



Submittal

Prepared For:
All Bidders

Date: June 05, 2017

Customer P.O. Number:
Customer Project Number:

Sold To:

Job Number:
Job Name:
HVAC Services - Rob - Allagash 20T

Trane U.S. Inc. dba Trane is pleased to provide the enclosed submittal for your review and approval.

Product Summary

Qty	Product
1	25 Ton Packaged Cooling Rooftop Units

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

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

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Tag Data - Packaged Cooling Rooftop Units (Qty: 1)

Item	Tag(s)	Qty	Description	Model Number
A1	No Tag	1	25 Ton Packaged Unitary Cooling	TSD300F4R0A--F001D0060100000000000000

Product Data - Packaged Cooling Rooftop Units

Item: A1 Qty: 1

- DX cooling
- Standard efficiency
- Downflow
- 25 Ton
- eFlex and 50Hz
- 460/60/3
- Reliatel
- Economizer Reference Enthalpy 0-100% with Barometric relief
- Standard condenser coil with hail guard
- Through the base access
- BACnet communications interface
- Frostat

Mechanical Specifications - Packaged Cooling Rooftop Units

Item: A1 Qty: 1

General (R-410A)

The units shall be dedicated downflow or horizontal airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for all units. Cooling performance shall be rated in accordance with ARI testing procedures. All units shall be factory assembled, internally wired, fully charged with R-410A, and 100 percent run tested to check cooling operation, fan and blower rotation and control sequence, before leaving the factory. Wiring internal to the unit shall be colored and numbered for simplified identification. Units shall be UL listed and labeled, classified in accordance to UL 1995/C 22.2, 236-05 3rd Edition.

Packaged Rooftop units cooling, heating capacities, and efficiencies are AHRI certified within scope of AHRI Standard 340/360 (I-P) and ANSIZ21.47 and 10 CFR Part 431 pertaining to Commercial Warm Air Furnaces (gas heating units).

Casing (R-410A)

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*. Cabinet construction shall allow for all maintenance on one side of the unit. In order to ensure a water and air tight seal, service panels shall have lifting handles and no more than three screws to remove. All exposed vertical panels and top covers in the indoor air section shall be insulated with a 1/2", 1 pound density foil-faced, fire-resistant, permanent, odorless, glass fiber material. The base of the downflow unit shall be insulated with 1/2", 1 pound density foil-faced, closed-cell material. The downflow unit's base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8" high supply/return openings to provide an added water integrity precaution, if the condensate drain backs up. The base of the unit shall have provisions for forklift and crane lifting.

Unit Top (R-410A)

The top cover shall be one piece, or where seams exist, double hemmed and gasket sealed to prevent water leakage.

Filters (R-410A)

Two inch standard filters shall be factory supplied on all units. Optional two inch pleated media filters shall be available.

Compressors (R-410A)

All units shall have direct-drive, hermetic, 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 nameplate voltage. Internal overloads shall be provided with the scroll compressors. All models shall have crankcase heaters, phase monitors and low and high pressure control as standard. Dual compressors are available on all standard efficiency models and 12.5 to 20 tons high efficiency models and allow for efficient cooling utilizing 3 stages of compressor operation (high efficiency models only). 25 tons high efficiency units have 3 compressors for up to 4 stages of compressor operation.

Crankcase Heaters (R-410A)

These band heaters provide improved compressor reliability by warming the oil to prevent migration during off-cycles or low ambient conditions. These are standard on all Voyager models.

Refrigerant Circuits (R-410A)

Each refrigerant circuit shall have independent fixed orifice or thermostatic expansion devices, service pressure ports, and refrigerant line filter driers factory installed as standard. An area shall be provided for replacement suction line driers.

High Pressure Cutout (R-410A)

This option is offered for units that do not have High Pressure cutout as standard.

Microchannel coils

The microchannel type condenser coil is standard for the T/YCD 12.5-25 ton standard efficiency models. Due to flat streamlined tubes with small ports, and metallurgical tube-to-fin bond, microchannel coil has better heat transfer performance. Microchannel condenser coil can reduce system refrigerant charge by up to 50% because of smaller internal volume, which leads to better compressor reliability. Compact all-aluminum microchannel coils also help to reduce the unit weight. All-aluminum construction improves re-cyclability. Galvanic corrosion is also minimized due to all aluminum construction. Strong aluminum brazed structure provides better fin protection. In addition, flat streamlined tubes also make microchannel coils more dust resistant and easier to clean. Coils shall be leak tested at the factory to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 600 psig. The assembled unit shall be leak tested to 465 psig.

Outdoor Fans (R-410A)

The outdoor fan shall be direct-drive, statically and dynamically balanced, draw-through in the vertical discharge position. The fan motor(s) shall be permanently lubricated and shall have built-in thermal overload protection.

Indoor Fan (R-410A)

Units above shall have belt driven, FC centrifugal fans with adjustable motor sheaves. Units with standard motors shall have an adjustable idler-arm assembly for quick-adjustment of fan belts and motor sheaves. All motors shall be thermally protected. Oversized motors shall be available for high static application. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).

Controls (R-410A)

Unit shall be completely factory wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device. ReliaTel controls shall be provided for all 24 volt control functions. The resident control algorithms shall make all heating, cooling, and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized control shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.

Discharge Line Thermostat (R410A)

A bi-metal element discharge line thermostat is installed as a standard option on the discharge line of each system. This standard option provides extra protection to the compressors against high discharge temperatures in case of loss of charge, extremely high ambient and other conditions which could drive the discharge temperature higher. Discharge line thermostat is wired in series with high pressure control. When the discharge temperature rises above the protection limit, the bi-metal disc in the thermostat switches to the off position, opening the 24 VAC circuit. When the temperature on the discharge line cools down, the bi-metal disc closes the contactor circuit, providing power to the compressor. When the thermostat opens the fourth time, the ReliaTel control must be manually reset to resume operation on that stage.

Economizer - Downflow (R-410A)

The assembly includes fully modulating 0-100 percent motor and dampers, barometric relief, minimum position setting, preset linkage, wiring harness with plug, fixed dry bulb and spring return actuator. The barometric relief damper shall be standard with the downflow economizer and shall provide a pressure operated damper that shall be gravity closing and shall prohibit entrance of outside air during the equipment "off" cycle. Solid state enthalpy and differential enthalpy control shall be field-installed.

BACnet Communications

The BACnet communications interface allows the unit to communicate directly with a generic open protocol BACnet MS/TP Network Building Automation System Controls.

FIOPS - Defrost Controls (R-410A)

Adaptive demand defrost shall be provided to permit defrost wherever coil icing conditions begin to significantly reduce unit capacity.

FIOPS - Through the Base Utilities Access (R-410A)

An electrical service entrance shall be provided allowing electrical access for both control and main power connections inside the curb and through the base of the unit. Option will allow for field installation of liquid-tight conduit and an external field installed disconnect switch.

FIOPS - Tool-less Hail Guards (R-410A)

Tool-less, hail protection quality coil guards are available for condenser coil protection.

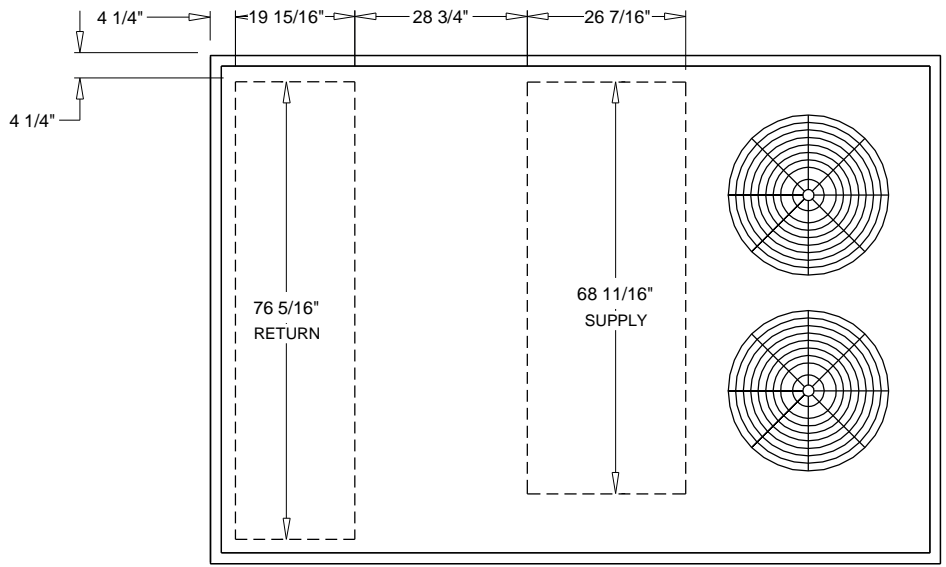
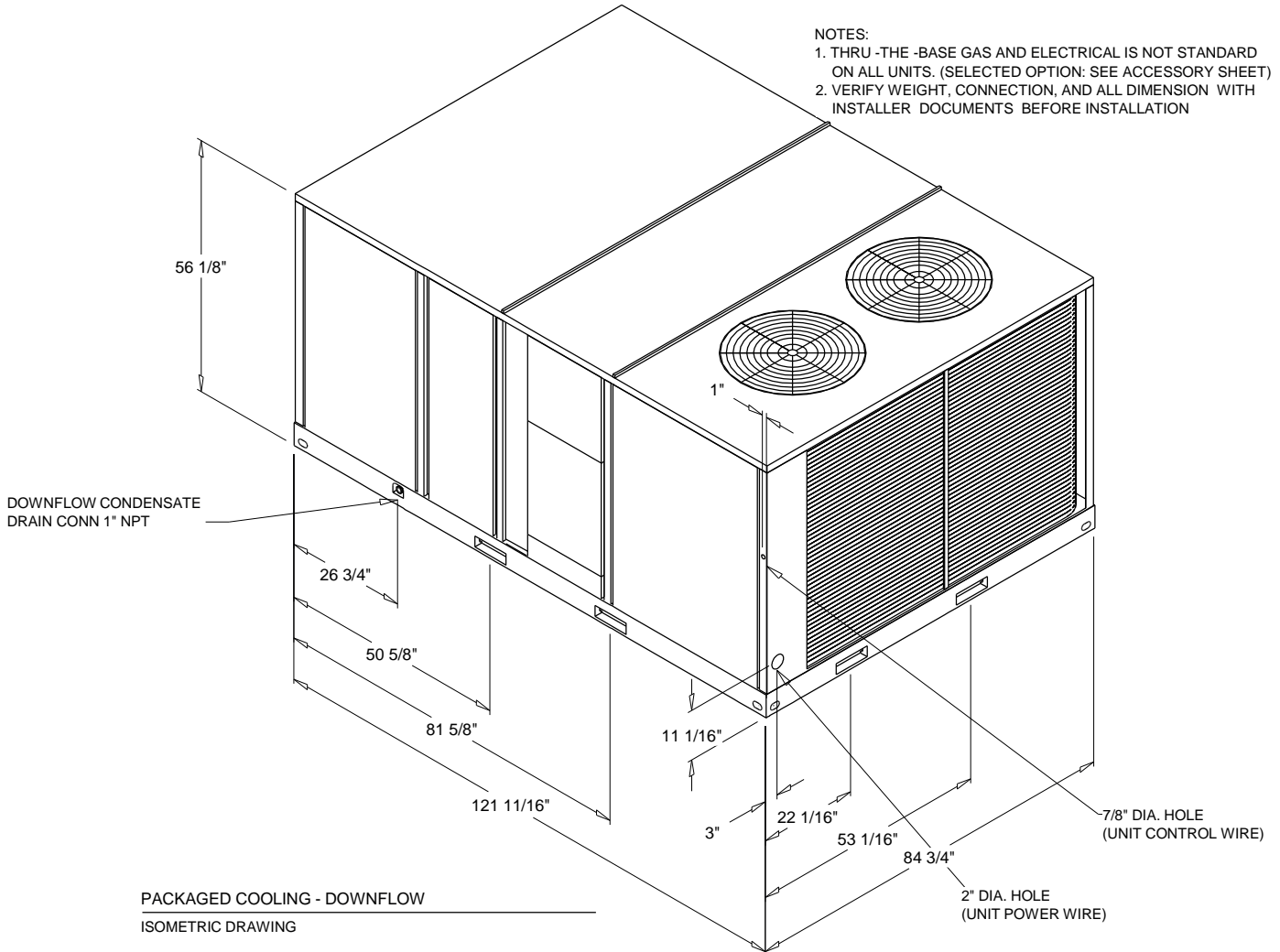
FIOPS Reference or Comparative Enthalpy (R-410A)

Reference Enthalpy is used to measure and communicate outdoor humidity. The unit receives and uses this information to provide improved comfort cooling while using the economizer. Comparative Enthalpy measures and communicates humidity for both outdoor and return air conditions, and return air temperature. The unit receives and uses this information to maximize use of economizer cooling, and to provide maximum occupant comfort control. Reference or Comparative Enthalpy option shall be available when a factory or field installed Downflow Economizer is ordered. This option is available on all downflow models.

Unit Dimensions - Packaged Cooling Rooftop Units

Item: A1 Qty: 1

- NOTES:
 1. THRU-THE-BASE GAS AND ELECTRICAL IS NOT STANDARD ON ALL UNITS. (SELECTED OPTION: SEE ACCESSORY SHEET)
 2. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



Unit Dimensions - Packaged Cooling Rooftop Units

Item: A1 Qty: 1

ELECTRICAL / GENERAL DATA

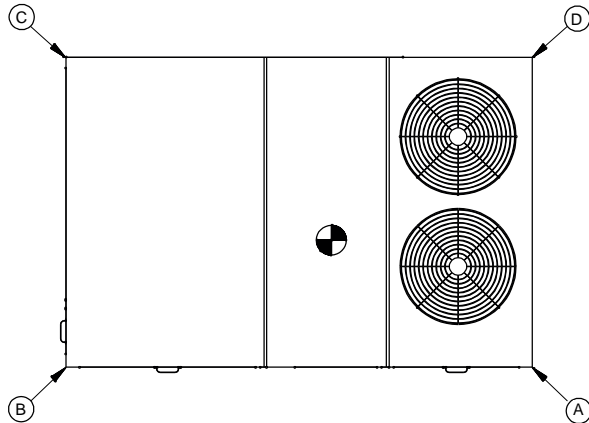
GENERAL Model (Tons): TSD300G (25.0) Unit Operating Voltage Range: 414-506 Unit Primary Voltage: 460 Unit Secondary Voltage: - Unit Hertz: 60 Unit Phase: 3 EER: ⁽⁵⁾ 10.0		Standard Motor ^{(1) (3)} Minimum Circuit Ampacity: 55.0 Maximum Fuse Size: 70.0 Maximum (HACR) Circuit Breaker: 70.0 Oversized Motor ^{(1) (4)} Minimum Circuit Ampacity: Maximum Fuse Size: Maximum (HACR) Circuit Breaker:		Field Installed Oversized Motor ^{(1) (4)} Minimum Circuit Ampacity: Maximum Fuse Size: Maximum (HACR) Circuit Breaker:	
COMPRESSOR Circuit(s) Number: 2 Horsepower: 10.0 Phase: 3 Rated Load Amps: 21.72/12.58 Locked Rotor Amps: 158.0/100.0			OUTDOOR MOTOR Number: 2 Horsepower: 1.00 Motor speed (RPM): 1,125 Phase: 3 Full Load Amps: 1.8 Locked Rotor Amps: 6.64		
INDOOR MOTOR Standard Motor ⁽³⁾ Number: 1 Horsepower: 7.5 Motor Speed (RPM): 3,470 Phase: 3 Full Load Amps: 11.0 Locked Rotor Amps: 74.0		Oversized Motor ⁽⁴⁾ Number: Horsepower: Motor Speed (RPM): Phase: Full Load Amps: Locked Rotor Amps:		Field Installed Oversized Motor ⁽⁴⁾ Number: Horsepower: Motor Speed (RPM): Phase: Full Load Amps: Locked Rotor Amps:	
POWER EXHAUST ACCESSORY (Field Installed Power Exhaust) Horsepower: Motor Speed (RPM): Phase: Full Load Amps: Locked Rotor Amps:		FILTERS Type Furnished: Yes Number: 4 / 4 Recommended Size: 20"x20"x2" / 20"x25"x2"		REFRIGERANT ⁽²⁾ Type: R410 Factory Charge Circuit #1 / 2: 12.5 lb/6.7 lb	

NOTES:

1. Maximum (HACR) Circuit Breaker sizing is for installations in the United States only.
2. Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
3. Value include Standard Motor.
4. Value include Oversized Motor
5. EER is rated at AHRI conditions and in accordance with DOE test procedures.

Weight, Clearance & Rigging Diagram - Packaged Cooling Rooftop Units

Item: A1 Qty: 1



Base Unit and Corner Weights only

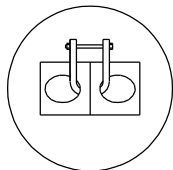
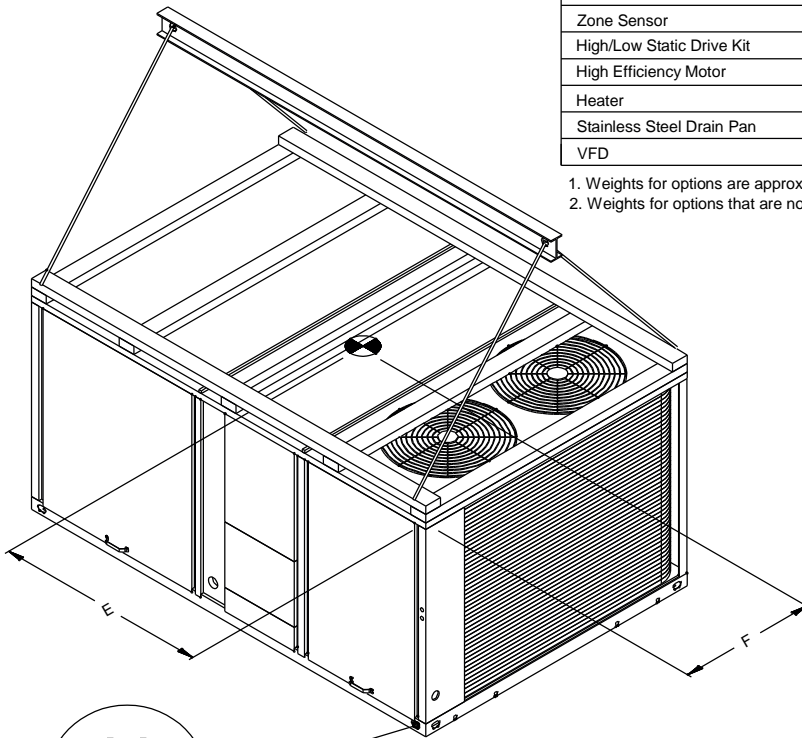
Base unit weights		Corner Weights				Center of Gravity	
SHIPPING	NET	(A)	(B)	(C)	(D)	E	F
2376.0 lb	1945.0 lb	624.0 lb	512.0 lb	369.0 lb	440.0 lb	55"	35"

1. All weights are approximate.
2. The actual weight are listed on the unit nameplate.
3. Refer to unit nameplate and installation guide for weights before scheduling transportation and installation of unit.
4. The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10 % of the nameplate weight.
5. Verify weight, connection, and all dimension with installer documents before installation.
6. Corner weights are given for information only.
7. Net/Shipping weight of optional accessories should be added to unit weight when ordering factory or field installed accessories.

Installed Options Net Weight Data

Accessory	Weight
Economizer, Manual and Motorized Outside Air Damper	80.0 lb
Power Exhaust	
Roof Curb	
Oversized Motor	
Hail Guard	43.0 lb
Hinged Access Doors	
Power Conv. Outlet	
Through the Base Electrical	
Circuit Breaker	
Disconnect	
Smoke Detector	
Novar	
Zone Sensor	
High/Low Static Drive Kit	
High Efficiency Motor	
Heater	
Stainless Steel Drain Pan	
VFD	

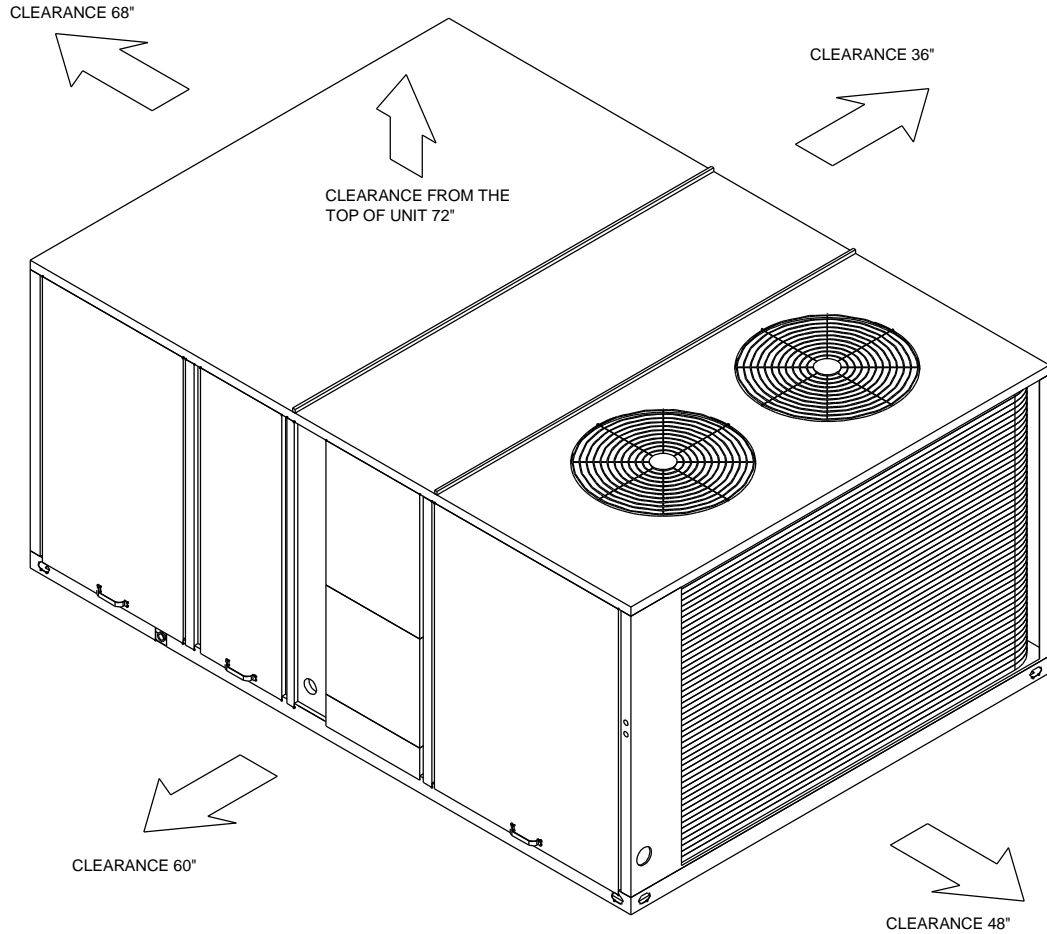
1. Weights for options are approximate.
2. Weights for options that are not list refer to Installation guide.



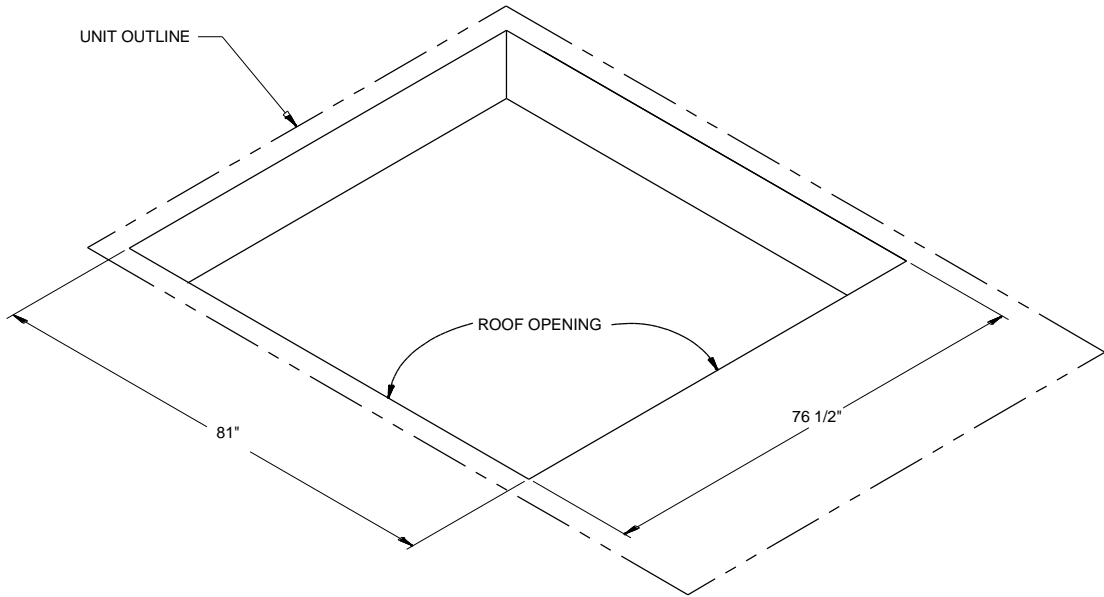
PACKAGED COOLING
RIGGING AND CENTER OF GRAVITY

Weight, Clearance & Rigging Diagram - Packaged Cooling Rooftop Units

Item: A1 Qty: 1



DOWNFLOW-PACKAGED COOLING WITH ELECTRIC CLEARANCE



DOWNFLOW-PACKAGED COOLING WITH ELECTRIC ROOF OPENING CLEARANCE

Accessory - Packaged Cooling Rooftop Units

Item: A1 Qty: 1

