### Indoor Hydronic Air Handler Schedule

<table>
<thead>
<tr>
<th>MARK</th>
<th>SERIES</th>
<th>AMOUNT</th>
<th>MANUFACTURER</th>
<th>ELECTRICAL DATA</th>
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<tr>
<td></td>
<td>OAH-1</td>
<td>AHU-1</td>
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### DX Ductless Split System Heat Pump Schedule

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### Pumps Schedule

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### Air Handler Schedule

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### Case Heat Coil Schedule

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</tbody>
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**Notes:**
1. PROVIDE OSMOSS CONTROLS, DAMPERS, AND TIMERS TO EACH INDOOR UNIT.
2. PROVIDE A REMOTE ROOM CONTROLLER FOR EACH INDOOR UNIT.
3. PROVIDE LPA (LPA) DESIGN BASED ON 1.0 TEMP. DIFFERENCES BETWEEN OUTDOOR AND INDOOR AIR.
4. PROVIDE A COOLING COIL AND VENTED CRIP FOR INDOOR AIR HANDLERS.
5. PROVIDE ELECTRICAL DATA FOR EACH INDOOR UNIT.
6. PROVIDE A REPAIRED PUMP CONNECTIONS, PIPES, AND ELECTRICAL CONNECTIONS TO PREVENT EXTERNAL WATER.
7. PROVIDE WITH STAINLESS STEEL AIR RISER.
8. PROVIDE AVE. FOR FUNCTIONS OF SPRINKLER SYSTEM.
9. PROVIDE THE NECESSARY COMPONENTS FOR THE AQUEOUS SYSTEM, INCLUDING PUMPS, VALVES, AND CONNECTIONS.
10. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
11. PROVIDE WITH HINGED OPENING.
12. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
13. PROVIDE WITH A VIBRATION ISOLATOR KIT.
14. PROVIDE WITH MANUFACTURER'S BACNET CARD FOR MIGRATING INTO EXISTING BAS SYSTEM.
15. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
16. PROVIDE WITH A VIBRATION ISOLATOR KIT.
17. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
18. PROVIDE WITH HINGED OPENING.
19. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
20. PROVIDE WITH A VIBRATION ISOLATOR KIT.
21. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
22. PROVIDE WITH HINGED OPENING.
23. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
24. PROVIDE WITH A VIBRATION ISOLATOR KIT.
25. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
26. PROVIDE WITH HINGED OPENING.
27. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
28. PROVIDE WITH A VIBRATION ISOLATOR KIT.
29. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
30. PROVIDE WITH HINGED OPENING.
31. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
32. PROVIDE WITH A VIBRATION ISOLATOR KIT.
33. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
34. PROVIDE WITH HINGED OPENING.
35. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
36. PROVIDE WITH A VIBRATION ISOLATOR KIT.
37. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
38. PROVIDE WITH HINGED OPENING.
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40. PROVIDE WITH A VIBRATION ISOLATOR KIT.
41. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
42. PROVIDE WITH HINGED OPENING.
43. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
44. PROVIDE WITH A VIBRATION ISOLATOR KIT.
45. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
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48. PROVIDE WITH A VIBRATION ISOLATOR KIT.
49. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
50. PROVIDE WITH HINGED OPENING.
51. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
52. PROVIDE WITH A VIBRATION ISOLATOR KIT.
53. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
54. PROVIDE WITH HINGED OPENING.
55. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
56. PROVIDE WITH A VIBRATION ISOLATOR KIT.
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59. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
60. PROVIDE WITH A VIBRATION ISOLATOR KIT.
61. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
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77. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
78. PROVIDE WITH HINGED OPENING.
79. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
80. PROVIDE WITH A VIBRATION ISOLATOR KIT.
81. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
82. PROVIDE WITH HINGED OPENING.
83. PROVIDE WITH A GRAVITY BACKDRAFT DAMPER.
84. PROVIDE WITH A VIBRATION ISOLATOR KIT.
85. PROVIDE WITH A RISER TO AN EXISTING BAS SYSTEM.
CONTRACTOR SHALL DEMOLISH EXISTING ALL BRANCH CHILLED-HEATED WATER SUPPLY, RETURN PIPES SERVING FIRST FLOOR BACK TO MAIN. EXISTING CHILLED WATER SUPPLY, RETURN, STEAM SUPPLY, AND CONDENSATE PIPING TO REMAIN.
ENLARGED SECOND FLOOR MECHANICAL ROOM DEMOLITION PLAN

1 M102 NOTES BY SYMBOL

- 1: EXISTING 3" CHILLED-HEATED WATER SUPPLY/RETURN DOWN TO FLOOR BELOW. RE: 1/M301 FOR NEW WORK.
- 2: EXISTING 2 1/2" CHILLED WATER SUPPLY/RETURN TO REMAIN.
- 3: EXISTING 2" STEAM SUPPLY TO REMAIN.
- 4: EXISTING 1 1/4" PUMP CONDENSATE TO REMAIN.
- 5: EXISTING MECHANICAL EQUIPMENT TO REMAIN.
- 6: CONTRACTOR SHALL CAP AND SEAL OPEN ENDS OF PIPING FOR FUTURE USE. RE: 1/M303 FOR NEW WORK.
- 8: CONTRACTOR SHALL DEMOLISH EXISTING CHILLED-HEATED WATER RETURN PIPE UP TO THIS POINT. CONTRACTOR SHALL CAP AND SEAL OPEN ENDS OF PIPING FOR FUTURE USE. RE: 1/M303 FOR NEW WORK.

1 M102 - GENERAL NOTES

1: CONTRACTOR FIELD VERIFY EXISTING CONDITION PRIOR TO COMMENCE ANY WORK.
1 CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITION PRIOR TO ORDERING OR FABRICATING ANY MECHANICAL EQUIPMENT.

2 PROVIDE MOTORIZED DAMPER AND MANUAL BALANCE DAMPER ON THE VERTICAL RISE DUCT. MOTORIZED DAMPER SHALL INTERLOCK WITH ASSOCIATED AHU. MOTORIZED DAMPER SHALL BE FULLY CLOSED WHEN ASSOCIATED AHU IS OFF.

3 10" DIA O/A DUCT UP THROUGH THE ROOF AND TERMINATE AT ROOF WITH O/A INTAKE AIR HOOD. CONTRACTOR SHALL PROVIDE MOTORAIZED DAMPER AND MANUAL BALANCE DAMPER ON THE VERTICAL RISE DUCT. MOTORIZED DAMPER SHALL INTERLOCK WITH ASSOCIATED AHU. MOTORIZED DAMPER SHALL BE FULLY CLOSED WHEN ASSOCIATED AHU IS OFF.

4 PROVIDE VERTICAL HYDRONIC FAN COIL UNIT WITH MANUFACTURER'S MIXING BOX. REFER TO MECHANICAL EQUIPMENT SCHEDULES.

5 14/10 SUPPLY DUCT DOWN TO FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

6 22/10 SUPPLY DUCT DOWN TO FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

7 10"Ø 25 DN.

8 26/12 SUPPLY DUCT DOWN TO FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

9 28/14 RETURN DUCT DOWN TO FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

10 18/10 SUPPLY DUCT DOWN THROUGH THE FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

11 20/10 SUPPLY DUCT DOWN THROUGH THE FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

12 12/12 O/A DUCT UP THROUGH THE ROOF AND TERMINATE AT ROOF WITH O/A INTAKE AIR HOOD. CONTRACTOR SHALL PROVIDE MOTORAIZED DAMPER AND MANUAL BALANCE DAMPER ON THE VERTICAL RISE DUCT. MOTORIZED DAMPER SHALL INTERLOCK WITH ASSOCIATED AHU. MOTORIZED DAMPER SHALL BE FULLY CLOSED WHEN ASSOCIATED AHU IS OFF.

13 PROVIDE 48/16 TRANSFER AIR OPENING IN THIS LOCATION. PROVIDE TRANSFER AIR OPENING AS HIGH AS POSSIBLE.

14 PROVIDE VERTICAL HYDRONIC FAN COIL UNIT WITH MANUFACTURER'S MIXING BOX. REFER TO MECHANICAL EQUIPMENT SCHEDULES.

15 14/14 EXHAUST DUCT UP THROUGH THE ROOF AND TERMINATE WITH EXHAUST AIR HOOD. RE:1/M203 FOR CONTINUATION.

16 THIS EQUIPMENT IS FOR ALTERNATE 2. CONTRACTOR SHALL NOT INCLUDE THIS EQUIPMENT AND ALL ASSOCIATED ACCESSORIES, FITTINGS, AND DUCTWORK IN BASE BID.

17 14/12 SUPPLY DUCT DOWN TO FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

18 14/14 O/A DUCT UP THROUGH THE ROOF AND TERMINATE AT ROOF WITH O/A INTAKE AIR HOOD. CONTRACTOR SHALL PROVIDE MOTORAIZED DAMPER AND MANUAL BALANCE DAMPER ON THE VERTICAL RISE DUCT. MOTORIZED DAMPER SHALL INTERLOCK WITH ASSOCIATED AHU. MOTORIZED DAMPER SHALL BE FULLY CLOSED WHEN ASSOCIATED AHU IS OFF.

19 22/10 10"Ø

20 13

21 14/14  EXHAUST DUCT UP THROUGH THE ROOF AND TERMINATE WITH EXHAUST AIR HOOD. RE:1/M203 FOR CONTINUATION.

22 48"/16"

23 27 38/14 SUPPLY DUCT DOWN TO FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

24 6" DIA SUPPLY DUCT DOWN TO FLOOR BELOW. RE:1/M201 FOR CONTINUATION.

25 10" DIA O/A DUCT UP THROUGH THE ROOF AND TERMINATE AT ROOF LEVEL WITH ROOF CAP. RE:1/M203 FOR CONTINUATION.

26 14/14 O/A DUCT UP THROUGH THE ROOF AND TERMINATE AT ROOF WITH O/A INTAKE AIR HOOD. CONTRACTOR SHALL PROVIDE MOTORAIZED DAMPER AND MANUAL BALANCE DAMPER ON THE VERTICAL RISE DUCT. MOTORIZED DAMPER SHALL INTERLOCK WITH ASSOCIATED AHU. MOTORIZED DAMPER SHALL BE FULLY CLOSED WHEN ASSOCIATED AHU IS OFF.

27 30"/12"

28 6" EXHAUST DUCT UP THROUGH THE ROOF AND TERMINATE WITH EXHAUST AIR HOOD. RE:1/M203 FOR CONTINUATION.

29 10" DIA O/A DUCT UP THROUGH THE ROOF AND TERMINATE AT ROOF LEVEL WITH ROOF CAP. RE:1/M203 FOR CONTINUATION.

30 12/12 O/A DUCT UP THROUGH THE ROOF AND TERMINATE AT ROOF WITH O/A INTAKE AIR HOOD. CONTRACTOR SHALL PROVIDE MOTORAIZED DAMPER AND MANUAL BALANCE DAMPER ON THE VERTICAL RISE DUCT. MOTORIZED DAMPER SHALL INTERLOCK WITH ASSOCIATED AHU. MOTORIZED DAMPER SHALL BE FULLY CLOSED WHEN ASSOCIATED AHU IS OFF.
M203 - GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL MECHANICAL EQUIPMENT WITH MANUFACTURER’S RECOMMENDED CLEARANCE.

2. EXHAUST AIR HOOD SHALL MAINTAIN MINIMUM 10 FEET CLEARANCE FROM ANY FRESH AIR INTAKES AS REQUIRED BY CODE.

3. MECHANICAL EQUIPMENT FOR ALTERNATE 2. THIS EQUIPMENT SHALL NOT BE INCLUDED FOR BASE BID. SHOWN FOR REFERENCE.

M203 NOTES BY SYMBOL

1/8" = 1'

MECHANICAL ROOF PLAN

M203 - GENERAL NOTES

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITION PRIOR TO ORDERING OR FABRICATING ANY MECHANICAL WORK.
1 FIRST FLOOR MECHANICAL FLOOR PLAN - ALT 2

- 1. 6" dia supply duct up through the roof and terminate at exhaust air hood. Re:1/M203 for continuation.
- 2. 22'/10" supply duct up through the floor above. Re:1/M202 for continuation.
- 3. 14'/10" supply duct up through the floor above. Re:1/M202 for continuation.
- 4. 20'/10" supply duct up through the floor above. Re:1/M202 for continuation.
- 6. 6" dia exhaust duct up through the roof and terminate at exhaust air hood. Re:1/M203 for continuation.
- 7. Contractor shall relocate sensors associated with AHU-1 to this location.

M204 - GENERAL NOTES
- 1. All work shown in this sheet for Alternate 2. This work shall not be included for base bid.
- 2. Contractor shall verify existing condition prior to ordering or fabricating any mechanical work.
1. Contractor shall provide and install hot water pump in this location. Provide pump with manufacturer's recommended clearance. Re:1/M603 for detail.

2. Re:1/M302 for continuation.

3. Heating water supply and return down to floor below. Re:1/M301 for continuation.

4. Existing mechanical equipment to remain.

5. Existing hydronic, steam, and condensate piping to remain.
1. Provide a programmable electronic HVAC control system of owner's preference. The system shall be capable of interfacing to and controlling the HVAC equipment shown on plans. The system shall be capable of alarming and system control described in the sequence of operation and intent of control diagrams.

2. The control system shall be complete with all wiring, conduit, power supplies and all other items required for a complete and operational system that will accomplish the sequence of operations and intent of control diagrams. The main control panel shall coordinate all aspects of the DDC control system and the fire alarm/suppression systems to ensure that the systems operate as required by these documents and national and local codes.

3. All communications wiring to be shielded twisted wire pair.

4. All communications wiring to wall mounted controllers and installed in areas with exposed structure shall be routed in conduit, conduit to extend up to above ceiling or confines of the roof curb. All control devices installed in locations exposed to the weather shall be provided with weather-proof enclosures.

5. The controls contractor shall be responsible for all necessary electrical power needed for the BAS. The installation of these power systems shall be in full accordance with the building automation system.

6. Locate room thermostats, humidistats, carbon dioxide sensors and temperature and humidity sensors 4'-0" (centerline) above finished floor. Mount all temperature and humidity sensors at thermostat/temperature sensor located as shown on plan.

7. All duct and equipment smoke detectors shall be interfaced with the building fire alarm system. The systems shall be coordinated and provided.

8. Locate room thermostats, humidistats, carbon dioxide sensors and temperature and humidity sensors at locations shown on plans. The systems shall be coordinated and provided.

9. Coordinate controller requirements with HVAC equipment manufacturer's submittal. Controller operation shall be coordinated by the controls contractor to ensure the systems operate as required by these documents and national and local codes.

10. The communications protocol for DDC control hardware shall be based upon BACnet standard. Refer to owner for preferred installation location of primary control panel.

11. All set-points called out herein shall be adjustable at the BAS unless otherwise noted.

12. The communication network shall include complete bill of materials indicating quantity, control devices, equipment included, and sequences of operation.
1. **SYSTEM TYPE:**
   - SINGLE ZONE VARIABLE VOLUME HYDRONIC AIR HANDLING UNIT
   - MODULATING CHILLED WATER COOLING
   - MODULATING HOT WATER HEATING
   - OUTDOOR AIR DAMPERS
   - DEMAND CONTROLLED VENTILATION (AHU-1 ONLY)
   - DEHUMIDIFICATION (WHERE REHEAT COIL SCHEDULED)

2. **SETPOINTS:**
   - SPACE SETPOINT (COOLING): 74°F
   - SPACE SETPOINT (HEATING): ROOM COOLING SETPOINT - 5°F
   - UNOCCUPIED ROOM SETPOINT (COOLING): 85°F
   - UNOCCUPIED ROOM SETPOINT (HEATING): 50°F
   - SPACE CO2 SETPOINT (WHERE DCV IS SCHEDULED): 1000PPM
   - HUMIDITY TEMPERATURE SETPOINT: SEE TABLE 1.
   - ECONOMIZER DRY BULB MINIMUM (WHERE ECONOMIZER SCHEDULED): 48°F
   - ECONOMIZER DAMPER MAXIMUM POSITION: TO BE DETERMINED IN THE FIELD BY TEST AND BALANCE AND RELAYED TO CONTROLS CONTRACTOR FOR

3. **OPERATING MODES:**
   - CO2 BETWEEN MIN. OA POSITION AND MAX. OA POSITION (SCHEDULED OA VALUE).
   - OCCUPIED MODE
   - UNOCCUPIED MODE
   - DEHUMIDIFICATION MODE
   - DEMAND CONTROLLED VENTILATION
   - *REFER TO NOTE SECTION FOR MODE ENABLE / DISABLE PARAMETERS.

4. **ROOM DEVICES**
   - AO
   - ADJUSTMENT CAN BE MADE AT CONTROLLER. CO2 SENSOR WILL BE PROVIDED.
   - PROVIDE ALARM FOR FAN FAILURE AND OVERRIDE. PROVIDE +/-3°F (ADJ.) TEMPERATURE RANGE.
   - CHILLED WATER COOLING: THE COOLING COIL VALVES WILL REMAIN CLOSED.
   - AI
   - OUTSIDE AIR DAMPER: THE OUTSIDE AIR DAMPER WILL CLOSE.
   - AND OVERRIDE. PROVIDE +/-3°F (ADJ.) TEMPERATURE RANGE. TEMPERATURE
   - SUPPLY AIR FAN: THE SUPPLY AIR FAN SHALL BE COMMANDED ON. THE FAN SHALL
   - ON THE UNIT’S ASSOCIATED TIME SCHEDULE AND THE MASTER HOLIDAY
   - AND OVERRIDE. PROVIDE +/-3°F (ADJ.) TEMPERATURE RANGE. TEMPERATURE
   - HUMIDITY SENSOR WILL BE PROVIDED.
   - SUPPLY AIR FAN: THE SUPPLY AIR FAN SHALL BE COMMANDED ON. THE FAN SHALL
   - SI
   - SETPOINT (COOLING), THE SUPPLY FAN WILL ENGAGE AND THEN THE COOLING
   - h.          AHU-8 - SPACE THERMOSTAT
   - THERMOSTAT, THE UNIT SHALL OPERATE IN OCCUPIED MODE FOR A 2HR
   - PERIOD (ADJ.) AND THEN REVERT BACK TO UNOCCUPIED MODE.
   - SUPPLY AIR FAN: THE SUPPLY AIR FAN SHALL BE COMMANDED ON. THE FAN SHALL
   - SI
   - SETPOINT (COOLING), THE SUPPLY FAN WILL ENGAGE AND THEN THE COOLING
   - MODE. IF SPACE TEMPERATURE IS NOT WITHIN 10% OF SET POINT BAS SHALL ALARM.
   - e.          ALARMS: THE SUPPLY AIR FAN ALARM SHALL BE ACTIVE WHEN THE
   - f. SAFETIES:
   - AO
   - OUTSIDE AIR DAMPER AND RETURN AIR DAMPER TO BE PHYSICALLY
   - LINKED. IF NOT, A LOW STATIC PRESSURE SENSOR SHALL BE INSTALLED. WHEN
   - SHALL DISENGAGE WHEN THE STATIC PRESSURE REACH TO THE LOW STATIC
   - WHEN THERE IS A CALL FOR HEATING OR DEHUMIDIFICATION FROM ANY AIR HANDLERS
   - THE BAS SHALL OPEN THE SHUTOFF VALVE AND START THE HOT WATER PUMP ASSOCIATED
   - AND STEAM BOILER IN CENTRAL PLANT. START STEAM BOILER AND STEAM TO HOT WATER
   - TO THE BAS. SHUTDOWN BOILER, THEN HOT WATER PUMP, THEN CLOSE ISOLATION VALVE.
   - WHEN THE PRESSURE DIFFERENTIAL BECOMES TOO HIGH THE VFD SHALL DECREASE THE
   - VFD TO BUILDING AUTOMATION SYSTEM FROM THE CENTRAL LOCATION
   - AI
   - HWP-1 CONTROL DIAGRAM SEQUENCE OF OPERATION - HWP-1
   - M502
   - DBB ARCHITECTS & ENGINEERS
   - MIDWESTERN STATE UNIVERSITY

   **TABLE 1:**

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<tr>
<td>Unoccupied Room Temperature</td>
<td>85°F</td>
</tr>
<tr>
<td>Outdoor Air Dampers</td>
<td>1000PPM</td>
</tr>
<tr>
<td>Humidity Temperature</td>
<td>48°F</td>
</tr>
<tr>
<td>Econo Dry Bulb Min.</td>
<td>48°F</td>
</tr>
<tr>
<td>Econo Damper Max. Position</td>
<td>To be determined</td>
</tr>
</tbody>
</table>

**TABLE 2 - OUTSIDE AIR CFM RESET:**

<table>
<thead>
<tr>
<th>Condition</th>
<th>CFM Reset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition 1</td>
<td>Value 1</td>
</tr>
<tr>
<td>Condition 2</td>
<td>Value 2</td>
</tr>
<tr>
<td>Condition 3</td>
<td>Value 3</td>
</tr>
</tbody>
</table>

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**DIAGRAMS:**

- **SEQUENCE OF OPERATION, AHU-1 THROUGH AHU-10**
- **AHU-3, 4, 5, 6, AND 8 CONTROL DIAGRAM**
- **AHU-7, 9, AND 10 CONTROL DIAGRAM**
- **AHU-1 AND AHU-2 CONTROL DIAGRAM**
- **HWP-1 CONTROL DIAGRAM**
- **SEQUENCE OF OPERATION - HWP-1**
NOTES:

1. HANGER SPACING PER MSS-AP-54
2. SIZE ALL THREAD ROD AND TRAPEZE UNISTRUT CHANNEL FOR LOADS.

1. TYPICAL PIPE HANGER DETAIL
   1. HANGER SPACING PER MSS-AP-54
   2. SIZE ALL THREAD ROD AND TRAPEZE UNISTRUT CHANNEL FOR LOADS.

2. BRANCH SHOE TAP
   1. HANGER SPACING PER MSS-AP-54
   2. SIZE ALL THREAD ROD AND TRAPEZE UNISTRUT CHANNEL FOR LOADS.

3. TYPICAL FLEX DUCT CONNECTIONS DETAIL
   1. PREPARE PIPE AND FLEX DUCT END FOR CONNECTION.
   2. CUT PIPE WITH FLUID OR A WHEELAMM CONNECTOR.
   3. INSTALL ADAPTOR AND SHORT NUT TO PIPE.
   4. INSTALL FLEX DUCT TO ADAPTOR WITH A FULL DIA. NUT.
   5. TIGHTEN THE FULL DIA. NUT TO ATTACH FLEX DUCT TO PIPE.

TYPICAL PIPE HANGER DETAIL

1. HANGER SPACING PER MSS-AP-54
2. SIZE ALL THREAD ROD AND TRAPEZE UNISTRUT CHANNEL FOR LOADS.

TYPICAL FLEX DUCT CONNECTIONS DETAIL

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