



SUBMITTAL

Project

BCF - Leominster, MA #875

Date

Wednesday, April 27, 2022

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Project: BCF - Leominster, MA #875
Prepared By:

04/27/2022
10:43AM

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All units provided with 1 set of MERV11 Filters

RTU - 3,4

**Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report**

Unit Report For RTU - 3,4

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Unit Parameters

Unit Model:..... **48HCED24JKM6-6X5J0**
 Unit Size:..... **24 (20 Tons)**
 Volts-Phase-Hertz:..... **460-3-60**
 Heating Type:..... **Gas**
 Duct Cfg:..... **Vertical Supply / Vertical Return**
 Medium Heat
 Two Stage Compressor Models

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length:..... **11' 9.5"**
 Unit Width:..... **7' 2.375"**
 Unit Height:..... **4' 9.375"**
 *** Total Operating Weight:..... **3254** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size:..... **3/4**
 Condensate Drain Line Size:..... **3/4**
 Return Air Filter Type:..... **Throwaway**
 Return Air Filter Quantity:..... **9**
 Return Air Filter Size:..... **16 x 25 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Condensate Overflow Switch
 High Static (3) - Belt Drive, Vert Supply, Lennox C-box (Curb Adapter)
 Al/Cu - Al/Cu - Louvered Hail Guard
 Electromechanical Controls w/W7220 Econo Controller
 Enthalpy Ultra Low Leak Econo w/PE (cent) - Vertical Air Only
 Hinged Access Panels and Powered Convenience Outlet
 Non-Fused Disconnect
 Standard Packaging
 2-Speed indoor fan motor controlled by VFD

Warranty Information

1-Year parts(std.)
 5-Year compressor parts(std.)
 10-Year heat exchanger - Aluminized(std.)
 Start-up, First Unit
 Start-up, Each Additional Unit

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

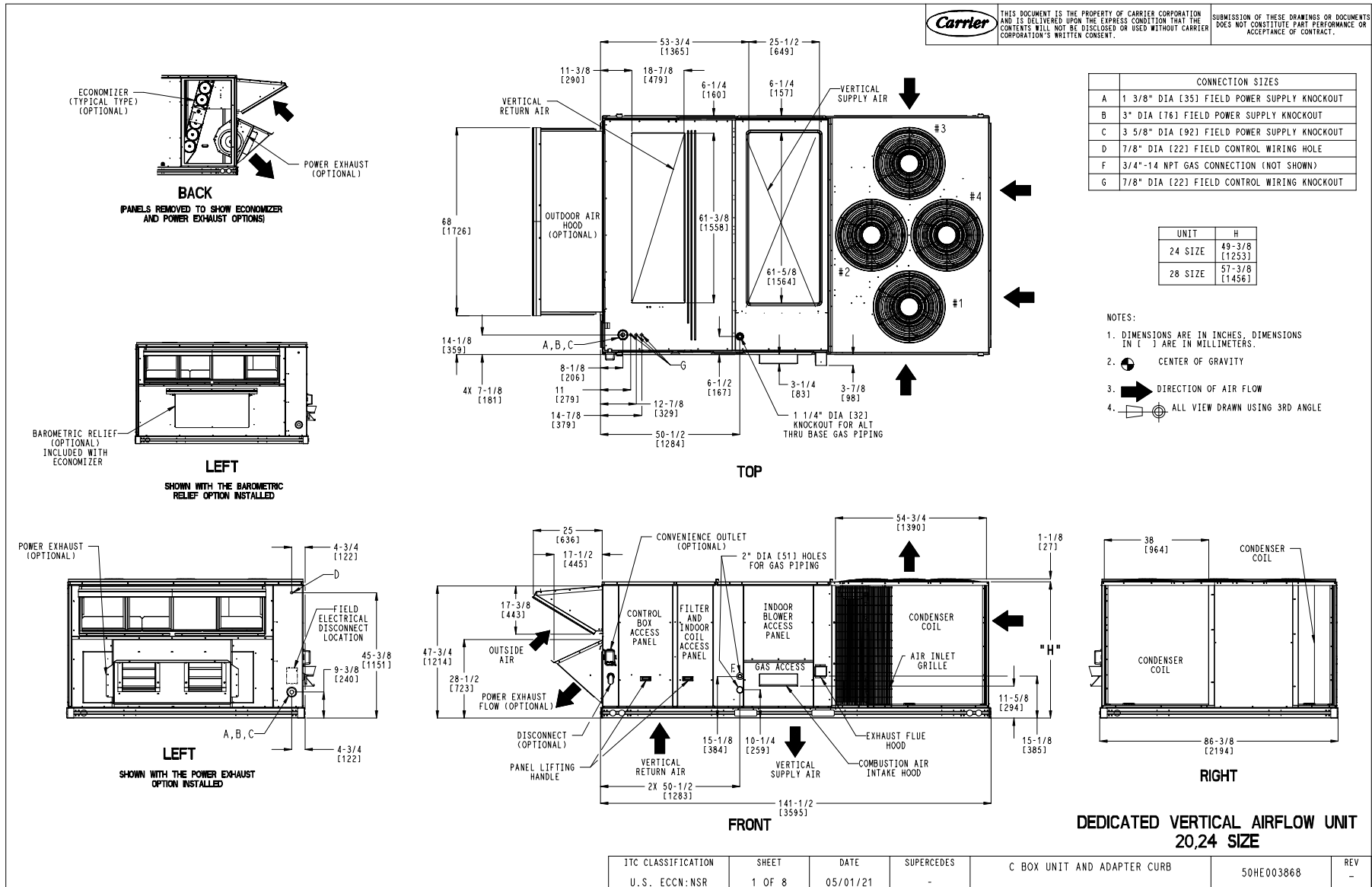
Ordering Information

Part Number	Description	Quantity
48HCED24JKM6-6X5J0	Rooftop Unit	2
	Base Unit	
	Condensate Overflow Switch	
	High Static (3) - Belt Drive, Vert Supply, Lennox C-box (Curb Adapter)	
	Al/Cu - Al/Cu - Louvered Hail Guard	
	Hinged Access Panels and Powered Convenience Outlet	
	Electromechanical control, Ultra LOW LEAK enthalpy economizer with centrifugal power exhaust and W72	
	2 Speed Fan Controller (VFD) and Non-Fused Disconnect	
Field Installed Accessories		
CRDISKIT001A00	2 Speed VFD display kit	2
33ZCT55SPT	Space Temp. with Override	2

Certified Drawing for RTU - 3,4

Project: BCF - Leominster, MA #875
 Prepared By:

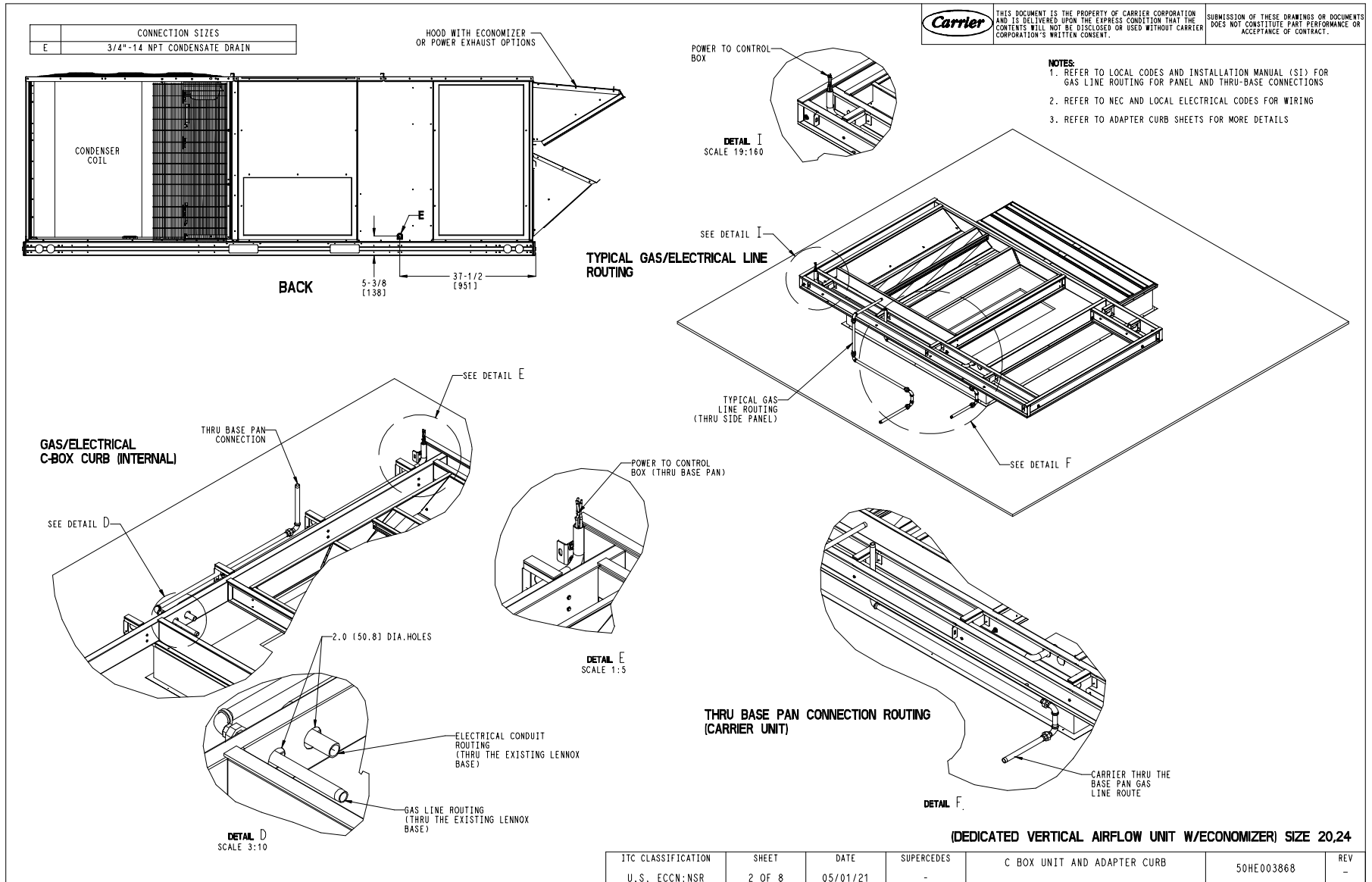
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Certified Drawing for RTU - 3,4

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Certified Drawing for RTU - 3,4

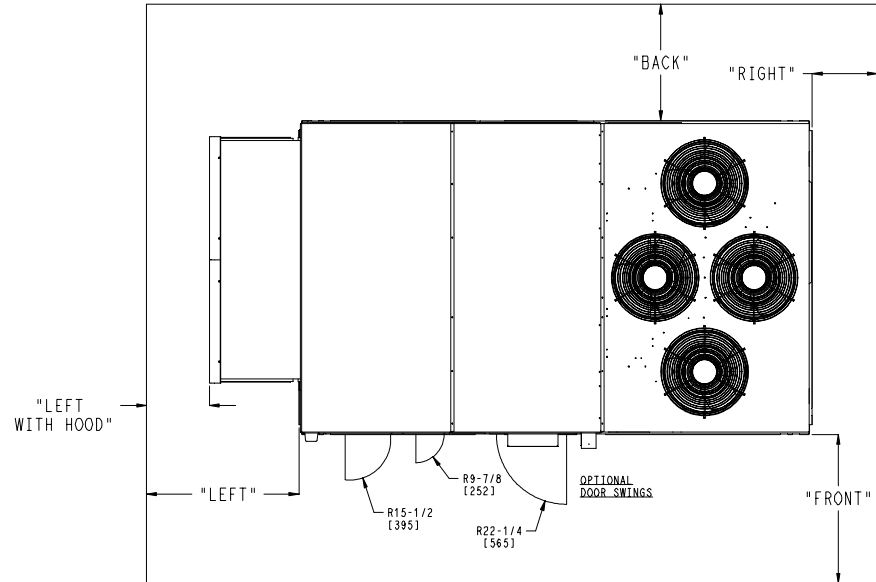
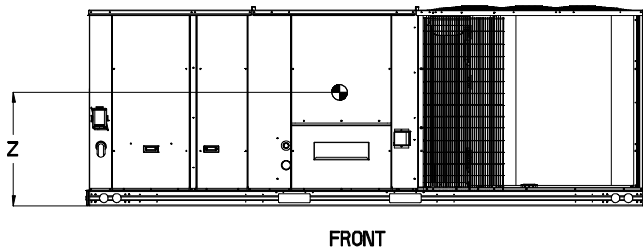
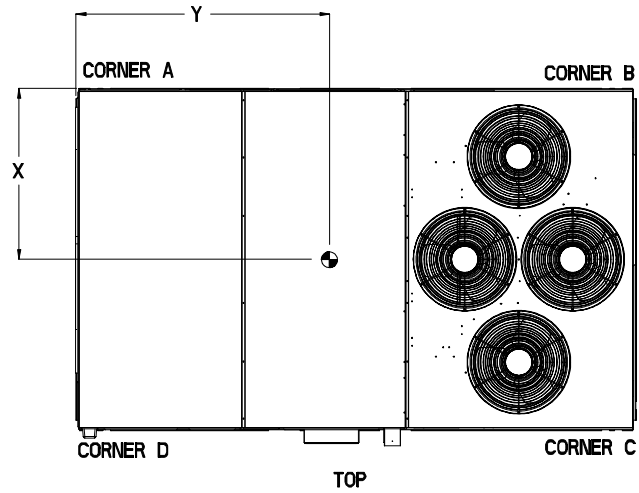
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UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.					
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z			
48HC20	2102	956	474	215	390	177	593	269	582	265	47 1/2	[1207]	71 1/4	[1810]	16 1/2	[419]
48HC24	2247	1021	540	246	556	253	598	272	581	264	44 5/8	[1133]	71 5/8	[1819]	19	[483]

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* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING. FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



NOTES:

- CLEARANCE ABOVE THE UNIT TO BE 72"
- FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

SURFACE	SERVICE WITH:		OPERATING CLEARANCE
	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	42 [1067mm]	36 [914mm]	18 [457mm]
LEFT WITH HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	C BOX UNIT AND ADAPTER CURB	50HE003868	REV
U.S. ECCN:NSR	3 OF 8	05/01/21	-			-

Certified Drawing for RTU - 3,4

Project: BCF - Leominster, MA #875
Prepared By:

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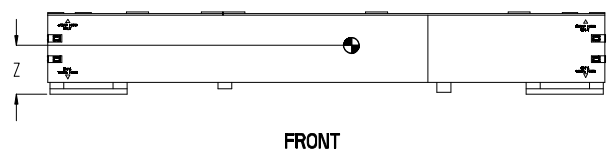
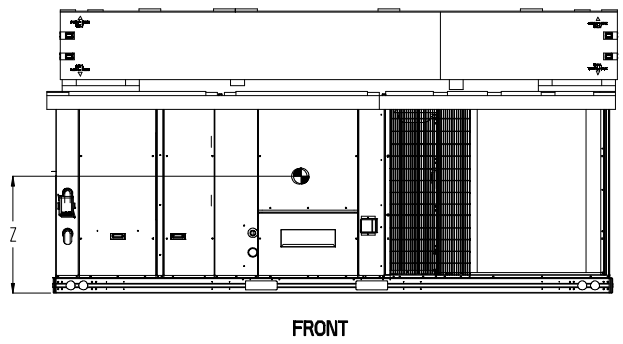
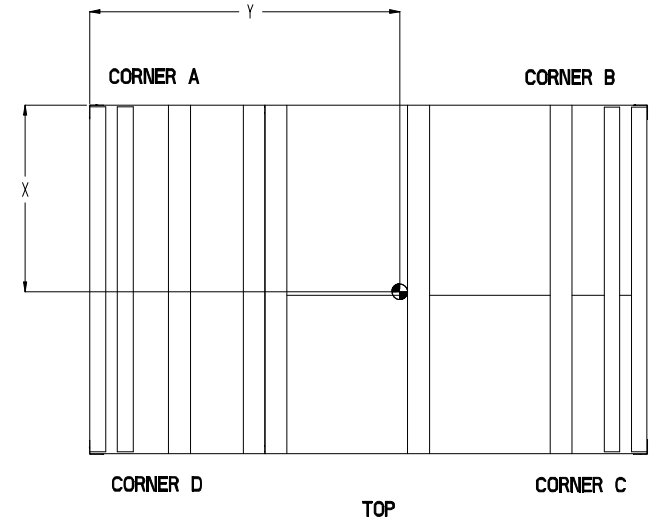
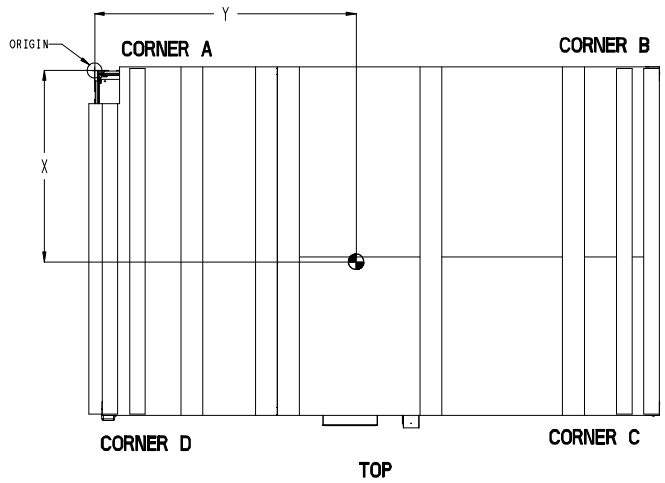
STD UNIT COG WITH LENNOX C-BOX CURB & CRATE														
UNIT	OUTDOOR COIL TYPE	WEIGHT (W)		C.G IN (MM)			CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)	
		LBS.	KG	X	Y	Z	LBS.	KG	LBS.	KG	LBS.	KG	LBS.	KG
48TC24	RTPF	2929.4	1330.9	41 2/9 [1047.0]	71 [1801.8]	29 1/2 [749.5]	764.3	347.6	761.3	345.8	697.8	316.2	705.8	320.3
48TC28	RTPF	3054.4	1387.9	42 1/4 [1073.2]	71 [1805.1]	30 4/5 [782.0]	777.3	352.6	777.3	352.8	746.8	339.2	752.8	342.3



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LENNOX C-BOX CURB & CRATE CENTER OF GRAVITY AND CORNER WEIGHTS 4 FAN													
WEIGHT		C.G. IN (MM)			CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		
LBS.	KG	X	Y	Z	LBS.	KG	LBS.	KG	LBS.	KG	LBS.	KG	
857.38	388.9	43 4/5 [1112.4]	73 1/5 [1859.3]	10 1/16 [258.1]	206.3	93.6	213.3	96.8	218.8	99.2	218.8	99.3	



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U.S. ECCN:NSR	4 OF 8	05/01/21	-			-

Certified Drawing for RTU - 3,4

Project: BCF - Leominster, MA #875
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04/27/2022
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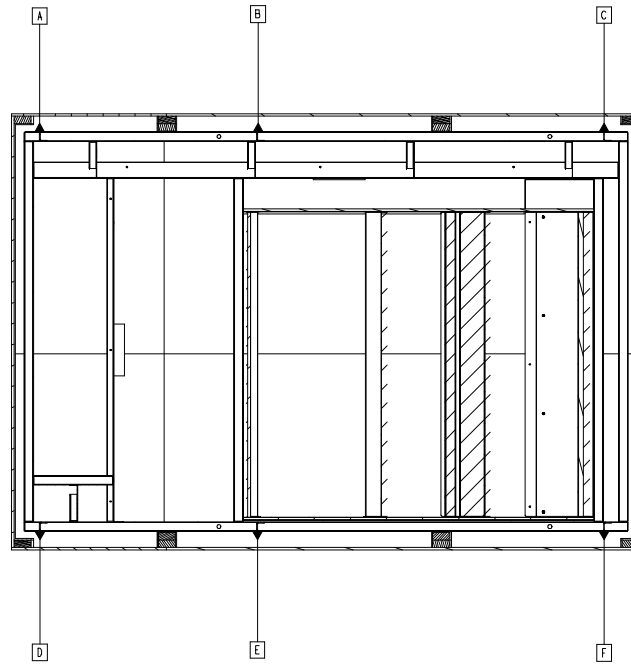
CURB LIFT LOCATIONS AND WEIGHT AT EACH LIFTING LUG											
LIFTING LUG A		LIFTING LUG B		LIFTING LUG C		LIFTING LUG D		LIFTING LUG E		LIFTING LUG F	
LBS.	KG	LBS.	KG	LBS.	KG	LBS.	KG	LBS.	KG	LBS.	KG
25.2	11.4	59.9	27.2	49.7	22.5	33.5	15.2	69.4	31.5	49.1	22.3

*NOTE: CURB LIFTING LUGS ARE ACCESSABLE WHILE INSIDE CRATE

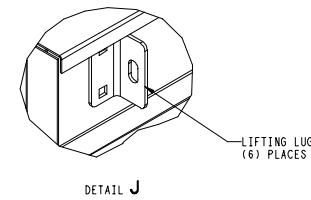
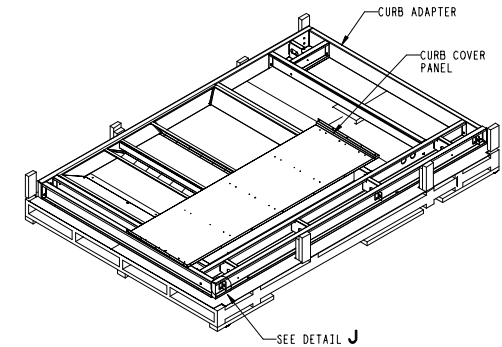
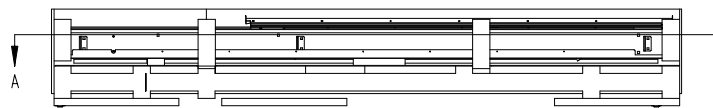


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SECTION A-A




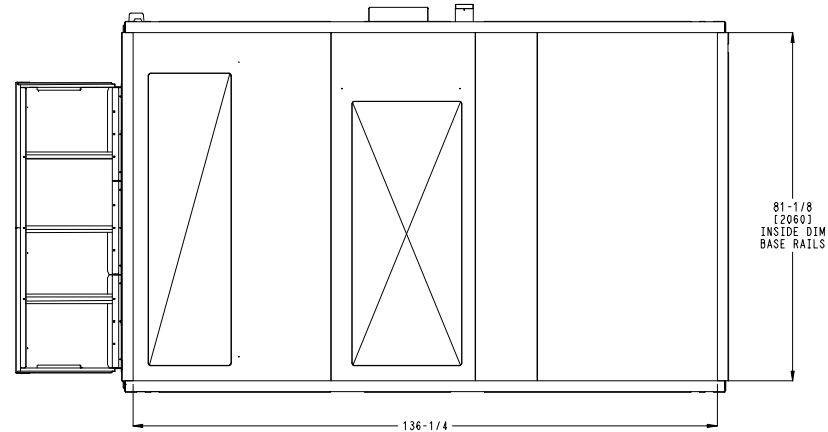
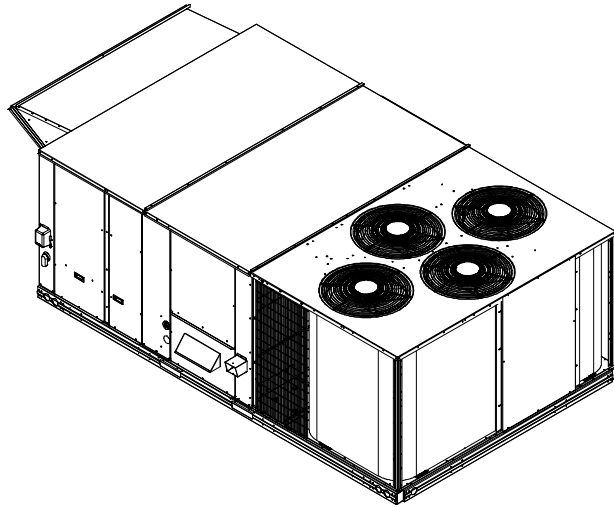
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U.S. ECCN: NSR	5 OF 8	05/01/21	-			-

Certified Drawing for RTU - 3,4

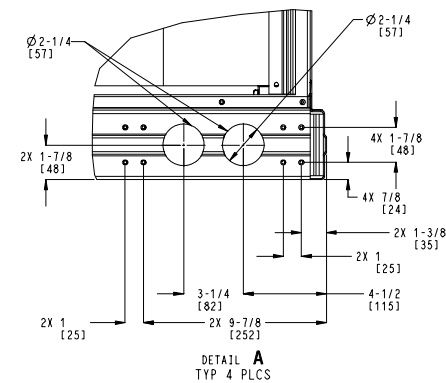
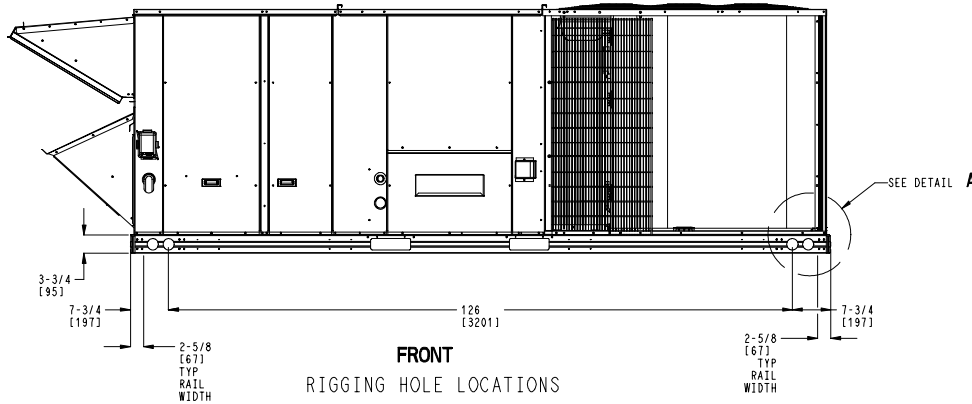
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BOTTOM
INSIDE BASERAIL DIMENSIONS

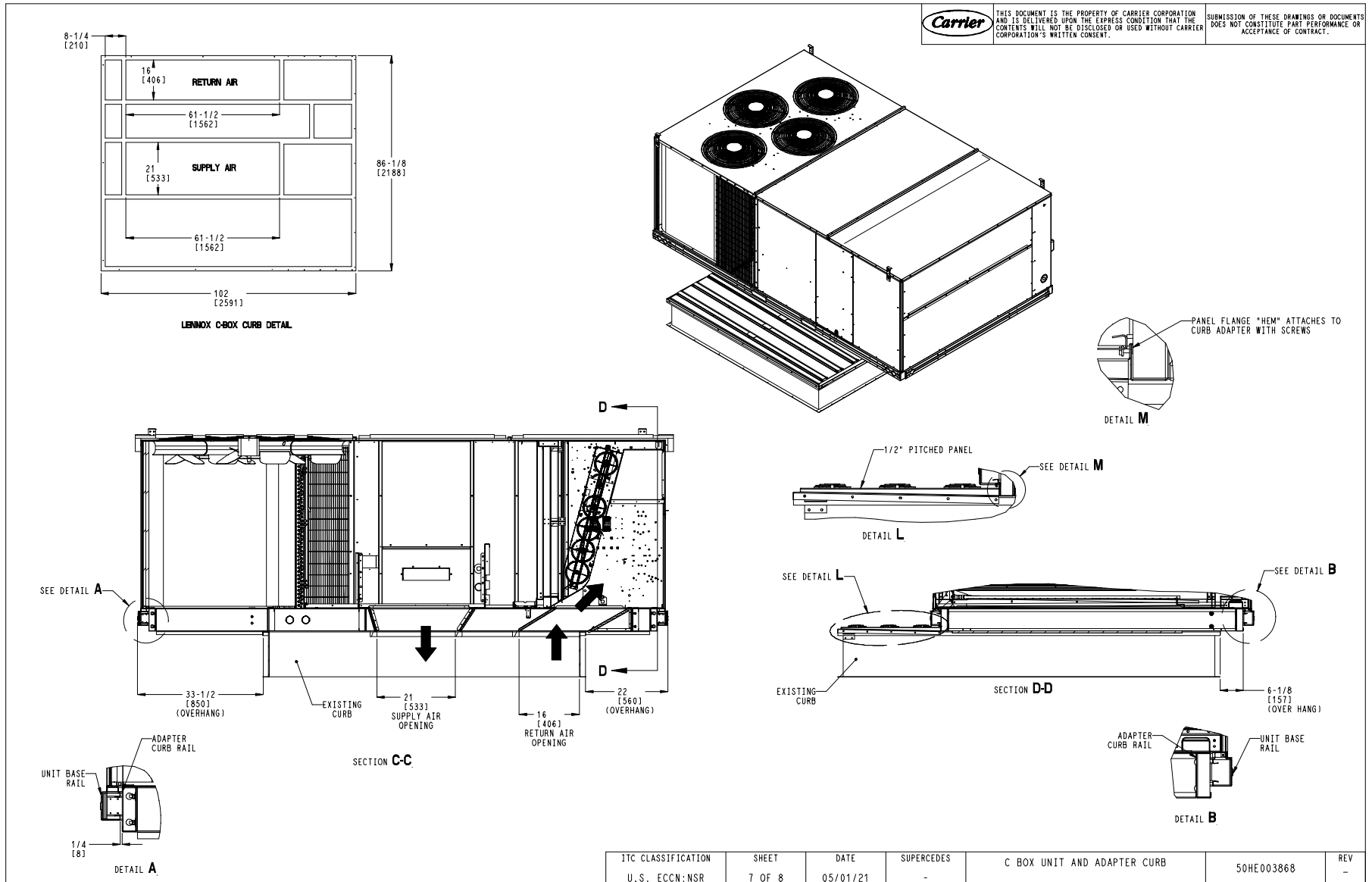


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U.S. ECCN:NSR	6 OF 8	05/01/21	-			-

Certified Drawing for RTU - 3,4

Project: BCF - Leominster, MA #875
 Prepared By:

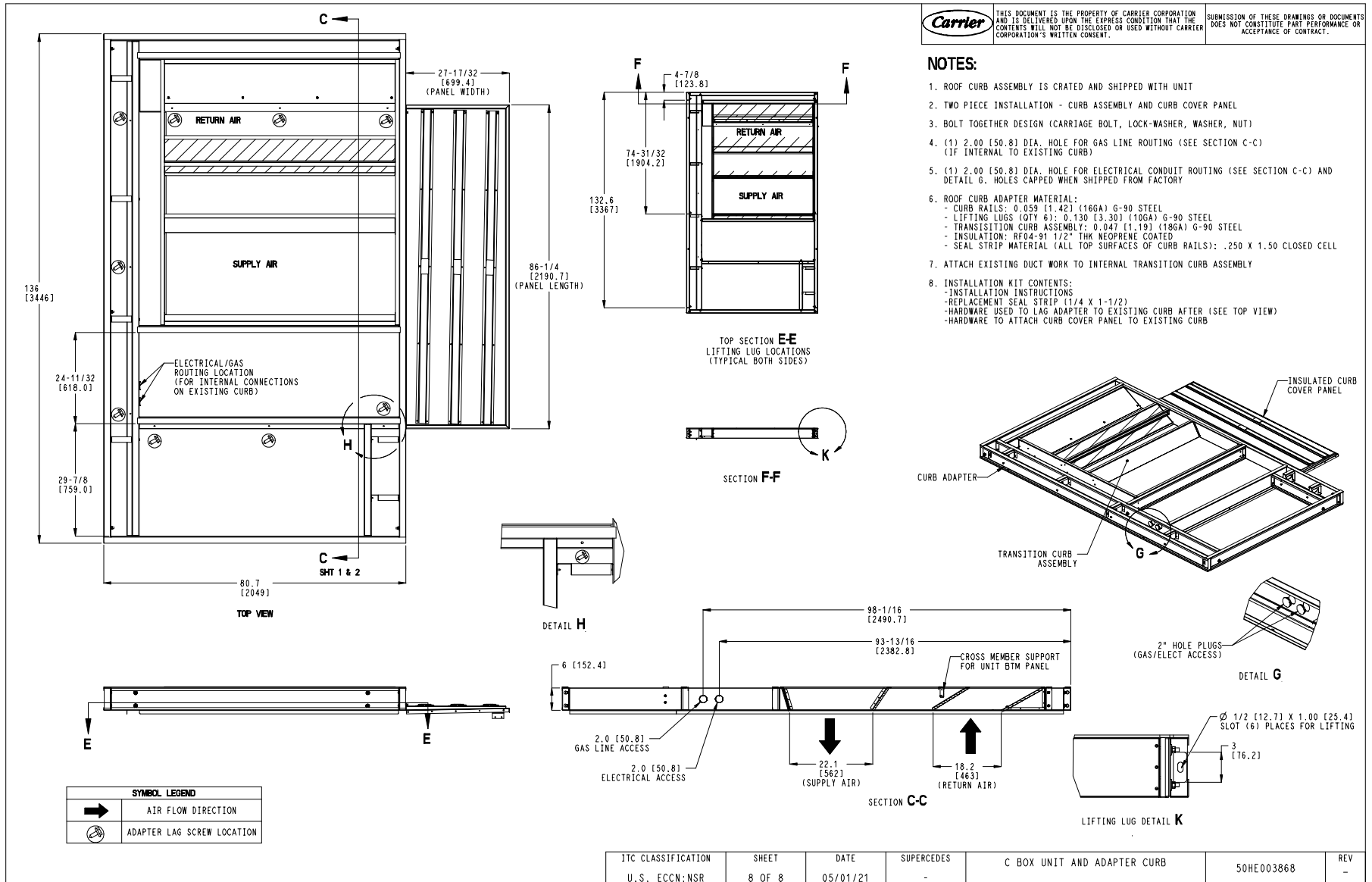
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Certified Drawing for RTU - 3,4

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ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	C BOX UNIT AND ADAPTER CURB	50HE003868	REV
U.S. ECCN:NSR	8 OF 8	05/01/21	-			-

Performance Summary For RTU - 3,4

Project: BCF - Leominster, MA #875
Prepared By:

04/27/2022
10:43AM

Part Number:48HCED24JKM6-6X5J0

ARI EER: 12.00
IEER: 13.8

Base Unit Dimensions

Unit Length: 141.5 in
Unit Width: 86.4 in
Unit Height: 57.4 in

Operating Weight

Base Unit Weight: 2247 lb
Medium Heat: 90 lb
High Static (3) - Belt Drive, Vert Supply, Lennox C-box (Curb Adapter): 341 lb
Al/Cu - Al/Cu - Louvered Hail Guard: 120 lb
Electromechanical Controls w/W7220 Econo Controller: 10 lb
Enthalpy Ultra Low Leak Econo w/PE (cent) - Vertical Air Only: 371 lb
Hinged Access Panels and Powered Convenience Outlet: 40 lb
2 Speed Fan Controller (VFD) and Non-Fused Disconnect: 35 lb

Total Operating Weight: 3254 lb

Unit

Unit Voltage-Phase-Hertz: 460-3-60
Air Discharge: Vertical
Fan Drive Type: Belt
Actual Airflow: 8000 CFM
Site Altitude: 0 ft

Cooling Performance

Condenser Entering Air DB: 95.0 F
Evaporator Entering Air DB: 80.0 F
Evaporator Entering Air WB: 67.0 F
Entering Air Enthalpy: 31.44 BTU/lb
Evaporator Leaving Air DB: 58.3 F
Evaporator Leaving Air WB: 57.2 F
Evaporator Leaving Air Enthalpy: 24.51 BTU/lb
Gross Cooling Capacity: 249.58 MBH
Gross Sensible Capacity: 187.14 MBH
Compressor Power Input: 16.87 kW
Coil Bypass Factor: 0.198

Heating Performance

Heating Airflow: 8000 CFM
Entering Air Temp: 70.0 F
Leaving Air Temp: 99.1 F
Gas Heating Input Capacity: 248.0 / 310.0 MBH
Gas Heating Output Capacity: 200.0 / 251.0 MBH
Temperature Rise: 29.1 F
Thermal Efficiency (%): 81.0

Supply Fan

External Static Pressure: 1.00 in wg
Options / Accessories Static Pressure
Curb Adapter: 0.30 in wg
Total Application Static (ESP + Unit Opts/Acc.): 1.30 in wg
Fan RPM: 1037
Fan Power: 5.43 BHP
NOTE: Selected IFM RPM Range: 941 - 1176

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Performance Summary For RTU - 3,4

Project: BCF - Leominster, MA #875
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Electrical Data

Voltage Range: **414 - 506**
 Compressor #1 RLA:..... **14.7**
 Compressor #1 LRA:..... **130**
 Compressor #2 RLA:..... **14.7**
 Compressor #2 LRA:..... **130**
 Indoor Fan Motor Type:..... **HIGH**
 Indoor Fan Motor FLA: **14.3**
 Combustion Fan Motor FLA (ea):..... **0.3**
 Power Supply MCA: **53.2**
 Power Supply MOC (Fuse or HACR):..... **60**
 Disconnect Size FLA:..... **57**
 Disconnect Size LRA: **352**
 Electrical Convenience Outlet FLA (based on unit line voltage):..... **2.2**
 Outdoor Fan [Qty / FLA (ea)]: **4 / 0.9**
 NOTE: Convenience outlet must be field connected to the line/load side of the unit disconnect per local code.

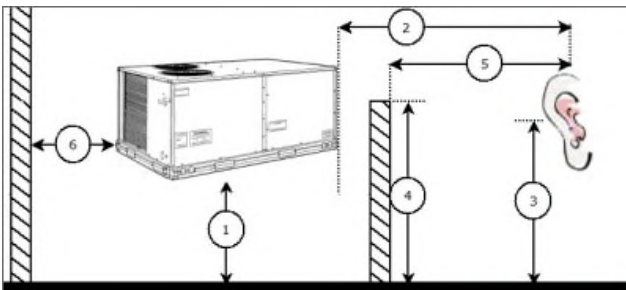
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Rating: **87.0 db**
 Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	94.9	95.1	95.6
125 Hz	89.9	79.0	87.5
250 Hz	82.3	72.5	84.2
500 Hz	81.4	64.5	84.2
1000 Hz	76.3	59.5	81.7
2000 Hz	74.5	55.3	77.9
4000 Hz	74.0	48.7	73.2
8000 Hz	66.2	37.5	66.3
A-Weighted	83.7	71.8	86.5

Advanced Acoustics



Advanced Acoustics Parameters

1. Unit height above ground: **30.0** ft
 2. Horizontal distance from unit to receiver: **50.0** ft
 3. Receiver height above ground: **5.7** ft
 4. Height of obstruction: **0.0** ft
 5. Horizontal distance from obstruction to receiver: **0.0** ft
 6. Horizontal distance from unit to obstruction: **0.0** ft

Performance Summary For RTU - 3,4

Project: BCF - Leominster, MA #875
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Detailed Acoustics Information

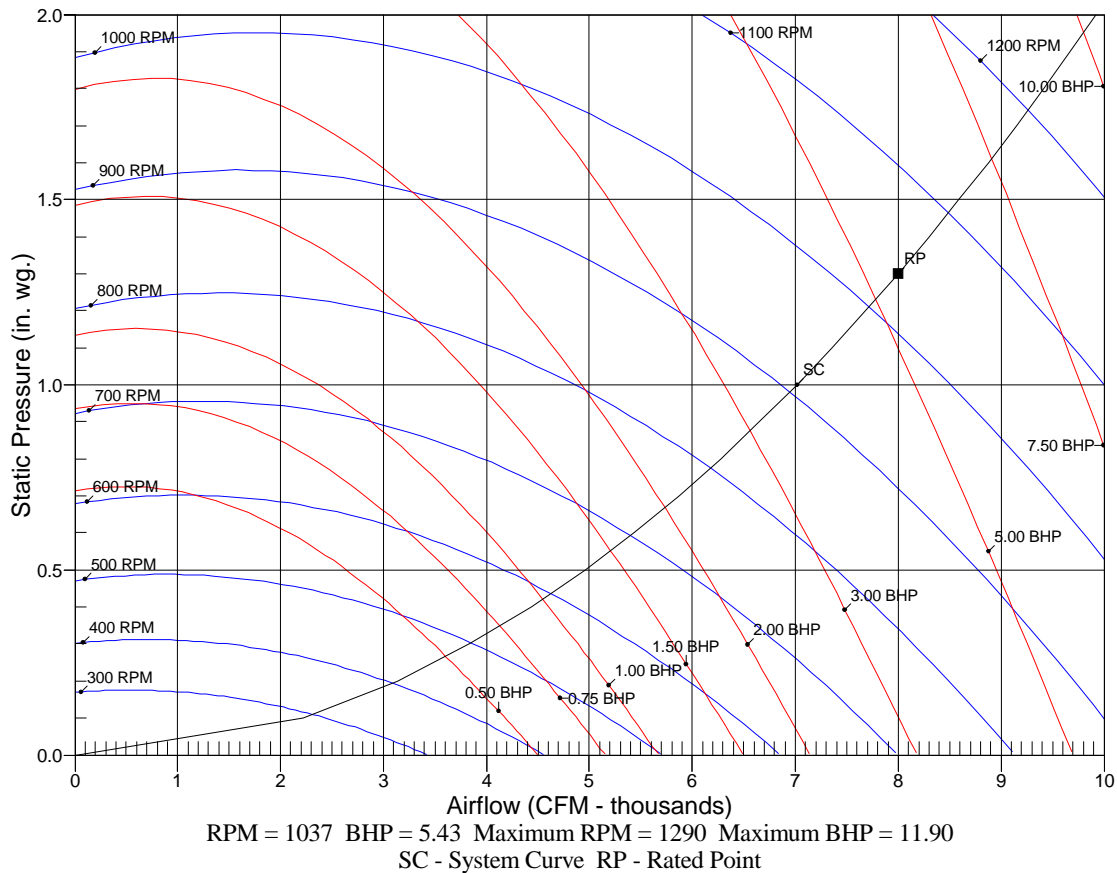
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	95.6	87.5	84.2	84.2	81.7	77.9	73.2	66.3	96.9 Lw
B	69.4	71.4	75.6	81.0	81.7	79.1	74.2	65.2	86.5 LwA
C	63.2	55.1	51.8	51.8	49.3	45.5	40.8	33.9	64.5 Lp
D	37.0	39.0	43.2	48.6	49.3	46.7	41.8	32.8	54.1 LpA

Legend

- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

Fan Curve



RTU - 7,10

**Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report**

Unit Report For RTU - 7,10

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Unit Parameters

Unit Model:..... **48HCFD08J3M6-6W5M0**
 Unit Size:..... **08 (7.5 Tons)**
 Volts-Phase-Hertz:..... **460-3-60**
 Heating Type:..... **Gas**
 Duct Cfg:..... **Vertical Supply / Vertical Return**
 High Heat
 Two stage cooling models

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length:..... **7' 4.125"**
 Unit Width:..... **4' 11.5"**
 Unit Height:..... **4' 1.375"**
 *** Total Operating Weight:..... **1236** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size:..... **3/4**
 Condensate Drain Line Size:..... **3/4**
 Return Air Filter Type:..... **Throwaway**
 Return Air Filter Quantity:..... **4**
 Return Air Filter Size:..... **20 x 20 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Condensate Overflow Switch
 High Static Option - Belt Drive
 Al/Cu - Al/Cu - Louvered Hail Guards
 Electromechanical Controls w/W7220 Econo Controller
 Enthalpy Ultra Low Leak Econo w/Baro Relief
 Hinged Access Panels and Powered Convenience Outlet
 Non-Fused Disconnect and Thru-The-Base Connections
 Standard Packaging
 2-Speed indoor fan motor controlled by VFD

Warranty Information

1-Year parts
 5-Year compressor parts
 10-Year heat exchanger - Aluminized
 Start-up, First Unit
 Start-up, Each Additional Unit

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48HCFD08J3M6-6W5M0	Rooftop Unit	2
	Base Unit	
	Condensate Overflow Switch	
	High Static Option - Belt Drive	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged Access Panels and Powered Convenience Outlet	
	Ultra Low leak Enty Econo X with baro relief, W7220 control. Meets Calif. Title 24 FDD & Leak Rates	
	2 Speed Fan Controller (VFD) with Non-Fused Disconnect and Thru-The Base Connections	
Field Installed Accessories		
CRDISKIT001A00	2 Speed VFD display kit	2
CRPWREXH023A01	Power Exhaust System	2
CRPECONV004A00	Hinged Access Door	2

Unit Report For RTU - 7,10

Project: BCF - Leominster, MA #875
Prepared By:

04/27/2022
10:43AM

33ZCT55SPT	Space Temp. with Override	2
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Certified Drawing for RTU - 7,10

Project: BCF - Leominster, MA #875
Prepared By:

04/27/2022
10:43AM

- NOTES:
1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE IN MILLIMETERS.
 2. CENTER OF GRAVITY
 3. DIRECTION OF AIR FLOW

UNIT	J	K	H
48HC-A, D07	41 1/4 [1048]	33 3/4 [857]	15 7/8 [403]
48HC-D08	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]
48HC-D09	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]

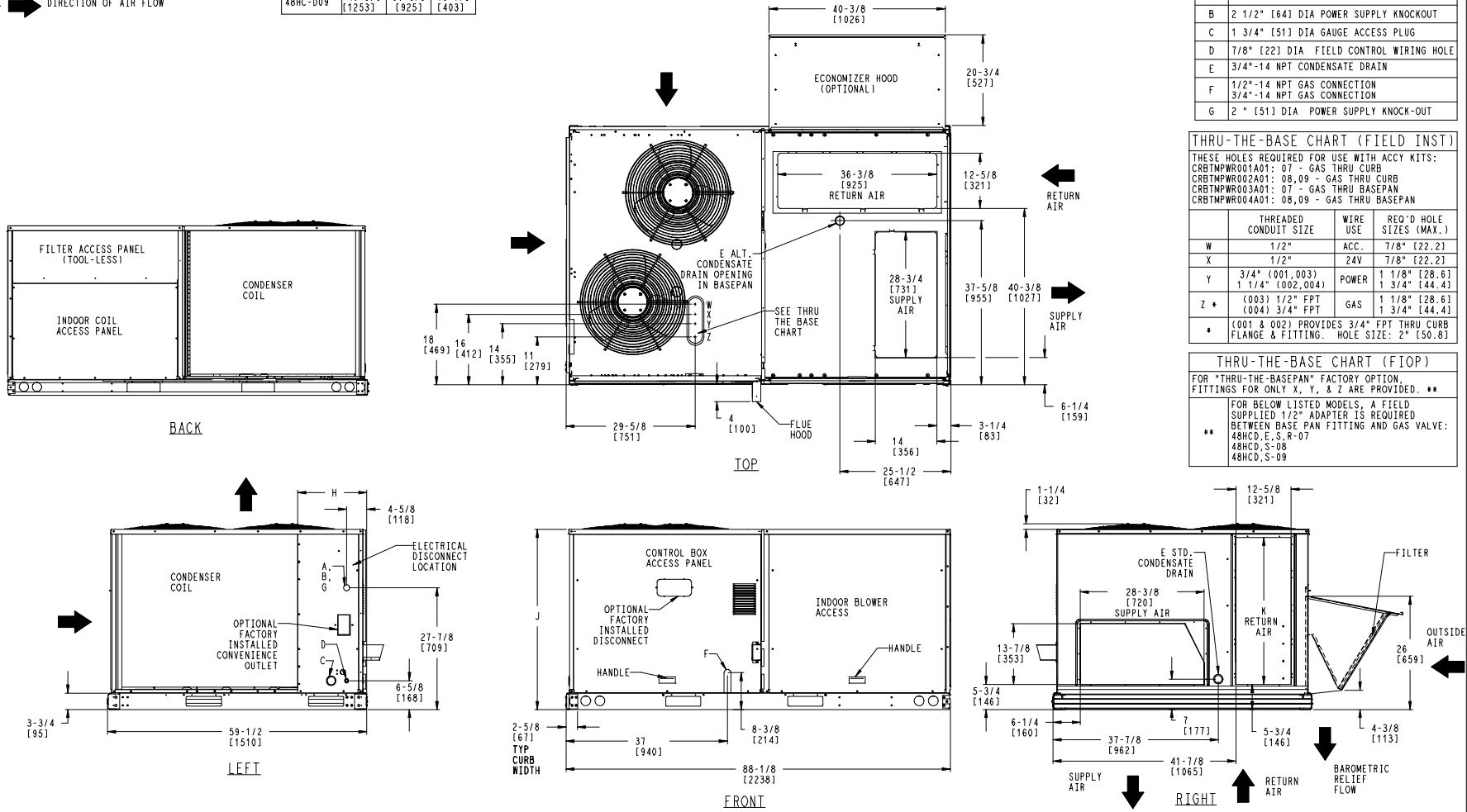
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CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	1/2"-14 NPT GAS CONNECTION
G	3/4"-14 NPT GAS CONNECTION
	2" [51] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART (FIELD INST)			
THESE HOLES REQUIRED FOR USE WITH ACCY KITS: CRBTMPR001A01: 07 - GAS THRU CURB CRBTMPR002A01: 08, 09 - GAS THRU CURB CRBTMPR003A01: 07 - GAS THRU BASEPAN CRBTMPR004A01: 08, 09 - GAS THRU BASEPAN			
	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC.	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	3/4" (001, 003) 1 1/4" (002, 004)	POWER	1 1/8" [28.6] 1 3/4" [44.4]
Z *	(003) 1/2" FPT (004) 3/4" FPT	GAS	1 1/8" [28.6] 1 3/4" [44.4]
*	[001 & 002] PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING. HOLE SIZE: 2" [50.8]		

THRU-THE-BASE CHART (FIOP)	
FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED. **	
FOR BELOW LISTED MODELS, A FIELD SUPPLIED 1/2" ADAPTER IS REQUIRED BETWEEN BASE PAN FITTING AND GAS VALVE:	
** 48HC-D, E, S, R-07 48HC-D, S-08 48HC-D, S-09	



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48HC 07 - 09 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502708	REV
U.S. ECCN: NSR	1 OF 2	09/28/16	10/05/10			B

Certified Drawing for RTU - 7,10

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

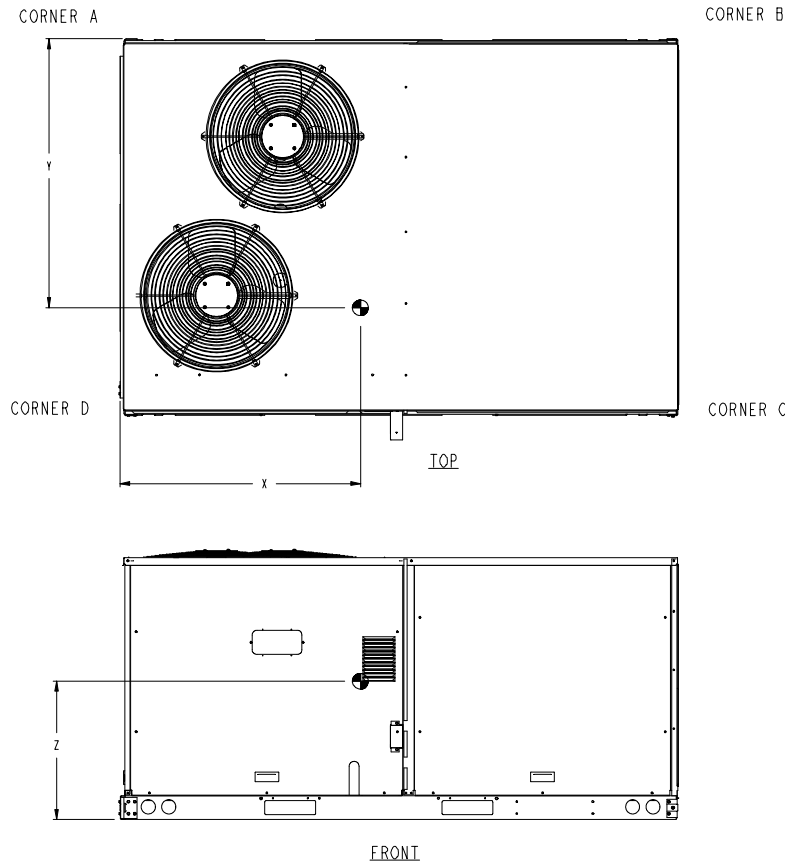
UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48HC-A, D07	765	347	165.3	75	152.7	69.3	214.7	97.4	232.3	105.4	42 3/8 [1076]	34 3/4 [882.6]	19 7/8 [505]
48HC-D08	925	419.5	204.1	92.6	190.9	86.6	256.1	116.2	273.9	124.2	42 5/8 [1082]	34 1/8 [867]	22 7/8 [581]
48HC-D09	925	419.5	204.1	92.6	190.9	86.6	256.1	116.2	273.9	124.2	42 5/8 [1082]	34 1/8 [867]	22 7/8 [581]



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* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING. FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48HC 07 - 09 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502708	REV
U.S. ECCN:NSR	2 OF 2	09/28/16	10/05/10			B

Certified Drawing for RTU - 7,10

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Service Clearance

C11247

LOCATION	DIMENSION	CONDITION
A	48-in (1219 mm)	• Unit disconnect is mounted on panel
	36-in (914 mm)	• If dimension-B is 12-in (305 mm)
	18-in (457 mm)	• No disconnect, convenience outlet option • Recommended service clearance (use electric screwdriver)
	12-in (305 mm)	• Minimum clearance (use manual ratchet screwdriver)
B	36-in (914 mm)	• Unit has economizer
	12-in (305 mm)	• If dimension-A is 36-in (914 mm)
	Special	• Check for sources of flue products within 10-ft of unit fresh air intake hood
C	36-in (914 mm)	• Side condensate drain is used
	18-in (457 mm)	• Minimum clearance
D	48-in (1219 mm)	• No flue discharge accessory installed, surface is combustible material
	42-in (1067 mm)	• Surface behind servicer is grounded (e.g., metal, masonry wall, another unit)
	36-in (914 mm)	• Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)
	Special	• Check for adjacent units or building fresh air intakes within 10-ft of this unit's flue outlet

NOTE: Unit not designed to have overhead obstruction. Contact Application Engineering for guidance on any application planning overhead obstruction or vertical clearances.

Chassis 3-4a

Performance Summary For RTU - 7,10

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Part Number:48HCFD08J3M6-6W5M0

ARI EER: 12.00
 IEER: 13.8

Base Unit Dimensions

Unit Length: 88.1 in
 Unit Width: 59.5 in
 Unit Height: 49.4 in

Operating Weight

Base Unit Weight: 925 lb
 High Heat: 29 lb
 Condensate Overflow Switch: 5 lb
 High Static Option - Belt Drive: 15 lb
 Al/Cu - Al/Cu - Louvered Hail Guards: 34 lb
 Enthalpy Ultra Low Leak Econo w/Baro Relief: 74 lb
 Hinged Access Panels and Powered Convenience Outlet: 40 lb
 2 Speed Fan Controller (VFD) with Non-Fused Disconnect and Thru-The Base Connections: 39 lb

Accessories

Power Exhaust System: 75 lb

Total Operating Weight: 1236 lb

Unit

Unit Voltage-Phase-Hertz: 460-3-60
 Air Discharge: Vertical
 Fan Drive Type: Belt
 Actual Airflow: 3000 CFM
 Site Altitude: 400 ft

Cooling Performance

Condenser Entering Air DB: 95.0 F
 Evaporator Entering Air DB: 80.0 F
 Evaporator Entering Air WB: 67.0 F
 Entering Air Enthalpy: 31.67 BTU/lb
 Evaporator Leaving Air DB: 57.7 F
 Evaporator Leaving Air WB: 57.2 F
 Evaporator Leaving Air Enthalpy: 24.68 BTU/lb
 Gross Cooling Capacity: 93.00 MBH
 Gross Sensible Capacity: 71.27 MBH
 Compressor Power Input: 6.24 kW
 Coil Bypass Factor: 0.198

Heating Performance

Heating Airflow: 3000 CFM
 Entering Air Temp: 70.0 F
 Leaving Air Temp: 127.6 F
 Gas Heating Input Capacity: 180.0 / 224.0 MBH
 Gas Heating Output Capacity: 147.0 / 184.0 MBH
 Temperature Rise: 57.6 F
 Thermal Efficiency (%): 82.0

Supply Fan

External Static Pressure: 1.00 in wg
 Options / Accessories Static Pressure
 Economizer: 0.11 in wg
 Power Exhaust: (Fan Data Includes Drop)
 Total Application Static (ESP + Unit Opts/Acc.): 1.11 in wg
 Fan RPM: 917
 Fan Power: 1.68 BHP

Performance Summary For RTU - 7,10

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

NOTE: Selected IFM RPM Range: 838 - 1084

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Power Exhaust

Return Duct Static: **0.41** in wg
 Max. Air To Exhaust: **2809** CFM

Electrical Data

Voltage Range: **414 - 506**
 Compressor #1 RLA: **6.1**
 Compressor #1 LRA: **41**
 Compressor #2 RLA: **6.1**
 Compressor #2 LRA: **41**
 Indoor Fan Motor Type: **HIGH**
 Indoor Fan Motor FLA: **5.3**
 Combustion Fan Motor FLA (ea): **0.25**
 Power Supply MCA: **25**
 Power Supply MOCP (Fuse or HACR): **30**
 Disconnect Size FLA: **26**
 Disconnect Size LRA: **129**
 Electrical Convenience Outlet FLA (based on unit line voltage): **2.2**
 Power Exhaust [Kit Qty / FLA(ea kit)]: **1 / 1.8**
 Outdoor Fan [Qty / FLA (ea)]: **2 / 0.8**
 NOTE: Convenience outlet must be field connected to the line/load side of the unit disconnect per local code.

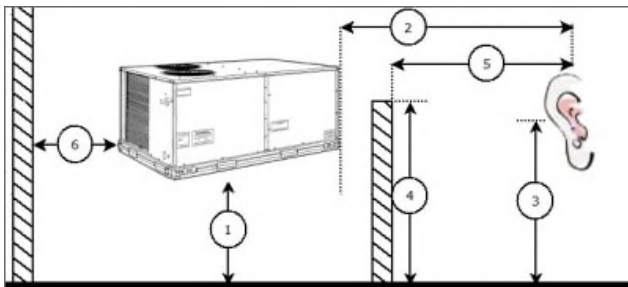
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	97.5	94.8	90.6
125 Hz	91.6	85.8	84.3
250 Hz	77.0	71.2	80.2
500 Hz	70.3	65.5	79.3
1000 Hz	66.3	63.0	77.1
2000 Hz	64.8	58.2	72.2
4000 Hz	67.3	58.0	67.4
8000 Hz	68.9	57.1	63.7
A-Weighted	79.2	73.8	82.0

Advanced Acoustics



Advanced Acoustics Parameters

1. Unit height above ground: **30.0** ft

Performance Summary For RTU - 7,10

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

- 2. Horizontal distance from unit to receiver:**50.0** ft
- 3. Receiver height above ground:**5.7** ft
- 4. Height of obstruction:**0.0** ft
- 5. Horizontal distance from obstruction to receiver: **.0.0** ft
- 6. Horizontal distance from unit to obstruction:**0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	90.6	84.3	80.2	79.3	77.1	72.2	67.4	63.7	92.3 Lw
B	64.4	68.2	71.6	76.1	77.1	73.4	68.4	62.6	81.7 LwA
C	58.2	51.9	47.8	46.9	44.7	39.8	35.0	31.3	59.9 Lp
D	32.0	35.8	39.2	43.7	44.7	41.0	36.0	30.2	49.3 LpA

Legend

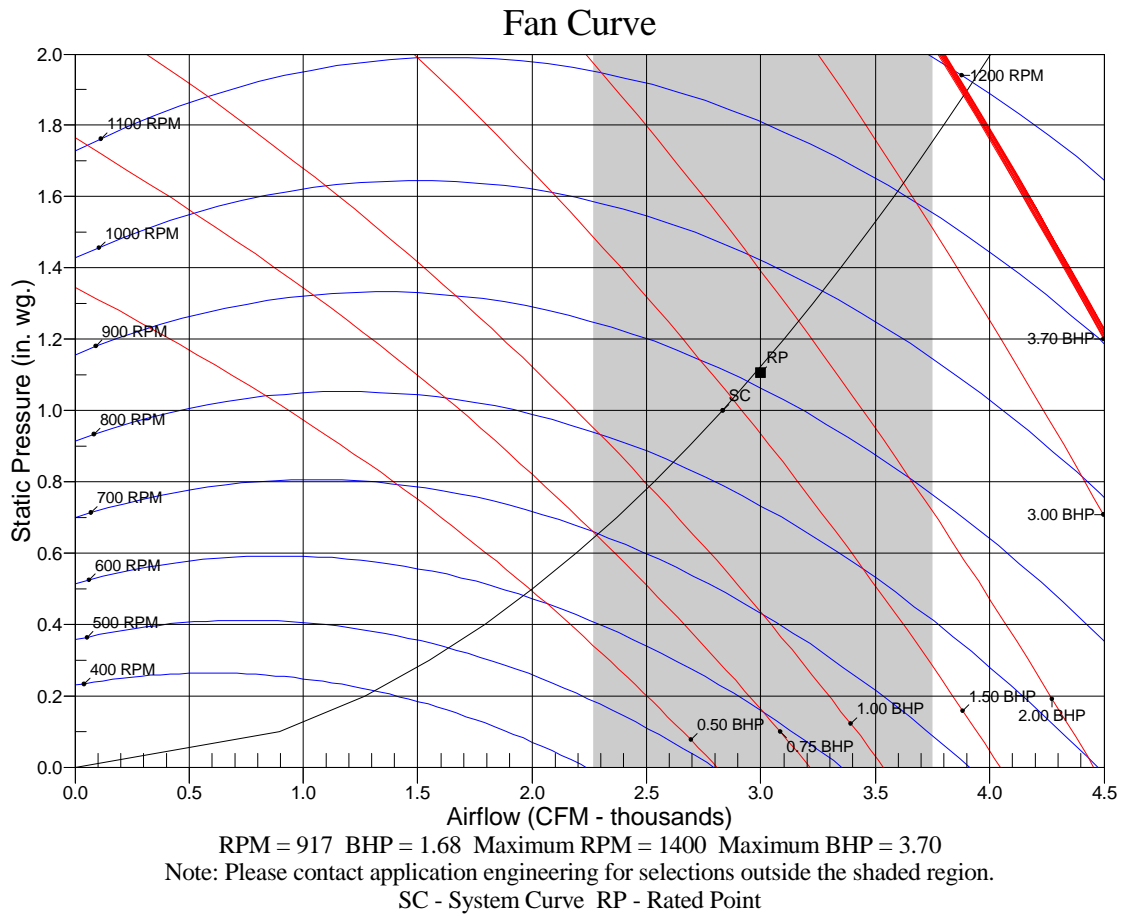
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

Performance Summary For RTU - 7,10

Project: BCF - Leominster, MA #875
Prepared By:

04/27/2022
10:43AM



RTU - 8

**Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report**

Unit Report For RTU - 8

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Unit Parameters

Unit Model:..... **48HCFD12J3M6-6W5M0**
 Unit Size:..... **12 (10 Tons (11.5 EER))**
 Volts-Phase-Hertz: **460-3-60**
 Heating Type:..... **Gas**
 Duct Cfg:..... **Vertical Supply / Vertical Return**
 High Heat
 Two stage cooling models

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length:..... **7' 4.125"**
 Unit Width:..... **4' 11.5"**
 Unit Height: **4' 1.375"**
 *** Total Operating Weight: **1416** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size:..... **3/4**
 Condensate Drain Line Size: **3/4**
 Return Air Filter Type:..... **Throwaway**
 Return Air Filter Quantity:..... **4**
 Return Air Filter Size:..... **20 x 20 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Condensate Overflow Switch
 High Static Option - Belt Drive
 Al/Cu - Al/Cu - Louvered Hail Guards
 Electromechanical Controls w/W7220 Econo Controller
 Enthalpy Ultra Low Leak Econo w/Baro Relief
 Hinged Access Panels and Powered Convenience Outlet
 Non-Fused Disconnect and Thru-The-Base Connections
 Standard Packaging
 2-Speed indoor fan motor controlled by VFD

Warranty Information

1-Year parts
 5-Year compressor parts
 10-Year heat exchanger - Aluminized
 Start-up, Each Additional Unit

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
48HCFD12J3M6-6W5M0	Rooftop Unit	1
	Base Unit	
	Condensate Overflow Switch	
	High Static Option - Belt Drive	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged Access Panels and Powered Convenience Outlet	
	Ultra Low leak Enty Econo X with baro relief, W7220 control. Meets Calif. Title 24 FDD & Leak Rates	
	2 Speed Fan Controller (VFD) with Non-Fused Disconnect and Thru-The Base Connections	
Field Installed Accessories		
CRPECONV004A00	Hinged Access Door	1
33ZCT55SPT	Space Temp. with Override	1
CRDISKIT001A00	2 Speed VFD display kit	1
CRPWREXH023A01	Power Exhaust System	1

Certified Drawing for RTU - 8

Project: BCF - Leominster, MA #875
Prepared By:

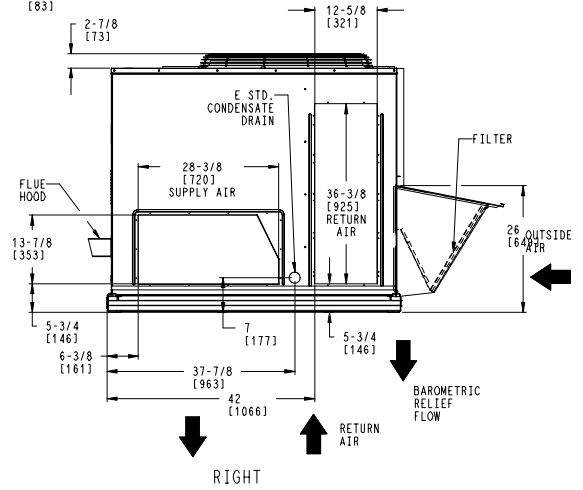
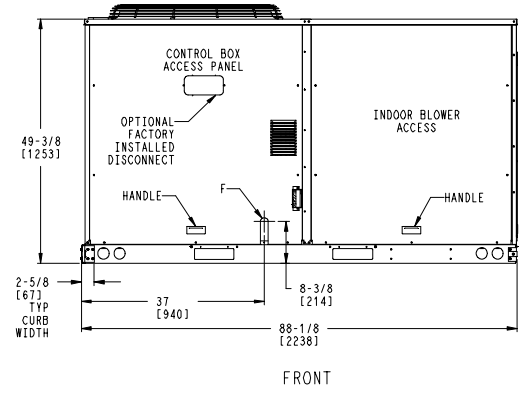
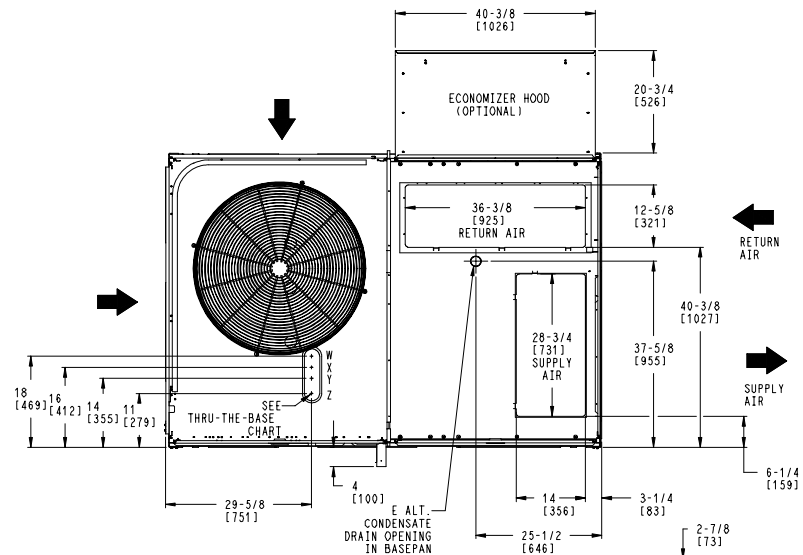
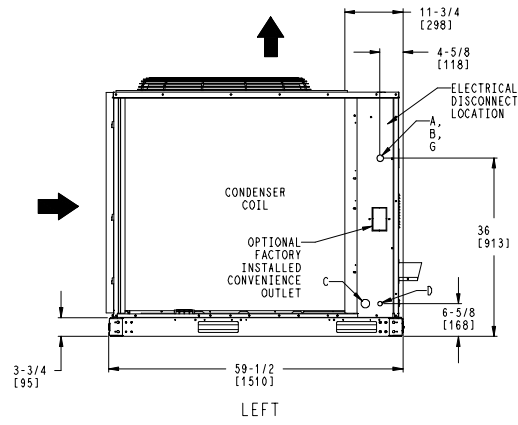
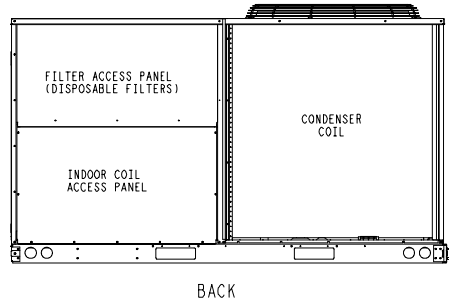
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- NOTES:
1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE IN MILLIMETERS.
 2. CENTER OF GRAVITY
 3. DIRECTION OF AIR FLOW

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CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	3/4"-14 NPT GAS CONNECTION
G	2" [51] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART THESE HOLES REQUIRED FOR USE CRBTMPR002A01,004A01			
	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC.	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	1 1/4" (002,004)	POWER	1 3/4" [44.4]
Z*	(004) 3/4" FPT	GAS	1 5/8" [41.3]
FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED			
* (002) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.			




SHEET 1 OF 2	DATE 10/19/12	SUPERCEDES 04-23-12	48HC-D11, 48HC-D12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502926	REV C
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Certified Drawing for RTU - 8

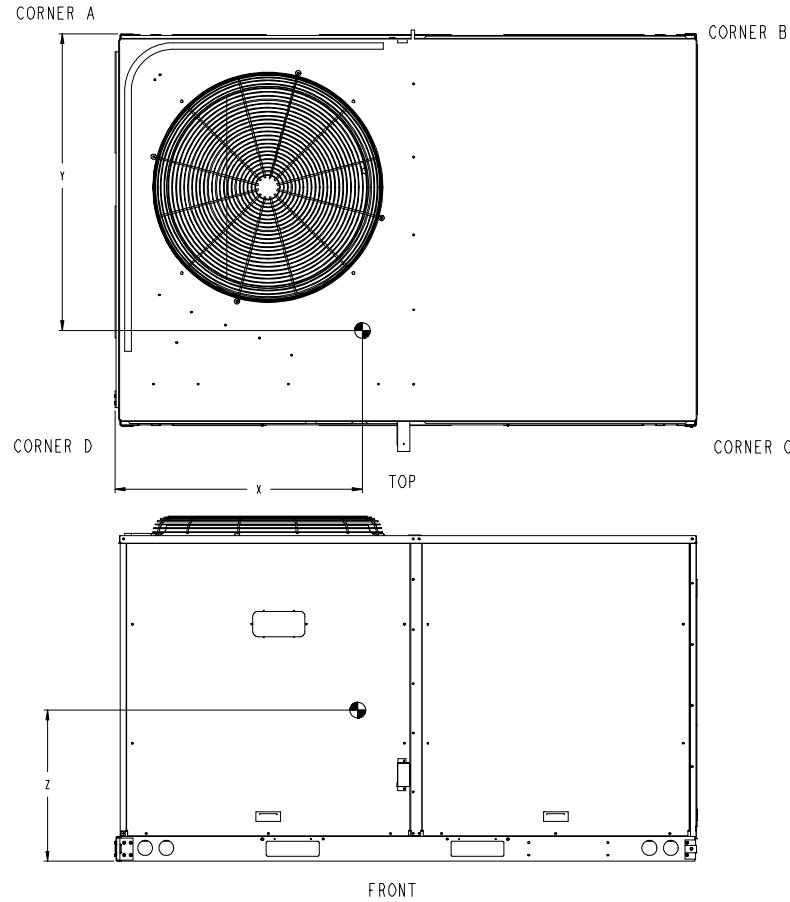
Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48HC-D12	1090	495	311	142	162	74	211	96	405	184	30 1/8 [766]	33 5/8 [855]	20 3/4 [528]
48HC-D11	1090	495	311	142	162	74	211	96	405	184	30 1/8 [766]	33 5/8 [855]	20 3/4 [528]


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SHEET 2 OF 2	DATE 10/19/12	SUPERCEDES 04-23-12	48HC-D11, 48HC-D12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502926	REV C
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Certified Drawing for RTU - 8

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Service Clearance

C08337

LOCATION	DIMENSION	CONDITION
A	48-in (1219 mm)	• Unit disconnect is mounted on panel
	36-in (914 mm)	• If dimension-B is 12-in (305 mm)
	18-in (457 mm)	• No disconnect, convenience outlet option • Recommended service clearance (use electric screwdriver)
	12-in (305 mm)	• Minimum clearance (use manual ratchet screwdriver)
B	36-in (914 mm)	• Unit has economizer
	12-in (305 mm)	• If dimension-A is 36-in (914 mm)
	Special	• Check for sources of flue products within 10-ft of unit fresh air intake hood
C	36-in (914 mm)	• Side condensate drain is used
	18-in (457 mm)	• Minimum clearance
D	48-in (1219 mm)	• No flue discharge accessory installed, surface is combustible material
	42-in (1067 mm)	• Surface behind servicer is grounded (e.g., metal, masonry wall, another unit)
	36-in (914 mm)	• Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)
	Special	• Check for adjacent units or building fresh air intakes within 10-ft of this unit's flue outlet

NOTE: Unit not designed to have overhead obstruction. Contact Application Engineering for guidance on any application planning overhead obstruction or vertical clearances.

Chassis 4b

Performance Summary For RTU - 8

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Part Number: 48HCFD12J3M6-6W5M0

ARI EER: **11.50**
 IEER: **12.7**

Base Unit Dimensions

Unit Length: **88.1** in
 Unit Width: **59.5** in
 Unit Height: **49.4** in

Operating Weight

Base Unit Weight: **1099** lb
 High Heat: **35** lb
 Condensate Overflow Switch: **5** lb
 High Static Option - Belt Drive: **15** lb
 Al/Cu - Al/Cu - Louvered Hail Guards: **34** lb
 Enthalpy Ultra Low Leak Econo w/Baro Relief: **74** lb
 Hinged Access Panels and Powered Convenience Outlet: **40** lb
 2 Speed Fan Controller (VFD) with Non-Fused Disconnect and Thru-The Base Connections: **39** lb

Accessories

Power Exhaust System: **75** lb

 Total Operating Weight: **1416** lb

Unit

Unit Voltage-Phase-Hertz: **460-3-60**
 Air Discharge: **Vertical**
 Fan Drive Type: **Belt**
 Actual Airflow: **4000** CFM
 Site Altitude: **400** ft

Cooling Performance

Condenser Entering Air DB: **95.0** F
 Evaporator Entering Air DB: **80.0** F
 Evaporator Entering Air WB: **67.0** F
 Entering Air Enthalpy: **31.67** BTU/lb
 Evaporator Leaving Air DB: **59.2** F
 Evaporator Leaving Air WB: **57.6** F
 Evaporator Leaving Air Enthalpy: **24.96** BTU/lb
 Gross Cooling Capacity: **119.10** MBH
 Gross Sensible Capacity: **88.41** MBH
 Compressor Power Input: **8.74** kW
 Coil Bypass Factor: **0.198**

Heating Performance

Heating Airflow: **4000** CFM
 Entering Air Temp: **70.0** F
 Leaving Air Temp: **118.1** F
 Gas Heating Input Capacity: **200.0 / 250.0** MBH
 Gas Heating Output Capacity: **160.0 / 205.0** MBH
 Temperature Rise: **48.1** F
 Thermal Efficiency (%): **80.0**

Supply Fan

External Static Pressure: **1.00** in wg
 Options / Accessories Static Pressure
 Economizer: **0.20** in wg
 Power Exhaust: **(Fan Data Includes Drop)**
 Total Application Static (ESP + Unit Opts/Acc.): **1.20** in wg
 Fan RPM: **1046**
 Fan Power: **2.91** BHP

Performance Summary For RTU - 8

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

NOTE: Selected IFM RPM Range: 1022 - 1240

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Power Exhaust

Return Duct Static: **0.41** in wg
 Max. Air To Exhaust: **2809** CFM

Electrical Data

Voltage Range: **414 - 506**
 Compressor #1 RLA: **7.7**
 Compressor #1 LRA: **52**
 Compressor #2 RLA: **7.7**
 Compressor #2 LRA: **52**
 Indoor Fan Motor Type: **HIGH**
 Indoor Fan Motor FLA: **6.4**
 Combustion Fan Motor FLA (ea): **0.25**
 Power Supply MCA: **31**
 Power Supply MOCP (Fuse or HACR): **35**
 Disconnect Size FLA: **33**
 Disconnect Size LRA: **168**
 Electrical Convenience Outlet FLA (based on unit line voltage): **2.2**
 Power Exhaust [Kit Qty / FLA(ea kit)]: **1 / 1.8**
 Outdoor Fan [Qty / FLA (ea)]: **1 / 3.1**
 NOTE: Convenience outlet must be field connected to the line/load side of the unit disconnect per local code.

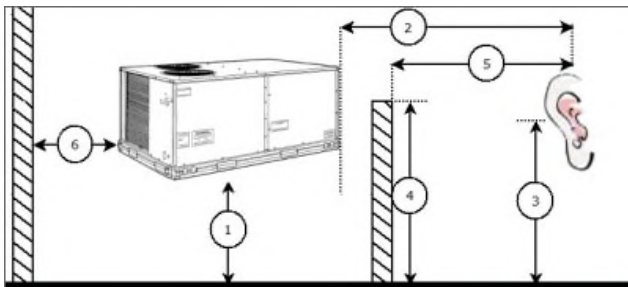
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	98.2	95.0	85.9
125 Hz	94.5	88.0	87.9
250 Hz	81.3	73.3	85.6
500 Hz	75.2	68.4	84.4
1000 Hz	71.7	66.3	82.8
2000 Hz	69.2	62.0	78.5
4000 Hz	72.4	62.4	74.9
8000 Hz	74.3	60.5	72.5
A-Weighted	82.7	75.9	87.0

Advanced Acoustics



Advanced Acoustics Parameters

1. Unit height above ground: **30.0** ft

Performance Summary For RTU - 8

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

- 2. Horizontal distance from unit to receiver:**50.0** ft
- 3. Receiver height above ground:**5.7** ft
- 4. Height of obstruction:**0.0** ft
- 5. Horizontal distance from obstruction to receiver: .**0.0** ft
- 6. Horizontal distance from unit to obstruction:**0.0** ft

Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.9	87.9	85.6	84.4	82.8	78.5	74.9	72.5	92.9 Lw
B	59.7	71.8	77.0	81.2	82.8	79.7	75.9	71.4	87.3 LwA
C	53.5	55.5	53.2	52.0	50.4	46.1	42.5	40.1	60.5 Lp
D	27.3	39.4	44.6	48.8	50.4	47.3	43.5	39.0	54.9 LpA

Legend

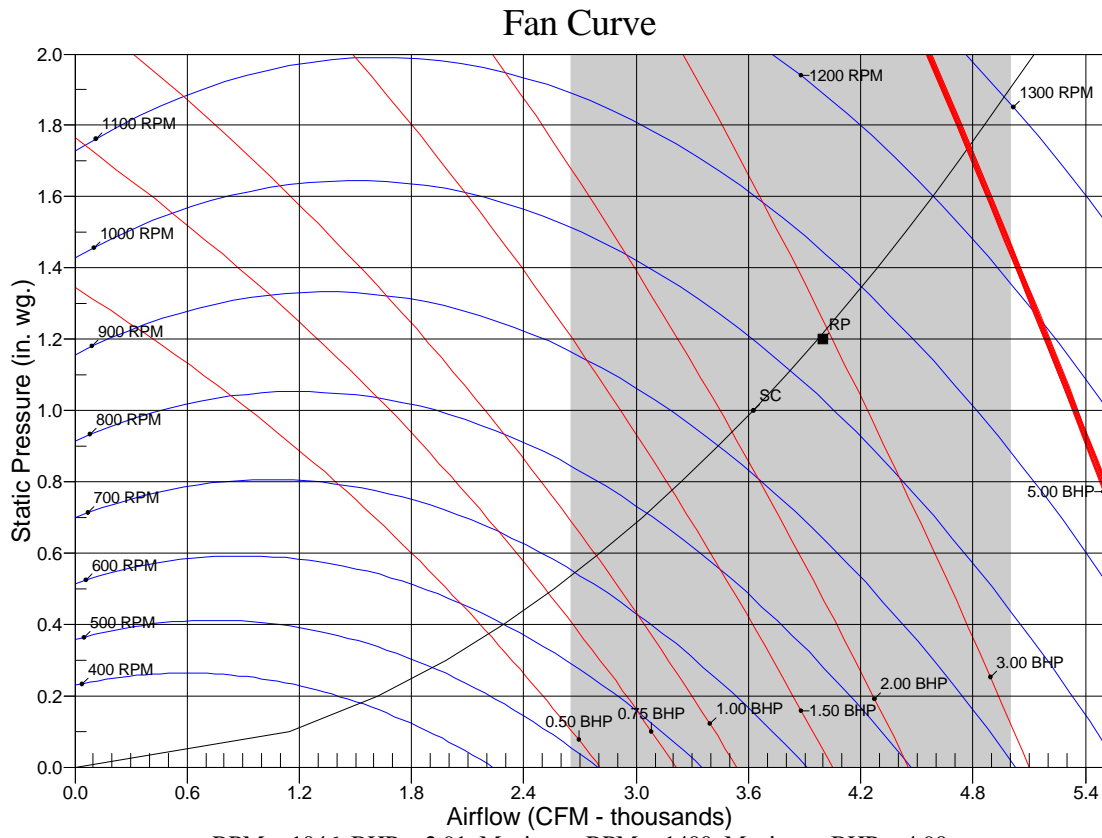
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

Performance Summary For RTU - 8

Project: BCF - Leominster, MA #875
Prepared By:

04/27/2022
10:43AM



RPM = 1046 BHP = 2.91 Maximum RPM = 1400 Maximum BHP = 4.90
Note: Please contact application engineering for selections outside the shaded region.
SC - System Curve RP - Rated Point

RTU - 11,12

**Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report**

Unit Report For RTU - 11,12

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Unit Parameters

Unit Model:.....**48HCED24J3M6-6X5J0**
 Unit Size:.....**24 (20 Tons)**
 Volts-Phase-Hertz:.....**460-3-60**
 Heating Type:.....**Gas**
 Duct Cfg:.....**Vertical Supply / Vertical Return**
 Medium Heat
 Two Stage Compressor Models

Dimensions (ft. in.) & Weight (lb.) ***

Unit Length:.....**11' 9.5"**
 Unit Width:.....**7' 2.375"**
 Unit Height:.....**4' 9.375"**
 *** Total Operating Weight:.....**2929** lb

*** Weights and Dimensions are approximate. Weight does not include unit packaging. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Lines and Filters

Gas Line Size:..... **3/4**
 Condensate Drain Line Size:..... **3/4**
 Return Air Filter Type:..... **Throwaway**
 Return Air Filter Quantity:..... **9**
 Return Air Filter Size:..... **16 x 25 x 2**

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Unit Configuration

Condensate Overflow Switch
 High Static Option - Vertical Models
 Al/Cu - Al/Cu - Louvered Hail Guard
 Electromechanical Controls w/W7220 Econo Controller
 Enthalpy Ultra Low Leak Econo w/PE (cent) - Vertical Air Only
 Hinged Access Panels and Powered Convenience Outlet
 Non-Fused Disconnect
 Standard Packaging
 2-Speed indoor fan motor controlled by VFD

Warranty Information

1-Year parts(std.)
 5-Year compressor parts(std.)
 10-Year heat exchanger - Aluminized(std.)
 Start-up, First Unit
 Start-up, Each Additional Unit

NOTE: Please see Warranty Catalog 500-089 for explanation of policies and ordering methods.

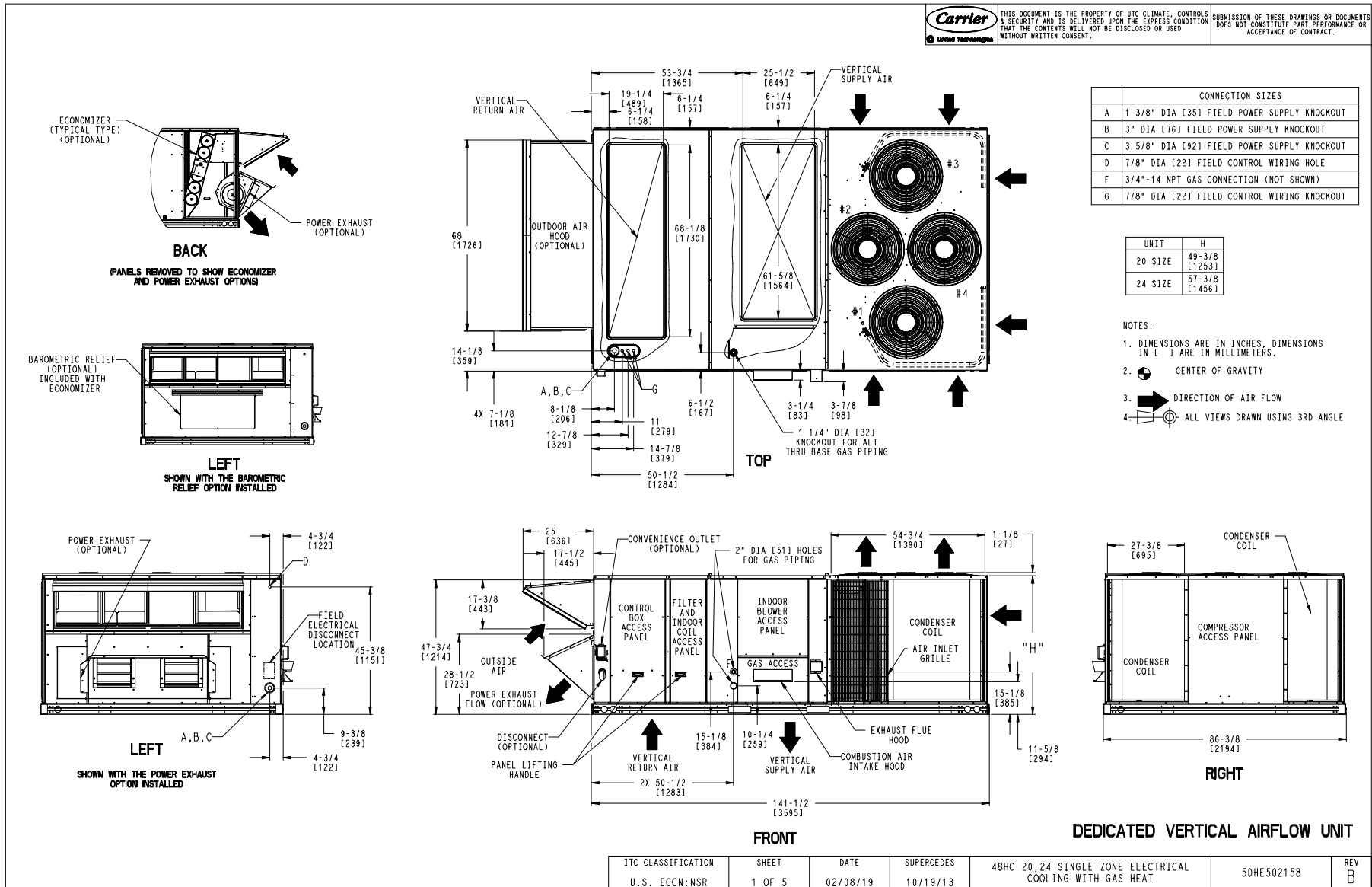
Ordering Information

Part Number	Description	Quantity
48HCED24J3M6-6X5J0	Rooftop Unit	2
	Base Unit	
	Condensate Overflow Switch	
	High Static Option - Vertical Models	
	Al/Cu - Al/Cu - Louvered Hail Guard	
	Hinged Access Panels and Powered Convenience Outlet	
	Electromechanical control, Ultra LOW LEAK enthalpy economizer with centrifugal power exhaust and W72	
	2 Speed Fan Controller (VFD) and Non-Fused Disconnect	
Field Installed Accessories		
CRDISKIT001A00	2 Speed VFD display kit	2
33ZCT55SPT	Space Temp. with Override	2

Certified Drawing for RTU - 11,12

Project: BCF - Leominster, MA #875
 Prepared By:

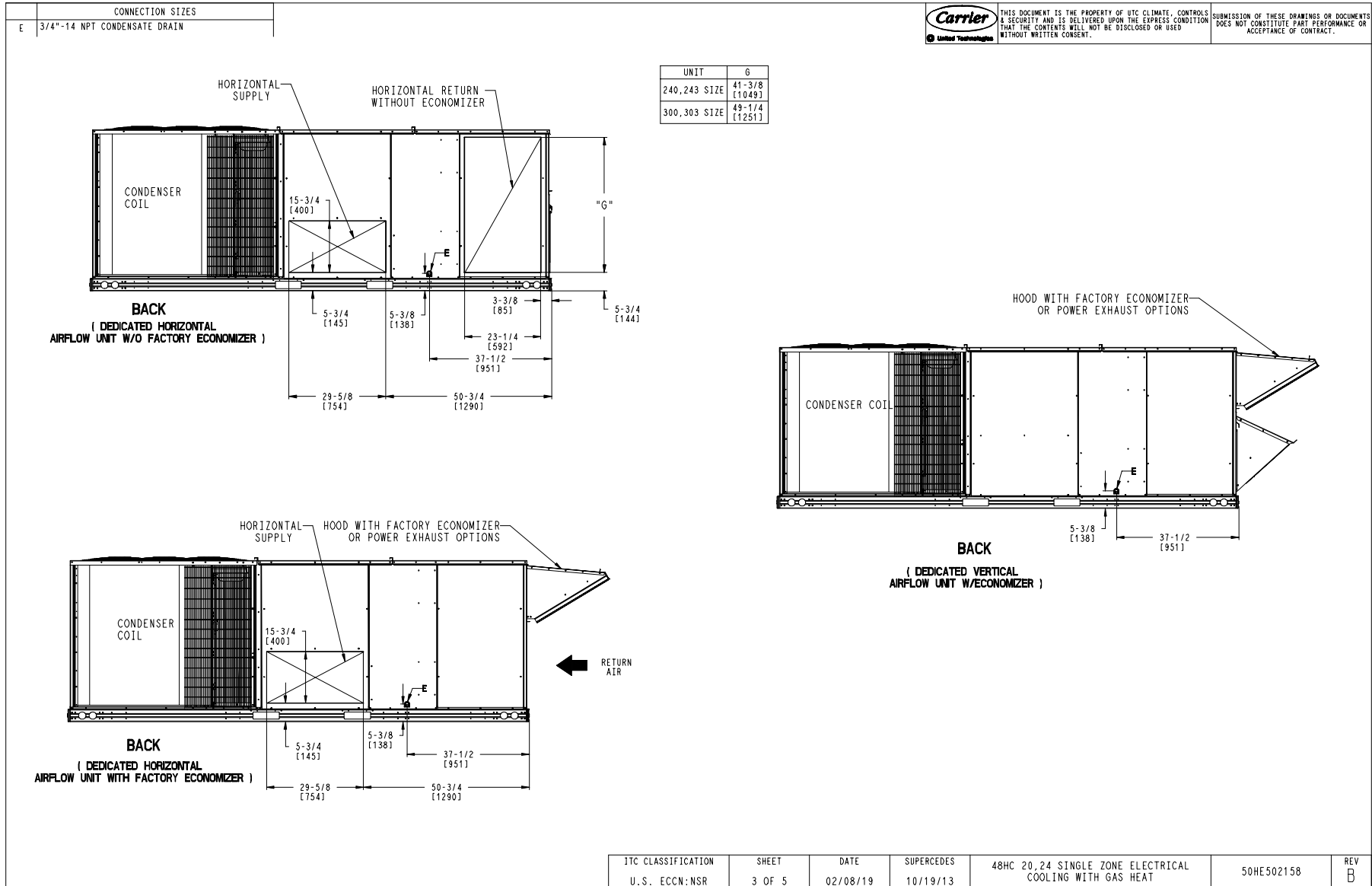
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Certified Drawing for RTU - 11,12

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48HC 20, 24 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE502158	REV
U.S. ECCN: NSR	3 OF 5	02/08/19	10/19/13			B

Certified Drawing for RTU - 11,12

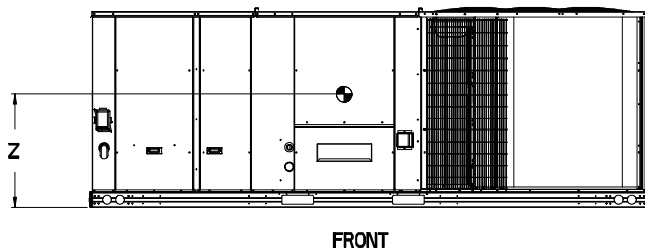
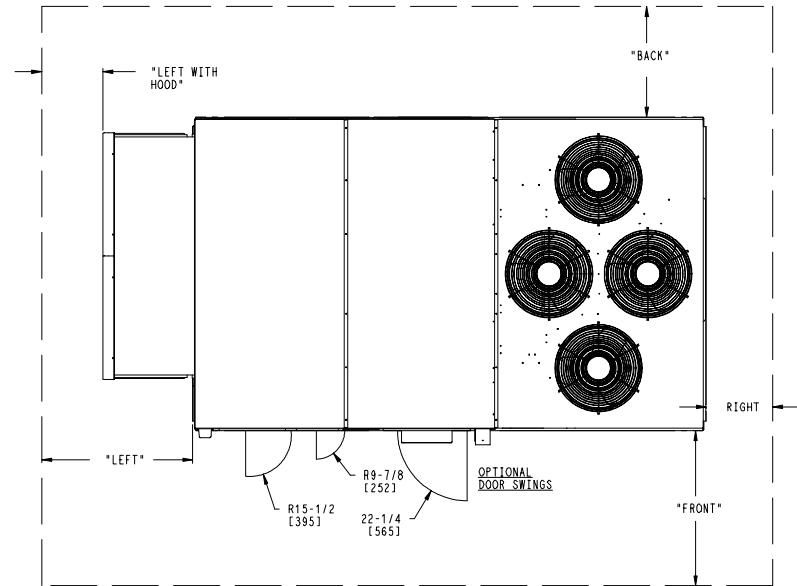
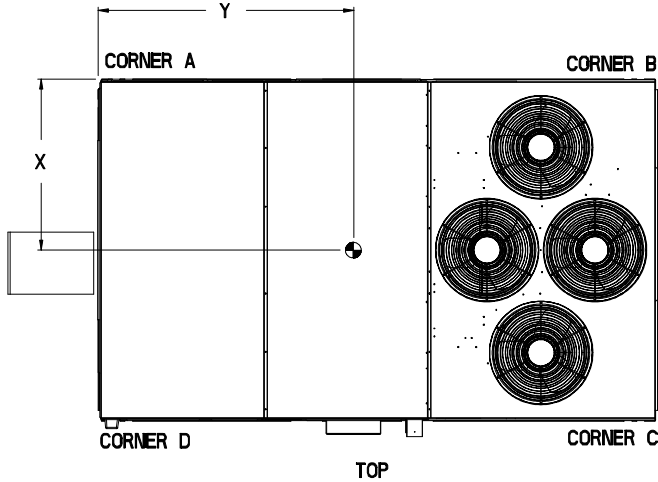
Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48HC20	2102	956	474	215	390	177	593	269	582	265	47 1/2 [1207]	71 1/4 [1810]	16 1/2 [419]
48HC24	2247	1021	540	246	556	253	598	272	581	264	44 5/8 [1133]	71 5/8 [1819]	19 [483]

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* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING. FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



NOTES:

- CLEARANCE ABOVE THE UNIT TO BE 72"
- FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

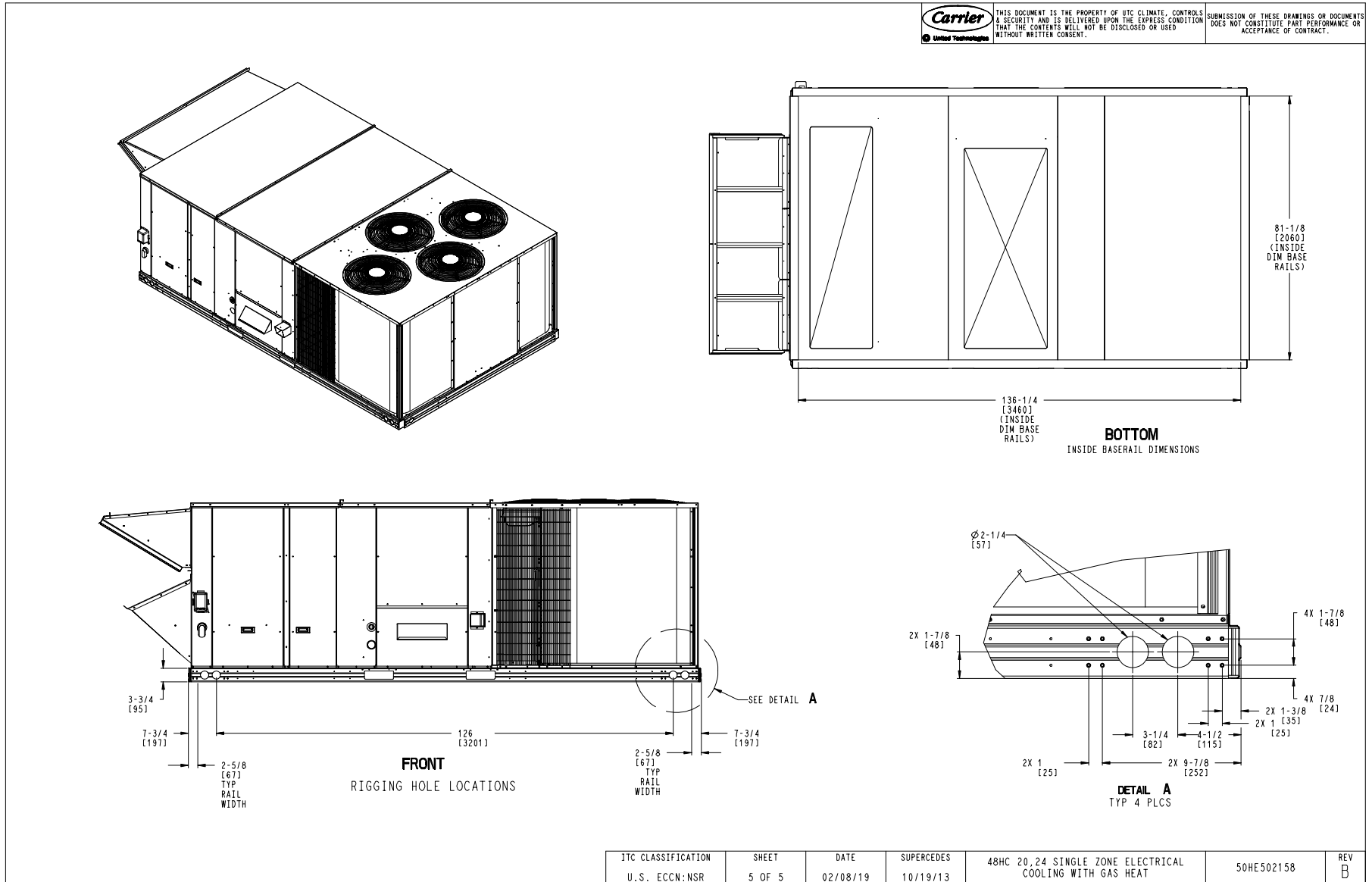
SURFACE	CLEARANCE		
	SERVICE WITH CONDUCTIVE BARRIER	SERVICE WITH NONCONDUCTIVE BARRIER	OPERATING CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	42 [1067mm]	36 [914mm]	18 [457mm]
LEFT WITH HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP	72 [1829mm]	72 [1829mm]	72 [1829mm]

JTC CLASSIFICATION U.S. ECCN:NSR	SHEET 4 OF 5	DATE 02/08/19	SUPERCEDES 10/19/13	48HC 20,24 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE502158	REV B
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Certified Drawing for RTU - 11,12

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM



Performance Summary For RTU - 11,12

Project: BCF - Leominster, MA #875
Prepared By:

04/27/2022
10:43AM

Part Number:48HCED24J3M6-6X5J0

ARI EER: 12.00
IEER: 13.8

Base Unit Dimensions

Unit Length: 141.5 in
Unit Width: 86.4 in
Unit Height: 57.4 in

Operating Weight

Base Unit Weight: 2247 lb
Medium Heat: 90 lb
High Static Option - Vertical Models: 16 lb
Al/Cu - Al/Cu - Louvered Hail Guard: 120 lb
Electromechanical Controls w/W7220 Econo Controller: 10 lb
Enthalpy Ultra Low Leak Econo w/PE (cent) - Vertical Air Only: 371 lb
Hinged Access Panels and Powered Convenience Outlet: 40 lb
2 Speed Fan Controller (VFD) and Non-Fused Disconnect: 35 lb

Total Operating Weight: 2929 lb

Unit

Unit Voltage-Phase-Hertz: 460-3-60
Air Discharge: Vertical
Fan Drive Type: Belt
Actual Airflow: 8000 CFM
Site Altitude: 0 ft

Cooling Performance

Condenser Entering Air DB: 95.0 F
Evaporator Entering Air DB: 80.0 F
Evaporator Entering Air WB: 67.0 F
Entering Air Enthalpy: 31.44 BTU/lb
Evaporator Leaving Air DB: 58.3 F
Evaporator Leaving Air WB: 57.2 F
Evaporator Leaving Air Enthalpy: 24.51 BTU/lb
Gross Cooling Capacity: 249.58 MBH
Gross Sensible Capacity: 187.14 MBH
Compressor Power Input: 16.87 kW
Coil Bypass Factor: 0.198

Heating Performance

Heating Airflow: 8000 CFM
Entering Air Temp: 70.0 F
Leaving Air Temp: 99.1 F
Gas Heating Input Capacity: 248.0 / 310.0 MBH
Gas Heating Output Capacity: 200.0 / 251.0 MBH
Temperature Rise: 29.1 F
Thermal Efficiency (%): 81.0

Supply Fan

External Static Pressure: 1.00 in wg
Fan RPM: 968
Fan Power: 4.79 BHP
NOTE: Selected IFM RPM Range: 941 - 1176

Selection includes construction throwaway filter into the base fan curve. This filter is not MERV Rated.

Electrical Data

Voltage Range: 414 - 506

Performance Summary For RTU - 11,12

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

Compressor #1 RLA:.....	14.7
Compressor #1 LRA:.....	130
Compressor #2 RLA:.....	14.7
Compressor #2 LRA:.....	130
Indoor Fan Motor Type:.....	HIGH
Indoor Fan Motor FLA:.....	14.3
Combustion Fan Motor FLA (ea):.....	0.3
Power Supply MCA:.....	53.2
Power Supply MOCP (Fuse or HACR):.....	60
Disconnect Size FLA:.....	57
Disconnect Size LRA:.....	352
Electrical Convenience Outlet FLA (based on unit line voltage):.....	2.2
Outdoor Fan [Qty / FLA (ea)]:	4 / 0.9

NOTE: Convenience outlet must be field connected to the line/load side of the unit disconnect per local code.

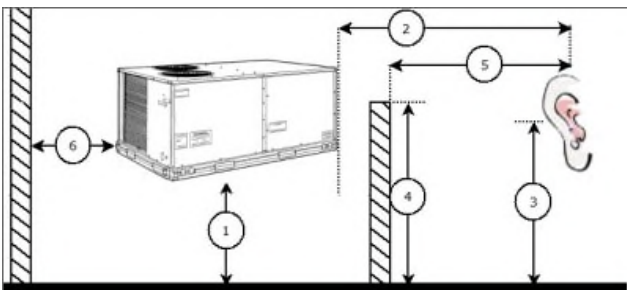
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Rating: **87.0 db**
 Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	93.9	94.1	95.6
125 Hz	88.0	77.1	87.5
250 Hz	80.7	70.9	84.2
500 Hz	80.3	63.3	84.2
1000 Hz	74.7	57.8	81.7
2000 Hz	73.0	53.8	77.9
4000 Hz	72.7	47.3	73.2
8000 Hz	64.5	35.7	66.3
A-Weighted	82.3	70.5	86.5

Advanced Acoustics



Advanced Acoustics Parameters

- 1. Unit height above ground: **30.0** ft
- 2. Horizontal distance from unit to receiver: **50.0** ft
- 3. Receiver height above ground: **5.7** ft
- 4. Height of obstruction: **0.0** ft
- 5. Horizontal distance from obstruction to receiver: **.0.0** ft
- 6. Horizontal distance from unit to obstruction: **0.0** ft

Detailed Acoustics Information

Performance Summary For RTU - 11,12

Project: BCF - Leominster, MA #875
 Prepared By:

04/27/2022
 10:43AM

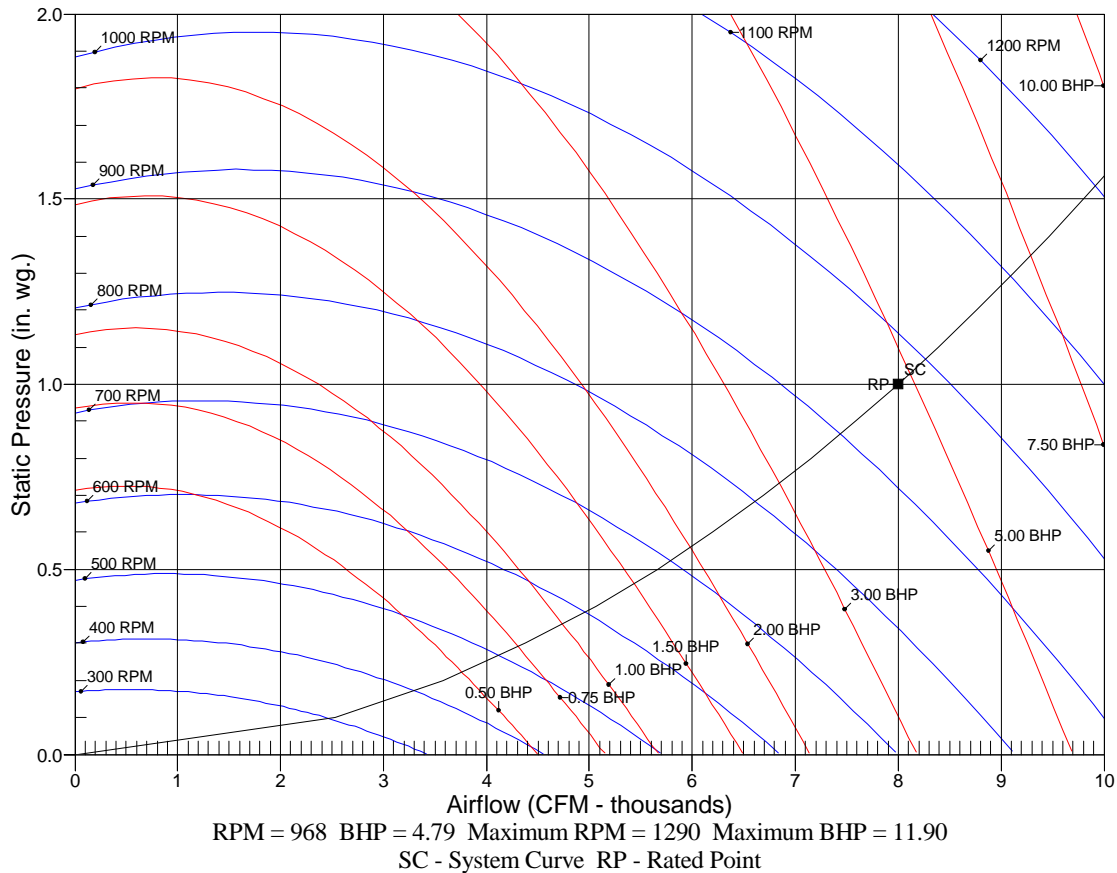
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	95.6	87.5	84.2	84.2	81.7	77.9	73.2	66.3	96.9 Lw
B	69.4	71.4	75.6	81.0	81.7	79.1	74.2	65.2	86.5 LwA
C	63.2	55.1	51.8	51.8	49.3	45.5	40.8	33.9	64.5 Lp
D	37.0	39.0	43.2	48.6	49.3	46.7	41.8	32.8	54.1 LpA

Legend

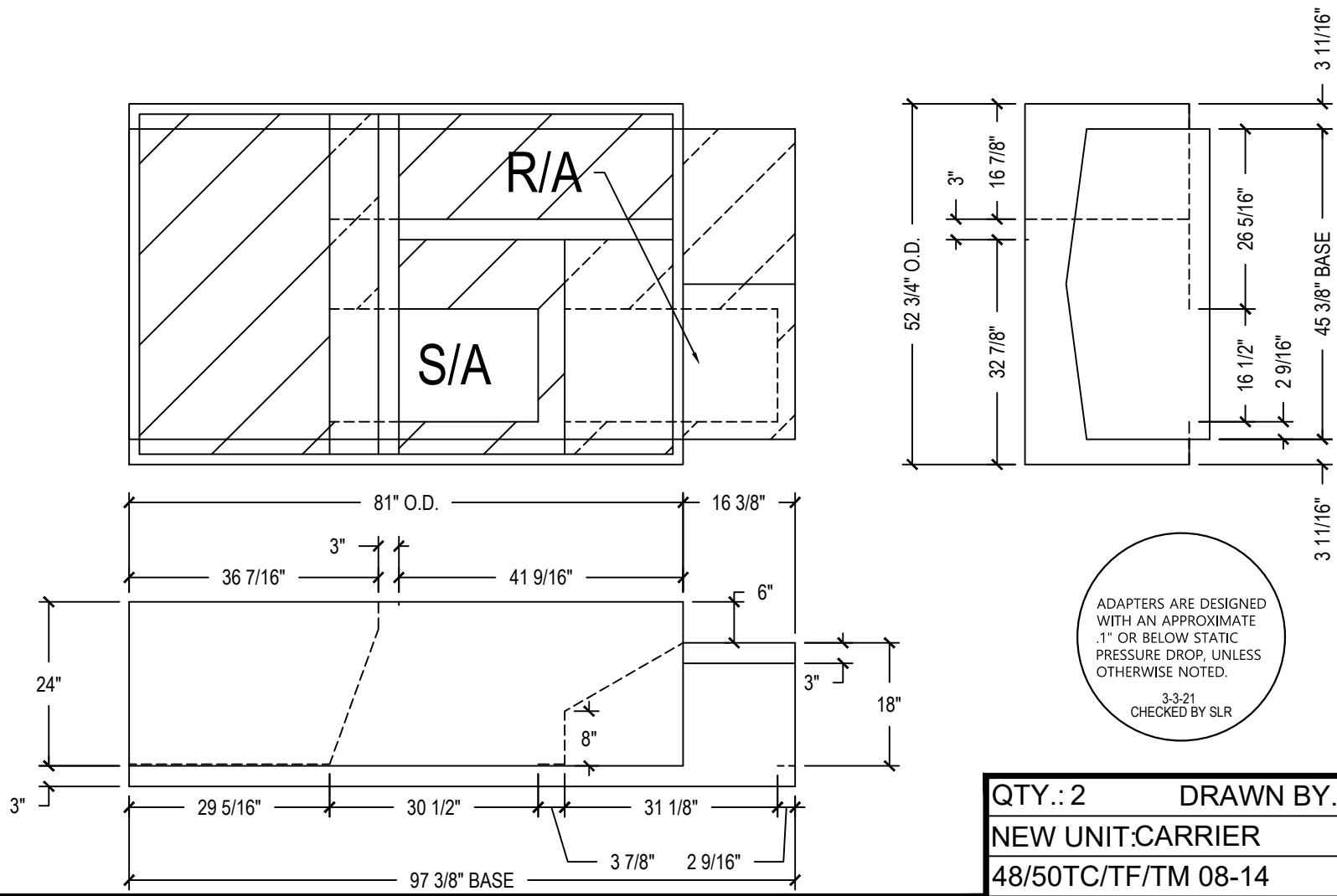
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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Fan Curve



Drawing Date: 9-19-12	REV: 001	Approved By:	Approved Date:
SHELL: 16 GA	PANS: 18 GA	CHANNELS: 16 GA	CLOSURES: 16 GA
TOP FLANGE DIM: 1 1/2"			



ADAPTERS ARE DESIGNED WITH AN APPROXIMATE .1" OR BELOW STATIC PRESSURE DROP, UNLESS OTHERWISE NOTED.
3-3-21
CHECKED BY SLR

QTY.: 2	DRAWN BY.: SLR
NEW UNIT: CARRIER	
48/50TC/TF/TM 08-14	
OLD UNIT: LENNOX	
L-SERIES 088-100	
ROLLS OF GASKET: 3	
TAG: RTU-7, 10	

CURBS PLUS, INC.

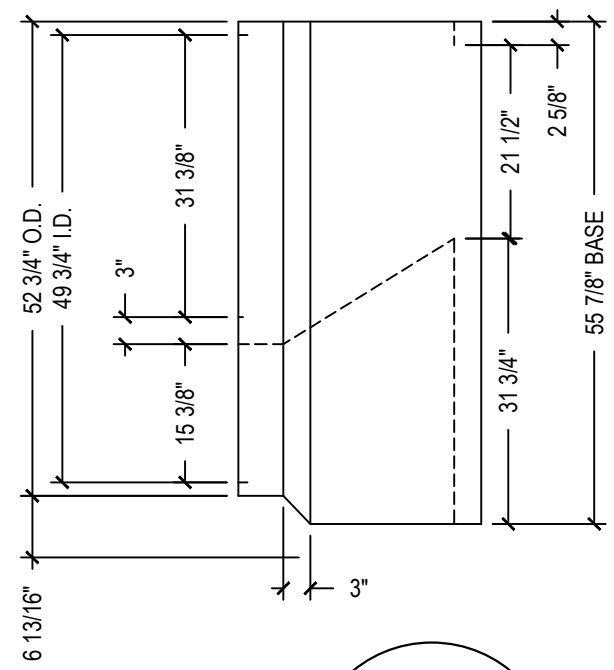
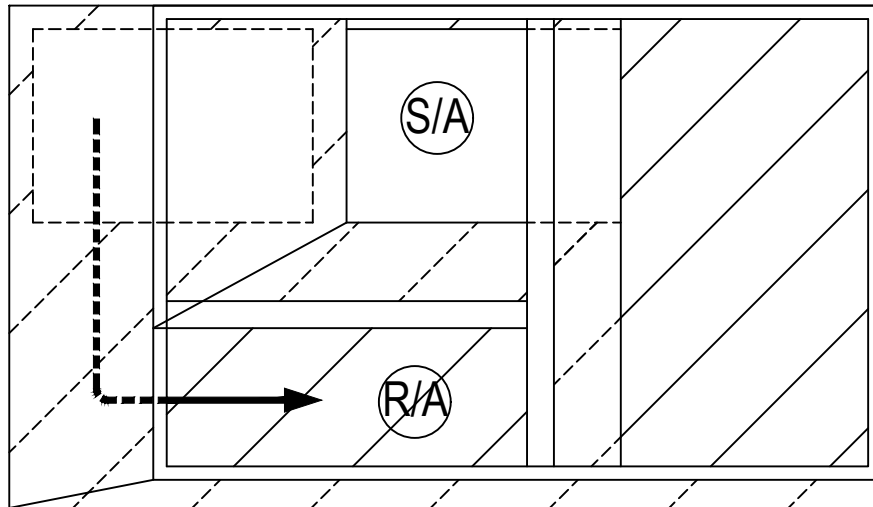
8767 Alabama Hwy
Ringgold, GA 30736
Phone: (706) 858-1188 / Fax: (706) 866-2339
website: www.curbs-plus.com

TRANSITION-CURB SYSTEM

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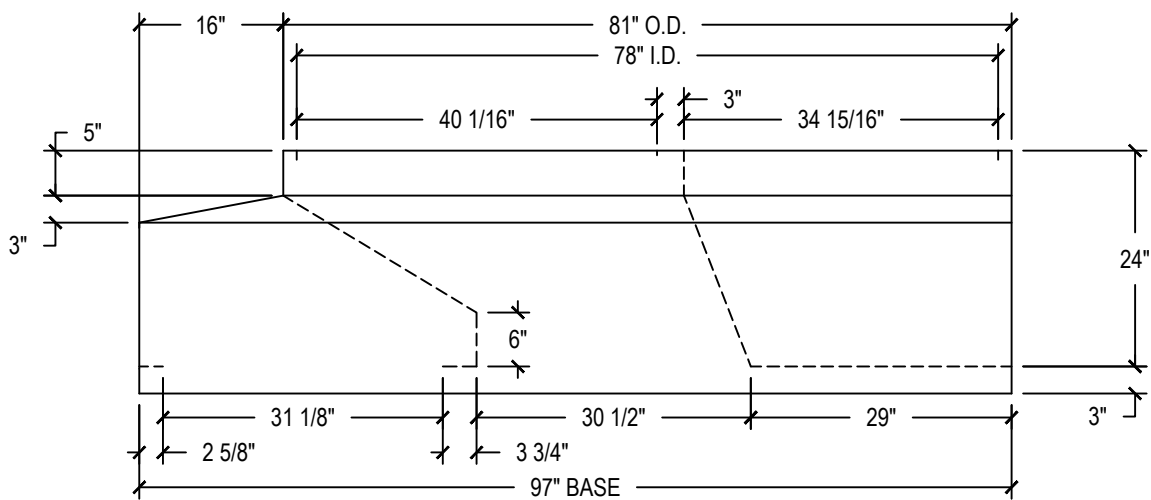
TAG PLATE: CR37LX7
APPROXIMATE WEIGHT: 275 LBS.

Drawing Date: 1-21-07	REV: 001	Approved By:	Approved Date:
SHELL: 16 GA	PANS: 18 GA	CHANNELS: 16 GA	CLOSURES: 16 GA
TOP FLANGE DIM: 1 1/2"			



ADAPTERS ARE DESIGNED WITH AN APPROXIMATE .1\"/>

3-3-21
CHECKED BY SLR



QTY.:1	DRAWN BY.:SLW
NEW UNIT:CARRIER	
48-50 TC**08-14,48-50 HC**07-12	
OLD UNIT:LENNOX	
L/T-SERIES 090-150	
ROLLS OF GASKET:2	
TAG: RTU-8	

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Ringgold, GA 30736
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TAG PLATE:CR37LX9
APPROXIMATE WEIGHT:245 LBS.

Note: Design subject to change without notice.

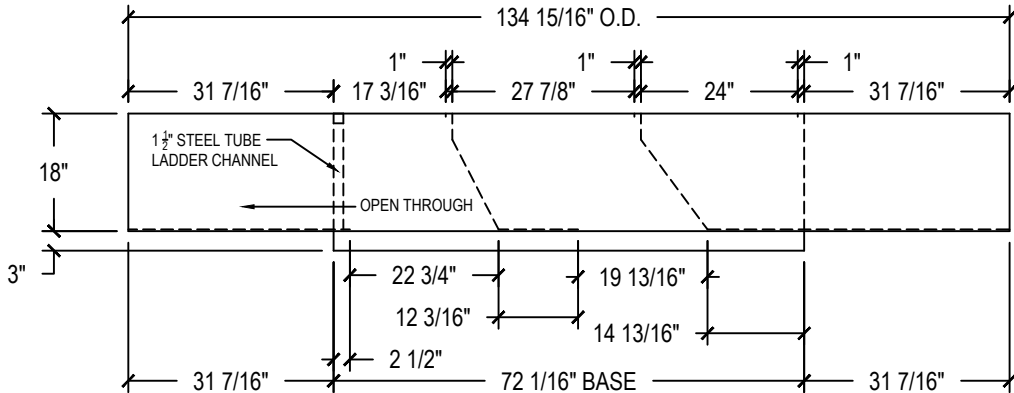
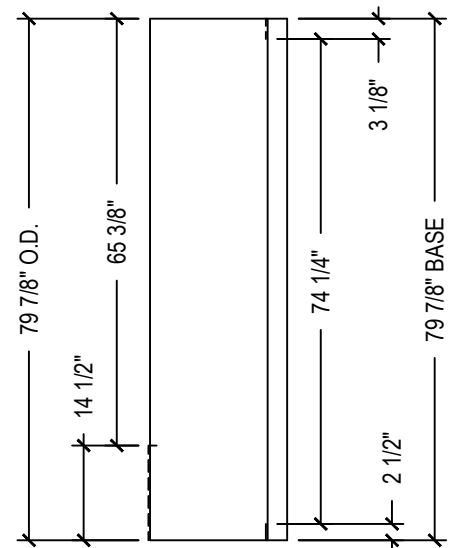
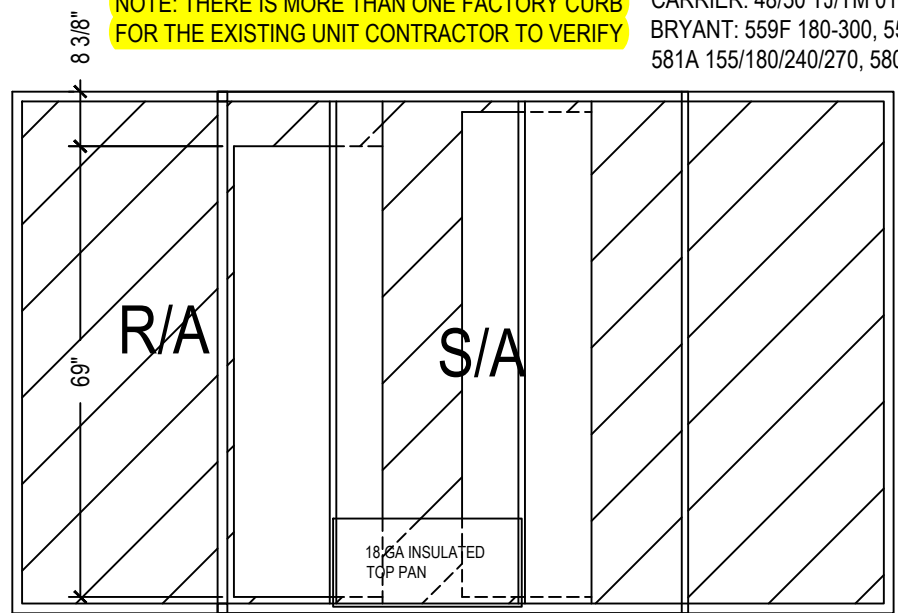
File Name:CR37LX9 NEW CARRIER 48 50 TJ HJ DJ 008-014 EXISTING LENNOX L-SERIES 090-150 ©2003 Curbs Plus, Inc.

Drawing Date: 8-4-11 REV: 001 Approved By: Approved Date:

SHELL: 14 GA PANS: 18 GA CHANNELS: 14 GA CLOSURES: 14 GA TOP FLANGE DIM: 1 1/2"

NOTE: THERE IS MORE THAN ONE FACTORY CURB FOR THE EXISTING UNIT CONTRACTOR TO VERIFY

EXISTING UNITS:
 CARRIER: 48/50 TJ/TM 016-028/HJ 015,017,025 48/50 DP/DR/PQ 012-020 DOES NOT INCLUDE 48TJE024-028
 BRYANT: 559F 180-300, 559E/579E/579F 180-240,559/579D 120-180, 542F 120-180, 579D/E 216,
 581A 155/180/240/270, 580F 180/240



ADAPTERS ARE DESIGNED WITH AN APPROXIMATE .1" OR BELOW STATIC PRESSURE DROP, UNLESS OTHERWISE NOTED.

3-3-21
CHECKED BY SLR

QTY.: 2	DRAWN BY.: SLR
NEW UNIT: CARRIER / ICP	
48TC*D 024-028/ 48HC**20-24/RAS 240-303	
OLD UNIT: CARRIER	
SEE ABOVE	
ROLLS OF GASKET: 4	
TAG: RTU-11-12	

CURBS PLUS, INC.

8767 Alabama Hwy
 Ringgold, GA 30736
 Phone: (706) 858-1188 / Fax: (706) 866-2339
 website: www.curbs-plus.com

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TAG PLATE: CR322CR40
 APPROXIMATE WEIGHT: 415 LBS