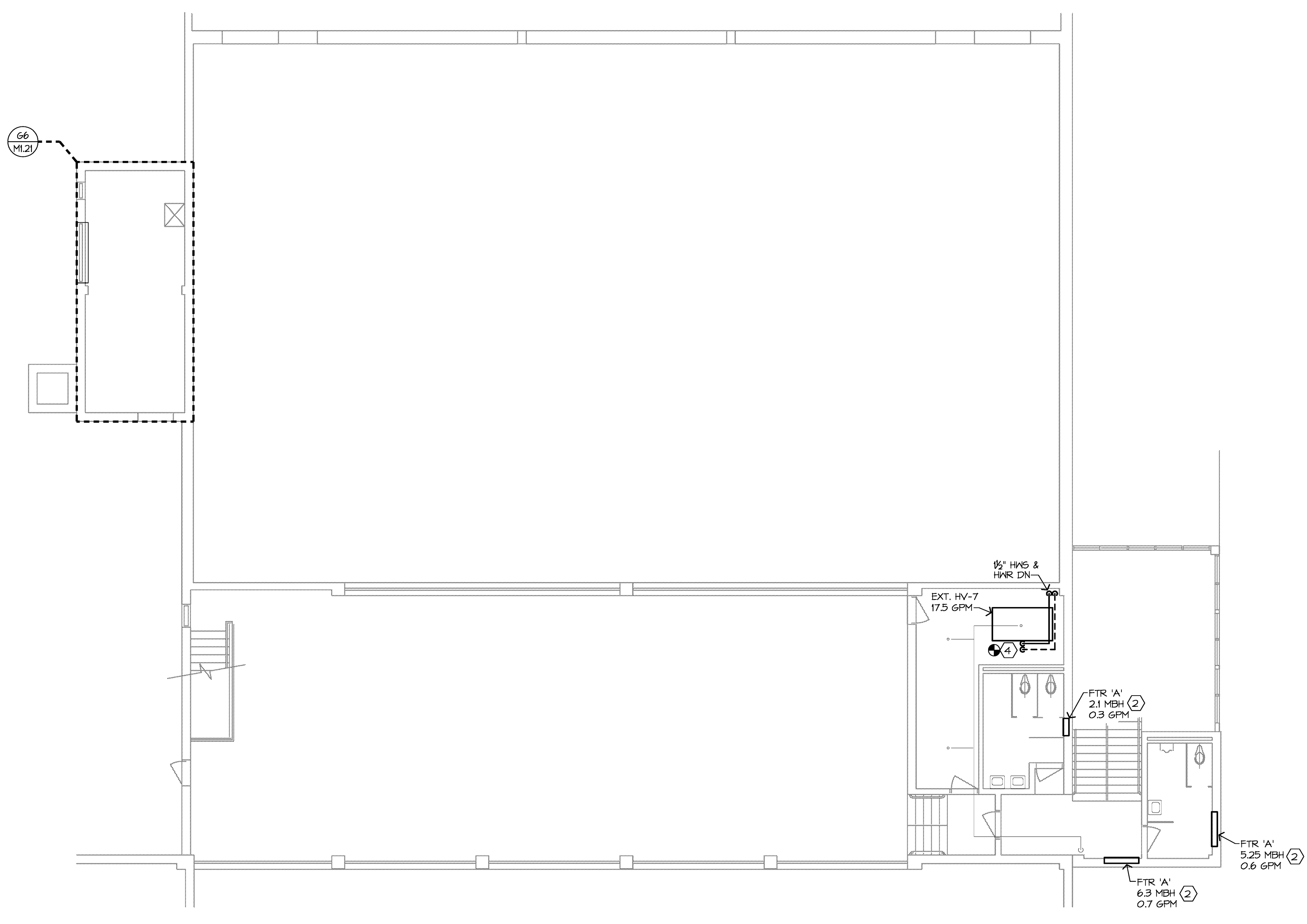
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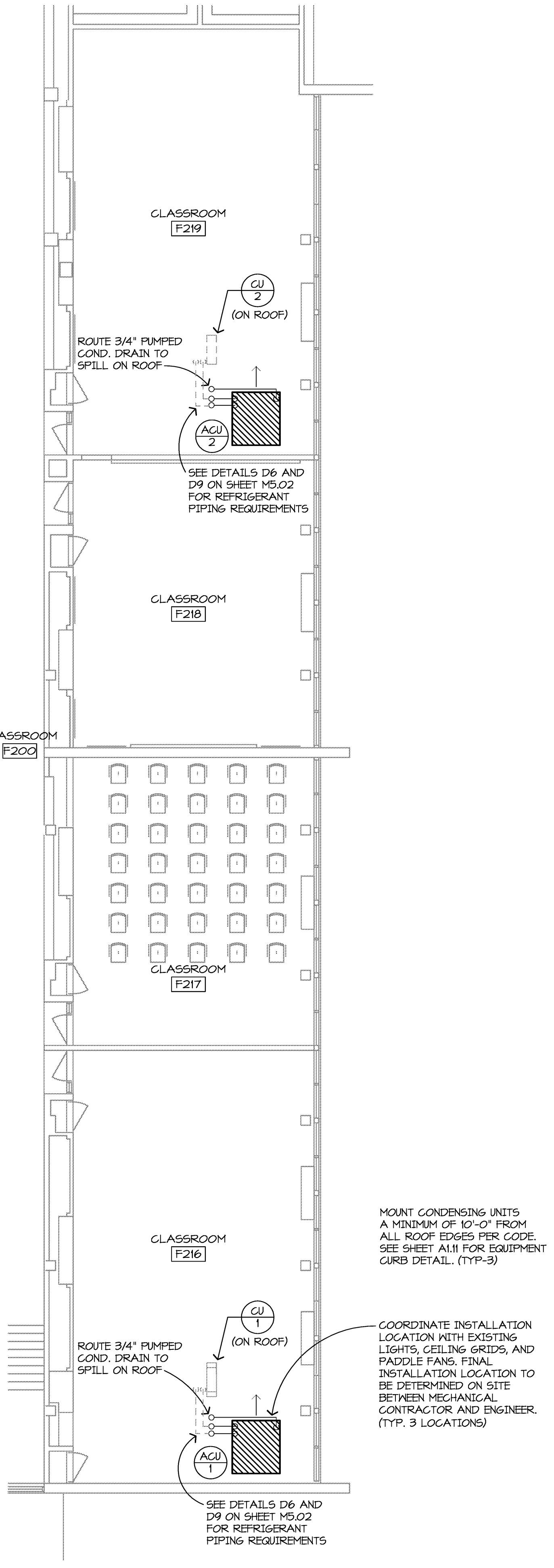
**PARTIAL UPPER
LEVEL HVAC,
PIPING, AND EMCS
PLANS - AREA 'A'
'E' AND 'F'**

Scale: AS NOTED

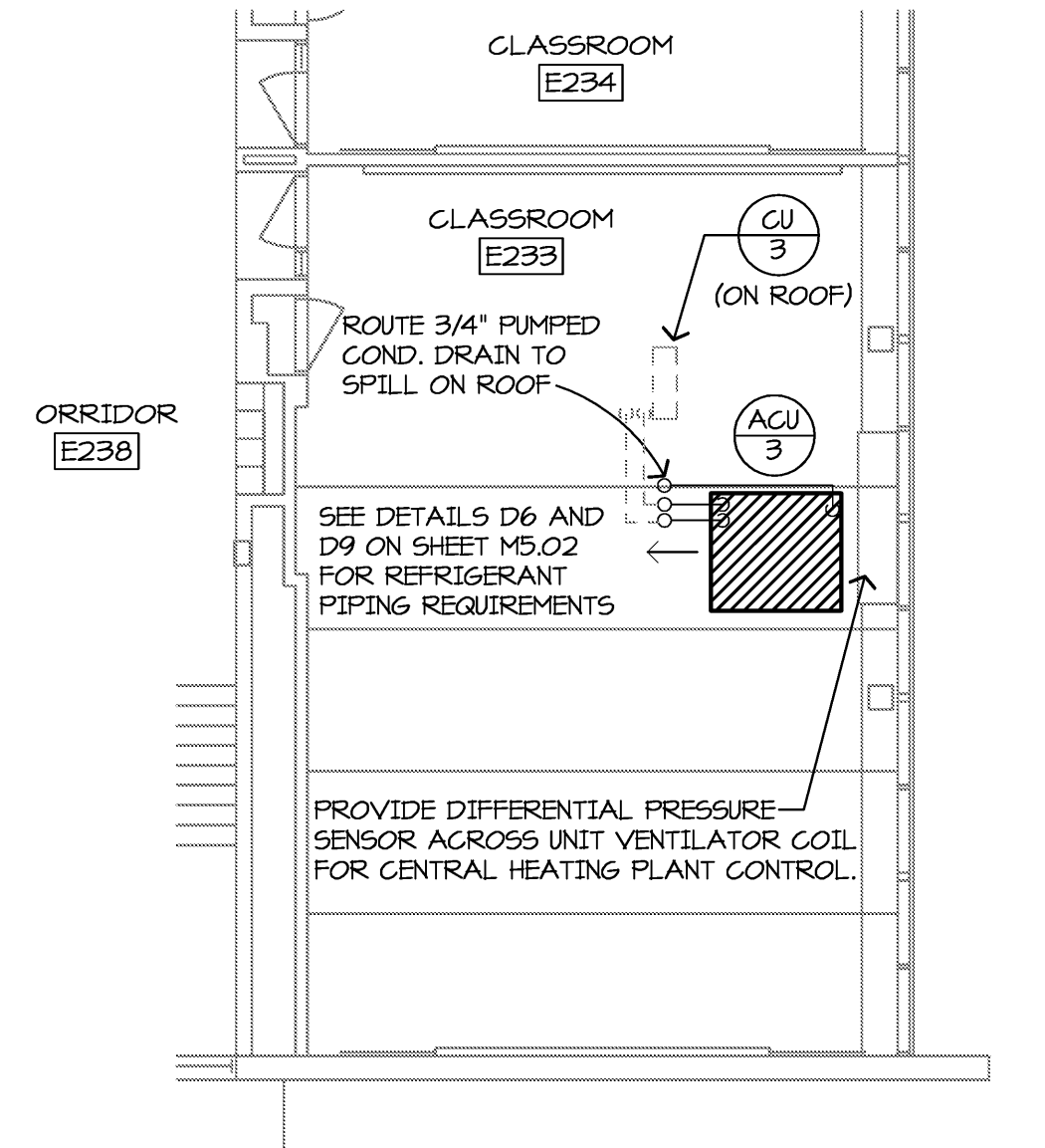
M1.21H



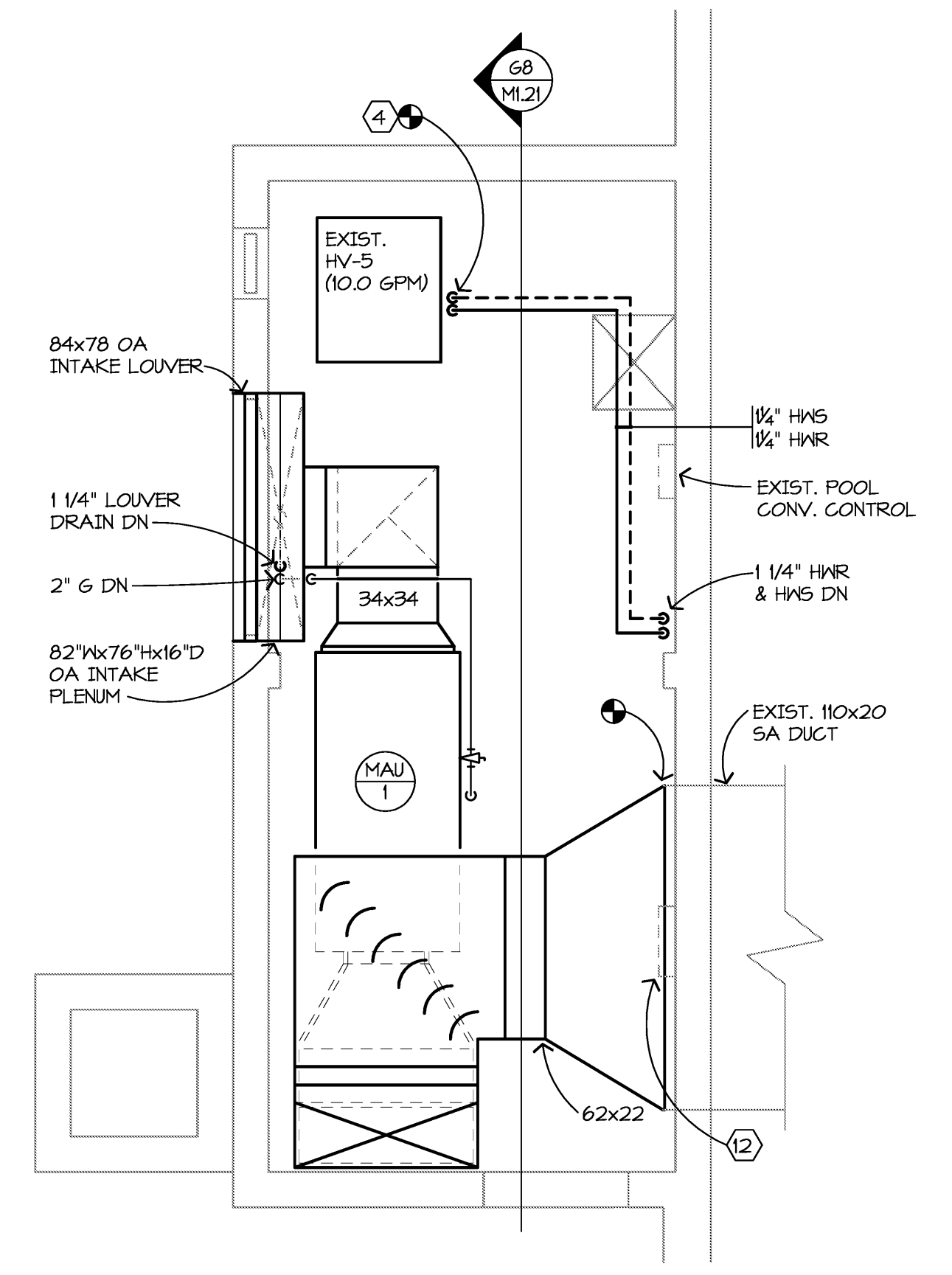
E4 UPPER LEVEL HVAC, PIPING, AND EMCS PLAN - AREA 'A'
1/8"=1'-0"



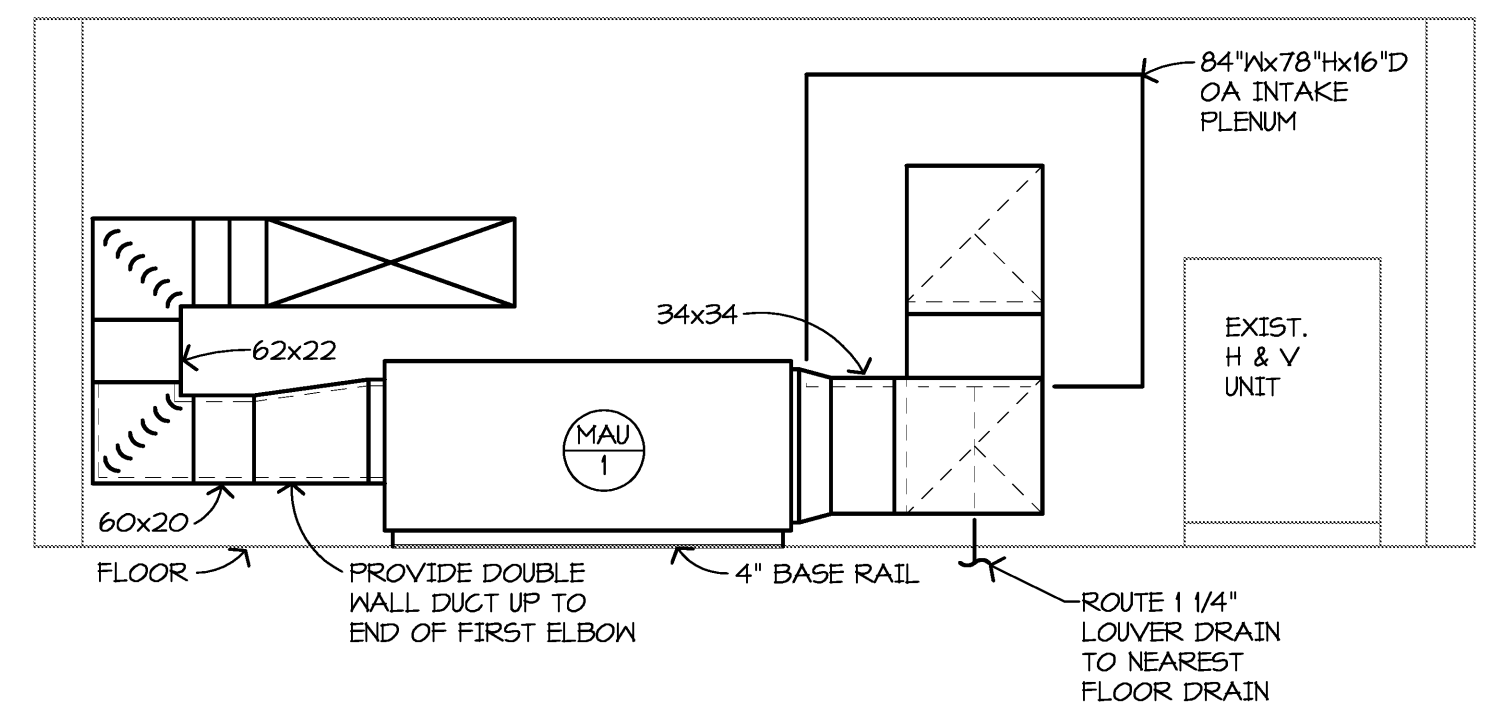
G1 PARTIAL UPPER LEVEL MECH. PLAN - AREA 'F'
1/8"=1'-0"



G4 PARTIAL UPPER LEVEL MECH. PLAN - AREA 'E'
1/8"=1'-0"



G6 ENLARGED MECHANICAL ROOM PLAN
1/4"=1'-0"



G8 MAU-1 SECTION
1/4"=1'-0"

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 BOSTON, MA 02114
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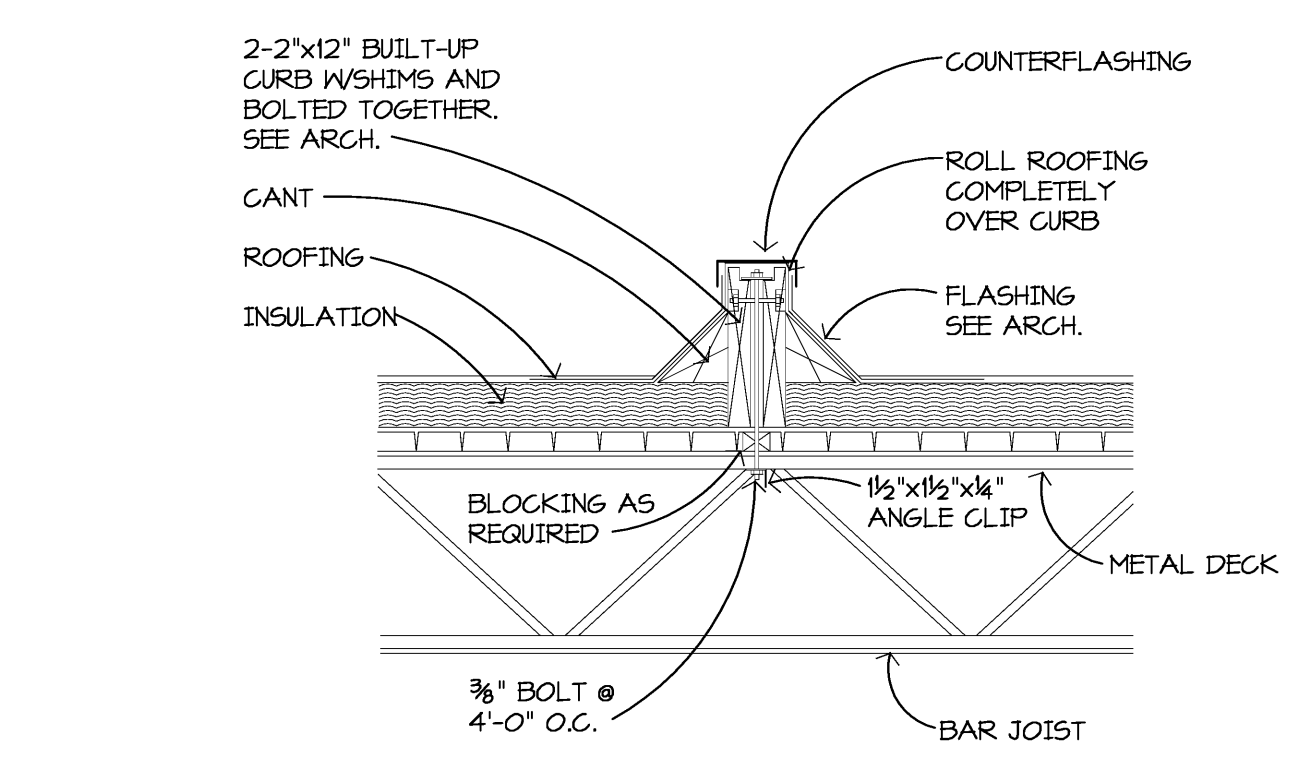
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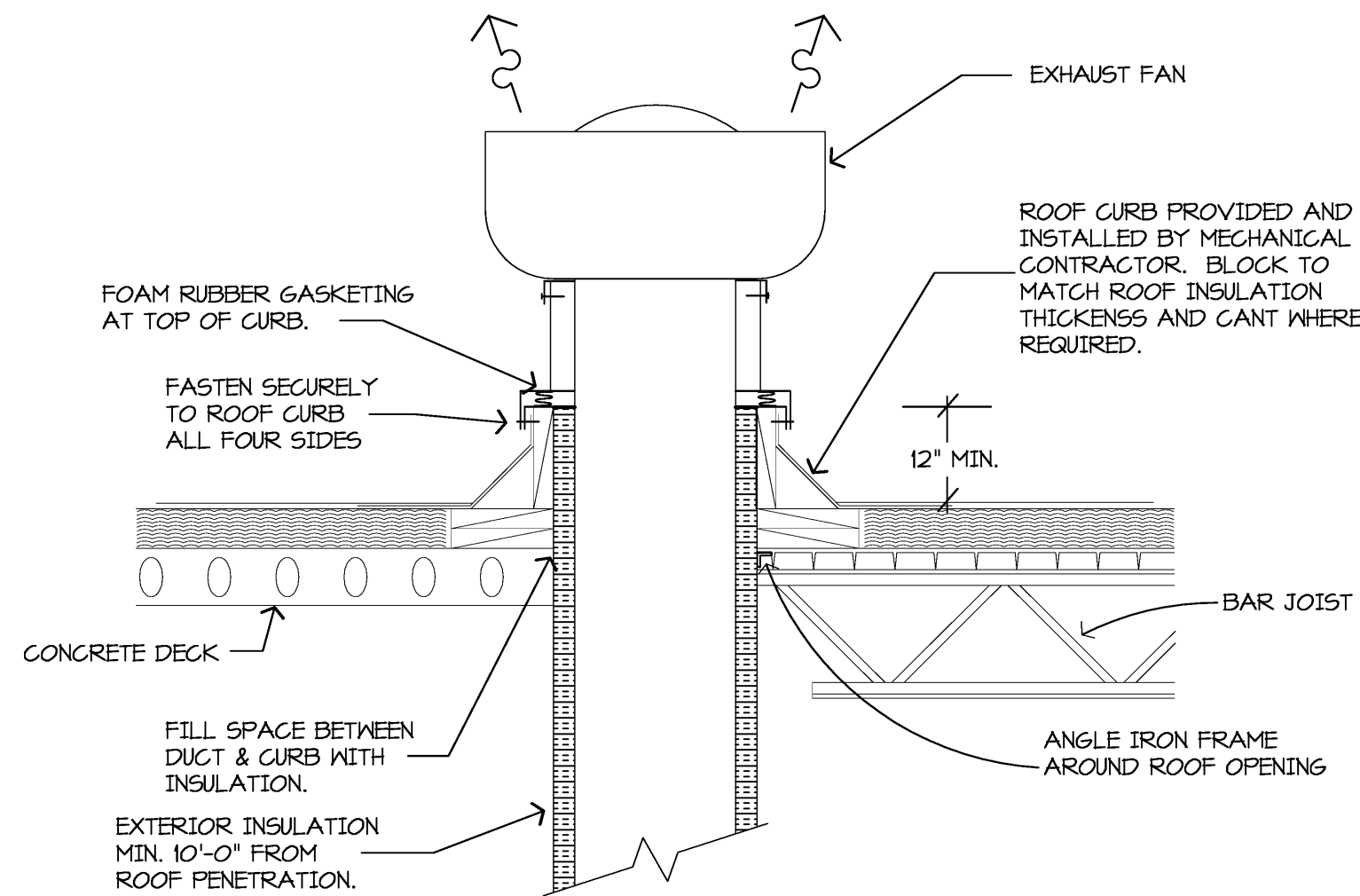
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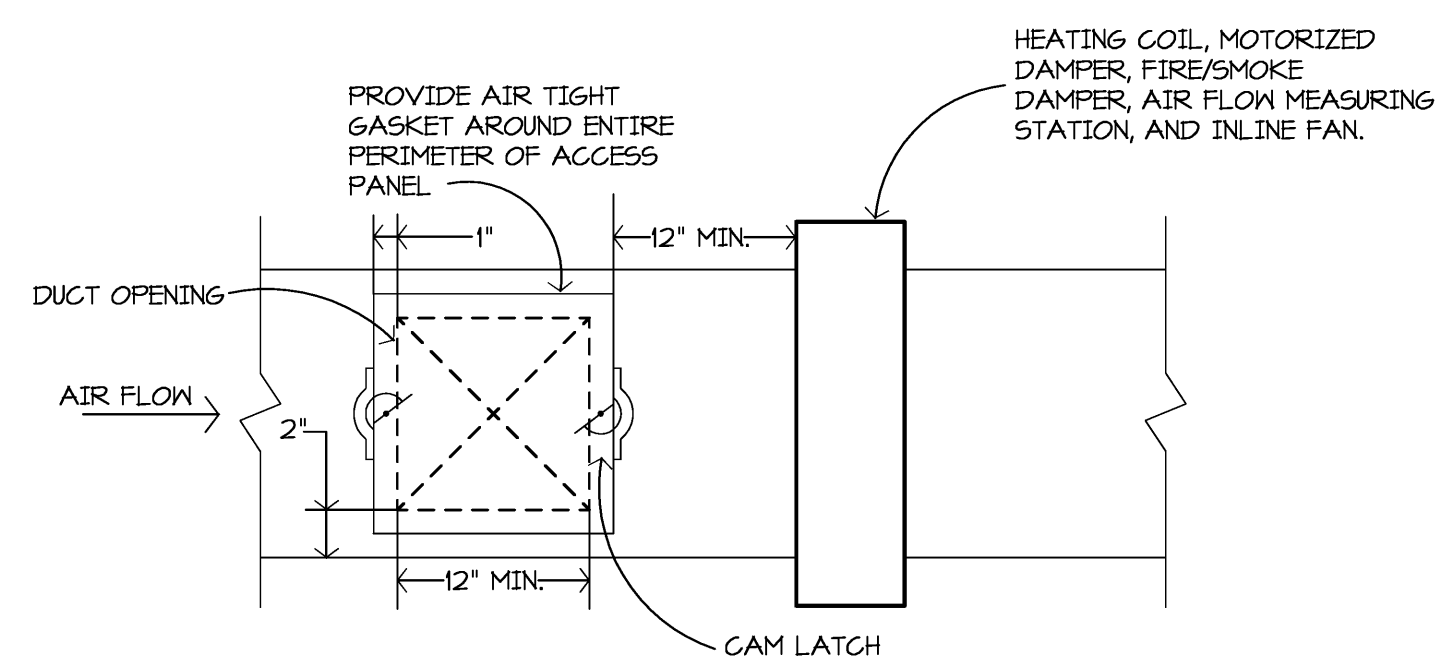
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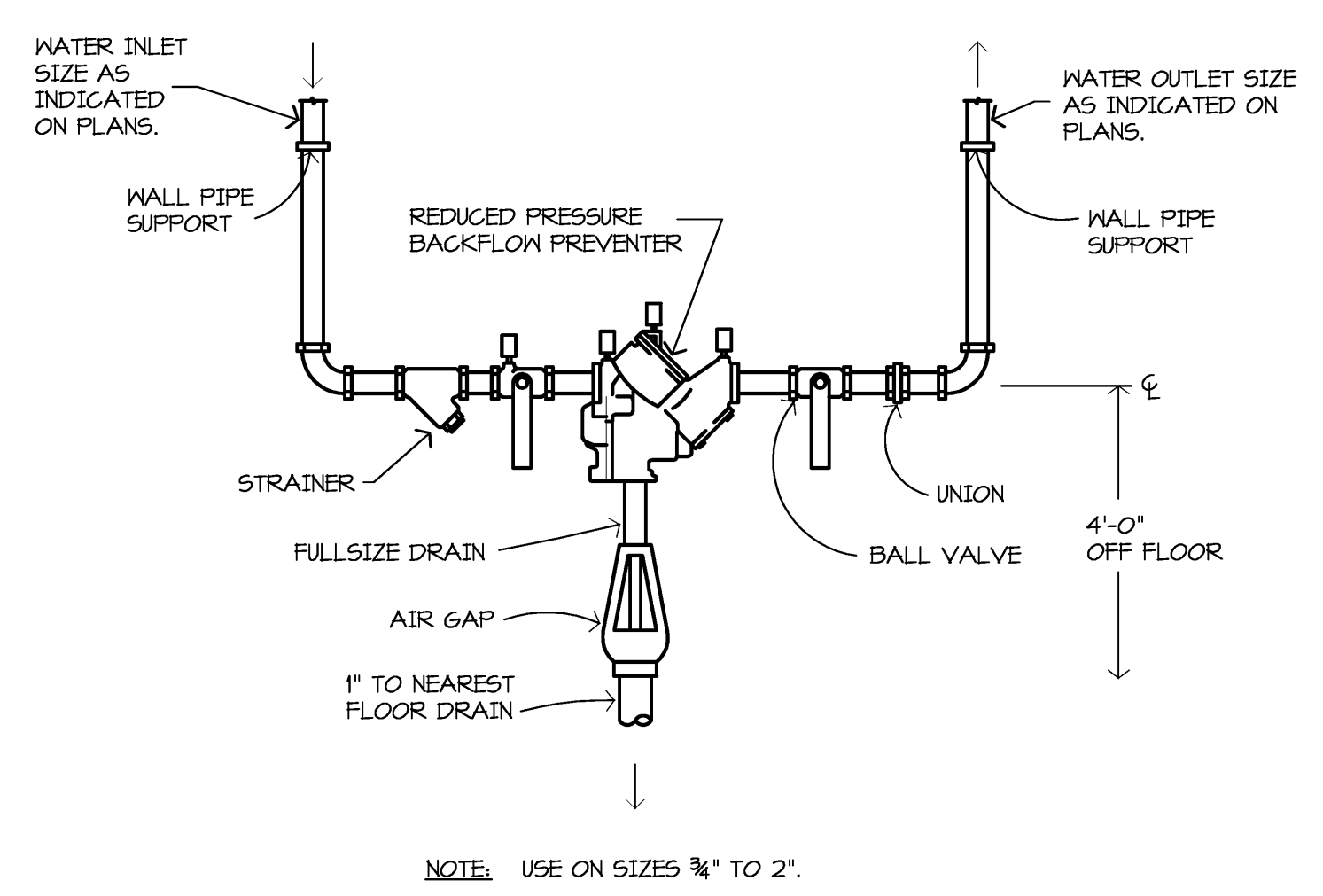
B2 ROOF MOUNTED EQUIPMENT CURB DETAIL
NO SCALE



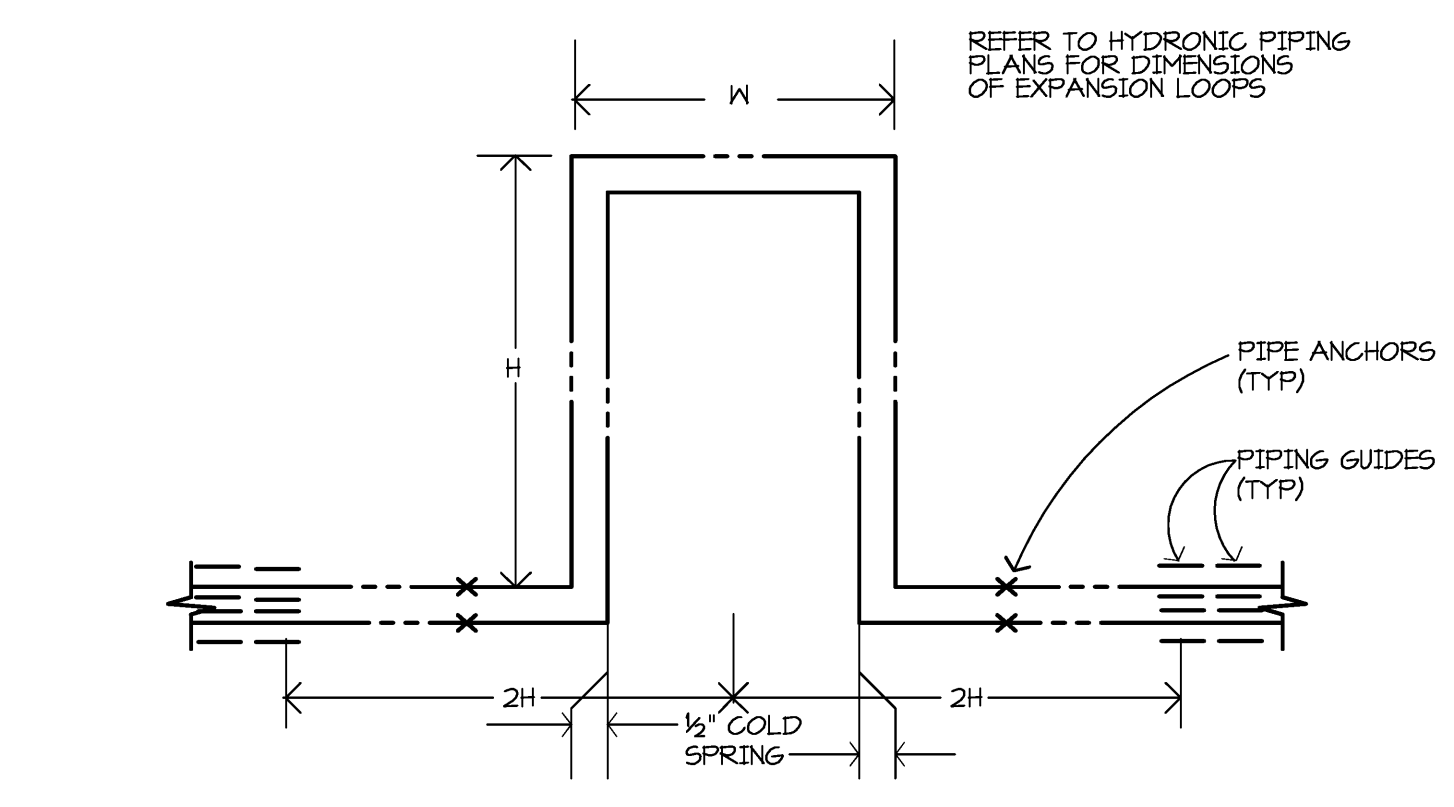
B4 UPBLAST EXHAUST FAN DETAIL
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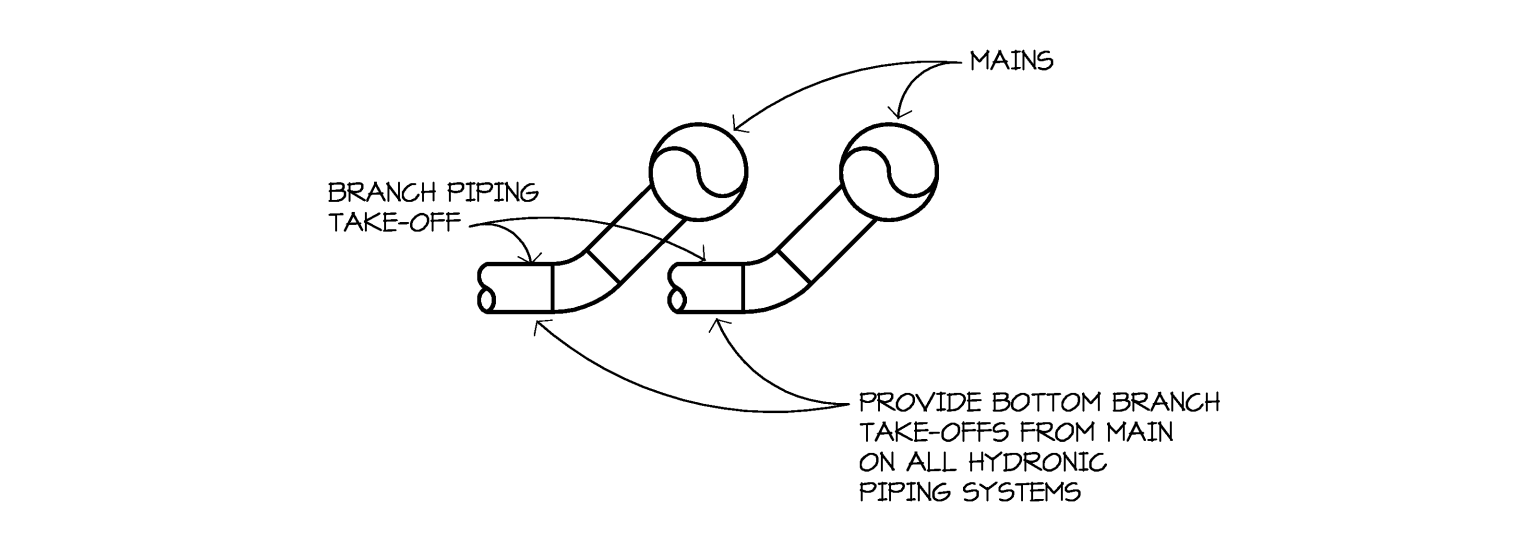
B6 ACCESS PANEL DETAIL
NO SCALE



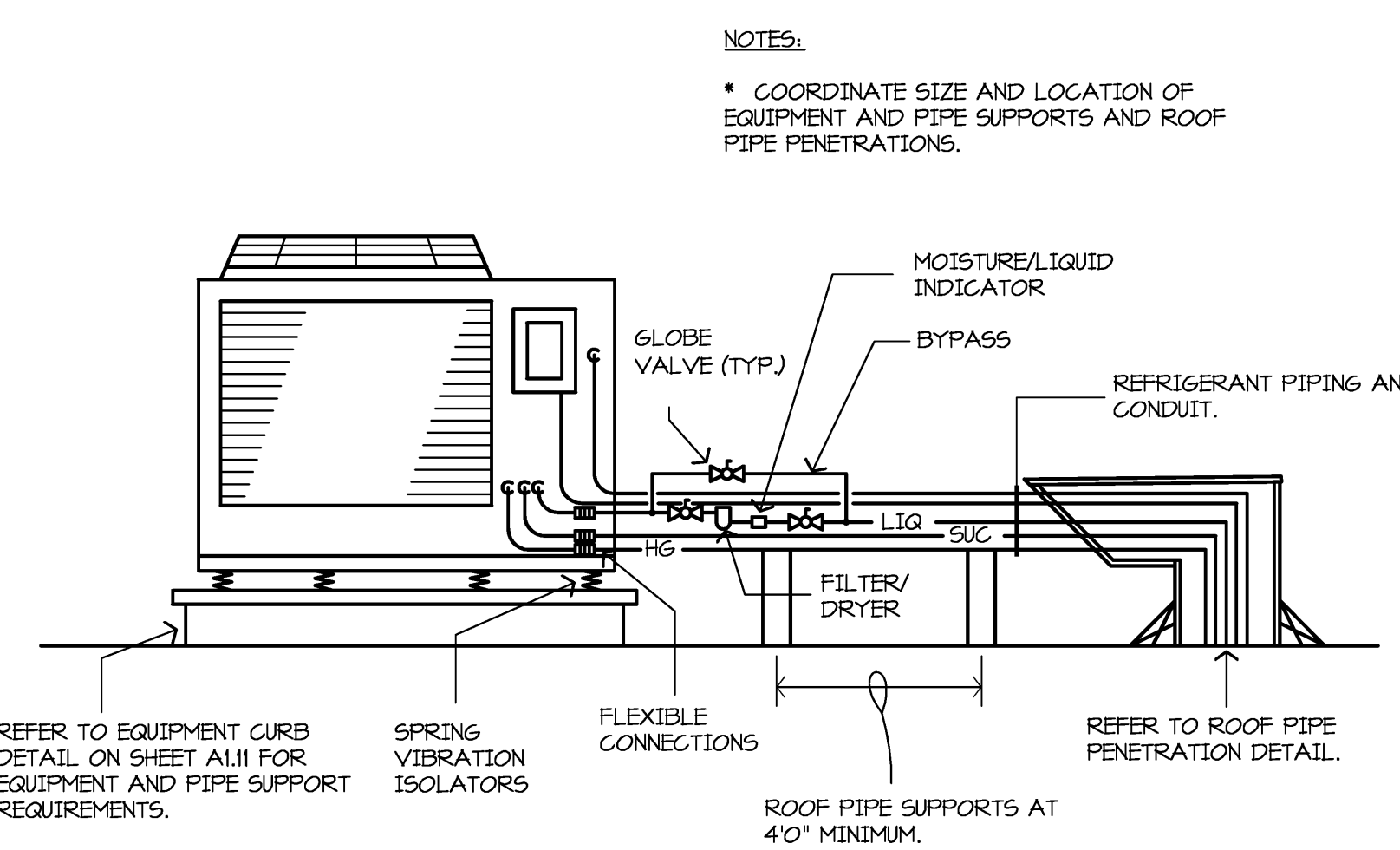
B9 REDUCED PRESSURE BACKFLOW PREVENTER DETAIL
NO SCALE



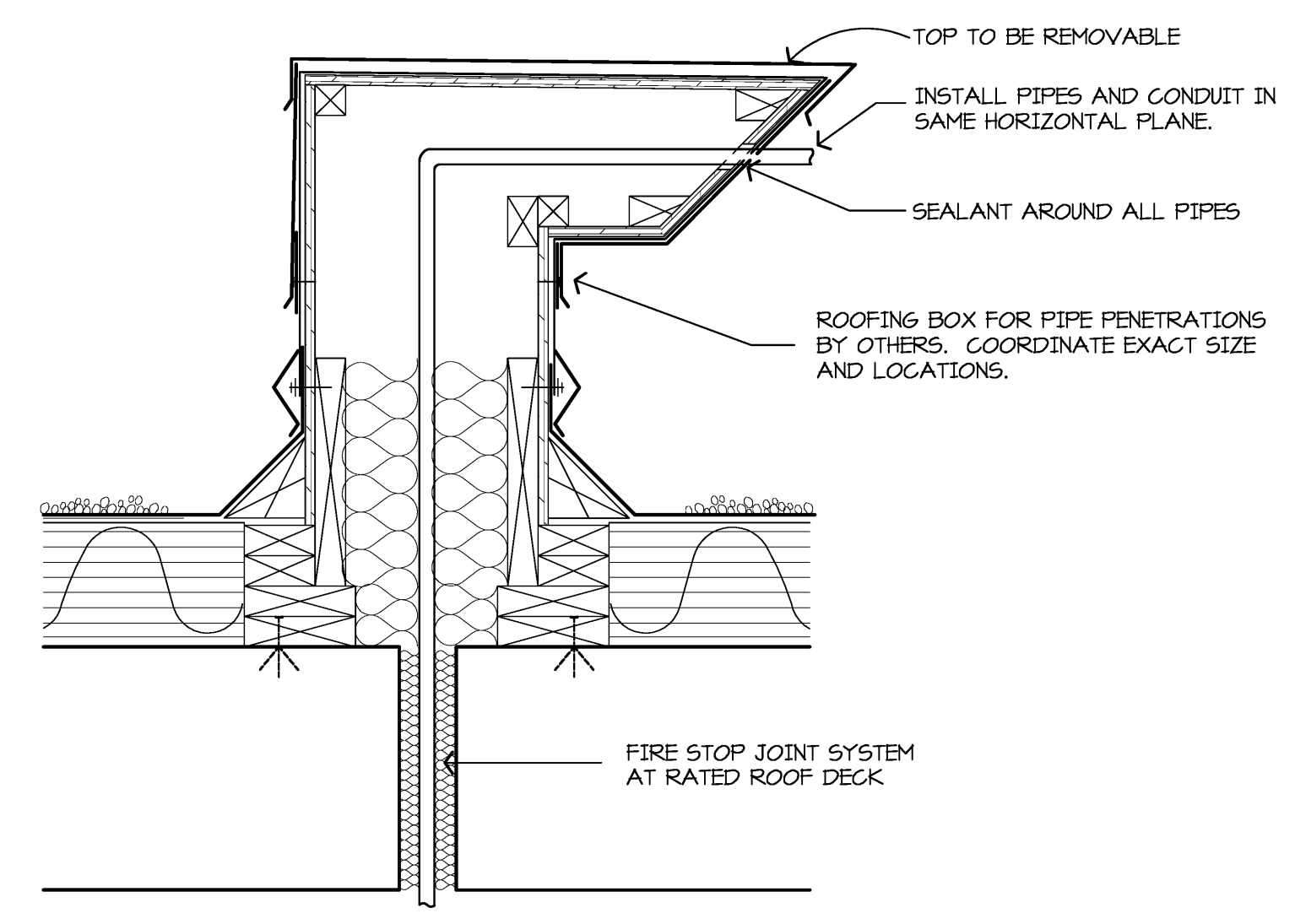
D2 EXPANSION LOOP DETAIL
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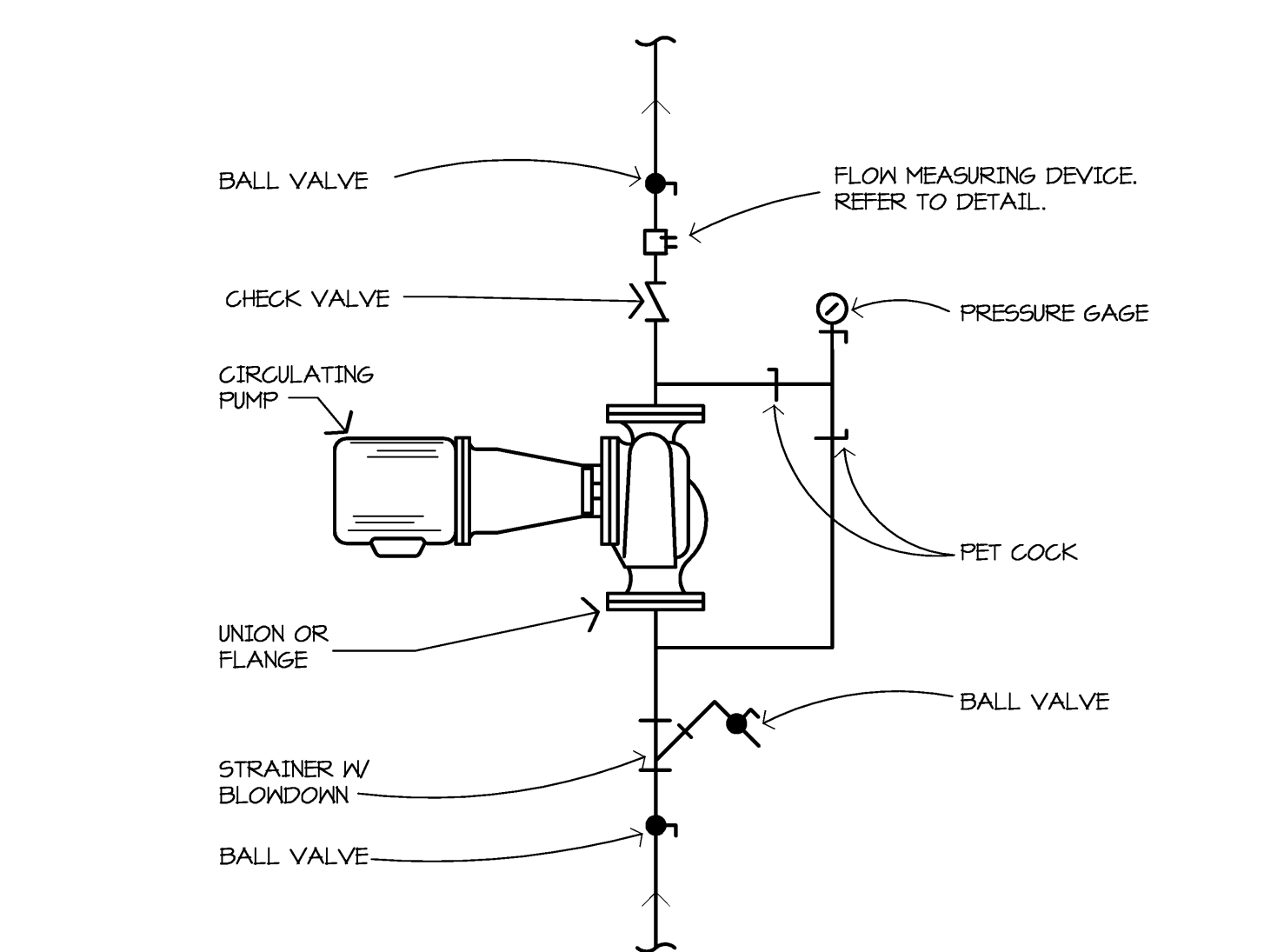
D4 HYDRONIC BRANCH PIPING TAKE-OFF DETAIL
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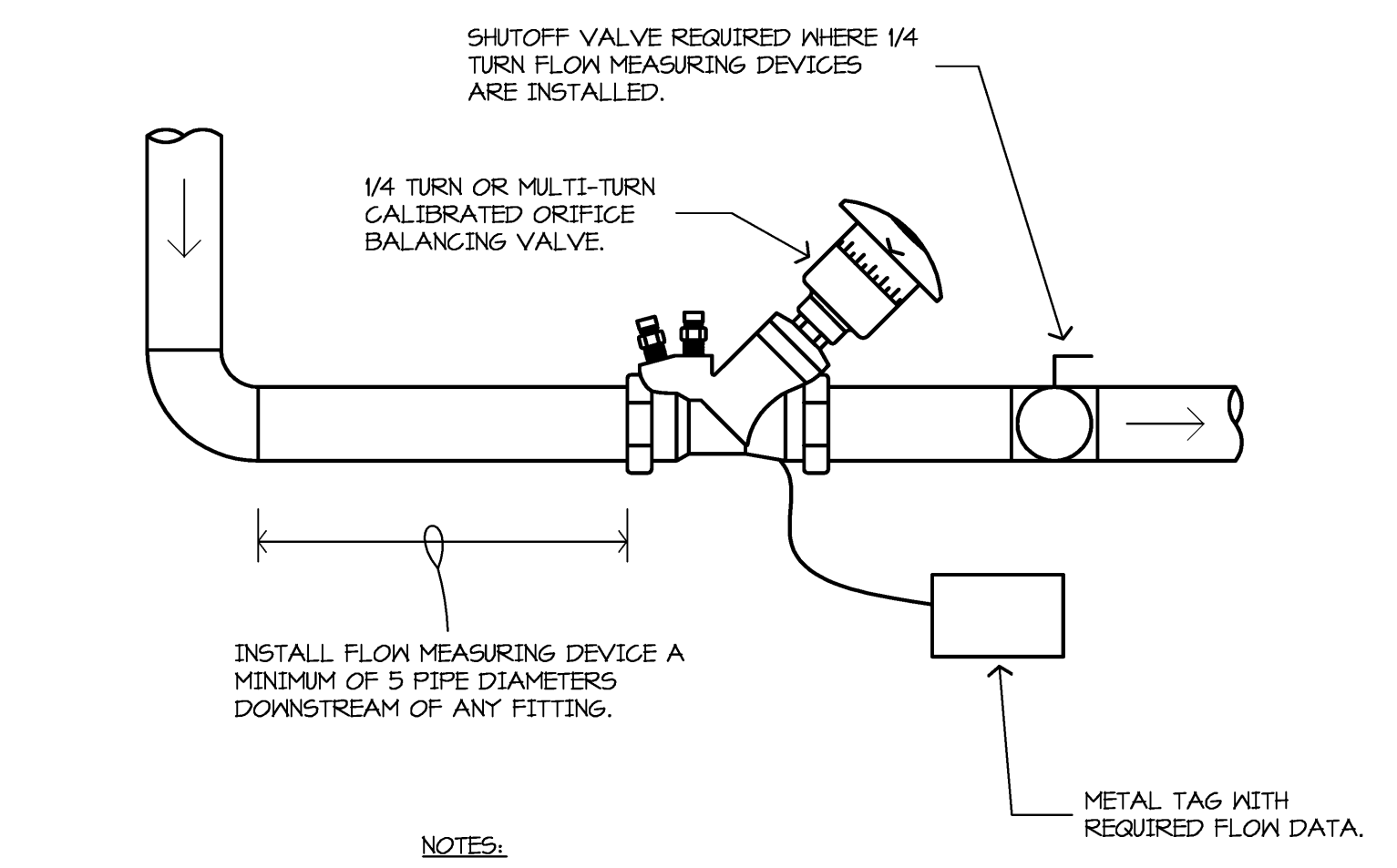
D6 ROOFTOP CONDENSING UNIT DETAIL
NO SCALE



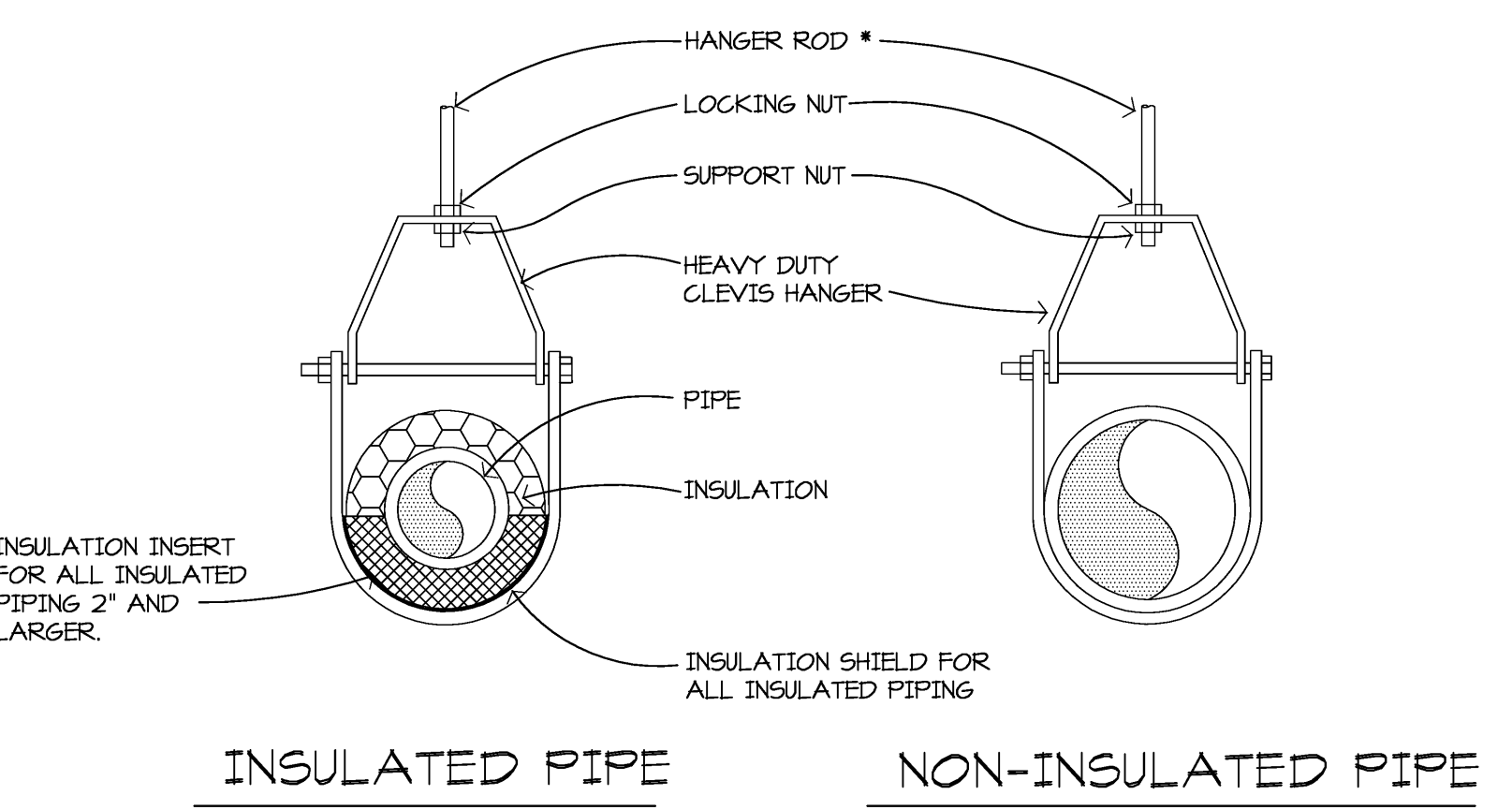
D9 ROOF PIPE PENETRATION DETAIL
NO SCALE



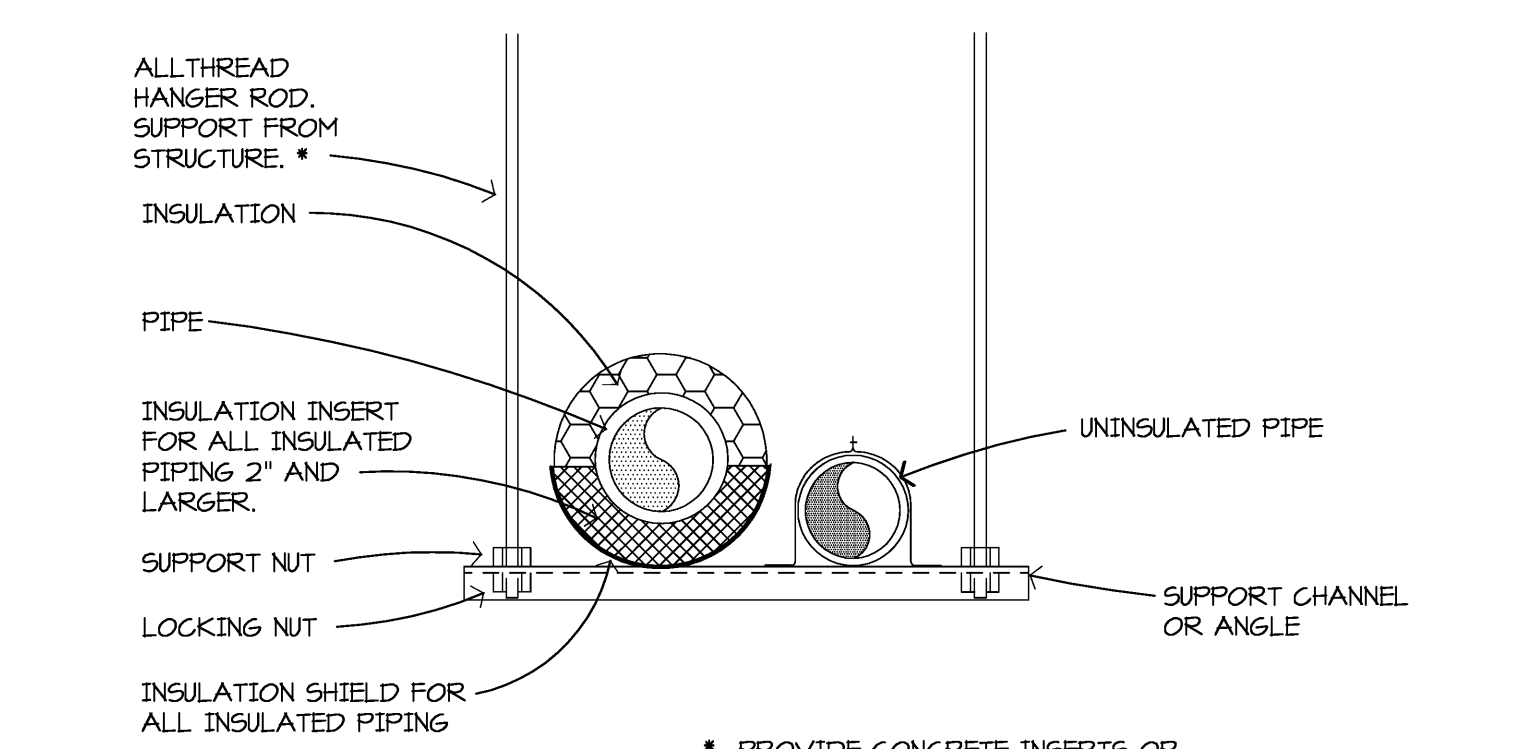
F2 INLINE CIRCULATING PUMP DETAIL
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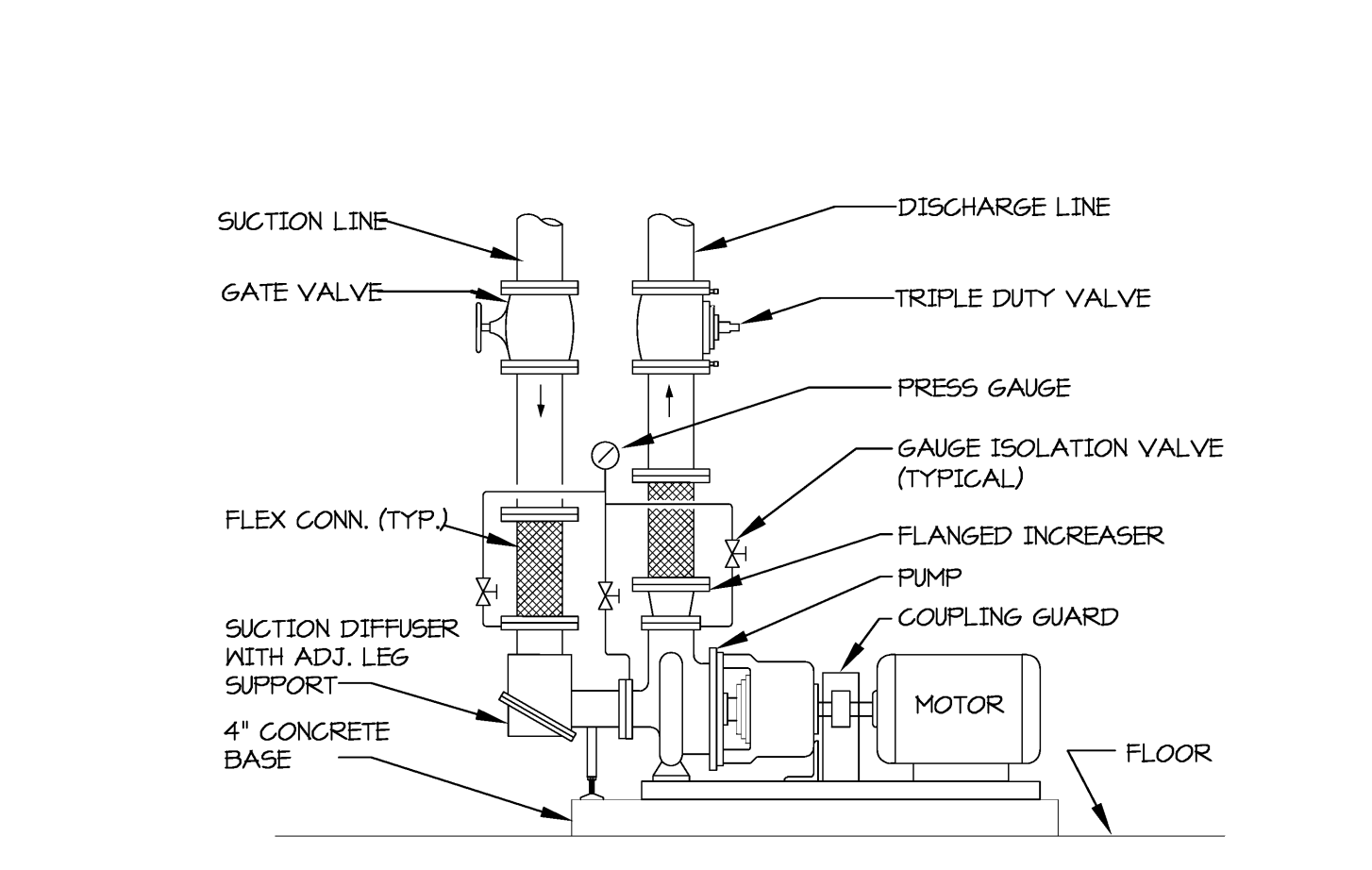
F4 FLOW MEASURING DEVICE DETAIL
NO SCALE



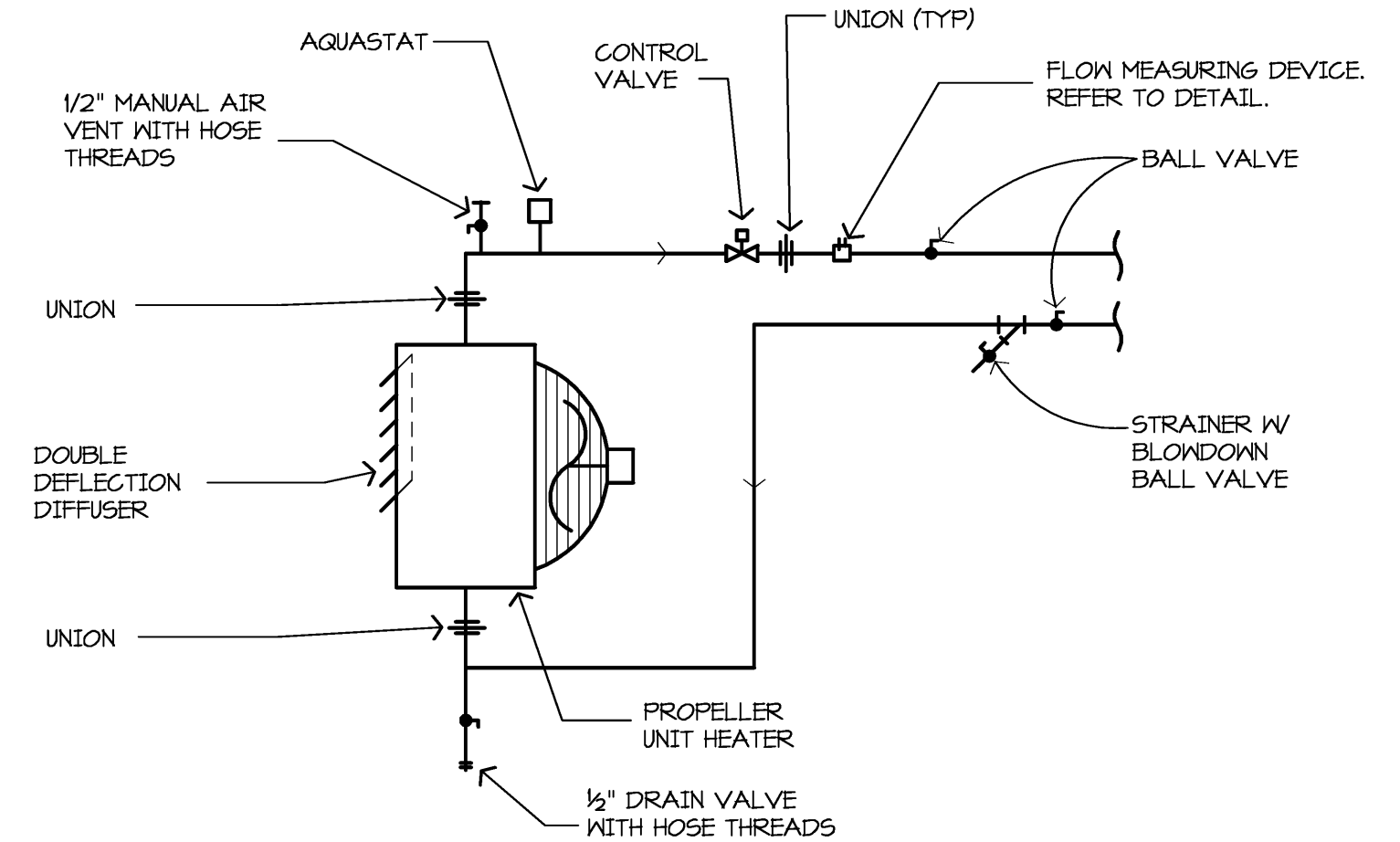
F6 CLEVIS PIPE HANGER DETAIL
NO SCALE



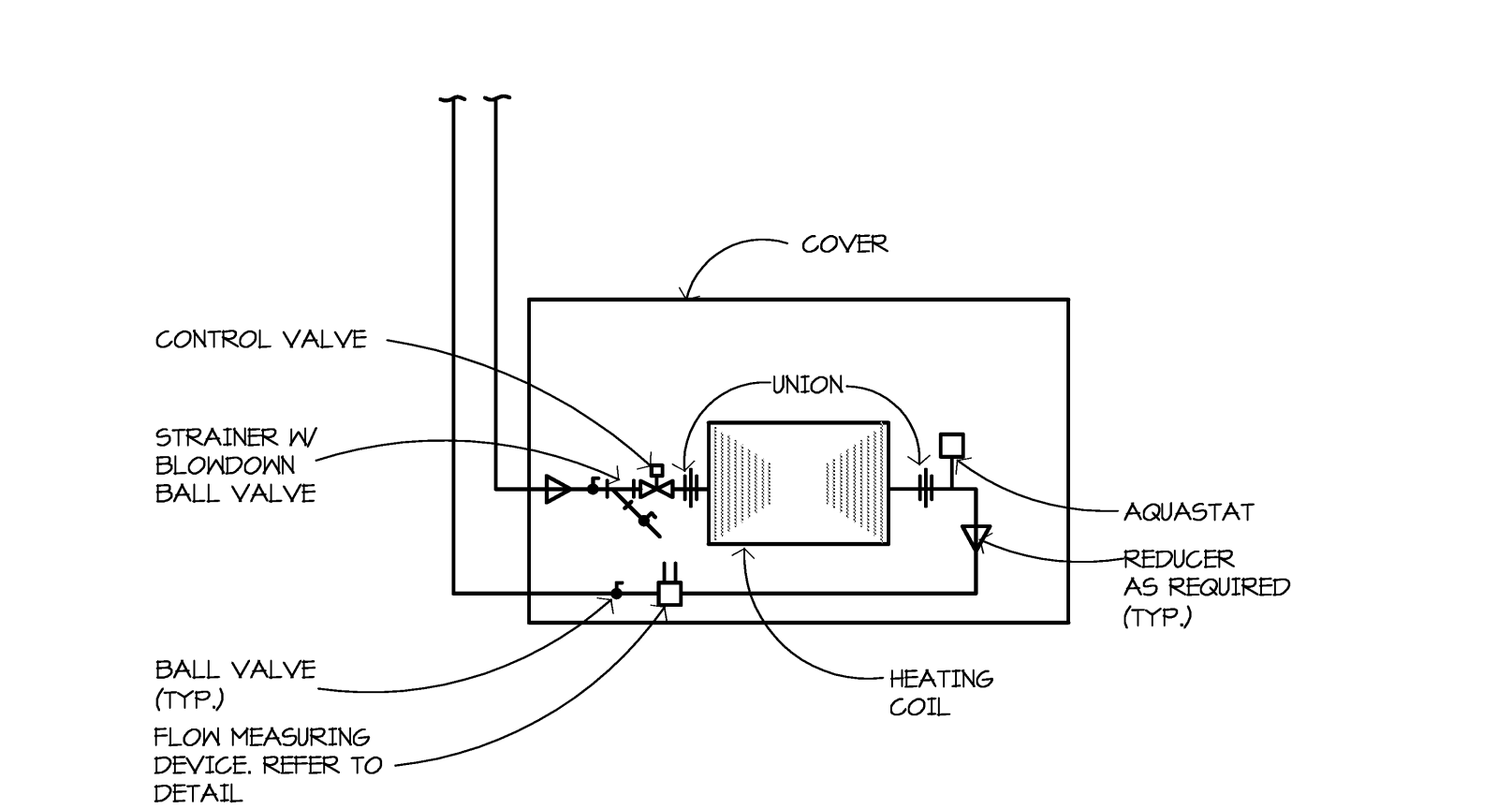
F9 TRAPEZE PIPE HANGER DETAIL
NO SCALE



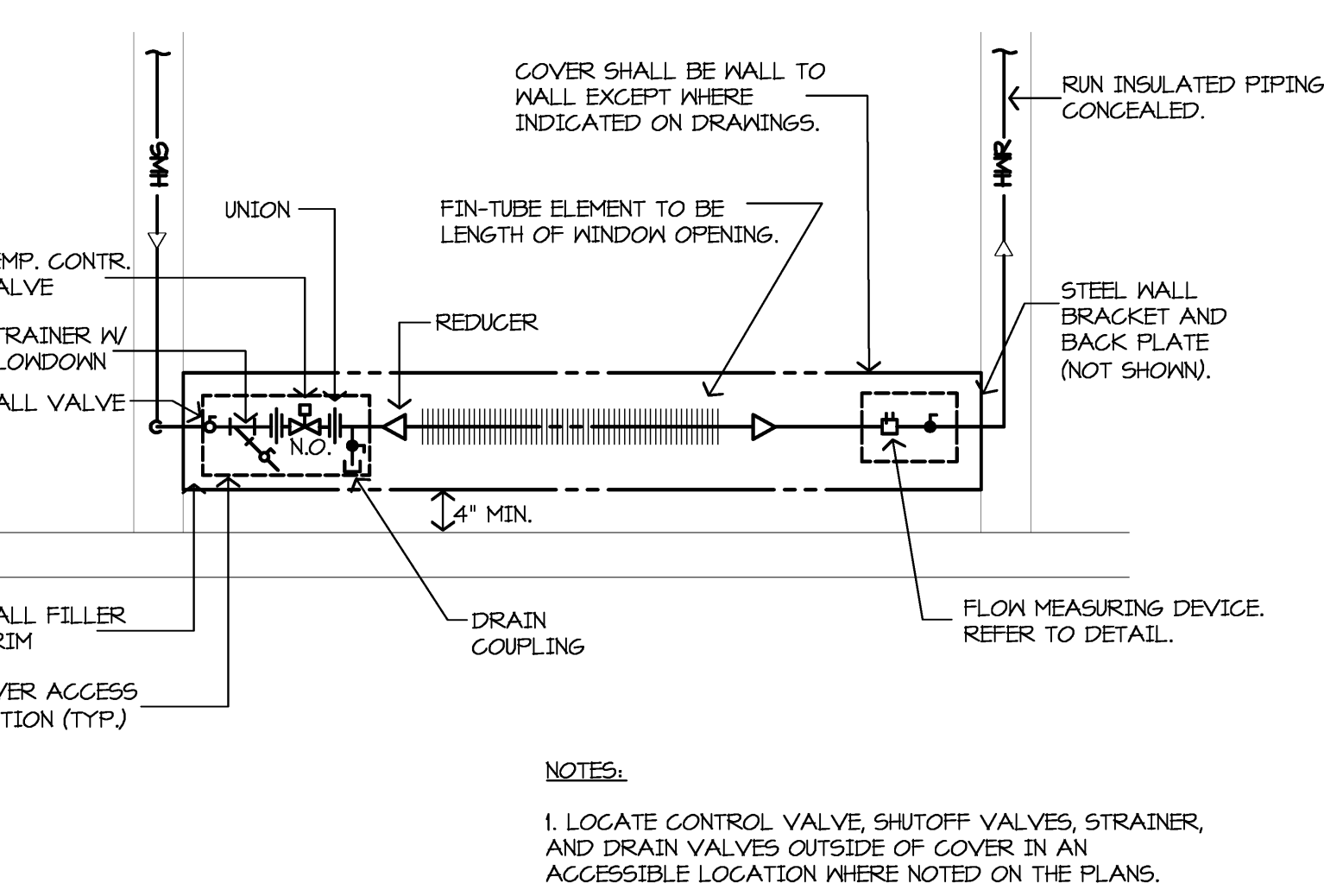
H2 BASE MOUNTED PUMP PIPING DETAIL
NO SCALE



H4 PROPELLER UNIT HEATER PIPING DETAIL
NO SCALE



H6 CABINET UNIT HEATER OR CONVECTOR DETAIL
NO SCALE



H9 TYPICAL HOT WATER RADIATION PIPING DETAIL
NO SCALE

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Registration Number 622025908 Date 10/31/13

Revisions		
Description	Date	Num

Comm: 124021
Date: 4/16/2013
Drawn: DD
Check: JL

MECHANICAL DETAILS

Scale: NONE

M5.03H

REDFORD UNION HIGH SCHOOL DISTRICT MECHANICAL SET DWG

UNIT NO.	MANUFACTURER	MODEL NUMBER	NOMINAL HP	TYPE	BURNER MANUF.	FUEL	FIRING RATE MBH/GPH	MIN. GROSS OUTPUT MBH	BLOWER MOTOR HP	VOLTS	PHASE	REMARKS
BS-3	AERCO	BMK-3-0	85	HOT WATER	AERCO	GAS	3,000	2,610	20 AMP	230	3	1
BS-4	AERCO	BMK-3-0	85	HOT WATER	AERCO	GAS	3,000	2,610	20 AMP	230	3	1

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

UNIT NO.	SERVES	MANUFACTURER	MODEL NUMBER	MAX. GPM	INLET/OUTLET SIZE	BLOWDOWN SIZE	REMARKS
AS-1	BOILERS	B & G	R-3	300	5"	2"	1,2

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE AUTOMATIC AIR VENT PIPED TO NEAREST FLOOR DRAIN.

UNIT NO.	MANUFACTURER	MODEL NUMBER	TUBE SIZE	TUBE/FIN CONSTRUCTION	FIN SIZE	FIN PER FOOT	ENCLOSURE HEIGHT	ENCLOSURE TYPE	B/T	L/T	EAT	RONS	B/TU/T	REMARKS
TYPE 'A'	RITTILING	BARF FIN - 3 ROWS	1-1/4"	COPPER/ALUMINUM	4.25"	48	25" - 36"	EXISTING	180"	160"	65"	3	2100	2
TYPE 'B'	RITTILING	FS055	3/4"	COPPER/ALUMINUM	3.25"	48	18"	DOUBLE SLOPE	180"	160"	65"	1	901	1, 2

NOTES:
1. SEE PLANS FOR MOUNTING HEIGHT A.F.F.
2. PROVIDE 2-WAY PNEUMATIC CONTROL VALVE FOR EACH SECTION.

UNIT NO.	SERVES	MANUFACTURER	MODEL NO.	TYPE	SIZE LxHxD	ENT. WATER	L.V.G. WATER	MBH	GPM	REMARKS
CV-1	STORAGE - A143	RITTILING	SP-37	SLOPE TOP	40x32x8	180°F	160°F	8.1	1.0	1, 2
CV-2	COACH ROOM - A143A	RITTILING	SP-37	SLOPE TOP	40x32x8	180°F	160°F	8.1	1.0	1, 2

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE TWO-WAY PNEUMATIC CONTROL VALVE.

UNIT NO.	SERVES	MANUFACTURER	MODEL NUMBER	TYPE (GAS, HW OR ELEC)	CABINET	GPM	RPM	HP	VOLTS	PHASE	MBH	GPM	REMARKS
UH-1	GIRLS LOCKER ROOM - A137	RITTILING	RH-63	HW	-	1120	1550	1/40	120	1	4.0	4.7	1, 2, 3
UH-2	BOYS LOCKER ROOM - A144	RITTILING	RH-18	HW	-	310	1200	1/30	120	1	9.2	1.3	1, 2, 3
UH-3	POOL BOILER ROOM - A142	RITTILING	RH-47	HW	-	730	1950	1/15	120	1	29	3.4	1, 2, 3
CUH-1	VARSITY LOCKER ROOM - A143	RITTILING	RFRG-420	HW	O2	190	650	1/40	120	1	11.3	1.0	1, 2, 3
CUH-2	VESTIBULE - A138	RITTILING	RFRH-320	HW	O4	550	1080	1/25	120	1	28.7	2.5	1, 2, 3

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. UNITS ARE SELECTED WITH 180 DEGREE ENTERING WATER AND 160 DEGREE LEAVING WATER WITH A 60 DEGREE ENTERING AIR TEMPERATURE.
3. PROVIDE TWO-WAY PNEUMATIC CONTROL VALVE FOR EACH UNIT.

UNIT NO.	SERVES	MANUFACTURER	MODEL	TYPE	GPM	TOTAL S.P. W.C.	RPM	HP	VOLTS	PH	DAMPER SIZE	DRIVE	COMPONENTS AND ACCESSORIES	REMARKS
EF-1	AUTOSHOP - A150	GREENHECK	CU8E-161-7	UPBLAST	2,625	0.4"	1,073	3/4	115	1	16X16	BELT	SPEED SWITCH NO MOT. DAMPER GRAVITY DAMPER DISCONNECT SWITCH YES	1, 2

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE WITH 18" ROOF CURB, ALUMINUM BIRDSCREEN, AND HINGE KIT.

TYPE	SERVICE	MANUF. & MODEL NO.	DESCRIPTION	REMARKS
A	EXHAUST REGISTER (SURFACE MOUNT)	TITUS MODEL 350ZRL	ALL STEEL EXHAUST REGISTER OF THE SIZE AS INDICATED ON THE PLANS. PROVIDE WITH SINGLE DEFLECTION HORIZONTAL BLADES AT A FIXED 35° PATTERN AT 1/4" SPACING, OPPOSED BLADE DAMPER, AND FACTORY BAKED WHITE ENAMEL FINISH.	

UNIT NO. (AGU/CU)	SERVES	MANUFAC.	MODEL NO.	TYPE	DESIGN GPM	DESIGN HEAD	50% FLOW HEAD	SHUTOFF HEAD	IMP. SIZE	EFF.	SUC. SIZE	DISCH. SIZE	RPM	HP	VOLTS	PHASE	MCA	MDP	REMARKS
AGU-1/CU-1	COMPUTER LAB - F216	SANTO	THM4272R	3.25	1130	-	CEILING HUNG - (100)	211	C4272R	18.1	31.0	(2-90)	19.7	17.5	230	1	15/40	15/40	1, 2, 3
AGU-2/CU-2	COMPUTER LAB - F219	SANTO	THM4272R	3.25	1130	-	CEILING HUNG - (100)	211	C4272R	18.1	31.0	(2-90)	19.7	17.5	230	1	15/40	15/40	1, 2, 3
AGU-3/CU-3	COMPUTER LAB - E233	SANTO	THM4272R	3.25	1130	-	CEILING HUNG - (100)	211	C4272R	18.1	31.0	(2-90)	19.7	17.5	230	1	15/40	15/40	1, 2, 3

NOTES:
1. PROVIDE VIBRATION ISOLATION HANGERS THROUGH EXISTING CEILING.
2. PROVIDE INTEGRAL CONDENSATE PUMP WITH HIGH WATER ALARM AND CHECK VALVE.
3. PROVIDE EQUIPMENT CURBS ON ROOF FOR CONDENSING UNITS.

UNIT NO.	SERVES	MANUFAC.	MODEL NO.	UNIT TYPE	MOUNTING	GPM	EXTERNAL STATIC PRESSURE	BHP	H.P.	RPM	HEATING	ELECTRICAL	REMARKS
MAU-1	POOL AREA	GREENHECK	D6-120-H30	DIRECT FIRED	INDOOR	11,000	15	11.9	15.0	989	EAT 0 LAT 110 INPUT 1420 OUTPUT 1307	230 3	54.3 90

NOTES:
1. PROVIDE WITH INLET DAMPER.
2. PROVIDE 4" TALL STEEL BASE RAIL PER MANUFACTURER INSTRUCTIONS FOR MOUNTING UNIT ON SLAB FLOOR.
3. PROVIDE 5/8" NEOPRENE MATES PAD (MASON INDUSTRIES) FOR VIBRATION ISOLATION.
4. PROVIDE MANUFACTURER'S 120V SMOKE DETECTOR.

UNIT NO.	SERVES	MANUFACTURER	SERIES	MODEL NUMBER	TYPE	DESIGN GPM	DESIGN HEAD	50% FLOW HEAD	SHUTOFF HEAD	IMP. SIZE	EFF.	SUC. SIZE	DISCH. SIZE	RPM	HP	VOLTS	PHASE	FLA	REMARKS
P-1	EXT. MAIN BUILDING HEATING SUPPLY	B & G	150	56	BASE MTD.	960	165	-	-	-	-	-	-	1750	50	240	3	-	12, 24, 36
P-2	EXT. MAIN BUILDING HEATING SUPPLY	B & G	150	56	BASE MTD.	960	165	-	-	-	-	-	-	1750	50	240	3	-	12, 24, 36
P-7	EXT. MAIN BUILDING HEATING SUPPLY	B & G	150	2-1/2B3B	BASE MTD.	270	60	78	79	8.375	75	3"	2.5"	1750	7.5	230	3	18.4	12, 24, 36

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. TEMPERATURE CONTROL CONTRACTOR TO PROVIDE CONTROL, STATUS RELAYS.
3. PROVIDE SUCTION DIFFUSER WITH START-UP STRAINER.
4. MECHANICAL CONTRACTOR TO PROVIDE VARIABLE FREQUENCY DRIVE, INSTALLATION BY ELECTRICAL CONTRACTOR.
5. PROVIDE GROUND SHAFT KIT PER SPEC SECTION 23 05 B.
6. REMOVE EXISTING MOTOR AND BEARING ASSEMBLY. INSTALL NEW INVERTER DUTY (PREMIUM EFF.) MOTOR AND BEARING ASSEMBLY. PROVIDE NEW MOUNTS AND MOTOR SUPPORTS AND COVERS ON EXISTING FRAME.

UNIT NO.	SERVES	MANUFACTURER	SERIES	MODEL NUMBER	TYPE	DESIGN GPM	DESIGN HEAD	50% FLOW HEAD	SHUTOFF HEAD	IMP. SIZE	EFF.	SUC. SIZE	DISCH. SIZE	RPM	HP	VOLTS	PHASE	REMARKS
P-8	120M. HW BUILDING (110°F)	B & G	PL	30CB	IN-LINE	10	15	-	-	-	-	3/4"	3/4"	2650	1/2	120	1	1, 2, 3

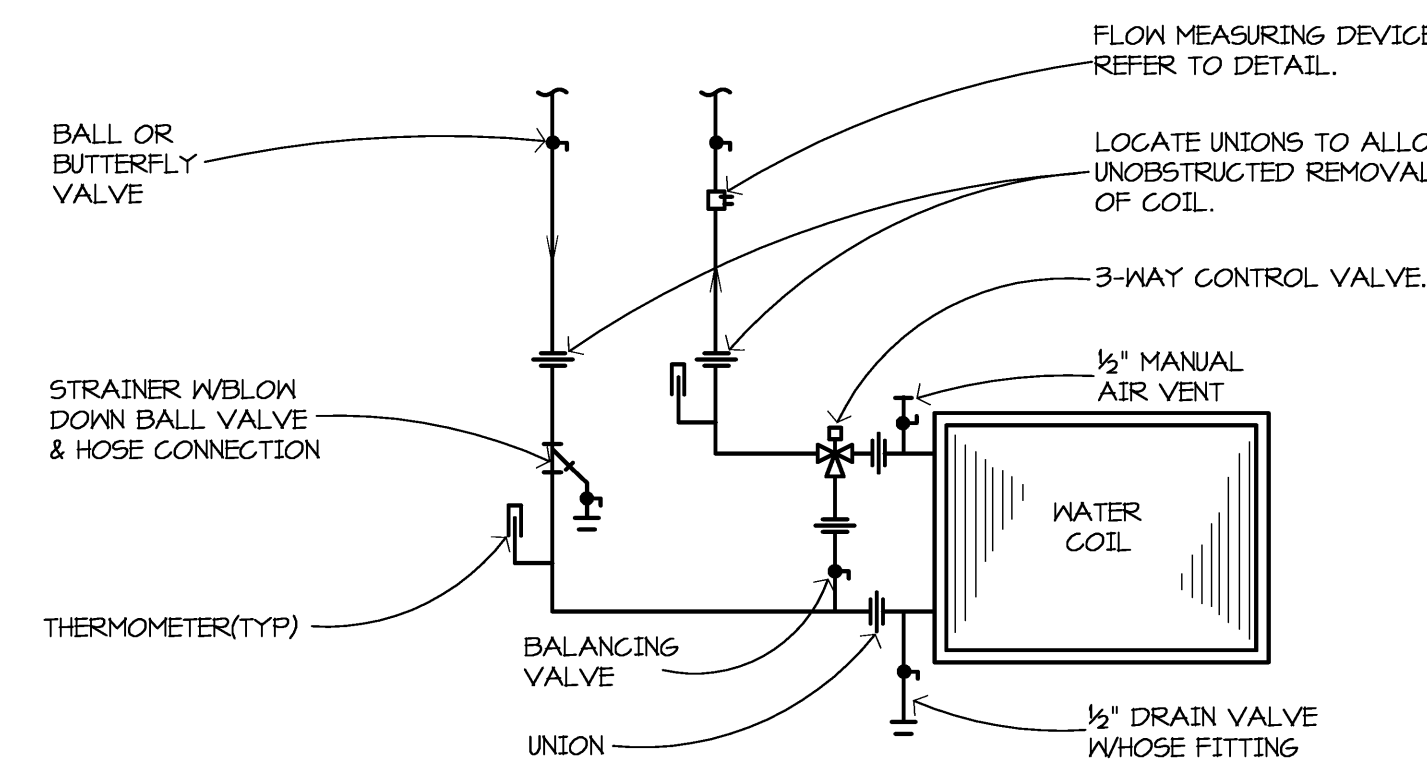
NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ONE 120V / 20A DEDICATED CIRCUIT WITH 30A BREAKER FROM NEAREST PANEL. PROVIDE ONE MOTOR RATED SERVICE DISCONNECT.
3. MECHANICAL CONTRACTOR TO PROVIDE STRAP-ON LINE VOLTAGE REGULATOR TO CYCLE PUMP. WIRING BY ELECTRICAL CONTRACTOR.

UNIT NO.	SERVES	MANUFACTURER	MODEL NUMBER	TANK TYPE	AVERAGE WATER TEMP.	MINIMUM PRECHARGE PRESS. (PSI6)	MAXIMUM OPER. PRESS. (PSI6)	ACCEPTANCE VOLUME (GALLONS)	TANK HEIGHT	TANK DIA.	REMARKS
ET-1	DOMESTIC HW 110°F - BUILDING	B & G	PT-25V	DIAPHRAGM	110	40.0	150.0	10.3	19"	15"	1, 2, 3

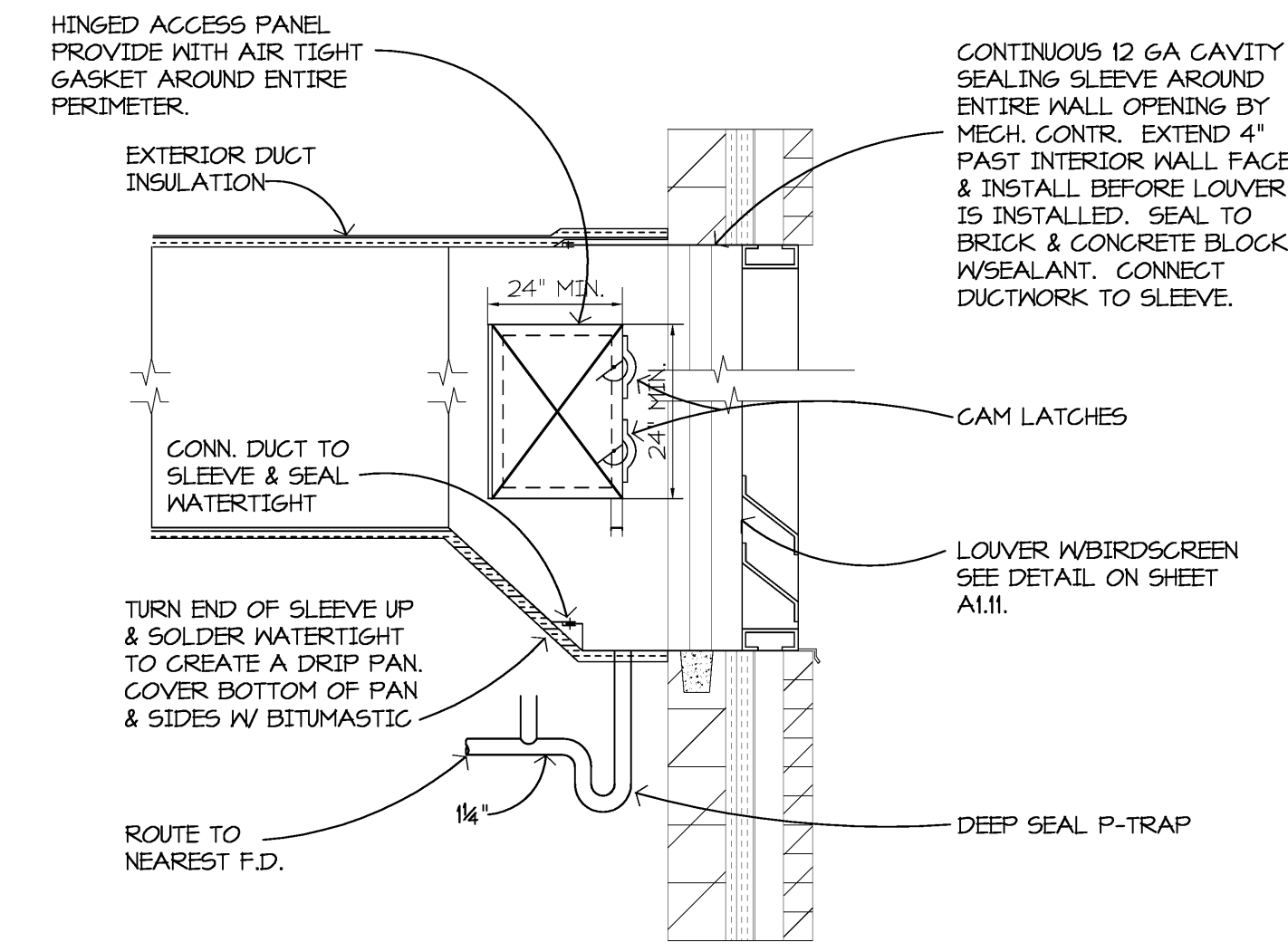
NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE WITH BASE RING FOR FLOOR MOUNTING.
3. PROVIDE AUTOMATIC AIR VENT PIPED TO NEAREST FLOOR DRAIN.

UNIT NO.	SERVES	MANUFACTURER	MODEL NUMBER	TYPE (GAS OR ELEC)	MBH INPUT (1.0)	MINIMUM EFFICIENCY	STORAGE CAP. (GALLONS)	GPH RECOVERY @ 100° RISE	WATER TEMP.	VENT SIZE	INTAKE SIZE	VOLTS	PHASE	REMARKS
WH-1	BUILDING HOT WATER	A.O. SMITH	XI BTH-199	GAS	199.0	96%	100	230	110°	3"	3"	120	1	12, 24
WH-2	BUILDING HOT WATER	A.O. SMITH	XI BTH-199	GAS	199.0	96%	100	230	110°	3"	3"	120	1	12, 24
WH-3	BUILDING HOT WATER	A.O. SMITH	XI BTH-199	GAS	199.0	96%	100	230	110°	3"	3"	120	1	12, 24

NOTES:
1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROVIDE WITH ASSE RATED PRESSURE/TEMPERATURE RELIEF VALVE PIPED INDEPENDENTLY TO NEAREST FLOOR DRAIN.
3. ELECTRICAL SUB-CRONTACTOR TO PROVIDE ONE 120V / 20A DEDICATED CIRCUIT WITH 30A CIRCUIT BREAKER FROM NEAREST PANEL. PROVIDE MOTOR RATED SERVICE DISCONNECT.
4. PROVIDE AND INSTALL CM VACUUM RELIEF VALVE PER THE AUTHORITY HAVING JURISDICTION.



B6 HEATING & VENTILATING UNIT WATER COIL TYPE A PIPING
NO SCALE



B9 LOUVER INSTALLATION DETAIL
NO SCALE

MECHANICAL SYMBOLS

- PRESSURE GAGE
- AIR VENT
- FLOW MEASURING DEVICE
- STRAINER
- PIPING GUIDE
- PIPING ANCHOR
- EXPANSION JOINT
- FLEXIBLE CONNECTION
- DIRECTION OF FLOW
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- STEAM TRAP ASSEMBLY
- ELBOW DOWN
- ELBOW UP
- TEE CONNECTION DOWN
- TEE CONNECTION UP
- PIPING CONNECTION
- CAPPED PIPE
- FINNED TUBE RADIATION
- FLOOR DRAIN
- RETURN/EXHAUST ELBOW DOWN
- RETURN/EXHAUST ELBOW UP
- SUPPLY AIR FLOW
- RETURN AIR FLOW
- MANUAL VOLUME DAMPER
- CONNECT TO EXISTING
- TWO WAY TEMPERATURE CONTROL VALVE
- THREE WAY TEMPERATURE CONTROL VALVE
- UNION
- THERMOMETER
- BALL VALVE
- BUTTERFLY VALVE
- GATE VALVE
- CHECK VALVE
- GLOBE VALVE
- PRESSURE OR PRESSURE/RELIEF VALVE
- ANGLE VALVE
- PRESSURE REDUCING VALVE
- SOLENOID VALVE
- WALL HYDRANT
- HOSE BIBB
- LUBRICATED PLUG GAS COCK
- BALANCING VALVE
- ACCESS PANEL
- ELBOW W/ TURNING VANES
- RETURN/EXHAUST AIR REGISTER/GRILLE

MECHANICAL LINETYPES

- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- DOMESTIC CIRCULATING HOT WATER PIPING
- VENT PIPING
- SANITARY WASTE ABOVE GROUND PIPING
- SANITARY WASTE BELOW GROUND PIPING
- STORM DRAIN ABOVE GROUND PIPING
- STORM DRAIN BELOW GROUND PIPING
- CONDENSATE DRAIN PIPING
- NATURAL GAS PIPING
- FIRE PROTECTION PIPING
- BUILDING HEATING WATER SUPPLY PIPING
- BUILDING HEATING WATER RETURN PIPING

D9 AUTO SHOP FLOOR EXHAUST DETAIL
NO SCALE

REDFORD UNION MECHANICAL / ELECTRICAL IMPROVEMENTS

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed ENGINEER under the laws of the State of MICHIGAN

Jonathan Loose
Registration Number 620025908 Date 10/31/13

Revisions		
Description	Date	Num

Comm: 12/02/11
Date: 4/16/2013
Drawn: DD
Check: JL North

MECHANICAL SCHEDULES, DETAILS AND NOTES

Scale: NONE

M5.04H