smith&boucher ENGINEERS

DATE: April 17, 2015

JOB NO.: 1511200

PROJECT: Overland Park Exchange
Black & Veatch TF

LETTER OF TRANSMITTAL

TO: Hoefer Wysocki Architects
11460 Tomahawk Creek Pkwy.
Suite 400
Leawood, KS 66211

ATTN: Jack Fielder

We are sending you the following items:

☒ attached ***via NEWFORMA***

☐ under separate cover via: ____

Copies	Date or Number	Description
1	233600-2.01	Rooftop Units

☒ For file & Use
☐ For approval
☒ As requested
☐ For review & comments
☐ For your information

☐ Return ____ copies
☐ Per plans & specs
☐ Copies for approval
☐ Copies for distribution
☐ Other

REMARKS:

SIGNED: Stacy Clapsaddle

Stacy R. Clapsaddle,P.E.

25501 west valley parkway, suite 200 / olathe, ks 66061 / p.913.345.2127 / f.913.345.0617

Submittal Transmittal

Hoefer Wysocki Architects, LLC | 11460 Tomahawk Creek Parkway, Suite 400 Leawood KS 66211 United States

PROJECT:	141114-OPX Black and Veatch 141114	DATE SENT:	4/15/2015
		RETURN BY:	5/1/2015
SUBJECT:	HVAC Rooftop Unit Product Data	SUBMITTAL ID:	233600-2.01
TYPE:	Submittal	TRANSMITTAL ID:	00066
PURPOSE:	For Review	VIA:	Info Exchange
SPEC SECTION:	233600		

FROM

NAME	COMPANY	EMAIL	PHONE
Jack Fielder	Hoefer Wysocki Architects, LLC	Jack.Fielder@hoeferwysocki.com	913-307-3917

TO

NAME	COMPANY	EMAIL	PHONE
Rebecca Barrett	Smith & Boucher	RBarrett@smithboucher.com	

DESCRIPTION OF CONTENTS

QTY	DATED	TITLE	NUMBER	NOTES
1	4/15/2015	233600-2.01-HVAC Rooftop Unit Product Data.pdf		

COPIES

Philip Ptacek (Smith & Boucher, Inc.)

Brian Daniels (Smith & Boucher)

Submittal Transmittal

Job: 15-425 - OPX - Black & Veatch TI

Attn: Cristina Henderson
HWA

Submittal No: 233600-2.01
Sent Date: 4/14/2015
Please return by: **4/17/2015**

Copies	Spec No.	Description
1	233600	233600-2.01 HVAC Rooftop Units Product Data

Contractor's Stamp

Olathe, KS 66061
913-782-6700
Fax (913) 829-2785
www.TitanBuilt.com

X	REVIEWED
	REVIEWED WITH NOTATIONS

CHECKED BY: DATE: 4/14/2015

Approval is for concept and compliance. Details, quantities, and dimensions remain the responsibility of the Subcontractor.

Submittal No: 233600-2.01

Architect's Stamp

- ☐ Reviewed
- ☐ Reviewed as Noted
- ☐ Revise and Resubmit for the Record Only
- ☐ Reviewed as Noted. Revise and Resubmit those items Noted as Rejected
- ☐ Rejected, Revise and Resubmit for Review

This review is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Corrections or comments made on the shop drawings during this review do not relieve the Contractor from compliance with the requirements of the Plans and Specifications. Review of a specific item shall not include acceptance of an assembly of which the item is a component. Contractor is responsible for: dimensions to be confirmed and correlated at the jobsite, information that pertains solely to the fabrication process or to the means, methods, techniques, sequences, and procedures of construction; coordination of his or her Work with that of all other trades; and for performing all work in a safe and satisfactory manner.

Submittal No. 233600-2.01

Date _____ By _____

HOEFER WYSOCKI ARCHITECTS, LLC

Submittal

Prepared For:
Sanders Management

Date: *April 14, 2015*

Job Name:
OVERLAND PARK XCHANGE

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

Product Summary

Qty	Product
13	Packaged Rooftop, Cooling / Heating Units
3	Packaged Gas/Electric Rooftop Units

NOTES:

- **Installing contractor to verify existing curb dimensions and RTU model numbers**
- **Roofscreens and curb adapters to be submitted separately**
- **Upsized RTU-5 and RTU-22 to meet scheduled capacity**
- **RTU-6 provided with 5HP motor**
- **Electrical information varies from what is scheduled**

Notes:

1. Per manufacturer, do not provide through the base gas connection. This is not advisable with the use of adaptor curbs.
2. Smoke detectors will be provided and installed by fire alarm contractor.
3. Units scheduled to have demand control ventilation to have room CO2 sensors as shown on plans and VAV box schedule. No return duct CO2 sensor is required.
4. Roof screens and curb adaptors to be submitted separately.
5. Most of the RTU electric connections will need to be modified as a result of submitted MCA and MOP information. Changes will be issued as part of a future addendum to the shell package. No new RTU feeders should be installed until addendum is issued.

RECEIVED
By RBarrett at 2:43 pm, Apr 15, 2015

☐ REVIEWED – NO EXCEPTIONS TAKEN
☒ MAKE CORRECTIONS NOTED – RESUBMITTAL NOT REQUIRED
☐ MAKE CORRECTIONS NOTED – REVISE & RESUBMIT INDICATED ITEMS ONLY
☐ REVISE & RESUBMIT ENTIRE SUBMITTAL
☐ REVIEWED FOR COORDINATION OR INFORMATION ONLY – RESPOND TO COMMENTS

Review of this submittal is only for general conformance with the design concept of the project and-for general compliance with those portions of the Contract Documents prepared by Smith & Boucher. Notes, corrections or comments made on the submittals during this review do not relieve the Contractor from responsibility for: Compliance with the requirements of the plans and specifications; Dimensions to be confirmed and correlated at the jobsite: Information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; Coordination of the Work with that of all other trades; Assemblies of which a specific reviewed item is a component; and performance of all work in a safe and satisfactory manner.

SMITH & BOUCHER, INC.

Date: **04/17/2015** By: **Stacy Clapsaddle, P.E.**

George Newton – Project Manager
Andy Price – Account Manager
Trane
8014 Flint St.
Lenexa, KS 66214-3334
Phone: (913) 599-4664
Fax: (913) 599-4669

Table Of Contents

Tag Data - Packaged Rooftop, Cooling / Heating Units (Qty: 13)

Item	Tag(s)	Qty	Description	Model Number
A1	RTU-3	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD360B4M-1D2DEA-B-D----JB02K0R-000-0000X---*
A2	RTU-7	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD360B4M-1D2EEA-B-D----JB02K0R-000-0000X---*
A3	RTU-8	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD330B4M-1D2DEA-B-D----JB02K0R-000-0000X---*
A4	RTU-9	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD360B4M-1D2DEA-B-D----JB02K0R-000-0000X---*
A5	RTU-10	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD360B4M-1D2EEA-B-D----JB02K0R-000-0000X---*
A6	RTU-13	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD360B4M-1D2EEA-B-D----JB02K0R-000-0000X---*
A7	RTU-15	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD360B4M-1D2DEA-B-D----JB02K0R-000-0000X---*
A8	RTU-16	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD330B4M-1D2DEA-B-D----JB02K0R-000-0000X---*
A9	RTU-17	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD420B4M-1D3GEA-B-D----JB02K0R-000-0000X---*
A10	RTU-18	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD420B4M-1D3GEA-B-D----JB02K0R-000-0000X---*
A11	RTU-19	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD420B4M-1D3GEA-B-D----JB02K0R-000-0000X---*
A12	RTU-20	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD420B4M-1D3GEA-B-D----JB02K0R-000-0000X---*
A13	RTU-21	1	27 1/2-50 Ton Packaged Commercial Rooftop	YCD360B4M-3D2DEA-B-D----JB02K0R-000-0000X---*

Product Data - Packaged Rooftop, Cooling / Heating Units

All Units

Dx Cooling with Natural Gas Heat
Double Wall Construction
Downflow Supply and Upflow Return
460 Volt 60 Hertz 3 Phase
Low modulating Gas Heat
4" MERV 14 High Efficiency Filter
0-100% Economizer, Differential Enthalpy Control
VAV - discharge temp control with VFD **without** bypass / with motor Shaft Grounding Ring
Thru-The-Base Electrical Provision
Factory Powered Ground Fault Convenience Outlet with Disconnect Switch
Condenser coil guards
BACnet
SS drain pan w/ condensate overflow switch
High efficiency unit eStage
Clogged filter switch
ADAPTER ROOF CURBS (Fld)
ROOF SCREENS – CURB MOUNTED (Fld)
START-UP SERVICE
SMOKE DETECTORS- FIELD INSTALLED, MOUNTED ND WIRED BY OTHERS
Three Year Whole Unit Parts Warranty
Five Year Compressor Parts Warranty
One Year Whole Unit Labor Warranty

Item: A1, A4, A7 Qty: 3 Tag(s): RTU-3, RTU-9, RTU-15

30 ton 60 Hertz
Barometric Relief
10 Hp Supply Motor
700/583 (60/50 hz) Supply Fan Drive

Item: A2, A6 Qty: 2 Tag(s): RTU-7, RTU-13

30 ton 60 Hertz
Barometric Relief
10 Hp Supply Motor
750/625 (60/50 hz) Supply Fan Drive

Item: A3, A8 Qty: 4 Tag(s): RTU-8, RTU-16

27.5 ton 60 Hertz
Barometric Relief
10 Hp Supply Motor
700/583 (60/50 hz) Supply Fan Drive

Item: A5 Qty: 1 Tag(s): RTU-10

30 ton 60 Hertz
Barometric Relief

10 Hp Supply Motor
750/625 (60/50 hz) Supply Fan Drive
Duct mounted CO2 sensor kit (Fld)

Item: A9, A10, A11 Qty: 3 Tag(s): RTU-17, RTU-18, RTU-19

35 ton 60 Hertz
Barometric Relief
15 Hp Supply Motor
800/664 (60/50 hz) Supply Fan Drive

Item: A12 Qty: 1 Tag(s): RTU-20

35 ton 60 Hertz
Barometric Relief
15 Hp Supply Motor
800/664 (60/50 hz) Supply Fan Drive
Duct mounted CO2 sensor kit (Fld)

Item: A13 Qty: 1 Tag(s): RTU-21

30 ton 60 Hertz
50 % Power Exhaust
10 Hp Supply Motor
700/583 (60/50 hz) Supply Fan Drive
Duct mounted CO2 sensor kit (Fld)

NOT INCLUDED:

POWER WIRING
RIGGING
STORAGE
SEISMIC OR WIND RESTRAINTS
SPARE BELTS OR FILTERS
HINGED ACCESS DOORS
HOT GAS REHEAT (Not required for VAV)
HGBP

Performance Data - Packaged Rooftop, Cooling / Heating Units

Tags	RTU-3	RTU-7	RTU-8	RTU-9	RTU-10	RTU-13
Design airflow (cfm)	9570	10405	8290	10065	10420	10310
ESP (in H2O)	1.500	1.500	1.500	1.500	1.500	1.500
Gross total capacity (MBh)	329.99	333.50	309.19	332.80	333.56	334.09
Gross sensible capacity (MBh)	250.35	261.80	227.16	257.33	262.01	260.77
Cooling EDB (F)	79.50	79.50	79.50	79.50	79.50	79.50
Cooling EWB (F)	66.00	66.00	66.00	66.00	66.00	66.00
Leaving coil DB (F)	55.31	56.26	54.34	55.87	56.27	56.13
Leaving coil WB (F)	54.48	55.39	53.49	55.01	55.40	55.26
Ambient temp (F)	105.00	105.00	105.00	105.00	105.00	105.00
EER @ AHRI (EER)	10.6	10.6	11.0	10.6	10.6	10.6
IEER @ AHRI (EER)	13.3	13.3	13.6	13.3	13.3	13.3
Input htg capacity (MBh)	350.00	350.00	350.00	350.00	350.00	350.00
Output htg capacity (MBh)	283.00	283.00	283.00	283.00	283.00	283.00
Heating EAT (F)	45.00	45.00	45.00	45.00	45.00	45.00
Heating LAT (F)	72.70	70.50	76.90	71.40	70.50	70.70
Heating delta T (F)	27.70	25.50	31.90	26.40	25.50	25.70
Minimum circuit ampacity (A)	79.05	79.05	75.00	79.05	79.05	79.05
Maximum overcurrent protection (A)	90.00	90.00	90.00	90.00	90.00	90.00
Minimum disconnect switch size (A)	85.00	85.00	81.00	85.00	85.00	85.00
Actual Supply Motor BHP (hp)	7.068	8.171	5.718	7.670	8.191	7.978
Supply Motor Power (kW) (rpm)	712	736	683	725	737	731
Indoor motor power (kW)	5.28	6.10	4.27	5.73	6.12	5.96
Outdoor motor power (kW)	0.01	0.01	0.01	0.01	0.01	0.01
Compressor power (kW)	29.08	29.13	26.44	29.12	29.13	29.14
System power (kW)	38.18	39.16	34.43	38.73	39.18	39.01
Compressor 1 RLA (A)	14.10	14.10	14.10	14.10	14.10	14.10
Compressor 2 RLA (A)	18.60	18.60	16.80	18.60	18.60	18.60
Compressor 3 RLA (A)	18.60	18.60	16.80	18.60	18.60	18.60
Supply fan FLA (A)	12.60	12.60	12.60	12.60	12.60	12.60
Condenser fan FLA (A)	3.50	3.50	3.50	3.50	3.50	3.50
Condenser fan count (Each)	3.00	3.00	3.00	3.00	3.00	3.00
Min. unit operating weight (lb)	3950.0	3950.0	3925.0	3950.0	3950.0	3950.0
Max. unit operating weight (lb)	6015.0	6015.0	5995.0	6015.0	6015.0	6015.0
HFCF-410A refrigerant charge - circuit 1 (lb)	37.8	37.8	37.8	37.8	37.8	37.8

Tags	RTU-15	RTU-16	RTU-17	RTU-18	RTU-19	RTU-20
Design airflow (cfm)	9040	8540	11775	11885	11090	11710
ESP (in H2O)	1.500	1.500	1.540	1.540	1.690	1.550
Gross total capacity (MBh)	326.65	311.00	374.68	375.21	371.22	374.37
Gross sensible capacity (MBh)	242.79	230.76	298.69	300.25	288.94	297.76
Cooling EDB (F)	79.50	79.50	79.50	79.50	79.50	79.50
Cooling EWB (F)	66.00	66.00	66.00	66.00	66.00	66.00
Leaving coil DB (F)	54.65	54.70	56.33	56.43	55.68	56.27
Leaving coil WB (F)	53.85	53.83	55.50	55.60	54.89	55.45
Ambient temp (F)	105.00	105.00	105.00	105.00	105.00	105.00
EER @ AHRI (EER)	10.6	11.0	10.5	10.5	10.5	10.5
IEER @ AHRI (EER)	13.3	13.6	13.6	13.6	13.6	13.6
Input htg capacity (MBh)	350.00	350.00	350.00	350.00	350.00	350.00
Output htg capacity (MBh)	283.00	283.00	283.00	283.00	283.00	283.00
Heating EAT (F)	45.00	45.00	45.00	45.00	45.00	45.00
Heating LAT (F)	74.30	76.00	67.60	67.40	69.00	67.70
Heating delta T (F)	29.30	31.00	22.60	22.40	24.00	22.70
Minimum circuit ampacity (A)	79.05	75.00	86.70	86.70	86.70	86.70
Maximum overcurrent protection (A)	90.00	90.00	100.00	100.00	100.00	100.00
Minimum disconnect switch size (A)	85.00	81.00	94.00	94.00	94.00	94.00
Actual Supply Motor BHP (hp)	6.461	5.958	10.223	10.398	9.679	10.155
Supply Motor Power (kW) (rpm)	699	688	776	779	776	775
Indoor motor power (kW)	4.82	4.45	7.63	7.76	7.23	7.58
Outdoor motor power (kW)	0.01	0.01	0.01	0.01	0.01	0.01
Compressor power (kW)	29.03	26.47	32.04	32.05	31.98	32.04
System power (kW)	37.62	34.66	43.95	44.11	43.43	43.89
Compressor 1 RLA (A)	14.10	14.10	14.10	14.10	14.10	14.10
Compressor 2 RLA (A)	18.60	16.80	19.20	19.20	19.20	19.20
Compressor 3 RLA (A)	18.60	16.80	19.20	19.20	19.20	19.20
Supply fan FLA (A)	12.60	12.60	18.90	18.90	18.90	18.90
Condenser fan FLA (A)	3.50	3.50	3.50	3.50	3.50	3.50
Condenser fan count (Each)	3.00	3.00	3.00	3.00	3.00	3.00
Min. unit operating weight (lb)	3950.0	3925.0	3995.0	3995.0	3995.0	3995.0
Max. unit operating weight (lb)	6015.0	5995.0	6060.0	6060.0	6060.0	6060.0
HFCF-410A refrigerant charge - circuit 1 (lb)	37.8	37.8	38.3	38.3	38.3	38.3

Tags	**RTU-21**
Design airflow (cfm)	9900
ESP (in H2O)	1.500
Gross total capacity (MBh)	331.90
Gross sensible capacity (MBh)	255.02
Cooling EDB (F)	79.50
Cooling EWB (F)	66.00
Leaving coil DB (F)	55.69
Leaving coil WB (F)	54.84
Ambient temp (F)	105.00
EER @ AHRI (EER)	10.6
IEER @ AHRI (EER)	13.3
Input htg capacity (MBh)	350.00
Output htg capacity (MBh)	283.00
Heating EAT (F)	45.00
Heating LAT (F)	71.80
Heating delta T (F)	26.80
Minimum circuit ampacity (A)	80.85
Maximum overcurrent protection (A)	90.00
Minimum disconnect switch size (A)	87.00
Actual Supply Motor BHP (hp)	7.466
Supply Motor Power (kW) (rpm)	720
Indoor motor power (kW)	5.57
Outdoor motor power (kW)	0.01
Compressor power (kW)	29.11
System power (kW)	38.55
Compressor 1 RLA (A)	14.10
Compressor 2 RLA (A)	18.60
Compressor 3 RLA (A)	18.60
Supply fan FLA (A)	12.60
Condenser fan FLA (A)	3.50
Condenser fan count (Each)	3.00
Exhaust fan FLA (A)	1.80
Min. unit operating weight (lb)	3950.0
Max. unit operating weight (lb)	6015.0
HFCF-410A refrigerant charge - circuit 1 (lb)	37.8

Mechanical Specifications - Packaged Rooftop, Cooling / Heating Units
Item: A1 - A13 Qty: 13 Tag(s): RTU-3, RTU-7, RTU-8, RTU-9, RTU-10, RTU-13, RTU-15, RTU-16, RTU-17, RTU-18, RTU-19, RTU-20, RTU-21

General R-410A
The units shall be downflow, horizontal, or mixed 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 refrigerant and 100% run tested to check cooling operation, fan and blower rotation and control sequence before leaving the factory. Wiring internal to the unit shall be numbered for simplified identification. Units shall be UL listed to U.S. and Canadian safety standards.

Compressors R410A
The Trane 3-DTM Scroll compressors have a simple mechanical design with only three major moving parts. Scroll type compression provides inherently low vibration. The 3-D Scroll provides a completely enclosed compressor chamber with optimized scroll profiles which leads to increased efficiency. The 3-D Scroll includes a direct-drive, 3600 rpm, suction gas cooled hermetic motor. Dependent on the compressor model, motor protection is provided by either a patented motor cap and integral line break motor protector or an external 24 VAC module which provides protection against incorrect phase sequence, excess motor temperatures, over current protection, and phase loss. Trane 3-D compressor includes centrifugal oil pump, scroll tips seals, internal heat shield that lowers the heat transfer from discharge and suction gas, oil level sight glass and oil charge valve. Some compressor models also provide a dip tube that allows for oil draining, in addition to a low leakage internal discharge check valve to help prevent refrigerant migration. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

Evaporator and Condenser Coils - R410A
Condenser coils shall have all Aluminum Microchannel coils. Evaporator coils shall be internally finned Copper tubes mechanically bonded to high performance Aluminum plate fins. All coils shall be leak tested at the factory to ensure pressure integrity. The evaporator coil is pressure tested to 450 psig and the condenser coil at 650 psig. All dual circuit evaporator coils shall be of intermingled configuration. Sloped condensate drain pans are standard.

Refrigerant Circuits
Each refrigerant circuit shall have independent 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.

4" High Efficiency Filters - MERV 14
4" High Efficiency MERV 14 filters will be standard.

Indoor Fan, 60 Hz Supply Motor
Unit will have belt driven, forward curve, centrifugal fans with fixed motor sheaves. The supply fan motors will be circuit breaker protected. All 60 Hz supply fan motors meet the Energy Independence and Security Act of 2009 (EISA).

High/Low Modulating Gas Heat
The heating section shall have a drum and tube heat exchanger(s) design with primary and secondary surfaces of corrosion resistant aluminized steel or optional stainless steel (all modulating gas heat units shall have stainless steel). A forced combustion blower shall supply premixed fuel to a single burner ignited by a pilotless shot surface ignition system. In order to provide reliable operation, a regulated gas valve shall be used that requires blower operation to initiate gas flow. On an initial call for heat, the combustion blower shall purge the heat exchanger(s) 45 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat. Modulating gas turn down ratio on high fire units is accomplished by allowing the furnaces to act independently of one another. The modulating bank is activated first and is allowed to modulate itself to meet the heating needs. If the modulating bank is unable to meet the need at high fire, the second bank is turned on and then the first bank again modulates to the appropriate level.
This system creates a nearly seamless range of capacity from low fire on the modulating bank to high fire of both furnaces together. Modulating gas heat units shall be suitable for use with natural gas only. All gas heat units comply with California requirements for low NOx emissions

Controls
Unit shall be completely factory wired with necessary controls and terminal block for power wiring. Units shall provide an external location for mounting 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. ReliaTel controls shall provide

anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.

Phase and Voltage Monitor
Standard on all Voyager Commercial units. Protects 3-phase equipment from phase loss, phase reversal, and low voltage. Any fault condition will send the unit into an auto stop condition. cULus approved.

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

50% Power Exhaust Fan
Power exhaust shall be available on all units and shall be factory installed. It shall assist the barometric relief damper in maintaining building pressurization.

Barometric Relief
The barometric relief damper shall be optional with the economizer. Option shall provide a pressure operated damper for the purpose of space pressure equalization and be gravity closing to prohibit entrance of outside air during the equipment off cycle.

Through-The-Base Electrical Provision
An electrical service entrance shall be provided which allows access to route all high and low voltage electrical wiring inside the curb, through the bottom of the outdoor section of the unit and into the control box area.

Non-Fused Disconnect Switch
A factory installed non-fused disconnect switch with external handle shall be provided and shall satisfy NEC requirements for a service disconnect. The non-fused disconnect shall be mounted inside the unit control box.

GFI Convenience Outlet (Factory Powered)
A 15A, 115V Ground Fault Interrupter convenience outlet shall be factory installed. It shall be wired and powered from a factory mounted transformer. Unit mounted non-fused disconnect with external handle shall be furnished with factory powered outlet.

Economizer w Differential Enthalpy Control
Economizer shall be factory installed. The assembly includes: fully modulating 0-100 percent motor and dampers, minimum position setting, preset linkage, wiring harness, and fixed dry bulb control. Differential enthalpy control shall be a factory or field installed option.

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.

Condenser Coil Guards
Factory installed condenser vinyl coated wire mesh coil guards shall be available to provide full area protection against debris and vandalism.

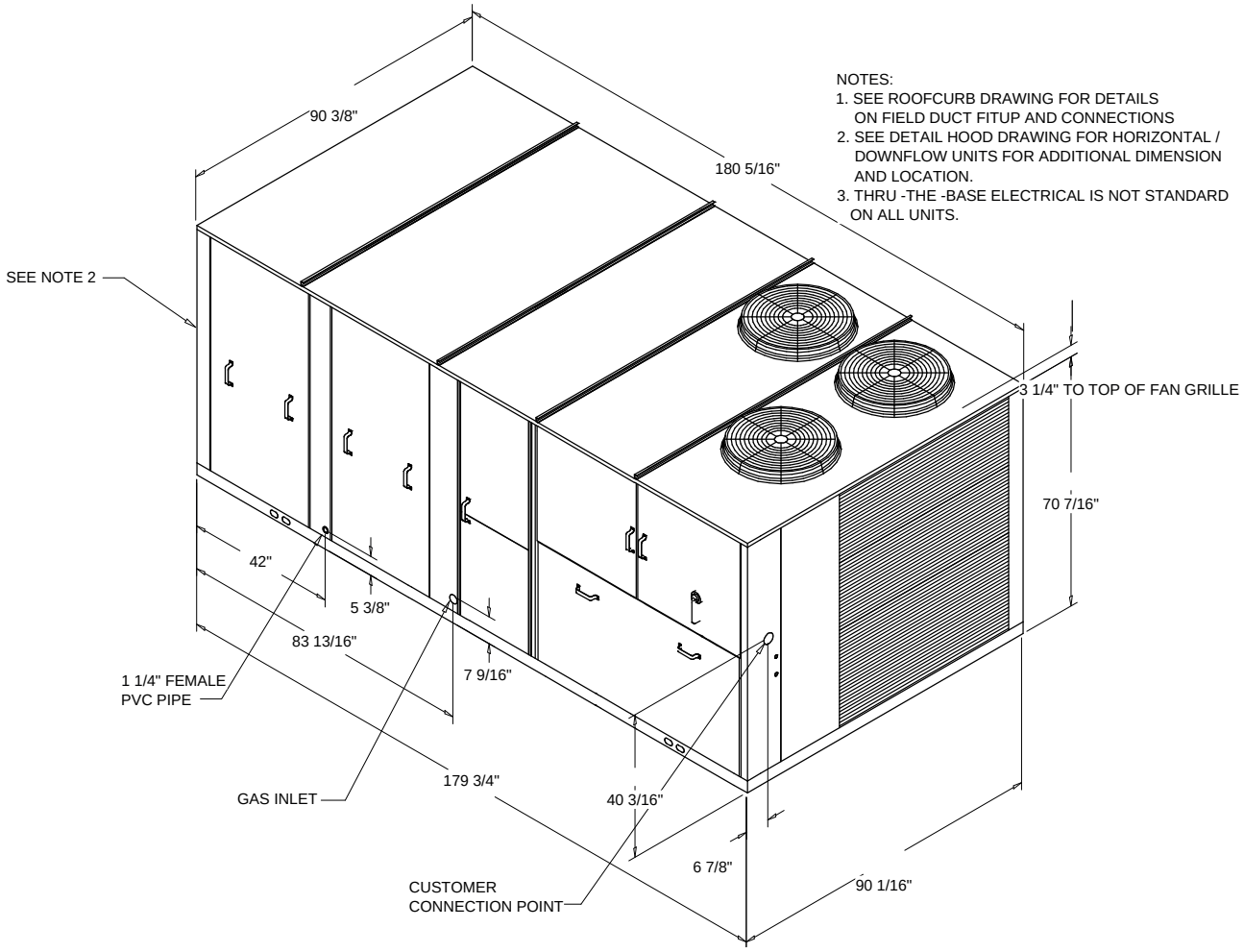
Clogged Filter Indication
This optional factory installed differential pressure switch allows dirty filter indication at the zone sensor with service LED. When closed, the dirty filter witch will light the service LED on the zone sensor and allow the unit to continue normal operation.

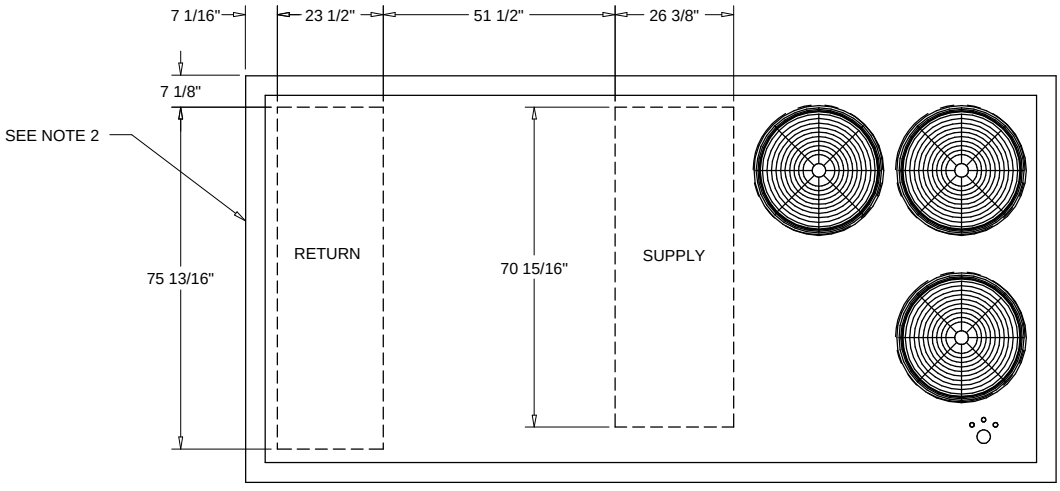
CO2 Sensor Economizer Control
CO2 sensor has the ability to monitor space occupancy levels within the building by measuring the parts per million of CO2 (Carbon Dioxide) in the air. As the CO2 levels increase, the outside air damper modulates to meet the CO2 space ventilation requirements.

Condensate Overflow Switch
This option shall shut the unit down in the event that a clogged condensate drain line prevents proper condensate removal from the unit.

High Efficiency unit (eStage)
This option shall provide five stages of mechanical cooling with the ability to be at or below 25% compressor displacement at stage one.

Unit Dimensions - Packaged Rooftop, Cooling / Heating Units
Item: A1 - A13 Qty: 13 Tag(s): RTU-3, RTU-7, RTU-8, RTU-9, RTU-10, RTU-13, RTU-15, RTU-16, RTU-17, RTU-18, RTU-19, RTU-20, RTU-21



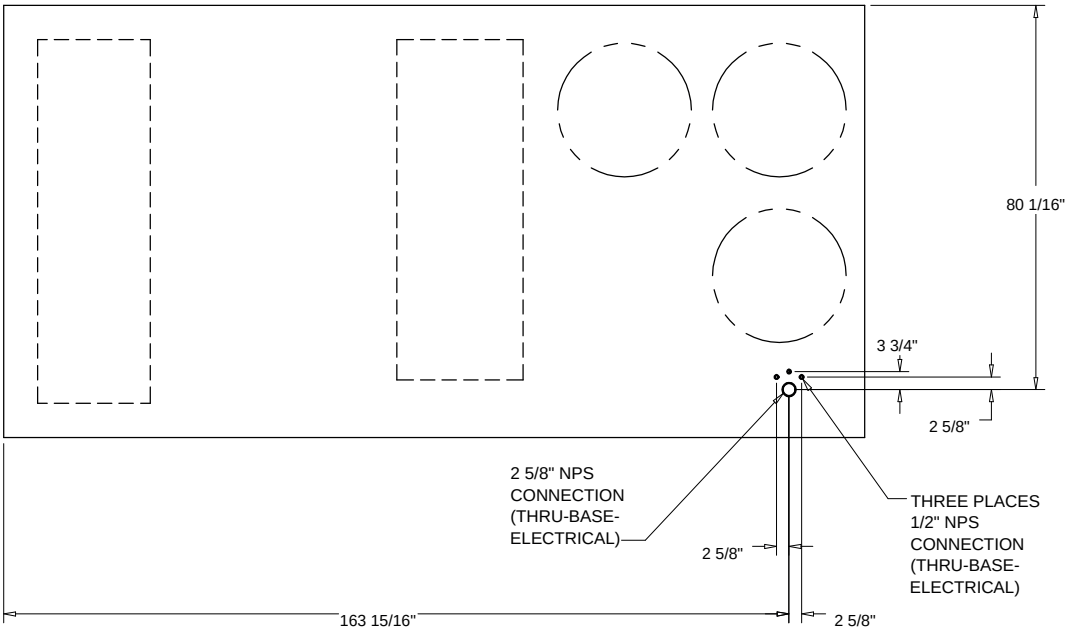


PLAN VIEW

DOWNFLOW SUPPLY AND UPFLOW CONFIGURATION

DIMENSIONAL DRAWING

Unit Dimensions - Packaged Rooftop, Cooling / Heating Units
Item: A1 - A13 Qty: 13 Tag(s): RTU-3, RTU-7, RTU-8, RTU-9, RTU-10, RTU-13, RTU-15, RTU-16, RTU-17, RTU-18, RTU-19, RTU-20, RTU-21



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

THRU -THE -BASE ELECTRICAL PROVISION

PLAN VIEW

Unit Dimensions - Packaged Rooftop, Cooling / Heating Units
Item: A1, A2, A4 - A7 Qty: 6 Tag(s): RTU-3, RTU-7, RTU-9, RTU-10, RTU-13, RTU-15

ELECTRICAL / GENERAL DATA

UNIT

Model (Tonnage)	YCD360 (30.0)
Operating voltage range:	414 - 506
Primary voltage:	460
Hertz:	60
Phase:	3
EER / IEER:	10.6 EER/13.3 EER

HEATING - PERFORMANCE

Heat:	Low Modulating
Heating Input (mbh):	350,000
First Stage (mbh):	70,000
Heating Output (mbh):	283,500
First Stage (mbh):	56,700
No Burners:	1
No. Stages / Turn Down Rate:	5.1
Gas Supply Pressure (in w.c.)	
Natural or LP:	2.5/14.0
Gas Connection Pipe Size:	3/4"

COMPRESSOR

Number	1/2
Tons	6.0/10.0
Compressor Rated Load Amps	14.1/18.6
Locked Rotor Amps	98.0/142.0

ELECTRIC HEATER

Electric Heater kw	N/A
Electric Heater Full Load Amps	N/A

INDOOR MOTOR

Horsepower	10.0
Motor speed (rpm)	1,760
Indoor motor full load amps	12.6

OUTDOOR MOTOR

Number	3
Horsepower	1.1
Phase	1
Outdoor motor full load amps	3.5

EXHAUST MOTOR

Number	N/A
Horsepower	N/A
Phase	N/A
Exhaust motor full load amps	N/A

FILTERS (7)

Type	Throwaway
Furnished	Yes
Number	16
Recommended size	15 1/2"x19 1/2"x4"

REFRIGERANT TYPE (6)

Type	R-410A
Factory Charge (Circuit #1)	37.8 lb
Factory Charge (Circuit #2)	Not Available

Cooling MCA = (1.25 x Load 1) + Load 2 + Load 4

Cooling MOP = (2.25 x Load 1) + Load 2 + Load 4

Notes:
1. LOAD 1= Current of the largest motor (Compressor or Fan Motor); LOAD 2=Sum of the currents of all remaining motors LOAD 3= FLA(Full Load Amps) of the electric heater; LOAD 4= Any other load rated at 1 amp or more.
2. For Electric Heat MCA, MOP, RDE values, calculate for both cooling and heating modes.
3. If selected Max Over Cur is less than the Min Cir Amp, then select the lowest maximum fuse size which is equal to or larger than the Min Cir Amp, provided the selected fuse size does not exceed 800 amps.
4. The use of Liquid Propane (LP) requires unit modification. Contact a Trane salesman for information.
5. Compressor KW at AHRI rating conditions of 80/67 -95
6. Refrigerant charge is an approx. value. For a more precise value, see unit nameplate and service instructions.
7. Filter dimension are actual. Nominal filter size 16"x20"

Unit Dimensions - Packaged Rooftop, Cooling / Heating Units
Item: A3, A8 Qty: 2 Tag(s): RTU-8, RTU-16

ELECTRICAL / GENERAL DATA

UNIT

Model (Tonnage)	YCD330 (27.5)
Operating voltage range:	414 - 506
Primary voltage:	460
Hertz:	60
Phase:	3
EER / IEER:	11.0 EER/13.6 EER

HEATING - PERFORMANCE

Heat:	Low Modulating
Heating Input (mbh):	350,000
First Stage (mbh):	70,000
Heating Output (mbh):	283,500
First Stage (mbh):	56,700
No Burners:	1
No. Stages / Turn Down Rate:	5.1
Gas Supply Pressure (in w.c.)	
Natural or LP:	2.5/14.0
Gas Connection Pipe Size:	3/4"

COMPRESSOR

Number	1/2
Tons	6.0/9.0
Compressor Rated Load Amps	14.1/16.8
Locked Rotor Amps	98.0/142

ELECTRIC HEATER

Electric Heater kw	N/A
Electric Heater Full Load Amps	N/A

INDOOR MOTOR

Horsepower	10.0
Motor speed (rpm)	1,760
Indoor motor full load amps	12.6

OUTDOOR MOTOR

Number	3
Horsepower	1.1
Phase	1
Outdoor motor full load amps	3.5

EXHAUST MOTOR

Number	N/A
Horsepower	N/A
Phase	N/A
Exhaust motor full load amps	N/A

FILTERS (7)

Type	Throwaway
Furnished	Yes
Number	16
Recommended size	15 1/2"x19 1/2"x4"

REFRIGERANT TYPE (6)

Type	R-410A
Factory Charge (Circuit #1)	37.8 lb
Factory Charge (Circuit #2)	Not Available

Cooling MCA = (1.25 x Load 1) + Load 2 + Load 4

Cooling MOP = (2.25 x Load 1) + Load 2 + Load 4

Notes:
1. LOAD 1= Current of the largest motor (Compressor or Fan Motor); LOAD 2=Sum of the currents of all remaining motors LOAD 3= FLA(Full Load Amps) of the electric heater; LOAD 4= Any other load rated at 1 amp or more.
2. For Electric Heat MCA, MOP, RDE values, calculate for both cooling and heating modes.
3. If selected Max Over Cur is less than the Min Cir Amp, then select the lowest maximum fuse size which is equal to or larger than the Min Cir Amp, provided the selected fuse size does not exceed 800 amps.
4. The use of Liquid Propane (LP) requires unit modification. Contact a Trane salesman for information.
5. Compressor KW at AHRI rating conditions of 80/67 -95
6. Refrigerant charge is an approx. value. For a more precise value, see unit nameplate and service instructions.
7. Filter dimension are actual. Norminal filter size 16"x20"

Unit Dimensions - Packaged Rooftop, Cooling / Heating Units
Item: A9 - A12 Qty: 4 Tag(s): RTU-17, RTU-18, RTU-19, RTU-20

ELECTRICAL / GENERAL DATA

UNIT

Model (Tonnage)	YCD420 (35.0)
Operating voltage range:	414 - 506
Primary voltage:	460
Hertz:	60
Phase:	3
EER / IEER:	10.5 EER/13.6 EER

HEATING - PERFORMANCE

Heat:	Low Modulating
Heating Input (mbh):	350,000
First Stage (mbh):	70,000
Heating Output (mbh):	283,500
First Stage (mbh):	56,700
No Burners:	1
No. Stages / Turn Down Rate:	5.1
Gas Supply Pressure (in w.c.)	
Natural or LP:	2.5/14.0
Gas Connection Pipe Size:	3/4"

COMPRESSOR

Number	1/2
Tons	6.0/11.0
Compressor Rated Load Amps	14.1/19.2
Locked Rotor Amps	98.0/147.0

ELECTRIC HEATER

Electric Heater kw	N/A
Electric Heater Full Load Amps	N/A

INDOOR MOTOR

Horsepower	15.0
Motor speed (rpm)	1,760
Indoor motor full load amps	18.9

OUTDOOR MOTOR

Number	3
Horsepower	1.1
Phase	1
Outdoor motor full load amps	3.5

EXHAUST MOTOR

Number	N/A
Horsepower	N/A
Phase	N/A
Exhaust motor full load amps	N/A

FILTERS (7)

Type	Throwaway
Furnished	Yes
Number	16
Recommended size	15 1/2"x19 1/2"x4"

REFRIGERANT TYPE (6)

Type	R-410A
Factory Charge (Circuit #1)	38.3 lb
Factory Charge (Circuit #2)	Not Available

Cooling MCA = (1.25 x Load 1) + Load 2 + Load 4

Cooling MOP = (2.25 x Load 1) + Load 2 + Load 4

Notes:
1. LOAD 1= Current of the largest motor (Compressor or Fan Motor); LOAD 2=Sum of the currents of all remaining motors LOAD 3= FLA(Full Load Amps) of the electric heater; LOAD 4= Any other load rated at 1 amp or more.
2. For Electric Heat MCA, MOP, RDE values, calculate for both cooling and heating modes.
3. If selected Max Over Cur is less than the Min Cir Amp, then select the lowest maximum fuse size which is equal to or larger than the Min Cir Amp, provided the selected fuse size does not exceed 800 amps.
4. The use of Liquid Propane (LP) requires unit modification. Contact a Trane salesman for information.
5. Compressor KW at AHRI rating conditions of 80/67 -95
6. Refrigerant charge is an approx. value. For a more precise value, see unit nameplate and service instructions.
7. Filter dimension are actual. Norminal filter size 16"x20"

Unit Dimensions - Packaged Rooftop, Cooling / Heating Units
Item: A13 Qty: 1 Tag(s): RTU-21

ELECTRICAL / GENERAL DATA

UNIT

Model (Tonnage)	YCD360 (30.0)
Operating voltage range:	414 - 506
Primary voltage:	460
Hertz:	60
Phase:	3
EER / IEER:	10.6 EER/13.3 EER

HEATING - PERFORMANCE

Heat:	Low Modulating
Heating Input (mbh):	350,000
First Stage (mbh):	70,000
Heating Output (mbh):	283,500
First Stage (mbh):	56,700
No Burners:	1
No. Stages / Turn Down Rate:	5.1
Gas Supply Pressure (in w.c.)	
Natural or LP:	2.5/14.0
Gas Connection Pipe Size:	3/4"

COMPRESSOR

Number	1/2
Tons	6.0/10.0
Compressor Rated Load Amps	14.1/18.6
Locked Rotor Amps	98.0/142.0

ELECTRIC HEATER

Electric Heater kw	N/A
Electric Heater Full Load Amps	N/A

INDOOR MOTOR

Horsepower	10.0
Motor speed (rpm)	1,760
Indoor motor full load amps	12.6

OUTDOOR MOTOR

Number	3
Horsepower	1.1
Phase	1
Outdoor motor full load amps	3.5

EXHAUST MOTOR

Number	1
Horsepower	1.0
Phase	3
Exhaust motor full load amps	1.8

FILTERS (7)

Type	Throwaway
Furnished	Yes
Number	16
Recommended size	15 1/2"x19 1/2"x4"

REFRIGERANT TYPE (6)

Type	R-410A
Factory Charge (Circuit #1)	37.8 lb
Factory Charge (Circuit #2)	Not Available

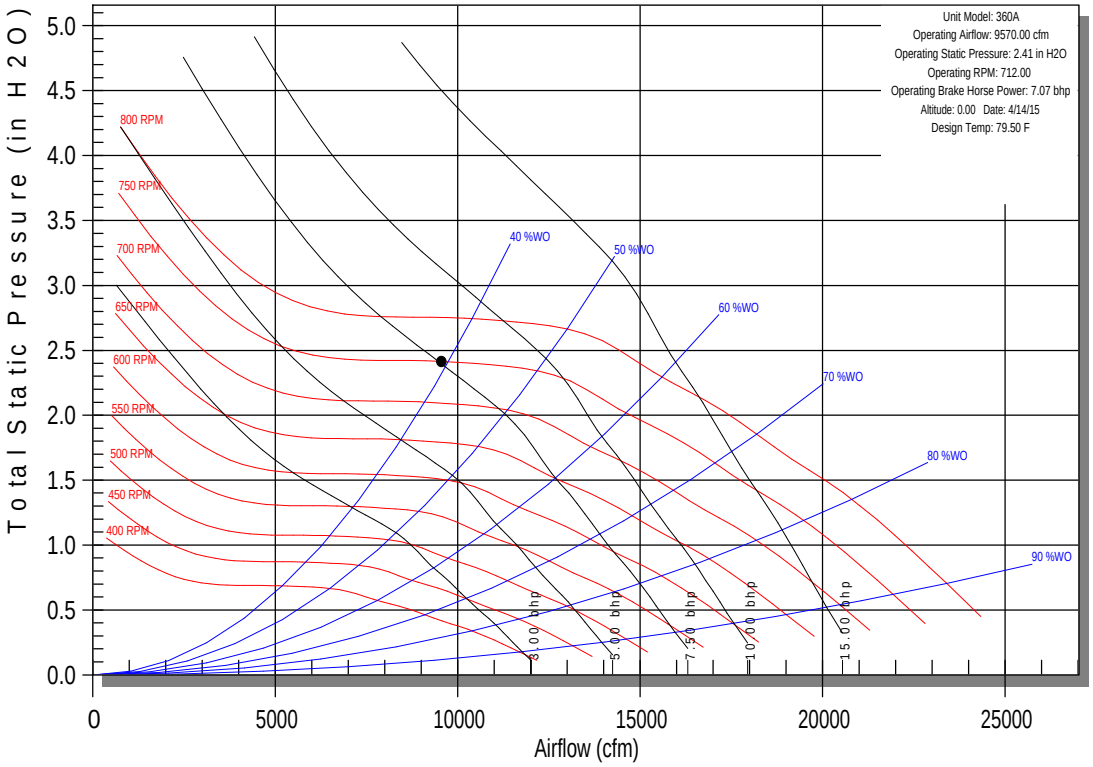
Cooling MCA = (1.25 x Load 1) + Load 2 + Load 4

Cooling MOP = (2.25 x Load 1) + Load 2 + Load 4

Notes:
1. LOAD 1= Current of the largest motor (Compressor or Fan Motor); LOAD 2=Sum of the currents of all remaining motors LOAD 3= FLA(Full Load Amps) of the electric heater; LOAD 4= Any other load rated at 1 amp or more.
2. For Electric Heat MCA, MOP, RDE values, calculate for both cooling and heating modes.
3. If selected Max Over Cur is less than the Min Cir Amp, then select the lowest maximum fuse size which is equal to or larger than the Min Cir Amp, provided the selected fuse size does not exceed 800 amps.
4. The use of Liquid Propane (LP) requires unit modification. Contact a Trane salesman for information.
5. Compressor KW at AHRI rating conditions of 80/67 -95
6. Refrigerant charge is an approx. value. For a more precise value, see unit nameplate and service instructions.
7. Filter dimension are actual. Norminal filter size 16"x20"

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A1 Qty: 1 Tag(s): RTU-3

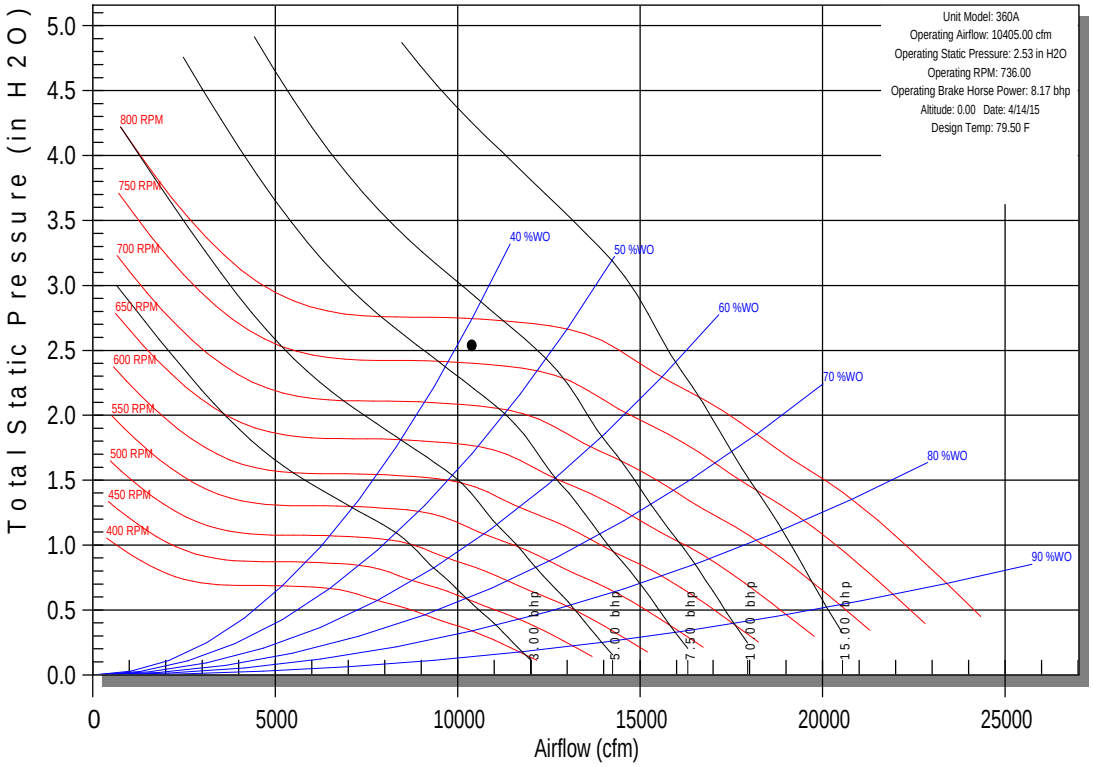
V36



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	84	81	82	76	73	69	64
Return duct:	87	78	70	72	68	62	57	53
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A2 Qty: 1 Tag(s): RTU-7

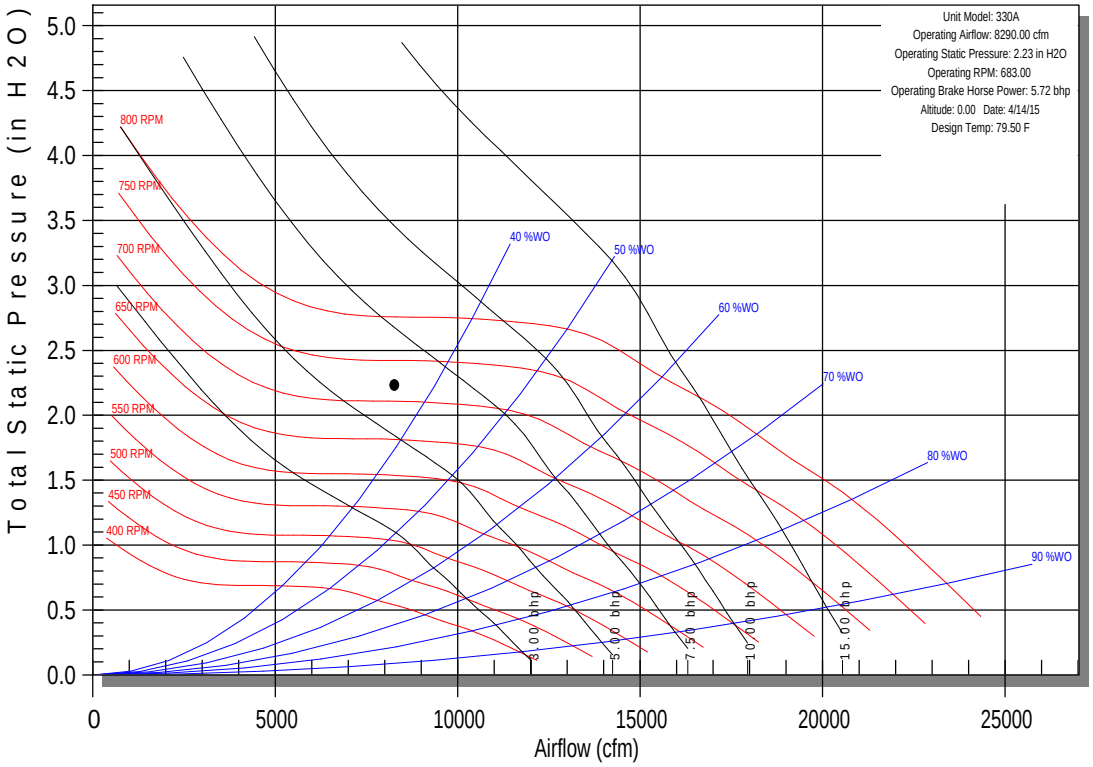
V36



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	85	81	83	77	74	70	64
Return duct:	87	78	72	73	70	63	59	53
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A3 Qty: 1 Tag(s): RTU-8

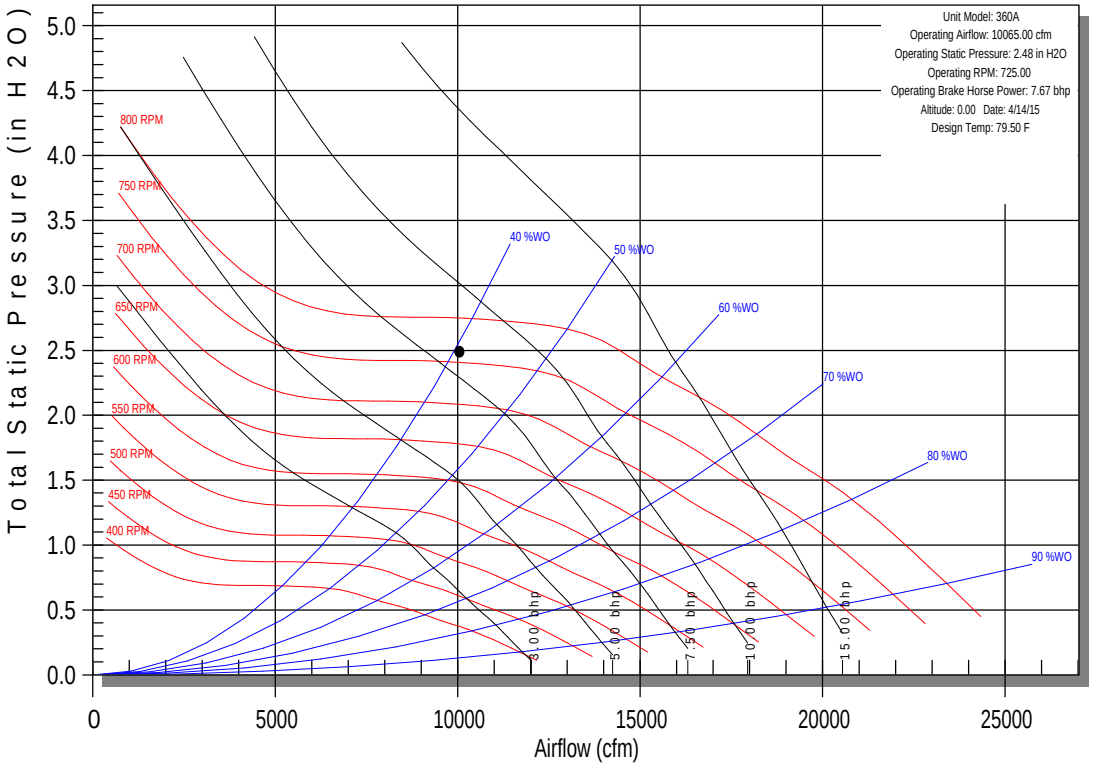
V33



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	82	79	81	74	71	67	63
Return duct:	89	78	68	70	65	59	55	51
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A4 Qty: 1 Tag(s): RTU-9

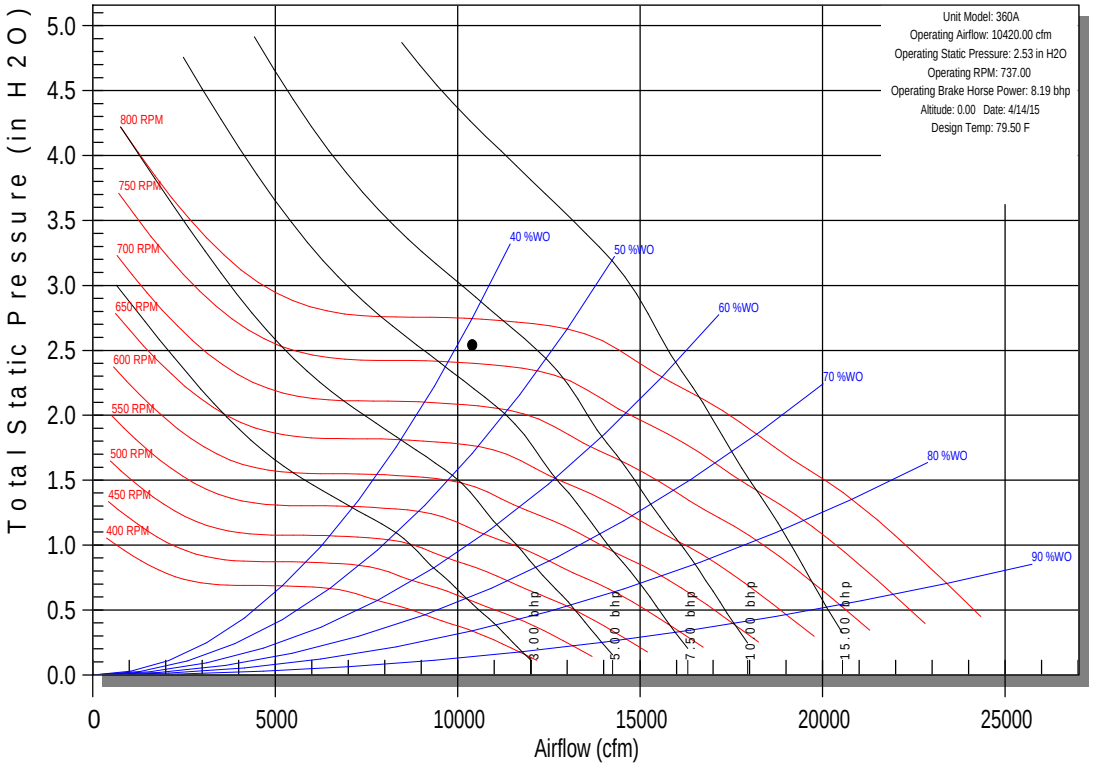
V36



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	84	81	82	77	74	70	64
Return duct:	87	78	71	72	69	63	58	53
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A5 Qty: 1 Tag(s): RTU-10

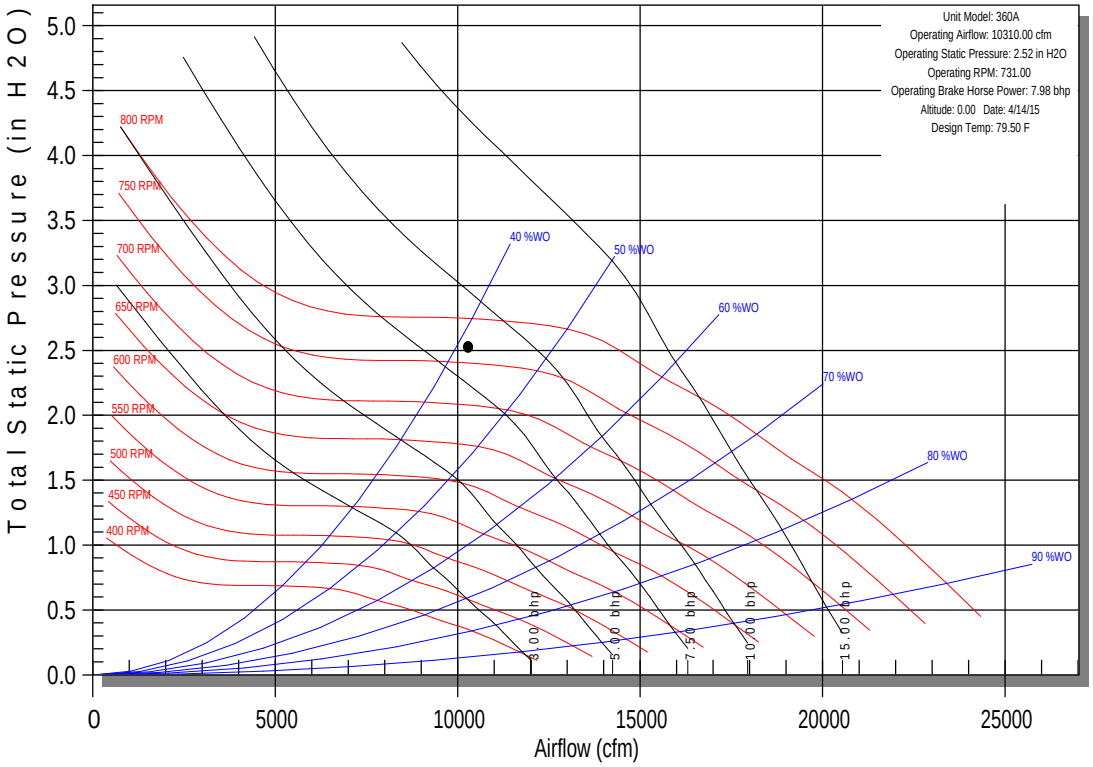
V36



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	85	81	83	77	74	70	64
Return duct:	87	78	72	73	70	63	59	53
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A6 Qty: 1 Tag(s): RTU-13

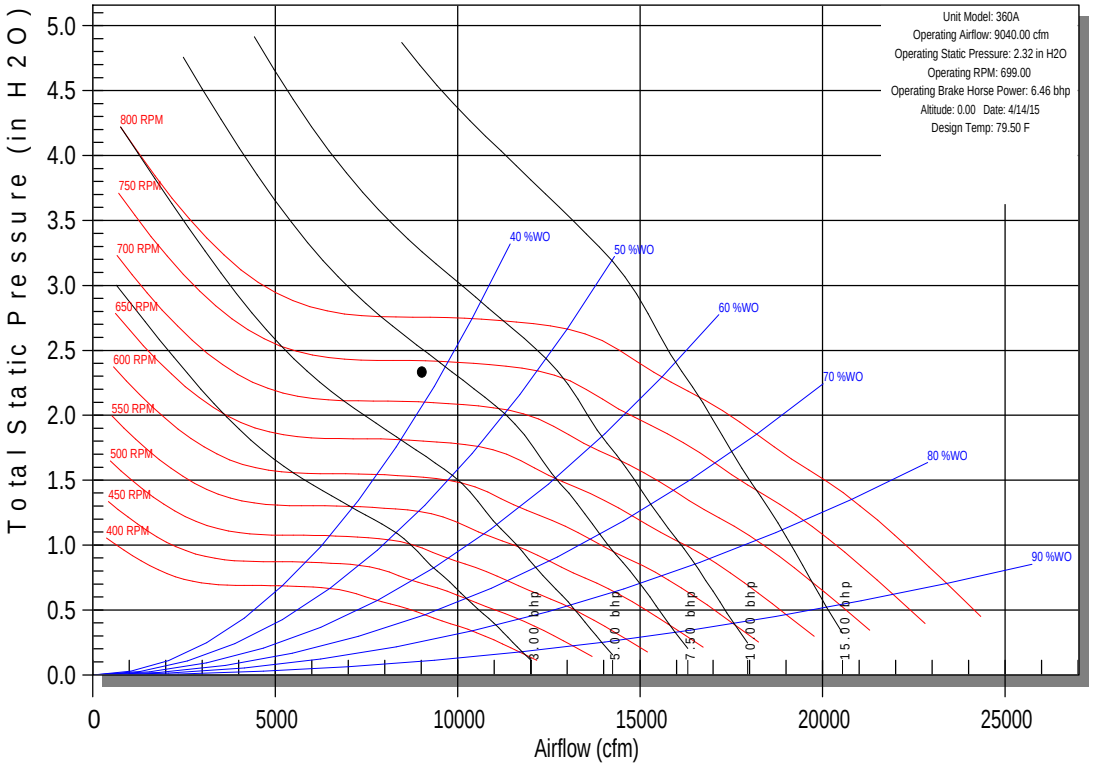
V36



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	84	81	82	77	74	70	64
Return duct:	87	78	71	73	69	63	59	53
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A7 Qty: 1 Tag(s): RTU-15

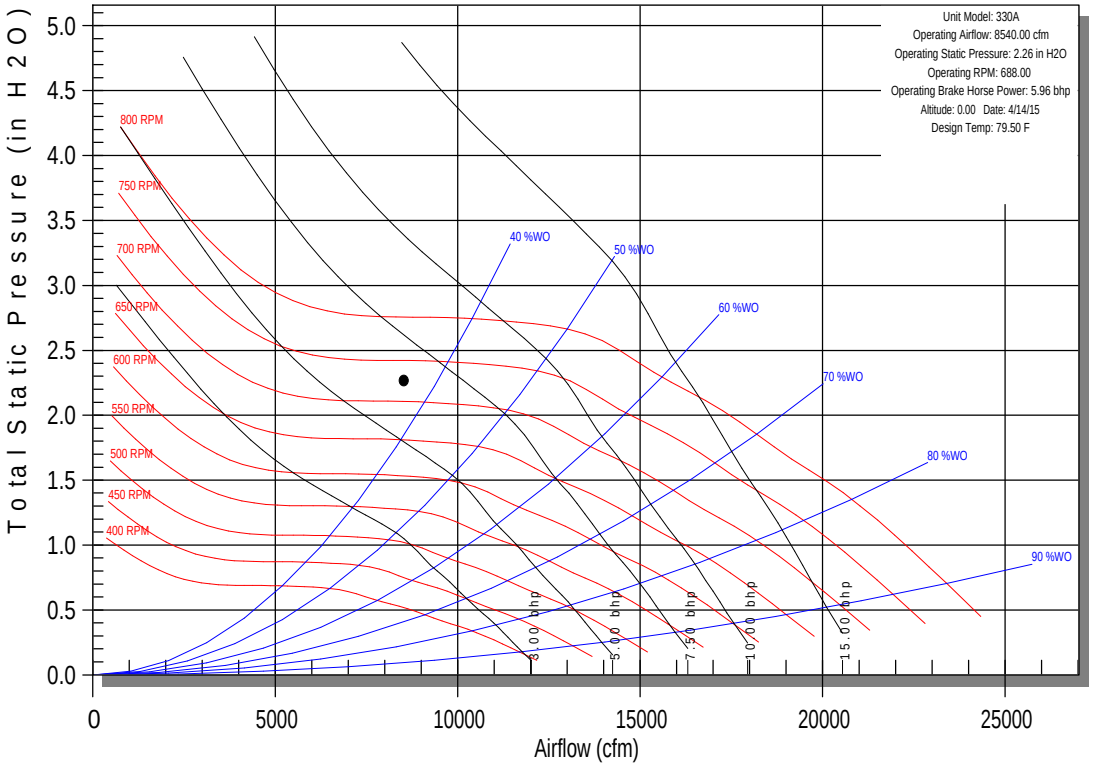
V36



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	83	80	82	75	72	68	64
Return duct:	88	78	69	71	67	61	56	52
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A8 Qty: 1 Tag(s): RTU-16

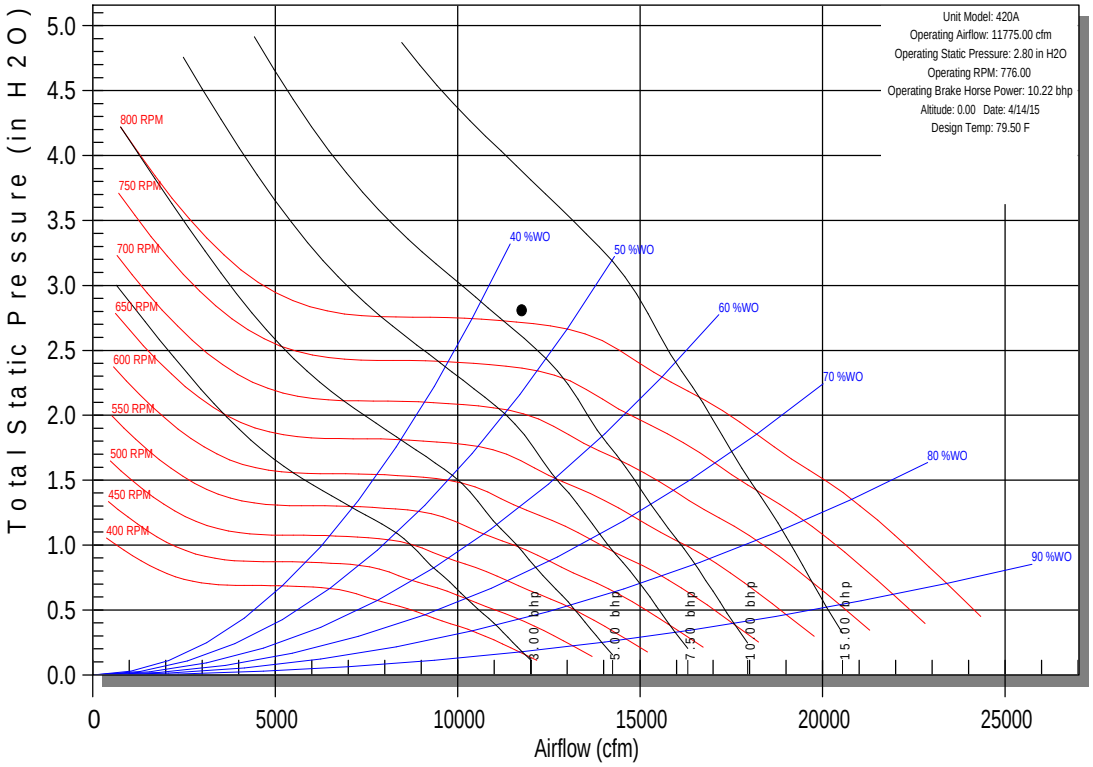
V33



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	83	80	82	75	72	68	63
Return duct:	88	78	69	71	66	60	56	51
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A9 Qty: 1 Tag(s): RTU-17

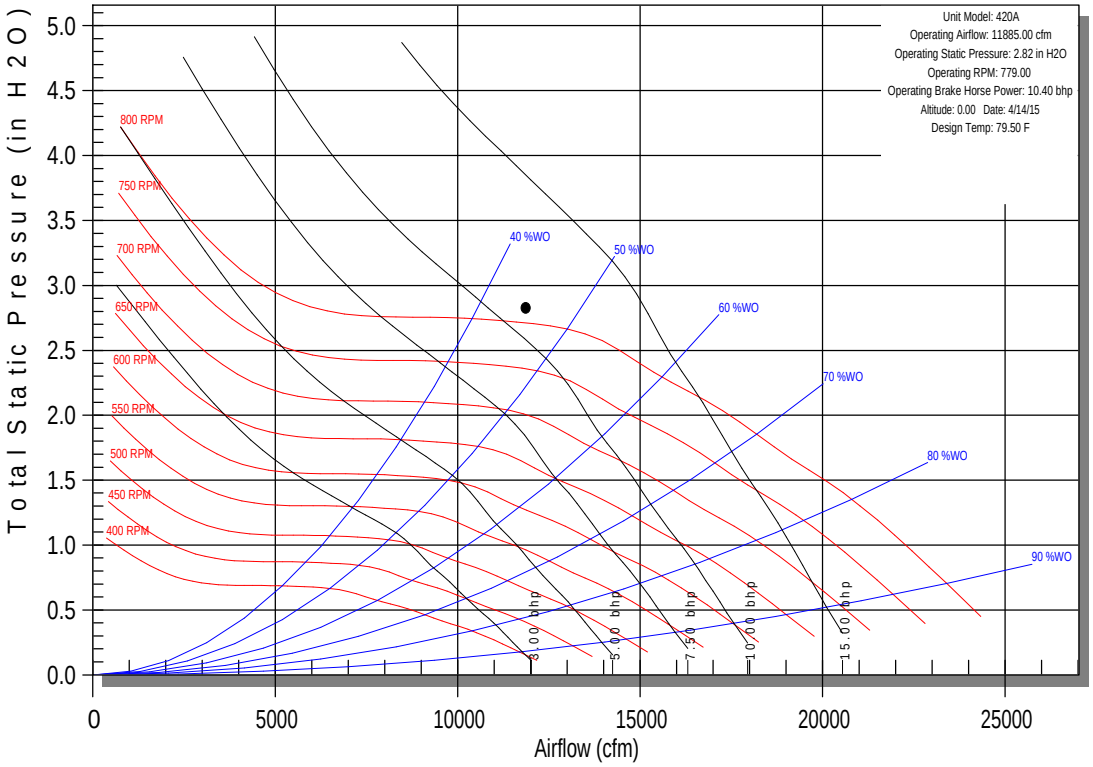
V42



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	88	83	85	77	74	70	65
Return duct:	88	78	74	77	72	64	62	55
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A10 Qty: 1 Tag(s): RTU-18

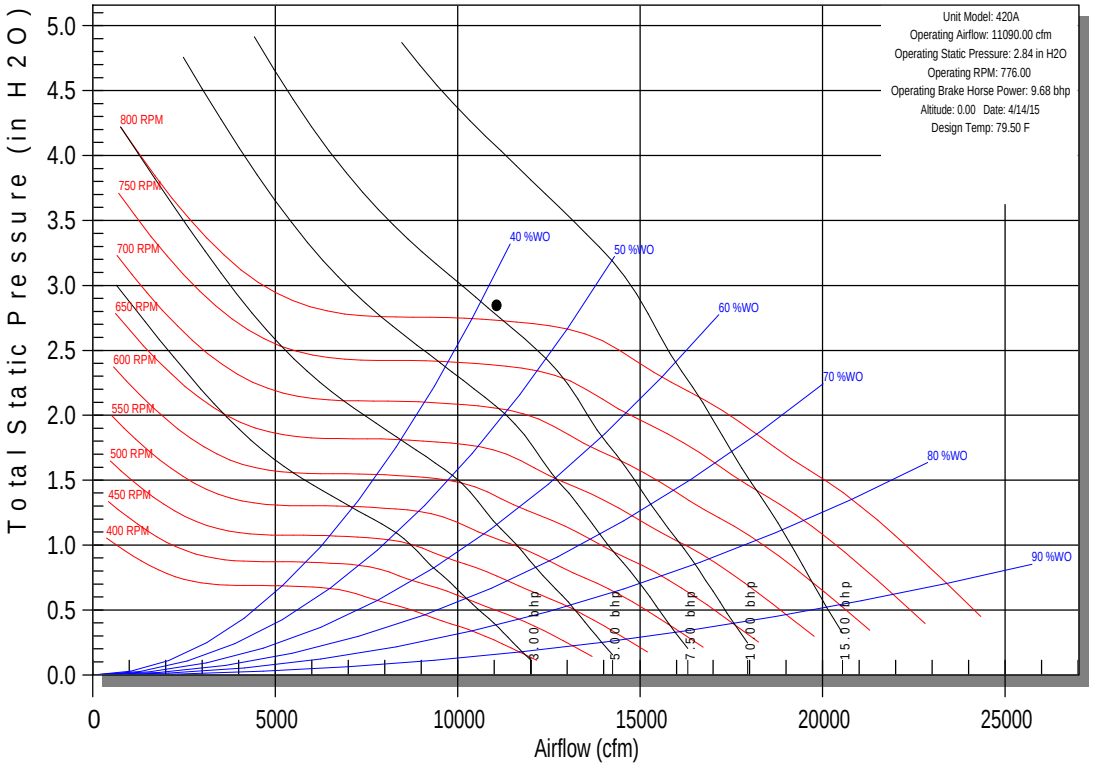
V42



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	88	83	85	77	74	70	65
Return duct:	88	78	74	77	72	64	62	55
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A11 Qty: 1 Tag(s): RTU-19

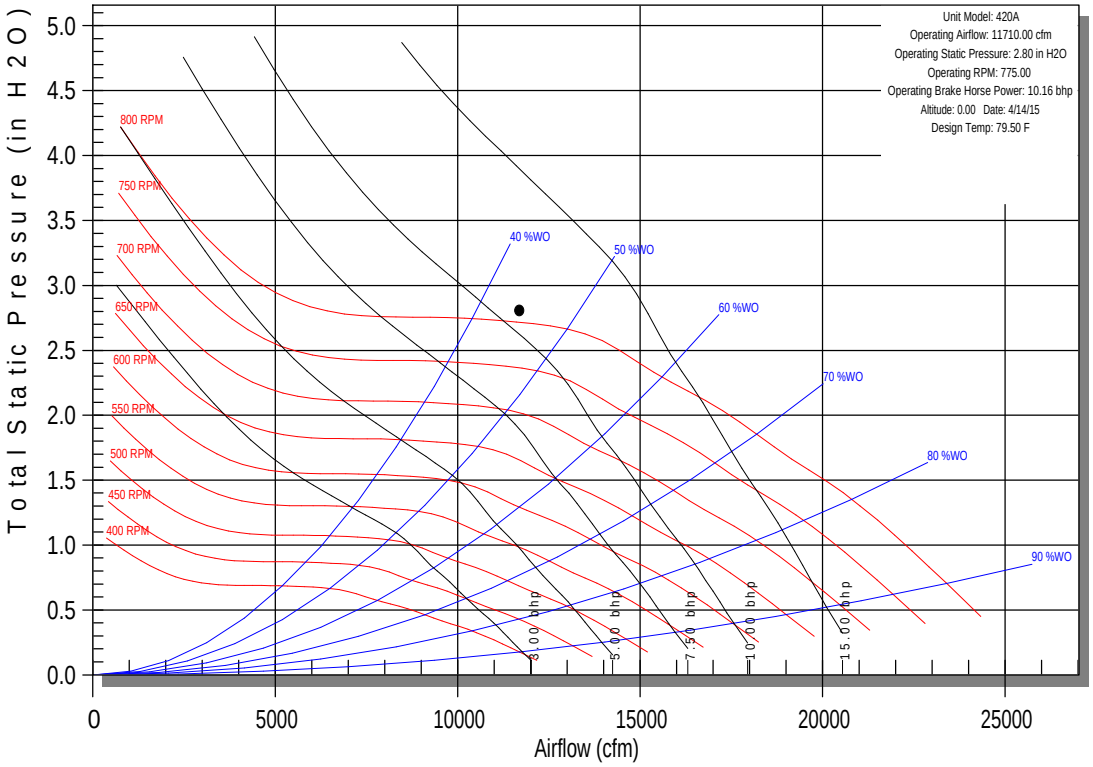
V42



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	86	82	83	78	75	71	65
Return duct:	88	78	73	75	71	64	61	55
Outdoor sound:	100	96	97	96	93	89	90	83

Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A12 Qty: 1 Tag(s): RTU-20

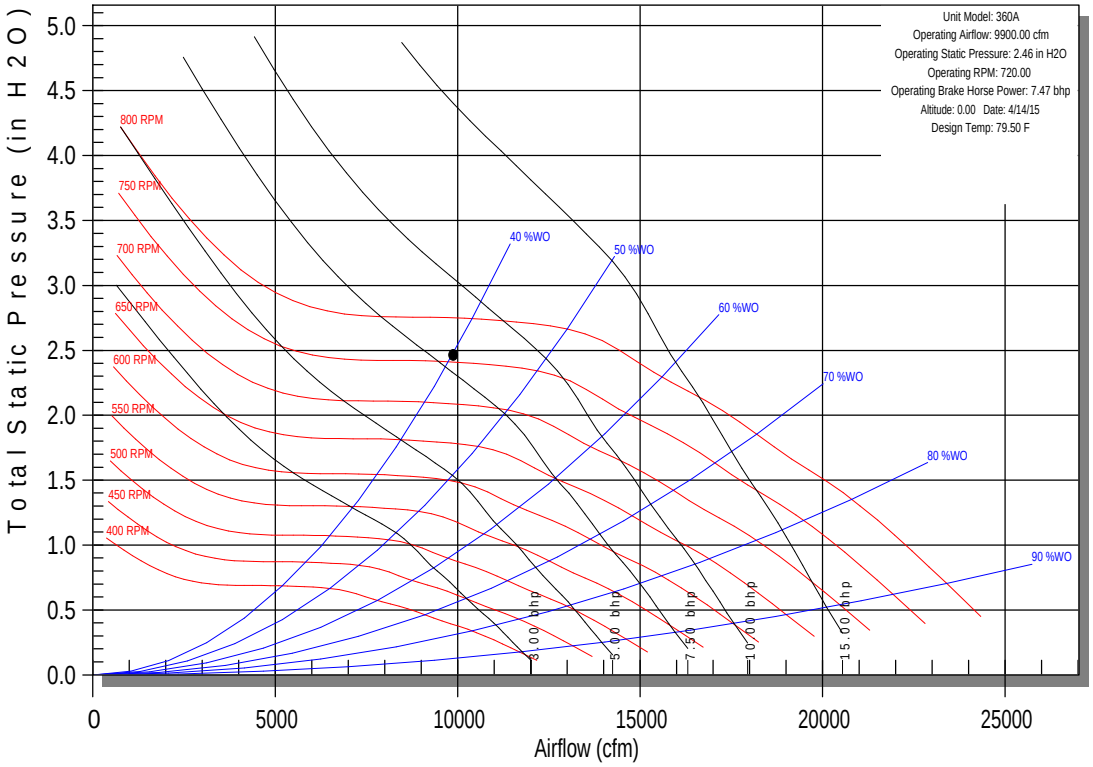
V42



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	88	83	84	77	74	70	65
Return duct:	88	78	74	76	72	64	62	55
Outdoor sound:	100	96	97	96	93	89	90	83

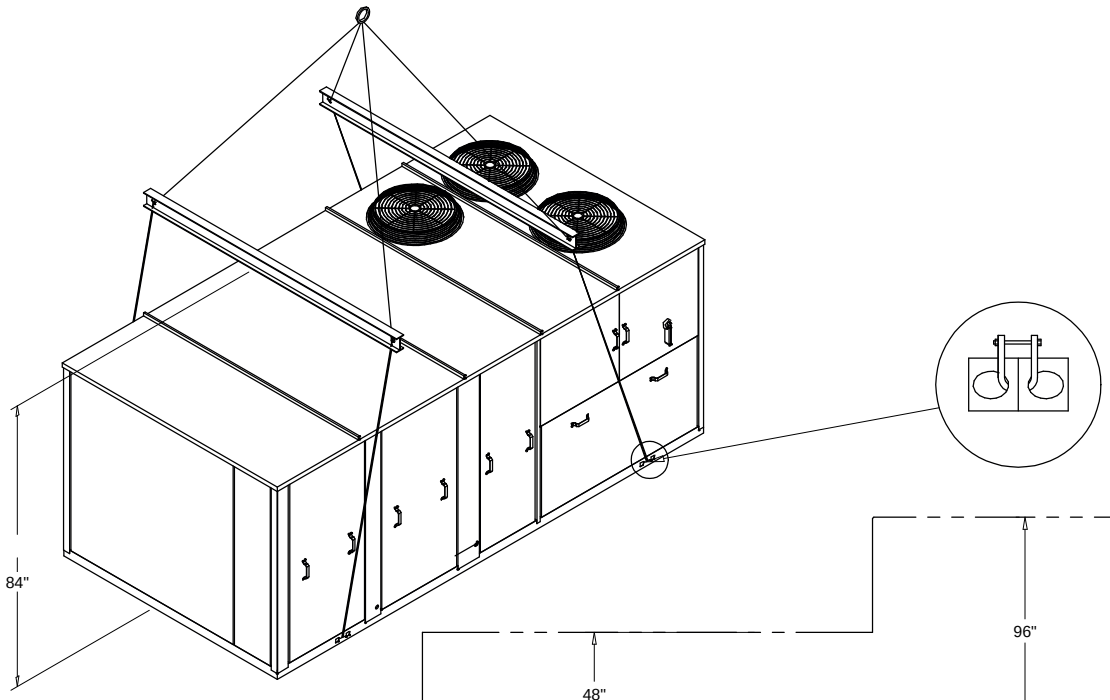
Fan Curve - Packaged Rooftop, Cooling / Heating Units
Item: A13 Qty: 1 Tag(s): RTU-21

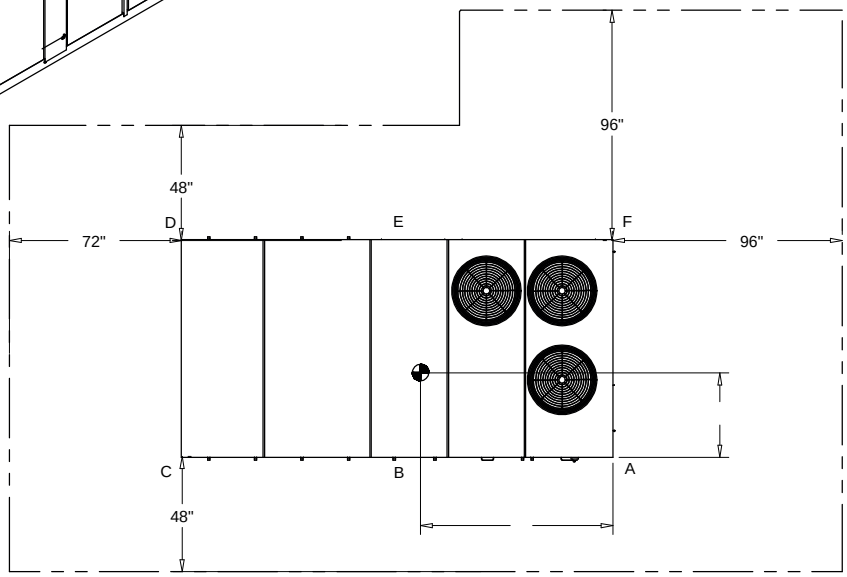
V36



	63Hz	125Hz	250Hz	500Hz	1 kHz	2 kHz	4 kHz	8 kHz
Discharge duct:	87	84	81	82	77	74	70	64
Return duct:	87	78	71	72	69	63	58	53
Outdoor sound:	100	96	97	96	93	89	90	83

Weight, Clearance & Rigging Diagram - Packaged Rooftop, Cooling / Heating Units
Item: A1, A2, A4 - A7 Qty: 6 Tag(s): RTU-3, RTU-7, RTU-9, RTU-10, RTU-13, RTU-15





CLEARANCE NOTES:
1. HORIZONTAL AND DOWNFLOW UNITS, ALL SIZES.
2. CONDENSER COIL IS LOCATED AT THE END AND SIDE OF THE UNIT.
3. CLEARANCES ON MULTIPLE UNIT INSTALLATIONS ARE DISTANCES BETWEEN UNITS.
4. ECONO / EXHAUST END MULTIPLE UNITS 144".
5. CONDENSER COIL END/SIDE 192" TO 96"
6. SERVICE SIDE ACCESS 96"

MAXIMUM OPERATION WEIGHT: 6015.0 lb
MINIMUM OPERATION WEIGHT: 3950.0 lb

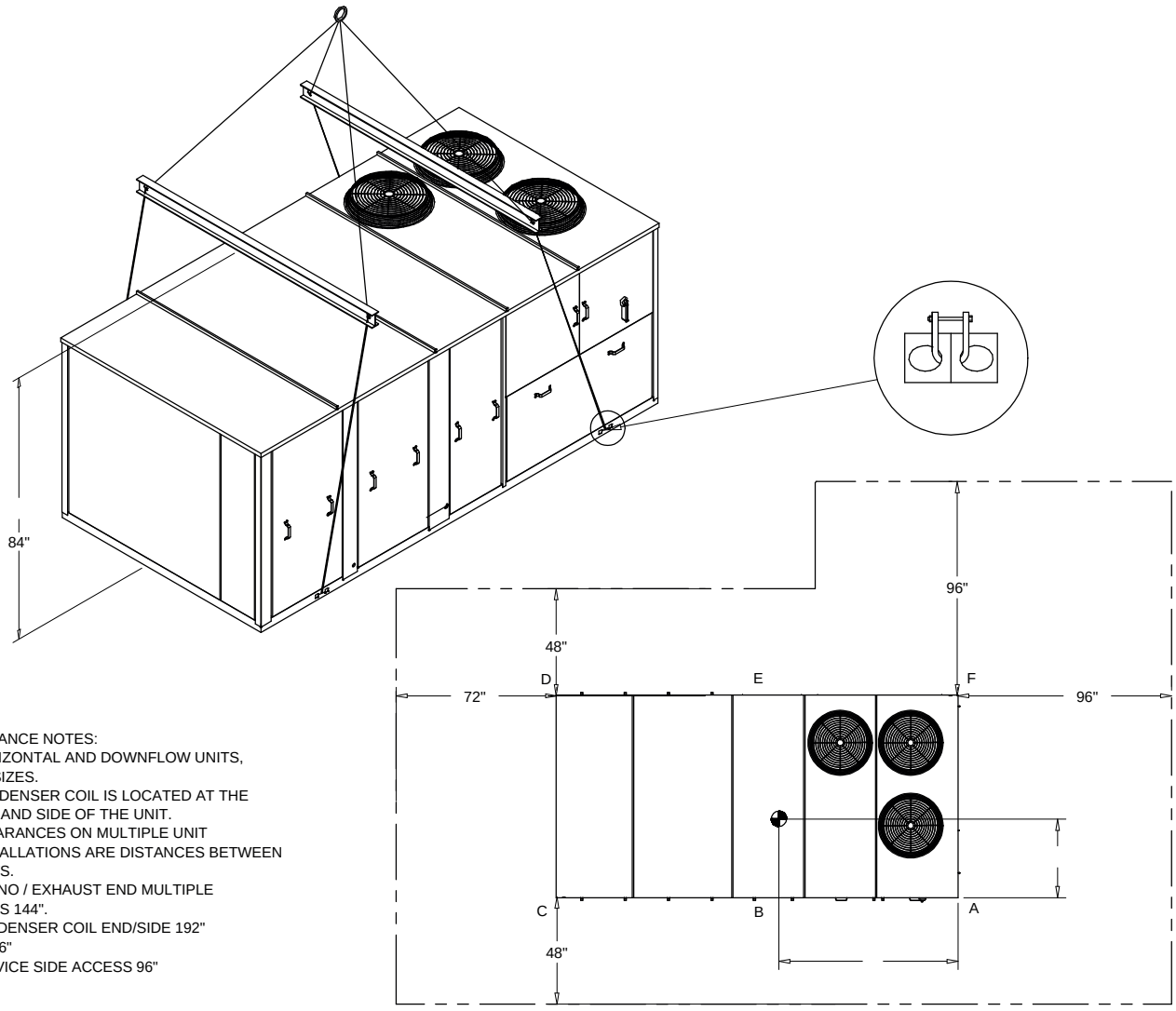
CENTER OF GRAVITY					
X	43"		Y	77"	

CORNER LOADING PERCENTS					
A	B	C	D	E	F
21%	16%	18%	17%	14%	15%

OPTIONAL COMPONENTS					
POWER EXHAUST	"	BARO. RELIEF	110.0 lb	SERVICE VALVES	"
ECONOMIZER	260.0 lb	THRU-BASE ELECTRICAL	6.0 lb	HI-EFF SUP. FAN	"
MANUAL DAMPERS	"	GFI WITH DISCON. SWITCH	85.0 lb	DISC. SWITCH	"
INLET GUIDE VANES	"	HI-EFF COND COIL	N/A	VFD	85.0 lb
COIL HAIL GUARD	105.0 lb	MOD. HOT GAS REHEAT			

WEIGHT NOTES:
1. BASIC UNIT WEIGHT INCLUDES MINIMUM HORSEPOWER SUPPLY FAN MOTOR AND STANDARD EFFICIENCY 2-ROW CONDENSER COIL.
2. OPTIONAL HIGH EFFICIENCY MOTOR WEIGHTS ARE IN ADDITION TO THE STANDARD MOTOR WEIGHTS INCLUDED IN THE ASIC UNIT WEIGHT
3. OPTIONAL HIGH EFFICIENCY 3-ROW CONDENSER COIL WEIGHTS ARE IN ADDITION TO THE STANDARD
4. 2-ROW COIL WEIGHT INCLUDED IN THE BASIC UNIT WEIGHT
5. WHEN AN OPTIONAL HIGH EFFICIENCY SUPPLY FAN MOTOR IS SELECTED, THE WEIGHT SHOWN SHOULD BE ADDED TO THE BASIC UNIT WEIGHT.
6. WHEN AN OPTIONAL HIGH EFFICIENCY CONDENSER COIL IS SELECTED, THE WEIGHT SHOWN SHOULD BE ADDED TO THE BASIC UNIT WEIGHT.
7. THE ACTUAL WEIGHT IS STAMPED ON THE UNIT NAMEPLATE.
8. THE WEIGHT SHOWN REPRESENT THE TYPICAL UNIT OPERATING WEIGHT FOR THE UNIT SELECTED
9. DESIGN SPECIAL WEIGHT ARE NOT INCLUDED IN THE SUBMITTAL.

Weight, Clearance & Rigging Diagram - Packaged Rooftop, Cooling / Heating Units
Item: A3, A8 Qty: 2 Tag(s): RTU-8, RTU-16



CLEARANCE NOTES:
1. HORIZONTAL AND DOWNFLOW UNITS, ALL SIZES.
2. CONDENSER COIL IS LOCATED AT THE END AND SIDE OF THE UNIT.
3. CLEARANCES ON MULTIPLE UNIT INSTALLATIONS ARE DISTANCES BETWEEN UNITS.
4. ECONO / EXHAUST END MULTIPLE UNITS 144".
5. CONDENSER COIL END/SIDE 192" TO 96"
6. SERVICE SIDE ACCESS 96"

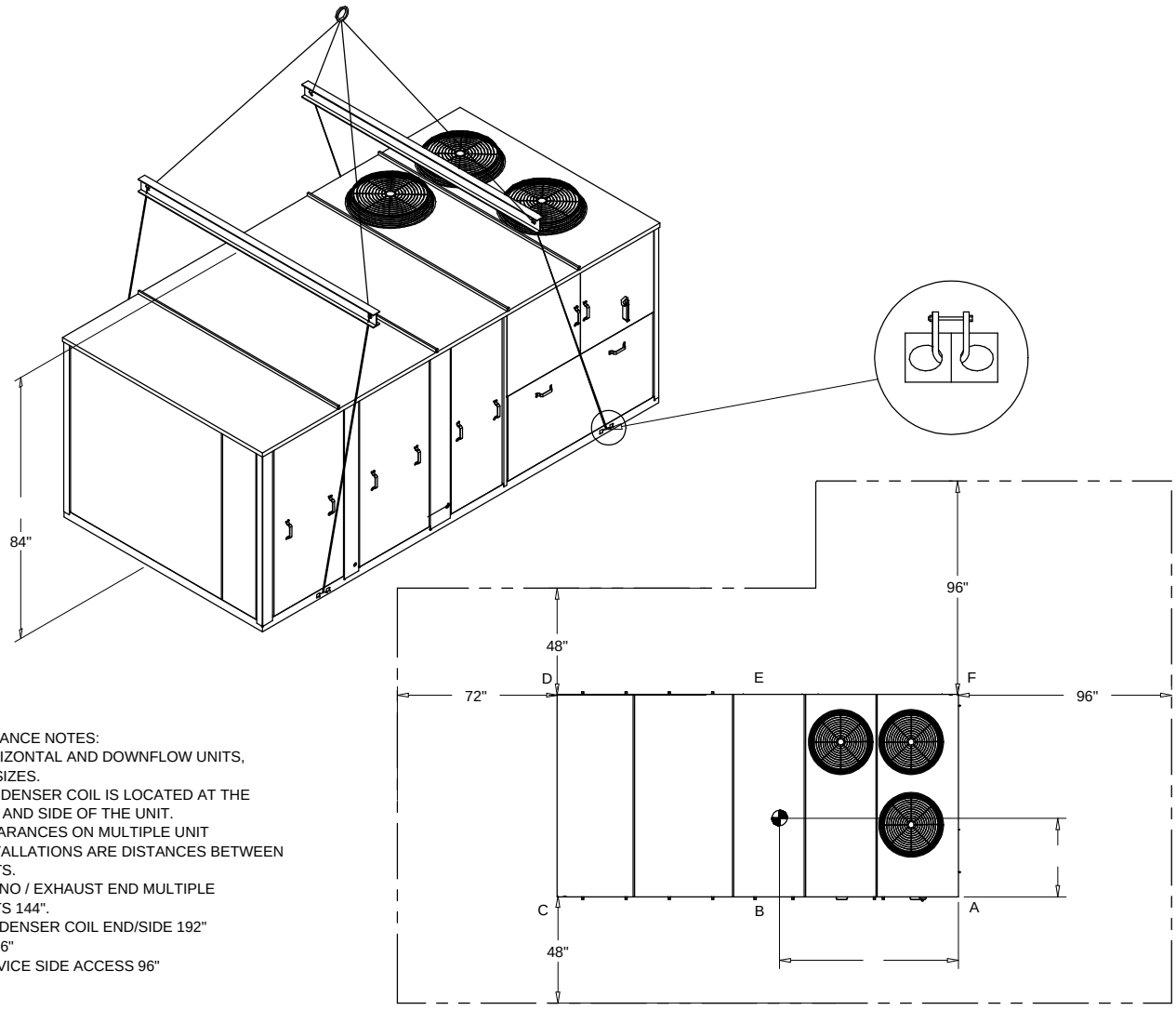
MAXIMUM OPERATION WEIGHT: 5995.0 lb
MINIMUM OPERATION WEIGHT: 3925.0 lb

CENTER OF GRAVITY					
X	41"		Y	76"	
CORNER LOADING PERCENTS					
A	B	C	D	E	F
21%	17%	18%	18%	15%	12%

OPTIONAL COMPONENTS					
POWER EXHAUST	"	BARO. RELIEF	110.0 lb	SERVICE VALVES	"
ECONOMIZER	260.0 lb	THRU-BASE ELECTRICAL	6.0 lb	HI-EFF SUP. FAN	"
MANUAL DAMPERS	"	GFI WITH DISCON. SWITCH	85.0 lb	DISC. SWITCH	"
INLET GUIDE VANES	"	HI-EFF COND COIL	N/A	VFD	85.0 lb
COIL HAIL GUARD	105.0 lb	MOD. HOT GAS REHEAT			

WEIGHT NOTES:
1. BASIC UNIT WEIGHT INCLUDES MINIMUM HORSEPOWER SUPPLY FAN MOTOR AND STANDARD EFFICIENCY 2-ROW CONDENSER COIL.
2. OPTIONAL HIGH EFFICIENCY MOTOR WEIGHTS ARE IN ADDITION TO THE STANDARD MOTOR WEIGHTS INCLUDED IN THE ASIC UNIT WEIGHT
3. OPTIONAL HIGH EFFICIENCY 3-ROW CONDENSER COIL WEIGHTS ARE IN ADDITION TO THE STANDARD
4. 2-ROW COIL WEIGHT INCLUDED IN THE BASIC UNIT WEIGHT
5. WHEN AN OPTIONAL HIGH EFFICIENCY SUPPLY FAN MOTOR IS SELECTED, THE WEIGHT SHOWN SHOULD BE ADDED TO THE BASIC UNIT WEIGHT.
6. WHEN AN OPTIONAL HIGH EFFICIENCY CONDENSER COIL IS SELECTED, THE WEIGHT SHOWN SHOULD BE ADDED TO THE BASIC UNIT WEIGHT.
7. THE ACTUAL WEIGHT IS STAMPED ON THE UNIT NAMEPLATE.
8. THE WEIGHT SHOWN REPRESENT THE TYPICAL UNIT OPERATING WEIGHT FOR THE UNIT SELECTED
9. DESIGN SPECIAL WEIGHT ARE NOT INCLUDED IN THE SUBMITTAL.

Weight, Clearance & Rigging Diagram - Packaged Rooftop, Cooling / Heating Units
Item: A9 - A12 Qty: 4 Tag(s): RTU-17, RTU-18, RTU-19, RTU-20



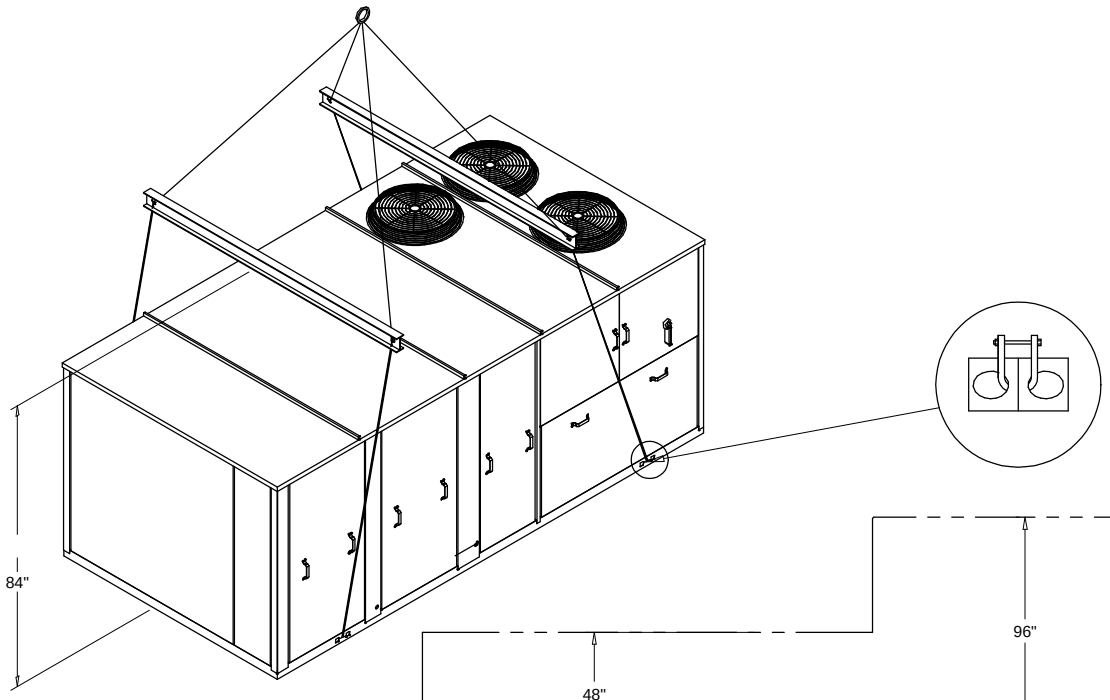
CLEARANCE NOTES:
1. HORIZONTAL AND DOWNFLOW UNITS, ALL SIZES.
2. CONDENSER COIL IS LOCATED AT THE END AND SIDE OF THE UNIT.
3. CLEARANCES ON MULTIPLE UNIT INSTALLATIONS ARE DISTANCES BETWEEN UNITS.
4. ECONO / EXHAUST END MULTIPLE UNITS 144".
5. CONDENSER COIL END/SIDE 192" TO 96"
6. SERVICE SIDE ACCESS 96"

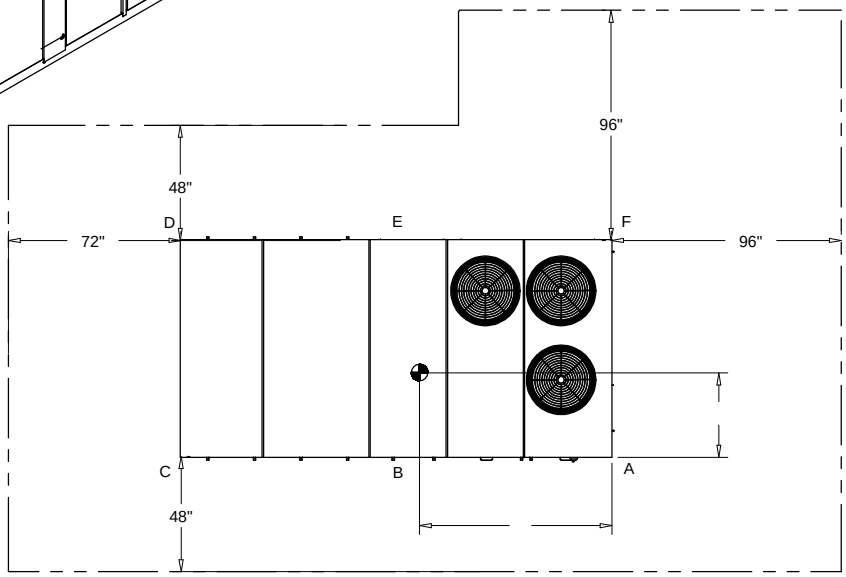
MAXIMUM OPERATION WEIGHT:	6060.0 lb
MINIMUM OPERATION WEIGHT:	3995.0 lb

CENTER OF GRAVITY						OPTIONAL COMPONENTS					
X	42"	Y	78"			POWER EXHAUST	"	BARO. RELIEF	110.0 lb	SERVICE VALVES	"
CORNER LOADING PERCENTS						ECONOMIZER	260.0 lb	THRU-BASE ELECTRICAL	6.0 lb	HI-EFF SUP. FAN	"
A	B	C	D	E	F	MANUAL DAMPERS	"	GFI WITH DISCON. SWITCH	85.0 lb	DISC. SWITCH	"
20%	20%	16%	17%	14%	15%	INLET GUIDE VANES	"	HI-EFF COND COIL	N/A	VFD	85.0 lb
						COIL HAIL GUARD	105.0 lb	MOD. HOT GAS REHEAT			

WEIGHT NOTES:
1. BASIC UNIT WEIGHT INCLUDES MINIMUM HORSEPOWER SUPPLY FAN MOTOR AND STANDARD EFFICIENCY 2-ROW CONDENSER COIL.
2. OPTIONAL HIGH EFFICIENCY MOTOR WEIGHTS ARE IN ADDITION TO THE STANDARD MOTOR WEIGHTS INCLUDED IN THE ASIC UNIT WEIGHT
3. OPTIONAL HIGH EFFICIENCY 3-ROW CONDENSER COIL WEIGHTS ARE IN ADDITION TO THE STANDARD
4. 2-ROW COIL WEIGHT INCLUDED IN THE BASIC UNIT WEIGHT
5. WHEN AN OPTIONAL HIGH EFFICIENCY SUPPLY FAN MOTOR IS SELECTED, THE WEIGHT SHOWN SHOULD BE ADDED TO THE BASIC UNIT WEIGHT.
6. WHEN AN OPTIONAL HIGH EFFICIENCY CONDENSER COIL IS SELECTED, THE WEIGHT SHOWN SHOULD BE ADDED TO THE BASIC UNIT WEIGHT.
7. THE ACTUAL WEIGHT IS STAMPED ON THE UNIT NAMEPLATE.
8. THE WEIGHT SHOWN REPRESENT THE TYPICAL UNIT OPERATING WEIGHT FOR THE UNIT SELECTED
9. DESIGN SPECIAL WEIGHT ARE NOT INCLUDED IN THE SUBMITTAL.

Weight, Clearance & Rigging Diagram - Packaged Rooftop, Cooling / Heating Units
Item: A13 Qty: 1 Tag(s): RTU-21





CLEARANCE NOTES:
1. HORIZONTAL AND DOWNFLOW UNITS, ALL SIZES.
2. CONDENSER COIL IS LOCATED AT THE END AND SIDE OF THE UNIT.
3. CLEARANCES ON MULTIPLE UNIT INSTALLATIONS ARE DISTANCES BETWEEN UNITS.
4. ECONO / EXHAUST END MULTIPLE UNITS 144".
5. CONDENSER COIL END/SIDE 192" TO 96"
6. SERVICE SIDE ACCESS 96"

MAXIMUM OPERATION WEIGHT: 6015.0 lb
MINIMUM OPERATION WEIGHT: 3950.0 lb

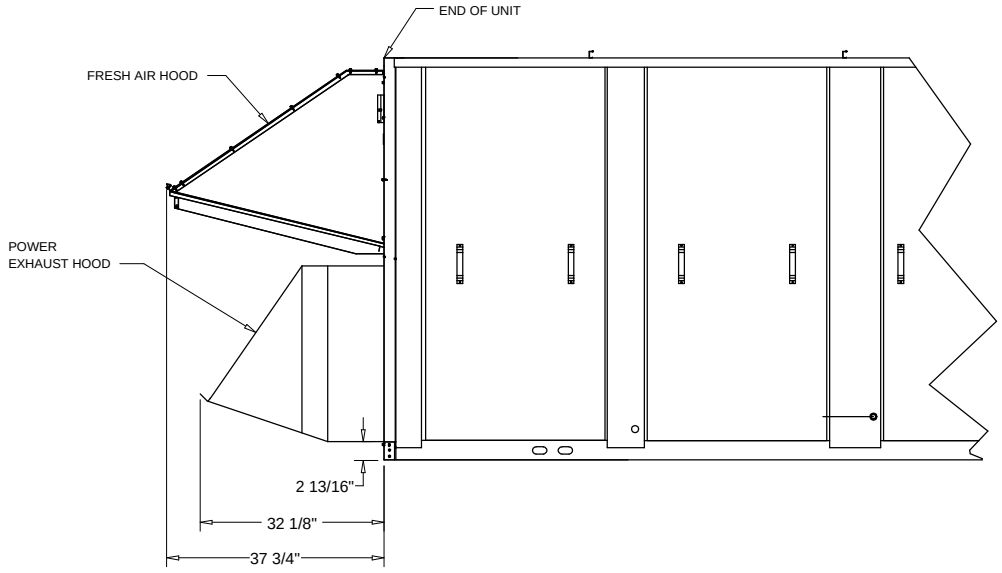
CENTER OF GRAVITY					
X	43"		Y	77"	
CORNER LOADING PERCENTS					
A	B	C	D	E	F
21%	16%	18%	17%	14%	15%

OPTIONAL COMPONENTS					
POWER EXHAUST	165.0 lb	BARO. RELIEF	"	SERVICE VALVES	"
ECONOMIZER	260.0 lb	THRU-BASE ELECTRICAL	6.0 lb	HI-EFF SUP. FAN	"
MANUAL DAMPERS	"	GFI WITH DISCON. SWITCH	85.0 lb	DISC. SWITCH	"
INLET GUIDE VANES	"	HI-EFF COND COIL	N/A	VFD	85.0 lb
COIL HAIL GUARD	105.0 lb	MOD. HOT GAS REHEAT			

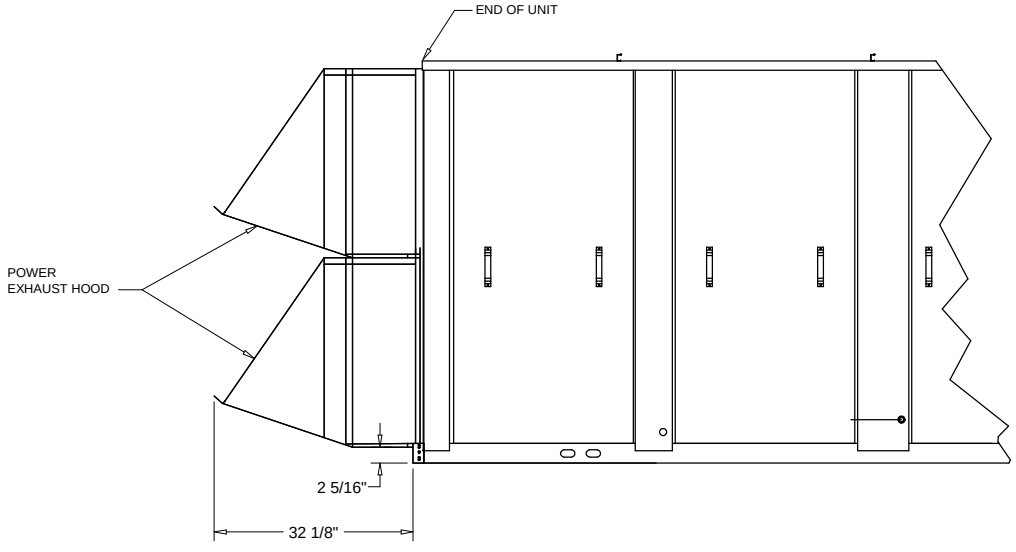
WEIGHT NOTES:
1. BASIC UNIT WEIGHT INCLUDES MINIMUM HORSEPOWER SUPPLY FAN MOTOR AND STANDARD EFFICIENCY 2-ROW CONDENSER COIL.
2. OPTIONAL HIGH EFFICIENCY MOTOR WEIGHTS ARE IN ADDITION TO THE STANDARD MOTOR WEIGHTS INCLUDED IN THE ASIC UNIT WEIGHT
3. OPTIONAL HIGH EFFICIENCY 3-ROW CONDENSER COIL WEIGHTS ARE IN ADDITION TO THE STANDARD
4. 2-ROW COIL WEIGHT INCLUDED IN THE BASIC UNIT WEIGHT
5. WHEN AN OPTIONAL HIGH EFFICIENCY SUPPLY FAN MOTOR IS SELECTED, THE WEIGHT SHOWN SHOULD BE ADDED TO THE BASIC UNIT WEIGHT.
6. WHEN AN OPTIONAL HIGH EFFICIENCY CONDENSER COIL IS SELECTED, THE WEIGHT SHOWN SHOULD BE ADDED TO THE BASIC UNIT WEIGHT.
7. THE ACTUAL WEIGHT IS STAMPED ON THE UNIT NAMEPLATE.
8. THE WEIGHT SHOWN REPRESENT THE TYPICAL UNIT OPERATING WEIGHT FOR THE UNIT SELECTED
9. DESIGN SPECIAL WEIGHT ARE NOT INCLUDED IN THE SUBMITTAL.

Accessory - Packaged Rooftop, Cooling / Heating Units
Item: A1 - A13 Qty: 13 Tag(s): RTU-3, RTU-7, RTU-8, RTU-9, RTU-10, RTU-13, RTU-15, RTU-16, RTU-17, RTU-18, RTU-19, RTU-20, RTU-21

NOTE:
1. THE TWO HORIZONTAL POWER EXHAUST HOODS AND THE THREE HORIZONTALFRESH AIR HOODS ARE LOCATED SIDE BY SIDE. THE FRESH AIR HOODS (NOT SHOWN) EXTEND ONLY 23 15/16" FROM THE END OF THE UNIT.



FRESH AIR POWER EXHAUST
DOWNFLOW UNITS



POWER EXHAUST HOODS
HORIZONTAL UNITS

HOOD DRAWING FOR HORIZONTAL / DOWNFLOW UNITS
UNIT DETAIL

Tag Data - Packaged Gas/Electric Rooftop Units (Qty: 3)

Item	Tag(s)	Qty	Description	Model Number
B1	RTU-5	1	12 1/2 -25 Ton Packaged Unitary Gas/Ele	YHD300G4RVA--HGE1C2B600AB0000000000000
B2	RTU-6	1	12 1/2 -25 Ton Packaged Unitary Gas/Ele	YHD240G4RVA--HGE1C2B600AB0000000000000
B3	RTU-22	1	12 1/2 -25 Ton Packaged Unitary Gas/Ele	YHD300G4RVA--HGE1C2B600AB0000000000000

Product Data - Packaged Gas/Electric Rooftop Units

All Units

Gas/Electric
Double Wall Construction
High efficiency - Downflow
460/60/3
Reliatel
Gas Heat - Modulating
Economizer Comparative Enthalpy 0-100% with Barometric Relief
VAV standard motor with shaft ground ring
Hinged panels/2" Pleated Filters Merv 13
Standard condenser coil with hail guard
Through the base electric/gas
Unit Mounted Circuit Breaker
Powered convenience outlet
BACnet communications interface
Return air smoke detector
SST Drain Pan
Clogged filter and condensate overflow switch
High static drive (Fld)
ADAPTER ROOF CURBS (Fld)
ROOF SCREENS – CURB MOUNTED (Fld)
START-UP SERVICE
SMOKE DETECTORS- FIELD INSTALLED, MOUNTED ND WIRED BY OTHERS
Five Year Compressor Parts Warranty
Three Year Parts Warranty
One Year Whole Unit Labor Warranty

Item: B1 Qty: 1 Tag(s): RTU-5

25 Ton

Item: B2 Qty: 1 Tag(s): RTU-6

20 Ton

Item: B3 Qty: 1 Tag(s): RTU-22

25 Ton
Power exhaust (Fld)

NOT INCLUDED:

POWER WIRING
RIGGING
STORAGE
SEISMIC OR WIND RESTRAINTS
SPARE BELTS OR FILTERS
HOT GAS REHEAT (Not required for VAV)
HGBP

Performance Data - Packaged Gas/Electric Rooftop Units

Tags	RTU-5	RTU-6	RTU-22
Design Airflow (cfm)	7470	6130	7295
Design ESP (in H2O)	1.460	1.500	1.460
Gross Total Capacity (MBh)	259.50	220.98	258.36
Gross Sensible Capacity (MBh)	201.48	170.23	199.79
Cooling Entering Dry Bulb (F)	79.50	79.50	79.50
Cooling Entering Wet Bulb (F)	66.00	66.00	66.00
Evap Coil Leav Air Temp (DB) (F)	54.53	53.79	54.14
Evap Coil Leav Air Temp (WB) (F)	54.36	53.79	54.10
Evaporator Face Area (sq ft)	31.42	31.42	31.42
Ambient Temp (F)	105.00	105.00	105.00
EER @ AHRI Conditions (EER)	10.6	11.0	10.6
IEER Rating ( )	13.00	13.10	13.00
Output Htg Capacity (MBh)	284.00	284.00	284.00
Heating EAT (F)	45.00	45.00	45.00
Heating LAT (F)	80.04	87.70	80.88
Heating Temp Rise (F)	35.04	42.70	35.88
MCA (A)	56.00	50.00	56.00
MOP (A)	70.00	60.00	70.00
Indoor Mtr. Operating Power (bhp)	5.47	4.65	5.28
Indoor RPM (rpm)	824	817	817
Indoor Motor Power (kW)	4.07	3.47	3.93
Outdoor Motor Power (kW)	1.94	1.70	1.94
Compressor Power (kW)	23.44	19.00	23.43
System Power (kW)	29.45	24.16	29.29
Compressor 1 RLA (A)	21.20	19.20	21.20
Compressor 2 RLA (A)	12.20	12.40	12.20
Condenser Fan FLA (A)	2.90	2.90	2.90
Evaporator Fan FLA (A)	11.00	7.60	11.00
Min. Unit Operating Weight (lb)	2017.0	2004.0	2017.0
Max Unit Operating Weight (lb)	2440.0	2434.0	2440.0
Rated capacity (AHRI) (MBh)	272.00	242.00	272.00
Refrig charge (HFC-410A) - ckt 1 (lb)	14.7	13.2	14.7
Refrig charge (HFC-410A) - ckt 2 (lb)	8.3	8.2	8.3
ASHRAE 90.1	Yes	Yes	Yes
Saturated Suction Temp Circuit 1 (F)	50.46	48.95	50.14
Saturated Discharge Temp Circuit 1 (F)	129.39	129.70	129.33
Saturated Suction Temp Circuit 2 (F)	47.04	48.56	46.74
Saturated Discharge Temp Circuit 2 (F)	134.47	126.29	134.43
Field Supplied Drive Kit Required	High Static Drive Kit	High Static Drive Kit	High Static Drive Kit

Mechanical Specifications - Packaged Gas/Electric Rooftop Units
Item: B1 - B3 Qty: 3 Tag(s): RTU-5, RTU-6, RTU-22

General
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 AHRI 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.

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. 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 inch, 1 pound density foil-faced, fire-resistant, permanent, odorless, glass fiber material. The base of the downflow unit shall be insulated with 1/2 inch, 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 11/8 inch 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
The top cover shall be one piece, or where seams exist, double hemmed and gasket sealed to prevent water leakage.

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

Crankcase Heaters
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
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.

Evaporator and Condenser Coils
Microchannel coils will be burst tested by the manufacturer. Internally finned, 5/16¿ copper tubes mechanically bonded to a configured aluminum plate fin shall be standard for evaporator coils. Microchannel condenser coils shall be standard on all units. Coils shall be leak tested to ensure the pressure integrity. The evaporator coil and condenser coil shall be leak tested to 225 psig and pressure tested to 450 psig. Sloped condensate drain pans are standard.

Gas Heating Section
The heating section shall have a drum and tube heat exchanger design using corrosion resistant steel components. A forced combustion blower shall supply premixed fuel to a single burner ignited by a pilotless hot surface ignition system. In order to provide reliable operation, a negative pressure gas valve shall be used on standard furnaces and a pressure switch on furnaces with modulating heat that requires blower operation to initiate gas flow. On an initial call for heat, the combustion blower shall purge the heat exchanger 45 seconds before ignition. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset at the thermostat. Units shall be suitable for use with natural gas or propane (field installed kit) and shall also comply with California requirements for low NOx emissions. The 12½- 25 tons shall have two stage heating (Gas/Electric Only).

Outdoor Fans
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
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
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.

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

Modulating Gas Heat
The heating section shall have a drum and tube heat exchanger design using stainless steel components. A variable speed forced combustion blower shall supply premixed fuel to a single burner ignited by a pilotless hot surface ignition system. The leaving air temperature shall be communicated to the unit controls (ReliaTel) via a discharge air sensor. This information along with the space temperature will be used to modulate the heating output.

In order to provide reliable operation, a pressure switch will require blower operation to initiate gas flow.

On an initial call for heat the combustion blower shall purge the heat exchanger 45 seconds before ignition. The heat exchanger will operate at full fire initially and then modulate down to match the desired discharge air temperature. After three unsuccessful ignition attempts, the entire heating system shall be locked out until manually reset.

Units shall be suitable for use with natural gas.

Discharge Line Thermostat
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.

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

Hinged Access Doors
Sheet metal hinges are available on the Filter/Evaporator Access Door and the Compressor/Control Access Door. This option is available on all downflow models.

Two-Inch Pleated Filters
Two inch pleated media filters shall be available on all models.

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.

Supply and/or Return Air Smoke Detector
With this option installed, if smoke is detected, all unit operation will be shut down. Reset will be manual at the unit. Return Air Smoke Detectors require minimum allowable airflow when used with certain models. See the Installation, Operation, and Maintenance (IOM) manual for the models affected and the minimum allowable airflow required. This option is available on all downflow models.

Condensate Overflow Switch
This option shall shut the unit down in the event that a clogged condensate drain line prevents proper condensate removal from the unit.

Reference or Comparative Enthalpy
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.

Comparative Enthalpy-Factory Installed
This option will be factory installed to measure and communicate humidity for both outdoor and return air conditions, and return air temperature. The unit will receive and use this information to maximize use of economizer cooling, and to provide maximum occupant comfort control.

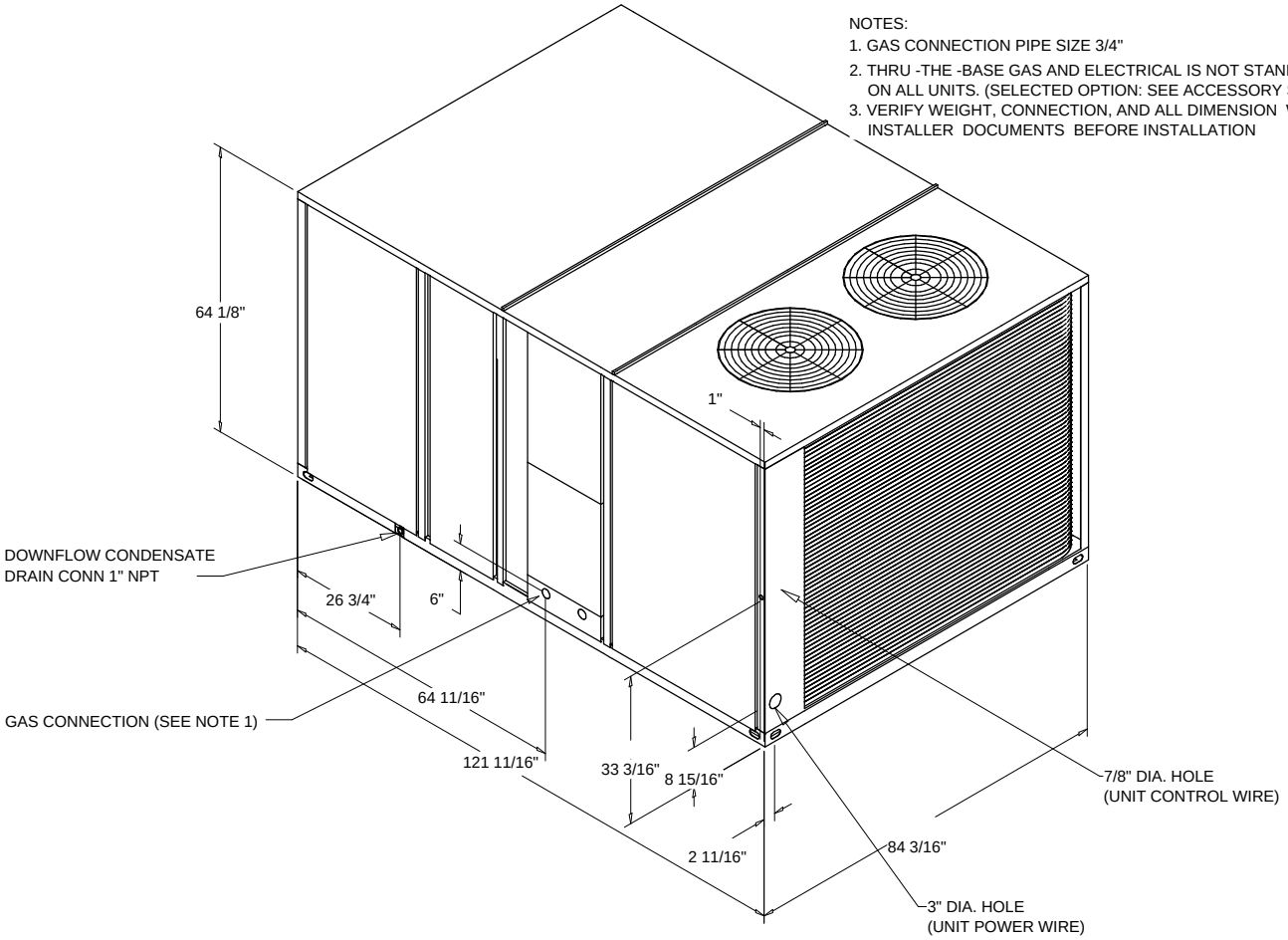
Accessory - Powered Exhaust
The powered exhaust shall provide exhaust of return air, when using an economizer, to maintain better building pressurization.

Accessory - High Static Drive
The high static drive option shall allow the standard motor on the 12½ and 20 ton units to operate with improved external static capabilities.

VAV Operation
The VFD shall receive a 0-10 Vdc signal from the unit controls based upon supply static pressure and shall cause the drive to accelerate or decelerate as required to maintain the supply static pressure setpoint. When subjected to high ambient return conditions the VFD shall reduce its output frequency to maintain operation.

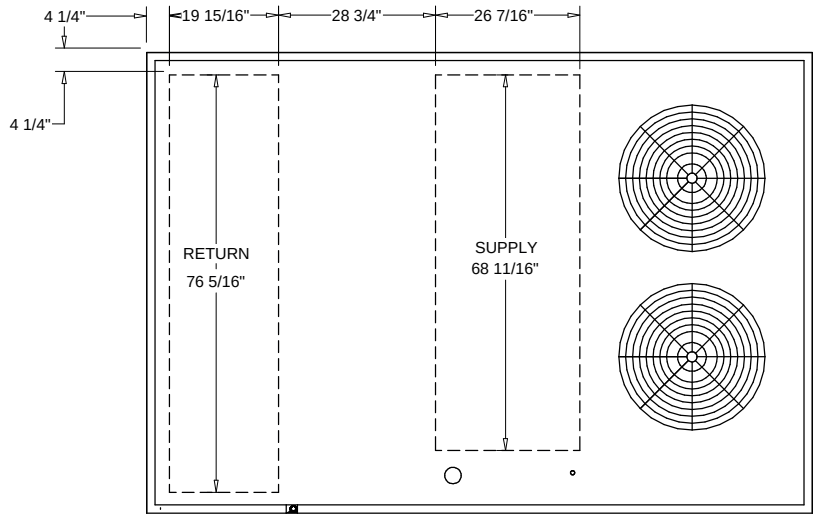
Hinged Access Doors
Sheet metal hinges are available on the Filter/Evaporator Access Door and the Compressor/Control Access Door. This option is available on all downflow models.

Unit Dimensions - Packaged Gas/Electric Rooftop Units
Item: B1, B3 Qty: 2 Tag(s): RTU-5, RTU-22



PACKAGED GAS/ELECTRIC - DOWNFLOW

ISOMETRIC DRAWING



PACKAGED GAS/ELECTRIC - DOWNFLOW

PLAN VIEW DRAWING

Unit Dimensions - Packaged Gas/Electric Rooftop Units
Item: B1 Qty: 1 Tag(s): RTU-5

ELECTRICAL / GENERAL DATA

GENERAL PERFORMANCE

		Standard Motor (1) (3)	
Model (Ton):	'YHD300G (25.0)	Minimum Circuit Ampacity:	'56.0
Unit Operating Voltage Range:	'414-506	Maximum Fuse Size:	70.0
Unit Primary Voltage:	460	Maximum (HACR) Circuit Breaker:	70.0
Unit Secondary Voltage:	-		
Unit Hertz:	60	Standard Oversized Motor (1) (4)	
Unit Phase:	3	Minimum Circuit Ampacity:	"
		Maximum Fuse Size:	
EER: (5)	'10.6	Maximum (HACR) Circuit Breaker:	

Accessory Oversized Motor (1) (4)	
Minimum Circuit Ampacity:	
Maximum Fuse Size:	
Maximum (HACR) Circuit Breaker:	

GAS HEATING

Heating Models:	'Modulating
Heating and 1 Stage Input (Btu/h)	350,000 / 70,000
Heating and 1 Stage Output (Btu/h):	283,000 / 64,800
Min./Max. Gas Input - Pressure Natural or LP (in w.c):	2.5/14.0
Gas Connection Pipe Size:	3/4"

COMPRESSOR

	Circuit #1 / 2
Number:	'2
Horsepower:	12.8/6.9
Phase:	3
Rated Load Amps:	21.2/12.2
Locked Rotor Amps:	158.0/100.0

INDOOR MOTOR

Standard Motor		Standard Oversized Motor (4)		Accessory Oversized Motor (4)	
Number: (3)	'1	Number:	"	Number:	"
Horsepower:	7.5	Horsepower:		Horsepower:	
Motor Speed (RPM):	3,450	Motor Speed (RPM):		Motor Speed (RPM):	
Phase:	3	Phase:		Phase:	
Full Load Amps:	11.0	Full Load Amps:		Full Load Amps:	
Locked Rotor Amps:	74.0	Locked Rotor Amps:		Locked Rotor Amps:	

OUTDOOR MOTOR

Number:	'2
Horsepower:	1.0
Motor speed (RPM):	1,125
Phase:	1
Full Load Amps:	2.9
Locked Rotor Amps:	5.8

POWER EXHAUST

(Field Installed Power Exhaust)

Horsepower:	'N/A
Motor Speed (RPM):	N/A
Phase:	N/A
Full Load Amps:	N/A
Locked Rotor Amps:	N/A

COMBUSTION BLOWER MOTOR

(Gas-Fired Heating only)

Horsepower:	'0.25
Motor Speed (RPM):	4600/950
Phase:	3
Full Load Amps:	0.8
Locked Rotor Amps:	2.00

FILTER

Type:	'Throwaway
Furnished:	Yes
Number:	8 / 4
Recommended Size:	20"x20"x2" / 20"x16"x2"

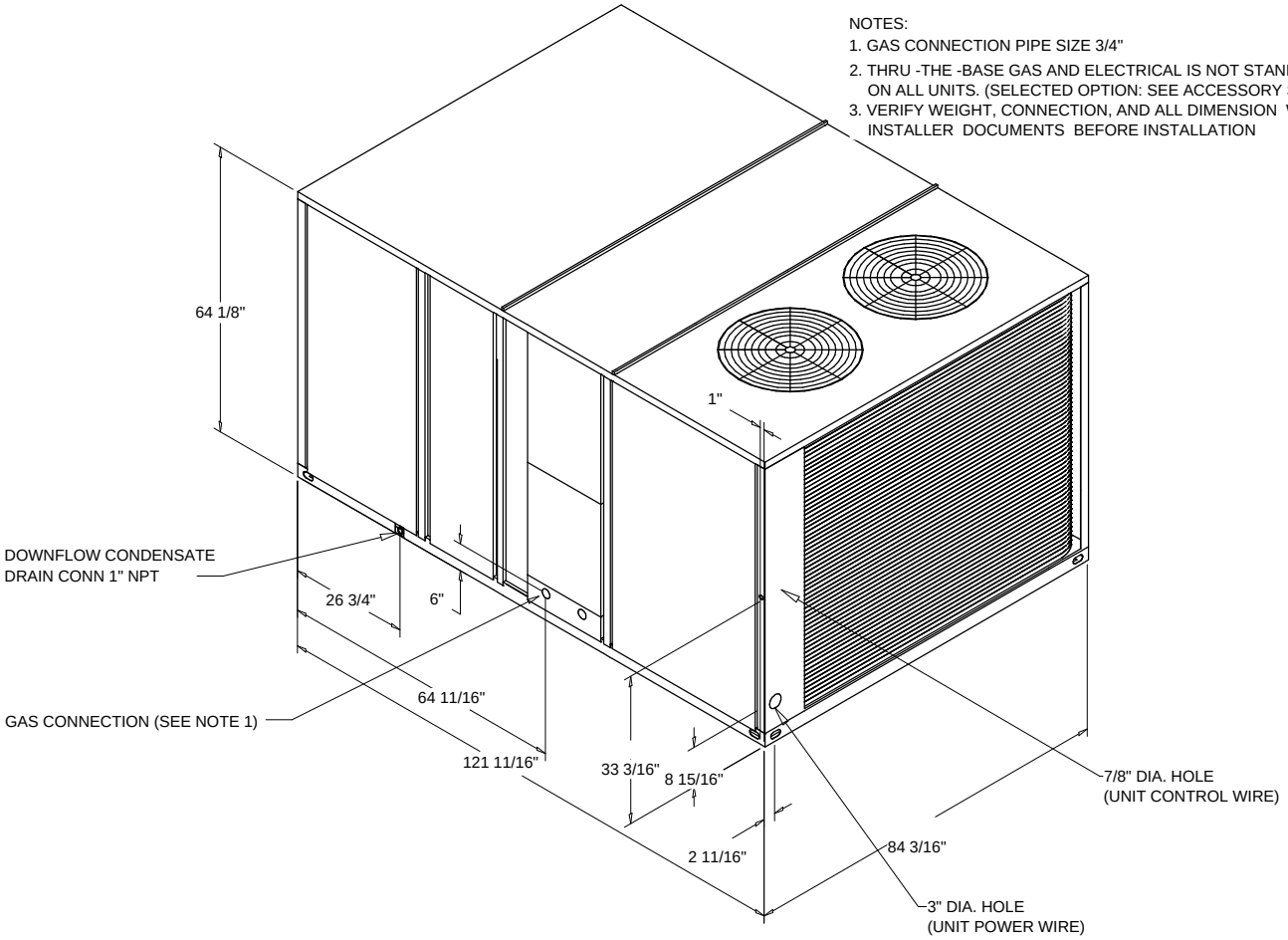
REFRIGERANT (2)

	Circuit #1 / 2
Type:	'R-410
Factory Charge Circuit #1 / 2:	14.2 lb / 8.2 lb

NOTES:

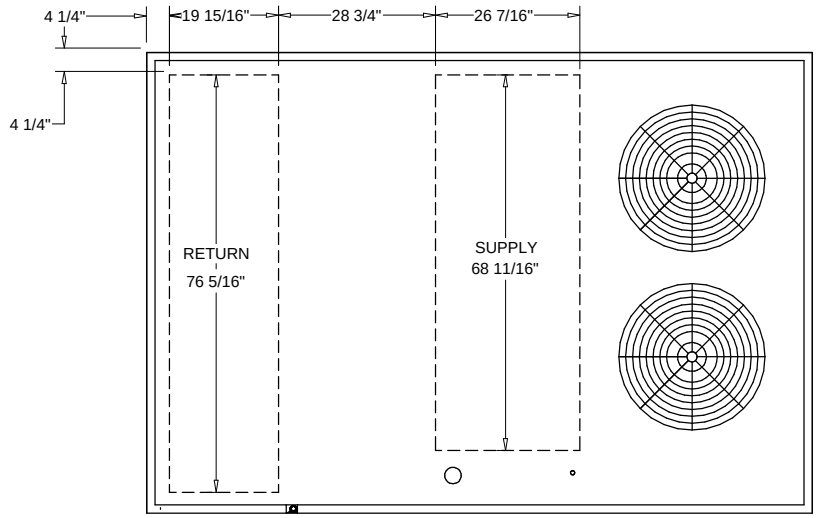
1. Maximum (HACR) Circuit Breaker sizing is for installations in the United States only.
2. Refrigerant charge is an approximate value. For a more precise value, see unit nameplate and service instructions.
3. Value include Standard Motor.
4. Value include Oversized Motor
5. EER is rated at AHRI conditions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

Unit Dimensions - Packaged Gas/Electric Rooftop Units
Item: B2 Qty: 1 Tag(s): RTU-6



PACKAGED GAS/ELECTRIC - DOWNFLOW

ISOMETRIC DRAWING



PACKAGED GAS/ELECTRIC - DOWNFLOW

PLAN VIEW DRAWING

Unit Dimensions - Packaged Gas/Electric Rooftop Units
Item: B2 Qty: 1 Tag(s): RTU-6

ELECTRICAL / GENERAL DATA

GENERAL PERFORMANCE

		Standard Motor (1) (3)	
Model (Ton):	YHD240G (20.0)	Minimum Circuit Ampacity:	50.0
Unit Operating Voltage Range:	414-506	Maximum Fuse Size:	60.0
Unit Primary Voltage:	460	Maximum (HACR) Circuit Breaker:	60.0
Unit Secondary Voltage:	-		
Unit Hertz:	60	Standard Oversized Motor (1) (4)	
Unit Phase:	3	Minimum Circuit Ampacity:	"
		Maximum Fuse Size:	
EER: (5)	11.0	Maximum (HACR) Circuit Breaker:	

Accessory Oversized Motor (1) (4)	
Minimum Circuit Ampacity:	
Maximum Fuse Size:	
Maximum (HACR) Circuit Breaker:	

GAS HEATING

Heating Models:	Modulating
Heating and 1 Stage Input (Btu/h)	350,000 / 80,000
Heating and 1 Stage Output (Btu/h):	283,000 / 64,800
Min./Max. Gas Input - Pressure Natural or LP (in w.c):	2.5/14.0
Gas Connection Pipe Size:	3/4"

COMPRESSOR

	Circuit #1 / 2
Number:	2
Horsepower:	11.7/6.9
Phase:	3
Rated Load Amps:	19.2/12.4
Locked Rotor Amps:	147.0/100.0

INDOOR MOTOR

Standard Motor		Standard Oversized Motor (4)		Accessory Oversized Motor (4)	
Number: (3)	1	Number:	"	Number:	"
Horsepower:	5.0	Horsepower:		Horsepower:	
Motor Speed (RPM):	3,450	Motor Speed (RPM):		Motor Speed (RPM):	
Phase:	3	Phase:		Phase:	
Full Load Amps:	7.6	Full Load Amps:		Full Load Amps:	
Locked Rotor Amps:	54.9	Locked Rotor Amps:		Locked Rotor Amps:	

OUTDOOR MOTOR

Number:	2
Horsepower:	1.0
Motor speed (RPM):	1,125
Phase:	1
Full Load Amps:	2.9
Locked Rotor Amps:	5.8

POWER EXHAUST

(Field Installed Power Exhaust)

Horsepower:	N/A
Motor Speed (RPM):	N/A
Phase:	N/A
Full Load Amps:	N/A
Locked Rotor Amps:	N/A

COMBUSTION BLOWER MOTOR

(Gas-Fired Heating only)

Horsepower:	0.25
Motor Speed (RPM):	4600/950
Phase:	3
Full Load Amps:	0.8
Locked Rotor Amps:	2.00

FILTER

Type:	Throwaway
Furnished:	Yes
Number:	8 / 4
Recommended Size:	20"x20"x2" / 20"x16"x2"

REFRIGERANT (2)

	Circuit #1 / 2
Type:	R-410
Factory Charge Circuit #1 / 2:	13.2 lb / 8.2 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.

Unit Dimensions - Packaged Gas/Electric Rooftop Units
Item: B3 Qty: 1 Tag(s): RTU-22

ELECTRICAL / GENERAL DATA

GENERAL PERFORMANCE

		Standard Motor (1) (3)	
Model (Ton):	'YHD300G (25.0)	Minimum Circuit Ampacity:	'56.0
Unit Operating Voltage Range:	'414-506	Maximum Fuse Size:	70.0
Unit Primary Voltage:	460	Maximum (HACR) Circuit Breaker:	70.0
Unit Secondary Voltage:	-		
Unit Hertz:	60	Standard Oversized Motor (1) (4)	
Unit Phase:	3	Minimum Circuit Ampacity:	"
		Maximum Fuse Size:	
EER: (5)	'10.6	Maximum (HACR) Circuit Breaker:	

Accessory Oversized Motor (1) (4)	
Minimum Circuit Ampacity:	
Maximum Fuse Size:	
Maximum (HACR) Circuit Breaker:	

GAS HEATING

Heating Models:	'Modulating
Heating and 1 Stage Input (Btu/h)	350,000 / 70,000
Heating and 1 Stage Output (Btu/h):	283,000 / 64,800
Min./Max. Gas Input - Pressure Natural or LP (in w.c):	2.5/14.0
Gas Connection Pipe Size:	3/4"

COMPRESSOR

	Circuit #1 / 2
Number:	'2
Horsepower:	12.8/6.9
Phase:	3
Rated Load Amps:	21.2/12.2
Locked Rotor Amps:	158.0/100.0

INDOOR MOTOR

Standard Motor		Standard Oversized Motor (4)		Accessory Oversized Motor (4)	
Number: (3)	'1	Number:	"	Number:	"
Horsepower:	7.5	Horsepower:		Horsepower:	
Motor Speed (RPM):	3,450	Motor Speed (RPM):		Motor Speed (RPM):	
Phase:	3	Phase:		Phase:	
Full Load Amps:	11.0	Full Load Amps:		Full Load Amps:	
Locked Rotor Amps:	74.0	Locked Rotor Amps:		Locked Rotor Amps:	

OUTDOOR MOTOR

Number:	'2
Horsepower:	1.0
Motor speed (RPM):	1,125
Phase:	1
Full Load Amps:	2.9
Locked Rotor Amps:	5.8

POWER EXHAUST

(Field Installed Power Exhaust)

Horsepower:	'0.75
Motor Speed (RPM):	1,040
Phase:	1
Full Load Amps:	3.2
Locked Rotor Amps:	8.4

COMBUSTION BLOWER MOTOR

(Gas-Fired Heating only)

Horsepower:	'0.25
Motor Speed (RPM):	4600/950
Phase:	3
Full Load Amps:	0.8
Locked Rotor Amps:	2.00

FILTER

Type:	'Throwaway
Furnished:	Yes
Number:	8 / 4
Recommended Size:	20"x20"x2" / 20"x16"x2"

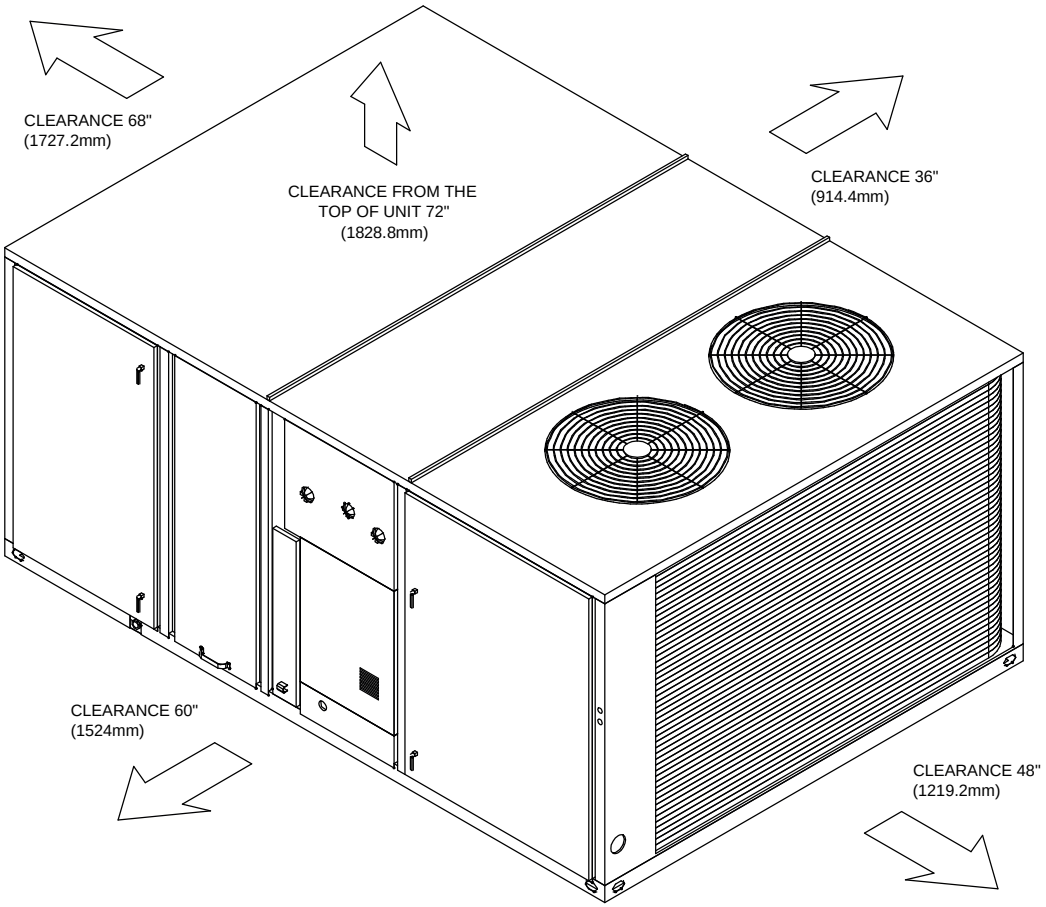
REFRIGERANT (2)

	Circuit #1 / 2
Type:	'R-410
Factory Charge Circuit #1 / 2:	14.2 lb / 8.2 lb

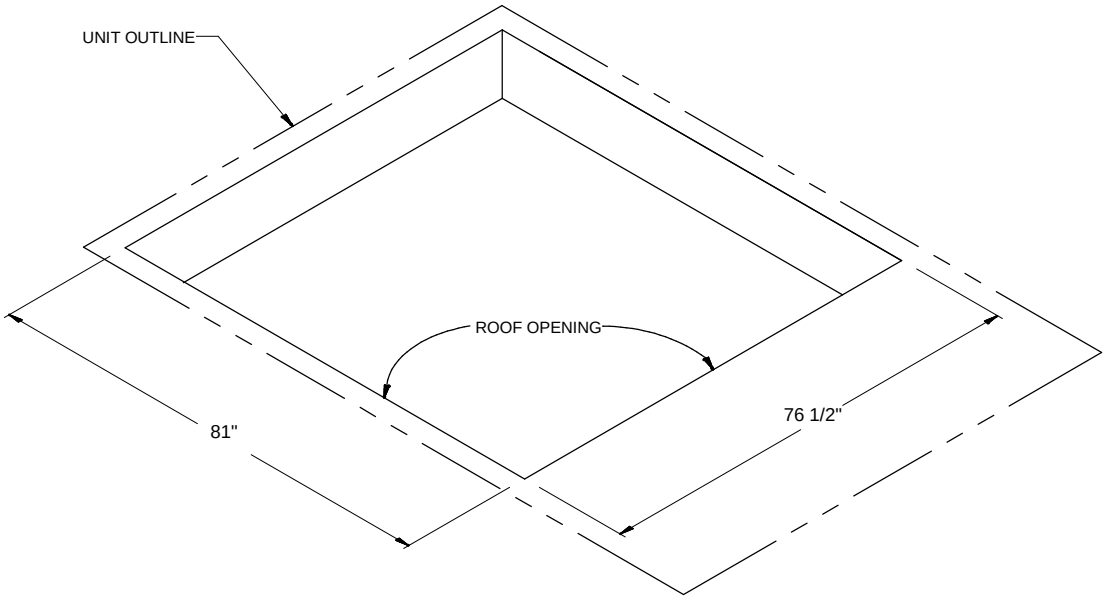
NOTES:

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 Gas/Electric Rooftop Units
Item: B1 - B3 Qty: 3 Tag(s): RTU-5, RTU-6, RTU-22

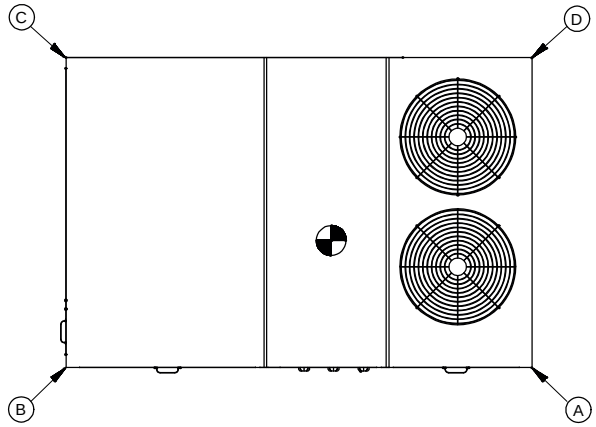


DOWNFLOW-PACKAGED GAS/ELECTRIC CLEARANCE



DOWNFLOW-PACKAGED GAS/ELECTRIC ROOF OPENING CLEARANCE

Weight, Clearance & Rigging Diagram - Packaged Gas/Electric Rooftop Units
Item: B1 Qty: 1 Tag(s): RTU-5



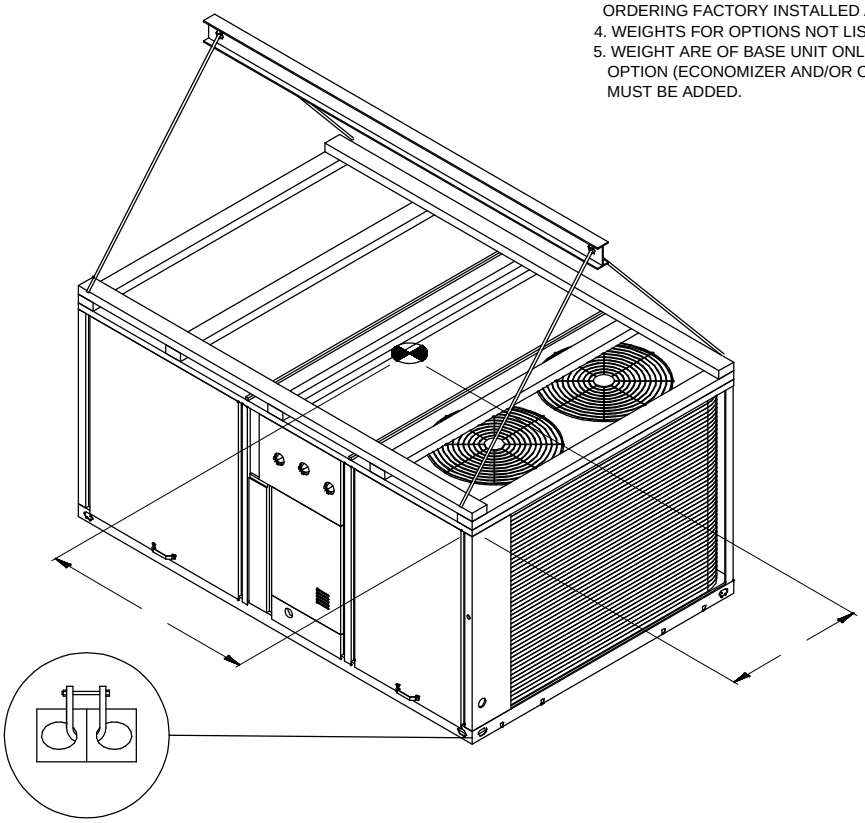
CORNER WEIGHT

INSTALLED OPTIONS NET WEIGHT DATA

Accessory	Accessory
Economizer	80.0 lb
Motorized Outside Air Damper	
Manual Outside air Damper	
Oversized Motor	
High Static Drive	2.0 lb
Thru the Base Electrical	23.0 lb
Unit Mounted Circuit Breaker	10.0 lb
Unit Mounted Disconnect	
Power Exhaust	
Hinged Doors	27.0 lb
Zone Sensor	
LPG Conversion Kit	
Powered Convenience Outlet	38.0 lb
Roof Curb	

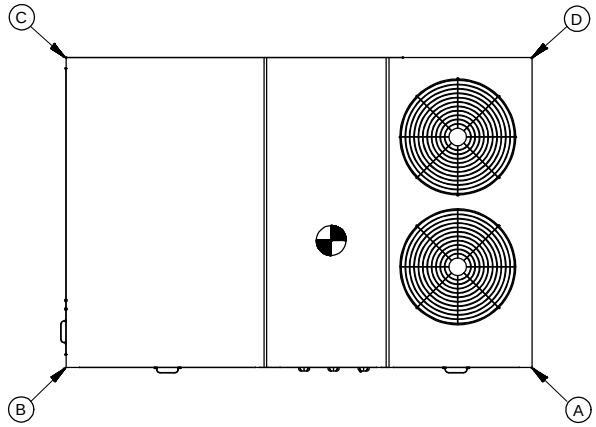
BASE UNIT WEIGHTS		CORNER WEIGHTS				CENTER OF GRAVITY	
SHIPPING	NET	(A)	(B)	(C)	(D)	E	F
2684.0 lb	2207.0 lb	702.0 lb	579.0 lb	422.0 lb	507.0 lb	57"	35"

NOTE:
1. CORNER WEIGHTS ARE GIVEN FOR INFORMATION ONLY.
2. TO ESTIMATE SHIPPING WEIGHT OF OPTION/ACCESSORIES ADD 5 LBS TO NET WEIGHT.
3. NET WEIGHT OF OPTIONAL ACCESSORIES SHOULD BE ADD TO UNIT WEIGHT WHEN ORDERING FACTORY INSTALLED ACCESSORIES.
4. WEIGHTS FOR OPTIONS NOT LISTED ARE < 5 LBS.
5. WEIGHT ARE OF BASE UNIT ONLY. FOR TOTAL WEIGHT, 10 DIGIT FACTORY INSTALLED OPTION (ECONOMIZER AND/OR OVERSIZED MOTOR OR FIOP/ACCESSORY WEIGHT MUST BE ADDED.



RIGGING AND CENTER OF GRAVITY

Weight, Clearance & Rigging Diagram - Packaged Gas/Electric Rooftop Units
Item: B2 Qty: 1 Tag(s): RTU-6



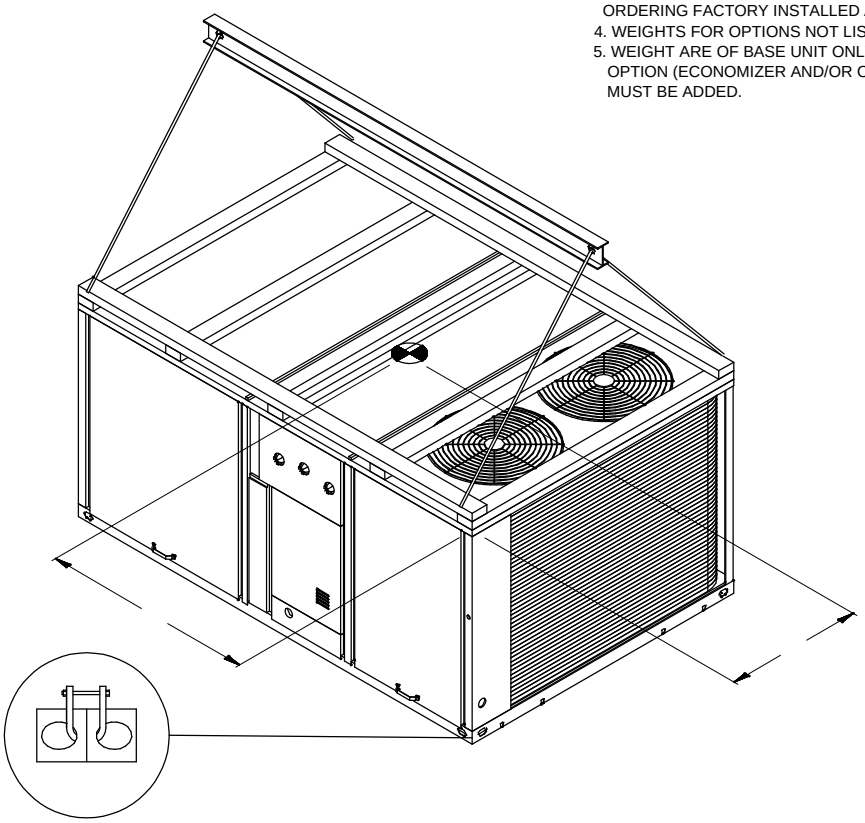
CORNER WEIGHT

INSTALLED OPTIONS NET WEIGHT DATA

Accessory	Accessory
Economizer	80.0 lb
Motorized Outside Air Damper	
Manual Outside air Damper	
Oversized Motor	
High Static Drive	2.0 lb
Thru the Base Electrical	23.0 lb
Unit Mounted Circuit Breaker	10.0 lb
Unit Mounted Disconnect	
Power Exhaust	
Hinged Doors	27.0 lb
Zone Sensor	
LPG Conversion Kit	
Powered Convenience Outlet	38.0 lb
Roof Curb	

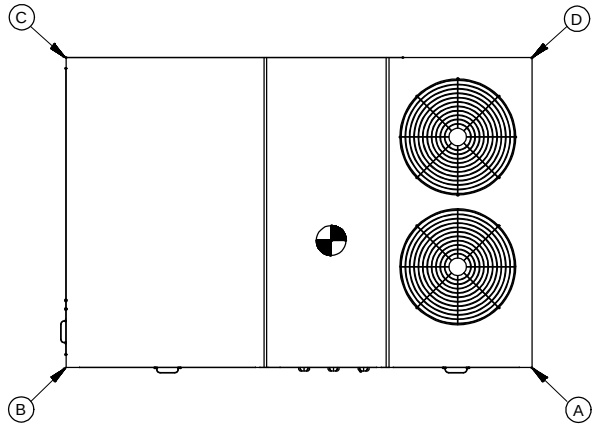
BASE UNIT WEIGHTS		CORNER WEIGHTS				CENTER OF GRAVITY	
SHIPPING	NET	(A)	(B)	(C)	(D)	E	F
2680.0 lb	2203.0 lb	701.0 lb	575.0 lb	421.0 lb	504.0 lb	58"	35"

NOTE:
1. CORNER WEIGHTS ARE GIVEN FOR INFORMATION ONLY.
2. TO ESTIMATE SHIPPING WEIGHT OF OPTION/ACCESSORIES ADD 5 LBS TO NET WEIGHT.
3. NET WEIGHT OF OPTIONAL ACCESSORIES SHOULD BE ADD TO UNIT WEIGHT WHEN ORDERING FACTORY INSTALLED ACCESSORIES.
4. WEIGHTS FOR OPTIONS NOT LISTED ARE < 5 LBS.
5. WEIGHT ARE OF BASE UNIT ONLY. FOR TOTAL WEIGHT, 10 DIGIT FACTORY INSTALLED OPTION (ECONOMIZER AND/OR OVERSIZED MOTOR OR FIOP/ACCESSORY WEIGHT MUST BE ADDED.



RIGGING AND CENTER OF GRAVITY

Weight, Clearance & Rigging Diagram - Packaged Gas/Electric Rooftop Units
Item: B3 Qty: 1 Tag(s): RTU-22



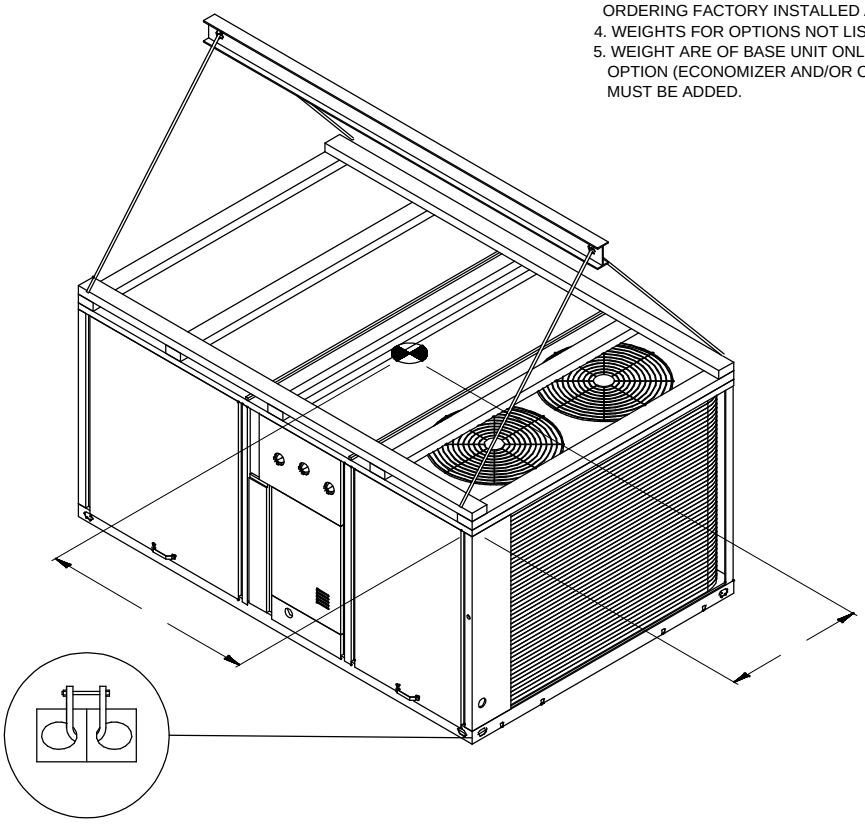
CORNER WEIGHT

INSTALLED OPTIONS NET WEIGHT DATA

Accessory	Accessory
Economizer	80.0 lb
Motorized Outside Air Damper	
Manual Outside air Damper	
Oversized Motor	
High Static Drive	2.0 lb
Thru the Base Electrical	23.0 lb
Unit Mounted Circuit Breaker	10.0 lb
Unit Mounted Disconnect	
Power Exhaust	95.0 lb
Hinged Doors	27.0 lb
Zone Sensor	
LPG Conversion Kit	
Powered Convenience Outlet	38.0 lb
Roof Curb	

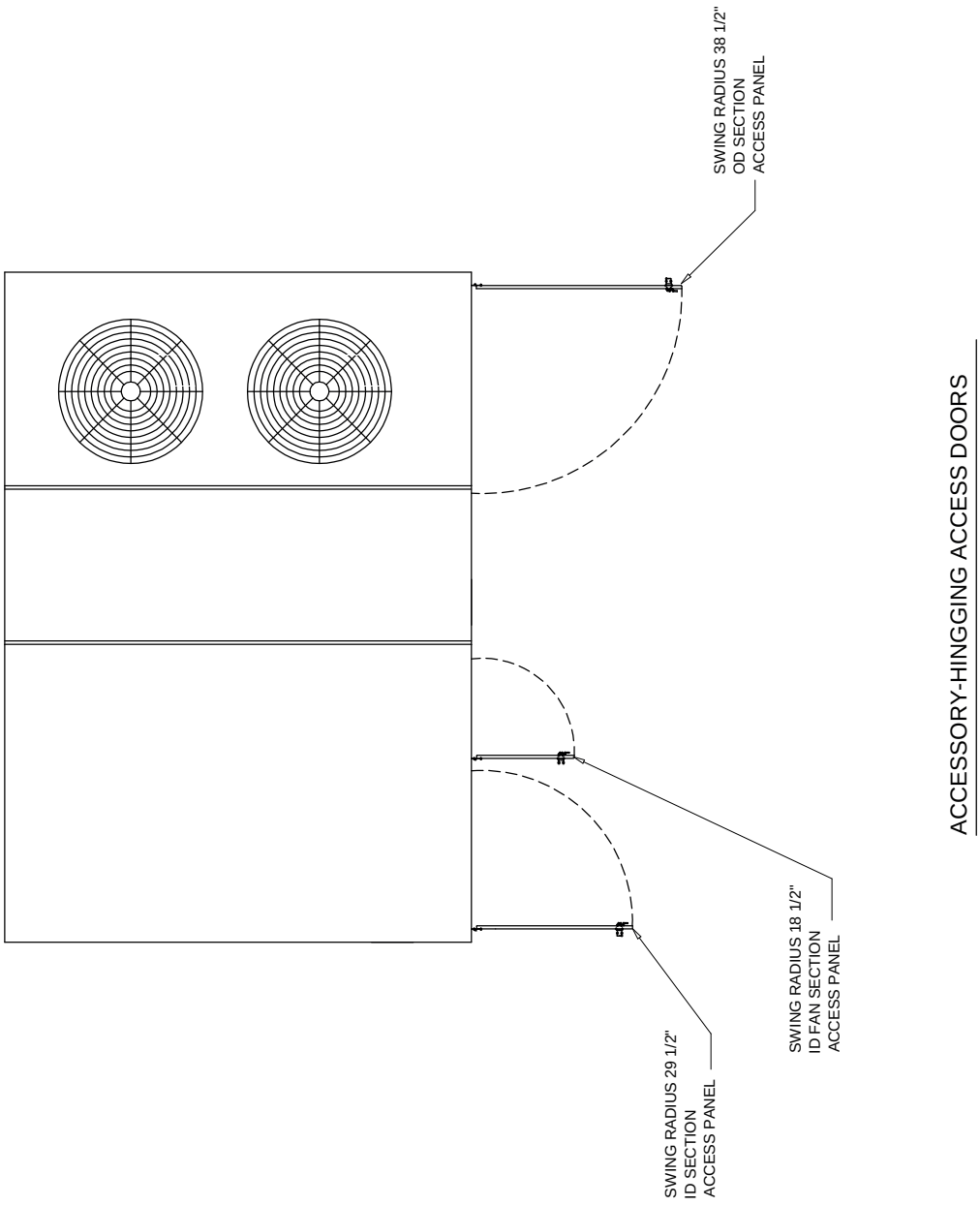
BASE UNIT WEIGHTS		CORNER WEIGHTS				CENTER OF GRAVITY	
SHIPPING	NET	(A)	(B)	(C)	(D)	E	F
2684.0 lb	2207.0 lb	702.0 lb	579.0 lb	422.0 lb	507.0 lb	57"	35"

NOTE:
1. CORNER WEIGHTS ARE GIVEN FOR INFORMATION ONLY.
2. TO ESTIMATE SHIPPING WEIGHT OF OPTION/ACCESSORIES ADD 5 LBS TO NET WEIGHT.
3. NET WEIGHT OF OPTIONAL ACCESSORIES SHOULD BE ADD TO UNIT WEIGHT WHEN ORDERING FACTORY INSTALLED ACCESSORIES.
4. WEIGHTS FOR OPTIONS NOT LISTED ARE < 5 LBS.
5. WEIGHT ARE OF BASE UNIT ONLY. FOR TOTAL WEIGHT, 10 DIGIT FACTORY INSTALLED OPTION (ECONOMIZER AND/OR OVERSIZED MOTOR OR FIOP/ACCESSORY WEIGHT MUST BE ADDED.



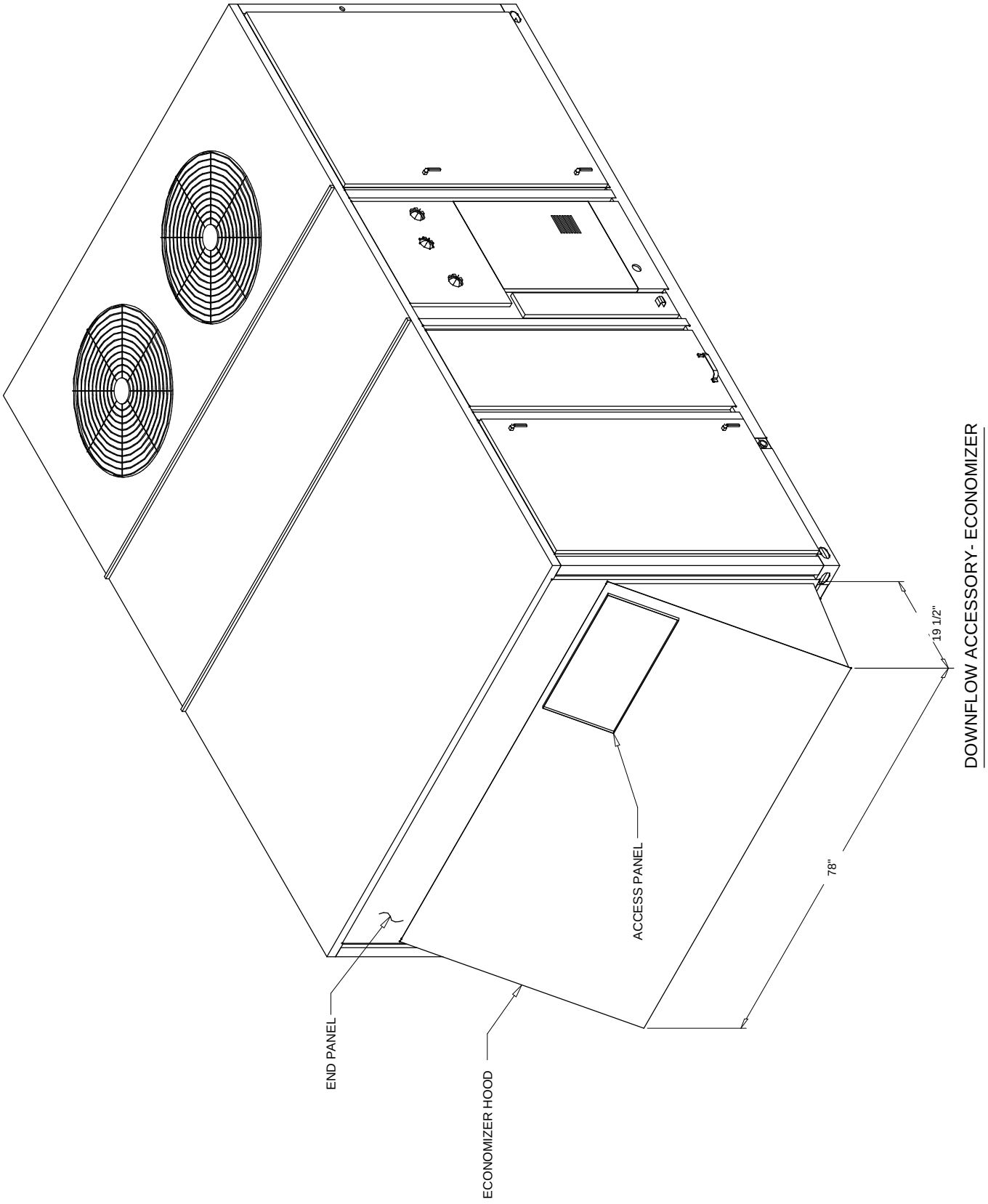
RIGGING AND CENTER OF GRAVITY

Accessory - Packaged Gas/Electric Rooftop Units
Item: B1 - B3 Qty: 3 Tag(s): RTU-5, RTU-6, RTU-22

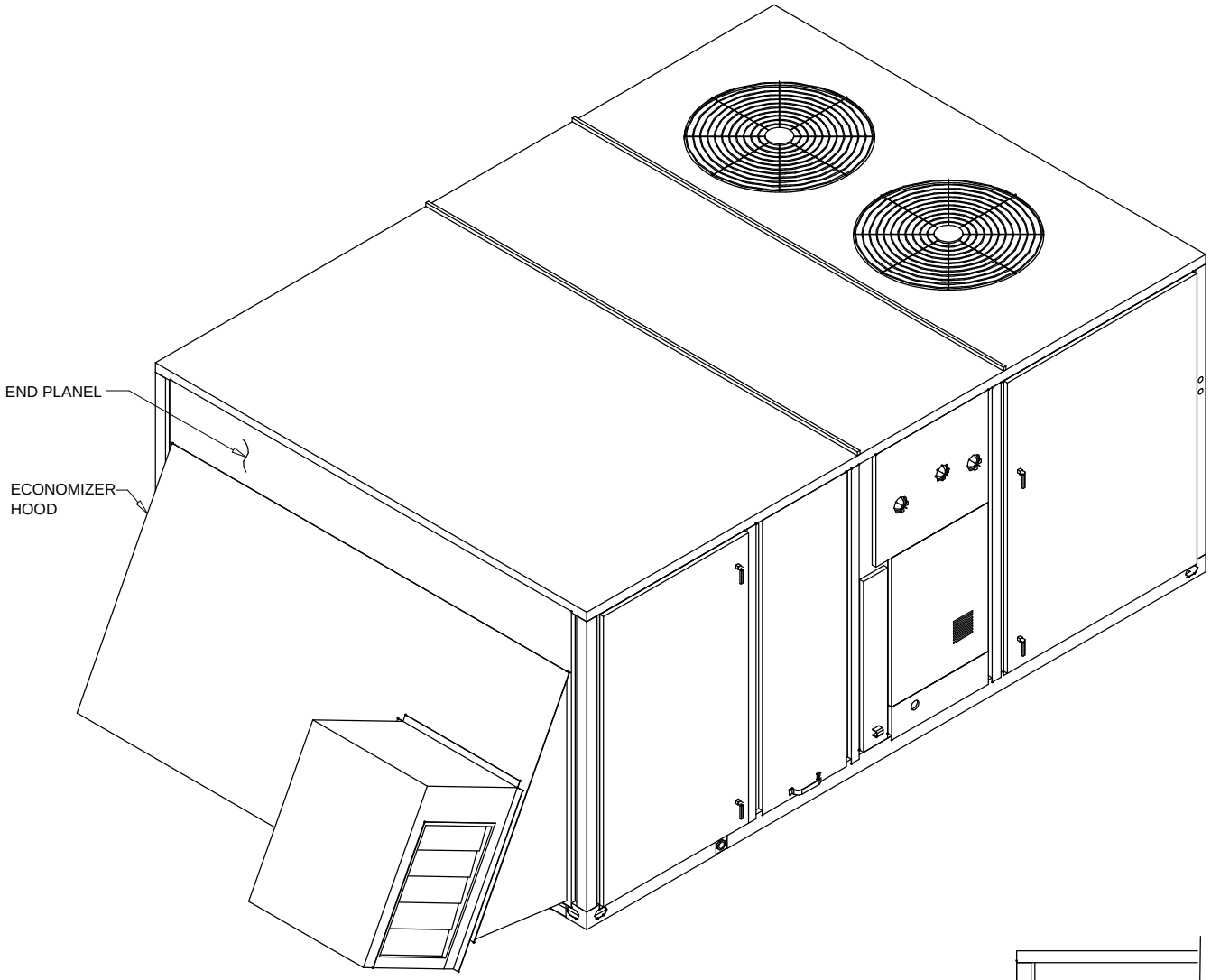


ACCESSORY-HINGGING ACCESS DOORS

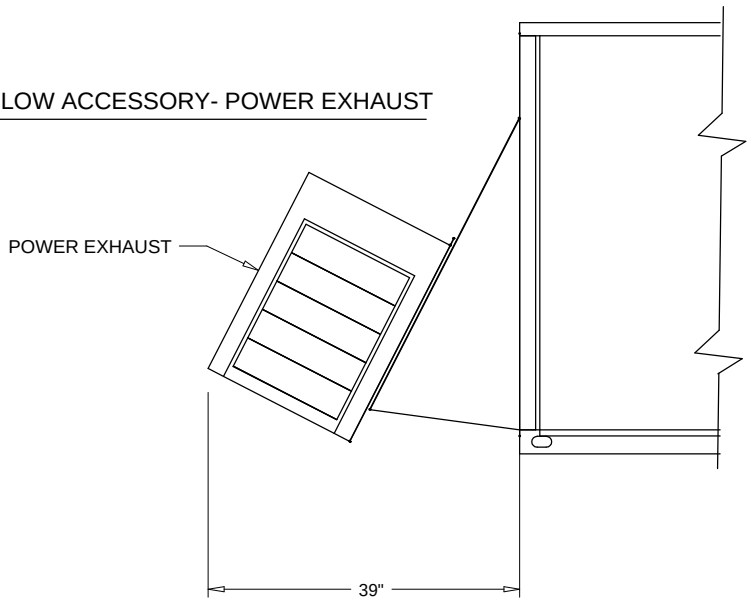
Accessory - Packaged Gas/Electric Rooftop Units
Item: B1 - B3 Qty: 3 Tag(s): RTU-5, RTU-6, RTU-22



Accessory - Packaged Gas/Electric Rooftop Units
Item: B3 Qty: 1 Tag(s): RTU-22



DOWNFLOW ACCESSORY- POWER EXHAUST



FROUNT OF POWER EXHAUST