MECHANICAL DEMOLITION NOTES

1. GENERAL
   A. ALL STOPS SHALL BE TAKEN PRIOR TO OPENING TO
      INSPECT FOR THE PRESENCE OF LIVE FLUIDS, GASES, ETC.
      THIS DRAWING DOES NOT SEEK TO ENSURE/DISPROVE THE
      PRESENCE OF FLUID (WATER, GAS, ETC.) AT ALL TIMES.
   B. ALL PIPING SHALL BE TESTED PRIOR TO OPENING TO
      INSPECT FOR THE PRESENCE OF FLUID (WATER, GAS, ETC.)
      AT ALL TIMES.

2. EQUIPMENT
   A. DISCONNECT AND REMOVE EXISTING AIR HANDLER.
   B. DISCONNECT AND REMOVE EXISTING HEAT EXCHANGER.
   C. DISCONNECT AND REMOVE EXISTING EXPANSION TANK.
   D. DISCONNECT AND REMOVE EXISTING PUMP.
   E. DISCONNECT AND REMOVE EXISTING Duct FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   F. CONTINUE REMOVING STEAM PIPE DOWN FROM 2ND FLOOR TO
      SECOND FLOOR.

3. CONTROLS
   A. DISCONNECT AND REMOVE EXISTING CWP PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   B. DISCONNECT AND REMOVE EXISTING CWP PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   C. DISCONNECT AND REMOVE EXISTING LPS, LPS PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   D. DISCONNECT AND REMOVE EXISTING LPS, LPS PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   E. DISCONNECT AND REMOVE EXISTING CWS PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   F. DISCONNECT AND REMOVE EXISTING CWS PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.

4. TANKS
   A. DISCONNECT AND REMOVE EXISTING EXPANSION TANK.
   B. DISCONNECT AND REMOVE EXISTING HEAT EXCHANGER.
   C. DISCONNECT AND REMOVE EXISTING AIR HANDLER.
   D. CONTINUE REMOVING STEAM PIPE DOWN FROM 2ND FLOOR TO
      SECOND FLOOR.
   E. CONTINUE REMOVING STEAM PIPE DOWN FROM 2ND FLOOR TO
      SECOND FLOOR.
   F. CONTINUE REMOVING STEAM PIPE DOWN FROM 2ND FLOOR TO
      SECOND FLOOR.

5. Piping
   A. DISCONNECT AND REMOVE EXISTING STEAM PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   B. DISCONNECT AND REMOVE EXISTING STEAM PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   C. DISCONNECT AND REMOVE EXISTING STEAM PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   D. DISCONNECT AND REMOVE EXISTING STEAM PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   E. DISCONNECT AND REMOVE EXISTING STEAM PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.
   F. DISCONNECT AND REMOVE EXISTING STEAM PIPE FROM POINT
      SHOWN TO CONNECTION WITH EXISTING AIR HANDLER.

6. REMOVAL
   A. DISCONNECT AND REMOVE EXISTING AIR HANDLER.
   B. DISCONNECT AND REMOVE EXISTING AIR HANDLER.
   C. DISCONNECT AND REMOVE EXISTING AIR HANDLER.
   D. DISCONNECT AND REMOVE EXISTING AIR HANDLER.
   E. DISCONNECT AND REMOVE EXISTING AIR HANDLER.
   F. DISCONNECT AND REMOVE EXISTING AIR HANDLER.

7. CONTROLS
   A. DO NOT PINCH SHUT REMAINING PNEUMATIC TUBING.
   B. CONTRACT B. ENERGY MANAGERNENT PRIOR TO DEMOLITION
      FOR REMOVAL OF EXISTING CONTROLS.
   C. REMOVE TO HEAT EXCHANGER.

8. MISCELLANEOUS
   A. NOT USED

9. NOTICES
   A. ISSUED FOR CONSTRUCTION
   B. MECHANICAL
   C. CONTROLS
   D. Piping
   E. general
   F. EQUIPMENT
   G. CONTROLS
   H. Piping
   I. NOTES
   J. CONTROLS
   K. Piping
   L. NOTES
   M. MECHANICAL

10. SYMBOLS
    A. AHU
    B. RA
    C. OA
    D. LPS
    E. HPS
    F. RA
    G. CWS
    H. CWR
    I. 1/4" = 1'-0"
    J. SCALE: 1/4" = 1'-0"
    K. CFM
    L. 260 CFM
    M. 24X12 (18"
    N. 4D
    O. LPC
    P. 3B
    Q. 4B
    R. 4A
    S. PUMP
    T. TANK
    U. DIAMETER
    V. COORDINATE
    W. DIRECTION
    X. PIPE STRAINERS
    Y. PIPE UNION
    Z. PLUG

11. ABBREVIATIONS
    A. AHU
    B. RA
    C. OA
    D. LPS
    E. HPS
    F. RA
    G. CWS
    H. CWR
    I. 1/4" = 1'-0"
    J. SCALE: 1/4" = 1'-0"
    K. CFM
    L. 260 CFM
    M. 24X12 (18"
    N. 4D
    O. LPC
    P. 3B
    Q. 4B
    R. 4A
    S. PUMP
    T. TANK
    U. DIAMETER
    V. COORDINATE
    W. DIRECTION
    X. PIPE STRAINERS
    Y. PIPE UNION
    Z. PLUG
MECHANICAL RENOVATION NOTES

1. GENERAL
   A. FIELD VERIFY ALL DUCT AND PIPE CONNECTION POINTS SHOWN ON SHEET M103 AND/OR SHEET M104. CONNECTORS SHOWN IN RED AS ASBESTOS CONTAINING.
   B. MECHANICAL DUCTS AND PIPES SHALL NOT INTERFERENCE WITH FIRE AND EXPANSION LOOP CYLINDER LOCATION.
   C. INSULATE ALL DUCTS AND PIPES WITH PIPE INSULATION OF APPROPRIATE DENSITY.
   D. USE APPROPRIATE MATERIALS AND CONNECTORS SHOWN ON SHEET M103 AND/OR SHEET M104.
   E. ALL SUPPLIES AND ACCESSORIES ON SHEET M103 AND/OR SHEET M104 MUST BE USED.
   F. ALL DUCTS AND PIPES MAINTAIN CORRECT DIRECTIONS AND CONTINUITY.
   G. USE APPROPRIATE CONNECTORS SHOWN ON SHEET M103 AND/OR SHEET M104.
   H. ALL DUCTS AND PIPES SHALL BE INSULATED WITH PIPE INSULATION OF APPROPRIATE DENSITY.
   I. ALL DUCTS AND PIPES SHALL BE CONNECTED WITH CONNECTORS SHOWN ON SHEET M103 AND/OR SHEET M104.
   J. ALL DUCTS AND PIPES SHALL BE INSULATED WITH PIPE INSULATION OF APPROPRIATE DENSITY.

2. EQUIPMENT
   A. PROVIDE NEW AHU AND CONNECT NEW SA AND RA DUCTWORK.
   B. PROVIDE NEW DRAIN AND CONNECT NEW DRAIN PIPE.
   C. PROVIDE NEW DAMPER AND CONNECT NEW DAMPER TO DUCTWORK.
   D. PROVIDE NEW EXPANSION TANK AND CONNECT NEW EXPANSION TANK TO DUCTWORK.
   E. PROVIDE NEW PUMP AND CONNECT NEW PUMP TO DUCTWORK.
   F. PROVIDE NEW PUMP AND CONNECT NEW PUMP TO DUCTWORK.
   G. PROVIDE NEW IN-LINE PUMP AND CONNECT NEW IN-LINE PUMP TO DUCTWORK.
   H. PROVIDE NEW HEAT EXCHANGER AND CONNECT NEW HEAT EXCHANGER TO DUCTWORK.
   I. PROVIDE NEW HEAT EXCHANGER AND CONNECT NEW HEAT EXCHANGER TO DUCTWORK.

3. SYSTEMS
   A. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.
   B. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.
   C. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.
   D. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.
   E. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.
   F. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.
   G. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.
   H. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.
   I. CONNECT TO EXISTING PIPES AND ROUTE TO CONNECTION POINT WITH NEW PIPE.

4. CONTROLS
   A. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.
   B. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.
   C. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.
   D. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.
   E. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.
   F. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.
   G. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.
   H. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.
   I. USE SPECIFICATIONS FOR CONTRACTOR CONTROLS.

5. MISCELLANEOUS
   A. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
   B. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
   C. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
   D. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
   E. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
   F. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
   G. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
   H. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
   I. TEST AND BALANCE TO BE PERFORMED BY MU ENERGY MANAGEMENT.
MECHANICAL RENOVATION NOTES

1. GENERAL:
   A. SEE SHEET M102 FOR GENERAL MECHANICAL RENOVATION NOTES.

2. EQUIPMENT:
   A. NOT USED

3. DUCTWORK:
   A. PROVIDE NEW REHEAT COIL AND CONNECT TO NEW HWS AND HWR PIPES. SEE COIL SCHEDULE AND PIPING DETAIL ON SHEET M601 AND M602.

4. PIPING:
   A. CONTINUE ROUTING NEW HWS AND HWR PIPES TO NEW REHEAT COIL. SEE SHEET M603 FOR CONTINUATION OF WORK.
   B. INSTALL NEW DIFFERENTIAL PRESSURE TRANSMITTER.

5. CONTROLS:
   A. NOT USED

6. MISCELLANEOUS:
   A. NOT USED
MECHANICAL DEMOLITION NOTES

GENERAL:
1. ALL PIPING SHALL BE TESTED PRIOR TO OPENING TO DETERMINE IF PRESENCE OF LEAKS OR CAPS EXIST PRIOR TO DEMO.
2. REMOVE OLD PIPING AND INSTALL NEW AS DUCTS匮
3. INSTALL NEW PIPING AND PROVIDE NEW REHEAT COILS, SEE COIL SCHEDULE.
4. INSTALL NEW PIPING AND PROVIDE NEW REHEAT COILS, SEE COIL SCHEDULE AND COIL DUCTS ON SHEET 106 AND 107.

REMAINING PNEUMATIC TUBING WITH SOLDERED CAPS. CONNECTIONS. FOLLOW SAFE CONSTRUCTION PRACTICES AT ALL TIMES.

ALL PIPING SHALL BE TESTED PRIOR TO OPENING TO DETERMINE IF PRESENCE OF LEAKS OR CAPS EXIST PRIOR TO DEMO.

MECHANICAL RENOVATION NOTES

1. GENERAL:
   A. SEE SHEET 102 FOR GENERAL MECHANICAL RENOVATION NOTES.
2. EQUIPMENT:
   A. PROVIDE NEW VAV WITH REHEAT COIL, SEE COIL SCHEDULE.
   B. INSTALL REHEAT COIL AND PROVIDE NEW REHEAT COILS, SEE COIL SCHEDULE AND COIL DUCTS ON SHEET 106 AND 107.
   C. PROVIDE NEW VAV WITH REHEAT COIL, SEE COIL SCHEDULE AND COIL DUCTS ON SHEET 106 AND 107.
3. OUTWORK:
   A. INSTALL NEW PIPING AND PROVIDE NEW REHEAT COILS.
   B. INSTALL NEW PIPING AND PROVIDE NEW REHEAT COILS.
4. CONTINUE ROUTING NEW PIPING AND NEW PIPING TO THE NEW REHEAT COILS. SEE SHEET 102 FOR CONTINUATION OF WORK.

5. CONTROLS:
   A. INSTALL NEW THERMOSTAT AT 86°F. A.P. CONSTRUCTOR TO PROVIDE NEW THERMOSTATS AND NEW THERMOSTAT XR YR.
   B. INSTALL NEW THERMOSTAT AT 86°F. A.P. CONSTRUCTOR TO PROVIDE NEW THERMOSTATS AND NEW THERMOSTAT XR YR.
6. PROVIDE FINAL TERMINATIONS AND PROGRAMMING.

7. NOT USED.

CONTROLS:
A. A.
B. B.
C. C.
D. D.
E. E.

A.
B.
C.
D.
E.

MECHANICAL DEMOLITION NOTES

MECHANICAL RENOVATION NOTES

MEZZANINE 1ST FLOOR MECHANICAL DEMOLITION PLAN

MEZZANINE 1ST FLOOR MECHANICAL RENO PLANT

MEZZANINE 1ST FLOOR MECHANICAL RENOVATION PLAN

MEZZANINE 1ST FLOOR KEY PLAN

PRELIMINARY
PHASE 1
1. GENERAL:
   A. NOT USED

2. EQUIPMENT:
   A. REMOVE EXISTING AIR HANDLER AH-3.
   B. REMOVE EXISTING STEAM RADIATOR. REMOVE ASSOCIATED PIPING TO RISER AND CAP. SEE RISER DIAGRAM, THIS SHEET.
   C. REMOVE EXISTING STEAM RADIATOR.
   D. REMOVE EXPANSION TANK AND ASSOCIATED PIPING.
   E. EXISTING DIFFUSER TO REMAIN FOR RECONNECTION.

3. DUCTWORK:
   A. DISCONNECT FROM EXISTING DUCT AND REMOVE.

4. PIPING:
   A. ALL PIPING SHALL BE TESTED PRIOR TO OPENING TO ATMOSPHERE FOR PRESENCE OF FLUID (WATER, GAS, ETC.) THIS DRAWING DOES NOT SEEK TO ENSURE/DISPROVE LIVE CONNECTIONS. FOLLOW SAFE CONSTRUCTION PRACTICES AT ALL TIMES.
   B. REMOVE ABANDONED PIPING, AS SHOWN IN HEAVY DASHED LINES, BACK TO VALVE AND CAP. SEE RISER DIAGRAM, THIS SHEET.
   C. DISCONNECT CHILLED WATER PIPES AND CONDENSATE DRAIN FROM EXISTING AIR HANDLER.
   D. REMOVE EXISTING 3-WAY CONTROL VALVE FROM CHILLED WATER LINES.

5. CONTROLS:
   A. ENERGY MANAGEMENT TO REMOVE EXISTING AH-3 CONTROLS.

6. MISCELLANEOUS:
   A. NOT USED

7. ELECTRICAL:
   A. DISCONNECT AIR HANDLING UNIT SCHEDULE TO BE REPLACED AS INDICATED. SAVE CIRCUIT AND CONDUCTORS FOR REUSE DURING RENOVATION.

NOTE:
INSTRUCTIONS ON PIPING AND DUCTWORK MAY CONTAIN ASBESTOS. SEE ASBESTOS REPORT IN PROJECT MANUAL. RE-INSULATE ALL PIPING AND DUCTWORK IN AREAS WHERE INSULATION HAS BEEN REMOVED.

NOTE:
This work compiled by Energy Management.
MECHANICAL RENOVATION NOTES

ROOM CEILING AT 8' 10-1/4" TO BELOW 38" X 20" DUCT. MINIMUM HEIGHT TO BE PROVIDED NEW VERTICAL ACOUSTICAL TILE TRANSITION FROM CONFERENCE INSTALL NEW THERMOSTAT AND CO2 SENSOR. MOUNT TOP OF THERMOSTAT AT ROUTE INSULATED CONDENSATE FROM AHU-3 AND TIE INTO EXISTING ROUTE TO NEAREST CONNECTION POINT WITH AHU COIL CONDENSATE DRAIN. PROVIDE 1/2" CONDENSATE DRAIN AT BASE OF OA DUCT AT POINT SHOWN AND SAVED DURING DEMOLITION. COORDINATE, CONFIRM, AND VERIFY 20 AMP COILS. SEE COIL PIPING DETAIL ON SHEET M602.

CONNECT TO EXISTING STEAM PIPE AND ROUTE NEW PIPE TO NEW STEAM CONDENSATE DRAIN LINE.

IN AREAS WHERE INSULATION HAS BEEN REMOVED.

THREE-PHASE, 208 VOLT CIRCUIT, CONDUCTORS, AND BREAKER SIZE WITH 48" ABOVE FINISHED FLOOR.

EXTEND CHILLED WATER SUPPLY AND RETURN PIPES TO NEW AIR HANDLER AND INSTALL NEW 42"X7" RETURN AIR OPENING IN WALL ABOVE CEILING LEVEL AS DEMOLITION OF WALL, PERIODICALLY INSPECT CONTINUOUS STEEL LINTEL FOR ENLARGE OPENING IN WALL AND INSTALL LOUVER, SEE SCHEDULE. CARE MUST BE PROVIDED FLEXIBLE CONNECTIONS AT AIR HANDLER.

CONNECT TO COIL, SEE PIPING DETAILS ON M603.

CONNECT TO EXISTING DIFFUSERS.

CONNECT TO EXISTING SA DUCT AND ROUTE NEW DUCT TO EXISTING DIFFUSERS.

INDICATES NOTES LOCATED ON PLAN. SEE ASBESTOS REPORT IN ASBESTOS FABRICATE NEW FILTER HOUSING FOR AHU INTAKE PRE AND FINAL FILTERS.

PROVIDE NEW STEAM HEATING COIL AND CONNECT TO NEW STEAM AND FURNISH AND INSTALL NEW MOTORIZED DAMPERS. INSTALL 9"H DAMPER ON TOP AND 11"H DAMPER ON BOTTOM. SEE SCHEDULE ON M602.

SEE SHEET M102.
# AIR HANDLING UNIT SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>SERVICE</th>
<th>PLATE &amp; FRAME SIZE</th>
<th>CLAMP</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHU-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*1 150x150</td>
</tr>
<tr>
<td>AHU-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*1 150x150</td>
</tr>
<tr>
<td>AHU-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*1 150x150</td>
</tr>
</tbody>
</table>

---

# SAFETY VALVE SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>SERVICE</th>
<th>PLATE &amp; FRAME SIZE</th>
<th>CLAMP</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*1.5 1/2</td>
</tr>
</tbody>
</table>

---

# HEAT EXCHANGER SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>EXCHANGER TYPE</th>
<th>WATER SIDE</th>
<th>STEAM SIDE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXH-1</td>
<td></td>
<td>PILOT HEAT EXCHANGER</td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
</tr>
<tr>
<td>EXH-2</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
</tr>
<tr>
<td>EXH-3</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

---

# BACKFLOW PREVENTER SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>PREVENTER TYPE</th>
<th>SERVICE</th>
<th>PLATE &amp; FRAME SIZE</th>
<th>CLAMP</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV-1</td>
<td></td>
<td>INDEPENDENT CONTROL VALVE</td>
<td>10</td>
<td></td>
<td>*1.5 1/4</td>
<td></td>
</tr>
</tbody>
</table>

---

# EXPANSION TANK SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>TANK TYPE</th>
<th>SERVICE</th>
<th>PLATE &amp; FRAME SIZE</th>
<th>CLAMP</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET-1</td>
<td></td>
<td>INDEPENDENT CONTROL VALVE</td>
<td>10</td>
<td></td>
<td>*1.5 1/4</td>
<td></td>
</tr>
</tbody>
</table>

---

# REHEAT COIL SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>TYPE</th>
<th>HEAT COIL</th>
<th>WATER SIDE</th>
<th>STEAM SIDE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCH-1</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
<tr>
<td>RCH-2</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
<tr>
<td>RCH-3</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
</tbody>
</table>

---

# VAV BOX SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>SERVICE</th>
<th>PLATE &amp; FRAME SIZE</th>
<th>CLAMP</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAV-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*1 1/2</td>
</tr>
<tr>
<td>VAV-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*1 1/2</td>
</tr>
</tbody>
</table>

---

# PUMP SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>PUMP TYPE</th>
<th>SERVICE</th>
<th>PLATE &amp; FRAME SIZE</th>
<th>CLAMP</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1</td>
<td></td>
<td>INDEPENDENT CONTROL VALVE</td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
<tr>
<td>P-2</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
</tbody>
</table>

---

# STEAM TRAP SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>TRAP TYPE</th>
<th>SERVICE</th>
<th>PLATE &amp; FRAME SIZE</th>
<th>CLAMP</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-1</td>
<td></td>
<td>INDEPENDENT CONTROL VALVE</td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
<tr>
<td>ST-2</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
</tbody>
</table>

---

# CONTROL VALVE SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>M/R &amp; MODEL NO. (OR EQUIV)</th>
<th>TYPE</th>
<th>HEAT COIL</th>
<th>WATER SIDE</th>
<th>STEAM SIDE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV-1</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
<tr>
<td>CV-2</td>
<td></td>
<td></td>
<td>150</td>
<td>150</td>
<td>1.5%</td>
<td></td>
</tr>
</tbody>
</table>

---
Heat Exchanger Notes

1. PIPE SIZES should be determined by heat transfer requirements. Note that piping "fitting loss" may vary depending on the type of fitting used. Consult manufacturer's specifications for recommendation.

2. All fittings and connections shall be made in accordance with the ASME Code for Pressure Piping, Section III, Division I.

3. All valves shall be provided with tags identifying the valves and the equipment they serve.

4. All pipes shall be insulated using a minimum of 2" thick insulation. The insulation shall be installed in accordance with manufacturer's specifications.

5. All pipes shall be supported using stainless steel hangers and straps. The hangers shall be installed at intervals not exceeding 12" on center.

6. All pipes shall be labeled with "pipe identification" tags at intervals not exceeding 50 feet.

7. All pipes shall be drained to a condensate receiver, unless otherwise specified.

8. All pipes shall be tested for pressure and vacuum in accordance with the ASME Code for Pressure Piping, Section III, Division I.

9. All pipes shall be painted in accordance with the ASME Code for Pressure Piping, Section III, Division I.

10. All pipes shall be labeled with "pipe identification" tags at intervals not exceeding 50 feet.
1. SUPPLY FAN
2. DAMPER
3. COOLING COIL
4. FILTER
5. RA/GA DAMPER

AHU-1
TOP VIEW

AHU-2
TOP VIEW

AHU-3
TOP VIEW

AHU-1
SIDE VIEW

AHU-2
SIDE VIEW

AHU-3
SIDE VIEW

PROJECT NUMBER

CAMPUS FACILITIES
UNIVERSITY OF MISSOURI
Planning, Design, & Construction
Design Services

ENGINEER -
The Professional Engineers seal and signature affixed to this sheet applies only to the material and information shown on this sheet. All drawings, instruments, or other documents not exhibiting this seal shall not be considered prepared by this engineer, and this engineer expressly disclaims any and all responsibility for such plans, drawings, or documents not exhibiting this seal.

This Document is intended to be signed digitally. If no digital signature is attached to this file, this media should not be considered a certified document.
PSH500A
ENCLOSED AC POWER SUPPLY

NOTES:

1. SECONDARY LINE CAN BE RUN IN SAME CONDUIT AS FC BUS.
2. ENCLOSED POWER SUPPLY MUST BE LOCATED IN ELECTRICAL ROOM, MECHANICAL ROOM, OR JANITOR'S CLOSET AND BE ACCESSIBLE. ANY OTHER LOCATION MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE.

KEYED NOTES:

1. EACH SECONDARY OUTPUT LINE CAN POWER 3-5 VAV CONTROLLERS MAXIMUM. (100 VA)
2. PRIMARY LINE INFO: 480/277/240/120 Vac, #12 AWG MINIMUM
3. SECONDARY LINE INFO: 24 Vac, #12-26 AWG, 100 VA. MAX LENGTH 175 FEET USING #14 AWG
4. DISCONNECT SWITCH REQUIRED, EXTERNALLY MOUNTED WITHIN 12 INCHES OF RIB POWER SUPPLY
5. 500VA POWER SUPPLY - INCLUDED IN RIB MODEL# PSH500A OR APPROVED EQUIVALENT
6. ALL SECONDARY LINES MUST BE LABELED IN ENCLOSURE AS TO WHICH VAV'S THEY POWER PRIOR TO ENERGIZING POWER SUPPLY
7. A SEPARATE 3 AMP FUSE IS REQUIRED WITHIN 3 FEET OF EACH VAV

CONTRACTOR:
1. KEEP ALL LOW VOLTAGE CONTROL WIRING UNDER 25V AND LOW VOLTAGE POWER WIRING (OVER 25V) SEPARATE. RUN IN SEPARATE CONDUIT.
2. PLYWOOD SIZE IS BASED ON THE NUMBER OF CONTROLLERS IN EACH LOCATION. COORDINATE WITH OWNER'S REPRESENTATIVE.

SEE SDDCS:

FRONT VIEW

SIDE VIEW

RIGHT SIDE MOUNTING DETAIL

Note: All enclosures are supplied by contractor.
1. VAV control includes constant volume (CV) units & variable air volume (VAV) units. Unless otherwise noted, all control work shall be by contractor.

2. Capacitors for VAV OP TEST points must be 1/10 MFD. Fused.

3. Connect existing VAV shutoff damper & install discharge air temp on existing VAV boxes with existing reheat valves. Place supplied network sensor & SA bus wire on all existing boxes.

**KEYED NOTES:**

1. Controller will be furnished and installed by owner. Controller will be JCI model. MS-VMA-TX series, programmable and communicating via N2 bus by owner.

2. Network sensor will be furnished by owner & installed by contractor. Network sensor will be JCI NX series, FC communication bus wire shall be 22 AWG, plenum rated, twisted shielded, 3 conductor, with blue outer casing.

3. Installation of OCC sensor is work of Division 26, see E-series sheets for final locations. A control circuit shall be connected to all OCC sensors. Each sensor shall be related to the one terminal unit that serves that space. In locations where multiple OCC sensors are present, all sensors shall be monitored and transmit a signal to the VAV terminal unit that serves that space. All sensors shall be wired in parallel.

4. Controller must have a minimum of 18 inches of accessible clearance. VAV supply temp sensor 1000 OHM platinum RTD located approximately 8 ft. from VAV box discharge. Provided, installed & wired to controller by contractor.

5. Fuse located within 2 ft. of VMA controller.

6. Low voltage wire by Division 25. See electrical drawings for source.

7. Value with proportional 3-15 volt actuator or equivalent.

8. SA bus wire shall be 18 AWG, plenum rated, twisted shielded, 4 conductor.

**NOTES:**

1. FC bus to be continuous daisy chain without splices. Connections can only be made at controllers. See plans for quantity and locations of VAV/FCU controllers. Locate panels in same room as equipment served.

2. FC communication bus wire shall be 22 AWG, plenum rated, twisted shielded, 3 conductor, with blue outer casing, described as 22-03 gas str plnm neon blk. JK distributed by Windy City Wire, constructed by CableTek, or approved equivalent.

3. Existing controllers are connected with N2 bus (18 AWG). Route new FC bus to all new and existing controllers as shown. Add new controllers can be connected to the new FC bus as they are converted. Coordinate final routing with owners representative.
ELECTRICAL RENOVATION NOTES

POWER:
A. INSTALL 24V CONTROL WIRING FROM NEW BELIMO CONTROL VALVE TO VAV'S CONTROL PANEL. COORDINATE WORK WITH MECHANICAL TRADE AND OWNER.

DATA & TELEPHONE:
A. NOT USED.

AUDIO/VISUAL:
A. NOT USED

LIGHTING:
A. NOT USED.

FIRE ALARM:
A. NOT USED.

MISCELLANEOUS:
A. NOT USED

INDICATES NOTES LOCATED ON PLAN

ELEVATOR E100F

STAIR S010

OFFICE 100C

SHOP 100E

STORAGE 150

CORRIDOR C100

BREAK ROOM 100G

CIRCULATION 100

OFFICE 100D

STAIR S100

STAIR S157

STAIR S153

TO BASEMENT

STAIR S155

OFFICE 152A1

STORAGE 208

SERVER ROOM 207

CONFERENCE 205

CONFERENCE 202

RECORDS 206

STAIR S202

OFFICE 212

STORAGE 211

STAIR S112

STAIR S153

OFFICE 209A

OFFICE 209H

OFFICE 209F

WORK ROOM 209B

OFFICE 209C

OFFICE 209E

OFFICE 209D

OFFICE 209G

CORRIDOR C202

CORRIDOR C206

AHU REPLACEMENTS

FIRST FLOOR ELECTRICAL RENOVATION CONT.

JAMES L. DOVE
MO# E-2002016644

CP181741
417 SOUTH 5TH STREET
COLUMBIA, BOONE COUNTY, MISSOURI 65211

ENGINEER - THE PROFESSIONAL ENGINEERS SEAL AND SIGNATURE AFFIXED TO THIS SHEET APPLIES ONLY TO THE MATERIAL AND INFORMATION SHOWN ON THIS SHEET. ALL DRAWINGS, INSTRUMENTS, OR OTHER DOCUMENTS NOT EXHIBITING THIS SEAL SHALL NOT BE CONSIDERED PREPARED BY THIS ENGINEER, AND THIS ENGINEER EXPRESSLY DISCLAIMS ANY AND ALL RESPONSIBILITY FOR SUCH PLANS, DRAWINGS, OR DOCUMENTS NOT EXHIBITING THIS SEAL.

THIS DOCUMENT IS INTENDED TO BE SIGNED DIGITALLY. IF NO DIGITAL SIGNATURE IS ATTACHED TO THIS FILE, THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.
ELECTRICAL RENOVATION NOTES

1. VAV:
   A. INSTALL 24V CONTROL WIRING FROM NEW BELIMO CONTROL VALVE TO VAVS CONTROL PANEL. COORDINATE WORK WITH MECHANICAL TRADE AND OWNER.
   B. ALL ENERGY RETENTION TO PERFORM ALL TERMINATIONS.

2. MISCELLANEOUS:
   A. NOT USED
ELECTRICAL DEMOLITION NOTES

INDICATES NOTES LOCATED ON PLAN

1. DISCONNECT EXISTING CONTROLS TO VAV 17 SCHEDULED FOR REMOVAL/RELOCATION.

ELECTRICAL RENOVATION NOTES

INDICATES NOTES LOCATED ON PLAN

2. POWER:
A. PROVIDE POWER TO NEW VAV FROM DEDICATED 120V 20A CIRCUIT FROM NEAREST AVAILABLE PANEL. COORDINATE WITH CONCRETE REINFORCEMENT, MECHANICAL TRADE, AND MU ENERGY MANAGEMENT.
B. INSTALL CONTROL WIRING BACK TO METASYS CONTROL PANEL.
C. MU ENERGY MANAGEMENT TO PERFORM ALL CONTROL WIRE TERMINATIONS.
D. SUPPLY AND INSTALL OCCUPANCY SENSOR TO CONTROL NEW VAV 20. Wattstopper Power Pack Cat. No. BZ-150 MAY BE REQUIRED. COORDINATE PLACEMENT WITH ROOM LAYOUT AND EXISTING LIGHTING.
E. RECONNECT POWER TO RELOCATED VAV 17.

SCALE:

MEZZANINE 1ST FLR VAV RENOVATION PLAN

3/16" = 1'-0"
ELECTRICAL RENOVATION NOTES

3. POWER:
A. INSTALL 60 AMP DISCONNECT FOR AHU #2. INSTALL NEW CIRCUIT 'C' FROM SWITCHGEAR 'MDP' ON FIRST FLOOR TO AHU THROUGH DISCONNECT. INCLUDE 60 AMP FUSES IN SWITCHGEAR 'MDP'.
B. PROVIDE BUSSMANN LPN-RK-60 FUSES, OR APPROVED EQUAL.
C. PROVIDE 60 AMP FUSES IN AHU CONTROL PANEL.
D. INSTALL CONTROL WIRING FROM AHU#2 BACK TO METASYS CONTROL PANEL. UTILIZE EXISTING CONDUIT WHERE POSSIBLE.
E. MU ENERGY MANAGEMENT TO PERFORM ALL CONTROL WIRE TERMINATIONS.

4. MISCELLANEOUS:
A. NOT USED

ELECTRICAL DEMOLITION NOTES

3. DISCONNECT EXISTING POWER TO AHU, SCHEDULED FOR REMOVAL. REMOVE DISCONNECTING MEANS, VARIABLE FREQUENCY DRIVE, FUSES, AND ASSOCIATED CONDUCTORS BACK TO PANEL. RETAIN CONDUIT FOR FUTURE USES RENOVATION.

1. POWER:
A. DISCONNECT EXISTING POWER TO AHU, SCHEDULED FOR REMOVAL, REMOVE DISCONNECTING MEANS, VARIABLE FREQUENCY DRIVE, FUSES, AND ASSOCIATED CONDUCTORS BACK TO PANEL. RETAIN CONDUIT FOR FUTURE USES RENOVATION.
B. NOT USED.

2. MISCELLANEOUS:
A. NOT USED
**AHU SCHEDULE**

<table>
<thead>
<tr>
<th>MAP</th>
<th>MANUFACTURER &amp; MODEL NUMBER</th>
<th>HORSE POWER</th>
<th>VOLTAGE</th>
<th>PHASE</th>
<th>線电流</th>
<th>CONDUCTOR SIZE</th>
<th>GROUND CONNECTION</th>
<th>NOTES/COMMENTS/DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHU-1</td>
<td>TRANE CSAA040</td>
<td>21.6</td>
<td>208</td>
<td>3osaurs</td>
<td>100A</td>
<td>#2 AWG</td>
<td>#8 AWG</td>
<td>PERFORMANCE AIR HANDLER, TRIPLE DIRECT DRIVE FANS BASED ON 25 HP</td>
</tr>
<tr>
<td>AHU-2</td>
<td>TRANE CSAA021</td>
<td>15.2</td>
<td>208</td>
<td>3osaurs</td>
<td>60A</td>
<td>#4 AWG</td>
<td>#10 AWG</td>
<td>PERFORMANCE AIR HANDLER, DOUBLE DIRECT DRIVE FANS BASED ON 15 HP</td>
</tr>
<tr>
<td>AHU-3</td>
<td>TRANE CSAA025</td>
<td>14.4</td>
<td>208</td>
<td>3osaurs</td>
<td>60A</td>
<td>#4 AWG</td>
<td>#10 AWG</td>
<td>PERFORMANCE AIR HANDLER, DOUBLE DIRECT DRIVE FANS BASED ON 15 HP</td>
</tr>
</tbody>
</table>

**PUMP SCHEDULE**

<table>
<thead>
<tr>
<th>MAP</th>
<th>MANUFACTURER &amp; MODEL NUMBER</th>
<th>HORSE POWER</th>
<th>VOLTAGE</th>
<th>PHASE</th>
<th>OVER CURRENT PROTECTION</th>
<th>CONDUCTOR SIZE</th>
<th>GROUND CONDUCTOR SIZE</th>
<th>NOTES/COMMENTS/DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1</td>
<td>BELL &amp; GOSSETT: E-80 3X3X9.5C</td>
<td>5.0</td>
<td>208</td>
<td>3osaurs</td>
<td>35BRK / 35BRK / 35BRK</td>
<td>#8 AWG</td>
<td>#10 AWG</td>
<td>CLOSE COUPLED IN-LINE CENTRIFUGAL PUMP</td>
</tr>
<tr>
<td>P-2</td>
<td>BELL &amp; GOSSETT: E-80 3X3X9.5C</td>
<td>5.0</td>
<td>208</td>
<td>3osaurs</td>
<td>35BRK / 35BRK / 35BRK</td>
<td>#8 AWG</td>
<td>#10 AWG</td>
<td>CLOSE COUPLED IN-LINE CENTRIFUGAL PUMP</td>
</tr>
<tr>
<td>P-3</td>
<td>BELL &amp; GOSSETT: E-90 1AAB</td>
<td>1</td>
<td>120</td>
<td>1osaurs</td>
<td>20BRK / 20BRK / 20BRK</td>
<td>#12 AWG</td>
<td>#12 AWG</td>
<td>PROVIDE WITH NEMA MOTOR STARTER</td>
</tr>
</tbody>
</table>

**CONTROL VALVE SCHEDULE**

<table>
<thead>
<tr>
<th>MAP</th>
<th>MANUFACTURER &amp; MODEL NUMBER</th>
<th>OPERATING VOLTAGE</th>
<th>NOTES/COMMENTS/DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV-17</td>
<td>BELIMO: P2200S-601 +AKRX24-EP+NO/FO</td>
<td>0 - 10 VDC</td>
<td>ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVE</td>
</tr>
<tr>
<td>CV-18</td>
<td>BELIMO: P6250S-105 +AKRX24-PI+NC/FC</td>
<td>0 - 10 VDC</td>
<td>ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVE</td>
</tr>
<tr>
<td>CV-19</td>
<td>BELIMO: P2150S-261 +AKRX24-EP+NO/FO</td>
<td>0 - 10 VDC</td>
<td>ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVE</td>
</tr>
<tr>
<td>CV-20</td>
<td>BELIMO: P2200S-479+AKRX24-EP+NC/FC</td>
<td>0 - 10 VDC</td>
<td>ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVE</td>
</tr>
<tr>
<td>CV-21</td>
<td>BELIMO: P2200S-358 +AKRX24-EP+NO/FO</td>
<td>0 - 10 VDC</td>
<td>ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVE</td>
</tr>
<tr>
<td>CV-22</td>
<td>BELIMO: P2200S-654 +AKRX24-EP+NC/FC</td>
<td>0 - 10 VDC</td>
<td>ELECTRONIC PRESSURE INDEPENDENT CONTROL VALVE</td>
</tr>
</tbody>
</table>

**ELECTRICAL RENOVATION NOTES**

1. **POWER**
   - PROVIDE NEMA RATED MOTOR STARTER W/ 24V COIL, HOA SWITCH, OVERLOAD RELAY, 1-NO AUX CONTACT. INSTALL CONTROL WIRES BACK TO METASYS CONTROL PANEL.
   - MU ENERGY MANAGEMENT TO PERFORM ALL CONTROL WIRE TERMINATIONS.