

# **EMMA WHEELER HOMES GYMNASIUM RTU REPLACEMENT**

**for**  
**Chattanooga Housing Authority**  
**at**  
**4900 Edingburg Drive**  
**Chattanooga, Tennessee 37410**

**Date: August 30<sup>th</sup>, 2023**

Prepared by:  
**GREENWOOD OAK**  
P.O. Box 8534  
Chattanooga, TN 37414



## **PROJECT OVERVIEW**

The project site is Emma Wheeler Homes located at 4900 Edingburg Drive in Chattanooga, Tennessee 37410. The project building is an existing gymnasium and multi-purpose building, served by packaged, rooftop units (RTU) with natural gas heat. The project scope of services is the replacement of the existing RTU at the gymnasium.

## **MECHANICAL DESIGN NARRATIVE**

The Contractor shall be responsible for complete mechanical scope of work for replacing the RTU including the demolishing the existing RTU, disposing of the existing RTU, and installation of the new RTU. Contractor shall adhere to current, adopted codes by the City of Chattanooga including but not limited to 2012 IECC, 2018 IMC and 2018 IFGC. Contractor shall adhere to OSHA requirements and regulations during this project. The scope of work shall include, but not be limited to, the following:

### **Demolition**

- Disconnect the existing rooftop from the supply and return air ducts, natural gas piping, and electrical feeders. All utilities shall be left in a safe and organized arrangement and all utilities shall be prepared for reuse and reconnection to replacement unit. Natural gas piping shall be isolated at the nearest isolation valve.
- Existing, 15 ton RTU shall be removed from the existing roof curb and disposed of by the Contractor.
- The Contractor shall visit the site and visually inspect the existing roof curb, nailor, flashing, and counterflashing for integrity and suitability for installation of replacement RTU prior to bid and start of work.

### **New Work**

The Contractor shall provide a new, standard efficiency RTU with natural gas heat. Basis of Design is a TRANE YSJ180\*3SOL\*\*F0BOC1B000A4\*000. Performance criteria and additional features shall include the following:

Voltage: 208 V, 3 Phase

Heat: Low Heat, 250 MBH / 175 MBH (Hi / Low) - Burner Efficiency of no less than 81%

Fresh Air: 0-100% Economizer (Reference Enthalpy) with Barometric Relief

Supply Motor: Standard Supply Motor  
Filters/Access: Standard Panels with 2" Merv-8 Filters (20" X 24" X 2")  
Base Connections: For Electric Feeder/Conduit and Natural Gas Piping  
Disconnect: Unit-Mounted, Non-Fused  
Convenience Outlet: Powered, GFCI, 15 Amp with serviceable receptacle disconnect  
Smoke Detector: Return Air Smoke Detector  
System Monitoring: Clogged Filter Switch and Condensate Overflow Switch  
Low Ambient: None  
EER/IEER: 10.8 / 14.0  
Duct Connections: Down Discharge Supply/Return  
# of Compressors: 2 / Manifold Scroll  
Warranties: 10 year heat exchanger, 5 year compressor, 1 year other parts and labor.

Provide a new, 7-day programmable thermostat.

Acceptable Equivalent Manufacturers are: Carrier, JCI, Lennox, and Rudd

Refrigerant: R-410A

Freeze Protection: Froststat

Airflow: 5,250 CFM (Contractor shall balance airflow to this value)

Supply Fan HP: 3.1 HP

- Install a new roof curb adapter, suitable to install supply and return duct offsets. Roof curb adapter shall be sized to accommodate the new RTU base and align to the dimensions of the existing roof curb. The Contractor shall field verify all relevant field dimensions, determine all required curb adapter dimensions, and confirm new duct/pipe/feeder locations, prior to ordering the new RTU.
- Install new natural gas piping, connected to existing natural gas piping. Extend piping as required to connect to the new natural gas piping connection. The contractor shall test piping for leaks, prior to placing the piping into operation.
- The Contractor shall confirm the proper refrigerant charge in the system, test the system in heating and cooling mode for acceptable airflows and heat transfer coil temperatures.
- The Contractor shall bear the cost for all rigging /lifting of RTU, including any cranes or lifting devices.

- The Contractor shall coordinate the configuration of the replacement RTU, to have the service components (connections, disconnects, access panels) in a similar orientation to the existing RTU.
- The Contractor shall provide submittals of equipment to Architect for approval prior to purchase.

## **ELECTRICAL DESIGN NARRATIVE**

The Contractor shall be responsible for complete electrical scope of work associated with the replacing the RTU including disconnecting power to existing RTU, disposing of electrical materials and devices that are not to be reused; and connection of power to the new RTU. Contractor shall adhere to current, adopted codes by the City of Chattanooga including but not limited to 2017 NEC, 2018 IBC and 2018 NFPA. Contractor shall adhere to OSHA requirements and regulations during this project. The scope of work shall include, but not be limited to, the following:

### **Demolition**

- Contractor to visit site and verify existing conditions prior to bid.
- Contractor to coordinate work with mechanical work.
- Contractor to demolish 100amp, 3pole non-fused disconnect and remove wiring back to source. The source is a 100amp disconnect located in the interior of the building above an existing wire trough.
- Existing conduits serving disconnect and receptacle to remain for reuse.
- Demolish existing receptacle and weather-proof cover at existing RTU.
- Contractor shall remove demolished devices and materials from the site.

### **New Work**

- Contractor to coordinate work with mechanical work.
- All materials and equipment utilized for this project shall be new.
- Provide 100amp, 3pole, non-fused NEMA 3R, heavy-duty disconnect. Mount on new RTU or on Unistrut supports at 48" AFF. Locate disconnect a minimum of 3' from edge of building.
- Provide 3 #8AWG copper from RTU disconnect to existing disconnect at wire trough. Terminate in disconnect.
- New wiring to be terminated in existing disconnect.
- Provide new 120volt, 20amp, 1pole receptacle in weatherproof while-in-use cover. Coordinate location of receptacle within 25' of RTU.

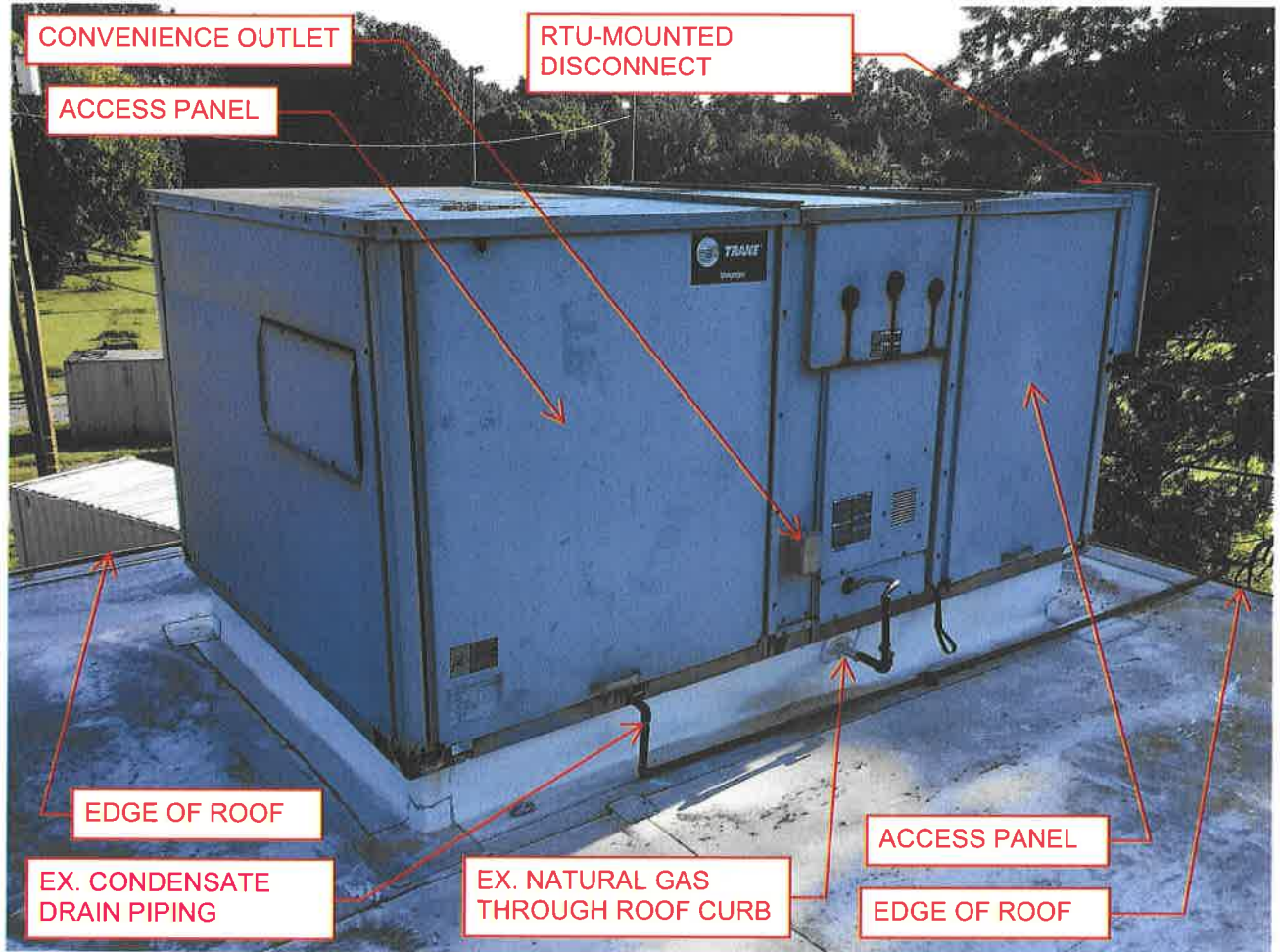


FIGURE 1 - EXISTING RTU TO BE DEMOLISHED

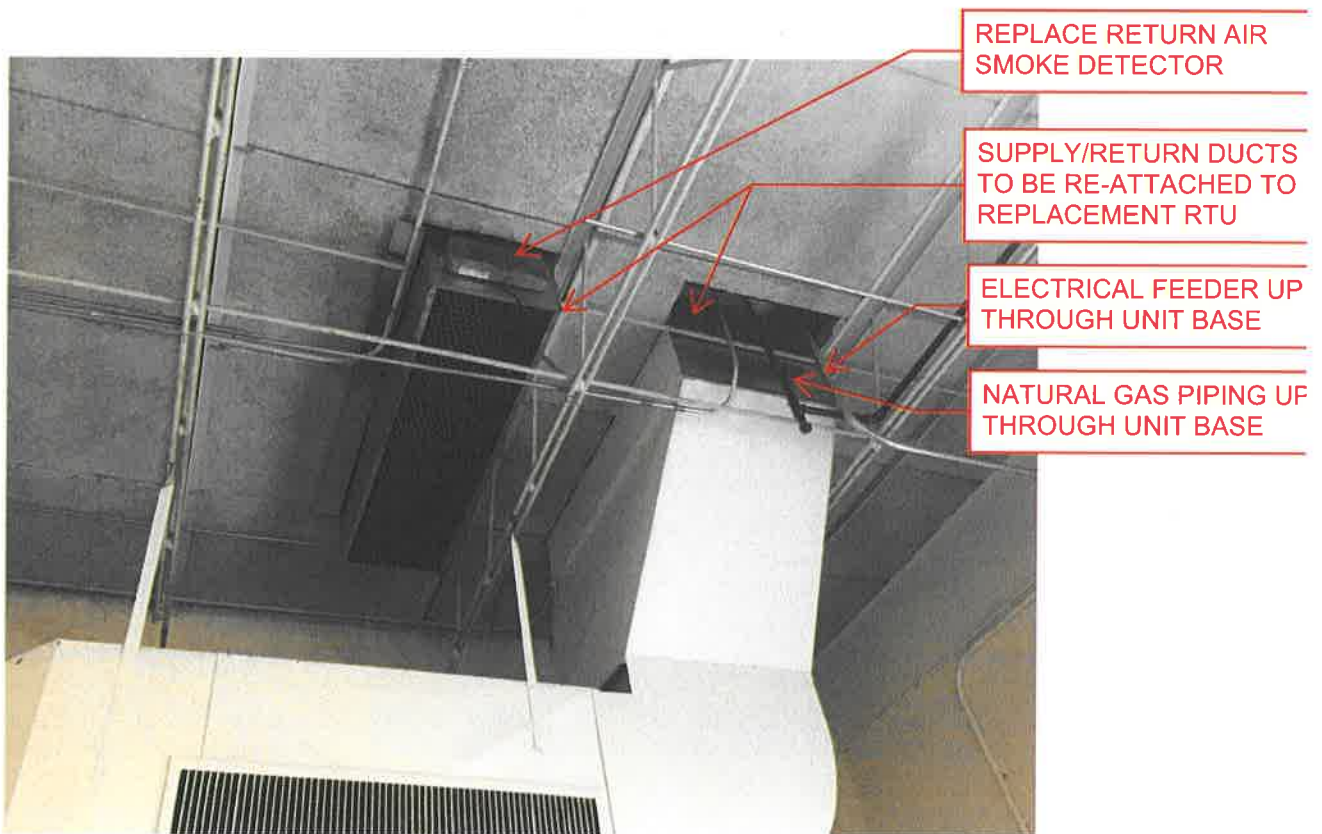


FIGURE 2 - EXISTING INTERIOR DUCTWORK, PIPING, CONDUITS, AND ACCESSORIES



FIGURE 3 - EXISTING THERMOSTAT TO BE REPLACED



FIGURE 4  
EXISTING 100AMP DISCONNECT, RTU SERVICE CIRCUIT BREAKER, AND WIRE TROUGH.  
THE DISCONNECT IS THE CURRENT SOURCE FOR THE RTU.  
WIRING IS TO BE REMOVED FROM THIS DISCONNECT UP TO THE RTU.



FIGURE 5 - EXISTING OVERHEAD SERVICES TO REMAIN.

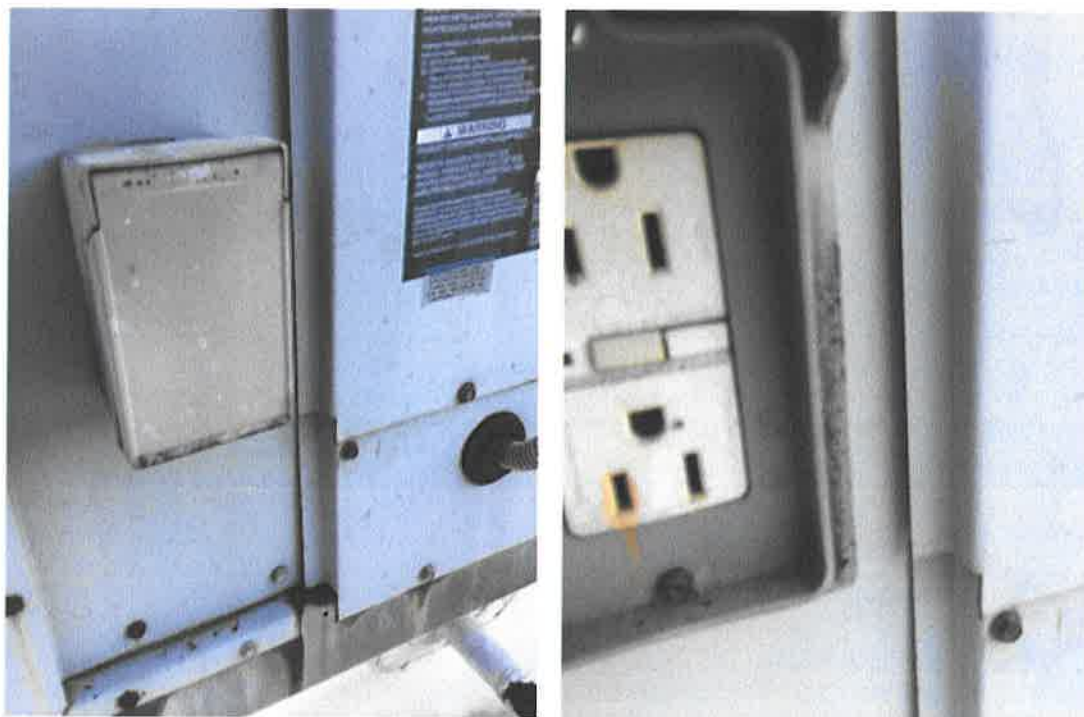


FIGURE 6 - EXISTING WEATHER-PROOF COVER AND RECEPTACLE.