

BY AMANDA MCKEW

DESIGN REVIEW AND EQUIPMENT STARTUP CHECKLIST

For Commercial And Public Buildings

Equipment type: Rooftop unit
Equipment designation: RTU-1
Barcode designation: 111111
Equipment type: One-story office space
Equipment type: Rooftop

ELECTRICAL INSPECTION

- | | [Y] | [N] |
|--|-----------------------|-----------------------|
| • Electrical completed and disconnect install per code compliance. | <input type="radio"/> | <input type="radio"/> |
| • Starter and wire sizing per contract documents. | <input type="radio"/> | <input type="radio"/> |
| • Disconnect furnished and installed. | <input type="radio"/> | <input type="radio"/> |
| • Terminations and panel circuit labeled. | <input type="radio"/> | <input type="radio"/> |
| • Voltage and motor amps (per phase) documented. | <input type="radio"/> | <input type="radio"/> |

EQUIPMENT INSTALLATION

- | (PER CONTRACT DRAWING AND SPECIFICATION) | [Y] | [N] |
|---|-----------------------|-----------------------|
| • Knock-down shipment required? | <input type="radio"/> | <input type="radio"/> |
| • Responsibility assigned to equipment manufacturer for reassembly? | <input type="radio"/> | <input type="radio"/> |
| • Piping complete at unit. | <input type="radio"/> | <input type="radio"/> |
| • Adequate static pressure at highest point. | <input type="radio"/> | <input type="radio"/> |
| • Seismic restraints complete (If applicable). | <input type="radio"/> | <input type="radio"/> |
| • Manufacturer's O&M available. | <input type="radio"/> | <input type="radio"/> |
| • Manufacturer's startup sheets attached with this checklist. | <input type="radio"/> | <input type="radio"/> |
| • Warranty certificate available. | <input type="radio"/> | <input type="radio"/> |

DISTRIBUTION (TO AND FROM EQUIPMENT)

- | | [Y] | [N] |
|--|-----------------------|-----------------------|
| • Piping pressure tested per contract documents. | <input type="radio"/> | <input type="radio"/> |
| • Piping adequately supported independent to the rooftop unit. | <input type="radio"/> | <input type="radio"/> |
| • Gas piping properly sized and pitched. | <input type="radio"/> | <input type="radio"/> |
| • Consideration should be given to hot water flow velocity. | <input type="radio"/> | <input type="radio"/> |
| • Insulation completed? | <input type="radio"/> | <input type="radio"/> |
| • Installation per contract documents (specification and details). | <input type="radio"/> | <input type="radio"/> |
| • TAB report (and field notes) attached with this checklist. | <input type="radio"/> | <input type="radio"/> |
| • Identification per contract documents. | <input type="radio"/> | <input type="radio"/> |

AUTOMATIC CONTROLS

- | | [Y] | [N] |
|---|-----------------------|-----------------------|
| • Temperature controls complete. | <input type="radio"/> | <input type="radio"/> |
| • Control points confirmed. | <input type="radio"/> | <input type="radio"/> |
| • Electrical system interlocks complete. | <input type="radio"/> | <input type="radio"/> |
| • Unit-furnished controls interfaced with owner's BAS computer. | <input type="radio"/> | <input type="radio"/> |

ENERGY EFFICIENCY AND OTHER ADVANTAGES

- | | [Y] | [N] |
|--|-----------------------|-----------------------|
| • Consider using VSDs on fan. | <input type="radio"/> | <input type="radio"/> |
| • Consider application and rooftop unit selection. | <input type="radio"/> | <input type="radio"/> |
| • Consider heat recovery (airside). | <input type="radio"/> | <input type="radio"/> |



REFERENCE

- 2008 ASHRAE Handbook – Applications, Chapter 1, “HVAC System Analysis & Selection,” and Chapter 45, “Unitary Air Conditioning & Heat Pumps.”
- 2007 ASHRAE Handbook – Applications, Chapter 3, “Commercial & Public Buildings Systems.”
- 2005 ASHRAE Handbook – Fundamentals, Chapter 35, “Duct Design,” and Chapter 36, “Pipe Sizing.”

DESIGN REVIEW AND TRICKS OF THE TRADE

- Confirm old equipment can be demolished and new rooftop can be rigged in.
- Confirm there is safe access to the equipment (are railings required?).
- Confirm manufacturer's recommended clearance around equipment.
- Spot-check heating capacity by dividing square feet into Btuh input for sq ft/Btuh.
- 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 manufacturer literature for additional data and requirements.
- Refer to *Engineered Systems'* April 2008 “HVACR Designer Tips” (“Design Review – Design Build for Commercial & Public Buildings”) column for more information on the D-B approach to equipment startup. **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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