



DESIGN REVIEW & EQUIPMENT STARTUP Checklist For AHU Replacement / Retrofit

Equipment type: AHU
Equipment designation: AHU-1
Barcode designation: 111111
Area served: Office space, level 1 and 2
Equipment location: First-floor equipment room

ELECTRICAL INSPECTION

- | | YES | NO |
|---|--------------------------|--------------------------|
| • Electrical completed and disconnect install per code compliance? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Starter and wire sized per contract documents? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Proper clearances for electrical equipment (VSDs, conduit, etc.) available? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Disconnect furnished and installed? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Terminations and panel circuit labeled? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Voltage and motor amps (per phase) documented? | <input type="checkbox"/> | <input type="checkbox"/> |

EQUIPMENT INSTALLATION (PER CONTRACT DRAWINGS AND SPECIFICATION)

- | | | |
|--|--------------------------|--------------------------|
| • Knock-down shipment required? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Responsibility assigned to equipment manufacturer for re-assembly? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Chilled water piping complete at unit? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Seismic restraints complete for piping? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Manufacturer's O&M available? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Manufacturer's startup sheets attached to this checklist? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Warranty certificate available? | <input type="checkbox"/> | <input type="checkbox"/> |

DISTRIBUTION (TO AND FROM EQUIPMENT)

- | | | |
|--|--------------------------|--------------------------|
| • Piping/ductwork pressure tested per contract documents? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Piping/ductwork adequately supported independent of the AHU? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Chilled water pipe and condensate drain piping properly sized and pitched? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Insulation completed? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Installation per contract documents (specification and details)? | <input type="checkbox"/> | <input type="checkbox"/> |
| • TAB report (and field notes) attached to this checklist? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Identification per contract documents? | <input type="checkbox"/> | <input type="checkbox"/> |

AUTOMATIC CONTROLS

- | | | |
|---|--------------------------|--------------------------|
| • Temperature controls complete? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Control "points" confirmed? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Electrical system interlocks complete? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Unit-furnished controls interfaced with owner's BAS computer? | <input type="checkbox"/> | <input type="checkbox"/> |

ENERGY EFFICIENCY AND OTHER ADVANTAGES

- | | | |
|---|--------------------------|--------------------------|
| • Energy recovery incorporated? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Possibility to reduce peak electric charges? | <input type="checkbox"/> | <input type="checkbox"/> |
| • Could possibly be a small footprint for existing locations. | <input type="checkbox"/> | <input type="checkbox"/> |

REFERENCE

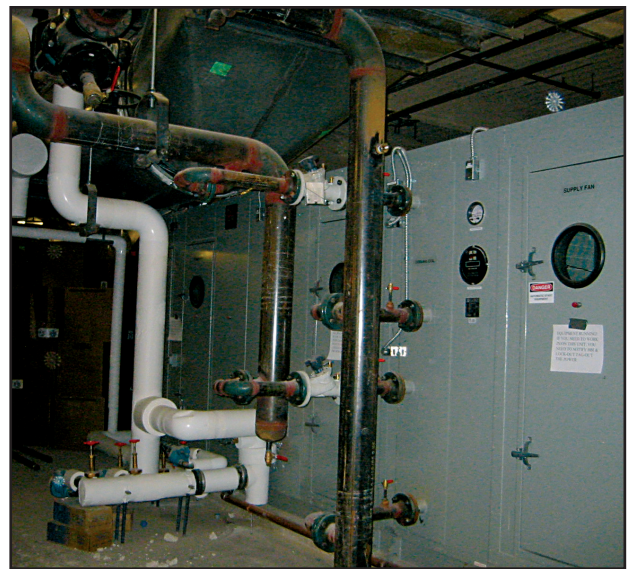
- 2004 ASHRAE Handbook – Systems and Equipment, Chapter 2 for additional information relative to AHUs.
- 2003 ASHRAE Handbook – Applications, Chapter 3 for additional information relative to AHUs.

DESIGN REVIEW AND TRICKS OF THE TRADE

- Confirm there is safe access to the equipment.
- Confirm there is manufacturer's recommended clearance around equipment.
- Spot-check cooling capacity by dividing square feet by tons cooling for sq ft/ton (e.g., 400 sq ft/ton).
- Spot-check ventilation based on 1.1 cfm/sq ft.
- Spot-check total static pressure for excessive/inadequate fan pressure drop (e.g., 2.5 in. minimum total static pressure [TSP] and 4.5 in. maximum TSP).
- Attach equipment schedule and design criteria to checklist.
- Attach sequence of operation to checklist.
- Attach associated contract detail drawing to checklist.

NOTE

- Refer to equipment manufacturers' literature for additional data and requirements.
- Refer to the 2005 January, July, and November "HVACR Designer Tips" columns for more information on the design review and equipment startup for other AHU systems. **ES**



If you have any comments, suggestions, or questions regarding this designer checklist, contact Amanda McKew at amckew@rdkengineers.com.

This column is meant to provide some basic guidelines for good design. Always consult all necessary codes and resources relevant to each particular project.

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