

SHOP DRAWING and SAMPLE TRANSMITTAL

DATE: 9/28/2022

TO: Scott Long

FROM: David Dammon

McMath Construction
1125 N Causeway Blvd
Mandeville, LA 70471

SUBMITTAL No.: 23 62 13.01
GC SUBMITTAL No.: #

REFERENCE: Hontas MOB
DE Project: 2443

WE TRANSMIT:

enclosed under separate cover _____

FOR YOUR:

use record approval
 review and comment information drafting

THE FOLLOWING:

drawing(s) contracts specifications
 shop drawings samples change order(s)
 product information warranty substitution request

# COPIES	DESCRIPTION	ACTION
E	Rooftop HVAC Units	B

ACTION CODES:

A. Reviewed/No Exceptions	D. No Action Required
B. Reviewed/Exceptions Noted	E. For Signature and Return to this Office
C. Revise and Resubmit	F. See Remarks Below
G. Rejected	

REMARKS:

1. Furnish with motorized OA damper, electrical thru base provisions, MERV 8 filters and single point power connection.
2. Provide condensate overflow switch and programmable 7/24 thermostat with lockable cover.
3. Install units in accordance with Manufacturer's recommendations.
4. Provide new filters after commissioning and final acceptance.

COPIES TO: File

SHOP DRAWING / SUBMITTAL REVIEW

REVIEWED REVIEWED AS NOTED

REVISE AND RESUBMIT REJECTED

Project No.: 2443 Submittal No.: 23 62 13.01

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

By: David Dammon Date: 9/28/2022

DAMMON ENGINEERING, INC.

Slidell, LA



Job Name: misc
Prepared For:
Unit Tag: T4C-1
Quantity: 1

Trane Precedent Cooling Packaged Rooftop

Unit Overview - TSC060G3EBA**00000000000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
DX cooling	5 Ton (060)	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	12.0 EER	14.00	
		2000 cfm	0.500 in H ₂ O	3.41 ft	3.69 ft	5.82 ft	457.0 lb	732.0 lb			

Unit Features

Unit Electrical

Voltage/phase/hertz	208-230/60/3
MCA	29.00 A
MOP	40.00 A
MCA (230 w/ Elec Heat)	29.00 A
MOP (230 w/ Elec Heat)	40.00 A



Controls

Unit Controls Electro-Mechanical controls 3ph

Cooling Section

Entering Dry Bulb	80.00 F	Capacity	
Entering Wet Bulb	67.00 F	Gross Total	59.97 MBh
Ambient Temp	95.00 F	Gross Sensible	49.31 MBh
Leaving Coil Dry Bulb	57.56 F	Net Total	58.50 MBh
Leaving Coil Wet Bulb	57.56 F	Net Sensible	47.84 MBh
Leaving Unit Dry Bulb	59.00 F	Fan Motor Heat	1.47 MBh
Leaving Unit Wet Bulb	58.12 F	Refrig Charge-circuit 1	4.8 lb
Refrigeration System Options			
Leaving Dew Point	57.57 F		

Heating Section

Heat Type	Electric
Output Heating Capacity	20.49 MBh
Heating EAT	70.00 F
Heating LAT	79.43 F
Heating Temp Rise	9.43 F

Fan Section

Indoor Fan Data		Outdoor Fan Data	
Type	FC Centrifugal	Type	Propeller
Drive Type	Direct	Fan Quantity	1
Evap Fan FLA	6.90 A	Drive Type	Direct
Indoor Fan Performance		Outdoor Fan Performance	
Airflow	2000 cfm	Condenser Fan FLA	1.40 A
Design ESP	0.500 in H ₂ O		
Component SP	0.000 in H ₂ O		
Total SP	0.560 in H ₂ O		
Supply Motor Horsepower	1.000 hp		
Indoor Motor Operating Power	0.89 bhp		
Indoor Motor Power	0.66 kW		
Indoor RPM	1111 rpm		

Compressor Section

Power	3.94 kW
Circuit 1 RLA	15.90 A
Circuit 2 RLA	0.00 A

Accessories

Roof curb	yes
Fresh air selection	Manual outside damper 0-50%



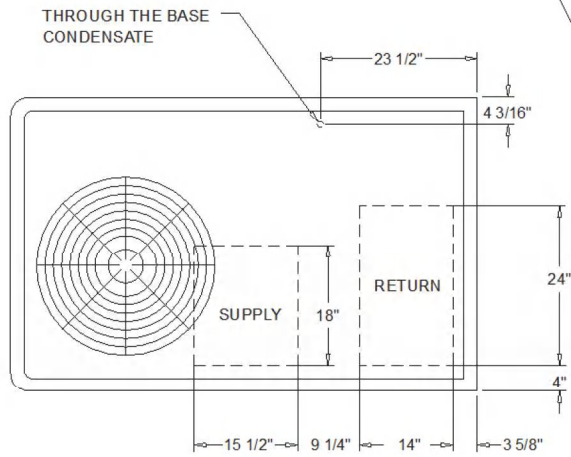
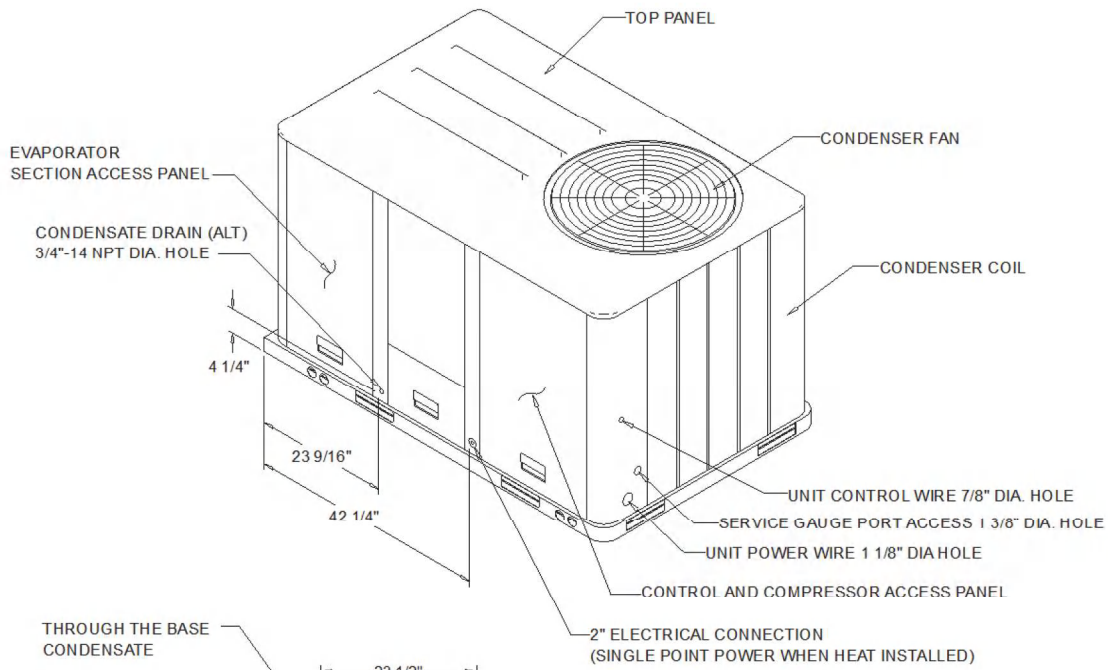
Job Name: misc
Prepared For:
Unit Tag: T4C-1
Quantity: 1

Acoustics

Sound Path	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ducted Discharge	91 dB	75 dB	71 dB	67 dB	63 dB	60 dB	60 dB	53 dB
Ducted Inlet	92 dB	73 dB	66 dB	58 dB	54 dB	52 dB	50 dB	45 dB
Outdoor Noise	85 dB	82 dB	81 dB	81 dB	77 dB	72 dB	67 dB	61 dB

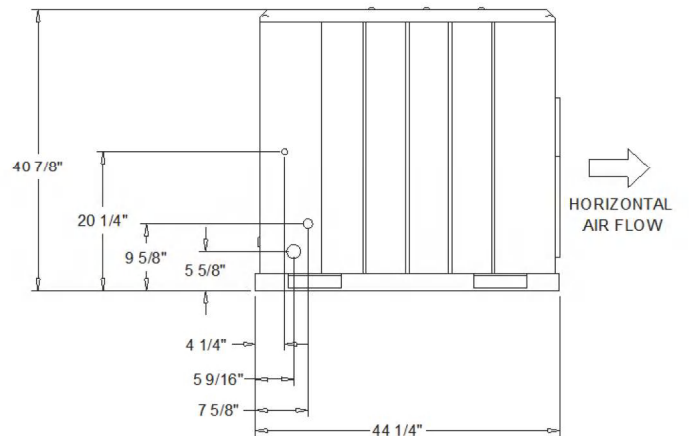
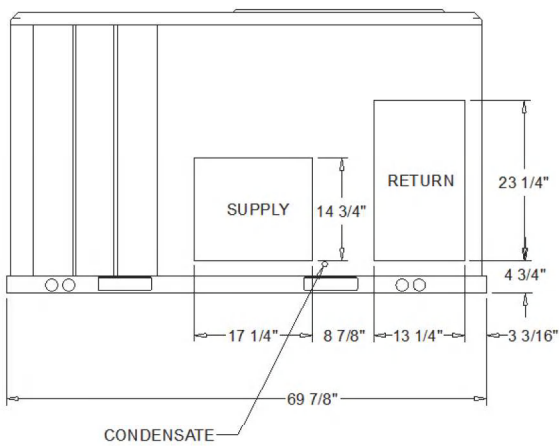
Note:Ducted Inlet and Ducted Discharge Sound Power Levels are in accordance with AHRI 260.

Note:Outdoor Sound Power Levels are in accordance with AHRI 270.

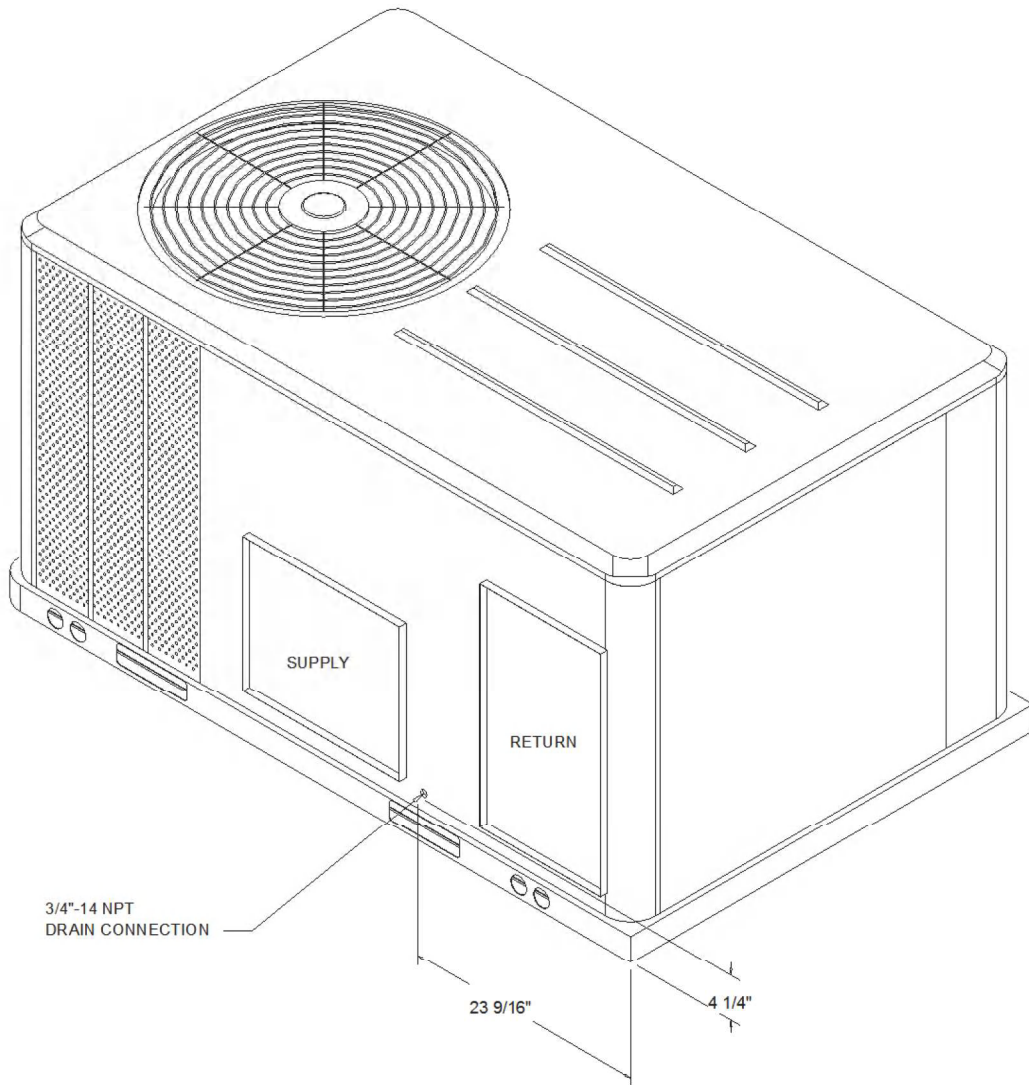


- NOTES:
1. THRU -THE -BASE ELECTRICAL IS NOT STANDARD ON ALL UNITS.
 2. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION

PLAN VIEW UNIT
 DIMENSION DRAWING



PACKAGED COOLING
 DIMENSION DRAWING



ISOMETRIC-PACKAGED COOLING



ELECTRICAL / GENERAL DATA

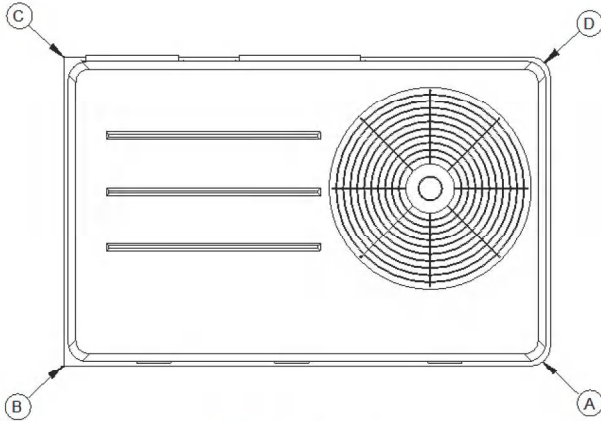
GENERAL ⁽²⁾⁽⁴⁾⁽⁶⁾ Model: TSC060G Oversized Motor Unit Operating Voltage: 187-253 Unit Primary Voltage: 208 MCA: Unit Secondary Voltage: 230 MFS: Unit Hertz: 60 MCB: Unit Phase: 3 EER/SEER 12.0/14.0 Standard Motor Minimum Circuit Ampacity: 29.0/29.0 Maximum Fuse Size: 40.0/40.0 Maximum (HACR) Circuit Breaker: 40.0/40.0		WITH HEATER Heater kW Rating : 4.5/6.0 Stage: 1 MCA: 29.0/29.0 MFS: 40.0/40.0 MCB: 40.0/40.0 Oversized Motor MCA: N/A MFS: N/A MCB: N/A	
INDOOR MOTOR Standard Motor Number: 1 Horsepower: 1.0 Motor Speed (RPM): -- Phase: 1 Full Load Amps: 6.9 Locked Rotor Amps: --		Field Installed Oversized Motor Oversized Motor MCA: N/A MFS: N/A MCB: N/A	
COMPRESSOR Circuit 1/2 Number: 1 Horsepower: 4.3 Phase: 3 Rated Load Amps: 15.9 Locked Rotor Amps: 110.0		OUTDOOR MOTOR Number: 1 Horsepower: 0.40 Motor Speed (RPM): 1100 Phase: 3 Full Load Amps: 1.4 Locked Rotor Amps: 5.2	
POWER EXHAUST ACCESSORY ^(3,7) (Field Installed Power Exhaust) Phase: Horsepower: Motor Speed (RPM): Full Load Amps: Locked Rotor Amps:	FILTERS Type: Throwaway Furnished: Yes Number: 2 Recommended: 20"x35"x2"		REFRIGERANT ⁽²⁾ Type: R-410 Factory Charge Circuit #1: 4.8 lb Circuit #2: N/A 3.5 lb N/A

NOTES:

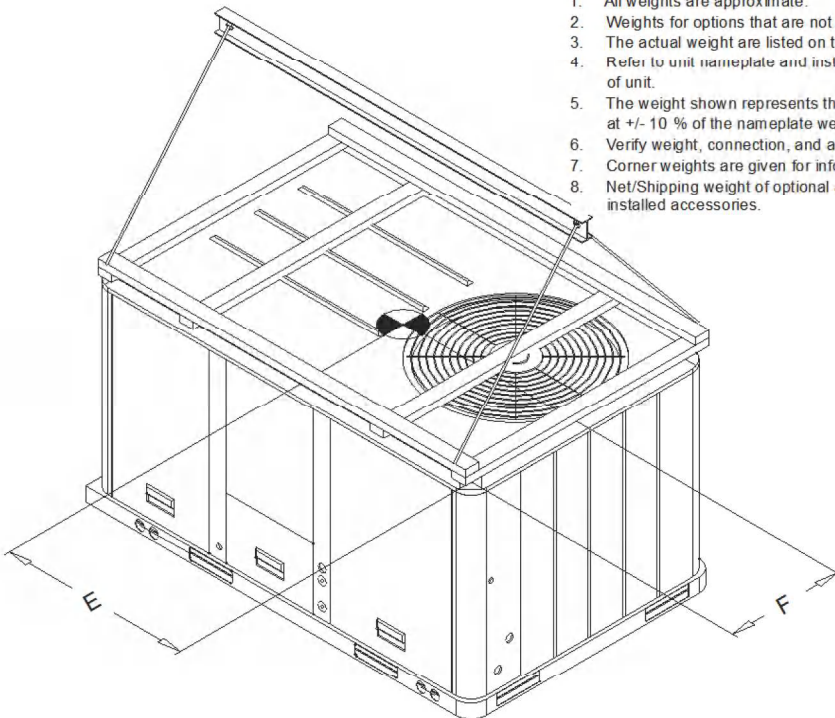
1. Maximum (HACR) Circuit Breaker sizing is for installations in the United States only.
2. Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
3. Value does not include Power Exhaust Accessory.
4. Value includes oversized motor.
5. Value does not include Power Exhaust Accessory.
6. EER is rated at AHRI conditions and in accordance with DOE test procedures.
7. Installation of this power exhaust kit will affect unit level MCA and could affect MOP sizing having a direct impact on existing field wiring and unit protection devices. The change in MCA/MOP is the sole responsibility of the field installing party. Trane will not issue new nameplates as a result of this power exhaust accessory installation. FLA of the power exhaust kit option must be added to the MCA of the unit for building supply conductor sizing determination.

INSTALLED ACCESSORIES NET WEIGHT DATA

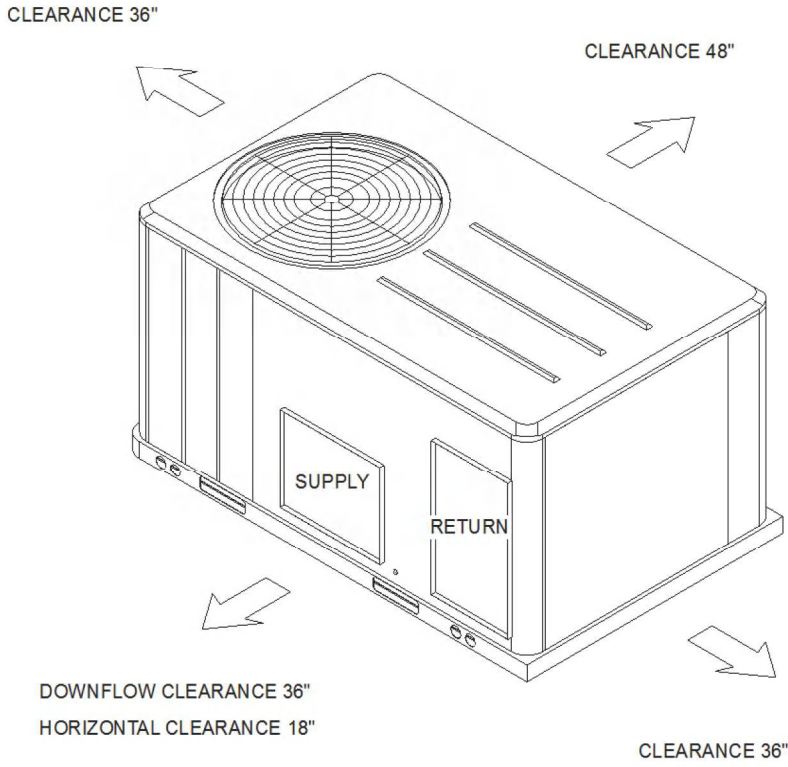
ACCESSORY		WEIGHTS			
ECONOMIZER					
MOTORIZED OUTSIDE AIR DAMPER					
MANUAL OUTSIDE AIR DAMPER					
BAROMETRIC RELIEF					
OVERSIZED MOTOR					
BELT DRIVE MOTOR					
POWER EXHAUST					
HEATER		15.0 lb			
REHEAT					
THROUGH THE BASE ELECTRICAL (FIOPS)					
UNIT MOUNTED CIRCUIT BREAKER (FIOPS)					
UNIT MOUNTED DISCONNECT (FIOPS)					
POWERED CONVENIENCE OUTLET (FIOPS)					
HINGED DOORS (FIOPS)					
HAIL GUARD					
SMOKE DETECTOR, SUPPLY / RETURN					
NOVAR CONTROL					
ROOF CURB		61.0 lb			
BASIC UNIT WEIGHTS		CORNER WEIGHTS		CENTER OF GRAVITY	
SHIPPING	NET	(A)	(C)	(E) LENGHT	(F) WIDTH
603.0 lb	498.0 lb	(B) 140.0 lb	(D) 90.0 lb	27"	12"


CORNER WEIGHT
NOTE:

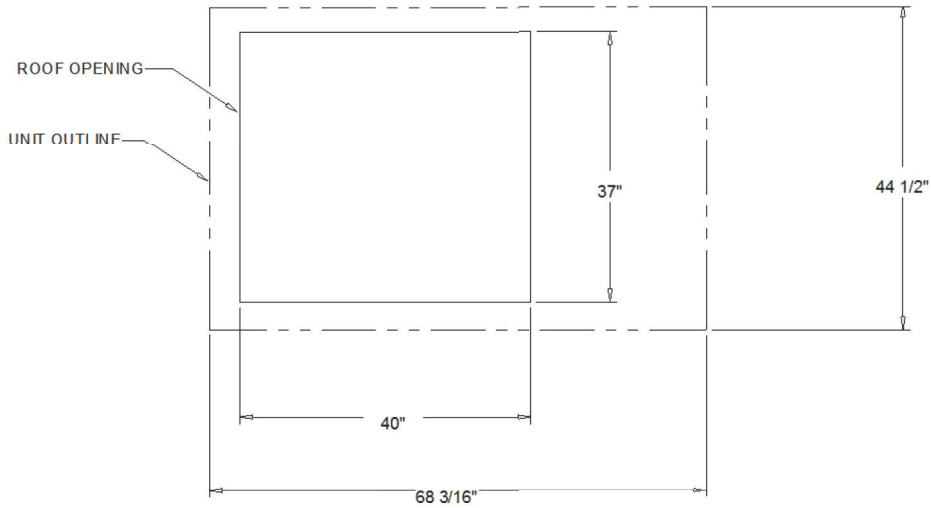
- All weights are approximate.
- Weights for options that are not list refer to Installation guide.
- The actual weight are listed on the unit nameplate.
- Refer to unit nameplate and installation guide for weights before scheduling transportation and installation of unit.
- The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10 % of the nameplate weight.
- Verify weight, connection, and all dimension with installer documents before installation.
- Corner weights are given for information only.
- Net/Shipping weight of optional accessories should be added to unit weight when ordering factory or field installed accessories.


RIGGING AND CENTER OF GRAVITY

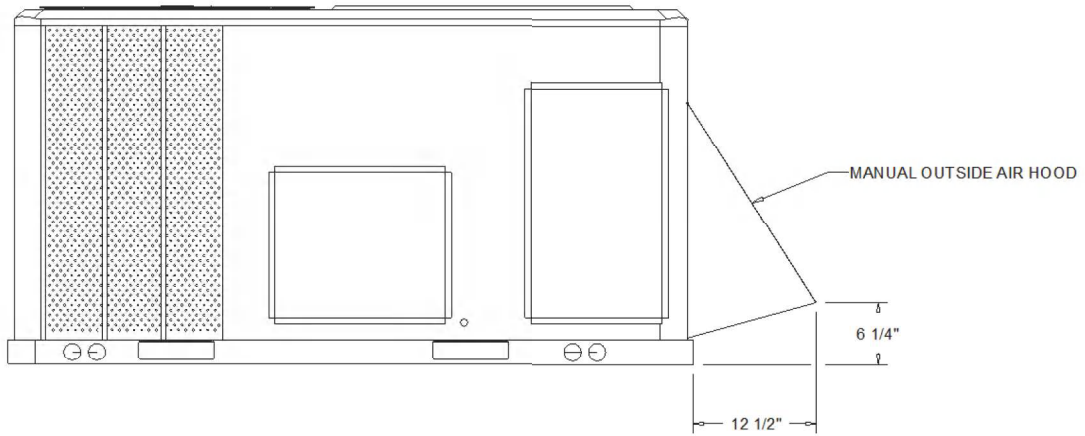
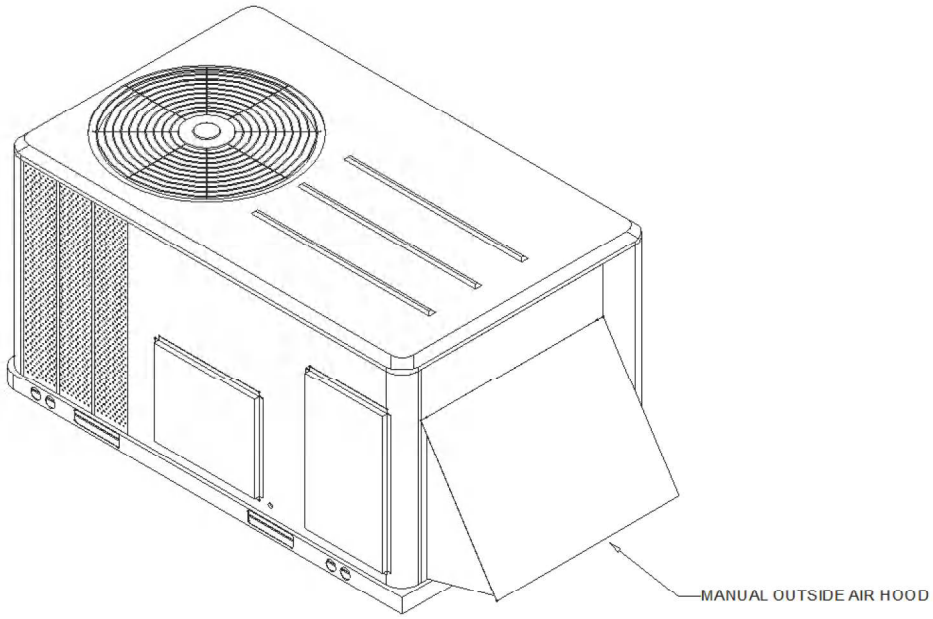
CLEARANCE FROM TOP OF UNIT 72"



PACKAGED COOLING
 CLEARANCE

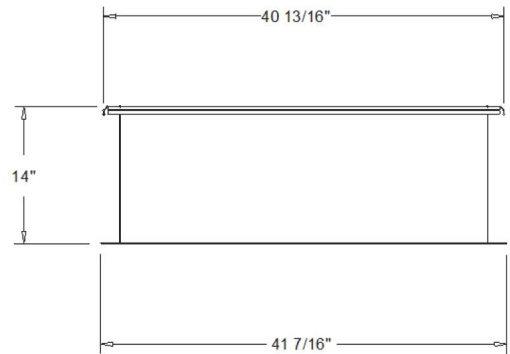
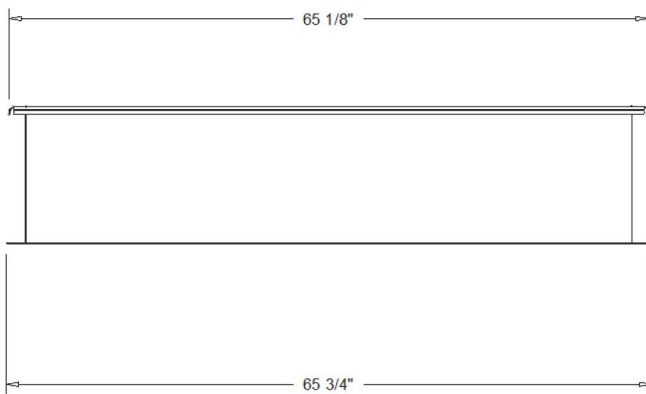
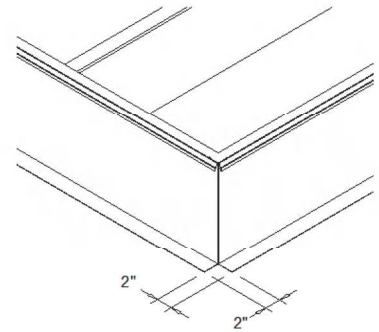
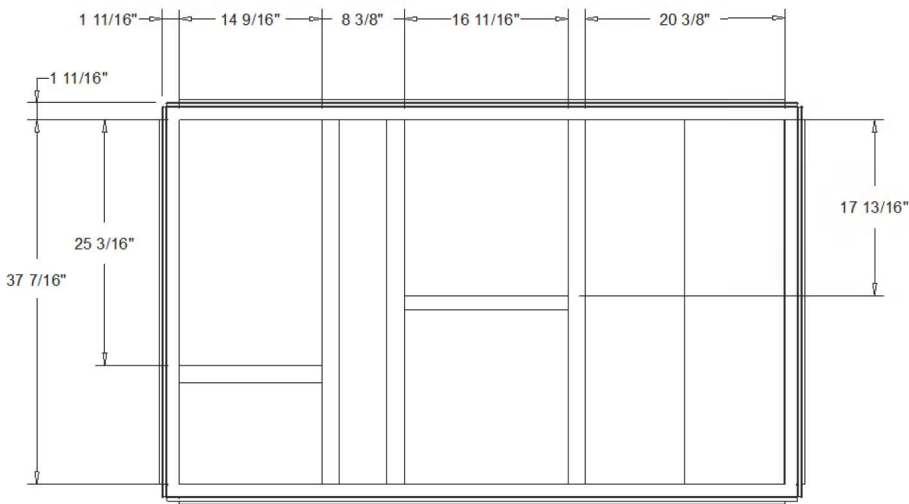
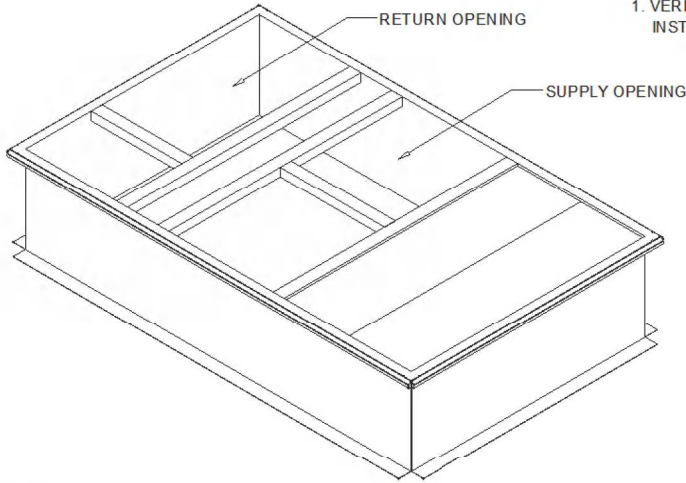


PACKAGED COOLING
 DOWNFLOW TYPICAL ROOF OPENING

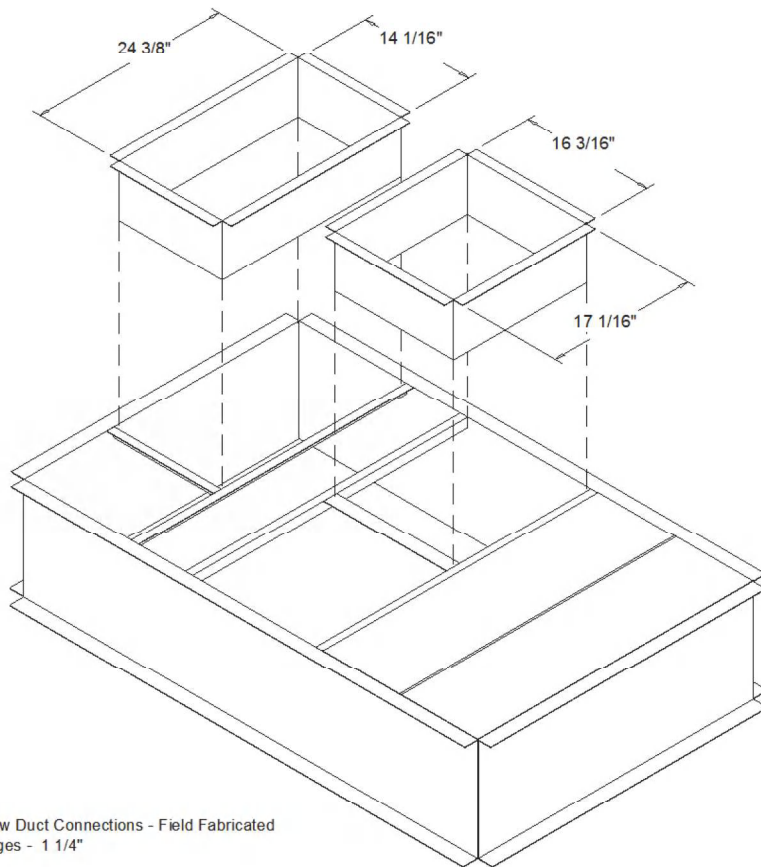


MANUAL OUTSIDE AIR HOOD
ACCESSORY

NOTES:
 1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



ROOF TOP CURB (BAYCURB042)
 ACCESSORY



ACCESSORY - DUCT CONNECTIONS



General

The units shall be convertible airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for units with microprocessor controls. Operating range for units with electromechanical controls shall be between 115°F and 40°F. 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 cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.

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. Units 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. Service panels shall have lifting handles and be removed and reinstalled by removing two fasteners while providing a water and air tight seal. All exposed vertical panels and top covers in the indoor air section shall be insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material. The base of the unit shall be insulated with 1/8", foil-faced, closed-cell insulation. All insulation edges shall be either captured or sealed. The units base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8" inch high downflow 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, with forklift capabilities on three sides of the unit.

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.

Filters

Throwaway filters shall be standard on all units. Optional 2-inch MERV 8 and MERV 13 filters shall also be available.

Compressors

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 unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.

Dual compressors are outstanding for humidity control, light load cooling conditions and system back-up applications. Dual compressors are available on 7½-10 ton models and allow for efficient cooling utilizing 3-stages of compressor operation for all high efficiency models.

Evaporator and Condenser Coils

Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Evaporator coils are standard for all 3 to 10 ton standard efficiency models. Microchannel condenser coils are standard for all 3 to 10 ton standard efficiency models and 4, 5, 6, 7.5, 8.5 ton high efficiency models. The microchannel type condenser coil is not offered on the 4 and 5 ton dehumidification model. 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. These all aluminum coils are recyclable. 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. The condenser coil shall have a patent pending 1+1+1 hybrid coil designed with slight gaps for ease of cleaning. A plastic, dual-sloped, removable and reversible condensate drain pan with through-the-base condensate drain is standard.



Outdoor Fans

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

Indoor Fan

The following units shall be equipped with a direct drive plenum fan design (T/YSC120F, T/YHC074F, T/YHC092F, T/YHC102F, 120F). Plenum fan design shall include a backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor. All plenum fan designs will have a variable speed adjustment potentiometer located in the control box.

3 to 5 ton units (high efficiency 3-phase with optional motor) are belt driven, FC centrifugal fans with adjustable motor sheaves. 3 to 5 ton units have multispeed, direct drive motors. All 6 to 8½ ton units (standard efficiency) shall have belt drive motors with an adjustable idler-arm assembly for quick-adjustment to fan belts and motor sheaves. All motors shall be thermally protected. All 10 tons, 6 ton (074), 7½ to 8½ (high efficiency) units have variable speed direct drive motors. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).

Controls

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. A choice of microprocessor or electromechanical controls shall be available. Microprocessor controls provide for 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 Microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.

Refrigerant Circuits

Each refrigerant circuit offer thermal expansion valve as standard. Service pressure ports, and refrigerant line filter driers are factory-installed as standard. An area shall be provided for replacement suction line driers.

Phase monitor

Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitor is equipped with an LED that provides an ON or FAULT indicator. There are no field adjustments. The module will automatically reset from a fault condition.

Electric Heaters

Electric heat modules shall be available for installation within basic unit. Electric heater elements shall be constructed of heavy-duty nickel chromium elements internally delta connected for 240 volt, wye connected for 480 and 600 volt. Staging shall be achieved through ReliaTel. Each heater package shall have automatically reset high limit control operating through heating element contactors. All heaters shall be individually fused from the factory, where required, and shall meet all NEC and CEC requirements when properly installed. Power assemblies shall provide single point connection. Electric heat modules shall be UL listed or CSA certified.

Accessory - Manual Outside Air Damper

This rain hood and screen shall provide up to 50 percent outside air.

Accessory - Roof Curb

The roof curb shall be designed to mate with the unit's downflow supply and return and provide support and a water tight installation when installed properly. The roof curb design shall allow field fabricated rectangular supply/return ductwork to be connected directly to the curb. Curb design shall comply with NRCA requirements. Curb shall be shipped knocked down for field assembly and shall include wood nailer strips.

Sequence of Operation (if applied in a SINGLE-ZONE CONSTANT-VOLUME SYSTEM or a CHANGEVER BYPASS SYSTEM)

B. SINGLE-ZONE CONSTANT-VOLUME SYSTEM



1. OCCUPIED HEAT/COOL:

The RTU shall operate the supply fan continuously and modulate (or cycle) compressors, modulate (or stage) heat, and/or enable airside economizing to maintain zone temperature at setpoint. The OA damper shall open to bring in the required amount of ventilation.

2. MORNING WARM-UP/PRE-COOL:

The RTU shall operate the supply fan and modulate (or cycle) compressors or modulate (or stage) heat to raise/lower zone temperature to its occupied setpoint. The OA damper shall remain closed, unless economizing.

D. CHANGEOVER BYPASS SYSTEM

1. OCCUPIED HEAT/COOL:

Each VAV terminal shall use pressure-independent control, with airflow measurement, to vary primary airflow to maintain zone temperature at its occupied setpoint. The RTU shall modulate the bypass damper to maintain duct static pressure at setpoint and modulate (or cycle) compressors, modulate (or stage) heat, and/or enable airside economizing based on current zone cooling/heating demands. The OA damper shall open to bring in the required amount of ventilation.

2. MORNING WARM-UP/PRE-COOL:

Each VAV terminal unit shall vary primary airflow to raise/lower zone temperature to its occupied setpoint. The RTU shall modulate the bypass damper to maintain duct static pressure at setpoint and modulate (or cycle) compressors or modulate (or stage) heat based on current zone cooling/heating demands. The OA damper shall remain closed, unless economizing.

3. COOLING/HEATING CHANGEOVER LOGIC:

The System Controller shall determine the overall system cooling/heating mode based on "voting" from each zone. When the majority of zones require cooling, the RTU shall operate in cooling mode and any zone that requires heating shall reduce primary airflow to minimum. When the majority of zones require heating, the RTU shall operate in heating mode and any zone that requires cooling shall reduce primary airflow to minimum.



Job Name: misc
Prepared For:
Unit Tag: T4C-1
Quantity: 1

Trane Precedent Cooling Packaged Rooftop

Unit Overview - TSC090H3E0A**00000000000000000000000000000000

Application	Unit Size	Supply Fan		External Dimensions (in.)			Operating Weight		EER	IEER/SEER	Elevation
DX cooling	7.5 Ton Single compressor (090)	Airflow	External Static Pressure	Height	Width	Length	Minimum	Maximum	11.2 EER	12.90	
		3000 cfm	0.500 in H2O	3.41 ft	4.44 ft	7.39 ft	751.0 lb	1086.0 lb			

Unit Features

Unit Electrical

Voltage/phase/hertz	208-230/60/3
MCA	38.00 A
MOP	60.00 A



Controls

Unit Controls Electro-Mechanical controls 3ph

Cooling Section

Cooling Section		Capacity	
Entering Dry Bulb	80.00 F	Gross Total	92.50 MBh
Entering Wet Bulb	67.00 F	Gross Sensible	71.16 MBh
Ambient Temp	95.00 F	Net Total	88.85 MBh
Leaving Coil Dry Bulb	58.04 F	Net Sensible	67.51 MBh
Leaving Coil Wet Bulb	57.04 F	Fan Motor Heat	3.65 MBh
Leaving Unit Dry Bulb	59.52 F	Refrig Charge-circuit 1	7.5 lb
Leaving Unit Wet Bulb	57.61 F		
Refrigeration System Options			
Leaving Dew Point	56.39 F		

Fan Section

Indoor Fan Data		Outdoor Fan Data	
Type	FC Centrifugal	Type	Propeller
Drive Type	Belt	Fan Quantity	1
Evap Fan FLA	3.30 A	Drive Type	Direct
Indoor Fan Performance		Outdoor Fan Performance	
Airflow	3000 cfm	Outdoor Motor Power	0.69 kW
Design ESP	0.500 in H2O	Condenser Fan FLA	3.30 A
Component SP	0.000 in H2O		
Total SP	0.500 in H2O		
Supply Motor Horsepower	1.000 hp		
Indoor Motor Operating Power	1.15 bhp		
Indoor Motor Power	0.86 kW		
Indoor RPM	904 rpm		

Compressor Section

Power	6.53 kW
Circuit 1 RLA	25.00 A
Circuit 2 RLA	0.00 A

Accessories

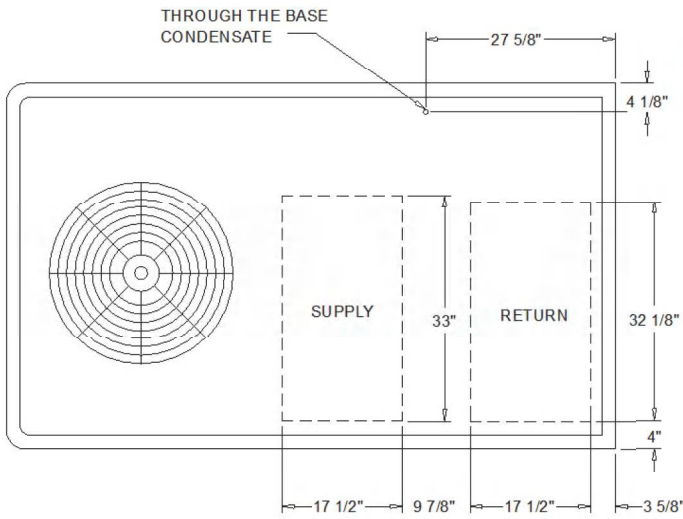
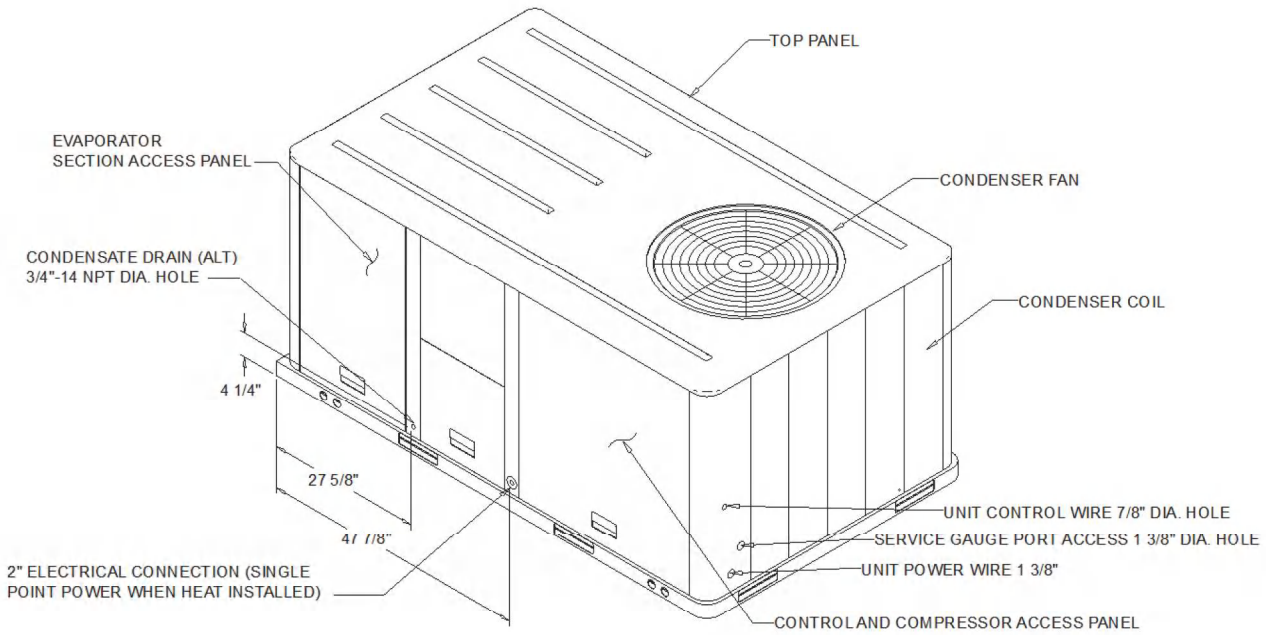
Roof curb	yes
Fresh air selection	Manual outside damper 0-50%
Electric heaters	18 kW electric heater 3 ph

Acoustics

Sound Path	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Ducted Discharge	85 dB	82 dB	72 dB	75 dB	74 dB	71 dB	72 dB	67 dB
Ducted Inlet	91 dB	78 dB	63 dB	64 dB	57 dB	56 dB	55 dB	48 dB
Outdoor Noise	91 dB	95 dB	90 dB	87 dB	84 dB	79 dB	75 dB	68 dB

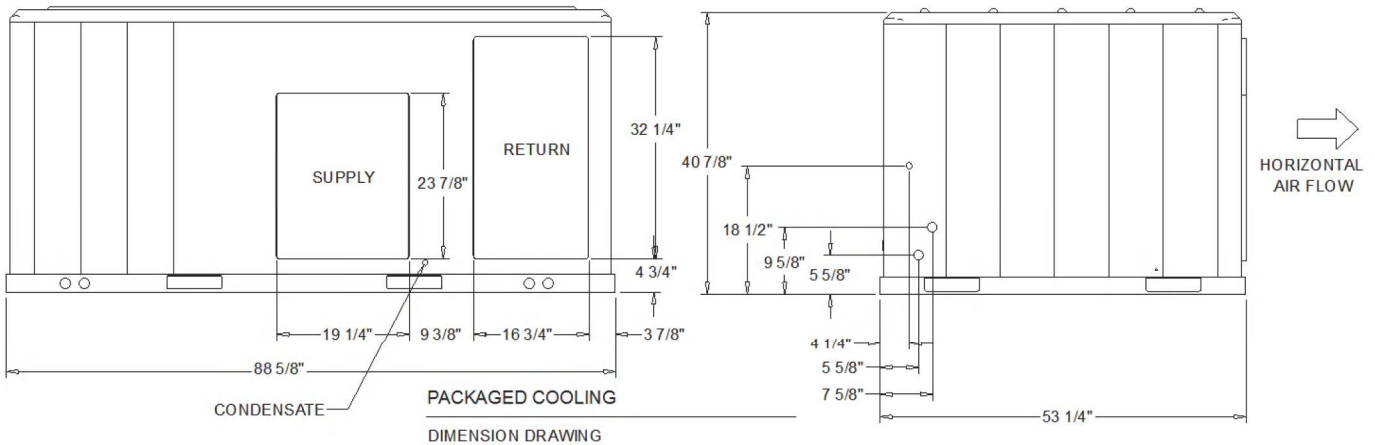
Note:Ducted Inlet and Ducted Discharge Sound Power Levels are in accordance with AHRI 260.

Note:Outdoor Sound Power Levels are in accordance with AHRI 270.



NOTES:
 1. THRU -THE -BASE ELECTRICAL IS NOT STANDARD ON ALL UNITS.
 2. VERIFY ALL DIMENSIONS WITH INSTALLER DOCUMENTS BEFORE INSTALLATION.

PLAN VIEW UNIT
 DIMENSION DRAWING

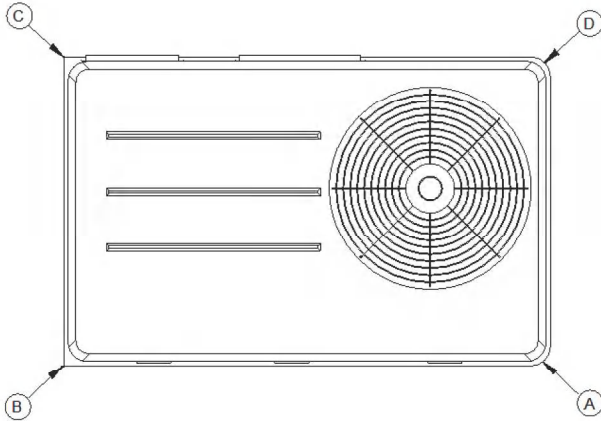


PACKAGED COOLING
 DIMENSION DRAWING

HORIZONTAL
 AIR FLOW

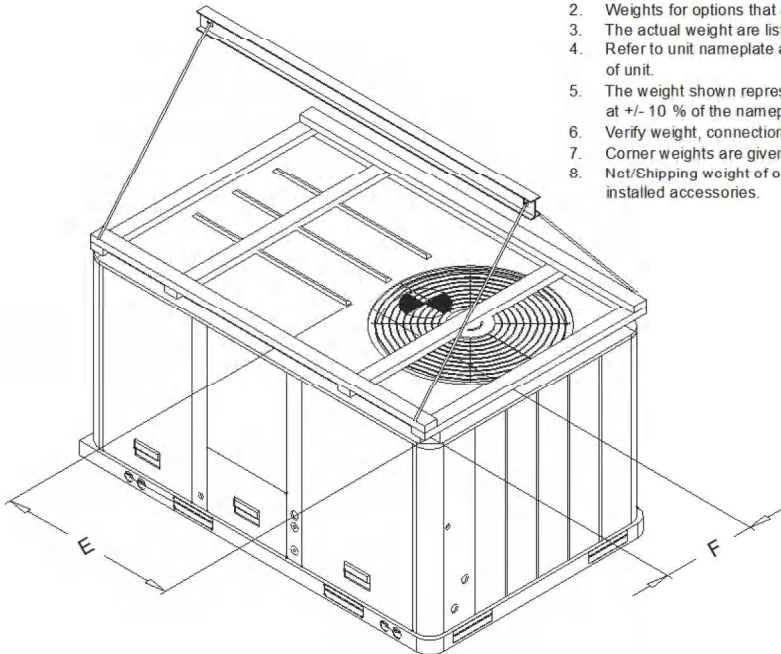
INSTALLED ACCESSORIES NET WEIGHT DATA

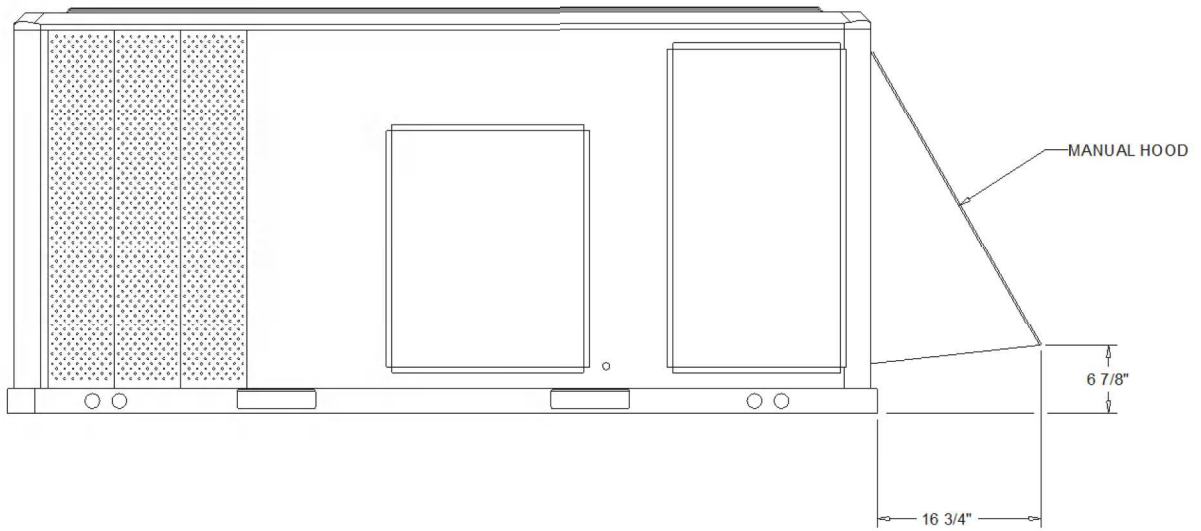
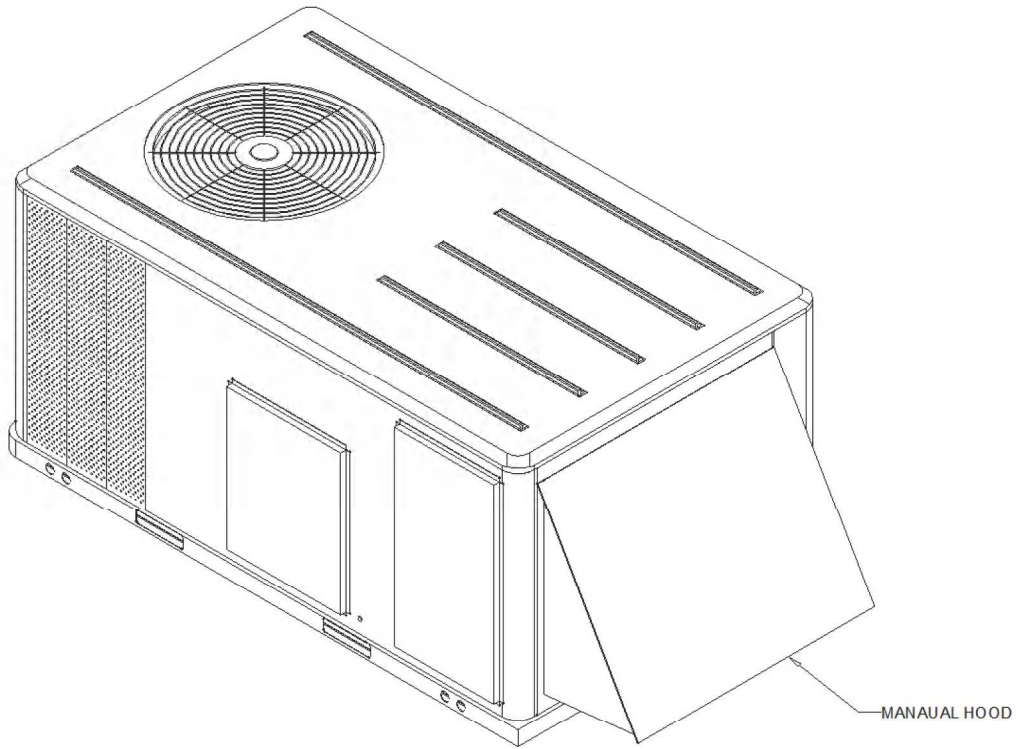
ACCESSORY		WEIGHTS			
ECONOMIZER					
MOTORIZED OUTSIDE AIR DAMPER					
MANUAL OUTSIDE AIR DAMPER					
BAROMETRIC RELIEF					
OVERSIZED MOTOR					
BELT DRIVE MOTOR					
POWER EXHAUST					
HEATER		30.0 lb			
REHEAT					
THROUGH THE BASE ELECTRICAL (FIOPS)					
UNIT MOUNTED CIRCUIT BREAKER (FIOPS)					
UNIT MOUNTED DISCONNECT (FIOPS)					
POWERED CONVENIENCE OUTLET (FIOPS)					
HINGED DOORS (FIOPS)					
HAIL GUARD					
SMOKE DETECTOR, SUPPLY / RETURN					
NOVAR CONTROL					
ROOF CURB		78.0 lb			
BASIC UNIT WEIGHTS		CORNER WEIGHTS		CENTER OF GRAVITY	
SHIPPING	NET	(A)	(C)	(E) LENGHT	(F) WIDTH
844.0 lb	751.0 lb	(B)	(D)	42"	22"


PACKAGED COOLING
 CORNER WEIGHT

NOTE:

- All weights are approximate.
- Weights for options that are not listed refer to Installation guide.
- The actual weights are listed on the unit nameplate.
- Refer to unit nameplate and installation guide for weights before scheduling transportation and installation of unit.
- The weight shown represents the typical unit operating weight for the configuration selected. Estimated at +/- 10 % of the nameplate weight.
- Verify weight, connection, and all dimension with installer documents before installation.
- Corner weights are given for information only.
- Net/Shipping weight of optional accessories should be added to unit weight when ordering factory or field installed accessories.

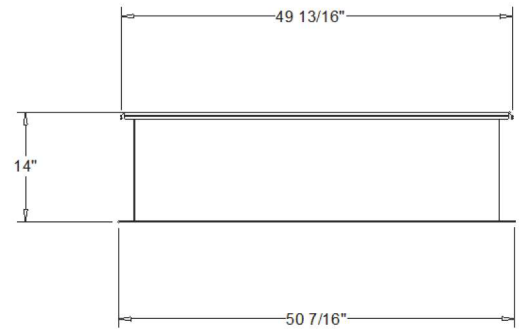
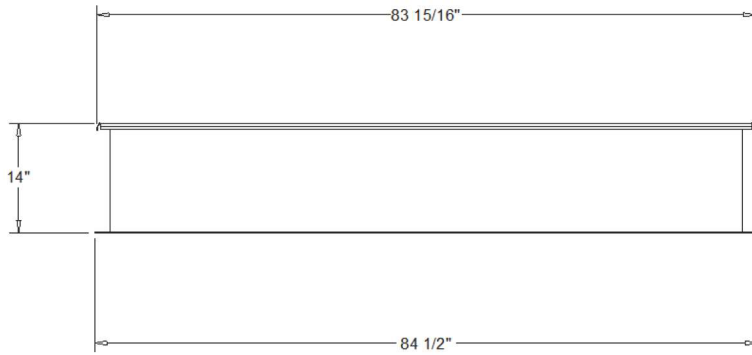
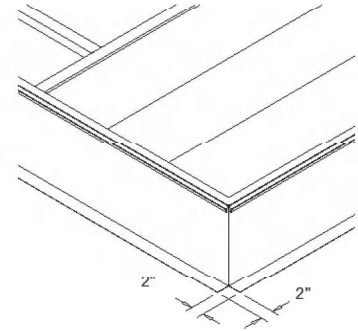
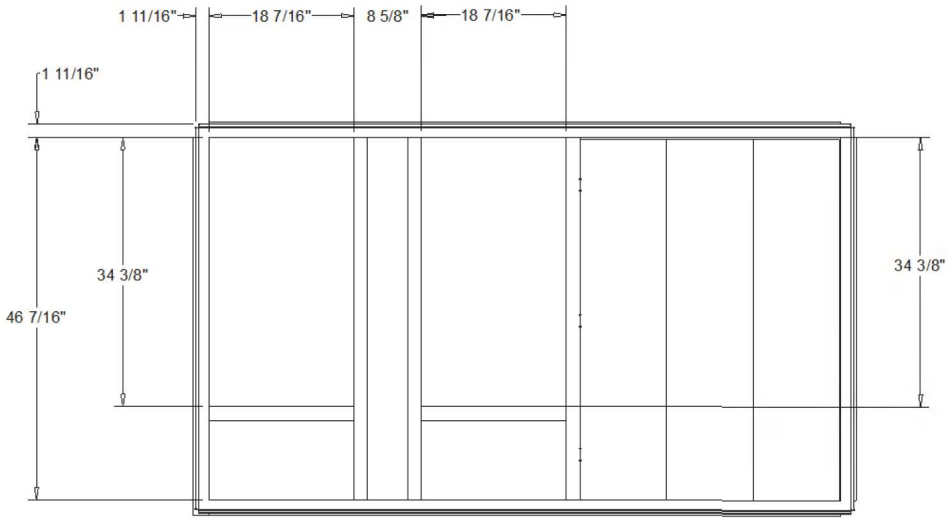
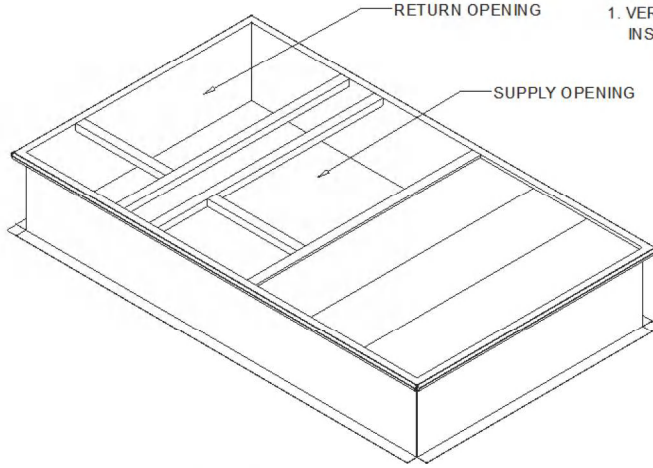

PACKAGED COOLING
 RIGGING AND CENTER OF GRAVITY



MANUAL OUTSIDE AIR HOOD
ACCESSORY

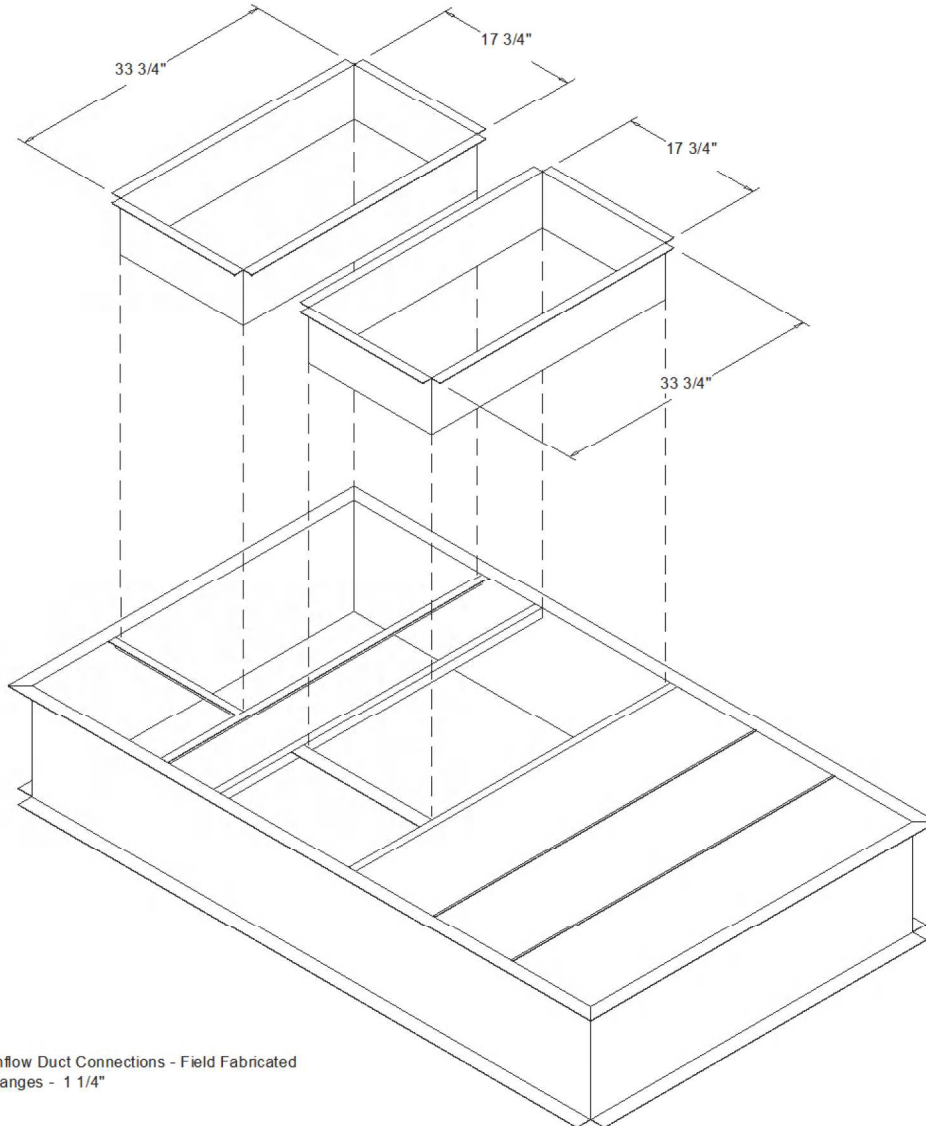
NOTES:

1. VERIFY WEIGHT, CONNECTION, AND ALL DIMENSION WITH INSTALLER DOCUMENTS BEFORE INSTALLATION



ROOF TOP CURB (BAYCURB043)

ACCESSORY



Downflow Duct Connections - Field Fabricated
All Flanges - 1 1/4"

ACCESSORY - DUCT CONNECTIONS



General

The units shall be convertible airflow. The operating range shall be between 115°F and 0°F in cooling as standard from the factory for units with microprocessor controls. Operating range for units with electromechanical controls shall be between 115°F and 40°F. 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 cULus listed and labeled, classified in accordance for Central Cooling Air Conditioners.

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. Units 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. Service panels shall have lifting handles and be removed and reinstalled by removing two fasteners while providing a water and air tight seal. All exposed vertical panels and top covers in the indoor air section shall be insulated with a cleanable foil-faced, fire-retardant permanent, odorless glass fiber material. The base of the unit shall be insulated with 1/8", foil-faced, closed-cell insulation. All insulation edges shall be either captured or sealed. The units base pan shall have no penetrations within the perimeter of the curb other than the raised 1 1/8" inch high downflow 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, with forklift capabilities on three sides of the unit.

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.

Filters

Throwaway filters shall be standard on all units. Optional 2-inch MERV 8 and MERV 13 filters shall also be available.

Compressors

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 unit nameplate voltage. Internal overloads shall be provided with the scroll compressors.

Dual compressors are outstanding for humidity control, light load cooling conditions and system back-up applications. Dual compressors are available on 7½-10 ton models and allow for efficient cooling utilizing 3-stages of compressor operation for all high efficiency models.

Evaporator and Condenser Coils

Internally finned, 5/16" copper tubes mechanically bonded to a configured aluminum plate fin shall be standard. Evaporator coils are standard for all 3 to 10 ton standard efficiency models. Microchannel condenser coils are standard for all 3 to 10 ton standard efficiency models and 4, 5, 6, 7.5, 8.5 ton high efficiency models. The microchannel type condenser coil is not offered on the 4 and 5 ton dehumidification model. 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. These all aluminum coils are recyclable. 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. The condenser coil shall have a patent pending 1+1+1 hybrid coil designed with slight gaps for ease of cleaning. A plastic, dual-sloped, removable and reversible condensate drain pan with through-the-base condensate drain is standard.



Outdoor Fans

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

Indoor Fan

The following units shall be equipped with a direct drive plenum fan design (T/YSC120F, T/YHC074F, T/YHC092F, T/YHC102F, 120F). Plenum fan design shall include a backward-curved fan wheel along with an external rotor direct drive variable speed indoor motor. All plenum fan designs will have a variable speed adjustment potentiometer located in the control box.

3 to 5 ton units (high efficiency 3-phase with optional motor) are belt driven, FC centrifugal fans with adjustable motor sheaves. 3 to 5 ton units have multispeed, direct drive motors. All 6 to 8½ ton units (standard efficiency) shall have belt drive motors with an adjustable idler-arm assembly for quick-adjustment to fan belts and motor sheaves. All motors shall be thermally protected. All 10 tons, 6 ton (074), 7½ to 8½ (high efficiency) units have variable speed direct drive motors. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).

Controls

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. A choice of microprocessor or electromechanical controls shall be available. Microprocessor controls provide for 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 Microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.

Refrigerant Circuits

Each refrigerant circuit offer thermal expansion valve as standard. Service pressure ports, and refrigerant line filter driers are factory-installed as standard. An area shall be provided for replacement suction line driers.

Phase monitor

Phase monitor shall provide 100% protection for motors and compressors against problems caused by phase loss, phase imbalance, and phase reversal. Phase monitor is equipped with an LED that provides an ON or FAULT indicator. There are no field adjustments. The module will automatically reset from a fault condition.

Accessory - Electric Heaters

Electric heat modules shall be available for installation within basic unit. Electric heater elements shall be constructed of heavy-duty nickel chromium elements internally delta connected for 240 volt, wye connected for 480 and 600 volt. Staging shall be achieved through ReliaTel₂. Each heater package shall have automatically reset high limit control operating through heating element contactors. All heaters shall be individually fused from the factory, where required, and shall meet all NEC and CEC requirements when properly installed. Power assemblies shall provide single point connection. Electric heat modules shall be UL listed or CSA certified.

Accessory - Manual Outside Air Damper

This rain hood and screen shall provide up to 50 percent outside air.

Accessory - Roof Curb

The roof curb shall be designed to mate with the unit's downflow supply and return and provide support and a water tight installation when installed properly. The roof curb design shall allow field fabricated rectangular supply/return ductwork to be connected directly to the curb. Curb design shall comply with NRCA requirements. Curb shall be shipped knocked down for field assembly and shall include wood nailer strips.

Sequence of Operation (if applied in a SINGLE-ZONE CONSTANT-VOLUME SYSTEM or a CHANGEOVER BYPASS SYSTEM)

B. SINGLE-ZONE CONSTANT-VOLUME SYSTEM



1. OCCUPIED HEAT/COOL:

The RTU shall operate the supply fan continuously and modulate (or cycle) compressors, modulate (or stage) heat, and/or enable airside economizing to maintain zone temperature at setpoint. The OA damper shall open to bring in the required amount of ventilation.

2. MORNING WARM-UP/PRE-COOL:

The RTU shall operate the supply fan and modulate (or cycle) compressors or modulate (or stage) heat to raise/lower zone temperature to its occupied setpoint. The OA damper shall remain closed, unless economizing.

D. CHANGEOVER BYPASS SYSTEM

1. OCCUPIED HEAT/COOL:

Each VAV terminal shall use pressure-independent control, with airflow measurement, to vary primary airflow to maintain zone temperature at its occupied setpoint. The RTU shall modulate the bypass damper to maintain duct static pressure at setpoint and modulate (or cycle) compressors, modulate (or stage) heat, and/or enable airside economizing based on current zone cooling/heating demands. The OA damper shall open to bring in the required amount of ventilation.

2. MORNING WARM-UP/PRE-COOL:

Each VAV terminal unit shall vary primary airflow to raise/lower zone temperature to its occupied setpoint. The RTU shall modulate the bypass damper to maintain duct static pressure at setpoint and modulate (or cycle) compressors or modulate (or stage) heat based on current zone cooling/heating demands. The OA damper shall remain closed, unless economizing.

3. COOLING/HEATING CHANGEOVER LOGIC:

The System Controller shall determine the overall system cooling/heating mode based on "voting" from each zone. When the majority of zones require cooling, the RTU shall operate in cooling mode and any zone that requires heating shall reduce primary airflow to minimum. When the majority of zones require heating, the RTU shall operate in heating mode and any zone that requires cooling shall reduce primary airflow to minimum.