MECHANICAL RENOVATION NOTES

1. GENERAL:
   A. Field verify all duct and pipe connection/points shown. If connections cannot be made as shown, notify owner's representative to adjust drawings.

2. EQUIPMENT:
   A. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.
   B. Furnish and install new RTU. Connect to new chilled water services below. See sheet M602. All piping above roof deck stays in unit's pipe vestibule. See coil piping detail on sheet M602.

3. DUCTWORK:
   A. Not used
   B. Connect new RTU heating coil to existing heating water services. See sheet M602. All piping above roof deck stays in unit's pipe vestibule. See coil piping detail on sheet M602.
   C. Connect new RTU cooling coil to new chilled water service below. See sheet M602. All piping above roof deck stays in unit's pipe vestibule. See coil piping detail on sheet M602.

4. PIPING:
   A. Install new, built-up roof membrane with gravel. Equipment/areas having curtailed area removed and new roof area to be installed.
   B. Furnish and install new RTU, connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.
   C. Furnish and install new RTU. Connect to new heating water services below. See sheet M602. All piping above roof deck stays in unit's pipe vestibule. See coil piping detail on sheet M602.

5. ROOF DECK:
   A. Control, wiring, sensors, and control by mechanical contractor. Coordination and termination by MJ Energy Management.
   B. Roof deck stays in unit's pipe vestibule. See coil piping detail on sheet M602.

6.okiehounes:
   A. This to be performed by MJ Energy Management.
   B. Cut hole in existing steel/rut roof membrane. Insulation to be cut to provide insulation profile and to accommodate steel deck penetration with 2" x 1" angle. Stop at outer edge of opening and hold to deck.
   C. Install manufactured roof curb over existing metal membrane. Provide continuous flashing seal per instructions at perimeter of roof curb and anchor to existing metal deck with strap that is compatible with existing metal roof membrane. See sheet M602.
   D. Furnish and install new RTU, connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   E. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   F. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   G. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   H. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   I. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   J. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   K. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   L. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   M. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   N. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   O. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   P. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   Q. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   R. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   S. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   T. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   U. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   V. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   W. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   X. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   Y. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.

   Z. Furnish and install new RTU. Connect to new heating and new chilled water services. Provide new 2" fully insulated roof curb forward of RTU.
MECHANICAL DEMOLITION NOTES

1. GENERAL
   A. All piping shall be treated prior to opening to atmosphere for presence of fluids (water, gas, etc.)
   B. This drawing does not seek to ensure/disprove live connections follow safe construction practices at all times.

2. EQUIPMENT
   A. Disconnect and remove existing pump.
   B. Disconnect and remove existing chilled water flow meter.

3. OUTLINES
   A. Not used

4. PIPE
   A. Disconnect and remove existing CWS pipe gussets.

5. CONSTRUCTORS
   A. Salvage existing controls for owner where acquired.
   B. Not used

6. MISCELLANEOUS
   A. Not used

MECHANICAL RENOVATION NOTES

1. GENERAL
   A. See Sheet M101 for general project notes.

2. EQUIPMENT
   A. Install owner provided pump. See pump piping detail and schedule.
   B. Install new owner provided chilled water flow meter.

3. DUCTWORK
   A. Not used

4. PIPING
   A. Connect to existing CWS pipe and route new pipe to new pumps.
   B. Connect to existing CWS and CWR pipe and route new pipe as shown.
   C. Continue routing CWS and CWR pipe to first floor. See sheet M103 for continuation.
   D. Route new pipe around existing pipe in tunnel.

5. CONTROLS
   A. Controls equipment, wiring, and routing by controls contractor. Final terminations and programing by MU Energy Management.

6. MISCELLANEOUS
   A. Contractor to coordinate with construction manager to replace existing chilled water pump in early winter/cold weather.
# AIR HANDLING UNIT SCHEDULE

**NOTES**

1. PUMP SCHEDULE:

<table>
<thead>
<tr>
<th>MARK</th>
<th>WP &amp; MODEL NO (FOR EQUAL)</th>
<th>TYPE</th>
<th>SERVICE</th>
<th>FLOW RATE (GPM)</th>
<th>EXHAUST/INTAKE</th>
<th>WATER</th>
<th>ELECTRIC</th>
<th>ELECTRICAL CODE</th>
<th>TAPPAN</th>
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**REFERENCE**

1. COORDINATE COOLING COIL CONTROL VALVE FLOW RATES WITH RTU COIL SUBMITTAL FLOW RATES.

2. THIS FILE IS ISSUED FOR BID ONLY. IT SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT.
When outside air temp (OA-T) is above the cooling enable setpoint (55 deg ADJ), the EMCS system will start the lead building chilled water pump (BP-C). Once the pump status (BP-S) is proven, the pump speed (BP-O) will be modulated to maintain building chilled water differential pressure (BCW-DP) setpoint. If the lead chilled water pump fails or is operating at 100% speed for 10 minutes and cannot maintain differential pressure setpoint, lag chilled water pump will be started and operated at same speed as lead pump. When pump speed drops below 50%, lag pump will be shut off.

### CHILLED WATER DDC POINT LIST

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<td>258</td>
<td>BP2-S</td>
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<tr>
<td>259</td>
<td>BP1-C</td>
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<tr>
<td>260</td>
<td>BP2-C</td>
<td>CONTROL RELAY</td>
</tr>
</tbody>
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### CW BLDG PMP SEQUENCE OF OPERATION

1. Connect new points to existing AH-S2 controller in Mech RM 117 above.

### NOTES:
RTU-1 SYSTEM DDC POINTS LIST

1. SEE SPECIFICATIONS FOR DEVICE SPECIFICATIONS.
2. ANY DEVICE REQUIRING POWER MUST BE POWERED BY CONTRACTOR.
3. ROUTE CONTROLS TO EXISTING PANEL LOCATION IN RM S145A.
4. EXISTING DOOR LOCK POINTS TO REMAIN OPERATIONAL DURING CONSTRUCTION.

- NOTE: All points are located on the drawing.
- PANEL LOCATION: RM S145A
- RTU-1 SYSTEM DDC POINTS LIST

1. SEE SPECIFICATIONS FOR DEVICE SPECIFICATIONS.
2. ANY DEVICE REQUIRING POWER MUST BE POWERED BY CONTRACTOR.
3. ROUTE CONTROLS TO EXISTING PANEL LOCATION IN RM S145A.
4. EXISTING DOOR LOCK POINTS TO REMAIN OPERATIONAL DURING CONSTRUCTION.
1. SEE SPECIFICATIONS FOR DEVICE SPECIFICATIONS.
2. ANY DEVICE REQUIRING POWER MUST BE POWERED BY CONTRACTOR.
3. ROUTE CONTROLS TO EXISTING PANEL LOCATION IN JAN S155.
4. EXISTING DOOR LOCK POINTS TO REMAIN OPERATIONAL DURING CONSTRUCTION.
RTU-3 SYSTEM DDC POINTS LIST

1. SEE SPECIFICATIONS FOR DEVICE SPECIFICATIONS.
2. ANY DEVICE REQUIRING POWER MUST BE POWERED BY CONTRACTOR.
3. ROUTE CONTROLS TO EXISTING PANEL LOCATION IN RM S147C.
ELECTRICAL DEMOLITION NOTES
- Disconnect RTU Top Units (RTUs) scheduled for demolition.
- RTUs to befeed from Main and Wye Buckets. Through RTUs Units, and Metasys Controls.
- In Room 1010, RTUs to feed 208 volt, 3-phase, 20 amp, single phase, and connected to existing RTUs. Remove all RTUs controls and disconnect all connections.
- Mechanical Room 103, with Metasys Controls from existing RTUs. Remote all connections and disconnect all connections.
- RTUs to feed from RTU-3, scheduled for demolition. RTUs to be feed from RTU-3, scheduled for demolition.

ELECTRICAL RENOVATION NOTES
- Connect new RTU top unit to existing buckets in Panel MSBE. Panel MSBE and connected to existing equipment.
- Not used.
- Install 120 volt, 20 amp single phase dedicated circuit to new pump motor. This circuit was adequate against starter and automatic controls.
- Verify existing pump circuit is a 120 volt, 20 amp single phase dedicated circuit to motor starter and automatic controls.
- Connect new pump circuit to 120 volt, 20 amp single phase dedicated circuit with motor starter and automatic controls.
- Install new pump circuit to available 120 volt to operate new pump.
- Install occupancy sensors in auditorium stalls at approximately 8'-0" above finished floor in locations shown to control lighting and HVAC. Use watt stopper, CAT No. D7-200 or approved equal.

RTU CONTROL RENOVATION PLAN
- Scale: 1/16" = 1'-0"

RTU CONTROL DEMOLITION PLAN
- Scale: 1/16" = 1'-0"