

## SECTION 15700 - HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT

## PART 1 - GENERAL

## 1.1 SUMMARY

## A. Section Includes:

1. Heating, ventilating, and air conditioning systems.
  - a. Roof Exhaust Fans.

## B. Related Requirements:

1. Section 01330 - Submittal Procedures.
2. Section 01455 - Mechanical Equipment Testing, Adjusting, and Balancing: Test and balance.
3. Section 01600 - Product Requirements: Direct purchased products through pre-negotiated suppliers.
4. Section 01770 - Contract Closeout.
5. Section 07721 - Manufactured Curbs: Curbs for roof top heating, ventilating, and air conditioning equipment.
6. Section 13810 - Energy Management Systems (EMS): Cable sets and conduit for remote temperature sensor, control wiring, and related components for energy management system.
7. Appendix B – Testing, Inspection, and Observation by Owner.

## 1.2 DEFINITION OF TERMS

- A. Work shall mean complete installation of equipment and devices in accordance with applicable Specifications and as described in the Drawings, Application Sheets, Manufacturer's Cut Sheets and Instructions.
- B. HVAC Contractor shall mean the General Contractor's, Subcontractor that is responsible for performing the HVAC work as specified on the construction documents. HVAC Contractor shall be responsible for compliance with applicable codes, ordinances, and work permits.

## 1.3 QUALITY ASSURANCE

- A. Certifications: Each item of equipment available with capacity ratings certified by AMCA and/or ARI, shall be furnished with capacity ratings so certified.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Heating, Ventilating, and Air Conditioning Equipment Furnished by Owner and Installed by Contractor: Include in Contract Amount costs incurred for receiving, storage, and labor. Contractor shall be responsible for costs arising when replacement materials must be reshipped due to loss or damage on job site after acceptance of original shipment. Immediately upon award of Contract, coordinate release of units for delivery to site with contacts specified in this Section. Provide crane service to hoist HVAC units directly from truck to roof.

## 1.5 SCHEDULING

- A. Milestone Completion Date: Complete Work of this Section on or before Delivery date specified in Appendix A, "Owner Furnished Equipment Shown on Drawings".
- B. Coordinate Contract interface Work of this Section to provide for energy management system operation and testing in accordance with energy management system Milestone Completion date.
- C. Schedule testing and balancing in accordance Section 01455.

## 1.6 WARRANTY

- A. Owner furnished equipment shall be turned over to Owner in good working order. Prior to acceptance by Owner, equipment failures are under manufacturer's warranty. Notify equipment warranty contact specified herein for replacement or reimbursement information prior to beginning repairs. After acceptance by Owner, Contractor is not responsible for warranty repair.

## 1.7 SYSTEM STARTUP

- A. The Contractor shall conduct start-up operations for equipment specified herein other than RTUs and AHUs, or as Scheduled on Drawings. Perform start-up in accordance with manufacturer's printed installation and start-up instructions. Mechanical failure, prior to acceptance by Owner, shall be repaired by Contractor through warranty agreement with manufacturer.
- B. Prior to test and balance, complete work of this section and contract interface work of Section 13810 - Energy Management Systems. Refer to Section 13810 for testing of energy management controls by energy management system installer.
- C. Schedule start-up, allowing Owner's representative to be present unless Owner directs otherwise. If start-up and testing cannot be completed due to seasonal weather conditions, perform remaining start-up at an appropriate time. Payment may be withheld until Work is complete. During start-up, operate each unit in every mode, separately and in conjunction with other units for sufficient period of time, demonstrating to Owner's satisfaction that each unit is operating properly.
- D. Record designated start-up data on forms attached at end of this Section. Retain completed form on site.

## 1.8 REQUEST FOR INFORMATION SUBMITTAL

- A. All Requests for Information (RFIs) regarding HVAC shall follow the attached copy of the Request for Information Process Flow Chart.
- B. Refer to Specification Section 01255 for RFI Information Submittal Process.

## PART 2 PRODUCTS

### 2.1 EXISTING ROOF TOP AIR CONDITIONING UNITS

- A. Where required, provide smoke detectors in existing roof top units.

### 2.2 ROOF EXHAUST FANS

- A. Roof Fans: Low contour, spun aluminum hood and base sections with curb cap, bird screen, and other accessories as scheduled on Drawings. Provide centrifugal fans with direct or belt drive motor, mounted on resilient supports with isolators between support and base. Provide motor with thermal overloads. Locate motor out of exhaust air stream. Provide UL listed and AMCA certified fans, of capacities and electrical characteristics as scheduled on Drawings.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install equipment per manufacturers instructions and requirements of Authority Having Jurisdiction (AHJ).
- B. Exhaust Fan:
  - 1. Label units with 6 inch black permanent paint stencil. Number units as indicated on Drawings. Locate label for each unit on top of fan.

2. Do not set exhaust fans on curbs until installation of roofing base flashing has been completed.

### 3.2 FIELD QUALITY CONTROL

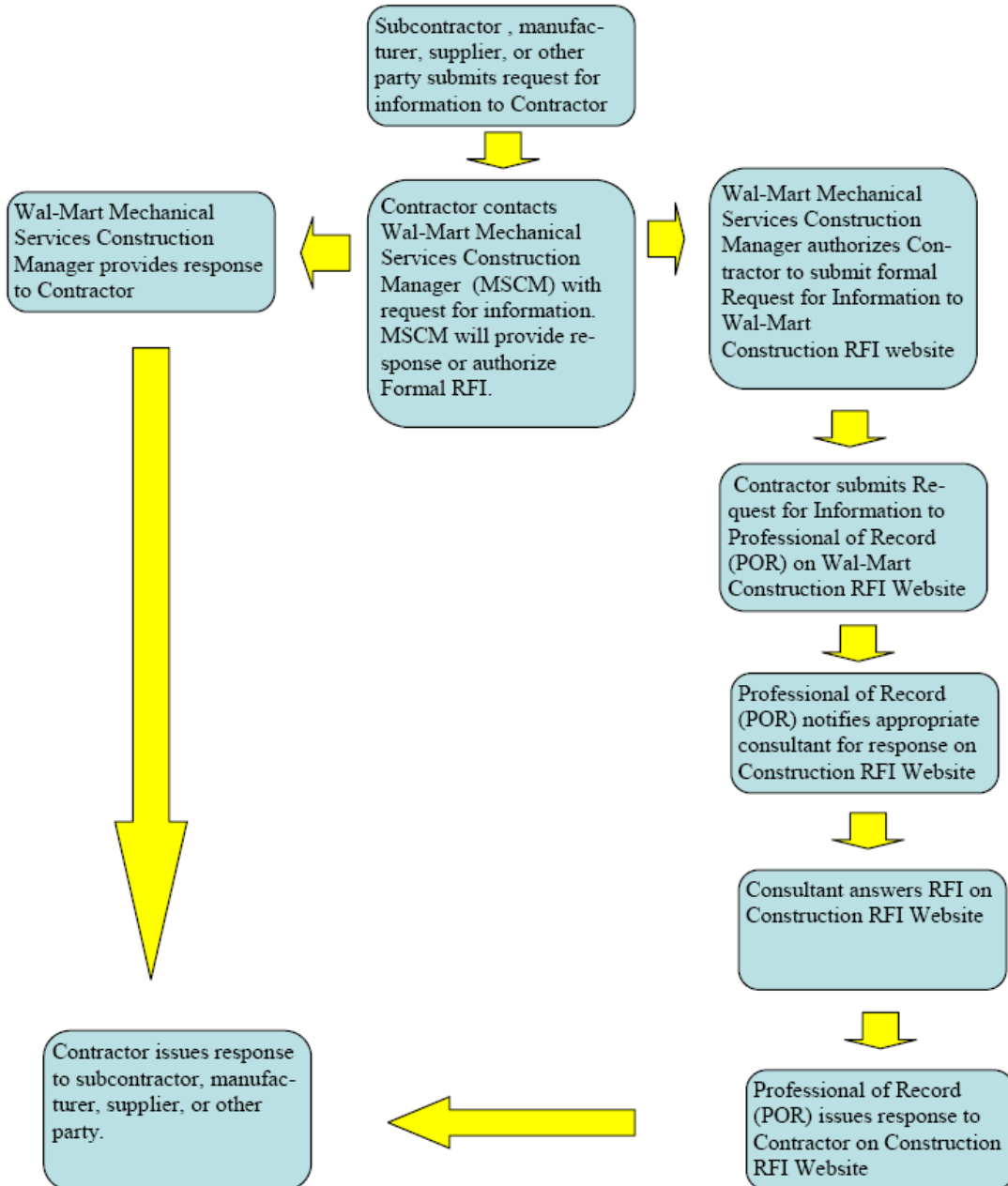
- A. Field quality control shall be the ultimate responsibility of the Contractor in accordance with Section 01452. Field quality control testing and inspection shall be at the discretion of the Contractor as necessary to assure compliance with Contract requirements.
- B. Roof Top Air Conditioning Units:
  1. Testing and balancing will be performed by a Testing and Balancing Agency (TBA) in accordance with Section 01455.
  2. Full testing and balancing shall be performed only on:
    - a. New units with new or existing ceiling diffusers.
    - b. Existing units with modified ductwork.
    - c. Existing units with air balance modifications.
  3. Factory Start-up and Commissioning only shall be performed on:
    - a. New units with existing drop box diffusers.
  4. New units with existing exposed ductwork.
  5. Limited testing and balancing as follows shall be performed on:
    - a. New Aeon heating only Rooftop Units.
  6. Limited testing and balancing shall include the following; record readings for inclusion into final report for Owners' use:
    - a. Test and record fan speeds (rpm), CFM, and full load amperes. Record voltage at each unit.
    - b. Test and record suction and discharge external static pressures at respective plenums. Seal access holes with rubber or metal snap-in plugs. The use of duct tape to seal access holes will not be permitted.
    - c. Test and record entering air temperatures. (Dry Bulb heating and cooling; Wet Bulb cooling.)
    - d. Test and record leaving air temperature. (Dry Bulb heating and cooling; Wet Bulb cooling.)
    - e. Test and record outside air Dry Bulb and Wet Bulb temperatures.
    - f. Verify and record proper operation of all stages of gas or electric heating sections.
    - g. Verify proper control operation of unit as applicable.

### 3.3 PROTECTION

- A. Protect RTUs and AHUs from damage, including but not limited, to paint spray and drywall dust. Replace air filters regularly to preclude damage. Damage incurred due to Contractor neglect will be repaired by manufacturer at Contractor's expense.

END OF SECTION

**HVAC/REFRIGERATION/EMS  
REQUEST FOR INFORMATION  
PROCESS FLOW CHART  
WAL-MART STORES, SUPERCENTER, SAM'S CLUB,  
NEIGHBORHOOD MARKET**



## RTU PRE-START-UP CHECKLIST - BY CONTRACTOR

Store No. \_\_\_\_\_ Town \_\_\_\_\_ St \_\_\_\_\_

Contractor \_\_\_\_\_ Date \_\_\_\_\_

*Name of technician carrying out checks and completing this form.*

**All checklist items must be completed before the installation will be accepted.**

**INSTRUCTIONS**

1. Contractor shall complete all items listed below in preparation for Lennox Technician Start Up. shall fill out job information and initial each section to acknowledge equipment is ready for Initial Start Up.
2. Fax or Email to Lennox NAS at least (4) weeks prior to the requested start up date. Failure to properly complete all items before the Lennox NAS technicians arrive on site will result in additional trip charges. Return fees are paid by the G.C. based on travel requirements, not to exceed \$3,000.00.
3. If a partial start up is being requested, contact Lennox.

Fax To: Lennox National Account Services 214-576-3873, Attn: Services/E.Mail lennoxservices@lennoxnas.com  
 Lennox National Account Services: Voice 1-800-333-4001 Lennox Walmart Hotline: 1-866-659-0756

Requested date for new construction start up Month \_\_\_\_\_ Day \_\_\_\_\_ 20\_\_\_\_\_

Item	RTU CHECKLIST	Response
1	Specs and installation instructions have been read and understood by contractors working on equipment.	y / n
2	All RTUs are installed per construction documents and level (where needed).	y / n
3	All RTUs are installed in the proper location and orientation per construction documents.	y / n
4	Seismic/wind clips installed and secured per manufacturer's instructions on all RTUs.	y / n
5	All RTUs are clear of damage or defect.	y / n
6	All RTUs and dropboxes labeled with correct number per construction documents in addition to Mfgs Tag.	y / n
7	Shipping screws and brackets are removed from RTUs.	y / n
8	All motor hardware, setscrews and torques tightened per installation instructions.	y / n
9	Flexible wire (power and controls) penetrations through bottom of RTU sealed per installation instructions.	y / n
10	Permanent power to the RTU convenience receptacle.	y / n
11	Permanent power of the correct voltage connected to the RTUs with connections tightened per Manufacturer. 14-10 awg 20 lb torque, 8 awg 25 lb torque, 6 awg 35 lb torque.	y / n
12	Gas lines connected to all RTUs and free of debris.	y / n
13	Proper gas pipe blocking installed in the correct locations per construction documents.	y / n
14	Proper gas regulators are installed and <b>set to correct pressure</b> per construction documents.	y / n
15	Proper gas shutoff valves installed per construction documents.	y / n
16	Dirt leg in correct location and configuration per Rooftop Gas Regulator Detail.	y / n
17	1/8" tap installed per Rooftop Gas Regulator detail for pressure testing.	y / n
18	Condensate trap and piping are properly installed and drain lines cleared?	y / n
19	Economizer outdoor hoods installed and caulked according to installation instructions.	y / n
20	Hail guards installed if applicable.	y / n
21	Equipment controls, Building Automation System (BAS), installed and functional.	y / n
22	OEM supplied air filters are in place on all RTUs.	y / n
23	Filter material (min MERV 7) properly taped over return air grills or registers if unit to used during construction.	y / n
24	Filters on all equipment used for temporary heat or cooling changed within 24 hrs. before final startup and again at GO per mechanical schedule notes.	y / n

25	All diffusers, grilles and ducts are installed and dampers are in the open position.	y / n
26	Facility sealed with all walls and doors installed.	y / n
27	Mechanical contractor on site during start up procedures.	y / n
28	Ladders are available for roof access.	y / n
29	Start up work will not affect other work.	y / n
30	Contractor has started units according to instructions and confirmed proper compressor rotation.	y / n
31	Start up form completed and left in door tray of unit (Last page of installation instruction).	y / n

Comments:  
 \_\_\_\_\_  
 \_\_\_\_\_

**Submittal**

*The information provided above confirms installation and verification is complete and the standard achieved is acceptable.*

\_\_\_\_\_  
 Project Assigned General  
 Contractor (name)

\_\_\_\_\_  
 Signature

\_\_\_\_\_  
 Date

**Approval**

*The work carried out during this project is complete and the standard achieved is acceptable.*

\_\_\_\_\_  
 Walmart Mechanical Construction Manager  
 (name)

\_\_\_\_\_  
 Signature

\_\_\_\_\_  
 Date

**Notice to WM MCM:**