

## DESIGN REVIEW / DESIGN BUILD

### Commercial and Public Buildings

**Equipment type:** Rooftop unit (RTU-1), DX cooling with gas heat  
**Equipment designation:** RTU-1  
**Barcode designation:** 111111  
**Area served:** One-story office space  
**Equipment location:** Rooftop

#### DESIGN REVIEW

- |   | [Y]                   | [N]                   |
|---|-----------------------|-----------------------|
| • Verify there is adequate outdoor ventilation.   | <input type="radio"/> | <input type="radio"/> |
| • Spot-check air quantity based on cfm/sq ft.   | <input type="radio"/> | <input type="radio"/> |
| • Spot-check heating capacity based on Btuh/sq ft.  | <input type="radio"/> | <input type="radio"/> |
| • Create a system flow diagram to assess static pressure sequence of operation, condenser water, and/or chilled water pressure drops. | <input type="radio"/> | <input type="radio"/> |
| • Spot-check fan total static pressure.   | <input type="radio"/> | <input type="radio"/> |
| • Confirm DX coil is piped correctly per manufacturer's piping requirements.  | <input type="radio"/> | <input type="radio"/> |
| • Review control drawings and specifications to confirm unit space temperature setpoints are specified.                               | <input type="radio"/> | <input type="radio"/> |
| • Review control drawings and specifications to confirm unit space humidity setpoints are specified.                                  | <input type="radio"/> | <input type="radio"/> |
| • Review control drawings and specifications and confirm unit space temperature high/low alarm limits are specified.                  | <input type="radio"/> | <input type="radio"/> |
| • Review control drawings and specifications to confirm alarm sequences are specified.  | <input type="radio"/> | <input type="radio"/> |
| • Review control drawings and specifications to determine if unit will operate through the BAS/BMS.                                   | <input type="radio"/> | <input type="radio"/> |
| • Spot-check that there are adequate floor drains and funnel drains around unit.  | <input type="radio"/> | <input type="radio"/> |

#### ELECTRICAL INSPECTION/REQUIREMENTS

- |   | [Y]                   | [N]                   |
|---|-----------------------|-----------------------|
| • What are the electrical requirements for the new RTU?   | <input type="radio"/> | <input type="radio"/> |
| • Is there adequate electrical power to meet new electrical load from RTU?  | <input type="radio"/> | <input type="radio"/> |
| • Is there adequate electrical power coming in from the street?   | <input type="radio"/> | <input type="radio"/> |
| • Identify electrical scope of work required with RTU.  | <input type="radio"/> | <input type="radio"/> |
| • Will emergency power be a requirement for the new RTU?  | <input type="radio"/> | <input type="radio"/> |
| • Are electrical connections tight and secure?  | <input type="radio"/> | <input type="radio"/> |
| • Have the fuses and wire sizes been checked and verified?  | <input type="radio"/> | <input type="radio"/> |
| • What electrical system components (existing conduits, etc.) will require removal, reinstallation, and/or relocation to accommodate new RTU? | <input type="radio"/> | <input type="radio"/> |
| • Are there existing electrical code issues that should be addressed at this time?  | <input type="radio"/> | <input type="radio"/> |

#### HVAC INSPECTION/REQUIREMENTS

- |  | [Y]                   | [N]                   |
|--|-----------------------|-----------------------|
| • Has selection of RTU been approved by owner?   | <input type="radio"/> | <input type="radio"/> |
| • Has the minimum gas pressure been determined?  | <input type="radio"/> | <input type="radio"/> |
| • Verify that gas piping is complete and correct.  | <input type="radio"/> | <input type="radio"/> |
| • Can the RTU be installed with access for maintenance?  | <input type="radio"/> | <input type="radio"/> |
| • Can the RTU be installed without removing other HVAC, electrical, plumbing, communication, and/or fire protection distribution or equipment? | <input type="radio"/> | <input type="radio"/> |

- Has consideration been given to future expansion?
- Has pressure testing of pipe distribution been determined in scope of work?
- Has system flushing been determined in scope of work?
- Has condensate drain piping been addressed?

#### GENERAL CONSIDERATIONS/REQUIREMENTS

- |   | [Y]                   | [N]                   |
|---|-----------------------|-----------------------|
| • What are the necessary installation permitting and operation permitting requirements?                         | <input type="radio"/> | <input type="radio"/> |
| • Have insurance certificates been submitted to building owner?   | <input type="radio"/> | <input type="radio"/> |
| • Will record drawings be submitted electronically along with one paper copy?                                   | <input type="radio"/> | <input type="radio"/> |
| • Will there be an extended warranty on the equipment?  | <input type="radio"/> | <input type="radio"/> |
| • Will there be a service contract submitted for the RTU?   | <input type="radio"/> | <input type="radio"/> |
| • Will the RTU O&M website be included along with electronic copy or O&M manual and two paper copies of manual? | <input type="radio"/> | <input type="radio"/> |

#### DESIGN REVIEW AND TRICKS OF THE TRADE

- Create an airflow diagram indicating cfm, air changes, and space pressure.
- Confirm there is safe access to the equipment.
- Confirm the manufacturers' recommended clearance exists around the equipment.
- Consider that routine maintenance can be achieved without shutting unit down.
- Attach equipment schedule and design criteria to checklist.
- Attach sequence of operation to checklist.

#### 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."

#### NOTE

- Refer to equipment manufacturers' literature for additional data and requirements.
- Refer to building owner standards and guidelines for additional criteria. **ES**

*If you have any comments, suggestions, or questions regarding this designer checklist, contact Amanda McKew at [amckew@rdkengineers.com](mailto: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.*

