



## **SUBMITTAL**

### **Project**

BCF - Saginaw, IL #521

### **Date**

Tuesday, February 8, 2022

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Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

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**RTU - 1**

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

## Unit Report For RTU - 1

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### Unit Parameters

Unit Model:..... **48HCED08J3M6-6W5M0**  
 Unit Size:..... **08 (7.5 Tons)**  
 Volts-Phase-Hertz: ..... **460-3-60**  
 Heating Type:..... **Gas**  
 Duct Cfg:..... **Vertical Supply / Vertical Return**  
 Medium 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: ..... **1222 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

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

### Ordering Information

Part Number	Description	Quantity
48HCED08J3M6-6W5M0	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	
<b>Field Installed Accessories</b>		
CRPECONV004A00	Hinged Access Door	1
CRPWREXH023A01	Power Exhaust System	1

# Certified Drawing for RTU - 1

Project: BCF - Saginaw, IL #521  
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02/14/2022  
09:53AM

**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:  
CRBTMPWR001A01: 07 - GAS THRU CURB  
CRBTMPWR002A01: 08, 09 - GAS THRU CURB  
CRBTMPWR003A01: 07 - GAS THRU BASEPAN  
CRBTMPWR004A01: 08, 09 - GAS THRU BASEPAN

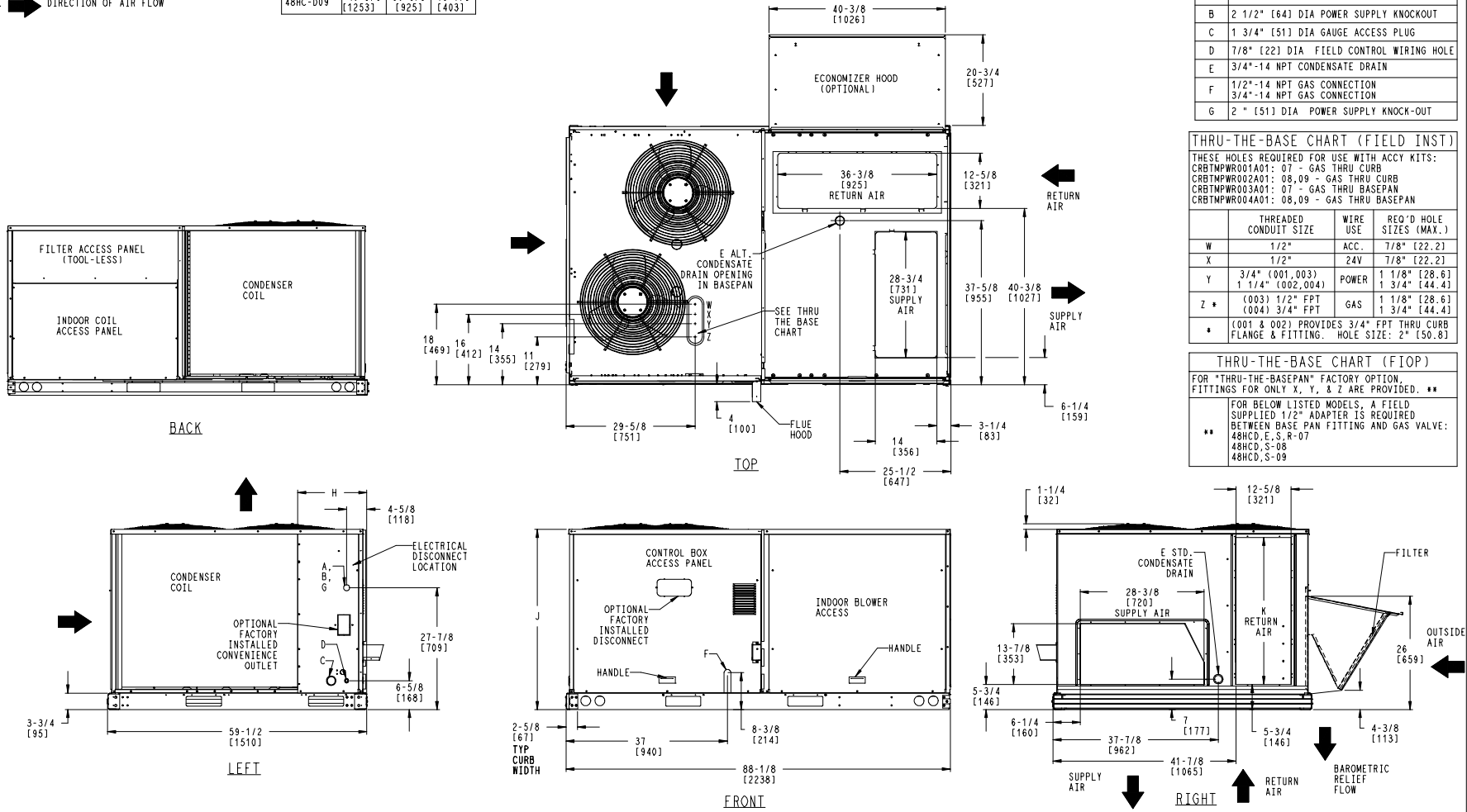
	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC.	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	3/4" (001, 003) 1 1/4" (002, 004)	POWER	1 1/8" [28.6] 1 3/4" [44.4]
Z *	(003) 1/2" FPT (004) 3/4" FPT	GAS	1 1/8" [28.6] 1 3/4" [44.4]

\* (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	MODEL	REV
U.S. ECCN: NSR	1 OF 2	09/28/16	10/05/10	48HC 07 - 09 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	B

# Certified Drawing for RTU - 1

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
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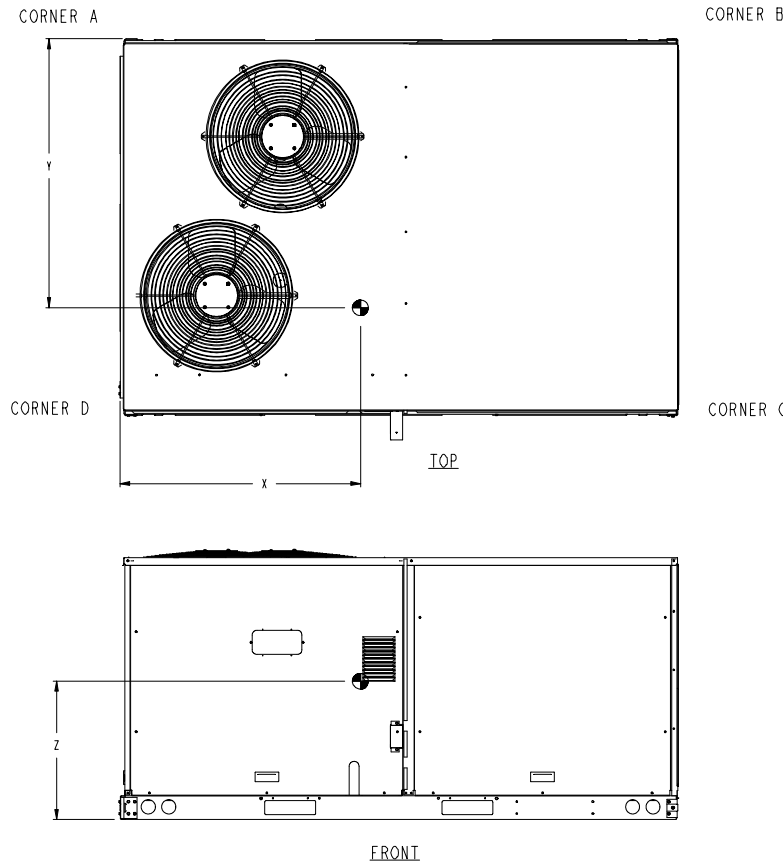
UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48HC-A, D07	765	347	165.3	75	152.7	69.3	214.7	97.4	232.3	105.4	42 3/8 [1076]	34 3/4 [882.6]	19 7/8 [505]
48HC-D08	925	419.5	204.1	92.6	190.9	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.

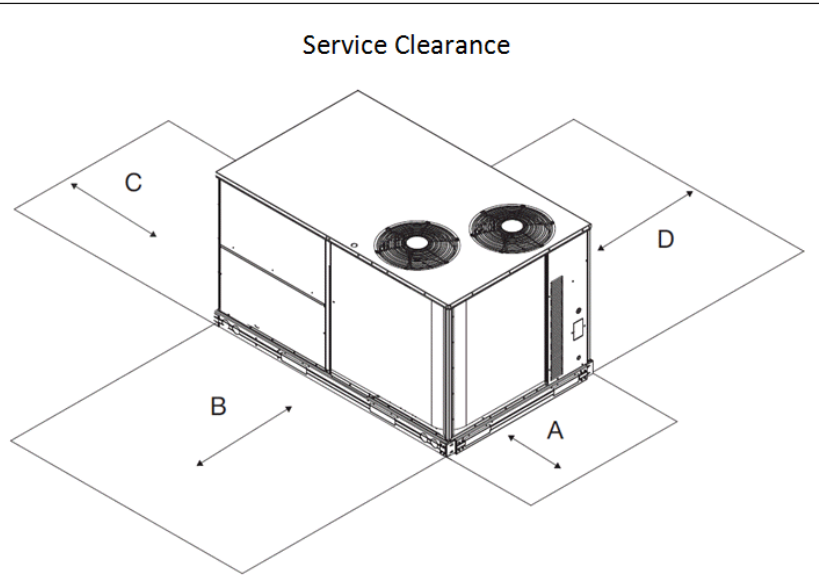


ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48HC 07 - 09 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502708	REV
U.S. ECCN: NSR	2 OF 2	09/28/16	10/05/10			B

## Certified Drawing for RTU - 1

Project: BCF - Saginaw, IL #521  
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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 - 1

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

## Part Number:48HCED08J3M6-6W5M0

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  
Medium Heat: ..... 15 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: ..... 1222 lb

### Unit

Unit Voltage-Phase-Hertz: ..... 460-3-60  
Air Discharge: ..... Vertical  
Fan Drive Type: ..... Belt  
Actual Airflow: ..... 3000 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: ..... 57.7 F  
Evaporator Leaving Air WB: ..... 57.2 F  
Evaporator Leaving Air Enthalpy: ..... 24.53 BTU/lb  
Gross Cooling Capacity: ..... 93.30 MBH  
Gross Sensible Capacity: ..... 72.19 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: ..... 115.7 F  
Gas Heating Input Capacity: ..... 120.0 / 180.0 MBH  
Gas Heating Output Capacity: ..... 98.0 / 148.0 MBH  
Temperature Rise: ..... 45.7 F  
Thermal Efficiency (%): ..... 82.0

### Supply Fan

External Static Pressure: ..... 0.50 in wg  
Options / Accessories Static Pressure  
Economizer: ..... 0.11 in wg  
Power Exhaust: ..... (Fan Data Includes Drop)  
Total Application Static (ESP + Unit Opts/Acc.): ..... 0.61 in wg  
Fan RPM: ..... 759  
Fan Power: ..... 1.17 BHP

## Performance Summary For RTU - 1

Project: BCF - Saginaw, IL #521  
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NOTE: ..... **The Selected Indoor Fan Motor requires a Field-Supplied Drive (RPM Range: 838 - 1084).**

Supply Fan Motor Maximum Continuous BHP: ..... **3.7** HP

Supply Fan Motor Application HP: ..... **3.7** HP

NOTE: **Motors with application horse power are specifically designed and tested for Carrier rooftop units therefore do not have a standard HP rating.**

Supply Fan Motor Efficiency at Full Load (%): ..... **82**

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

### Power Exhaust

Return Duct Static: ..... **0.40** in wg

Max. Air To Exhaust: ..... **2850** 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.

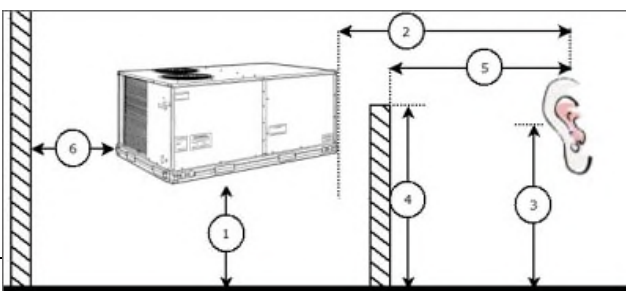
### Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

### Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	96.6	93.8	90.6
125 Hz	90.7	84.0	84.3
250 Hz	75.1	67.8	80.2
500 Hz	68.9	63.9	79.3
1000 Hz	64.0	61.2	77.1
2000 Hz	62.1	56.3	72.2
4000 Hz	64.8	55.6	67.4
8000 Hz	65.1	55.0	63.7
A-Weighted	77.7	72.1	82.0

### Advanced Acoustics



## Performance Summary For RTU - 1

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### 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

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

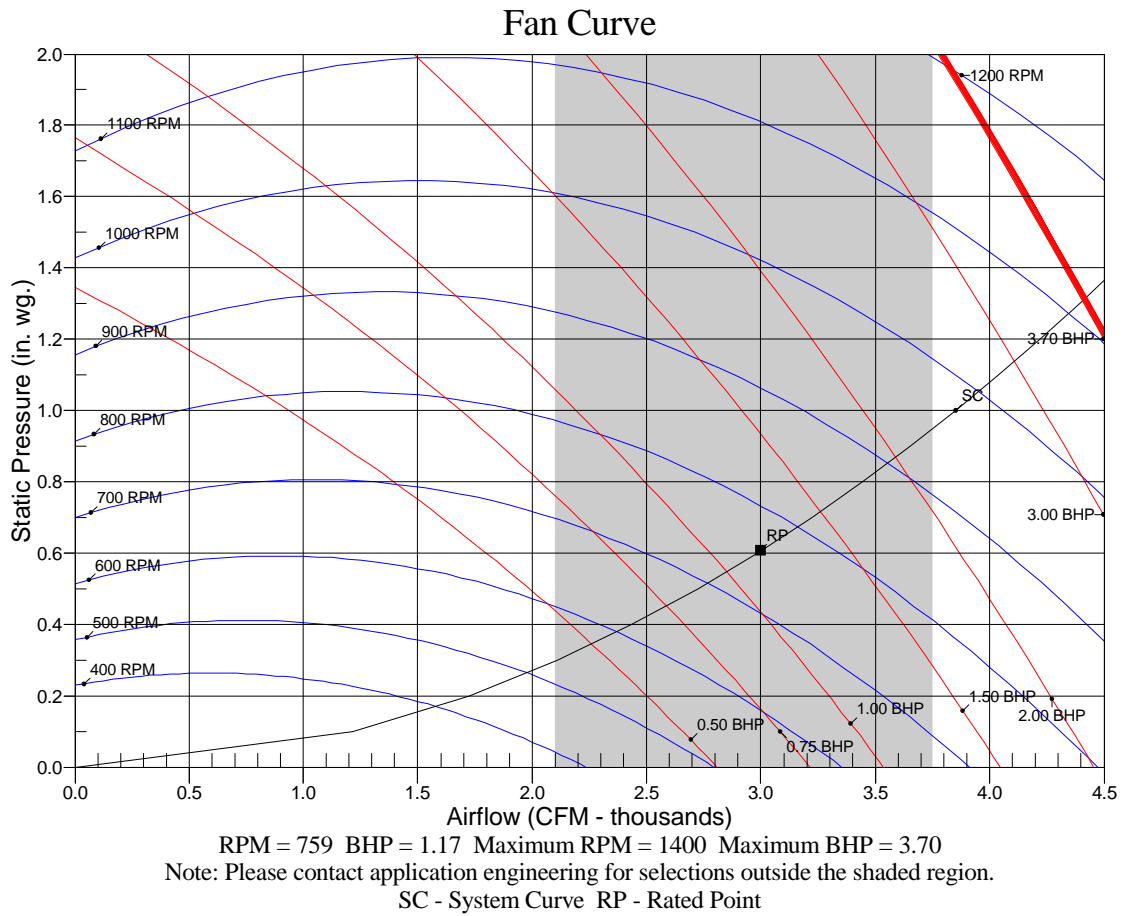
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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 - 1

Project: BCF - Saginaw, IL #521  
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02/14/2022  
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**RTU - 2,14**

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

## Unit Report For RTU - 2,14

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

### Unit Parameters

Unit Model:.....**48HCDD09J3M6-6W5M0**  
 Unit Size:.....**09 (8.5 Tons)**  
 Volts-Phase-Hertz:.....**460-3-60**  
 Heating Type:.....**Gas**  
 Duct Cfg:.....**Vertical Supply / Vertical Return**  
 Low 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:.....**1207** 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:..... **1/2**  
 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
48HCDD09J3M6-6W5M0	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	
<b>Field Installed Accessories</b>		
CRPECONV004A00	Hinged Access Door	2
CRPWREXH023A01	Power Exhaust System	2

# Certified Drawing for RTU - 2,14

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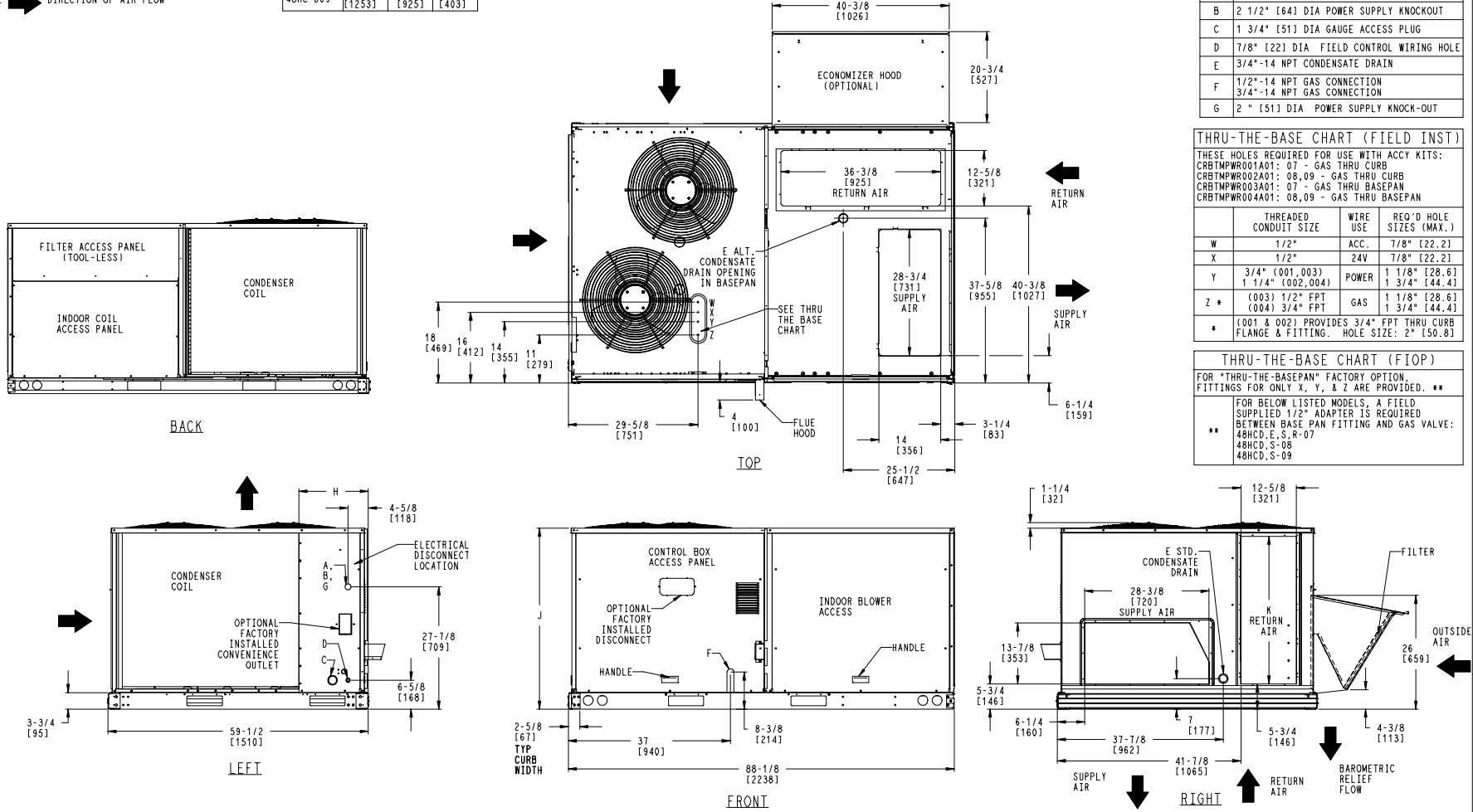
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CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	1/2"-14 NPT GAS CONNECTION
G	3/4"-14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

Project: BCF - Saginaw, IL #521  
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 09:53AM

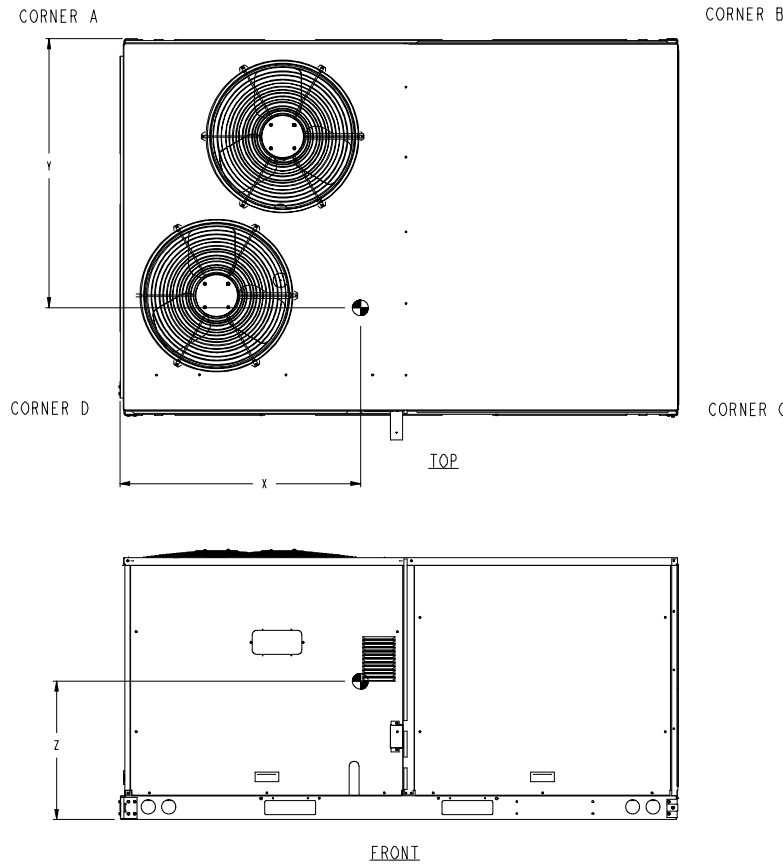
UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48HC-A, D07	765	347	165.3	75	152.7	69.3	214.7	97.4	232.3	105.4	42 3/8 [1076]	34 3/4 [882.6]	19 7/8 [505]
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\* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITHOUT PACKAGING. FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.

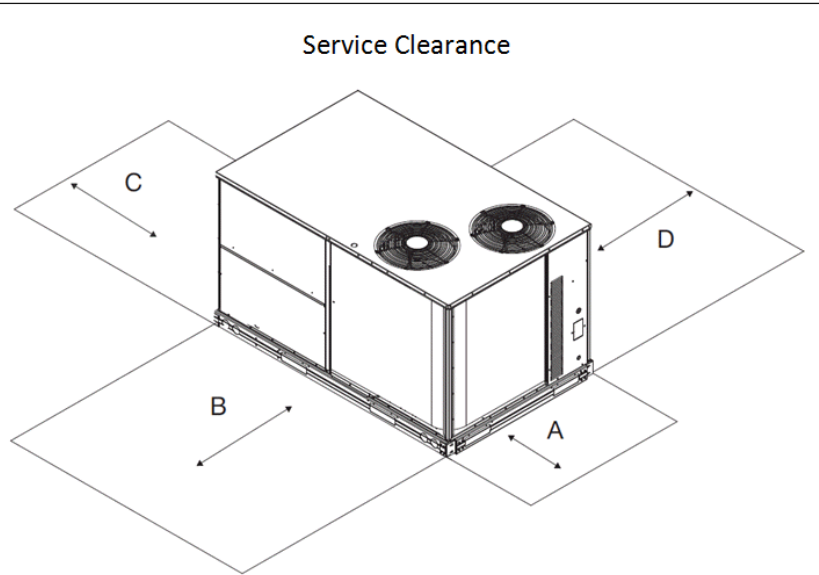


ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48HC 07 - 09 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502708	REV
U.S. ECCN: NSR	2 OF 2	09/28/16	10/05/10			B

## Certified Drawing for RTU - 2,14

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM



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 - 2,14

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

## Part Number:48HCDD09J3M6-6W5M0

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  
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: ..... 1207 lb

### Unit

Unit Voltage-Phase-Hertz: ..... 460-3-60  
Air Discharge: ..... Vertical  
Fan Drive Type: ..... Belt  
Actual Airflow: ..... 3000 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: ..... 56.6 F  
Evaporator Leaving Air WB: ..... 56.2 F  
Evaporator Leaving Air Enthalpy: ..... 23.90 BTU/lb  
Gross Cooling Capacity: ..... 101.74 MBH  
Gross Sensible Capacity: ..... 75.94 MBH  
Compressor Power Input: ..... 6.81 kW  
Coil Bypass Factor: ..... 0.177

### Heating Performance

Heating Airflow: ..... 3000 CFM  
Entering Air Temp: ..... 70.0 F  
Leaving Air Temp: ..... 101.8 F  
Gas Heating Input Capacity: ..... 90.0 / 125.0 MBH  
Gas Heating Output Capacity: ..... 73.0 / 103.0 MBH  
Temperature Rise: ..... 31.8 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: ..... 913  
Fan Power: ..... 1.69 BHP  
NOTE: ..... Selected IFM RPM Range: 838 - 1084

## Performance Summary For RTU - 2,14

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

Supply Fan Motor Maximum Continuous BHP: ..... **3.7** HP  
 Supply Fan Motor Application HP: ..... **3.7** HP

**NOTE: Motors with application horse power are specifically designed and tested for Carrier rooftop units therefore do not have a standard HP rating.**

Supply Fan Motor Efficiency at Full Load (%): ..... **82**

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

**Power Exhaust**

Return Duct Static: ..... **0.40** in wg  
 Max. Air To Exhaust: ..... **2850** CFM

**Electrical Data**

Voltage Range: ..... **414 - 506**  
 Compressor #1 RLA: ..... **6.2**  
 Compressor #1 LRA: ..... **41**  
 Compressor #2 RLA: ..... **6.2**  
 Compressor #2 LRA: ..... **41**  
 Indoor Fan Motor Type: ..... **HIGH**  
 Indoor Fan Motor FLA: ..... **4.9**  
 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.

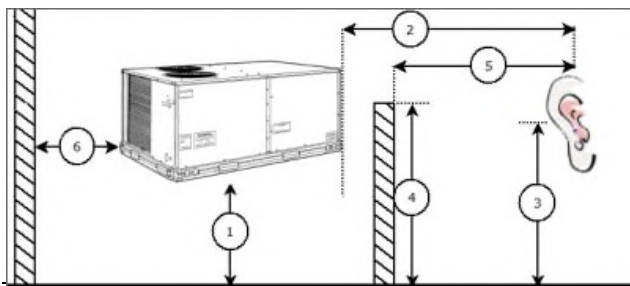
**Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage**

**Acoustics**

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	97.6	94.8	88.6
125 Hz	91.7	85.8	85.0
250 Hz	77.0	71.3	81.6
500 Hz	70.3	65.5	79.5
1000 Hz	66.4	63.0	77.4
2000 Hz	64.8	58.3	74.1
4000 Hz	67.3	58.0	71.0
8000 Hz	69.0	57.2	66.3
A-Weighted	79.2	73.8	82.0

**Advanced Acoustics**



Packaged Rooftop Builder 1.62

## Performance Summary For RTU - 2,14

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### 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

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	88.6	85.0	81.6	79.5	77.4	74.1	71.0	66.3	91.4 Lw
B	62.4	68.9	73.0	76.3	77.4	75.3	72.0	65.2	82.6 LwA
C	56.2	52.6	49.2	47.1	45.0	41.7	38.6	33.9	59.0 Lp
D	30.0	36.5	40.6	43.9	45.0	42.9	39.6	32.8	50.2 LpA

#### Legend

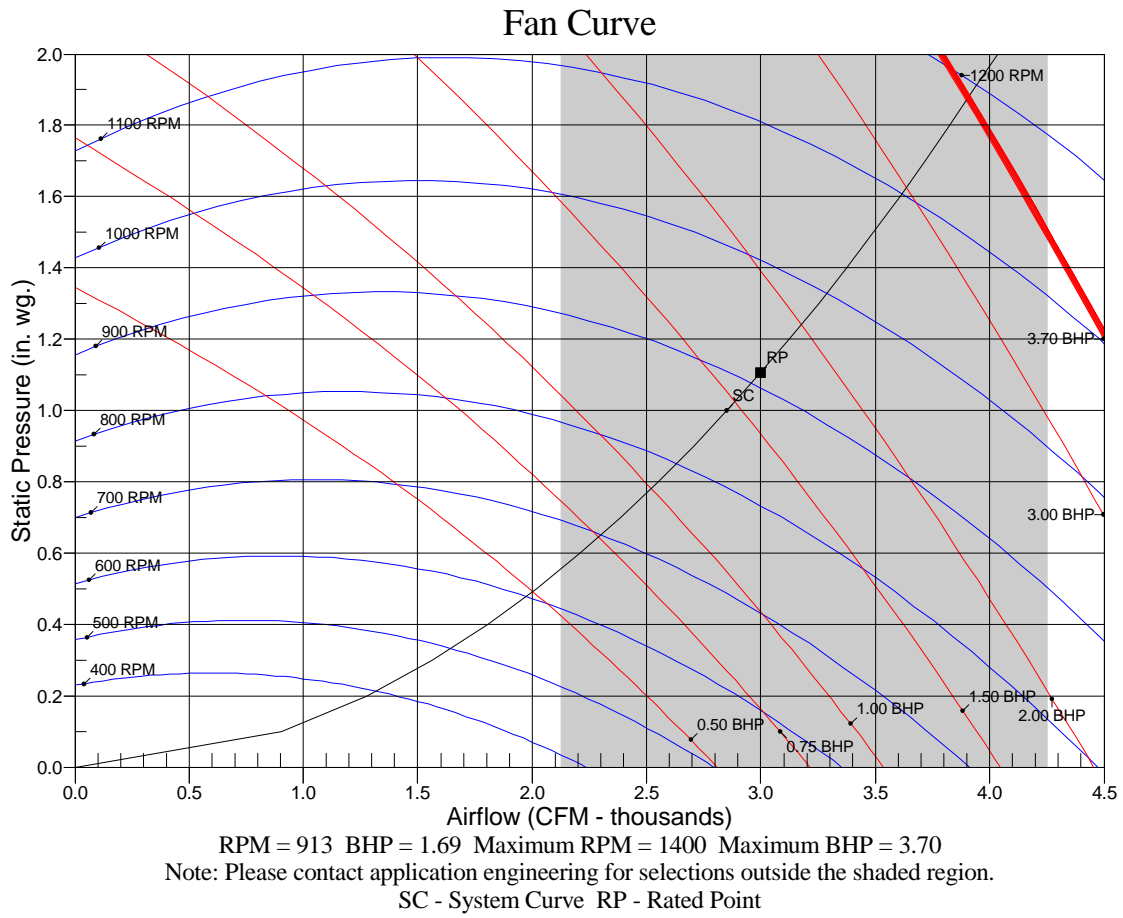
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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 - 2,14

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM



**RTU - 3-5,12-13**

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

## Unit Report For RTU - 3-5,12-13

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### Unit Parameters

Unit Model:..... **48TCDD14J3M6-6W5M0**  
 Unit Size:..... **14 (12.5 Tons)**  
 Volts-Phase-Hertz:..... **460-3-60**  
 Heating Type:..... **Gas**  
 Duct Cfg:..... **Vertical Supply / Vertical Return**  
 Low Heat  
 Round Tube Plate Fin Coils

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

Unit Length:..... **7' 4.125"**  
 Unit Width:..... **4' 11.5"**  
 Unit Height:..... **4' 1.375"**  
 \*\*\* Total Operating Weight:..... **1449 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 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(std.)  
 5-Year compressor parts(std.)  
 10-Year heat exchanger - Aluminized(std.)  
 15-Year heat exchanger - Stainless Steel(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
48TCDD14J3M6-6W5M0	Rooftop Unit	5
	Base Unit	
	Condensate Overflow Switch	
	High Static Option (Belt Drive)	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged 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	
<b>Field Installed Accessories</b>		
CRPECONV004A00	Hinged Access Door	5
CRPWREXH023A01	Power Exhaust System	5

# Certified Drawing for RTU - 3-5,12-13

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

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

UNIT	OUTDOOR COIL TYPE	H
48TC-D14	MCHX	11 3/8 [289]
48TC-D14	RTPF	15 7/8 [403]

RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)  
 MCHX - NOVIATION (ALUM/ALUM)

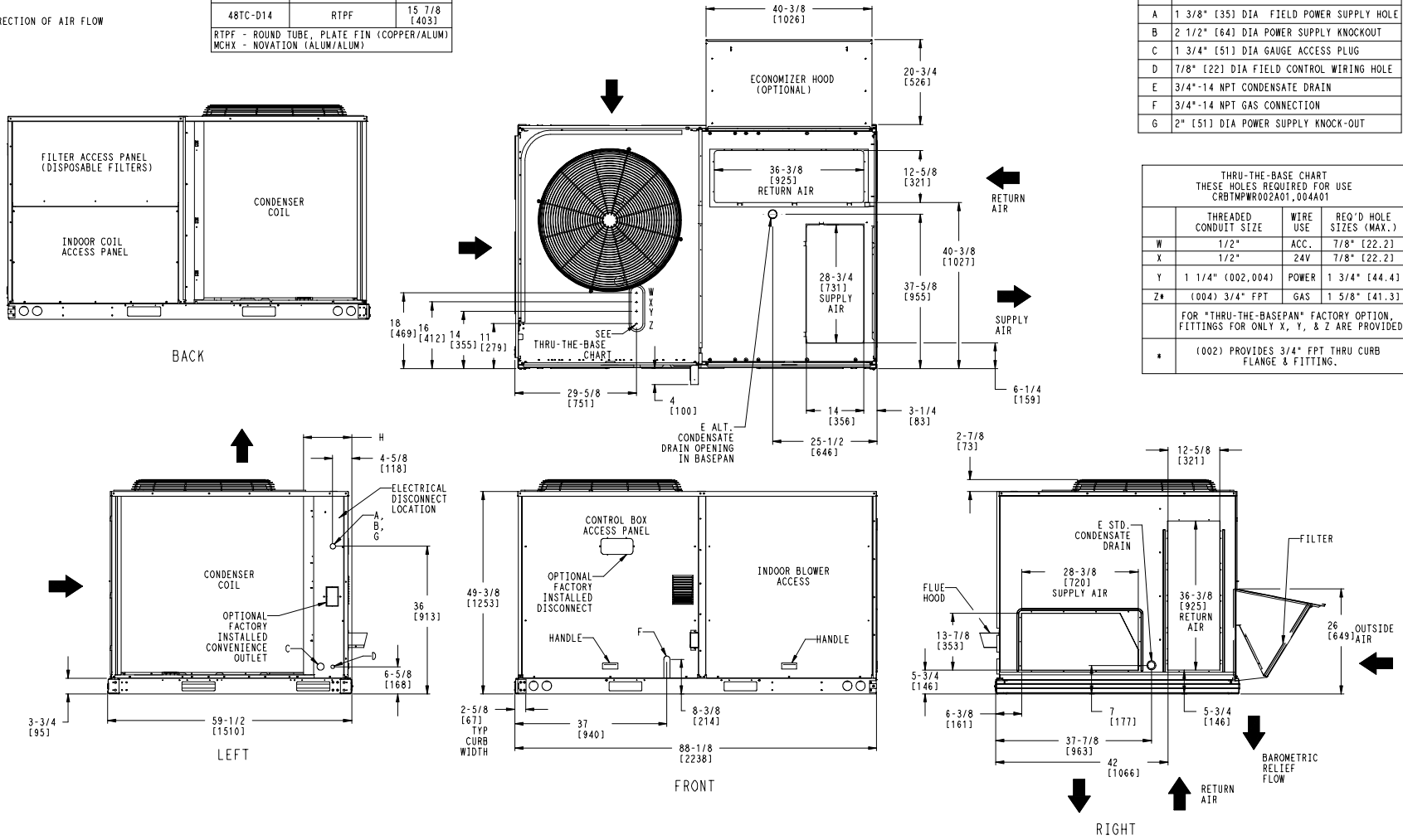
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CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	3/4"-14 NPT GAS CONNECTION
G	2" [51] 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 10-04-10	SUPERCEDES 08-30-10	48TC-14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM501441	REV G
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# Certified Drawing for RTU - 3-5,12-13

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

UNIT	OUTDOOR COIL TYPE	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			
48TC-D14	MCHX	1116	506	297	135	157	71	229	104	434	197	29 1/2	[749]	34 1/4	[870]	20 1/4	[514]
48TC-D14	RTPF	1167	530	349	159	167	76	211	96	440	200	31 3/8	[797]	34 3/4	[883]	21 7/8	[556]

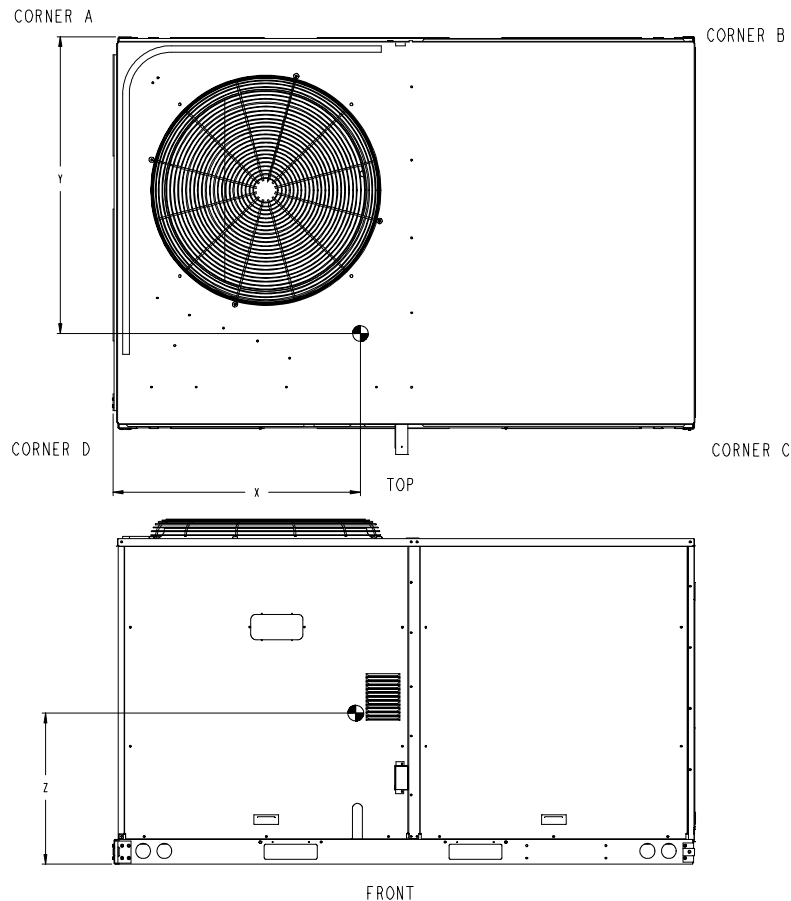
RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)  
 MCHX - MICROCHANNEL (ALUM/ALUM)

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SHEET 2 OF 2	DATE 10-04-10	SUPERCEDES 08-30-10	48TC-14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM501441	REV G
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**Certified Drawing for RTU - 3-5,12-13**

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

# Performance Summary For RTU - 3-5,12-13

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

## Part Number:48TCDD14J3M6-6W5M0

ARI EER: ..... 10.80  
IEER: ..... 12.2

### Base Unit Dimensions

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

### Operating Weight

Base Unit Weight: ..... 1167 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 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: ..... 1449 lb

### Unit

Unit Voltage-Phase-Hertz: ..... 460-3-60  
Air Discharge: ..... Vertical  
Fan Drive Type: ..... Belt  
Actual Airflow: ..... 4800 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: ..... 60.0 F  
Evaporator Leaving Air WB: ..... 57.3 F  
Evaporator Leaving Air Enthalpy: ..... 24.59 BTU/lb  
Gross Cooling Capacity: ..... 148.0 MBH  
Gross Sensible Capacity: ..... 103.80 MBH  
Compressor Power Input: ..... 10.20 kW  
Coil Bypass Factor: ..... 0.245

### Heating Performance

Heating Airflow: ..... 4800 CFM  
Entering Air Temp: ..... 70.0 F  
Leaving Air Temp: ..... 98.5 F  
Gas Heating Input Capacity: ..... 120.0 / 180.0 MBH  
Gas Heating Output Capacity: ..... 98.0 / 148.0 MBH  
Temperature Rise: ..... 28.5 F  
Thermal Efficiency (%): ..... 82.0

### Supply Fan

External Static Pressure: ..... 1.00 in wg  
Options / Accessories Static Pressure  
Economizer: ..... 0.30 in wg  
Power Exhaust: ..... (Fan Data Includes Drop)  
Total Application Static (ESP + Unit Opts/Acc.): ..... 1.30 in wg  
Fan RPM: ..... 1162  
Fan Power: ..... 4.39 BHP  
NOTE: ..... Selected IFM RPM Range: 1022 - 1240

## Performance Summary For RTU - 3-5,12-13

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

Supply Fan Motor Maximum Continuous BHP: ..... **4.7** HP  
 Supply Fan Motor Nominal HP: ..... **5.3** HP

**NOTE: Motors with application horse power are specifically designed and tested for Carrier rooftop units therefore do not have a standard HP rating.**

Supply Fan Motor Efficiency at Full Load (%): ..... **84**

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

### Power Exhaust

Return Duct Static: ..... **0.40** in wg  
 Max. Air To Exhaust: ..... **2850** CFM

### Electrical Data

Voltage Range: ..... **414 - 506**  
 Compressor #1 RLA: ..... **8.2**  
 Compressor #1 LRA: ..... **66**  
 Compressor #2 RLA: ..... **10.6**  
 Compressor #2 LRA: ..... **75**  
 Indoor Fan Motor Type: ..... **HIGH**  
 Indoor Fan Motor FLA: ..... **6.4**  
 Combustion Fan Motor FLA (ea): ..... **0.25**  
 Power Supply MCA: ..... **35**  
 Power Supply MOCP (Fuse or HACR): ..... **45**  
 Disconnect Size FLA: ..... **37**  
 Disconnect Size LRA: ..... **205**  
 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.

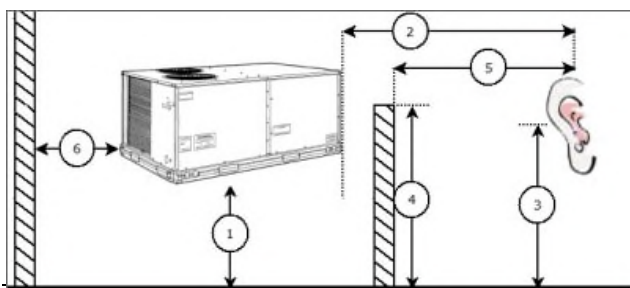
### Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

### Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	98.8	95.4	87.0
125 Hz	96.4	89.8	85.2
250 Hz	84.6	75.5	84.6
500 Hz	78.6	70.8	84.9
1000 Hz	75.7	69.2	82.2
2000 Hz	72.6	65.1	78.4
4000 Hz	76.1	65.8	75.3
8000 Hz	78.5	63.0	72.9
A-Weighted	85.6	77.9	87.0

### Advanced Acoustics



Packaged Rooftop Builder 1.6Z

## Performance Summary For RTU - 3-5,12-13

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### 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

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	87.0	85.2	84.6	84.9	82.2	78.4	75.3	72.9	92.4 Lw
B	60.8	69.1	76.0	81.7	82.2	79.6	76.3	71.8	87.1 LwA
C	54.6	52.8	52.2	52.5	49.8	46.0	42.9	40.5	60.0 Lp
D	28.4	36.7	43.6	49.3	49.8	47.2	43.9	39.4	54.7 LpA

#### Legend

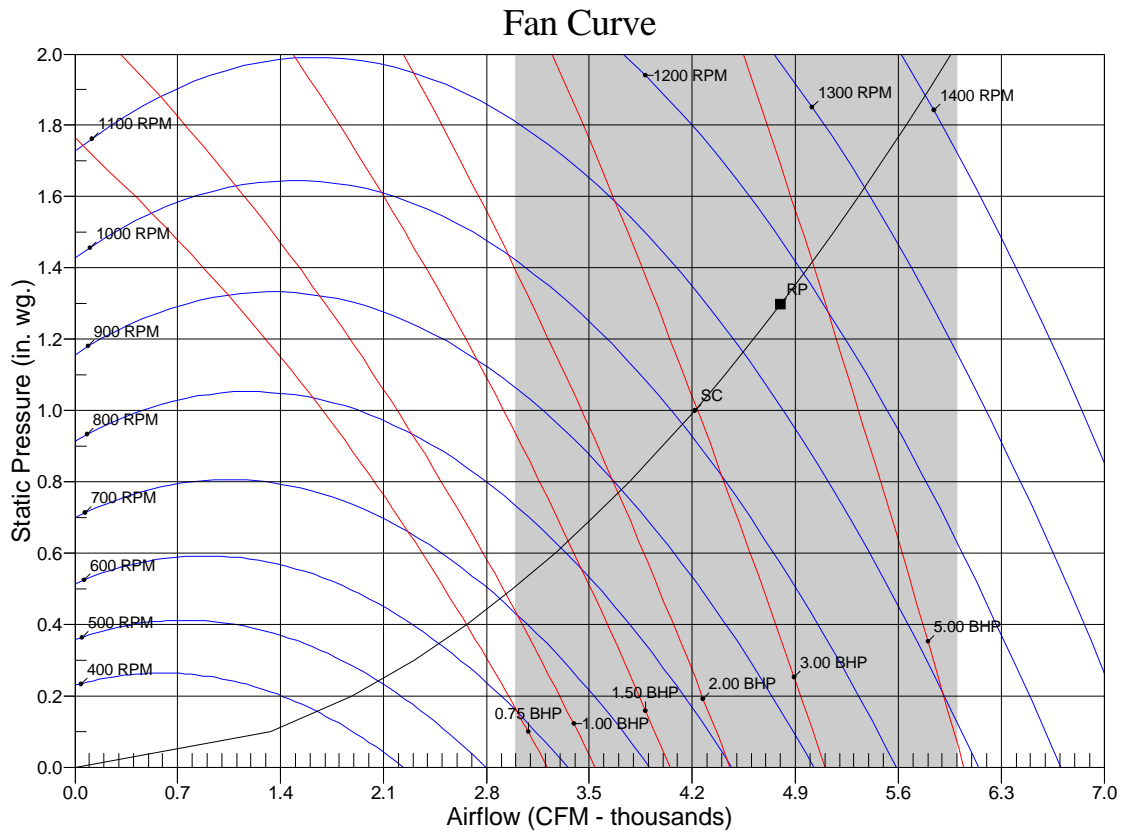
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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 - 3-5,12-13

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM



RPM = 1162 BHP = 4.39 Maximum RPM = 1400 Maximum BHP = 4.70  
Note: Please contact application engineering for selections outside the shaded region.  
SC - System Curve RP - Rated Point

**RTU - 6,10,**

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

## Unit Report For RTU - 6,10,

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### Unit Parameters

Unit Model:..... **48HCED12J3M6-6W5M0**  
 Unit Size:..... **12 (10 Tons (11.5 EER))**  
 Volts-Phase-Hertz: ..... **460-3-60**  
 Heating Type:..... **Gas**  
 Duct Cfg:..... **Vertical Supply / Vertical Return**  
 Medium 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: ..... **1399** 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
48HCED12J3M6-6W5M0	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	
<b>Field Installed Accessories</b>		
CRPECONV004A00	Hinged Access Door	2
CRPWREXH023A01	Power Exhaust System	2

# Certified Drawing for RTU - 6,10,

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

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

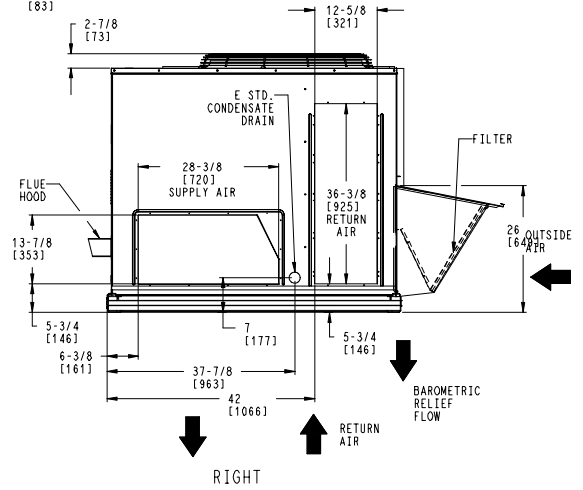
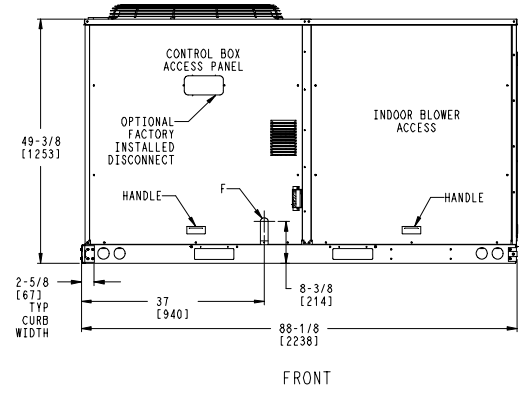
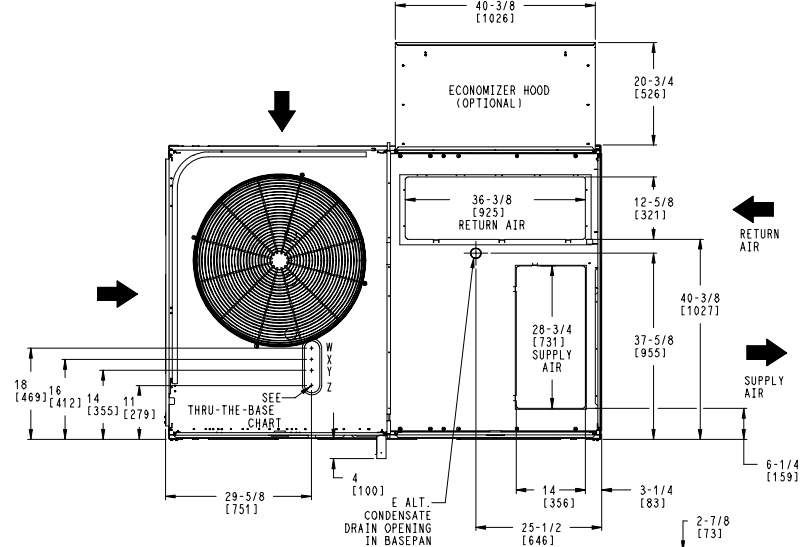
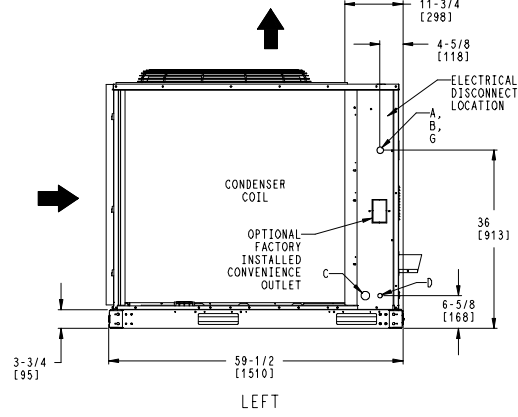
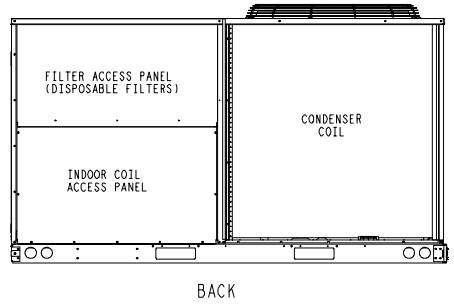
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CONNECTION SIZES	
A	1 3/8" [35] DIA. FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA. POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA. GAUGE ACCESS PLUG
D	7/8" [22] DIA. FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	3/4"-14 NPT GAS CONNECTION
G	2" [51] 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 - 6,10,

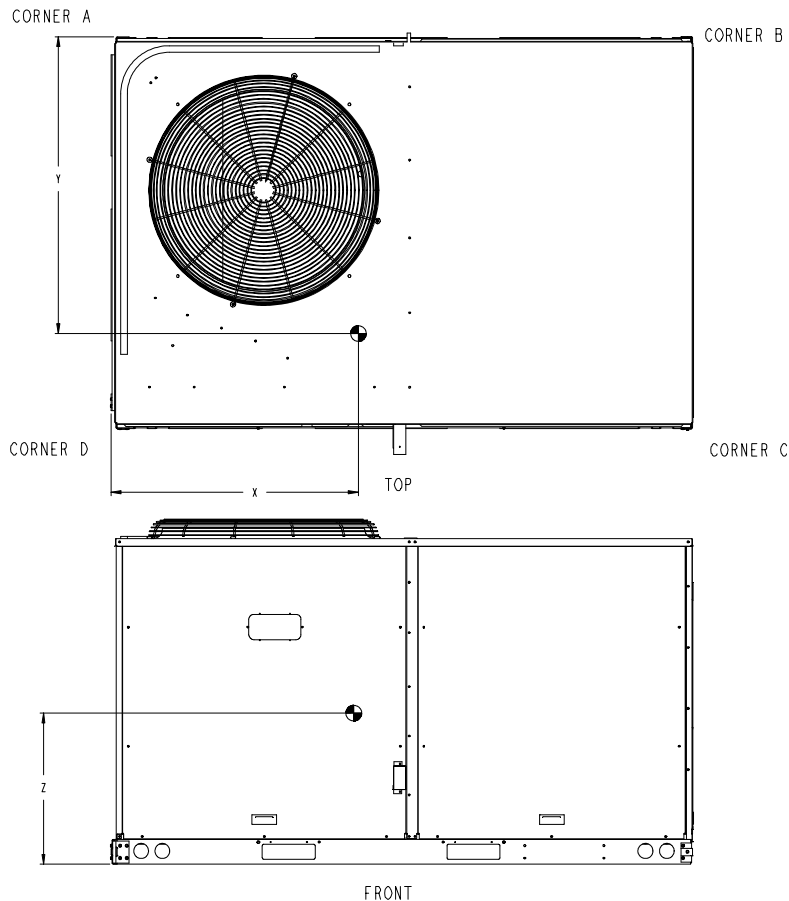
Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

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



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 - 6,10,

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### 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 - 6,10,

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

## Part Number:48HCED12J3M6-6W5M0

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  
Medium Heat: ..... 18 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: ..... 1399 lb

### Unit

Unit Voltage-Phase-Hertz: ..... 460-3-60  
Air Discharge: ..... Vertical  
Fan Drive Type: ..... Belt  
Actual Airflow: ..... 3000 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: ..... 55.7 F  
Evaporator Leaving Air WB: ..... 54.6 F  
Evaporator Leaving Air Enthalpy: ..... 22.89 BTU/lb  
Gross Cooling Capacity: ..... 115.43 MBH  
Gross Sensible Capacity: ..... 78.60 MBH  
Compressor Power Input: ..... 8.03 kW  
Coil Bypass Factor: ..... 0.154

### Heating Performance

Heating Airflow: ..... 3000 CFM  
Entering Air Temp: ..... 70.0 F  
Leaving Air Temp: ..... 126.8 F  
Gas Heating Input Capacity: ..... 180.0 / 224.0 MBH  
Gas Heating Output Capacity: ..... 147.0 / 184.0 MBH  
Temperature Rise: ..... 56.8 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: ..... 913  
Fan Power: ..... 1.69 BHP

## Performance Summary For RTU - 6,10,

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

NOTE: ..... **The Selected Indoor Fan Motor requires a Field-Supplied Drive (RPM Range: 1022 - 1240).**

Supply Fan Motor Maximum Continuous BHP:..... **4.9** HP  
 Supply Fan Motor Nominal HP:..... **5.3** HP  
 Supply Fan Motor Efficiency at Full Load (%):..... **84**

NOTE: **At the selected supply CFM value, a saturated suction temperature of less than 32 F (0 C) is possible if running less than 62 F (16.7 C) ambient. This implies a slight risk of freezing the evaporator coil during operation. To avoid this slight risk, it is suggested to re-program the VFD 'low fan speed' to at least 2253 cfm using the accessory VFD display kit.**

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

### Power Exhaust

Return Duct Static:..... **0.40** in wg  
 Max. Air To Exhaust:..... **2850** 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.

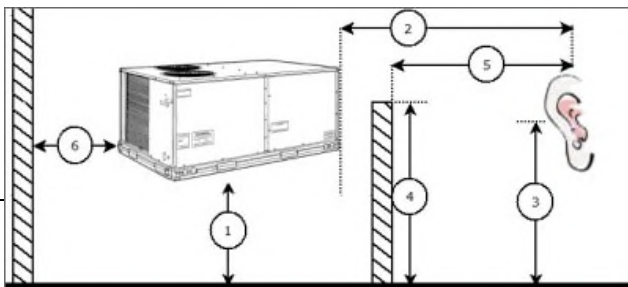
### Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

### Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	97.6	94.8	85.9
125 Hz	91.7	85.8	87.9
250 Hz	77.0	71.3	85.6
500 Hz	70.3	65.5	84.4
1000 Hz	66.4	63.0	82.8
2000 Hz	64.8	58.3	78.5
4000 Hz	67.3	58.0	74.9
8000 Hz	69.0	57.2	72.5
A-Weighted	79.2	73.8	87.0

### Advanced Acoustics



## Performance Summary For RTU - 6,10,

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### 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

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

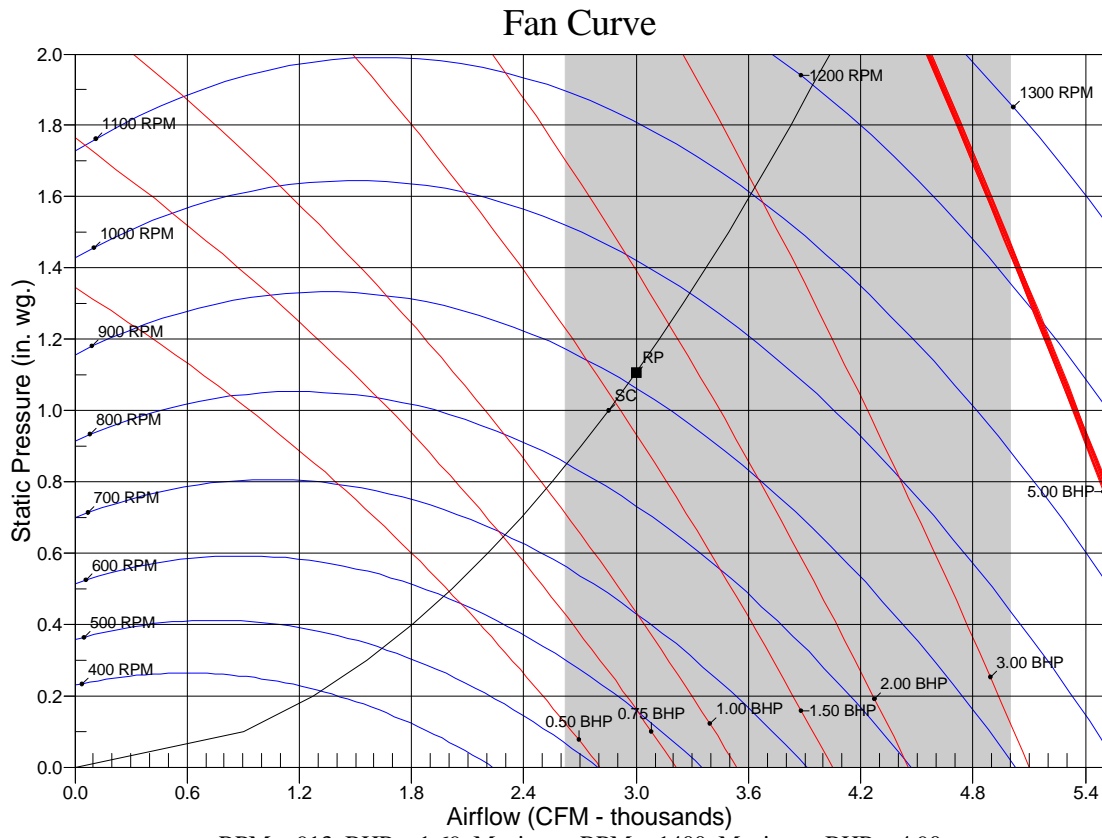
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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 - 6,10,

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM



RPM = 913 BHP = 1.69 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 - 7-9**

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

## Unit Report For RTU - 7-9

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

**Unit Parameters**

Unit Model:.....**48HCDD24J3M6-6X5J0**  
 Unit Size:.....**24 (20 Tons)**  
 Volts-Phase-Hertz:.....**460-3-60**  
 Heating Type:.....**Gas**  
 Duct Cfg:..... **Vertical Supply / Vertical Return**  
 Low 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:.....**2839** 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.**

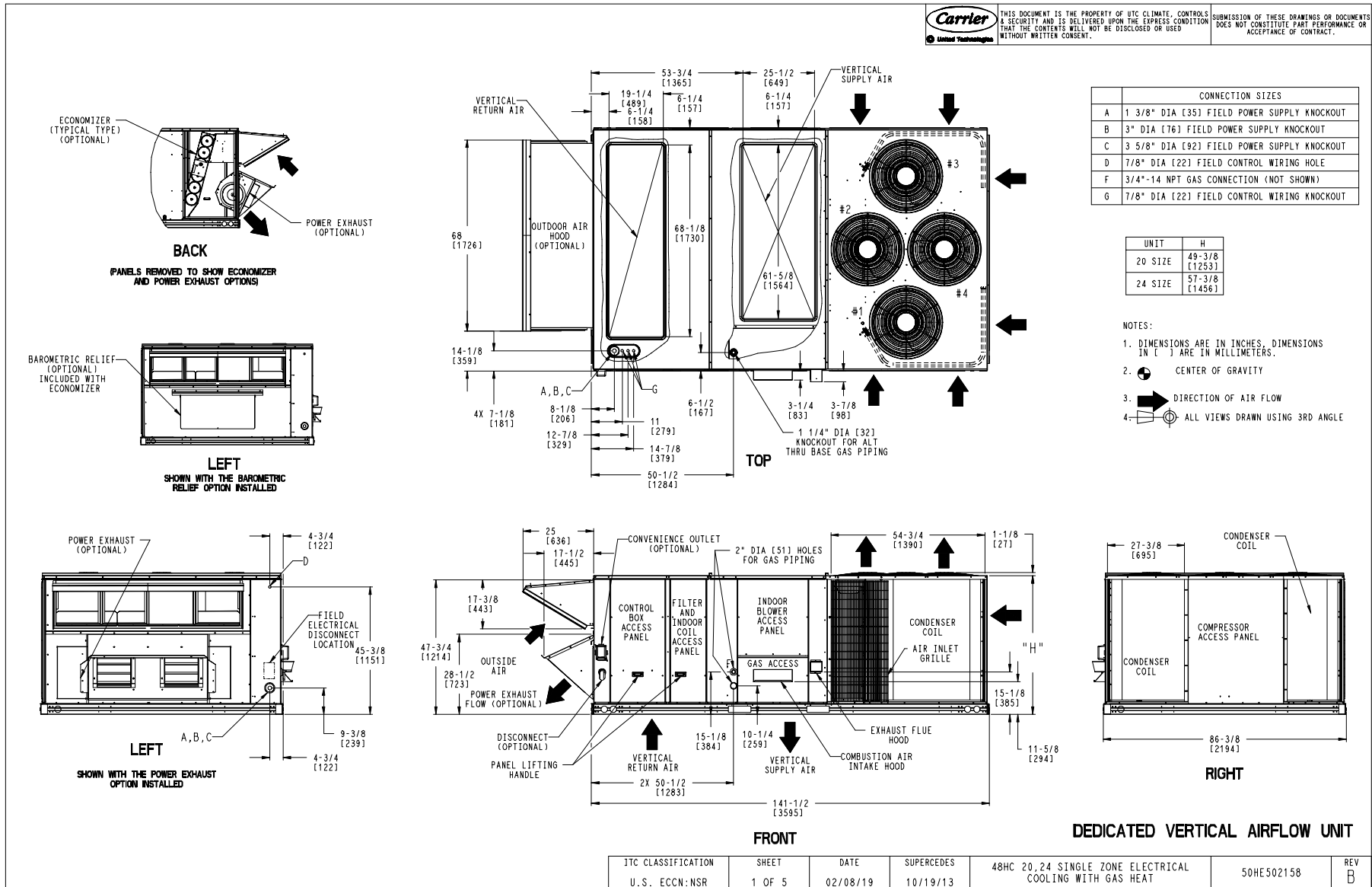
**Ordering Information**

Part Number	Description	Quantity
48HCDD24J3M6-6X5J0	Rooftop Unit	3
	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	

# Certified Drawing for RTU - 7-9

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
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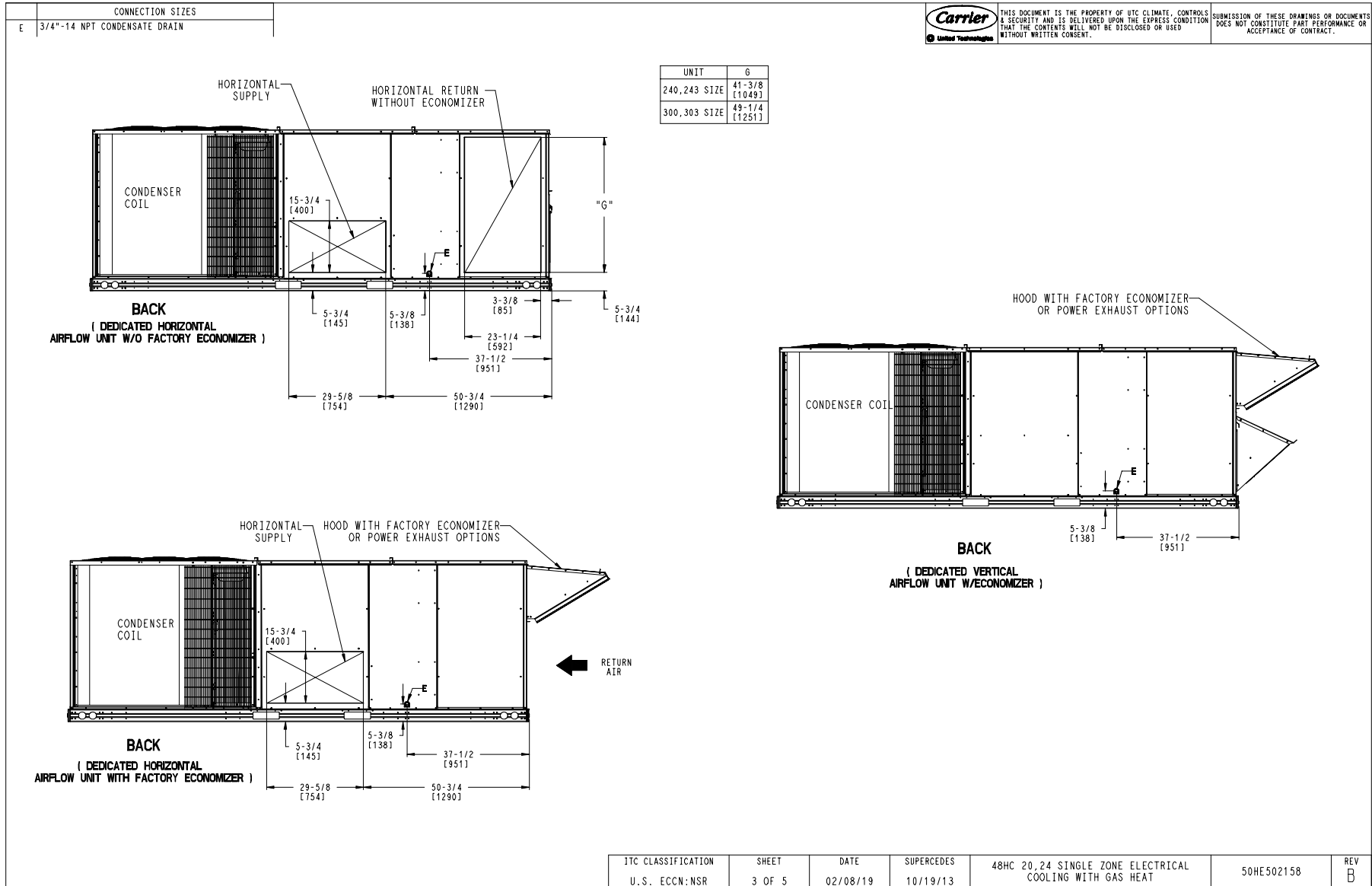


ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48HC 20,24 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE502158	REV
U.S. ECCN: NSR	1 OF 5	02/08/19	10/19/13			B

# Certified Drawing for RTU - 7-9

Project: BCF - Saginaw, IL #521  
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02/14/2022  
 09:53AM



# Certified Drawing for RTU - 7-9

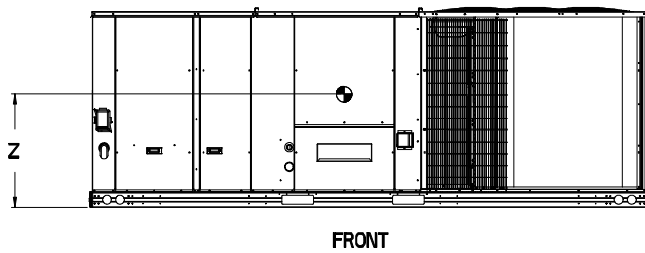
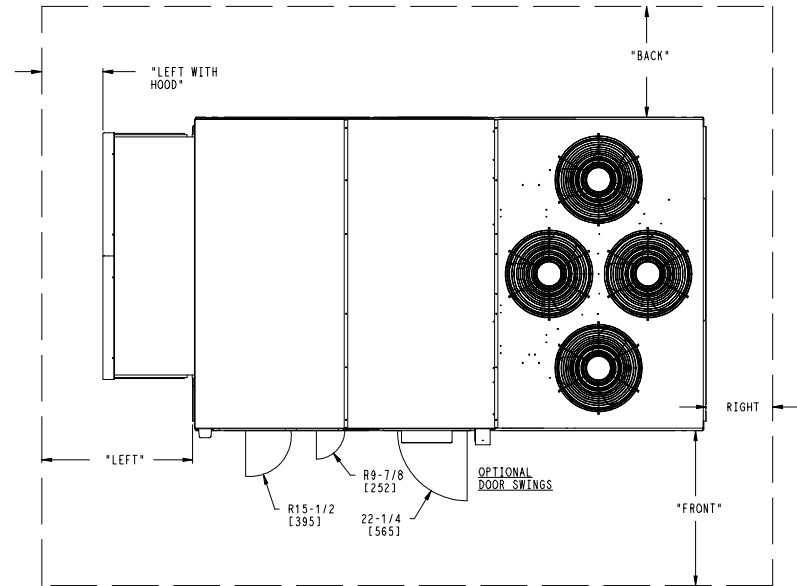
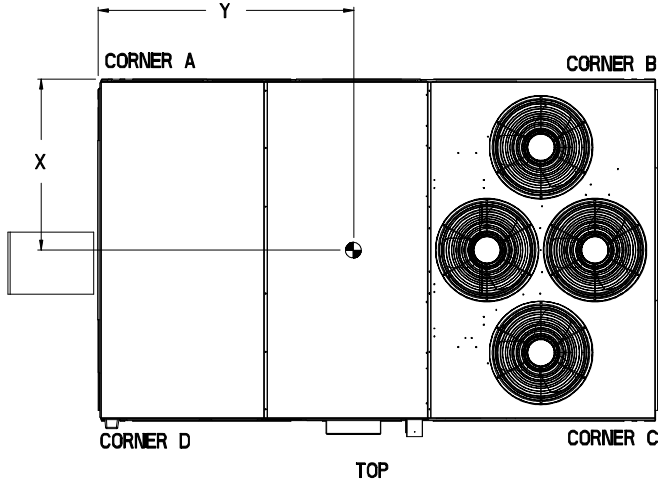
Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

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:**

1. CLEARANCE ABOVE THE UNIT TO BE 72"
2. 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]

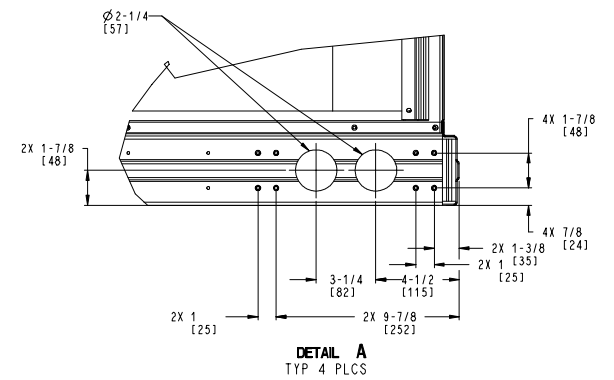
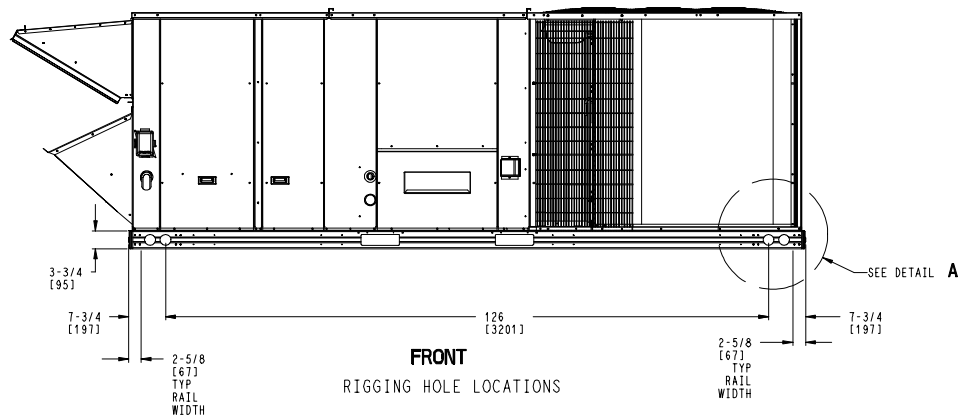
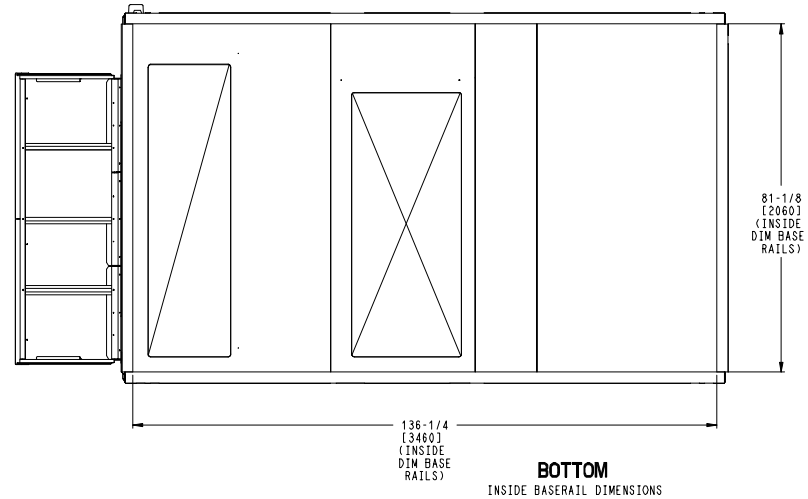
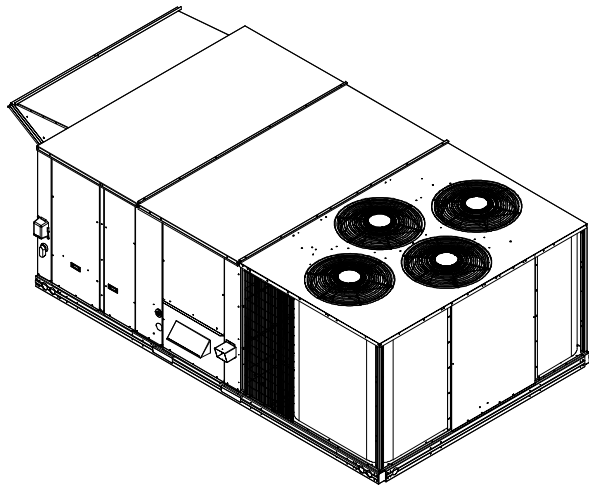
JTC CLASSIFICATION U.S. ECCN:NSR	SHEET 4 OF 5	DATE 02/08/19	SUPERCEDES 10/19/13	48HC 20,24 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE502158	REV B
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# Certified Drawing for RTU - 7-9

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
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JTC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48HC 20, 24 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE502158	REV
U.S. ECCN: NSR	5 OF 5	02/08/19	10/19/13			B

# Performance Summary For RTU - 7-9

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM

## Part Number:48HCDD24J3M6-6X5J0

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  
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: ..... 2839 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: ..... 90.6 F  
Gas Heating Input Capacity: ..... 176.0 / 220.0 MBH  
Gas Heating Output Capacity: ..... 142.0 / 178.0 MBH  
Temperature Rise: ..... 20.6 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  
Supply Fan Motor Maximum Continuous BHP: ..... 11.9 HP  
Supply Fan Motor Nominal HP: ..... 7.5 HP  
Supply Fan Motor Efficiency at Full Load (%): ..... 92

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

## Performance Summary For RTU - 7-9

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### Electrical Data

Voltage Range: .....	<b>414 - 506</b>
Compressor #1 RLA:.....	<b>14.7</b>
Compressor #1 LRA:.....	<b>130</b>
Compressor #2 RLA:.....	<b>14.7</b>
Compressor #2 LRA:.....	<b>130</b>
Indoor Fan Motor Type:.....	<b>HIGH</b>
Indoor Fan Motor FLA:.....	<b>14.3</b>
Combustion Fan Motor FLA (ea):.....	<b>0.3</b>
Power Supply MCA:.....	<b>53.2</b>
Power Supply MOCP (Fuse or HACR):.....	<b>60</b>
Disconnect Size FLA:.....	<b>57</b>
Disconnect Size LRA: .....	<b>352</b>
Electrical Convenience Outlet FLA (based on unit line voltage):.....	<b>2.2</b>
Outdoor Fan [Qty / FLA (ea)]: .....	<b>4 / 0.9</b>

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

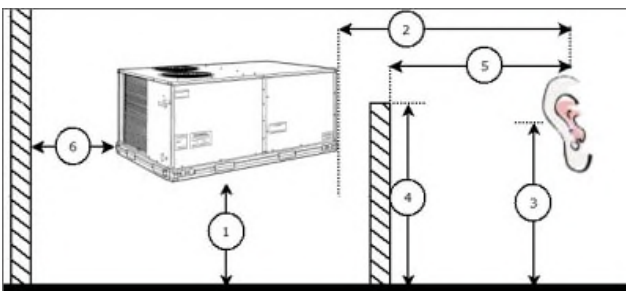
### Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

### 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: .....	<b>30.0</b> ft
2. Horizontal distance from unit to receiver: .....	<b>50.0</b> ft
3. Receiver height above ground: .....	<b>5.7</b> ft
4. Height of obstruction: .....	<b>0.0</b> ft
5. Horizontal distance from obstruction to receiver: .....	<b>0.0</b> ft
6. Horizontal distance from unit to obstruction: .....	<b>0.0</b> ft

# Performance Summary For RTU - 7-9

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

## Detailed Acoustics Information

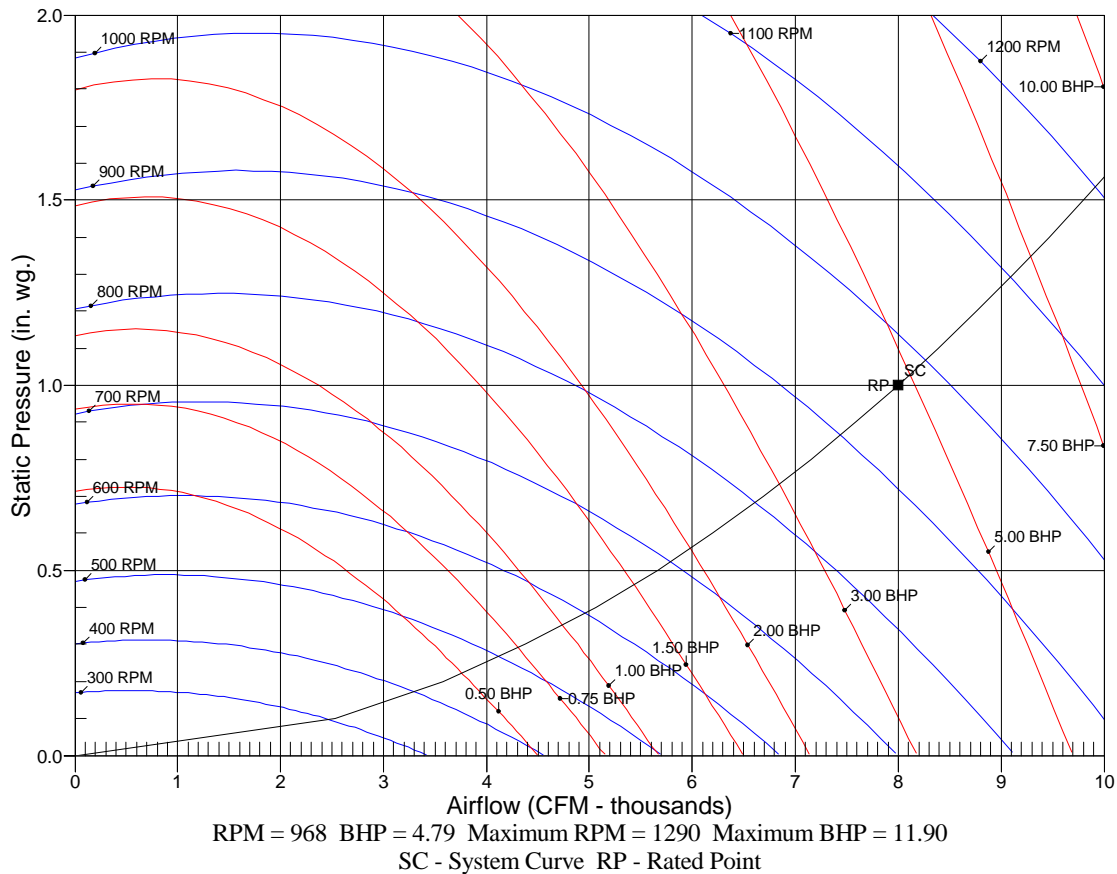
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	95.6	87.5	84.2	84.2	81.7	77.9	73.2	66.3	96.9 Lw
B	69.4	71.4	75.6	81.0	81.7	79.1	74.2	65.2	86.5 LwA
C	63.2	55.1	51.8	51.8	49.3	45.5	40.8	33.9	64.5 Lp
D	37.0	39.0	43.2	48.6	49.3	46.7	41.8	32.8	54.1 LpA

### 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 -11**

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

## Unit Report For RTU -11

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

### Unit Parameters

Unit Model:..... **48GCFM06J3M6-6W5F0**  
 Unit Size:.....**06 (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:.....**6' 2.375"**  
 Unit Width:.....**3' 10.625"**  
 Unit Height: .....**3' 5.375"**  
 \*\*\* Total Operating Weight: ..... **721** 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:..... **1/2**  
 Condensate Drain Line Size: ..... **3/4**  
 Return Air Filter Type:..... **Throwaway**  
 Return Air Filter Quantity:..... **4**  
 Return Air Filter Size:.....**16 x 16 x 2**

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

### Unit Configuration

Condensate Overflow Switch  
 Direct Drive - EcoBlue - High Static  
 Al/Cu - Al/Cu - Louvered Hail Guards  
 Electromechanical Controls w/W7220 Econo Controller  
 Enthalpy Ultra Low Leak Econo w/Baro Relief  
 Hinged Panels, Powered Convenience Outlet  
 Non-Fused Disconnect and Thru-The-Base Connections  
 Standard Packaging

### Warranty Information

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

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

### Ordering Information

Part Number	Description	Quantity
48GCFM06J3M6-6W5F0	Rooftop Unit	1
	Base Unit	
	Condensate Overflow Switch	
	Direct Drive - EcoBlue - High Static	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged Panels, Powered Convenience Outlet	
	Non-Fused Disconnect and Thru-The-Base Connections	
	Ultra Low leak Enty Econo X with baro relief, W7220 control. Meets Calif. Title 24 FDD & Leak Rates	

# Certified Drawing for RTU -11

Project: BCF - Saginaw, IL #521  
Prepared By:

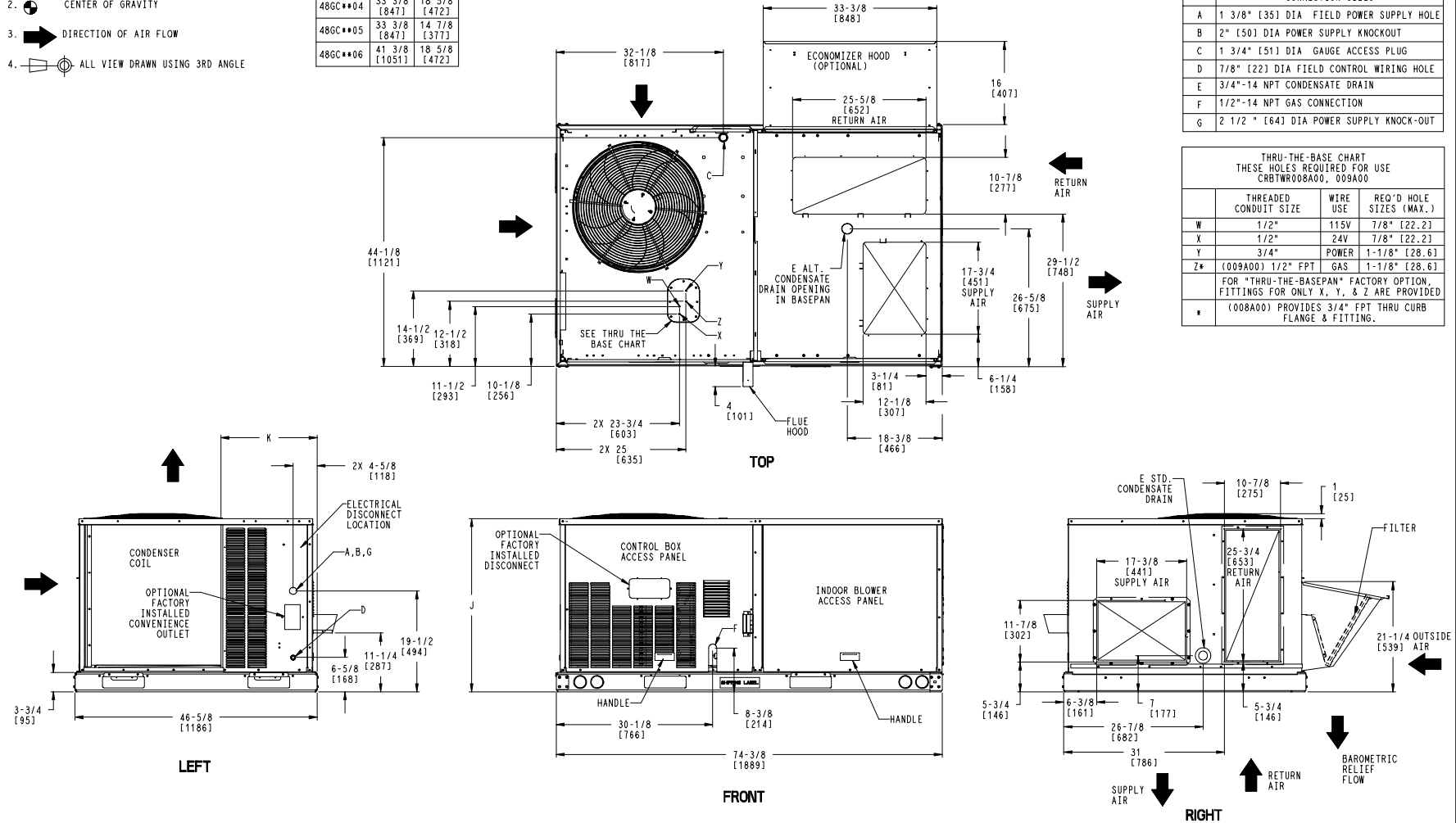
02/14/2022  
09:53AM

**NOTES:**

1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE

UNIT	J	K
48GC**04	33 3/8 [847]	18 5/8 [472]
48GC**05	33 3/8 [847]	14 7/8 [377]
48GC**06	41 3/8 [1051]	18 5/8 [472]

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ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48GC 04-06 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003099	REV B
U.S. ECCN: NSR	1 OF 3	09/07/18	08/03/18			

# Certified Drawing for RTU -11

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

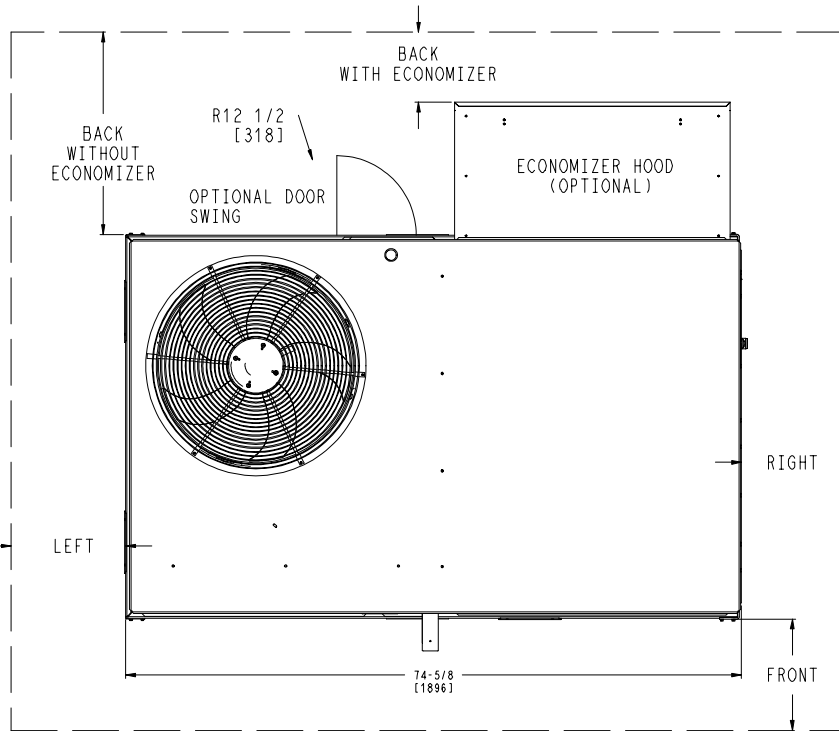
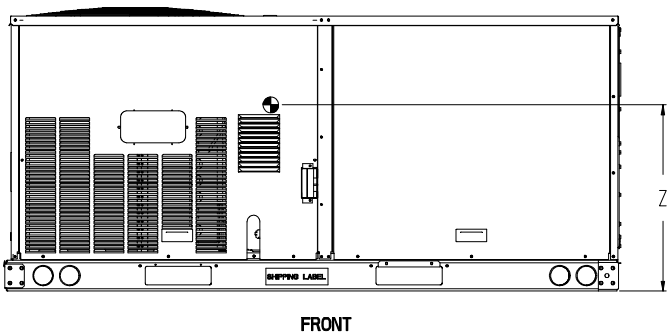
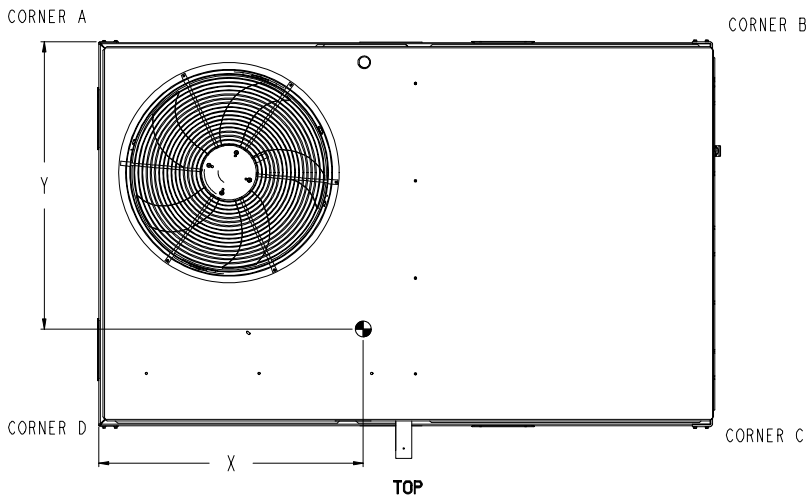
UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.			HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	
48GC**04	513	233	131	59	127	58	125	57	130	59	36 1/2 [927]	23 1/4 [591]	18 1/4 [464]	
48GC**05	555	252	142	64	137	62	135	61	141	64	36 1/2 [927]	23 1/4 [591]	18 [457]	
48GC**06	600	272	161	73	151	68	140	64	149	68	36 1/2 [914]	22 1/2 [572]	19 3/8 [492]	

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



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**NOTES:**

- FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

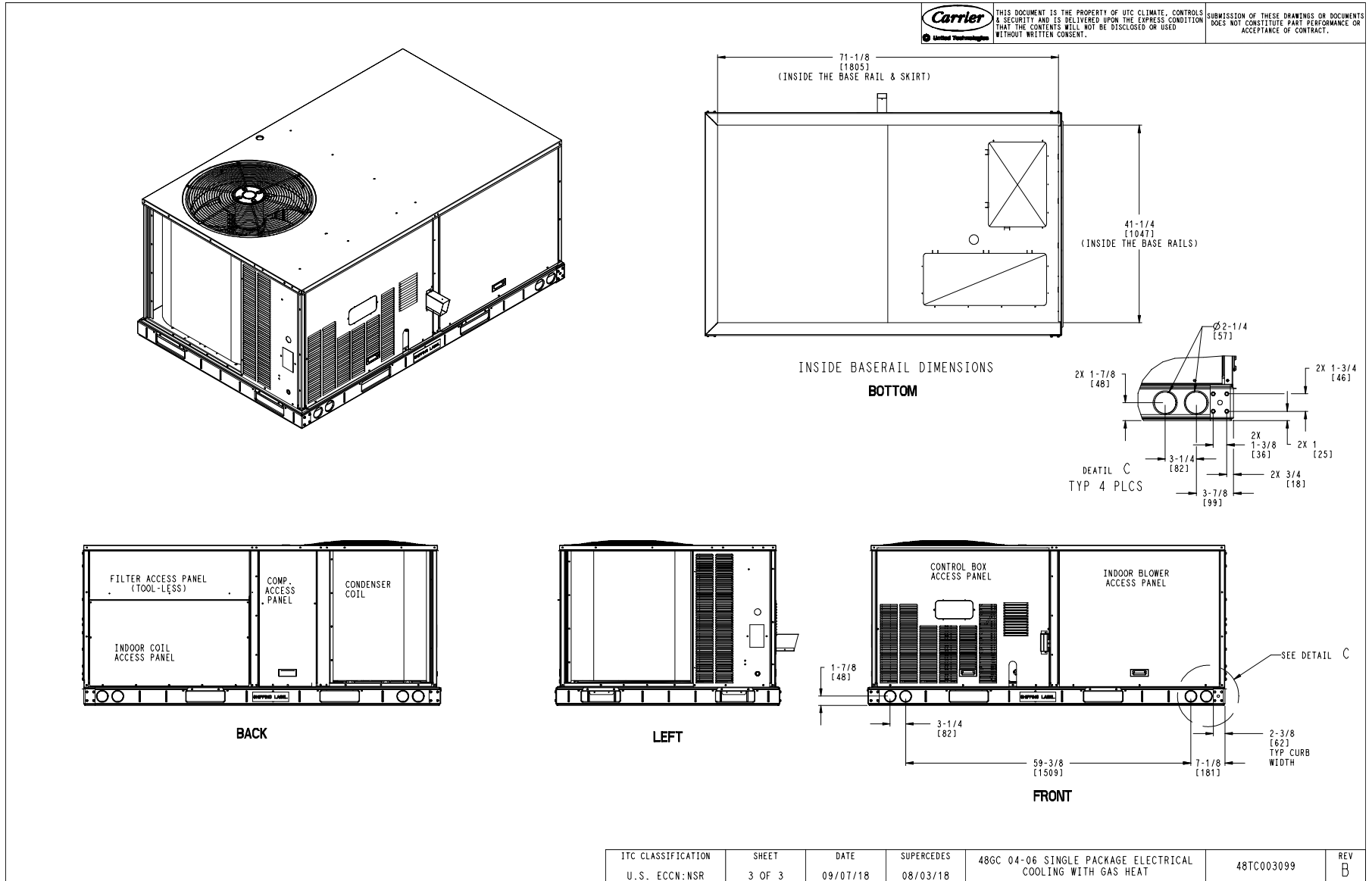
SURFACE	CLEARANCE		OPERATING CLEARANCE
	SERVICE WITH CONDUCTIVE BARRIER	SERVICE WITH NONCONDUCTIVE BARRIER	
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/HOOD	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]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

ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 2 OF 3	DATE 09/07/18	SUPERCEDES 08/03/18	48GC 04-06 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003099	REV B
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# Certified Drawing for RTU -11

Project: BCF - Saginaw, IL #521  
Prepared By:

02/14/2022  
09:53AM



# Performance Summary For RTU -11

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

## Part Number:48GCFM06J3M6-6W5F0

ARI SEER:..... 16.10

### Base Unit Dimensions

Unit Length:..... 74.4 in  
 Unit Width: ..... 46.6 in  
 Unit Height: ..... 41.4 in

### Operating Weight

Base Unit Weight: ..... 555 lb  
 High Heat: ..... 63 lb  
 Condensate Overflow Switch: ..... 5 lb  
 Direct Drive - EcoBlue - High Static: ..... 5 lb  
 Al/Cu - Al/Cu - Louvered Hail Guards: ..... 17 lb  
 Enthalpy Ultra Low Leak Econo w/Baro Relief: ..... 35 lb  
 Hinged Panels, Powered Convenience Outlet: ..... 36 lb  
 Non-Fused Disconnect and Thru-The-Base Connections: ..... 5 lb  
  
 Total Operating Weight: ..... 721 lb

### Unit

Unit Voltage-Phase-Hertz: ..... 460-3-60  
 Air Discharge:..... Vertical  
 Fan Drive Type:..... Vane Axial  
 Actual Airflow: ..... 2000 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:..... 57.6 F  
 Evaporator Leaving Air WB:..... 57.1 F  
 Evaporator Leaving Air Enthalpy:..... 24.44 BTU/lb  
 Gross Cooling Capacity: ..... 63.00 MBH  
 Gross Sensible Capacity: ..... 48.32 MBH  
 Compressor Power Input: ..... 4.11 kW  
 Coil Bypass Factor: ..... 0.047

### Heating Performance

Heating Airflow: ..... 2000 CFM  
 Entering Air Temp: ..... 70.0 F  
 Leaving Air Temp: ..... 125.6 F  
 Gas Heating Input Capacity: ..... 120.0 / 150.0 MBH  
 Gas Heating Output Capacity: ..... 96.0 / 120.0 MBH  
 Temperature Rise: ..... 55.6 F  
 Thermal Efficiency (%): ..... 80.0

### Supply Fan

External Static Pressure:..... 1.00 in wg  
 Options / Accessories Static Pressure  
     Economizer:..... 0.12 in wg  
 Total Application Static (ESP + Unit Opts/Acc.): ..... 1.12 in wg  
 Fan RPM:..... 2313  
 Fan Power:..... 1.33 BHP  
 NOTE: ..... Selected IFM RPM Range: 1387 - 2836  
 Supply Fan Motor Maximum Continuous BHP:..... 2.4 HP  
 Supply Fan Motor Application HP: ..... 2.4 HP

NOTE:Motors with application horse power are specifically designed and tested for Carrier rooftop units therefore do not

## Performance Summary For RTU -11

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

have a standard HP rating. ....

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

**Electrical Data**

Voltage Range: ..... **414 - 506**  
 Compressor #1 RLA:..... **7.6**  
 Compressor #1 LRA:..... **52**  
 Indoor Fan Motor Type:..... **HIGH**  
 Indoor Fan Motor FLA: ..... **2.9**  
 Combustion Fan Motor FLA (ea):..... **0.25**  
 Power Supply MCA: ..... **16**  
 Power Supply MOCP (Fuse or HACR):..... **20**  
 Disconnect Size FLA:..... **16**  
 Disconnect Size LRA: ..... **60**  
 Electrical Convenience Outlet FLA (based on unit line voltage):..... **2.2**  
 Outdoor Fan [Qty / FLA (ea)]: ..... **1 / 0.8**  
 NOTE: Convenience outlet must be field connected to the line/load side of the unit disconnect per local code.

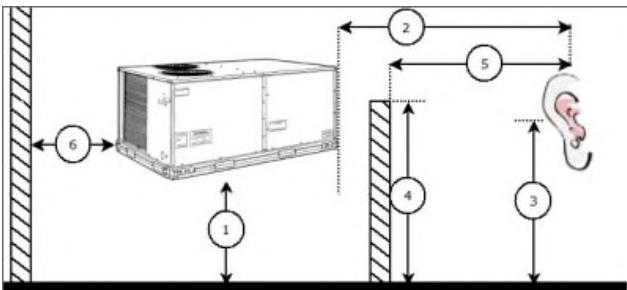
**Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage**

**Acoustics**

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	95.0	91.2	85.6
125 Hz	86.8	82.5	84.7
250 Hz	80.8	73.7	80.5
500 Hz	76.5	69.5	76.0
1000 Hz	73.8	70.9	72.4
2000 Hz	71.3	62.5	68.0
4000 Hz	66.6	55.6	62.8
8000 Hz	61.8	49.5	59.3
A-Weighted	80.3	74.8	79.0

**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 -11

Project: BCF - Saginaw, IL #521  
 Prepared By:

02/14/2022  
 09:53AM

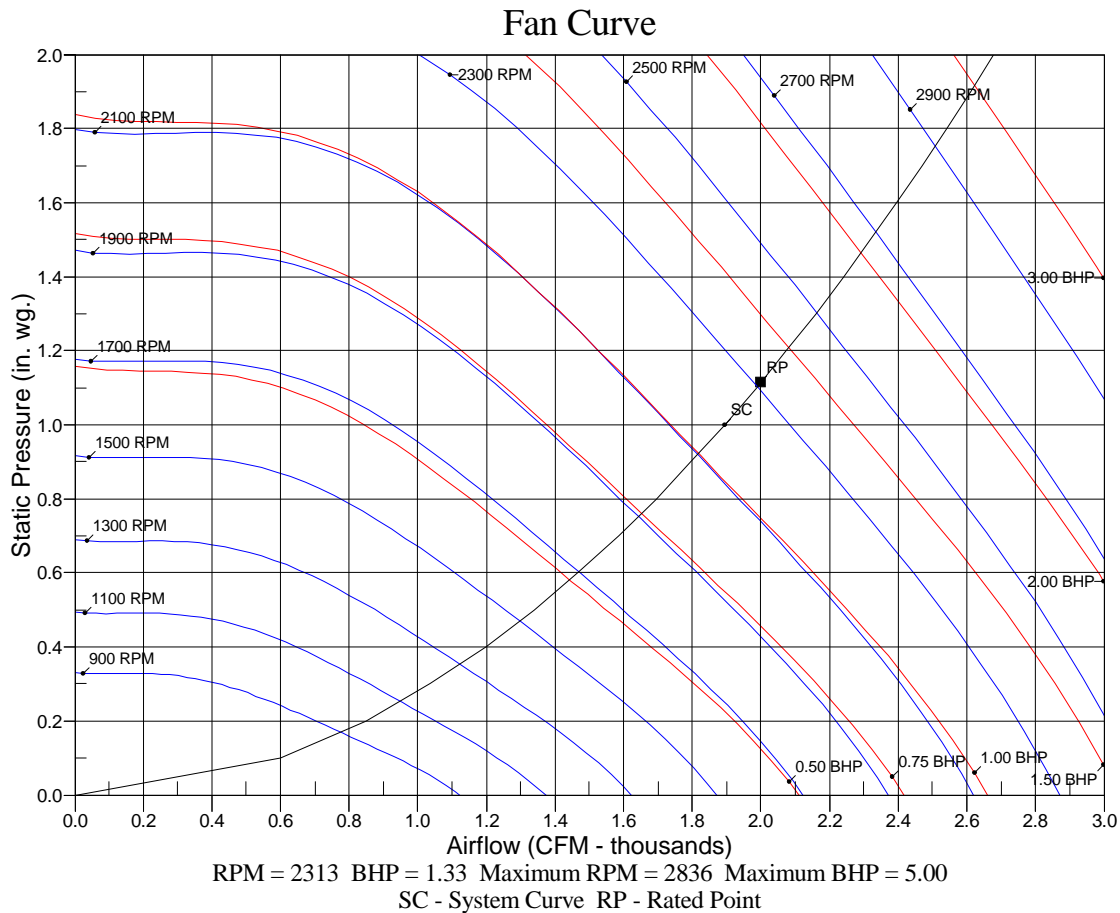
## Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.6	84.7	80.5	76.0	72.4	68.0	62.8	59.3	89.2 Lw
B	59.4	68.6	71.9	72.8	72.4	69.2	63.8	58.2	78.5 LwA
C	53.2	52.3	48.1	43.6	40.0	35.6	30.4	26.9	56.8 Lp
D	27.0	36.2	39.5	40.4	40.0	36.8	31.4	25.8	46.1 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

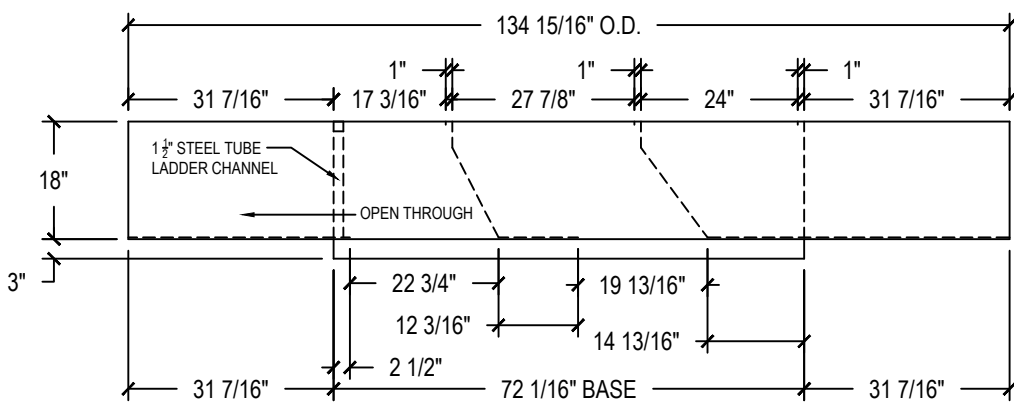
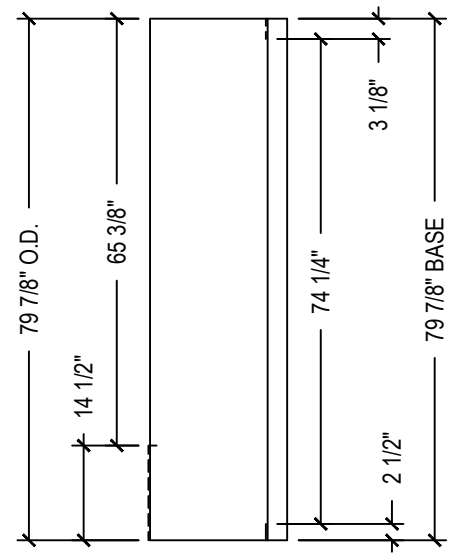
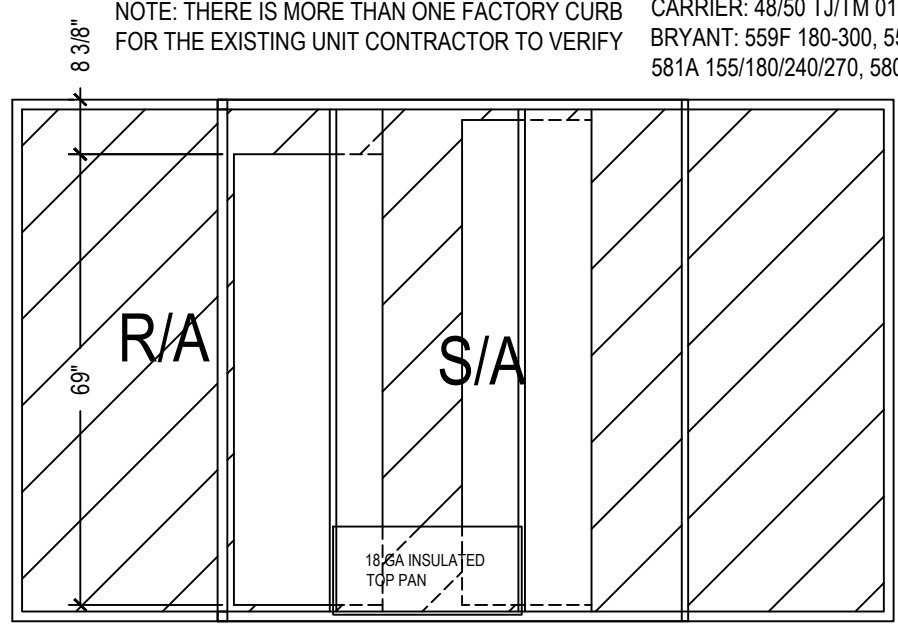
Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system 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.



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"

EXISTING UNITS: 48 / 50 HG 014-028 RETROFIT CURBS  
 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\"/>

**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: CR322CR40  
 APPROXIMATE WEIGHT: 415 LBS

QTY.: 3	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-7,8,9	