**THIS FORM MUST BE PRINTED TO A STATIC PDF FOR DISTRIBUTION**

Yellow highlighted text will not appear in the printed document.

# SUBMITTAL REVIEW

**CLIENT NAME:** Vails Gate Fire Department

**PROJECT TITLE:** Vails Gate FD - New Firehouse

**SUBMITTAL No.:** 237433-1.1 **H2M PROJECT No.:** VGFD2001

**SUBMITTAL NAME:** Dedicated Outdoor Air Units PD SD

## SUBMITTAL REVIEW

**REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS.**
**NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS**
**OF DIMENSIONS OR DETAILS**

- [x] NO EXCEPTIONS TAKEN
- [ ] SUBMIT SPECIFIED ITEM
- [ ] MAKE CORRECTIONS NOTED (RESUBMISSION NOT REQUIRED)
- [ ] NO ACTION TAKEN (REVIEW IS THE RESPONSIBILITY OF ANOTHER PARTY)
- [ ] REVISE & RESUBMIT
- [ ] NO ACTION TAKEN (THIS SUBMITTAL IS NOT REQUIRED BY THE CONTRACT)
- [ ] REJECTED - SEE REMARKS
- [ ] RECEIVED FOR RECORD

Corrections or comments made on the shop drawings during this review do not relieve contractor from compliance with requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating their work with that of all other trades; and performing the work in a safe and satisfactory manner.

**H2M architects + engineers**

Date: 04/14/2023 By: MJV

Rev.: 2020-05-20

**Comments:**

Contractor responsible for any changes associated with substituted equipment.

CONTRACTOR'S COMPANY NAME
ADDRESS

**SUBMISSION TRANSMITTAL FORM**
**CLIENT NAME:** Vails Gate Fire District
**PROJECT TITLE:** VGFD2001-New Firehouse

**H2M PROJECT NO.:** VGFD2001

| | | | |
|---|---|---|---|
| Product, Item, or System Submitted: | Dedicated Outdoor Air Unit Product Data rev. 1 | | |
| Submission Date: | 4/10/23 | Submission Log No.: | 237433-1 |
| Specification Section: | 237433 | Paragraph Reference: | 1.03.A |
| Contract Drawing Reference(s): | | | |
| Manufacturer's Name: | Joseph Lombardo Plumbing & Heating | | |
| Manufacturer's Mailing Address: | | | |
| Manufacturer's Contact Information: | *Name* | ( )<br>*Tel. no.* | *Email* |
| Supplier's Name: | | | |
| Supplier's Mailing Address: | | | |
| Supplier's Contact Information: | *Name* | ( )<br>*Tel. no.* | *Email* |
| This item is a substitution for the specified item: | | ☑ No | ☐ Yes |
| **KEY CONSTRUCTION SERVICES, LLC**<br>**Project No: VGFD2001**<br>Reviewed for General Acceptance Only. This review does not relieve the Subcontractors or Suppliers of responsibility for making the work conform to the requirements of the contract. The Subcontractor and Suppliers are responsible for all dimensions, correct fabrication and accurate fit with the work of other trades.<br>**SUBJECT TO ARCHITECT AND OR ENGINEER APPROVAL**<br>**Signed** *Joseph Manfredi*(PM) **Date: 4/10/23**<br>Contractor's Approval Stamp with Signature & Date | | Contractor's Brief Comments or Remarks (attach separate letter as needed):<br>By making this submission, we represent that we have determined and verified all field measurements and dimensions, field construction criteria, site and building constraints in terms of limitations in moving the item into the enclosed space, materials, catalog and model numbers and similar data and that we have checked and coordinated this submission with other work at or adjacent to the installed location in accordance with the requirements contained in the Contract Documents. | |

**END OF SECTION 013300**

# *Joe Lombardo*

## *Plumbing & Heating of Rockland, Inc.*

*321 Spook Rock Road*
*Suffern, NY 10901*
*Ph. 845-357-6537 Fx 845-357-8529*
*E: info@josephlombardo.com*
*Website: www.josephlombardo.com*

*Rockland Cty. Plumbing #1000* *Rockland Cty. Cooling # 1468*
*Westchester Cty. Plumbing #460* *New Jersey State Plumbing #12702*


# LETTER OF TRANSMITTAL

| DATE: | JOB NO. |
|---|---|
| 4-11-23 | |
| ATTENTION: Joe Manfredi | |
| RE: Vails Gate Firehouse | |

TO: **Key Construction**
**4246 Albany Post Rd. Suite 1**
**Hyde Park, NY 12538**

**WE ARE SENDING YOU** ☐ **Attached** ☐ **Under separate cover via** _____ **the following items:**

☐ **Shop Drawings** ☐ **Prints** ☐ **Plans** ☐ **Samples** ☐ **Specifications**
☐ **Copy of letter** ☐ **Change order** ☐ _____

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 4-11-23 | 237433 | DEDICATED OUTDOOR AIR UNITS – REVISION #1 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**THESE ARE TRANSMITTED as checked below:**

☐ **For approval** ☐ **No Exceptions Taken** ☐ **Resubmit** _____ **copies for review**
☐ **For your use** ☐ **Make Corrections Noted** ☐ **Submit** _____ **copies for distribution**
☐ **As requested** ☐ **Rejected** ☐ **Return** _____ **corrected prints**
☐ **For review and comment** ☐ _____
☐ **FOR BIDS DUE** _____ **20** ___ ☐ **PRINTS RETURNED AFTER LOAN TO US**

---

**COPY TO:** **CHRIS GERMANO** **SIGNED:** **Ronald J. Lombardo**

# DOAS-1 Submittal REV1

Trane U.S. Inc.

**Prepared For:**

H2M Architects +
Engineers

**Date:** 4/4/2023

**Sold To:**
Lombardo

**Job Name:** Vails Gate Fire District

---

Trane is pleased to provide the enclosed submittal for your review and approval.

**Product Summary**

| Qty | Model Description |
|---|---|
| 1 | Horizon™ (OAD/N Rev6 - OADG/OANG) - Horizon™ - Outdoor Air Unit (Revision 6) |

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

**Coordination Notes**

1. Contractor to confirm voltage and electrical requirements prior to release
2. Equipment will be released as submitted unless otherwise noted

Responses to engineer's comments of Rev-0 Submittal:

1. DOAS-1 performance has been updated to reflect design day conditions as outlined below:
    a. 87.7 F DB
    b. 70.9 F WB
    c. 2,799 cfm exhaust airflow
    d. 301.7 MBH heating coil
2. DOAS-1 has a standard curb. Seismic curb to be provided and submitted separately.

**Product Data - Horizon™ - Outdoor Air Unit (Revision 6)**

| Size | Qty | Description | Model Number |
|---|---|---|---|
| D015 | 1 | Horizon™ - Outdoor Air Unit (Revision 6) | OADG015C1-DAB10GH00-J1AJC1AE3-21A30D11A-A01C03A00-AA1A000A0-11AE00000 |

**Tag(s): DOAS-1 REV1**

Unit Voltage: 208-3-60
Curb Selection: Standard Knockdown Curb - Energy Recovery Wheel Cabinet
Warranty: 1-Year Parts Only (manufacturer warranty)
Warranty: 5-Year Digital/Variable Speed/Standard Scroll Compressor / 25-Year Heat Exchanger
Airflow Configuration: Vertical Discharge/Vertical Return
Indoor Coil Type: DX 6-Row
Reheat: Fin & Tube Modulating HGRH
Compressor: Digital Scroll-1st Circuit Only
Outdoor Coil Type: Air Cooled Fin & Tube
Heat Type - Primary: Hot Water
Heat Capacity - Primary: 3 Row/12 FPI
Supply Fan Motor Type: Direct Drive w/VFD
Exhaust Fan Motor Type: Direct Drive w/VFD
Fan Piezo Rings: Supply & Exhaust Fan Piezo Rings/Taps
Unit Controls: Discharge Air Control - UC600
Building Interface: BACnet
Filter Options: MERV-8,30%
Energy Recovery: ERV-Aluminum Construction with Frost Control and Bypass
Energy Recovery Wheel Size: ERC-4640C-4M
ERV Rotation sensor: Rotation sensor
Damper Options: 100% OA 2-Position Damper
Exhaust Dampers: Gravity Dampers
Electrical Options: Non-Fused Disconnect "Circuit Breaker"
Outdoor Air Monitoring: Airflow Probes
Condenser Fan Options: Active (VFD) Head Pressure Low Ambient Control
Smoke Detector: Supply & Return Smoke Detector
Hailguards: Hailguards
Installation: Outdoor
Convenience Outlet: Convenience Outlet
Controls Display: TD7 Factory Installed
Cooling Controls: Reliatel
Condensate Overflow Switch: Condensate Overflow Switch
Outdoor Coil Fluid Type: Water
Damper Leakage Classification: Class 1A
Supply Discharge Air Sensor (FLD)
2 inch Double Wall Construction
Stainless Steel Drip Pan
Blower HP - 5
Blower RPM - 1586
Supply Fan - ANPA 20
Exhaust RPM - 1653
Exhaust HP - 1.5
Exhaust Fan - ANPA 16
Unit Amps - FLA: 77.9 Amps
Min Circuit Ampacity - MCA: 84.2 Amps
Maximum Fuse Size - MFS: 100 Amps

Tag: **DOAS-1 REV2** Comments: **Changing both ambient and summer wheel to requested ambient from H2M**

## Unit Information

| | | | | | |
|---|---|---|---|---|---|
| Model: | **Horizon™ (OAD/N Rev6 - OADG/OANG)** | Unit Length: | **176** in | Weight Operating: | **3992** lb* |
| Size: | **D015** | Unit Width: | **95** in | ***Note: Weight does not include CURB weight. See CURB submittal for actual*** | |
| Quantity: | **1** | Unit Height: | **68** in | **Refrigerant Charge** | |
| Supply Airflow: | **4,500** CFM | Elevation: | **0** ft | Circuit 1: | **33.2** lbs |
| Outside Airflow: | **4,500** CFM | Ambient Air DB: | **85.7** F | | |
| Minimum Airflow: | **1,292** CFM | | | | |

## Cooling Performance

| | | | |
|---|---|---|---|
| Gross Total Capacity: | **205.1** MBh | Evaporator Face Area: | **10.42** sq ft |
| Gross Sensible Capacity: | **135.8** MBh | Evaporator Rows / FPI: | **6 / 14** |
| Net Total Capacity: | **197.8** MBh | Condenser Face Area: | **30** sq ft |
| Net Sensible Capacity: | **128.5** MBh | Condenser Rows / FPI : | **2 / 14** |
| Entering Air DB / WB (Coil): | **80.4 / 67.5** F | Air Velocity: | **431** fpm |
| Leaving Air DB / WB (Coil): | **53.1 / 52.6** F | Coil Air PD: | **0.63** in H2O |
| Leaving Air DB / WB (Reheat): | **76.1 / 61.56** F | EER: | **16.9** |
| Leaving Air DB / WB (Unit): | **77.9 / 62.2** F | Watts: | **14810** |
| Leaving DP: | **52** F | MRE: | **6.09** lb/kWh |
| MRC: | **90.17** lb/h | | |

## Heating Performance

| | | | | | |
|---|---|---|---|---|---|
| Heat Type: | **Hot Water** | Rows: | **3** | Entering Fluid Temp: | **151** F |
| Capacity: | **301.7** MBh | FPI: | **12** | Leaving Fluid Temp: | **117** F |
| Entering Air DB: | **39.3** F | Fluid Flow: | **18.1** GPM | Fluid Type: | **Water** |
| Leaving Air DB: | **101** F | Fluid PD: | **0.7** ft. H2O | Percent Glycol: | **0** % |
| Air Velocity: | **479** fpm | Fluid Velocity: | **18.9** ft/s | | |
| Coil Air PD: | **0.23** in H2O | | | | |

## Energy Recovery Wheel ERC-4640C-4M

*** TAB Outside airflow through OA Intake to this value*

### Summer Conditions

| Ventilation Supply | | Outside | |
|---|---|---|---|
| Airflow: | **4,500** CFM | Airflow: | **4,749** CFM** |
| DB: | **80.4** F | DB: | **85.7** F |
| WB: | **67.5** F | WB: | **70.9** F |
| PD: | **0.83** in H20 | | |

| Return | | Exhaust | |
|---|---|---|---|
| Airflow: | **2,550** CFM | Airflow: | **2,799** CFM |
| DB: | **75.0** F | DB: | **84.1** F |
| WB: | **63.0** F | WB: | **69.2** F |
| ESP: | **1.00** in H20 | ERV PD: | **0.48** in H20 |

| | | | |
|---|---|---|---|
| Total Capacity: | **52.82** MBH | | |
| Sensible Capacity: | **24.68** MBH | Eff: | **0.84** |
| Latent Capacity: | **28.13** MBH | Eff: | **0.67** |

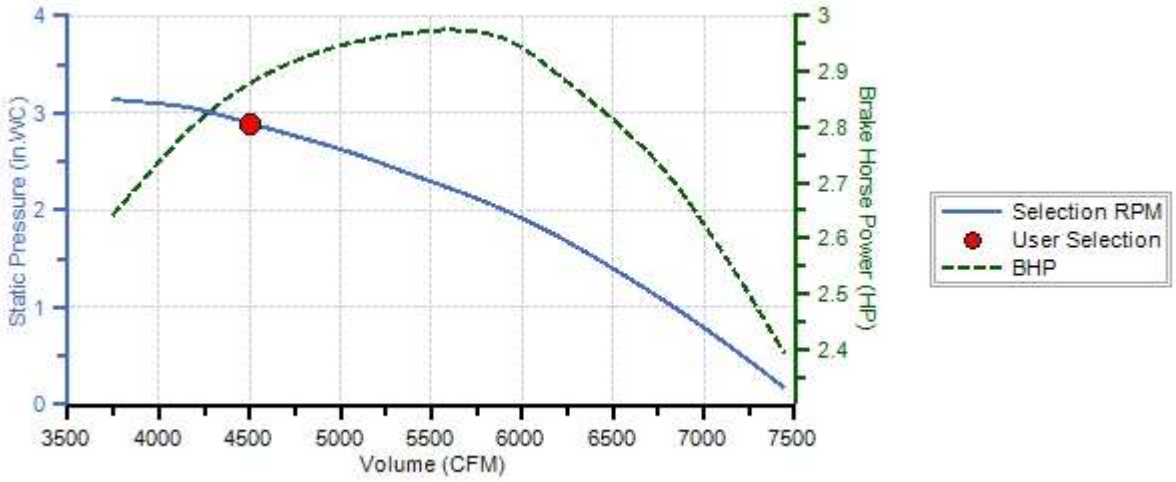
### Winter Conditions

| Ventilation Supply | | Outside | |
|---|---|---|---|
| Airflow: | **4,500** CFM | Airflow: | **4,749** CFM** |
| DB: | **39.3** F | DB: | **12.0** F |
| WB: | **33.4** F | WB: | **10.0** F |
| PD: | **0.83** in H20 | | |

| Return | | Exhaust | |
|---|---|---|---|
| Airflow: | **2,550** CFM | Airflow: | **2,799** CFM |
| DB: | **70.0** F | DB: | **21.0** F |
| WB: | **55.0** F | WB: | **20.8** F |
| ESP: | **1.00** in H20 | ERV PD: | **0.48** in H20 |

| | | | |
|---|---|---|---|
| Total Capacity: | **178.24** MBH | | |
| Sensible Capacity: | **137.21** MBH | Eff: | **0.85** |
| Latent Capacity: | **41.03** MBH | Eff: | **0.66** |

## Supply Fan ANPA 20



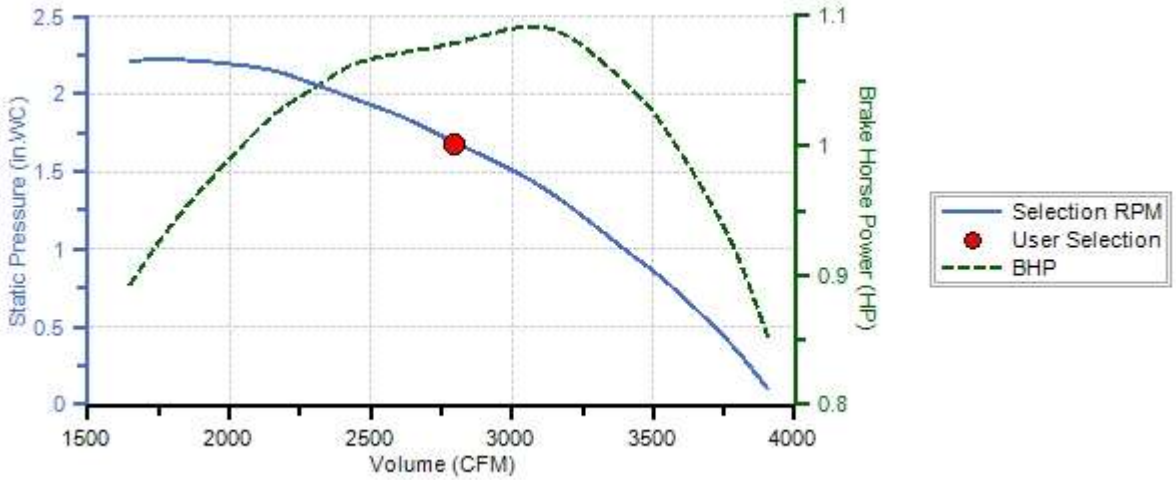

## Supply Pressure Drop Summary

| | |
|---|---|
| External Static Pressure: | **1.00** in H2O |
| Cabinet: | **0.01** in H2O |
| Cooling Coil: | **0.63** in H2O |
| Base Filter: | **0.01** in H2O |
| Filter: | **0.06** in H2O |
| Primary Heat: | **0.23** in H2O |
| HGRH: | **0.04** in H2O |
| ERV OA: | **0.83** in H2O |
| Outdoor: | **0.08** in H2O |
| Total Static Pressure: | **2.89** in H2O |

## Supply Fan Conditions

| | |
|---|---|
| Fan Motor BHP: | **2.88** BHP |
| Operating RPM: | **1586** RPM |
| Minimum RPM: | **916** RPM |

## Exhaust Fan ANPA 16




## Exhaust Pressure Drop Summary

| | |
|---|---|
| Return External Static Pressure: | **1** in H2O |
| ERV Return Filter PD: | **0.2** in H2O |
| ERV Wheel PD: | **0.48** in H2O |
| Total Exhaust Static Pressure | **1.68** in H2O |

## Exhaust Fan Conditions

| | |
|---|---|
| Fan Motor BHP: | **1.08** BHP |
| Operating RPM: | **1653** RPM |

## Standard Radiated Sound Power Level (dBA)

| 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | Total dBA |
|---|---|---|---|---|---|---|---|---|
| **59.7** | **69.7** | **76.7** | **81.7** | **81.7** | **81.7** | **82.7** | **78.7** | **88.7** |

***Sound power levels are listed for informational purposes only and are not guaranteed.***

## Unit Electrical Data

| | | | |
|---|---|---|---|
| Unit Voltage-Ph-Hz: | **208-3-60** | Min Circuit Ampacity - MCA: | **84.2** Amps |
| Unit Amps - FLA: | **77.9** Amps | Maximum Fuse Size - MFS: | **100.0** Amps |

## Electrical Summary

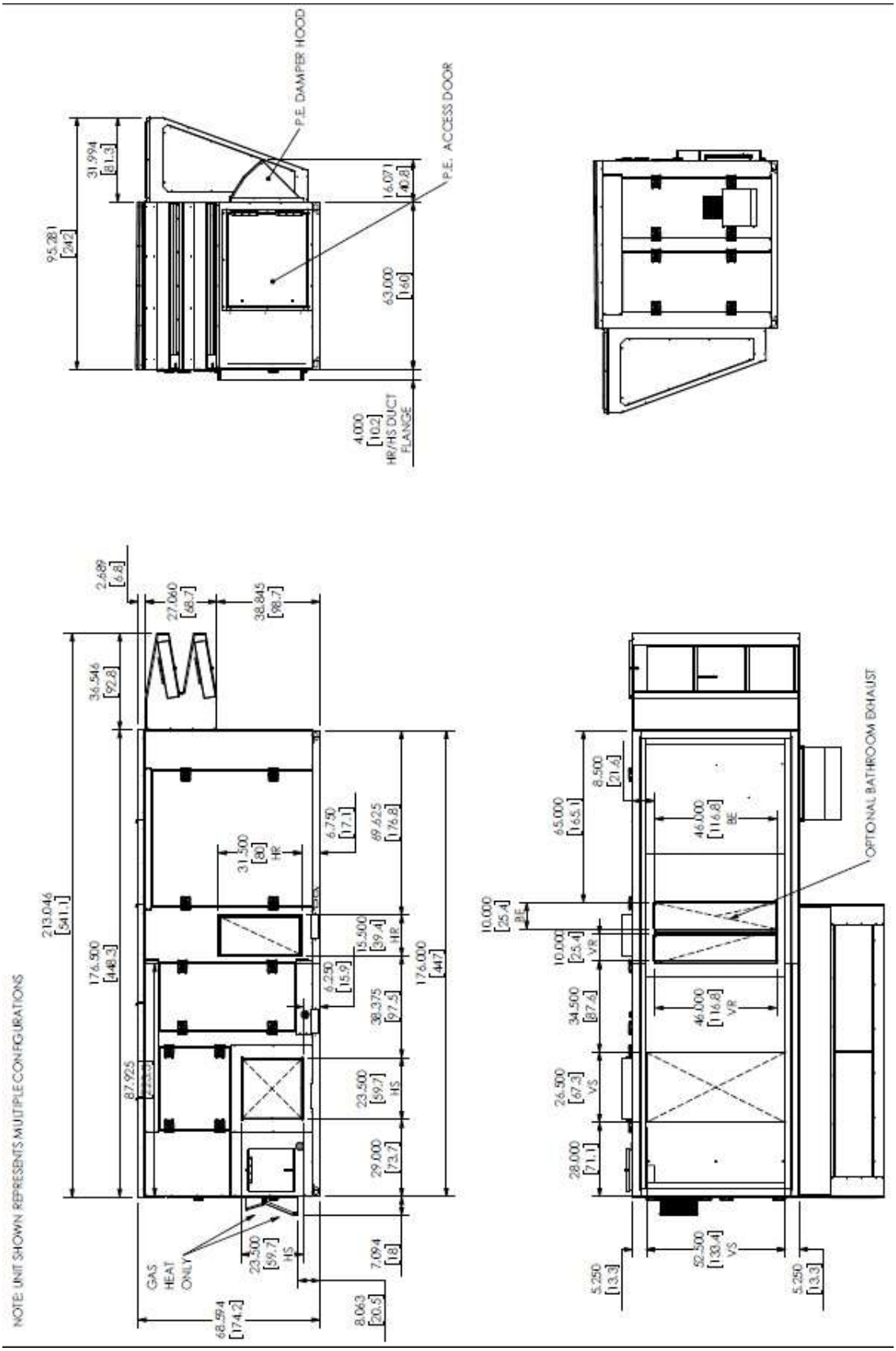
| Component | Fan Service | Qty | HP (ea.) | FLA (ea.) | RLA (ea.) | LRA (ea.) |
|---|---|---|---|---|---|---|
| **ERV/HRV** | | **1** | **0.125** | **0.7** | | |
| | **Exhaust** | **1** | **1.5** | **4.8** | | |
| **Scroll** | | **1** | | | **25** | **164** |
| **Digital Scroll** | | **1** | | | **24** | **186.6** |
| | **Supply** | **1** | **5** | **12.6** | | |
| | **Condenser** | **2** | **1** | **4.2** | | |
| **Controls** | | **1** | | **2.4** | | |

## Notes

- Unit Electrical amps include the greater of compressor or electrical heat amps.
- Unit's electrical as shown above are for single point power.

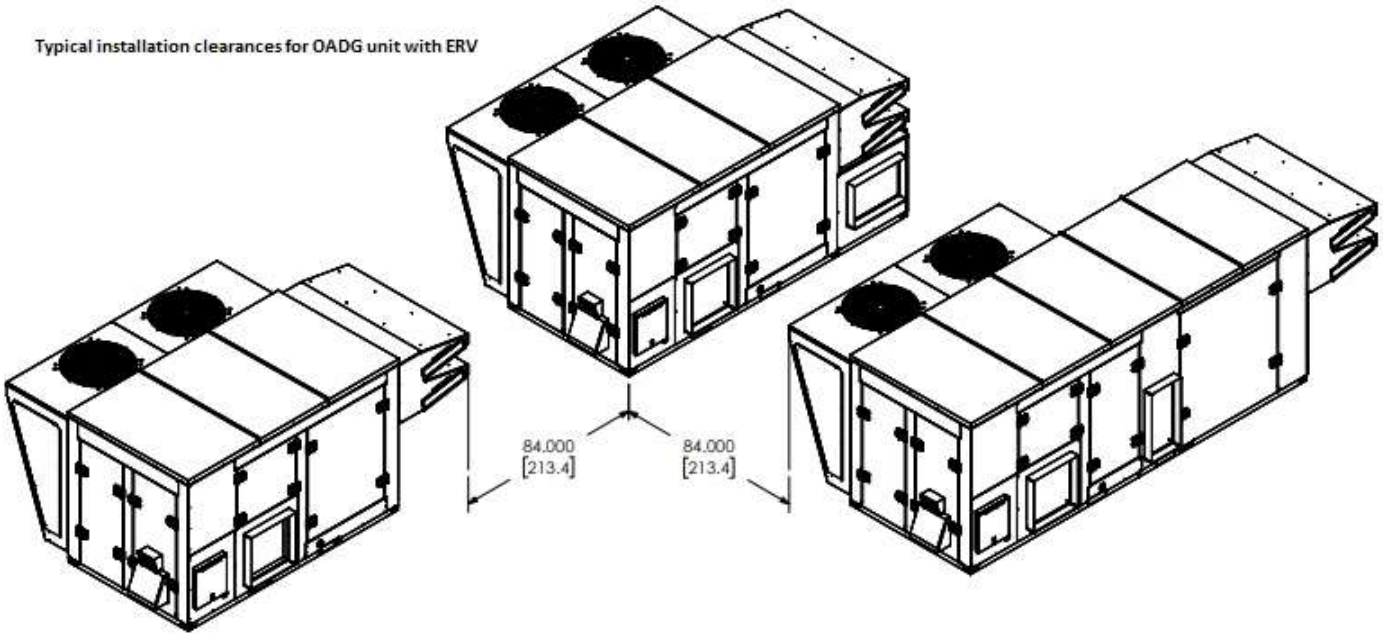
## OAD-6-DIM-DX-ERV

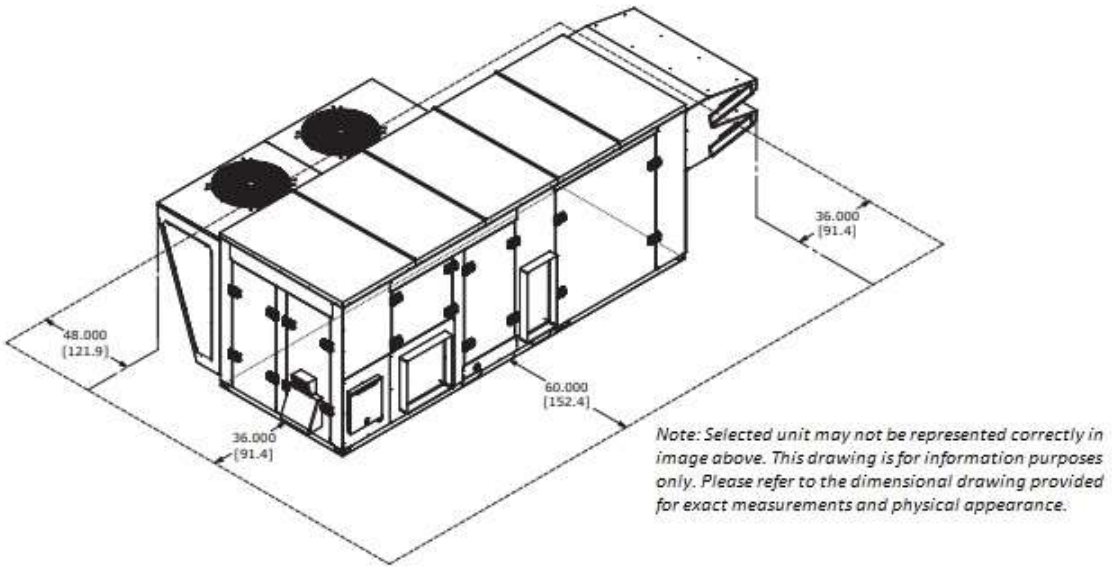
**Qty: 1 Tag(s): DOAS-1 REV2**



## OAD-6-CLE-DX-ERV

**Qty: 1 Tag(s): DOAS-1 REV2**

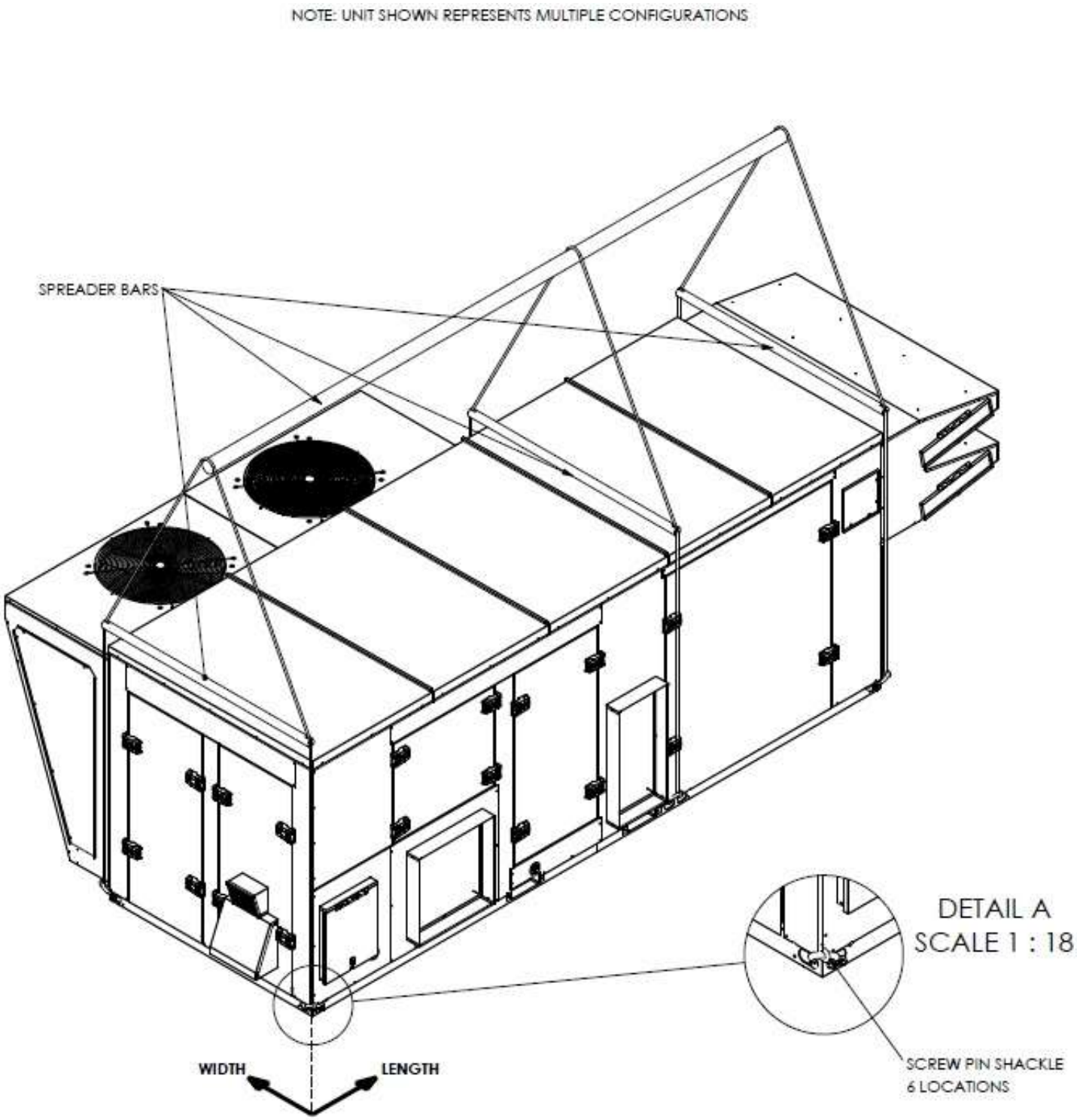



*Note: Selected unit may not be represented correctly in image above. This drawing is for information purposes only. Please refer to the dimensional drawing provided for exact measurements and physical appearance.*

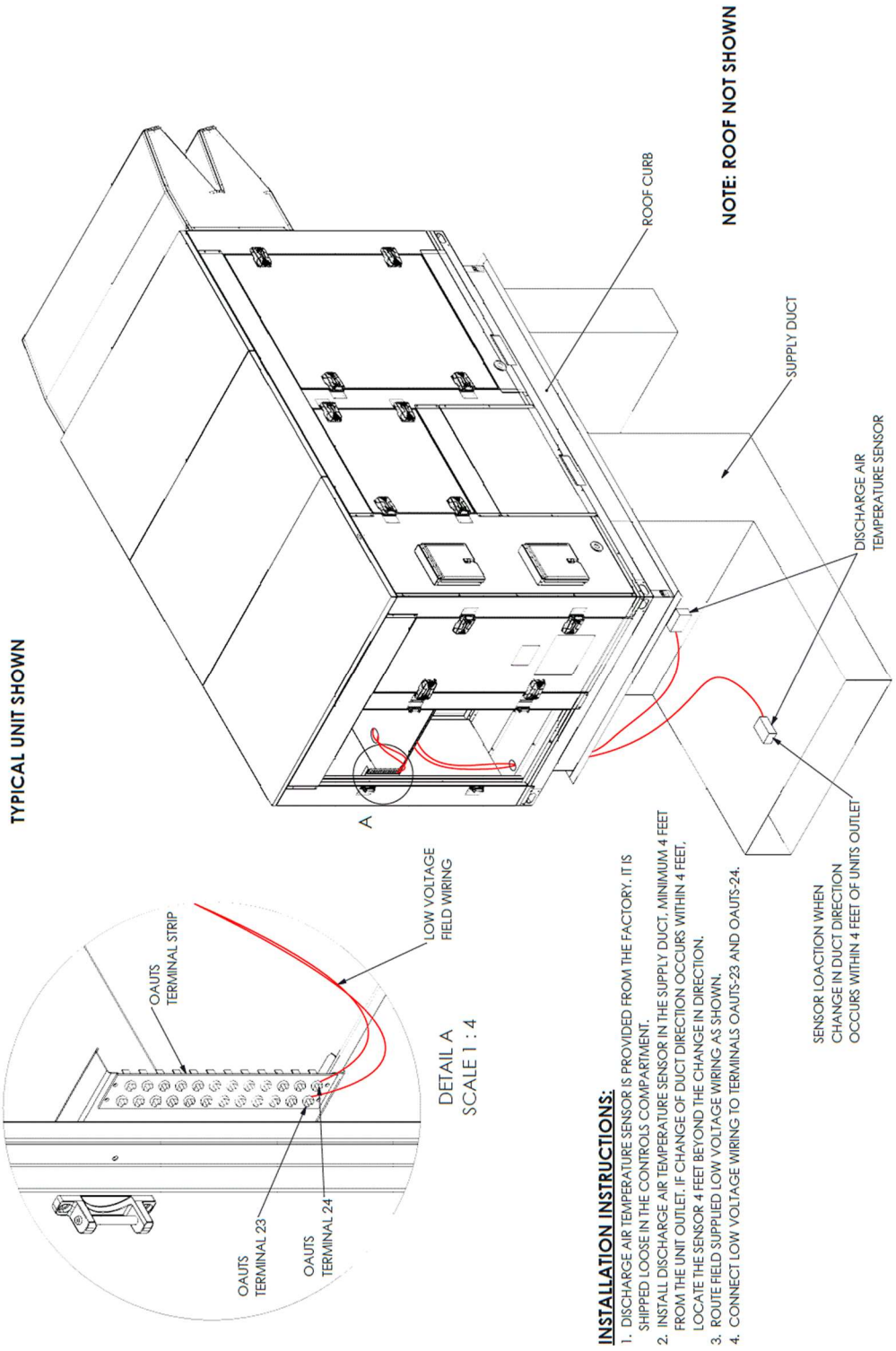
## OAD-6-RIG-DX-ERV

**Qty: 1 Tag(s): DOAS-1 REV2**



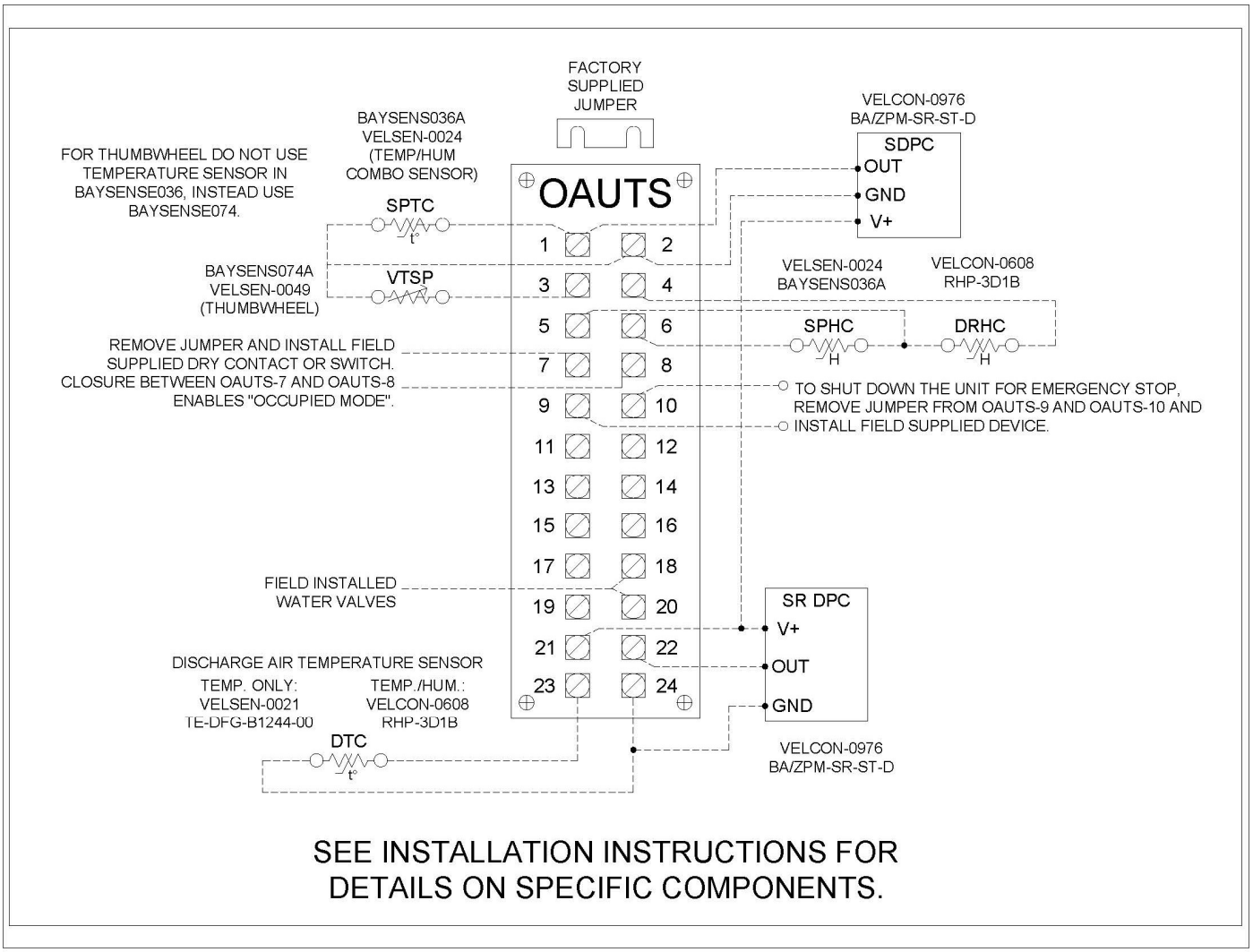
## Field Wiring - 3-54 Ton R-410A PKGD Unitary Cooling Rooftop

**Qty: 1 Tags: DOAS-1**



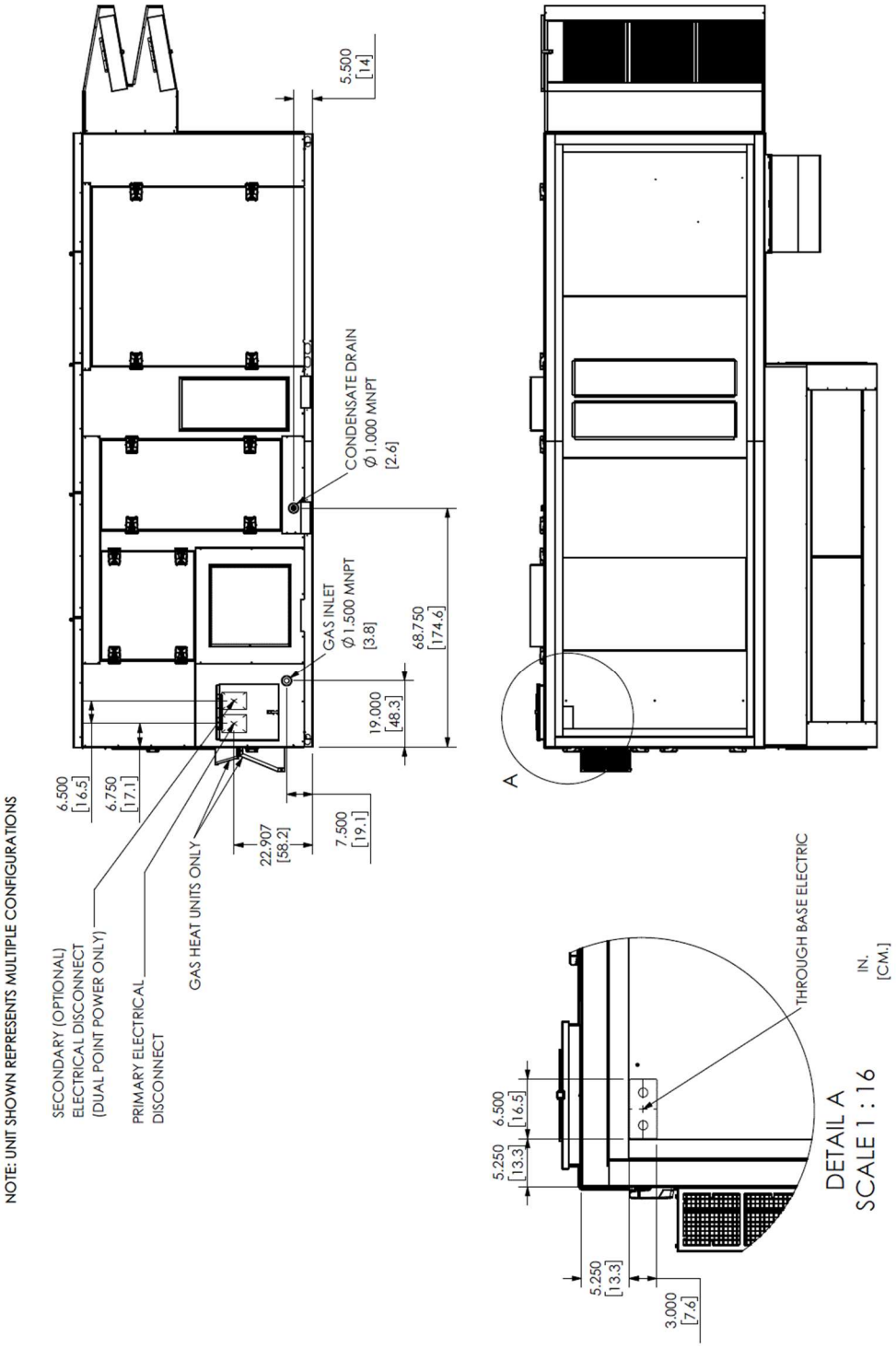
## OAUTS

**Qty: 1 Tags: DOAS-1**



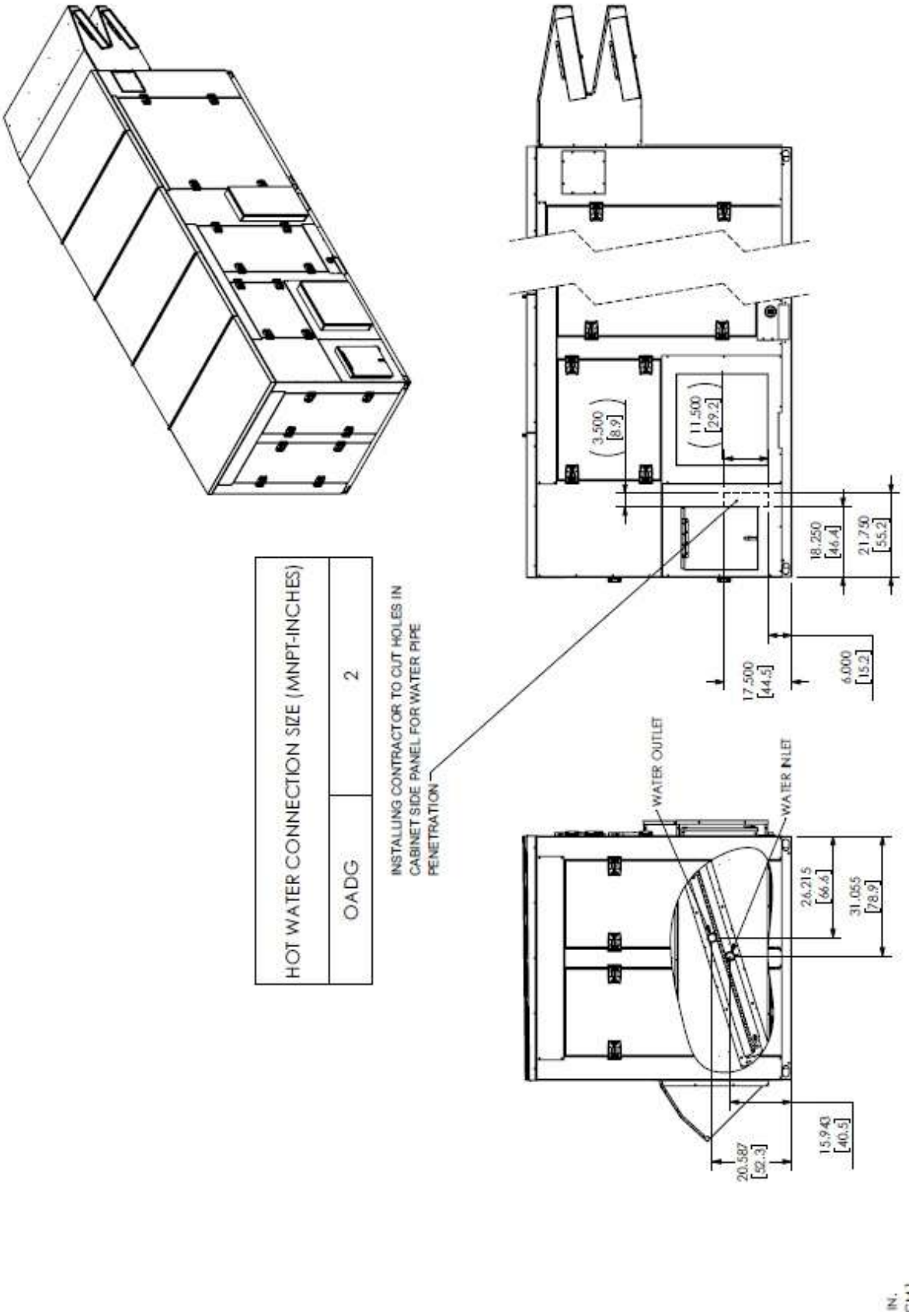
## Utility Connections - 10-20 Ton R-410A PKGD Unitary Cooling Rooftop with Powered Exhaust and Energy Recovery Wheel

**Qty: 1 Tags: DOAS-1**



## OAD-6-UTIL-ERV - Hot Water Coil Connections

**Qty: 1 Tag(s): DOAS-1 REV2**



**OAD-6-WAR**

**Qty: 1 Tag(s): DOAS-1 REV2**

# Warranty and Liability Clause

## Commercial Equipment

## Trane Horizon 3-54 Tons Parts Only Coverage

PRODUCTS COVERED - This warranty* is extended by Trane Inc. and applies only to Trane Horizon products.

The Company warrants for a period of 12 months from initial startup or 18 months from date of shipment, whichever is less, that the Company products covered by this order (1) are free from defects in material and workmanship and (2) have the capacities and ratings set forth in the Company's catalogs and bulletins, provided that no warranty is made against corrosion, erosion or deterioration. The Company's obligations and liabilities under this warranty are limited to furnishing f.o.b. factory or warehouse at Company designated shipping point, freight allowed to Buyer's city (or port of export for shipment outside the conterminous United States) replacement equipment (or at the option of the Company parts therefore) for all Company products not conforming to this warranty and which have been returned to the manufacturer. The Company shall not be obligated to pay for the cost of lost refrigerant. No liability whatever shall attach to the Company until said products have been paid for and then said liability shall be limited to the purchase price of the equipment shown to be defective.

The Company makes certain further warranty protection available on an optional extra-cost basis. Any further warranty must be in writing, signed by an officer of the Company.

The warranty and liability set forth herein are in lieu of all other warranties and liabilities, whether in contract or in negligence, express or implied, in law or in fact, including implied warranties of merchantability and fitness for particular use. In no event shall the Company be liable for any incidental or consequential damages.

THE WARRANTY AND LIABILITY SET FORTH HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESS OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR USE, IN NO EVENT SHALL WARRANTOR BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

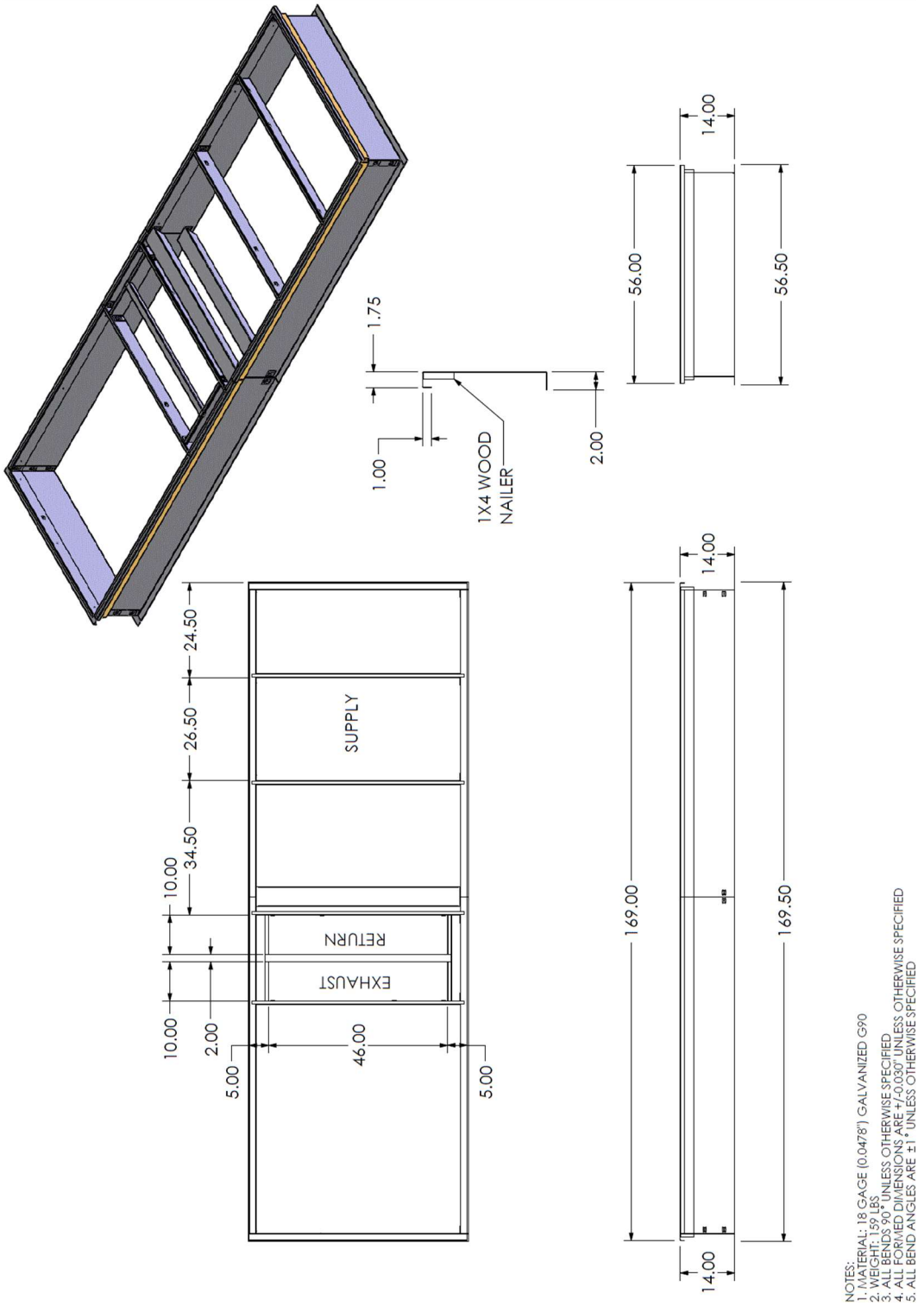
Manager - Product Service

Trane

*Optional Extended Warranties are available for compressors and heat exchangers of Combination Gas-Electric Air Conditioning Units.

## Roof Curb - 10-20 Ton PKGD Rooftop Knockdown Curb

**Qty: 1 Tags: DOAS-1 REV2**



## Options - GreenTrol Air Flow Monitoring

**Qty: 1 Tags: DOAS-1**

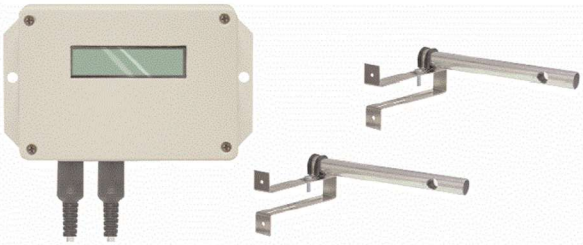
GreenTrol Automation, Inc.

# Model GF-2200-A

*Technical Data Sheet*

*Dual Probe Air Flow Measurement with PID Control Output and Alarm - Analog Output*

***GreenFlow 2000 Series***



## APPLICATIONS

- Available for applications where accurate monitoring/control of low airflow and temperature is required.
- Maximize system efficiency by accurately measuring and controlling separate flows with a single instrument.
- Key in the acquisition of **LEED®** credits for **Energy and Atmosphere** and **Indoor Environmental Quality** when applied in OA applications.

## GF-2200-A OVERVIEW

GreenTrol model GF-2200-A is a high quality economical programmable dual-probe dual-output airflow/temperature measurement and control solution with options for analog air flow, temperature and corresponding PID output (for control of airflow set point) and alarm features. It is designed for installation in critical applications where precise air flow and temperature measurement (down to zero flow), and available PID control of air flow set point are required. The GF-2200-A includes two factory calibrated probes and an advanced programmable microprocessor controlled transmitter. A simple user interface and LCD permit selection of analog output options for airflow and/or temperature measurement, and for corresponding PID control signal outputs to maintain airflow set points. Airflow sensor accuracy is typically 3% of reading (4% max) from 0 to 2,000 FPM [10.16 m/s], and temperature accuracy is ± 0.36°F [± 0.2°C] from -20 to 160°F [-28.9°C to 71.1°C]. Probes are equipped with high reliability bead-in-glass heated thermistors, factory calibrated to NIST traceable standards over the entire operating range. A Field Calibration Wizard feature permits field adjustment of factory calibration if required. A programmable alarm feature includes options for low/high limit and hysteresis; dead band alarm with upper/lower alarms as a percentage of flow; or as a sensor trouble alarm. The alarm condition is shown locally on the LCD display and can be configured as dry relay contacts or as an external LED driver (15mA typical). Analog outputs are field-configurable for 0-10VDC, 0-5VDC or 2-10 VDC (20 mA max.) for communication with virtually all modern controls and building automation systems (BAS).

## SYSTEM FEATURES

- Advanced Thermal Dispersion (TD) technology ensures accurate, repeatable airflow measurement from zero flow (still air).
- Proprietary sensor design features high reliability bead-in-glass heated thermistors factory calibrated in wind tunnels to NIST traceable standards for placement in more locations than other sensing technologies.
- Variable airflow signal integration to minimize airflow fluctuations (transient wind gusts) at low air flows.
- Programmable relay or LED alarm feature for low or high limit, and operating deadband.
- Versatile Field Calibration Wizard for simple field adjustment if required.
- Simple push-button user interface for simple field configuration.
- Innovative universal brackets and custom factory designed mounting solutions available.

## GF-2200-A SPECIFICATIONS

### System

Sensor Accuracy*: Airflow: ± 3% of reading typical (4% max)
Temperature: ± 0.36°F [± 0.2°C]
Calibrated Range: . . . . . .0 to 2,000 fpm [10.16 m/s]
Operating Temperature: . . . .Sensor: -20 to 160°F [-28.9 to 71.1°C]
Xmtr: -20 to 120°F [-28.9 to 48.9°C]
Operating Humidity: . . . . . .0 to 99% non-condensing; Transmitter must be protected from exposure to precipitation
Programmable Modes: . . . .Flow/Flow; Flow/Temperature; Flow/PID or PID/PID Control;
Power Requirements: . . . . . .24 VAC (22.8-26.4 VAC) at 8VA max

### Transmitter Enclosure

Enclosure Material: . . . . . .Durable housing with cover
Enclosure Rating: . . . . . .UL94-5VA
Transmitter Dimensions: . . .3.570 x 6.006 x 1.502 in (HxWxD) [90.68 x 152.55 x 38.15 mm], with integral 0.502 [12.75 mm] flanges.

### Sensor Probes

Probe Construction: . . . . . .6063 alum standard (316 SS optional)
Mounting Brackets: . . . . . .Standard/custom config available
Probe Diameter: . . . . . .0.75 in [19 mm]
Standard Size: . . . . . .8 inches (203.2 mm)
Probes / Sensing Nodes: . . .2 probes per transmitter; 1 sensing nodes per probe; 2 nodes total max.
Probe/Transmitter Cable: . .10 ft [3.05m] Plenum rated with circular DIN plug (Other lengths avail.)

### Output Interface

Analog Outputs: . . . . . .Dual non-isolated analog 0-10VDC, 0-5VDC or 2-10 VDC (20 mA max)
Output Resolution: . . . . . .0.021% of full scale (0-10/2-10VDC) 0.042% of full scale (0-5VDC)
Output Load: . . . . . .500 ohm minimum (20 mA max)
Programmable Alarm: . . . .Low limit, High limit, dead band alarm (percentage above or below a specified flow) or trouble alarm
Alarm type: . . . . . .LCD indication and dry relay contacts (30VDC/24VAC @ 3 amp max) or direct LED drive (15 mA typical).
Field Cal Wizard: . . . . . .Simple field adjustment of factory calibration if required
Standard Warranty: . . . . . .12 months

* Sensor accuracy is the accuracy of the individual sensor. Installed accuracy of the overall airflow station is application-dependent based on application size and resulting sensor density and is typically better than 15% of reading.

*GreenTrol Automation, Inc. • 156 Holly View Lane Loris, SC 29569 • Toll Free: 877-4GN-TROL (877.446.8765) • Internet: GreenTrol.com

TS_GF-2200A_R1E

**Options - Trane Controls TD7 Display**

**Qty: 1 Tags: DOAS-1**

**BAS-PRC068-EN**

# Product Data Sheet

## Tracer™ TD7 Display

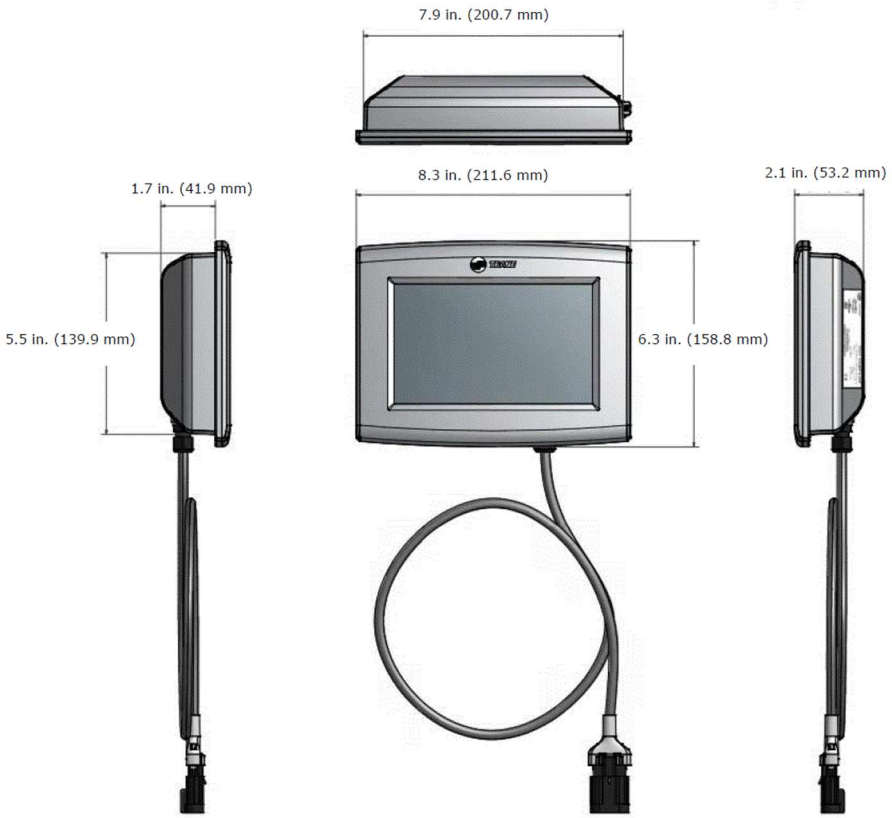
### for the Tracer™ UC600 Programmable Controller

The Tracer™ TD7 Display features a touch-sensitive color screen that provides for ease of viewing and editing of Tracer UC600 data. Building operators can easily monitor space temperature and relative humidity, change setpoints, and enter point overrides with time-limits with a just a few touches of the screen.

Scheduling capability and access to custom graphics are available with Tracer UC600 Version 3.0 or higher.

The TD7 Display communicates exclusively with the Tracer UC600 Programmable controller (one Tracer UC600 per TD7), and is ideal for use with the following types of applications:

- Air-handling units (AHUs)
- Rooftop units
- Chillers
- Central heating and cooling plants
- Cooling towers
- Generic input/output (I/O) control



## Options - Trane Controls TD7 Display

## Qty: 1 Tags: DOAS-1

TRANE

### Features and Benefits

| Feature | Benefit |
|---|---|
| 7-inch WVGA touch-sensitive color screen | Allows for easy navigation for viewing data and making operational changes. |
| Display preferences | Choose how to view dates, times, units (SI, IP), screen brightness, data format, and backlight timeout. |
| Scheduling—supports up to 3 weekly schedules | Easy to set up and access (3 schedule types supported: Analog, Binary, Multistate) |
| Custom data graphs | Create and view graphically formatted data logs. Up to 8 custom data graphs can be created with a maximum of 4 data logs per graph. |
| Custom graphics | TD7 supports up to 10 graphics. Perform overrides, link to alarms, reports, or other graphics directly from a graphic. |
| Icon-labeled alarm categories | Easily and quickly identify alarm severities with distinctive, colorful icons. |
| Three Customizable Reports | Select up to 36 pieces of data per report (maximum of 3 custom reports). |
| Built-in All Points Report | View all points that have been configured in a single report. |
| Point overrides with timeout feature | Set up point overrides to expire at designated times. |
| Optional user security | Set up security for overriding/releasing points, release all overrides, custom report editing, Date and Time edit |
| Multiple mounting options | Can be mounted to meet customer preferences and needs. See "Mounting Options," p. 4. Can also be remotely mounted up to 100 meters. |
| Language options | 25 built-in languages are supported and selectable for all TD7 screens. |

### Specifications and Agency Compliance

| Specification | |
|---|---|
| Input power: | 24 Vac +/- 15%, 21 VA, 50, or 60 Hz |
| Storage temperature: | -67°F to 203°F (-55°C to 95°C)<br>Humidity: Between 5% to 100% (Condensing) |
| Operating temperature: | Temperature: -40°F to 158°F (-40°C to 70°C)<br>Humidity: Between 5% to 100% (Condensing) |
| Mounting weight: | Mounting surface must support 1.625 lb (0.737 kg)<br>Mounting Type: VESA (75 mm x 75 mm) |
| Environmental rating (enclosure): | IP56 (dust and strong water jet protected) with optional sealed Ethernet cable (PN: X19070632020) |
| **Agency Compliance** | |
| • UL916 PAZX, Open Energy Management Equipment<br>• UL94-5V, Flammability<br>• FCC CFR Title 47, Part 15.109: Class A Limit, (30 MHz—4 GHz)<br>• CE EMC Directive 2004/108/EC<br>• CE EMC Directive 2004/108/EC | |

### Supported Languages

| | |
|---|---|
| English (United States) | Greek |
| German | Czech |
| Dutch | Romanian |
| Italian | Russian |
| Spanish (Spain) | Arabic (Gulf Regions) |
| Spanish (Mexico) | Hebrew |
| Portuguese (Portugal) | Thai |
| Portuguese (Brazil) | Chinese Simplified (China) |
| Swedish | Chinese Simplified (Taiwan) |
| Norwegian | Japanese |
| French | Korean |
| Polish | Indonesian |
| Hungarian | |

### Mounting Options

The TD7 Display can be mounted using either of the following:

- Large Enclosure with display-capable door 120 VAC (order number: X13651553-01)
- Large Enclosure with display-capable door 230 VAC (order number: X13651555-01)
- TD7 Display Low Profile Mounting Bracket VESA 75 mm (order number: X05010511010)
- TD7 Display Portable Carry Case (order number: 31800912B)
- Any user-supplied VESA 75 mm mounting bracket

**Mechanical Specifications - Tag(s): DOAS-1 REV2**

### Casing

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized, and finished with a weather-resistant baked enamel finish. Unit's surface shall be tested 672 hours in a salt spray test in compliance with ASTM B117. Unit shall have 2 inch thick Antimicrobial two component rigid polyurethane foam insulation, metal encapsulated with no exposed edges. Initial R value of 6.7 per inch of thickness. The unit's base pan shall have no penetrations within the perimeter of the curb other than the raised downflow supply/return openings to provide an added water integrity precaution, if the condensate drain backs up.

### Unit Top

The top cover shall be one piece construction or, where seams exist, it shall be double-hemmed and gasket-sealed. The ribbed top adds extra strength and enhances water removal from unit top

### Sensors

A factory installed combination outdoor air sensor located in the outdoor air hood is designed to sense both outdoor air temperature and relative humidity for use by the microprocessor controller to make required ventilation, cooling, dehumidification and heating decisions. Refer to the Sequence of Operations section of the Installation, Operation and Maintenance manual for detailed unit control and operational modes. A factory installed sensing tube is designed to sense the supply air temperature downstream of the indoor fan section.

### Indoor Coil Type: DX 6-Row

Internally finned, inch copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil shall be leak tested to 500 psig and pressure tested to 500 psig. A Stainless Steel double-sloped condensate drain pan with provision for through the unit wall condensate drain is standard. Evaporator coil will have 6 interlaced rows for superior sensible and latent cooling.

### Reheat: Fin & Tube Modulating HGRH

This option shall consist of a modulating hot-gas reheat coil located on the leaving air side of the evaporator coil pre-piped and circuited with a low pressure switch. Refer to the Sequence of Operations section of the Installation, Operation and Maintenance manual for detailed unit control and operational modes.

### Compressor: Digital Scroll-1st Circuit Only

All units shall have direct-drive, hermetic, digital scroll type compressors with centrifugal type oil pumps. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Internal overloads shall be provided with the scroll compressors. Crankcase heaters shall be included. Compressor shall be able to fully modulate from 20%-100%.

### Outdoor Coil Type: Air Cooled Fin & Tube

(Fin and Tube Coil) - Internally finned, copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Coils shall be leak tested at the factory to ensure the pressure integrity. The condenser coil shall be leak tested to 500 psig and pressure tested to 500 psig. The condenser coil shall have a fin design with slight gaps for ease of cleaning.
Outdoor Fans: Shall be direct drive vertical discharge design with low-noise corrosion resistant glass reinforced polypropylene props, powder coated wire discharge guards and electro-plated motor mounting brackets. Fans shall be statically and dynamically balanced.

### Heat Type - Primary: Hot Water

The hot water coil is ARI performance certified and shall bear the ARI symbol. Tubes are to be mechanically expanded into fins (secondary surface) for maximum heat transfer. Materials are to be 5/8” diameter x (0.020) wall thickness. Secondary surface (fins) shall be of the plate-fin design using aluminum with die-formed collars. Fin design is waffle in a staggered tube pattern to meet performance requirements. Collars will hold fin spacing at specified density, and cover the entire tube surface. Fins are to be free of oils and oxidation. The coil shall have MPT connections constructed of copper. Water valves are field supplied and installed.

### Supply Fan Motor Type: Direct Drive w/VFD

Supply Fan motor shall be direct drive type with factory installed Variable Frequency Drive (unless no controls option is selected, VFD can be provided by others). All motors shall be thermally protected. All indoor fan motors meet the

U.S. Energy Policy Act of 2005 (EPACT). All Fans shall be mounted on rubber vibration isolators, to reduce the transmission of noise.

**Exhaust Fan Motor Type: Direct Drive w/VFD**

Exhaust Fan motor shall be direct drive type with factory installed Variable Frequency Drive (unless no controls option is selected, VFD can be provided by others). All motors shall be thermally protected. All indoor fan motors meet the U.S. Energy Policy Act of 2005 (EPACT). All Fans shall be mounted on rubber vibration isolators, to reduce the transmission of noise.

**Fan Piezo Rings: Supply & Exhaust Fan Piezo Rings/Taps**

Air flow measurement will be accomplished through the use of Piezo Ring/Tap technology installed in the supply and Exhaust fan wheel area.

**Unit Controls: Discharge Air Control - UC600**

Unit is completely factory wired with necessary controls and contactor pressure lugs for power wiring. Units will provide an external location for mounting fused disconnect device. PLC controls are provided for all 24 volt control functions. The resident control algorithms will make all heating, cooling and/or ventilating decisions in response to electronic signals from sensors measuring outdoor temperature and humidity. The control algorithm maintains accurate temperature control, minimizes drift from set point and provides better building comfort. A centralized PLC (UC600) will provide anti-short cycle timing for a higher level of machine protection. Terminals are provided for a field installed dry contact or switch closure to put the unit in the Occupied or Unoccupied modes.

**Filter Options: MERV-8,30%**

Aluminum Mesh Filters (D, K and N Cabinets) and Galvanized Mesh Bird Screen (B and G Cabinets) shall be installed on the intake of the unit. In addition, one row of 2 inch MERV-8 rated filters (30 percent) shall be installed prior to the evaporator coil. Unit shall be equipped with a 6” filter rack upstream of the evaporator. Frame shall be field-adjustable to match any filter combination specified in the attached selection.

**Energy Recovery: ERV-Aluminum Construction with Frost Control and Bypass**

Energy recovery wheel performance shall be AHRI 1060 certified and bear the AHRI certified label. The rotor media shall be light weight and must be made of aluminum. Paper or fibrous media are not acceptable. All surfaces must be coated with a nonmigrating adsorbent layer of desiccant prior to being formed into the media structure to insure that all surfaces are coated and that adequate latent capacity is provided. The desiccant must be a 3A molecular sieve designed for the adsorption of water vapor. The media shall be cleanable by vacuuming the media surface, without degrading the latent recovery. Dry particles up to 800 microns shall pass freely through the media.

**ERV Rotation sensor: Rotation sensor**

Inductive Proximity Sensors detect metal objects without contact and are characterized by a long service life and extreme ruggedness. With the latest ASIC technology, the manufacture’s sensors offer the ultimate in precision and reliability. Their sensors are the intelligent, reliable route to implementing wheel rotation.

**Damper Options: 100% OA 2-Position Damper**

The unit shall have a factory installed and integrated 100% outdoor air hood with damper controlled a by direct coupled actuator and 2 inch permanent and washable aluminum mesh filters accessible through a hinged access panel. The return air damper tray is blocked off to allow 100% outdoor airflow.

**Electrical Options: Non-Fused Disconnect "Circuit Breaker"**

A 3-pole, molded case, HACR circuit breaker with provisions for through the base electrical connections shall be factory installed. Wiring will be provided from the circuit breaker to the unit high voltage terminal block. The switch will be UL/CSA agency recognized. The circuit breaker will be sized per NEC and UL guidelines.

Factory wired Voltage/Phase monitor shall be included as standard. In the event of any of the following, the units will be shut down and upon correction of the fault condition the unit will reset and restart automatically.

1. Phase Unbalance Protection: Factory set 2%
2. Over/Under/Brown Out Voltage Protection: +/-10% of nameplate voltage
3. Phase Loss/Reversal

**Outdoor Air Monitoring: Airflow Probes**

The Greentrol GF-2100-A and GF-2200-A are high quality economical programmable dual-output airflow/temperature measurement and control instruments with options for analog air flow, temperature,and alarm. It is designed for installation in specified critical applications that require precise measurement of air flow (down to zero flow). The instrument includes factory calibrated probes and an advanced microprocessor

controlled transmitter/controller. Each sensor probe is equipped with a high reliability bead-in-glass heated thermistor element, factory calibrated to NIST traceable standards from zero flow to 2,000 FPM. The transmitter is fully independent of the probe and does not require
field matching to the probe. An advanced microprocessor processes the raw probe signals and provides versatile programmable
airflow measurement and alarm options with direct LED drive or N.O./N.C. relay dry contacts, and selectable analog output signal options. A powerful variable input signal integration option can be engaged to reduce the effects
of transient input signal variations, and an innovative Field Calibration Wizard allows for simple, automated field adjustment of the instrument if required. A 16 character LCD display indicates airflow, temperature, system status and is also used for configuration and diagnostics. Field configuration is accomplished using a simple four-button user interface.

**Smoke Detector: Supply & Return Smoke Detector**

Smoke detectors shall be factory installed photoelectric smoke detectors mounted in the supply and return air section. The detector will be wired for continuous power whenever the unit is energized. Upon detection of smoke, the detector will shut down all unit operations. Local codes may dictate the location of detectors.

**Hailguards: Hailguards**

Hail guards shall be installed on the outside of the condenser coil. The guards shall consist of perforated metal, of the same gauge and color as the unit itself. Airflow through the hail guards shall not be restricted due to location or size of the perforations. Guards shall be removable to accommodate coil cleaning.

**Convenience Outlet: Convenience Outlet**

A powered 120 volt, 15 amp, 2 plug convenience outlet shall be factory installed. A service receptacle disconnect shall be installed. The convenience outlet is powered from the line side of the disconnect or circuit breaker, and therefore will not be affected by the position of the disconnect or circuit breaker.