



SUBMITTAL

Project

BCF - Columbia, SC #128

Date

Wednesday, January 25, 2023

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Prepared By:

02/01/2023
11:31AM

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24 ton RTUs:

CARRIER RTU #1 M# 48TJD024 S# 099756770 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V
CARRIER RTU #2 M# 48TJD024 S# 0997F56768 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V
CARRIER RTU #4 M# 48TJD024 S# 0997F56765 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V
CARRIER RTU #8 M# 48TJD024 S# 0997F56764 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V
CARRIER RTU #10 M# 48TJD024 S# 1097F58152 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V
CARRIER RTU #11 M# 48TJD024 S# 0997F56774 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V
CARRIER RTU #12 M# 48TJD024 S# 0997F56771 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V
CARRIER RTU #13 M# 48TJD024 S# 0997F56766 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V
CARRIER RTU #16 M# 48TJD024650QA S# 1097F58151 / 25 Years Old / 20 Tons / R22 / Gas Heat / 460V

10 ton RTUs:

CARRIER RTU #3 M# 48TFE012-A-611 S# 4902G56016 / 20 Years Old / 10 Tons / R22 / Gas Heat / 460V
CARRIER RTU #14 M# 48TFE012-A-611 S# 3005G20641 / 17 Years Old / 10 Tons / R22 / Gas Heat / 460V
CARRIER RTU #17 M# 50TJ012611 S# 2697G3012 / 25 Years Old / 10 Tons / R22 / Gas Heat / 460V

5ton RTUs:

CARRIER RTU #5 M# N/A S# 0404G50299 / 18 Years old / 5 tons / R22 / Gas Heat / 460V

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CARRIER RTU #15 M# 50TCA06A2A50A0 S# 3314C69689 / 8 Years Old / 5 Tons / R410A

7.5 ton RTUs:

CARRIER RTU #6 M# 48TFD008-A-611 S# 4403G30520 / 19 Years old / 7.5 tons / R22 / Gas Heat / 460V

12.5 ton RTUs:

CARRIER RTU #7 M# 48TFD014--611 S# 0204G40525 / 18 Years Old / 12.5 Tons / R22 / Gas Heat / 460V

CARRIER RTU #9 M# 48TFD014--611 S# 0204G40527 / 18 Years Old / 12.5 Tons / R22 / Gas Heat / 460V

24 ton RTUs

Tag Cover Sheet Unit Report Certified Drawing Performance Report

Unit Report For 24 ton RTUs

Project: BCF - Columbia, SC #128
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Unit Parameters

Unit Model:..... **48FCDM24J3M6-3X5C0**
 Unit Size:..... **24 (20 Tons)**
 Volts-Phase-Hertz:..... **460-3-60**
 Heating Type:..... **Gas**
 Heat Control:..... **Low Heat**
 Duct Cfg:..... **Vertical Supply / Vertical Return**
 DX Options:..... **Two Stage Cooling/Single Circuit**

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

Unit Length:..... **11' 9.5"**
 Unit Width:..... **7' 2.375"**
 Unit Height:..... **3' 11.75"**
Total Operating Weight:..... 2495 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: **6**
 Return Air Filter Size: **20 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
 SystemVu Controller
 Enthalpy Ultra Low Leak Econo w/PE (cent) - Vertical Air Only
 Hinged Access Panels and Powered Convenience Outlet
 Non-Fused Disconnect
 Standard Packaging

Warranty Information

1-Year parts(std.)
 5-Year compressor parts(std.)
 10-Year heat exchanger - Aluminized(std.)
 3-Year SystemVu Controller
 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

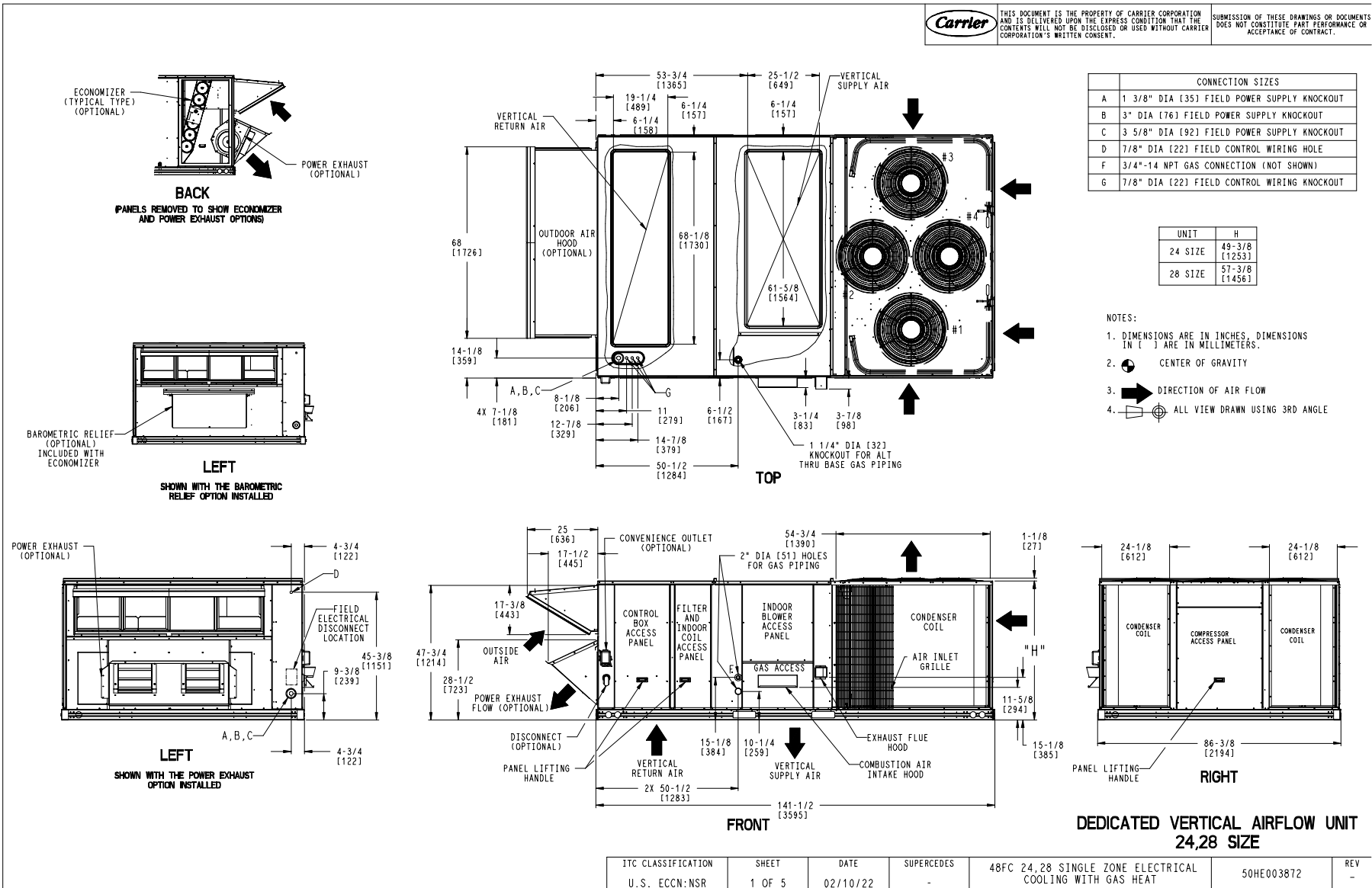
Part Number	Description	Quantity
48FCDM24J3M6-3X5C0	Rooftop Unit	9
	Base Unit	
	Condensate Overflow Switch	
	High Static Option - Vertical Models	
	Al/Cu - Al/Cu - Louvered Hail Guard	
	Hinged Access Panels and Powered Convenience Outlet	
	Non-Fused Disconnect	
	SystemVu controller, ULTRA LOW LEAK EconoMi\$er2 enthalpy economizer with centrifugal power exhaust.	
Field Installed Accessories		
33CENTSEN	Enthalpy Transmitter	9
20X25X2-M13-R-P6	20x25x2 MERV-13 replacement air filters	9

Certified Drawing for 24 ton RTUs

Project: BCF - Columbia, SC #128
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ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE003872	REV
U.S. ECCN:NSR	1 OF 5	02/10/22	-			-

Certified Drawing for 24 ton RTUs

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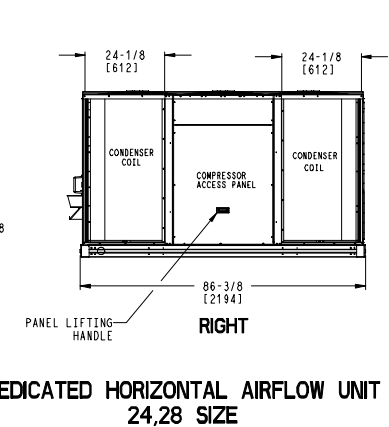
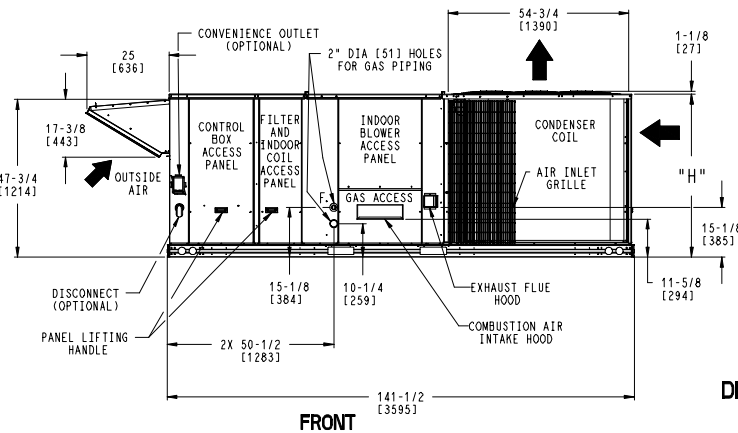
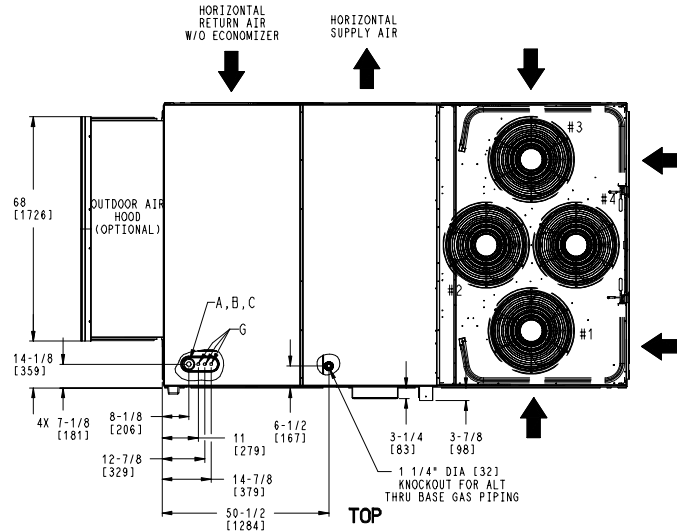
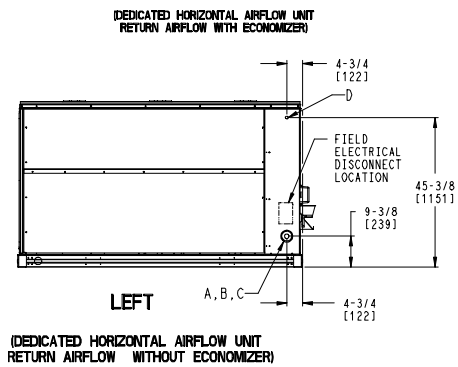
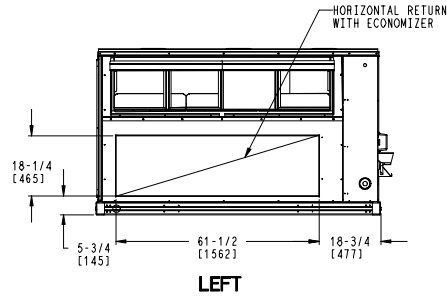
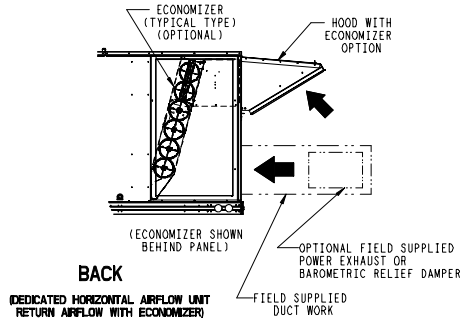
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CONNECTION SIZES	
A	1 3/8" DIA [35] FIELD POWER SUPPLY KNOCKOUT
B	3" DIA [76] FIELD POWER SUPPLY KNOCKOUT
C	3 5/8" DIA [92] FIELD POWER SUPPLY KNOCKOUT
D	7/8" DIA [22] FIELD CONTROL WIRING HOLE
F	3/4" -14 NPT GAS CONNECTION (NOT SHOWN)
G	7/8" DIA [22] FIELD CONTROL WIRING KNOCKOUT

UNIT	H
24 SIZE	49-3/8 [1253]
28 SIZE	57-3/8 [1456]

- 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



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 24, 28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE003872	REV
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Certified Drawing for 24 ton RTUs

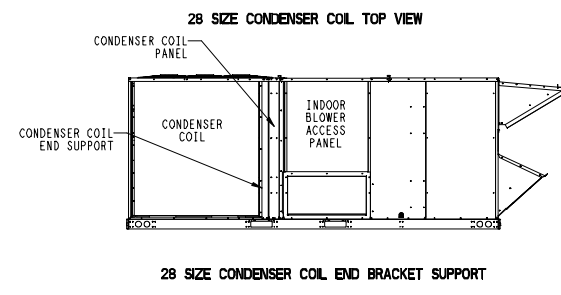
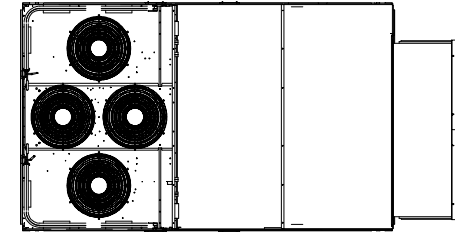
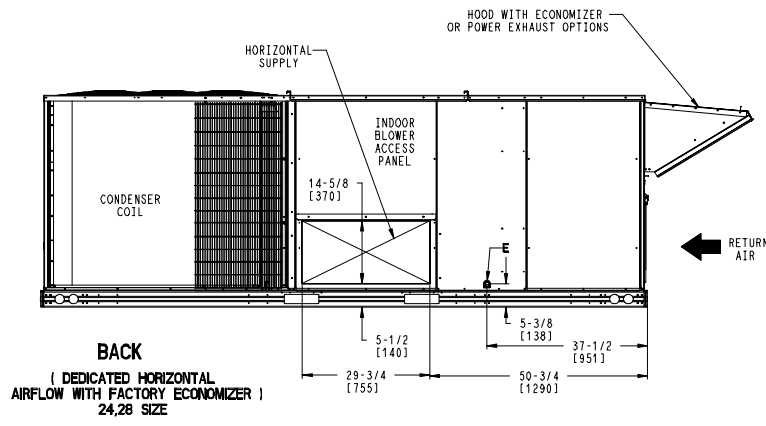
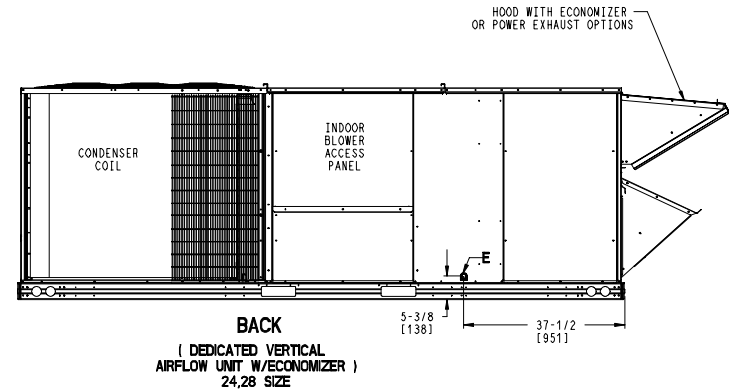
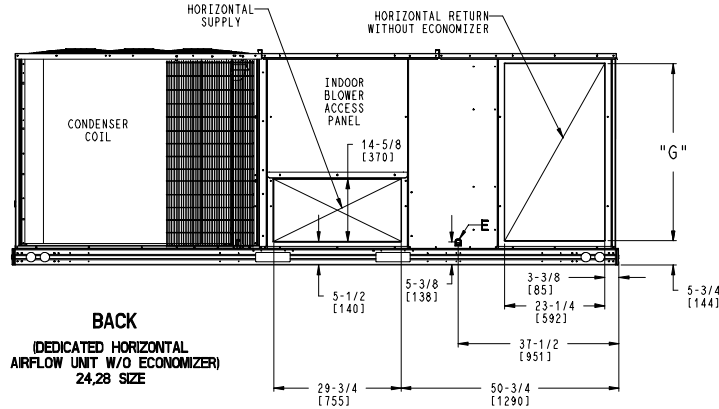
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CONNECTION SIZES	
E	3/4"-14 NPT CONDENSATE DRAIN

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UNIT	G
24 SIZE	41-3/8 [1049]
28 SIZE	49-1/4 [1251]



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Certified Drawing for 24 ton RTUs

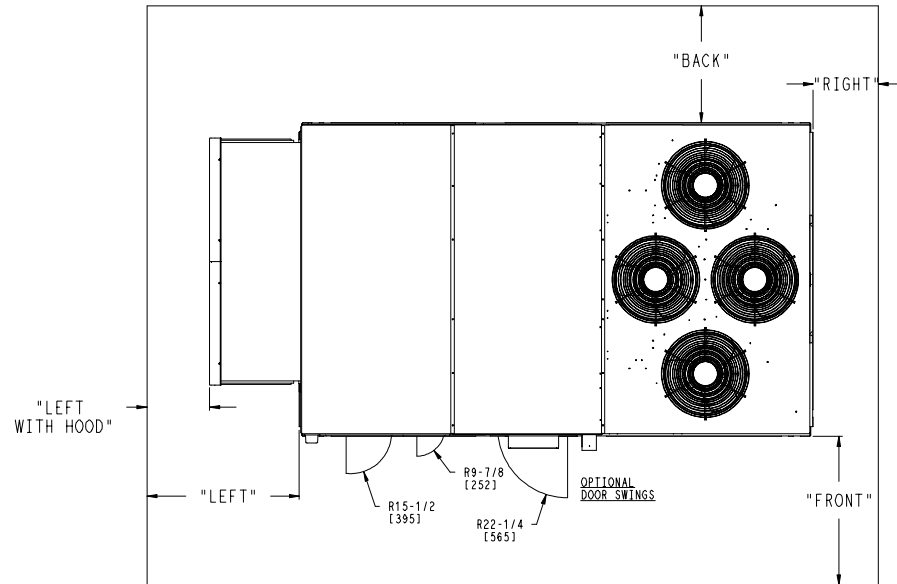
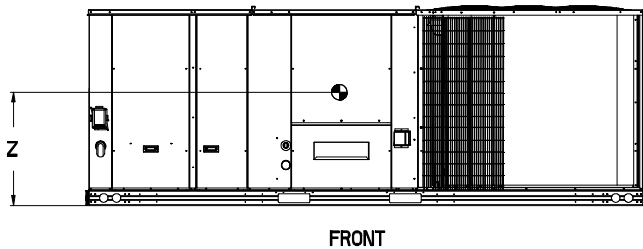
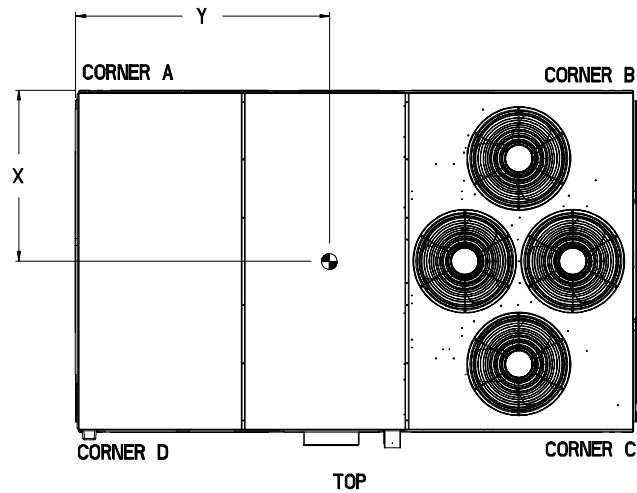
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UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48FC24	2000	907	429	195	505	229	576	261	489	222	76 1/2 [1943]	46 [1168]	16 1/2 [419]
48FC28	2174	986	458	208	583	264	634	288	498	226	79 1/4 [2013]	45 [1143]	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]

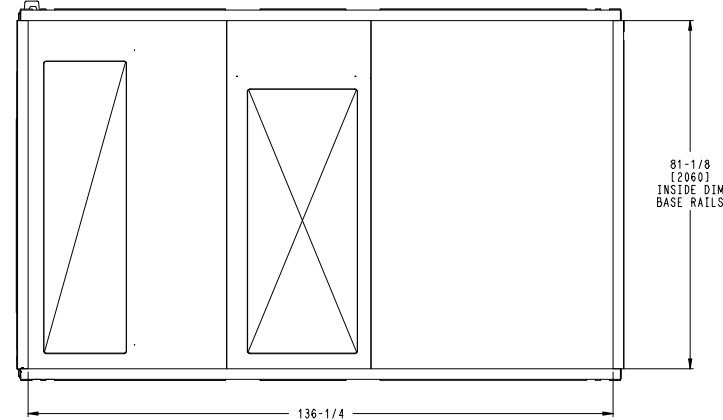
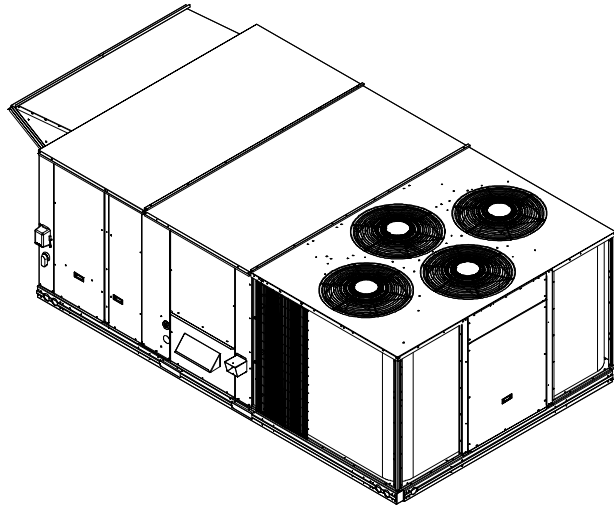
ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 4 OF 5	DATE 02/10/22	SUPERCEDES -	48FC 24,28 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE003872	REV -
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Certified Drawing for 24 ton RTUs

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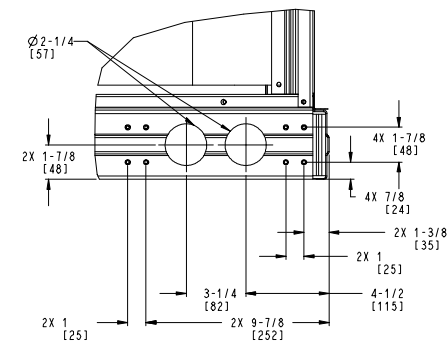
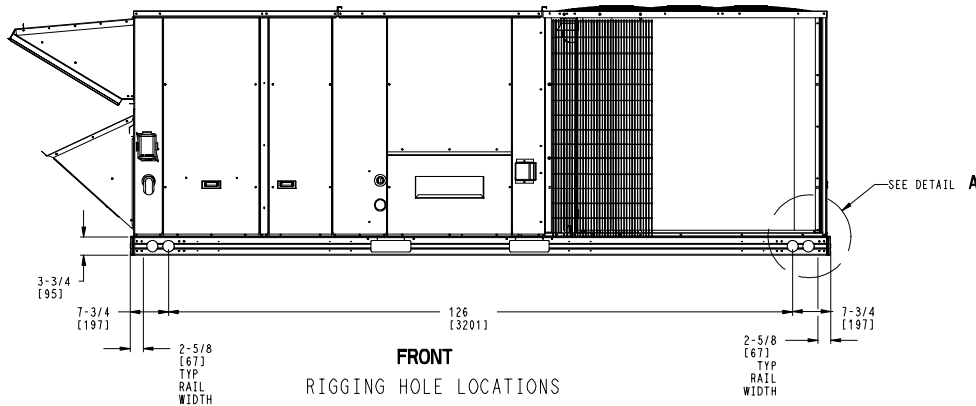
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BOTTOM

INSIDE BASERAIL DIMENSIONS



DETAIL A
 TYP 4 PLCS

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Performance Summary For 24 ton RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
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Part Number: 48FCDM24J3M6-3X5C0

ARI EER: **10.00**
 IEER: **14.5**

Base Unit Dimensions

Unit Length: **141.5** in
 Unit Width: **86.4** in
 Unit Height: **47.8** in

Operating Weight

Base Unit Weight: **1873** lb
 Condensate Overflow Switch: **5** lb
 High Static Option - Vertical Models: **30** lb
 Al/Cu - Al/Cu - Louvered Hail Guard: **90** lb
 SystemVu Controller: **2** lb
 Enthalpy Ultra Low Leak Econo w/PE (cent) - Vertical Air Only: **443** lb
 Hinged Access Panels and Powered Convenience Outlet: **37** lb
 Non-Fused Disconnect: **15** lb

 Total Operating Weight: **2495** lb

Unit

Unit Voltage-Phase-Hertz: **460-3-60**
 Air Discharge: **Vertical**
 Fan Drive Type: **Vane Axial**
 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: **58.6** F
 Evaporator Leaving Air WB: **56.9** F
 Evaporator Leaving Air Enthalpy: **24.32** BTU/lb
 Gross Cooling Capacity: **256.07** MBH
 Gross Sensible Capacity: **184.89** MBH
 Compressor Power Input: **20.65** kW
 Coil Bypass Factor: **0.113**

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
 Options / Accessories Static Pressure
 Economizer: **0.08** in wg
 Power Exhaust: **(Fan Data Includes Drop)**
 MERV-13 Filter Kit: **0.25** in wg
 Application External Static (ESP + Unit Opts/Acc.): **1.33** in wg
 Fan RPM: **1953**
 Fan Power: **5.49** BHP
 NOTE: **Selected IFM RPM Range: 250 - 2200**

Performance Summary For 24 ton RTUs

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

Filter pressure drop assumes a clean filter and is intended to be an estimate based on available supplier data. The actual pressure drop the unit experiences may vary due to alternate suppliers or filter loading over time.

Power Exhaust

Return Duct Static: **0.40** in wg
 Max. Air to Exhaust: **4590** CFM

Electrical Data

Voltage Range: **414 - 506**
 Compressor #1 RLA: **16**
 Compressor #1 LRA: **140**
 Compressor #2 RLA: **16**
 Compressor #2 LRA: **140**
 Indoor Fan Motor Type: **HIGH**
 Indoor Fan Motor FLA (Total): **5.6**
 Combustion Fan Motor FLA (ea): **0.3**
 Power Supply MCA: **59.2**
 Power Supply MOCP (Fuse or HACR): **70**
 Disconnect Size FLA: **63**
 Disconnect Size LRA: **318**
 Electrical Convenience Outlet FLA (based on unit line voltage): **2.2**
 Power Exhaust [Motor Qty / FLA(ea motor)]: **2 / 3.1**
 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.

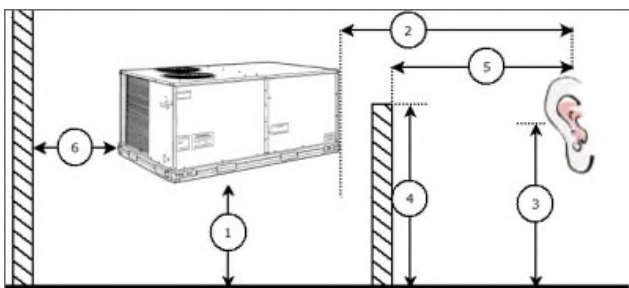
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	95.0	95.2	95.6
125 Hz	90.1	79.1	87.5
250 Hz	82.5	72.7	84.2
500 Hz	81.6	64.6	84.2
1000 Hz	76.5	59.6	81.7
2000 Hz	74.6	55.5	77.9
4000 Hz	74.2	48.8	73.2
8000 Hz	66.4	37.6	66.3
A-Weighted	83.9	71.9	87.0

Advanced Acoustics



Performance Summary For 24 ton RTUs

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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	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

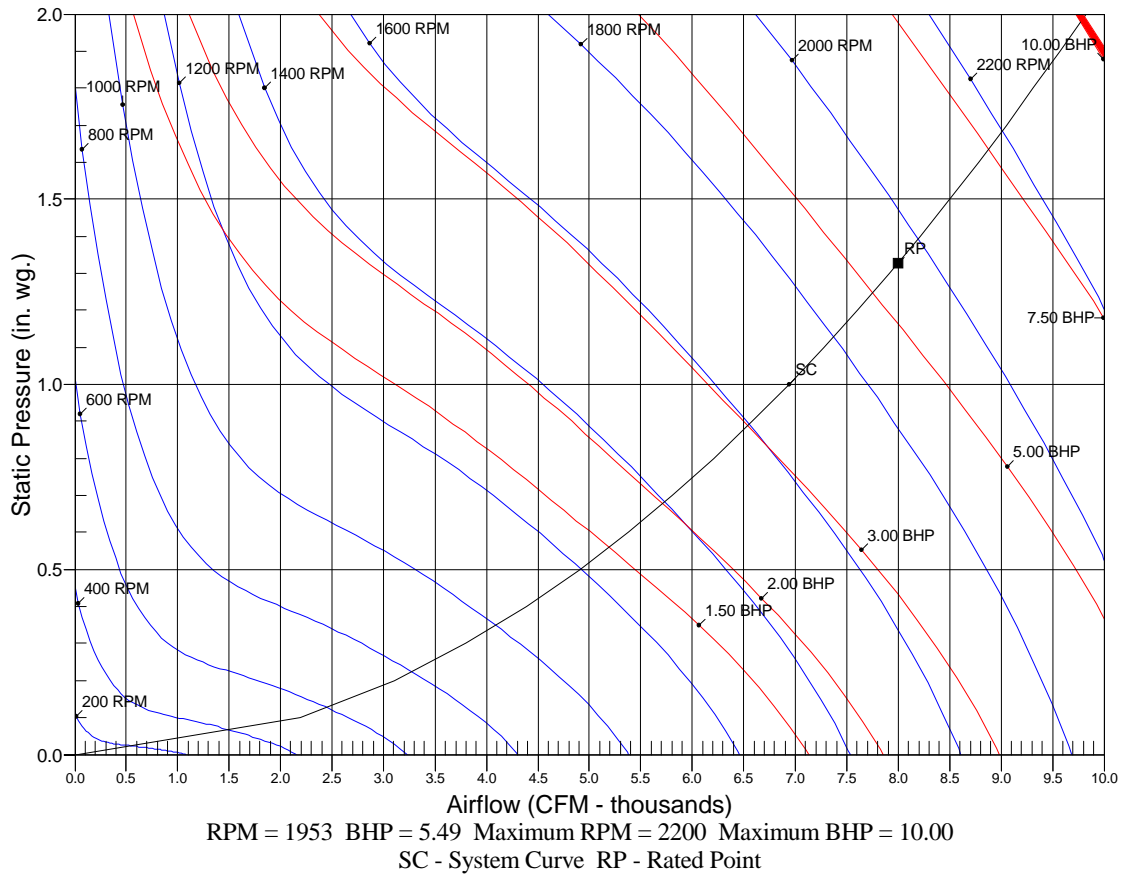
Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system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

Performance Summary For 24 ton RTUs

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Fan Curve



10 ton GH RTUs

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10 ton GH RTUs

Tag Cover Sheet Unit Report Certified Drawing Performance Report

Unit Report For 10 ton GH RTUs

Project: BCF - Columbia, SC #128
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Unit Parameters

Unit Model:.....**48FCEM12J3M6-3W5F0**
 Unit Size:.....**12 (10.0 Tons)**
 Volts-Phase-Hertz:.....**460-3-60**
 Heating Type:.....**Gas**
 Heat Control:.....**Medium Heat**
 Duct Cfg:.....**Vertical Supply / Vertical Return**
 DX Options:.....**Single Circuit, Two Stage Cooling**

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

Unit Length:.....**7' 4.125"**
 Unit Width:.....**4' 11.5"**
 Unit Height:.....**4' 1.375"**
Total Operating Weight:..... 1076 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 (EcoBlue)
 Al/Cu - Al/Cu - Louvered Hail Guards
 SystemVu Controls
 Enthalpy Ultra Low Leak Econo w/Baro Relief
 Hinged Panels and 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.)
 3-Year SystemVu
 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
48FCEM12J3M6-3W5F0	Rooftop Unit	2
	Base Unit	
	Condensate Overflow Switch	
	High Static (EcoBlue)	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged Panels and Powered Convenience Outlet	
	Non-Fused Disconnect and Thru-The-Base Connections	
	SystemVu controller, Ultra LOW LEAK EconoMi\$er2 enthalpy economizer with barometric relief. SystemV	
Field Installed Accessories		
33CENTSEN	Enthalpy Transmitter	2
CRPWREXH023A01	Power Exhaust System	2
CRPECONV004A00	Hinged Panel Sealing Angle Kit	2
20X20X2-M13-R-P4	20x20x2 MERV-13 replacement air filters	2

Certified Drawing for 10 ton GH RTUs

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

- 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	OUTDOOR COIL TYPE	J	K	H
48FC-M08	RTPF	41 1/4 [1048]	35 3/4 [897]	15 3/8 [403]
48FC-M09	RTPF	49 3/8 [1253]	36 3/8 [925]	15 3/8 [403]
48FC-M12	RTPF	49 3/8 [1253]	36 3/8 [925]	15 3/8 [403]

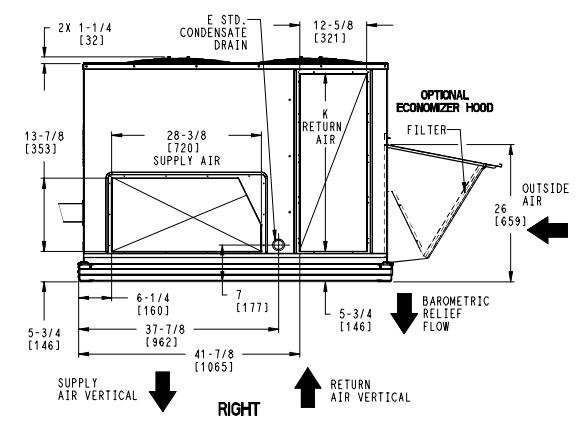
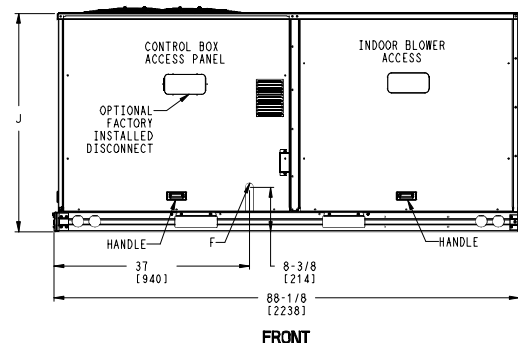
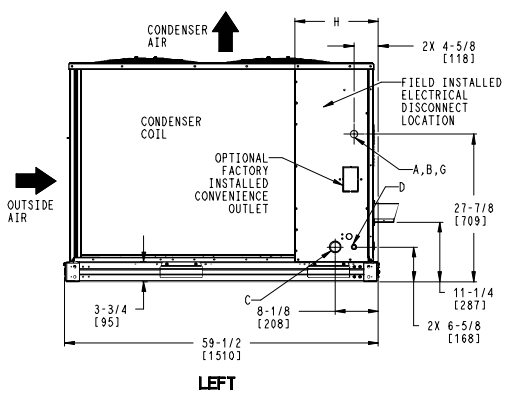
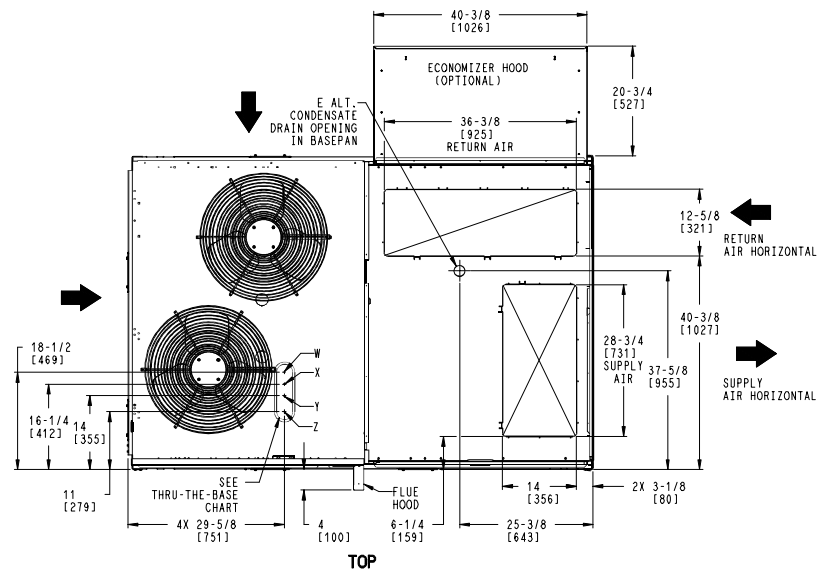
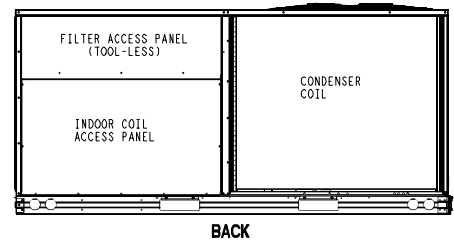
RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)

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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	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: CRBTMPR002A01: GAS THRU CURB CRBTMPR004A01: 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	1 1/4" (002,004)	POWER	1 3/4" [44.4]
Z *	(004) 3/4" FPT	GAS	1 3/4" [44.4]
* (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: 48FCD, S*08, 09	



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	REV
U.S. ECCN: NSR	1 OF 3	03/12/21	-			-

Certified Drawing for 10 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

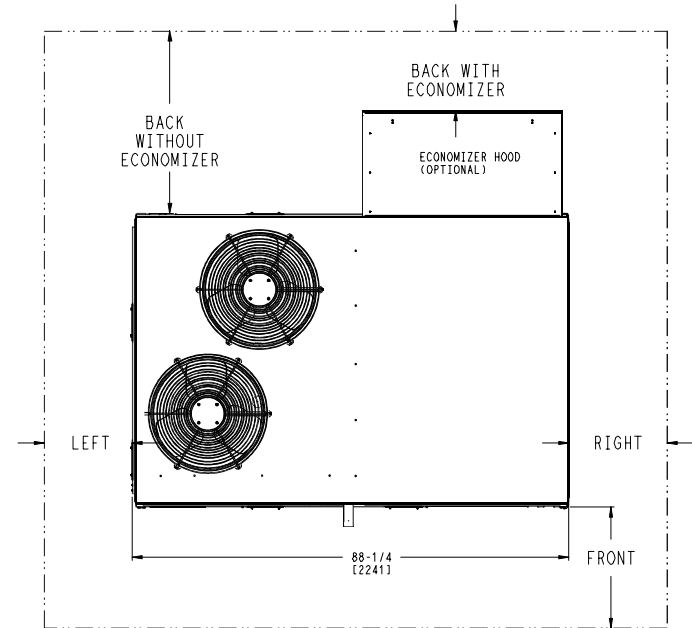
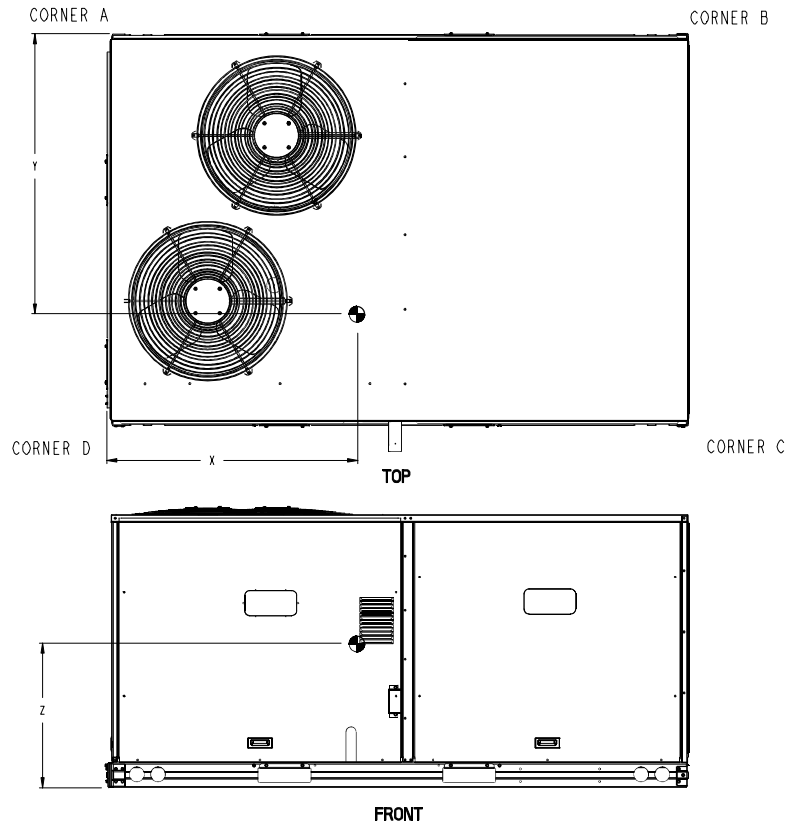
02/01/2023
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UNIT	OUTDOOR COIL TYPE	STD. UNIT WEIGHT ***		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.			
		LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	
48FC-M08	RTPF	787	357	181	82	150	68	207	94	249	113	40	1/2 [1016]	34 1/2 [876]	19 3/8 [492]
48FC-M09	RTPF	868	394	197	89	160	73	229	104	282	128	39 1/2 [1003]	35 [889]	18 5/8 [473]	
48FC-M12	RTPF	878	398	213	97	175	80	221	100	268	121	39 7/8 [1013]	33 1/4 [841]	18 1/2 [470]	

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

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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.



NOTE:
 1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

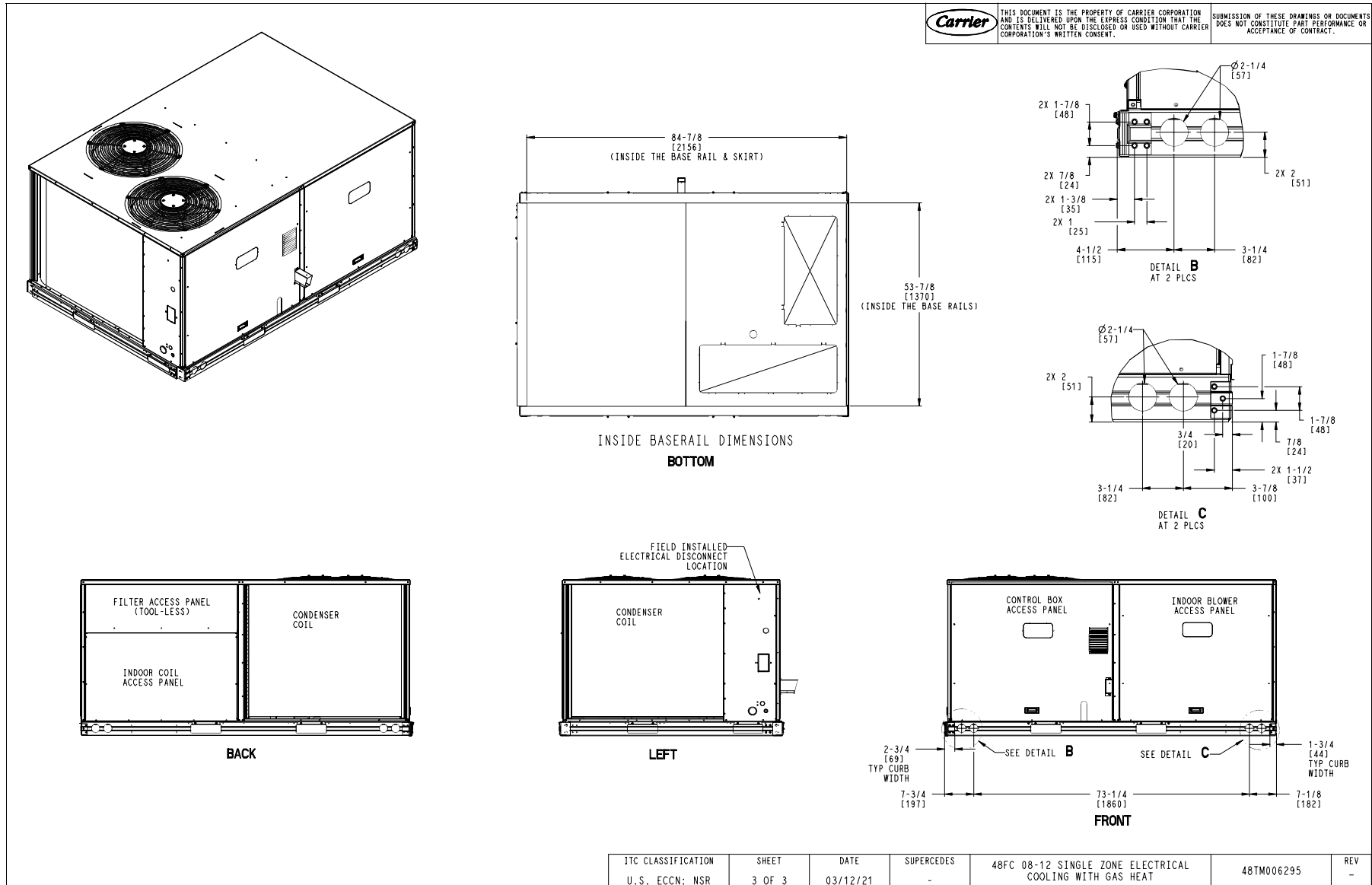
SURFACE	SERVICE WITH:		OPERATING CLEARANCE
	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/O ECON	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/ECON	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP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

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	REV
U.S. ECCN:NSR	2 OF 3	03/12/21	-			-

Certified Drawing for 10 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
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ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	REV
U.S. ECCN: NSR	3 OF 3	03/12/21	-			-

Performance Summary For 10 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Part Number:48FCEM12J3M6-3W5F0

ARI EER: **11.00**
 IEER: **15.0**

Base Unit Dimensions

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

Operating Weight

Base Unit Weight: **815** lb
 Medium Heat: **18** lb
 Condensate Overflow Switch: **5** lb
 High Static (EcoBlue): **30** lb
 Al/Cu - Al/Cu - Louvered Hail Guards: **17** lb
 SystemVu Controls: **2** lb
 Enthalpy Ultra Low Leak Econo w/Baro Relief: **57** lb
 Hinged Panels and Powered Convenience Outlet: **41** lb
 Non-Fused Disconnect and Thru-The-Base Connections: **16** lb

Accessories

Power Exhaust System: **75** lb

 Total Operating Weight: **1076** lb

Unit

Unit Voltage-Phase-Hertz: **460-3-60**
 Air Discharge: **Vertical**
 Fan Drive Type: **Vane Axial**
 Actual Airflow: **4000** 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: **57.1** F
 Evaporator Leaving Air Enthalpy: **24.45** BTU/lb
 Gross Cooling Capacity: **125.75** MBH
 Gross Sensible Capacity: **96.22** MBH
 Compressor Power Input: **9.17** kW
 Coil Bypass Factor: **0.052**

Heating Performance

Heating Airflow: **4000** CFM
 Entering Air Temp: **70.0** F
 Leaving Air Temp: **111.9** F
 Gas Heating Input Capacity: **180.0 / 224.0** MBH
 Gas Heating Output Capacity: **146.0 / 181.0** MBH
 Temperature Rise: **41.9** F

Supply Fan

External Static Pressure: **1.00** in wg
 Options / Accessories Static Pressure
 Economizer: **0.20** in wg
 Power Exhaust: **(Fan Data Includes Drop)**
 MERV-13 Filter Kit: **0.22** in wg
 Application External Static (ESP + Unit Opts/Acc.): **1.42** in wg
 Fan RPM: **2038**

Performance Summary For 10 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Fan Power:..... **3.03** BHP
 NOTE:..... **Selected IFM RPM Range: 1264 - 2200**
 Supply Fan Motor Maximum Continuous BHP:..... **5.0** HP
 Supply Fan Motor Application HP:..... **5.0** HP

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

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

Filter pressure drop assumes a clean filter and is intended to be an estimate based on available supplier data. The actual pressure drop the unit experiences may vary due to alternate suppliers or filter loading over time.

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:..... **60**
 Compressor #2 RLA:..... **7.7**
 Compressor #2 LRA:..... **60**
 Indoor Fan Motor Type:..... **HIGH**
 Indoor Fan Motor FLA (Total):..... **5.6**
 Combustion Fan Motor FLA (ea):..... **0.25**
 Power Supply MCA:..... **29**
 Power Supply MOCP (Fuse or HACR):..... **35**
 Disconnect Size FLA:..... **31**
 Disconnect Size LRA:..... **136**
 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.

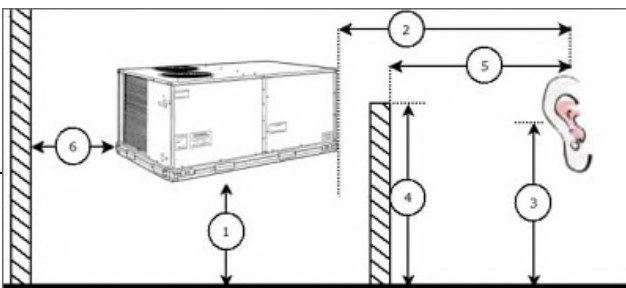
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	98.2	95.0	85.6
125 Hz	94.6	88.2	84.7
250 Hz	81.3	73.3	80.5
500 Hz	75.2	68.4	76.0
1000 Hz	71.8	66.4	72.4
2000 Hz	69.3	62.2	68.0
4000 Hz	72.7	62.7	62.8
8000 Hz	74.6	60.6	59.3
A-Weighted	82.9	76.0	79.0

Advanced Acoustics



Performance Summary For 10 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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	85.6	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

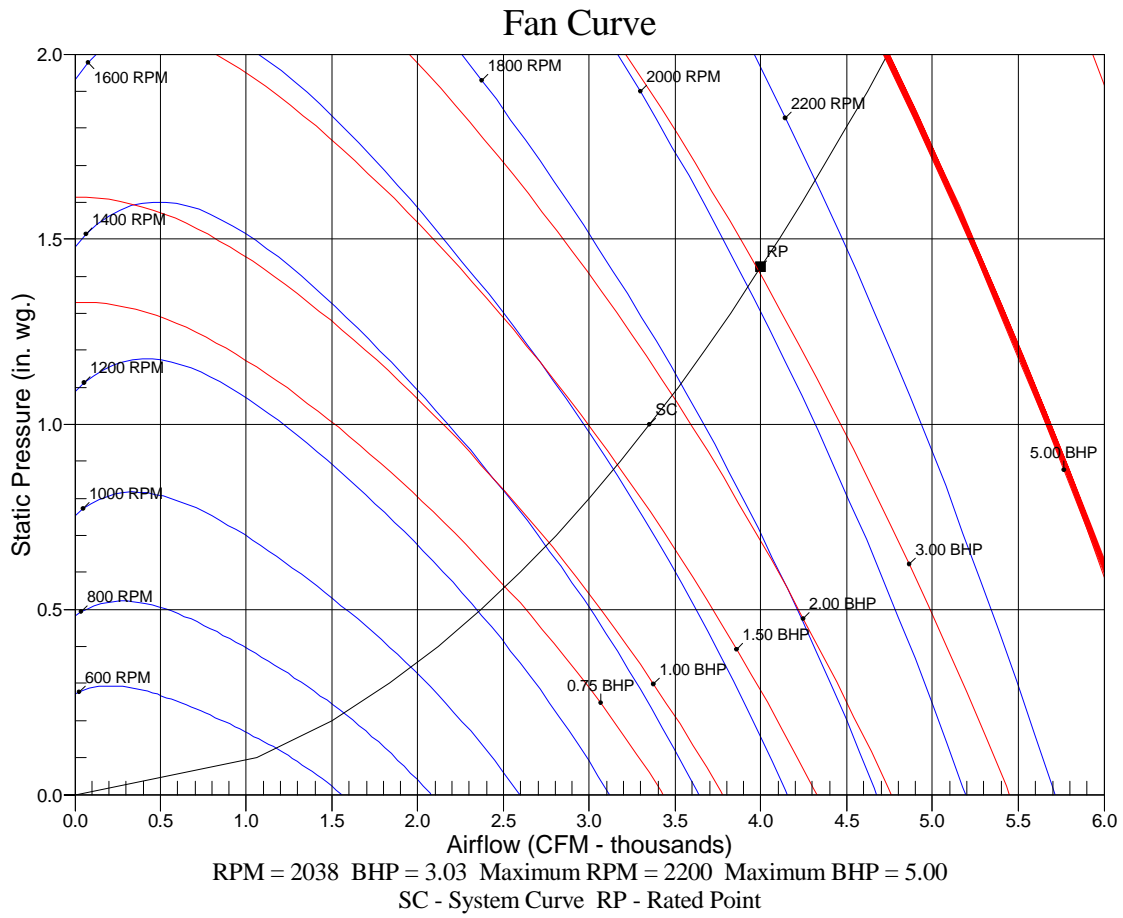
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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.

Performance Summary For 10 ton GH RTUs

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM



10 ton COO RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

10 ton COO RTU

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

Unit Report For 10 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Unit Parameters

Unit Model:.....**50FC-M12J3M6-3W5F0**
 Unit Size:.....**12 (10 Tons)**
 Volts-Phase-Hertz:.....**460-3-60**
 Heating Type:.....**Electric**
 Heat Control:.... **Single Circuit, Two Stage Cooling**
 Duct Cfg:..... **Vertical Supply / Vertical Return**

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

Unit Length:.....**7' 4.125"**
 Unit Width:.....**4' 11.5"**
 Unit Height:.....**4' 1.375"**

*** Weights and Dimensions are approximate. Weight does not include roof curbs, unit packaging, field installed accessories or factory installed options. Approximate dimensions are provided primarily for shipping purposes. For exact dimensions and weights, refer to appropriate product data catalog.

Base Unit Weight (Does not include any accessories):
 **815 lb**

Lines and Filters

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 (EcoBlue)
 Al/Cu - Al/Cu - Louvered Hail Guards
 SystemVu Controls
 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

Warranty Information

5-Year compressor parts (STD.)
 5-Year electric heater (STD.)
 1-Year parts (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
50FC-M12J3M6-3W5F0	Rooftop Unit	1
	Base Unit	
	Condensate Overflow Switch	
	High Static (EcoBlue)	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged Access Panels and Powered Convenience Outlet	
	Non-Fused Disconnect and Thru-The-Base Connections	
	SystemVu controller, Ultra LOW LEAK EconoMiSer2 enthalpy economizer with barometric relief. SystemV	
Field Installed Accessories		
33CENTSEN	Enthalpy Transmitter	1
CRHEATER420A00	Electric Heater	1
CRSINGLE047A00	Single Point Kit	1
CRPWREXH023A01	Power Exhaust System	1
CRPECONV004A00	Hinged Panel Sealing Angle Kit	1
20X20X2-M13-R-P4	20x20x2 MERV-13 replacement air filters	1

Certified Drawing for 10 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

- NOTES:
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UNIT	OUTDOOR COIL TYPE	J	K	H
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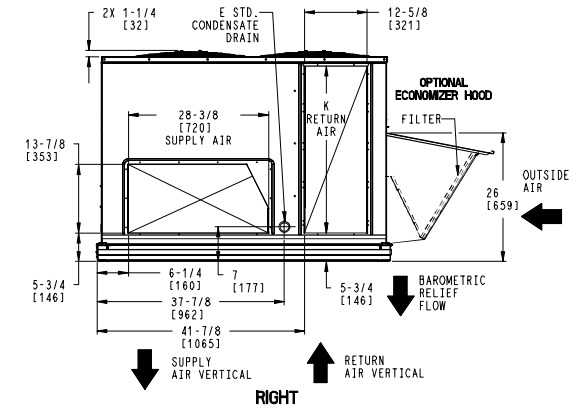
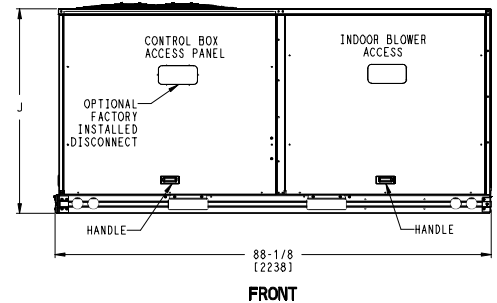
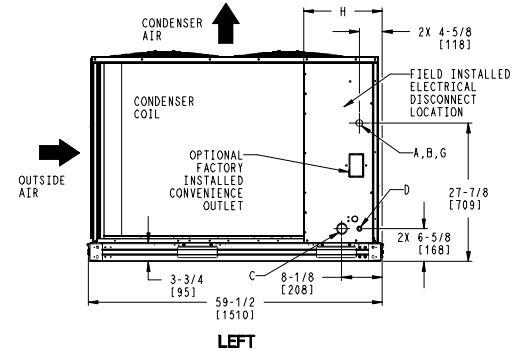
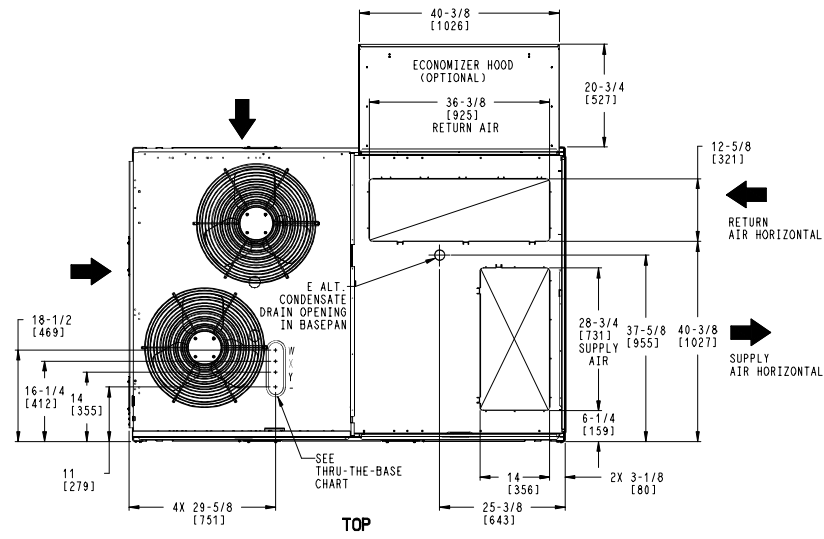
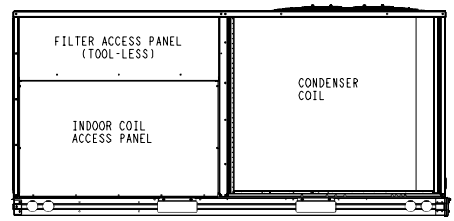
RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)

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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
G	2" [51] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART (FIELD INST)			
THESE HOLES REQUIRED FOR USE WITH ACCY KITS: CRBTMPR002A01			
	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)	POWER	1 3/4" [44.4]

THRU-THE-BASE CHART (FIOP)
 FOR "THRU-THE-BASE" FACTORY OPTION, FITTINGS FOR ONLY X & Y ARE PROVIDED:
 (1) 1/2" & (1) 1 1/4" ELECTRICAL FITTINGS.



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	50FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	48TM006296	REV
U.S. ECCN: NSR	1 OF 3	03/12/21	-			-

Certified Drawing for 10 ton COO RTU

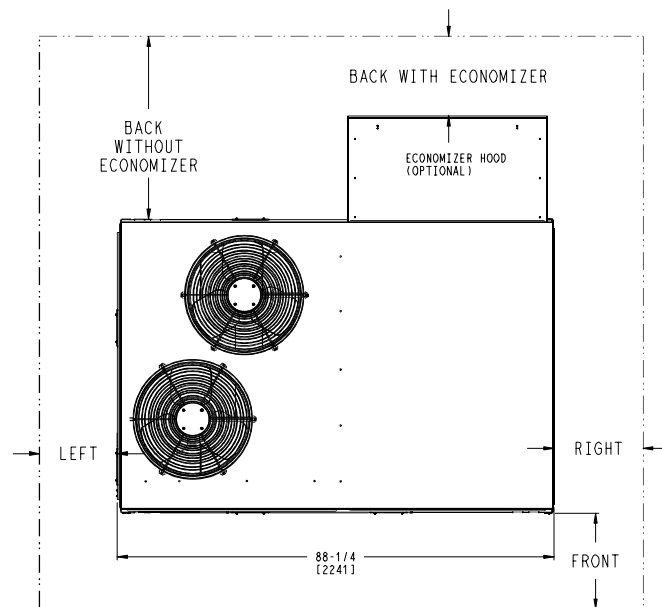
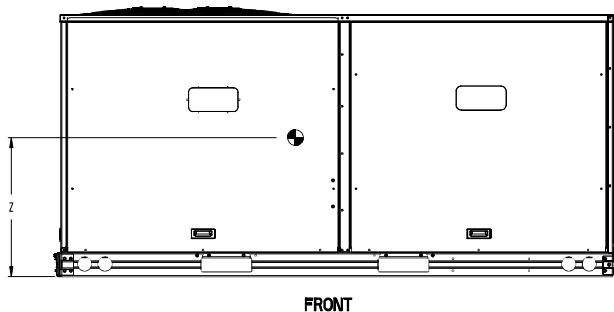
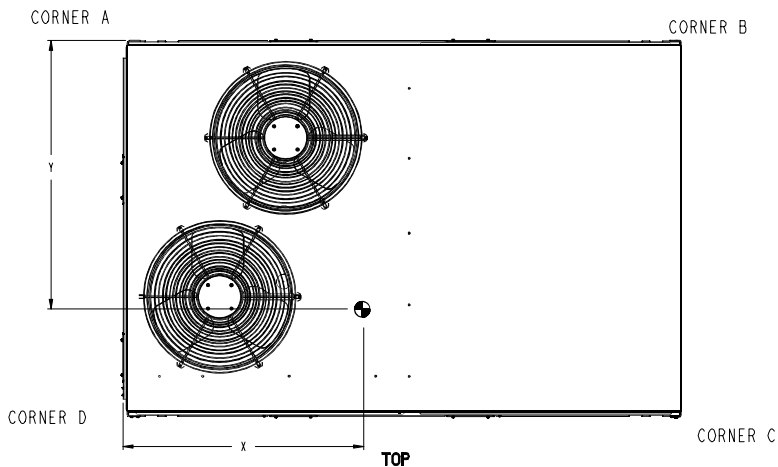
Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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
50FC-M08	RTPF	743	337	170	77	142	64	196	89	235	107	40	1/2 [838]	20 [508]
50FC-M09	RTPF	805	365	196	89	251	114	201	91	157	71	49 1/2 [1257]	26 1/2 [673]	19 1/8 [486]
50FC-M12	RTPF	815	370	198	90	254	115	204	92	159	72	49 1/2 [1257]	26 1/2 [673]	19 1/8 [486]

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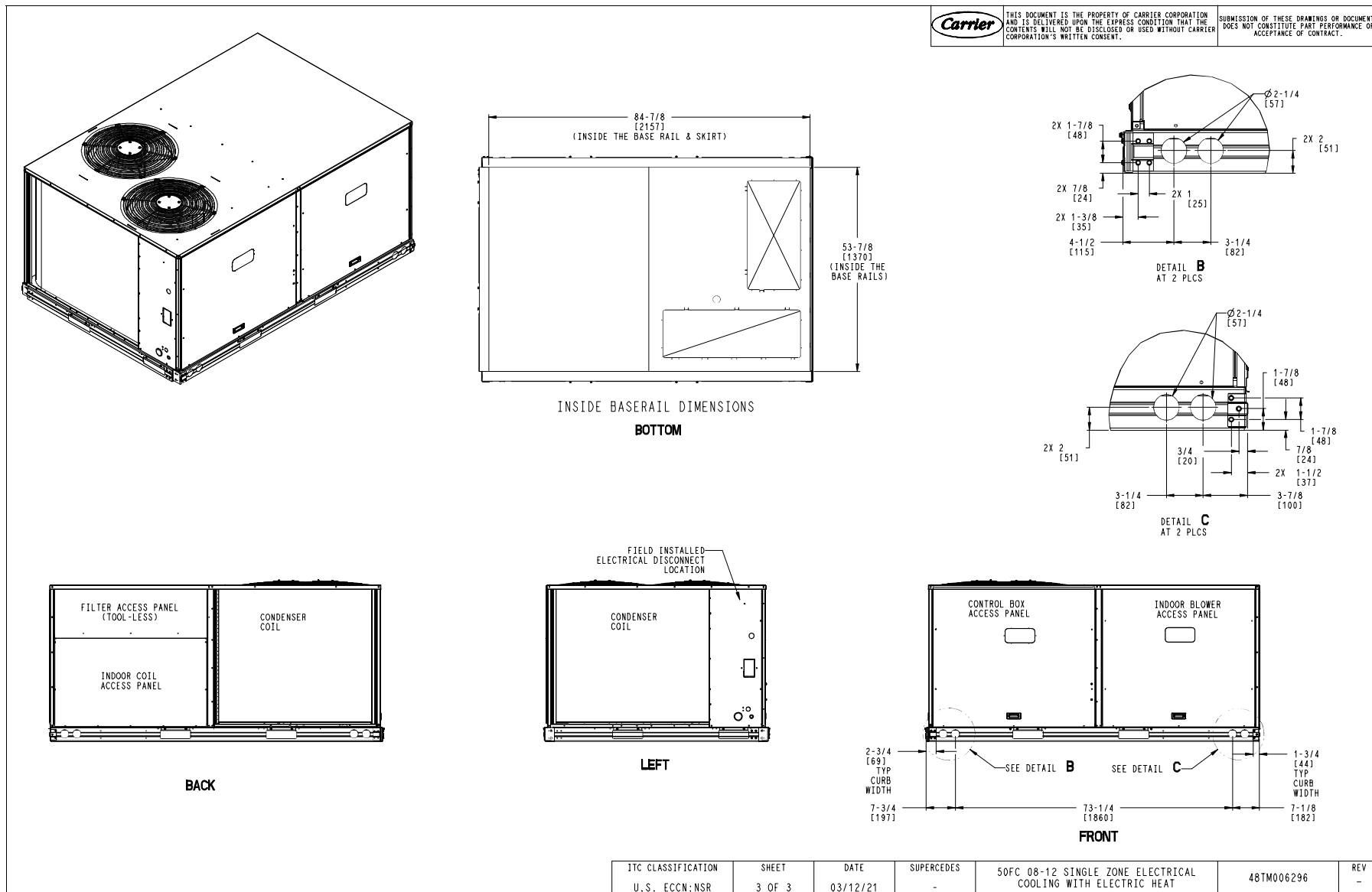
SURFACE	CLEARANCE		
	SERVICE WITH CONDUCTIVE BARRIER	SERVICE WITH NONCONDUCTIVE BARRIER	OPERATING CLEARANCE
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
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ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 2 OF 3	DATE 03/12/21	SUPERCEDES -	50FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	48TM006296	REV -
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Certified Drawing for 10 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM



Performance Summary For 10 ton COO RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

Part Number:50FC-M12J3M6-3W5F0

ARI EER: 11.20
IEER: 15.2

Base Unit Dimensions

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

Base Unit Weight (Does not include any accessories): 815 lb

Unit

Unit Voltage-Phase-Hertz: 460-3-60
Air Discharge: Vertical
Fan Drive Type: Vane Axial
Actual Airflow: 4000 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: 57.1 F
Evaporator Leaving Air Enthalpy: 24.45 BTU/lb
Gross Cooling Capacity: 125.75 MBH
Gross Sensible Capacity: 96.22 MBH
Compressor Power Input: 9.17 kW
Coil Bypass Factor: 0.052

Heating Performance

Heating Airflow: 4000 CFM
Entering Air Temp: 70.0 F
Leaving Air Temp: 80.9 F
Electric Heating Capacity: 13.80 kW

Supply Fan

External Static Pressure: 1.00 in wg
Options / Accessories Static Pressure
Economizer: 0.20 in wg
Power Exhaust: (Fan Data Includes Drop)
MERV-13 Filter Kit: 0.22 in wg
Application External Static (ESP + Unit Opts/Acc.): 1.42 in wg
Fan RPM: 1952
Fan Power: 2.64 BHP
NOTE: Selected IFM RPM Range: 1181 - 2200
Supply Fan Motor Maximum Continuous BHP: 5.0 HP
Supply Fan Motor Application HP: 5.0 HP

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

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

Filter pressure drop assumes a clean filter and is intended to be an estimate based on available supplier data. The actual pressure drop the unit experiences may vary due to alternate suppliers or filter loading over time.

Power Exhaust

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

Performance Summary For 10 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Electrical Data

Voltage Range:	414 - 506
Compressor #1 RLA:.....	7.7
Compressor #1 LRA:.....	60
Compressor #2 RLA:.....	7.7
Compressor #2 LRA:.....	60
Actual Electric Heater kW:	13.8
Electric Heater FLA:.....	18
Indoor Fan Motor Type:.....	HIGH
Indoor Fan Motor FLA (Total):.....	5.6
Power Supply MCA:.....	35
Power Supply MOCP (Fuse or HACR):.....	35
Disconnect Size FLA:.....	32
Disconnect Size LRA:	136
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
Electric Heater Part Number:	420A
Electric Heater Number of Stages:.....	1

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

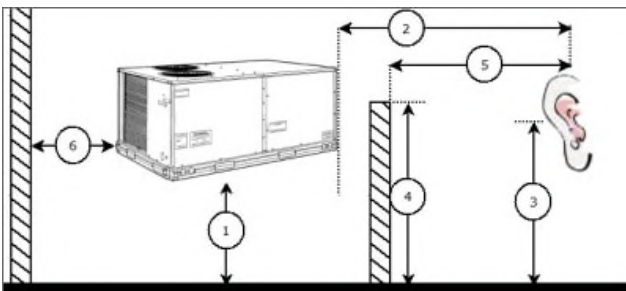
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	90.9	87.0	85.6
125 Hz	86.4	81.3	84.7
250 Hz	73.6	68.1	80.5
500 Hz	72.2	67.2	76.0
1000 Hz	71.3	66.3	72.4
2000 Hz	67.8	60.5	68.0
4000 Hz	68.9	58.5	62.8
8000 Hz	66.1	52.7	59.3
A-Weighted	77.7	71.6	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

Performance Summary For 10 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

6. Horizontal distance from unit to obstruction:**0.0** ft

Detailed Acoustics Information

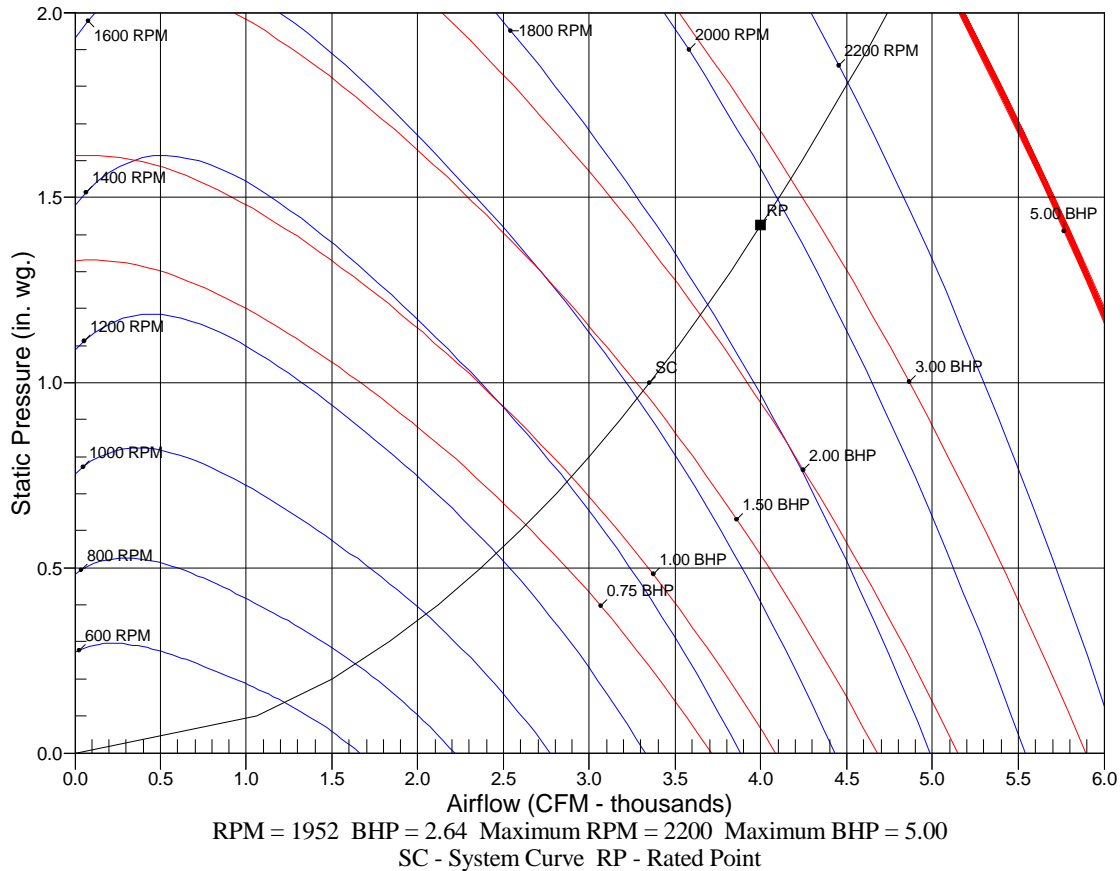
Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	85.6	84.7	80.5	76.0	72.4	68.0	62.8	59.3	89.2 Lw
B	59.4	68.6	71.9	72.8	72.4	69.2	63.8	58.2	78.5 LwA
C	53.2	52.3	48.1	43.6	40.0	35.6	30.4	26.9	56.8 Lp
D	27.0	36.2	39.5	40.4	40.0	36.8	31.4	25.8	46.1 LpA

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.

Fan Curve



5 ton GH RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

5 ton GH RTU

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

Unit Report For 5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Unit Parameters

Unit Model:..... **48GCEM06J3M6-3W5F0**
 Unit Size:.....**06 (5 Tons)**
 Volts-Phase-Hertz:..... **460-3-60**
 Heating Type:.....**Gas**
 Heat Control:..... **Medium Heat**
 Duct Cfg:..... **Vertical Supply / Vertical Return**
 DX Options:..... **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:..... 723 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
 SystemVu Controls
 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.)
 3-Year SystemVu
 Start-up, First Unit

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

Ordering Information

Part Number	Description	Quantity
48GCEM06J3M6-3W5F0	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	
	SystemVu controller, Ultra LOW LEAK EconoMi\$er2 enthalpy economizer with barometric relief. SystemV	
Field Installed Accessories		
16X16X2-M13-R-P4	16x16x2 MERV-13 replacement air filters	1
33CSENSEN	Enthalpy Transmitter	1

Certified Drawing for 5 ton GH RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

NOTES:

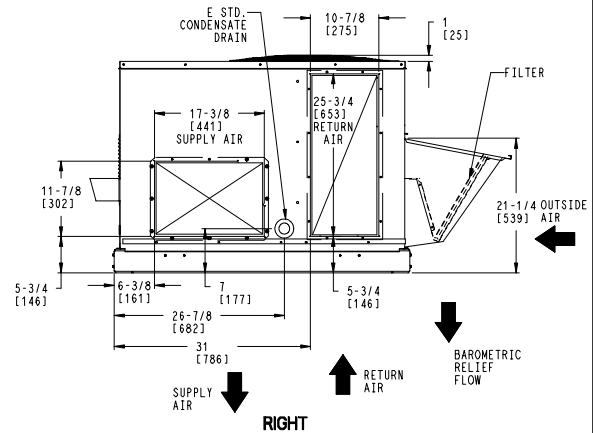
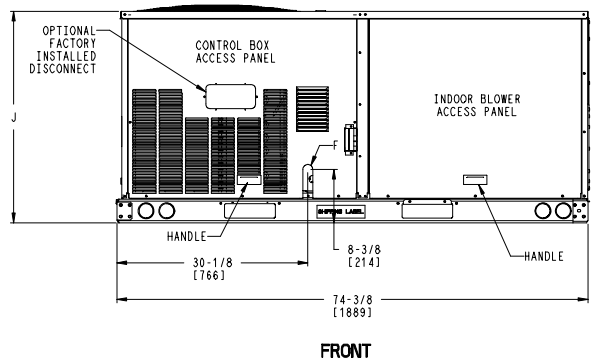
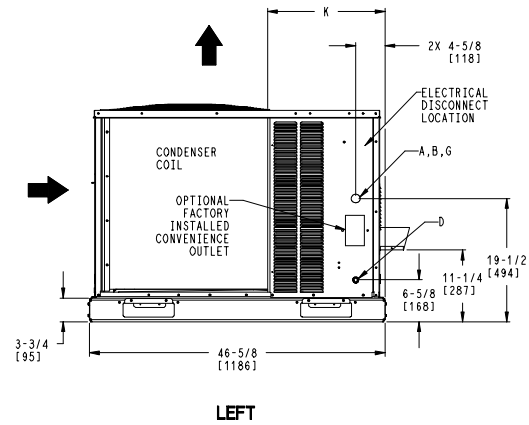
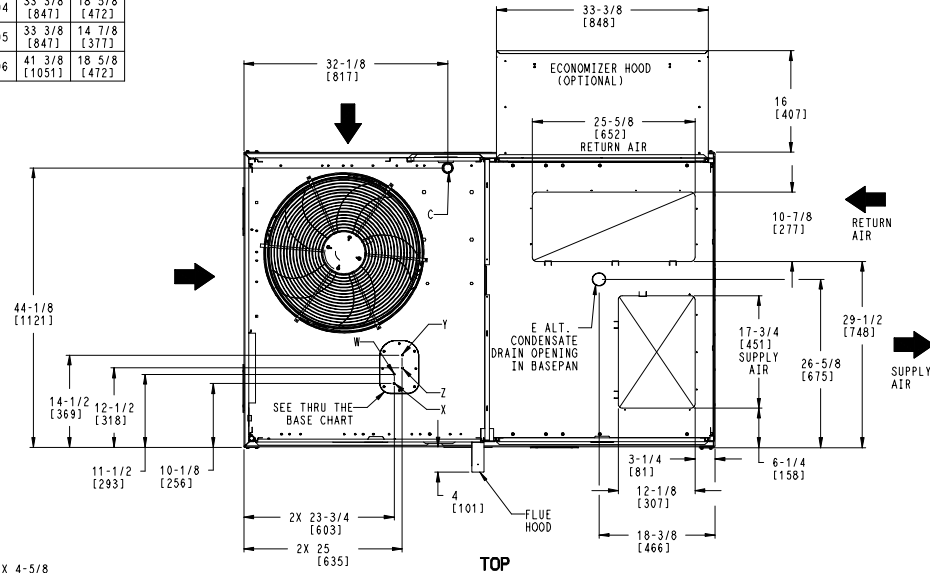
1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE

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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CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2" [50] 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	2 1/2" [64] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART THESE HOLES REQUIRED FOR USE CRBTWR008A00, 009A00			
	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	115V	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	3/4"	POWER	1-1/8" [28.6]
Z*	(009A00) 1/2" FPT	GAS	1-1/8" [28.6]
FOR "THRU-THE-BASEPANEL" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED			
*	(008A00)	PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.	



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 5 ton GH RTU

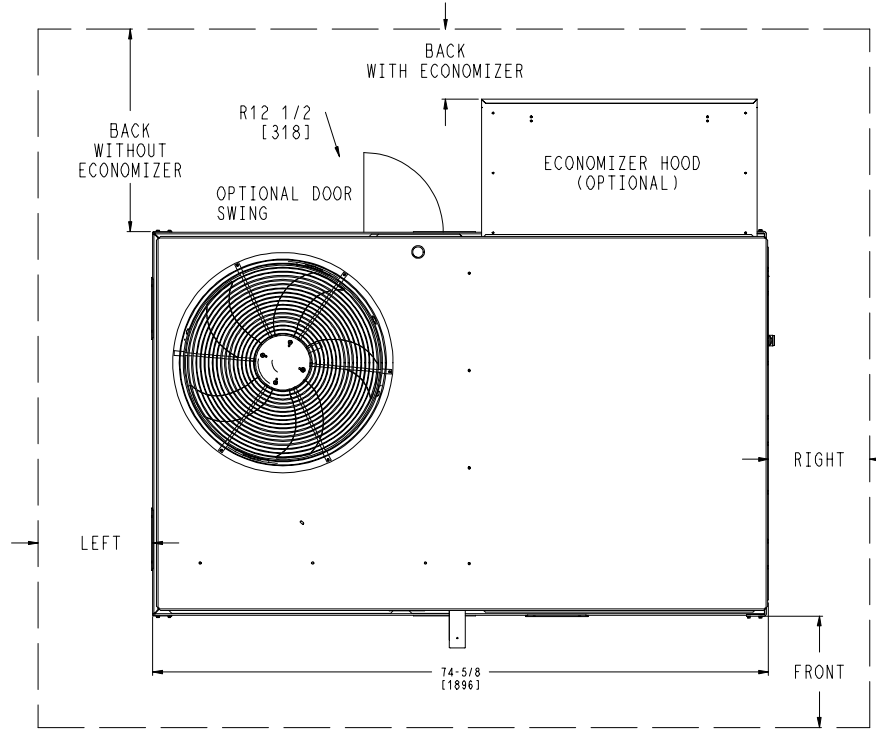
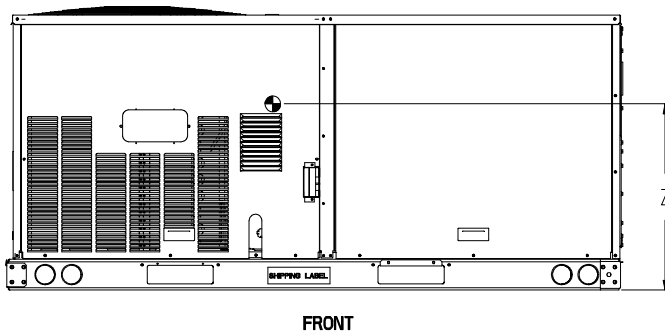
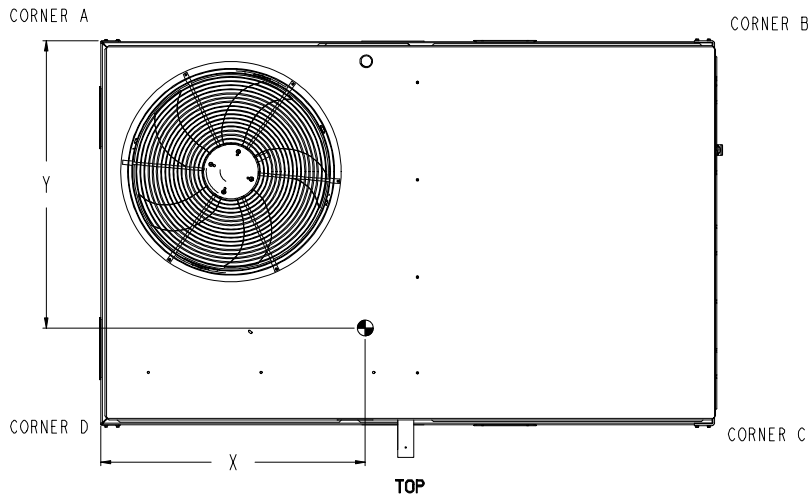
Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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:
 1. 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]

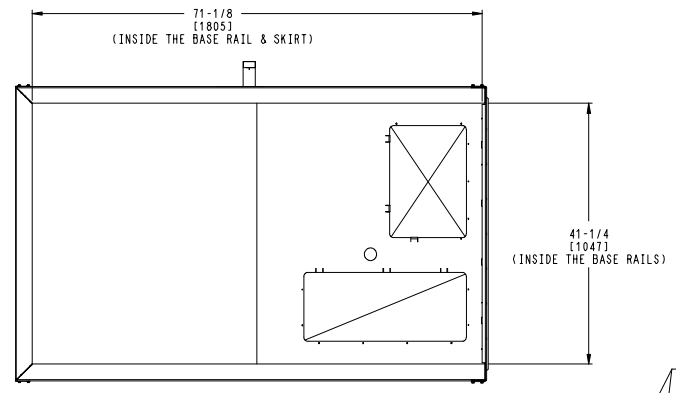
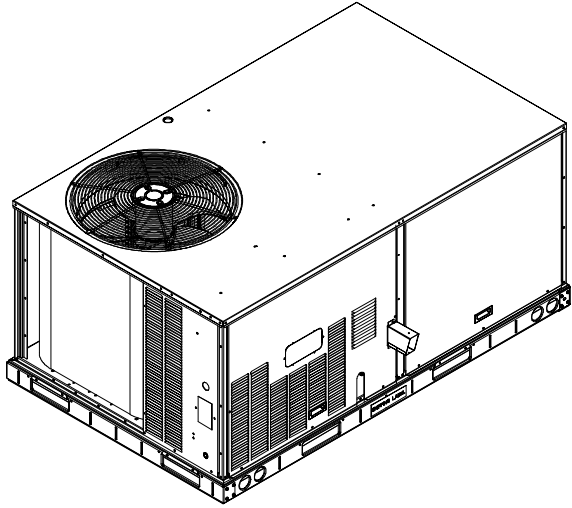
ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 2 OF 3	DATE 09/07/18	SUPERCEDES 08/03/18	48GC 04-06 SINGLE PACKAGE ELECTRICAL COOLING WITH GAS HEAT	48TC003099	REV B
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Certified Drawing for 5 ton GH RTU

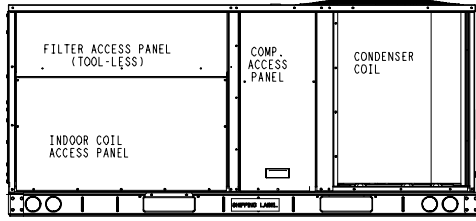
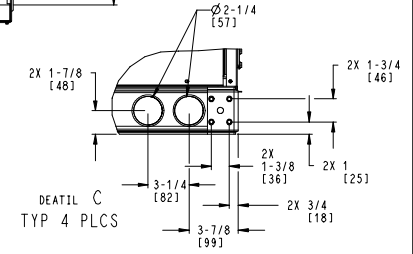
Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

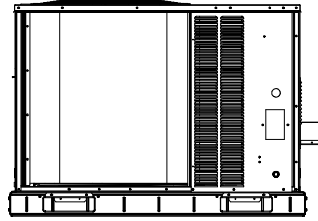

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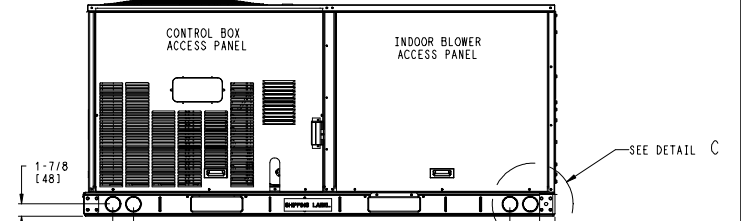
INSIDE BASERAIL DIMENSIONS
BOTTOM



BACK



LEFT



FRONT

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

Performance Summary For 5 ton GH RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

Part Number:48GCEM06J3M6-3W5F0

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
Medium Heat:..... 63 lb
Condensate Overflow Switch: 5 lb
Direct Drive - EcoBlue - High Static: 5 lb
Al/Cu - Al/Cu - Louvered Hail Guards: 17 lb
SystemVu Controls: 2 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: 723 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: 110.7 F
Gas Heating Input Capacity: 82.0 / 110.0 MBH
Gas Heating Output Capacity: 65.0 / 88.0 MBH
Temperature Rise: 40.7 F
Thermal Efficiency (%): 80.0

Supply Fan

External Static Pressure:..... 1.00 in wg
Options / Accessories Static Pressure
Economizer:..... 0.12 in wg
MERV-13 Filter Kit: 0.16 in wg
Application External Static (ESP + Unit Opts/Acc.): 1.28 in wg
Fan RPM:..... 2396
Fan Power:..... 1.48 BHP
NOTE: Selected IFM RPM Range: 1387 - 2836
Supply Fan Motor Maximum Continuous BHP: 2.4 HP

Performance Summary For 5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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 have a standard HP rating.

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

Filter pressure drop assumes a clean filter and is intended to be an estimate based on available supplier data. The actual pressure drop the unit experiences may vary due to alternate suppliers or filter loading over time.

Electrical Data

Voltage Range: 414 - 506
 Compressor #1 RLA: 7.6
 Compressor #1 LRA: 52
 Indoor Fan Motor Type: HIGH
 Indoor Fan Motor FLA (Total): 3.1
 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.

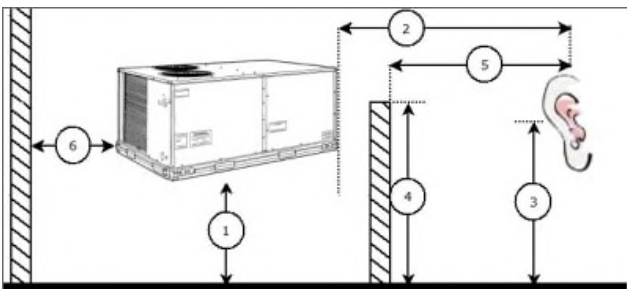
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	96.0	91.7	85.6
125 Hz	87.9	83.5	84.7
250 Hz	81.9	74.3	80.5
500 Hz	77.3	70.6	76.0
1000 Hz	74.8	71.8	72.4
2000 Hz	72.3	63.5	68.0
4000 Hz	67.4	56.5	62.8
8000 Hz	62.3	50.3	59.3
A-Weighted	81.2	75.7	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

Performance Summary For 5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

- 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	85.6	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

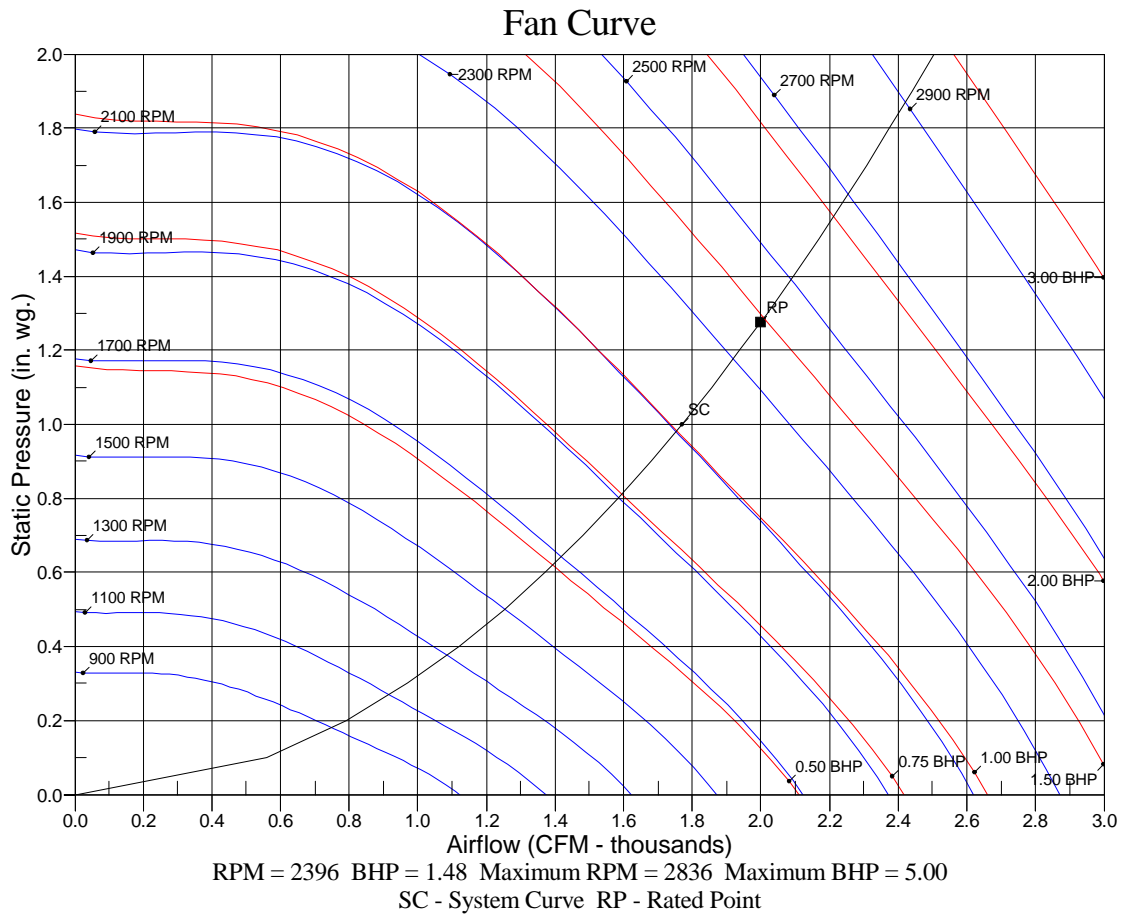
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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.

Performance Summary For 5 ton GH RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM



5 ton COO RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

5 ton COO RTU

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

Unit Report For 5 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Unit Parameters

Unit Model:..... **50GC-M06J3M6-3W5F0**
 Unit Size:.....**06 (5 Tons)**
 Volts-Phase-Hertz:..... **460-3-60**
 Heating Type:..... **Electric**
 Heat Control:..... **No Heat**
 Duct Cfg:..... **Vertical Supply / Vertical Return**
 DX Options:..... **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:..... 681 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

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
 AI/Cu - AI/Cu - Louvered Hail Guards
 SystemVu Controls
 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

Warranty Information

5-Year compressor parts (STD.)
 5-Year electric heater (STD.)
 1-Year parts (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
50GC-M06J3M6-3W5F0	Rooftop Unit	1
	Base Unit	
	Condensate Overflow Switch	
	Direct Drive - EcoBlue - High Static	
	AI/Cu - AI/Cu - Louvered Hail Guards	
	Hinged Access Panels and Powered Convenience Outlet	
	Non-Fused Disconnect and Thru-The-Base Connections	
	SystemVu controller, Ultra LOW LEAK EconoMiSer2 enthalpy economizer with barometric relief. SystemV	
Field Installed Accessories		
16X16X2-M13-R-P4	16x16x2 MERV-13 replacement air filters	1
33CENTSEN	Enthalpy Transmitter	1
CRHEATER333A00	Electric Heater	1

Certified Drawing for 5 ton COO RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

- 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
50GC**04	33 3/8 [847]	18 5/8 [472]
50GC**05	33 3/8 [847]	14 7/8 [377]
50GC**06	41 3/8 [1051]	18 5/8 [472]



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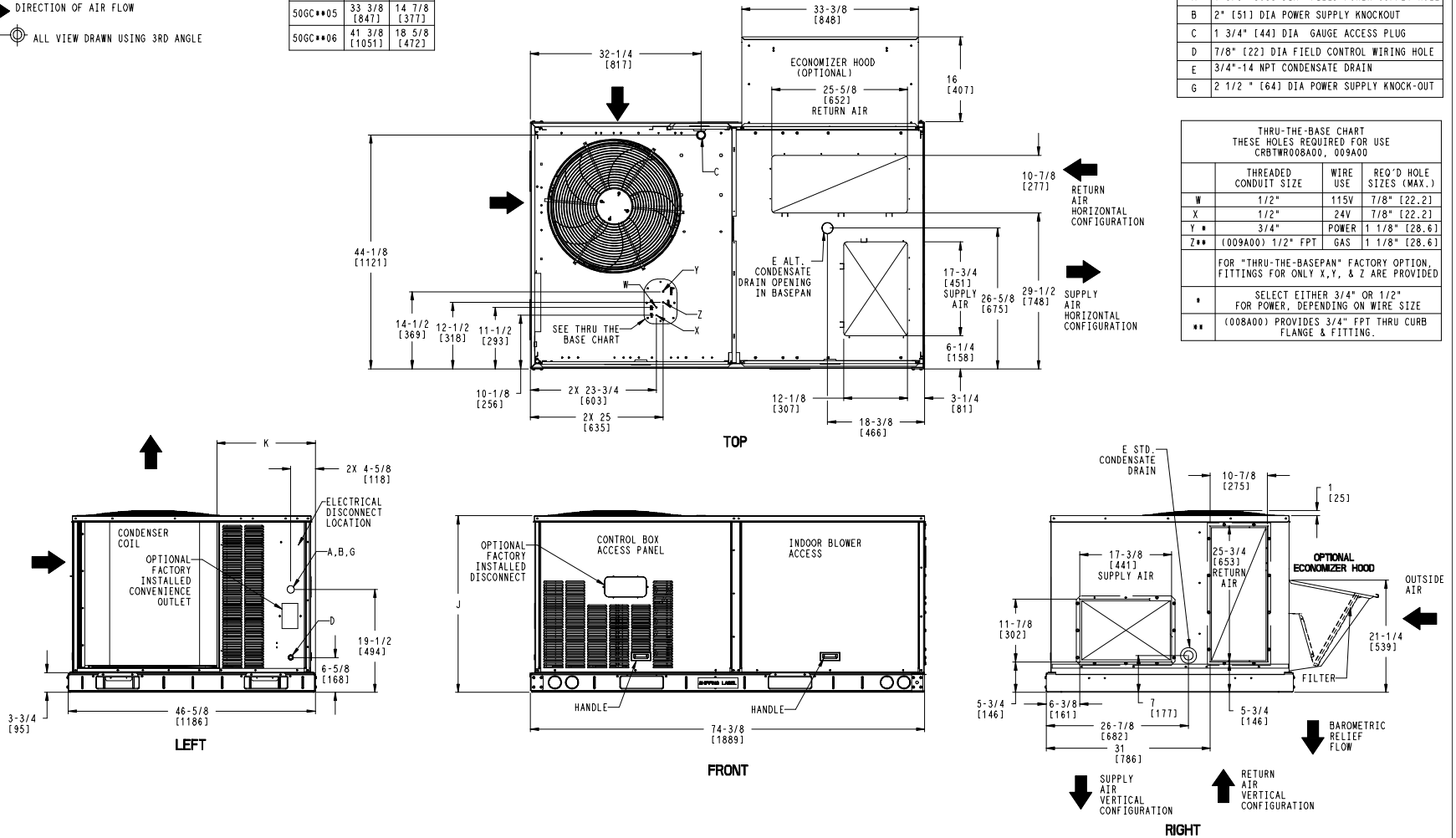
CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2" [51] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [44] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
G	2 1/2" [64] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART THESE HOLES REQUIRED FOR USE CRBTWR008A00, 009A00			
	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	115V	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	3/4"	POWER	1 1/8" [28.6]
Z**	(009A00) 1/2" FPT	GAS	1 1/8" [28.6]

FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED

* SELECT EITHER 3/4" OR 1/2" FOR POWER, DEPENDING ON WIRE SIZE

** (008A00) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	50GC 04-06 SINGLE PACKAGE ELECTRICAL COOLING WITH ELECTRIC HEAT	48TC003100	REV
U.S. ECCN: NSR	1 OF 3	09/07/18	08/03/18			B

Certified Drawing for 5 ton COO RTU

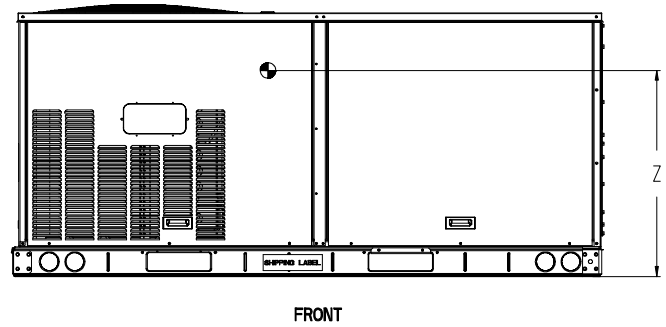
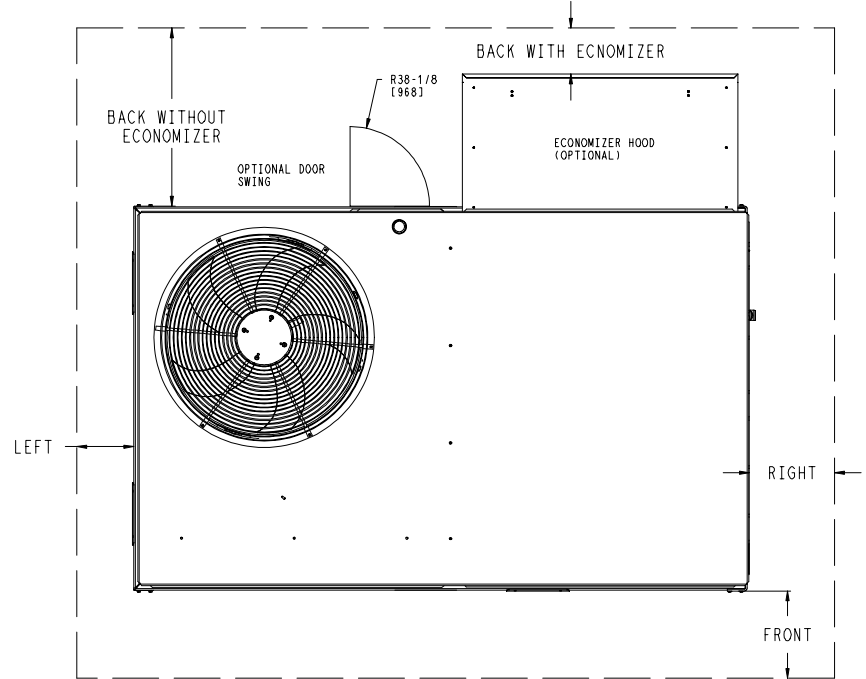
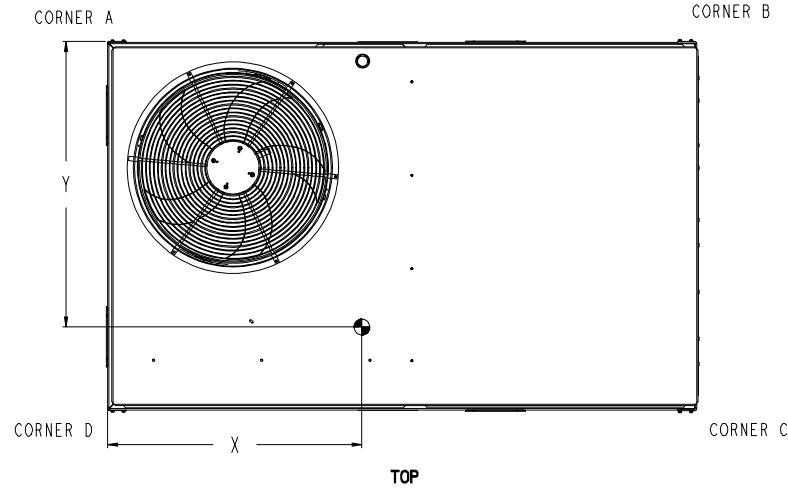
Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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			
50GC**04	468	212	128	58	117	53	106	48	116	53	35 1/2 [902]	22 1/4 [565]	18 3/8 [467]			
50GC**05	510	231	140	64	128	58	116	53	127	58	35 1/2 [902]	22 1/4 [565]	18 3/8 [467]			
50GC**06	555	252	152	69	135	61	126	57	141	64	35 [889]	22 1/2 [572]	19 1/2 [495]			

* - STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING.
 FOR OTHER OPTIONS AND ACCESSORIES REFER TO THE PRODUCT DATA CATALOG.

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NOTE:
 1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

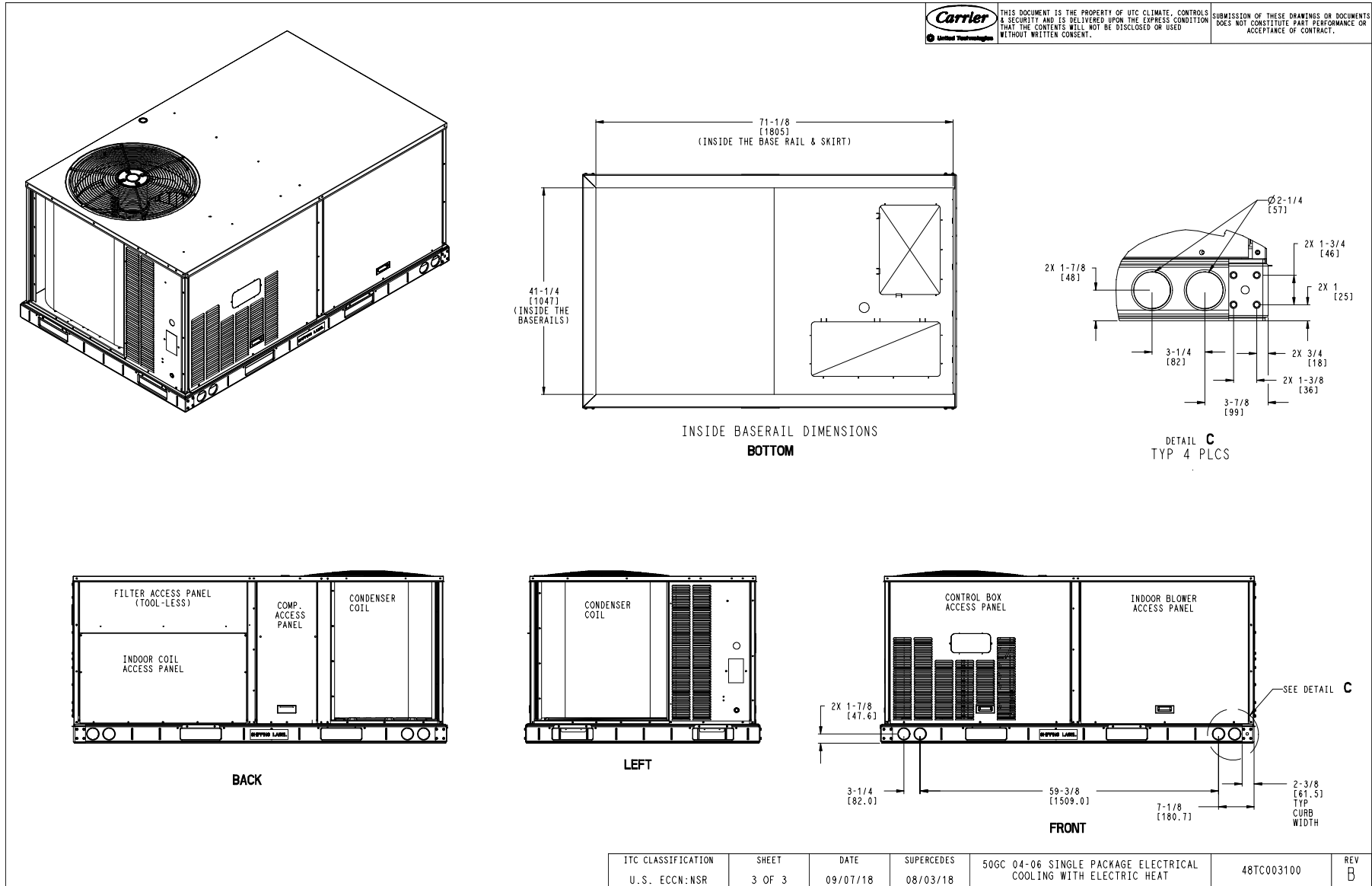
SURFACE	SERVICE WITH:		OPERATING CLEARANCE
	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/O ECON	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/ECON	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP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

ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 2 OF 3	DATE 09/07/18	SUPERCEDES 08/03/18	50GC 04-06 SINGLE PACKAGE ELECTRICAL COOLING WITH ELECTRIC HEAT	48TC003100	REV B
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Certified Drawing for 5 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM



Performance Summary For 5 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Part Number:50GC-M06J3M6-3W5F0

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
 Condensate Overflow Switch: **5** lb
 Direct Drive - EcoBlue - High Static: **5** lb
 Al/Cu - Al/Cu - Louvered Hail Guards: **17** lb
 SystemVu Controls: **2** lb
 Enthalpy Ultra Low Leak Econo w/Baro Relief: **37** lb
 Hinged Access Panels and Powered Convenience Outlet: **41** lb
 Non-Fused Disconnect and Thru-The-Base Connections: **9** lb

Accessories

Electric Heater: **10** lb

 Total Operating Weight: **681** 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:..... **78.7** F
 Electric Heating Capacity:..... **5.50** kW

Supply Fan

External Static Pressure:..... **1.00** in wg
 Options / Accessories Static Pressure
 Electric Heaters: **0.23** in wg
 Economizer:..... **0.12** in wg
 MERV-13 Filter Kit: **0.16** in wg
 Application External Static (ESP + Unit Opts/Acc.): **1.51** in wg
 Fan RPM:..... **2318**
 Fan Power:..... **1.34** BHP
 NOTE: **Selected IFM RPM Range: 1228 - 2836**
 Supply Fan Motor Maximum Continuous BHP: **2.4** HP
 Supply Fan Motor Application HP: **2.4** HP

Performance Summary For 5 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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

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

Filter pressure drop assumes a clean filter and is intended to be an estimate based on available supplier data. The actual pressure drop the unit experiences may vary due to alternate suppliers or filter loading over time.

Electrical Data

Voltage Range:	414 / 506
Compressor #1 RLA:.....	7.6
Compressor #1 LRA:.....	52
Actual Electric Heater kW:	5.5
Electric Heater FLA:.....	7.2
Indoor Fan Motor Type:.....	HIGH
Indoor Fan Motor FLA (Total):.....	3.1
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
Electric Heater Part Number:	333A
Electric Heater Number of Stages:.....	1

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

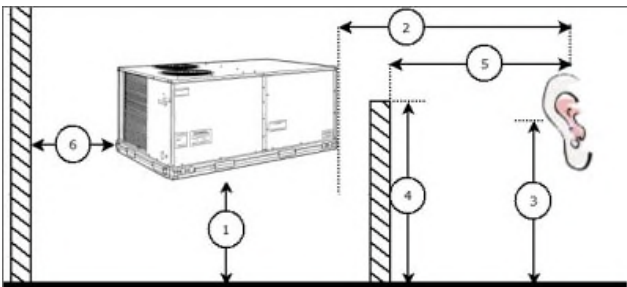
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	95.1	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	73.9	71.0	72.4
2000 Hz	71.4	62.5	68.0
4000 Hz	66.6	55.6	62.8
8000 Hz	61.9	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

Performance Summary For 5 ton COO RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

- 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	85.6	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

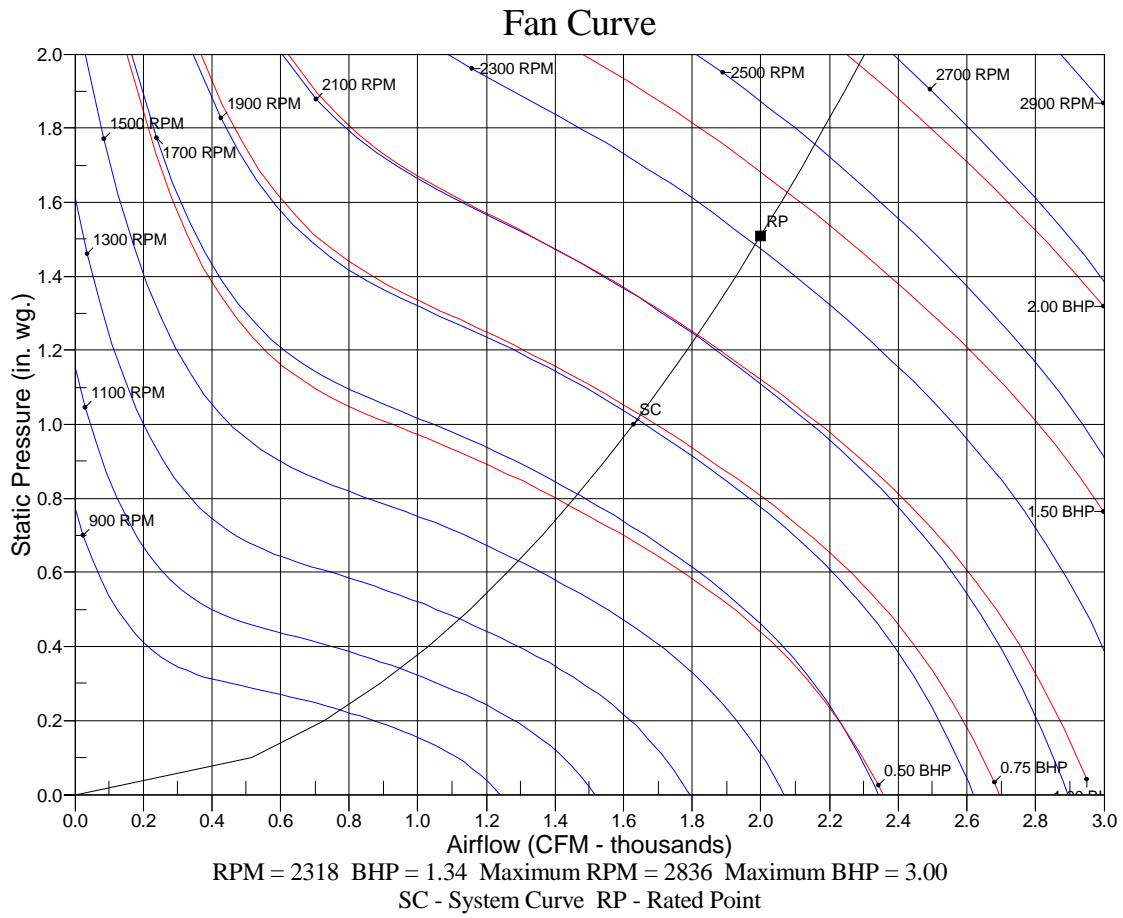
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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.

Performance Summary For 5 ton COO RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM



7.5 ton GH RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

7.5 ton GH RTU

Tag Cover Sheet Unit Report Certified Drawing Performance Report

Unit Report For 7.5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Unit Parameters

Unit Model:.....**48FCFM08J3M6-3W5F0**
 Unit Size:.....**08 (7.5 Tons)**
 Volts-Phase-Hertz:.....**460-3-60**
 Heating Type:.....**Gas**
 Heat Control:.....**High Heat**
 Duct Cfg:.....**Vertical Supply / Vertical Return**
 DX Options:.....**Single Circuit, Two Stage Cooling**

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

Unit Length:.....**7' 4.125"**
 Unit Width:.....**4' 11.5"**
 Unit Height:.....**3' 5.25"**
Total Operating Weight:..... 986 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: **16 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 (EcoBlue)
 Al/Cu - Al/Cu - Louvered Hail Guards
 SystemVu Controls
 Enthalpy Ultra Low Leak Econo w/Baro Relief
 Hinged Panels and 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.)
 3-Year SystemVu
 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
48FCFM08J3M6-3W5F0	Rooftop Unit	1
	Base Unit	
	Condensate Overflow Switch	
	High Static (EcoBlue)	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged Panels and Powered Convenience Outlet	
	Non-Fused Disconnect and Thru-The-Base Connections	
	SystemVu controller, Ultra LOW LEAK EconoMi\$er2 enthalpy economizer with barometric relief. SystemV	
Field Installed Accessories		
33CSENTSEN	Enthalpy Transmitter	1
CRPWREXH023A01	Power Exhaust System	1
CRPECONV004A00	Hinged Panel Sealing Angle Kit	1
16X20X2-M13-R-P4	16x20x2 MERV-13 replacement air filters	1

Certified Drawing for 7.5 ton GH RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

- 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	OUTDOOR COIL TYPE	J	K	H
48FC-M08	RTPF	41 1/4 [1048]	35 3/4 [897]	15 3/8 [403]
48FC-M09	RTPF	49 3/8 [1253]	36 3/8 [925]	15 3/8 [403]
48FC-M12	RTPF	49 3/8 [1253]	36 3/8 [925]	15 3/8 [403]

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

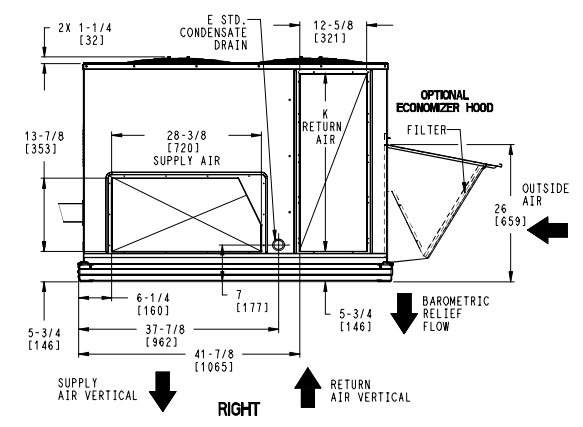
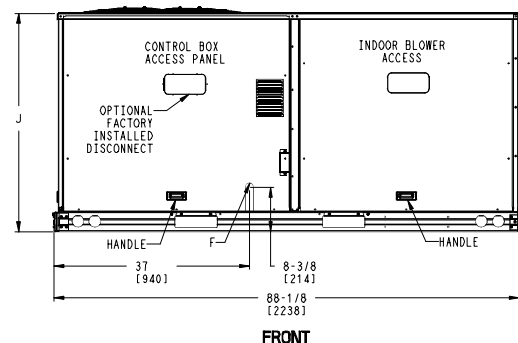
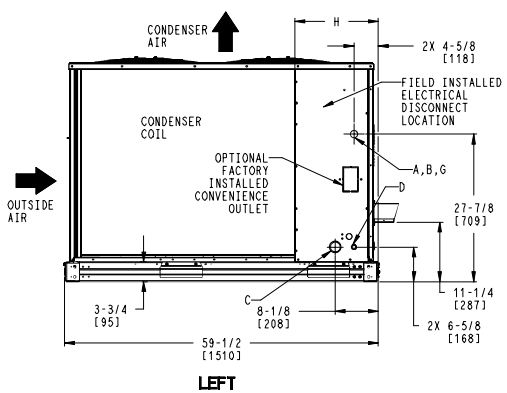
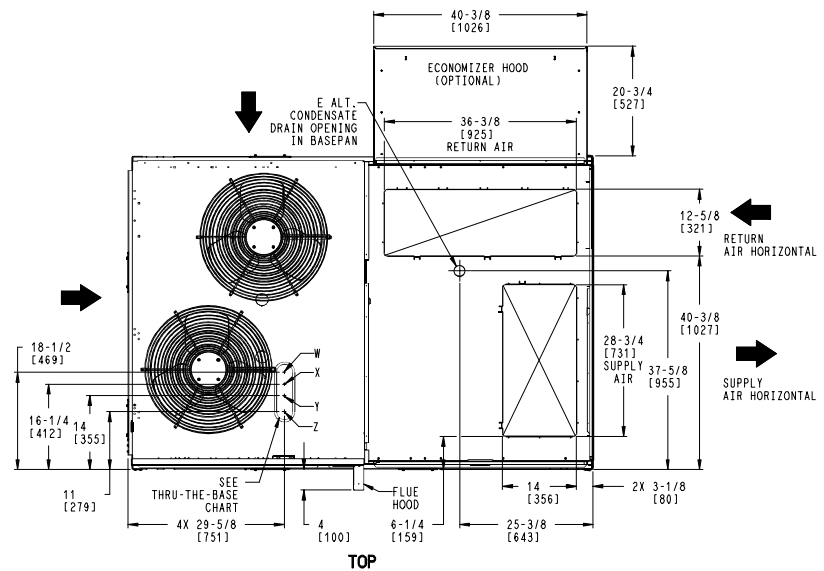
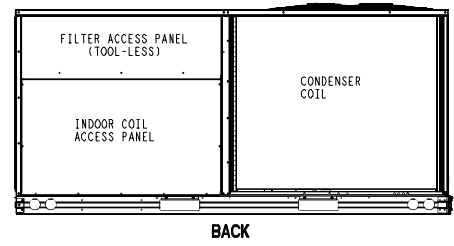
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CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	1/2"-14 NPT GAS CONNECTION
G	3/4"-14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

THRU-THE-BASE CHART (FIELD INST)			
THESE HOLES REQUIRED FOR USE WITH ACCY KITS: CRBTMPR002A01: GAS THRU CURB CRBTMPR004A01: 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	1 1/4" (002,004)	POWER	1 3/4" [44.4]
Z *	(004) 3/4" FPT	GAS	1 3/4" [44.4]
* (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: 48FCD, S*08, 09	



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	REV
U.S. ECCN: NSR	1 OF 3	03/12/21	-			-

Certified Drawing for 7.5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

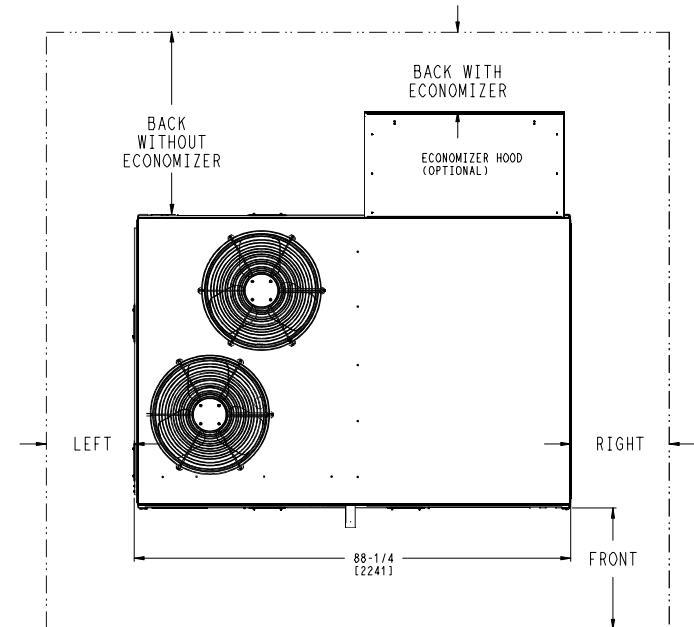
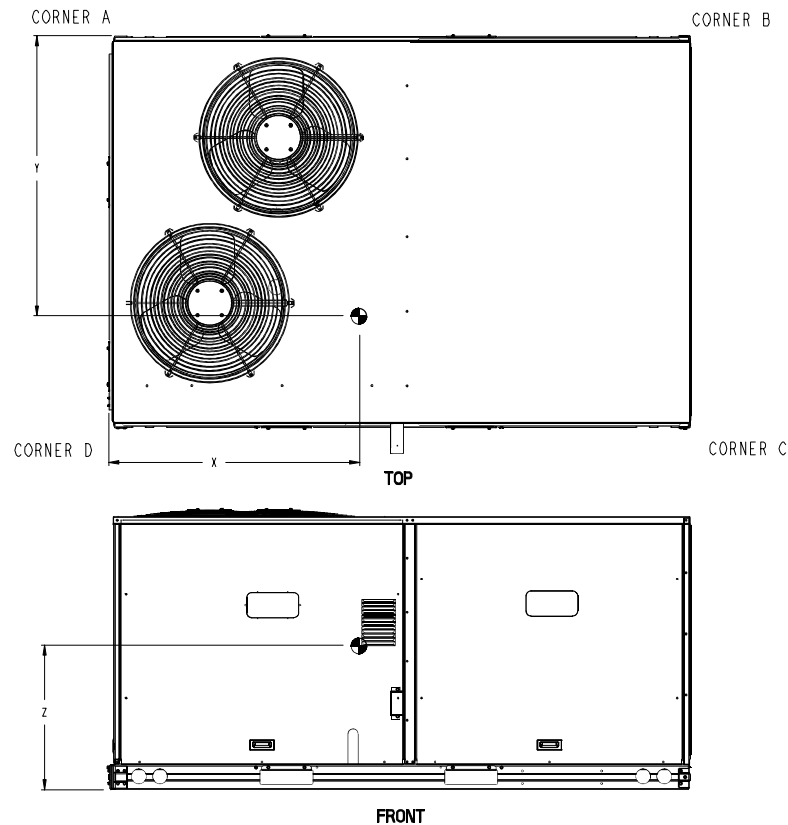
02/01/2023
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UNIT	OUTDOOR COIL TYPE	STD. UNIT WEIGHT ***		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.			
		LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	
48FC-M08	RTPF	787	357	181	82	150	68	207	94	249	113	40	1/2 [1016]	34 1/2 [876]	19 3/8 [492]
48FC-M09	RTPF	868	394	197	89	160	73	229	104	282	128	39 1/2 [1003]	35 [889]	18 5/8 [473]	
48FC-M12	RTPF	878	398	213	97	175	80	221	100	268	121	39 7/8 [1013]	33 1/4 [841]	18 1/2 [470]	

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

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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.



NOTE:
 1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

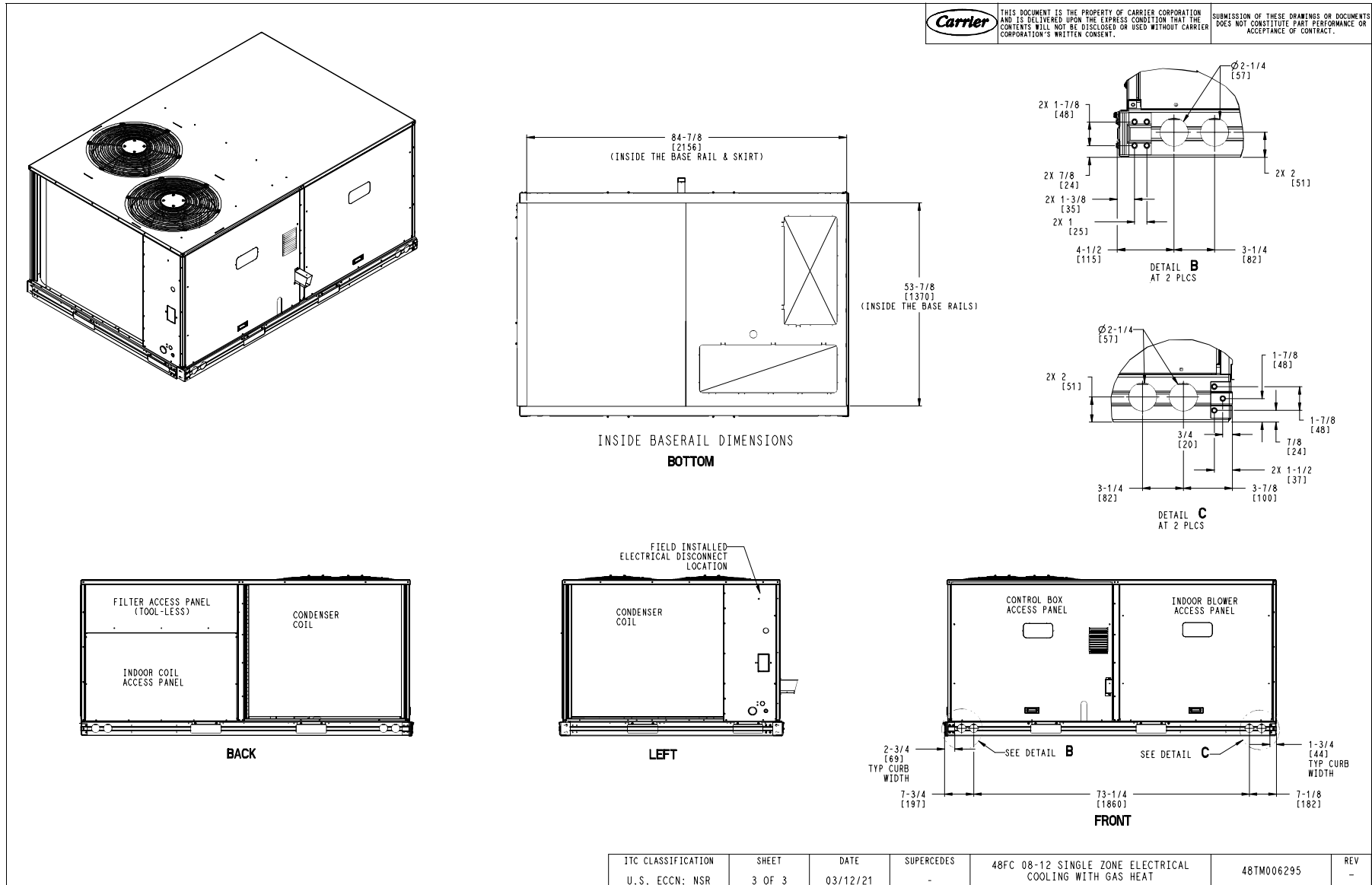
SURFACE	SERVICE WITH:		OPERATING CLEARANCE
	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/O ECON	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/ECON	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP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

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	REV
U.S. ECCN:NSR	2 OF 3	03/12/21	-			-

Certified Drawing for 7.5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295	REV
U.S. ECCN: NSR	3 OF 3	03/12/21	-			-

Performance Summary For 7.5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Part Number: 48FCFM08J3M6-3W5F0

ARI EER: **11.20**
 IEER: **15.0**

Base Unit Dimensions

Unit Length: **88.1** in
 Unit Width: **59.5** in
 Unit Height: **41.3** in

Operating Weight

Base Unit Weight: **743** lb
 High Heat: **30** lb
 Condensate Overflow Switch: **5** lb
 Al/Cu - Al/Cu - Louvered Hail Guards: **17** lb
 SystemVu Controls: **2** lb
 Enthalpy Ultra Low Leak Econo w/Baro Relief: **57** lb
 Hinged Panels and Powered Convenience Outlet: **41** lb
 Non-Fused Disconnect and Thru-The-Base Connections: **16** lb

Accessories

Power Exhaust System: **75** lb

 Total Operating Weight: **986** lb

Unit

Unit Voltage-Phase-Hertz: **460-3-60**
 Air Discharge: **Vertical**
 Fan Drive Type: **Vane Axial**
 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: **59.6** F
 Evaporator Leaving Air WB: **57.5** F
 Evaporator Leaving Air Enthalpy: **24.74** BTU/lb
 Gross Cooling Capacity: **90.47** MBH
 Gross Sensible Capacity: **66.02** MBH
 Compressor Power Input: **6.30** kW
 Coil Bypass Factor: **0.147**

Heating Performance

Heating Airflow: **3000** CFM
 Entering Air Temp: **70.0** F
 Leaving Air Temp: **125.9** F
 Gas Heating Input Capacity: **180.0 / 224.0** MBH
 Gas Heating Output Capacity: **146.0 / 181.0** MBH
 Temperature Rise: **55.9** F

Supply Fan

External Static Pressure: **1.00** in wg
 Options / Accessories Static Pressure
 Economizer: **0.11** in wg
 Power Exhaust: **(Fan Data Includes Drop)**
 MERV-13 Filter Kit: **0.21** in wg
 Application External Static (ESP + Unit Opts/Acc.): **1.31** in wg
 Fan RPM: **1790**
 Fan Power: **2.15** BHP

Performance Summary For 7.5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

NOTE: Selected IFM RPM Range: 1045 - 2200
 Supply Fan Motor Maximum Continuous BHP: 3.0 HP
 Supply Fan Motor Application HP: 3.0 HP

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

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

Filter pressure drop assumes a clean filter and is intended to be an estimate based on available supplier data. The actual pressure drop the unit experiences may vary due to alternate suppliers or filter loading over time.

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: 60
 Compressor #2 RLA: 6.1
 Compressor #2 LRA: 60
 Indoor Fan Motor Type: HIGH
 Indoor Fan Motor FLA (Total): 3.5
 Combustion Fan Motor FLA (ea): 0.25
 Power Supply MCA: 23
 Power Supply MOCP (Fuse or HACR): 25
 Disconnect Size FLA: 24
 Disconnect Size LRA: 135
 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.

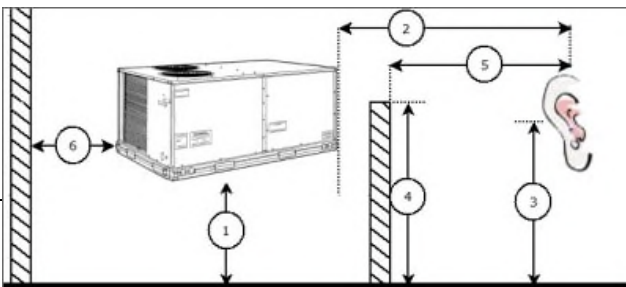
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	98.5	95.8	85.6
125 Hz	92.2	87.2	84.7
250 Hz	78.8	74.3	80.5
500 Hz	71.5	67.1	76.0
1000 Hz	68.4	64.6	72.4
2000 Hz	67.1	59.8	68.0
4000 Hz	69.0	59.8	62.8
8000 Hz	71.8	58.8	59.3
A-Weighted	80.4	75.3	79.0

Advanced Acoustics



Performance Summary For 7.5 ton GH RTU

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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	85.6	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

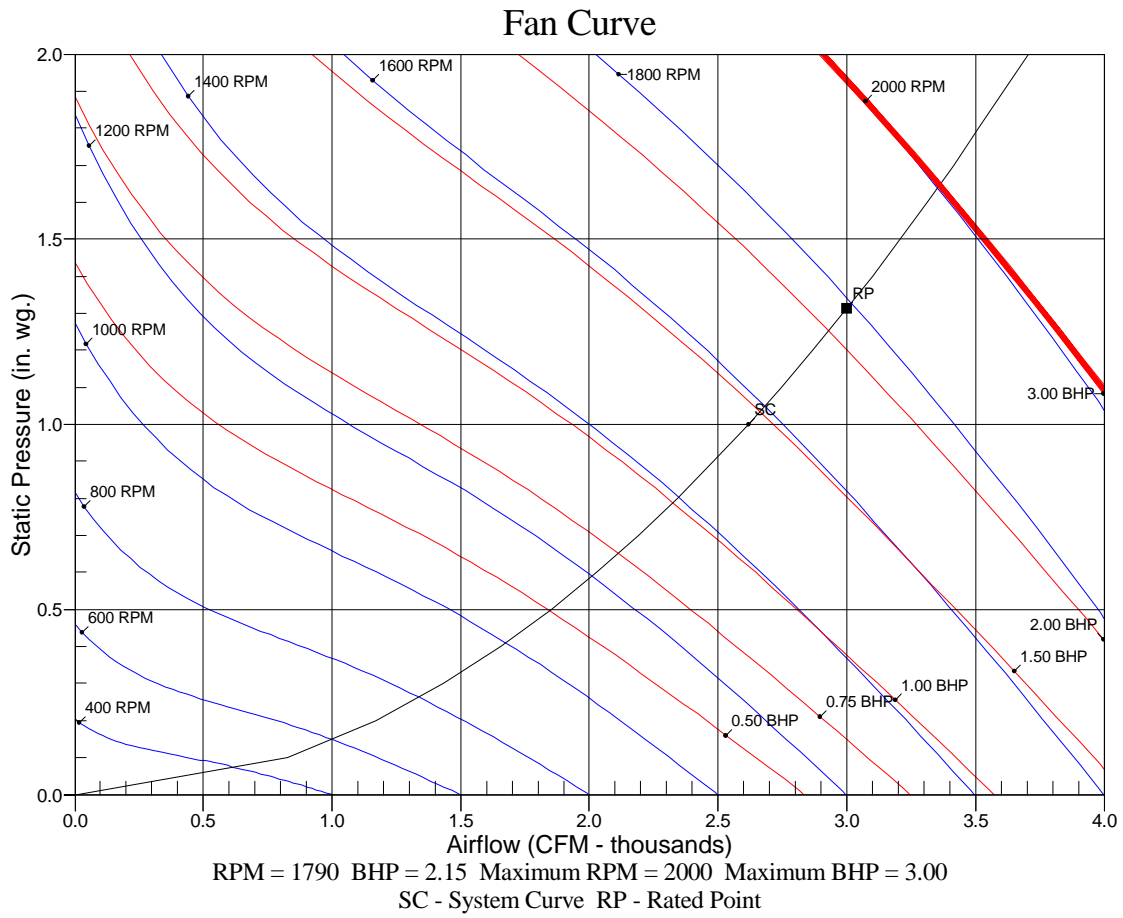
- A Sound Power Levels at Unit's Acoustic Center, Lw
- B A-Weighted Sound Power Levels at Unit's Acoustic Center, LwA
- C Sound Pressure Levels at Specific Distance from Unit, Lp
- D A-Weighted Sound Pressure Levels at Specific Distance from Unit, LpA

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.

Performance Summary For 7.5 ton GH RTU

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM



12.5 ton GH RTUs

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

12.5 ton GH RTUs

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

Unit Report For 12.5 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Unit Parameters

Unit Model:.....**48FCEM14J3M6-3W5F0**
 Unit Size:.....**14 (12.5 Tons)**
 Volts-Phase-Hertz:.....**460-3-60**
 Heating Type:.....**Gas**
 Heat Control:.....**Medium Heat**
 Duct Cfg:.....**Vertical Supply / Vertical Return**
 DX Options:.....**Single Circuit, Two Stage Cooling**

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

Unit Length:.....**7' 4.125"**
 Unit Width:.....**4' 11.5"**
 Unit Height:.....**4' 1.375"**
Total Operating Weight:..... 1239 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 (EcoBlue)
 Al/Cu - Al/Cu - Louvered Hail Guards
 SystemVu Controls
 Enthalpy Ultra Low Leak Econo w/Baro Relief
 Hinged Panels and 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.)
 3-Year SystemVu
 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
48FCEM14J3M6-3W5F0	Rooftop Unit	2
	Base Unit	
	Condensate Overflow Switch	
	High Static (EcoBlue)	
	Al/Cu - Al/Cu - Louvered Hail Guards	
	Hinged Panels and Powered Convenience Outlet	
	Non-Fused Disconnect and Thru-The-Base Connections	
	SystemVu controller, Ultra LOW LEAK EconoMi\$er2 enthalpy economizer with barometric relief. SystemV	
Field Installed Accessories		
33CSENTSEN	Enthalpy Transmitter	2
CRPWREXH023A01	Power Exhaust System	2
CRPECONV004A00	Hinged Panel Sealing Angle Kit	2
20X20X2-M13-R-P4	20x20x2 MERV-13 replacement air filters	2

Certified Drawing for 12.5 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

- 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	OUTDOOR COIL TYPE	H
48FC-M14	RTPF	15 7/8 [403]
RTPF - ROUND TUBE, PLATE FIN (COPPER/ALUM)		

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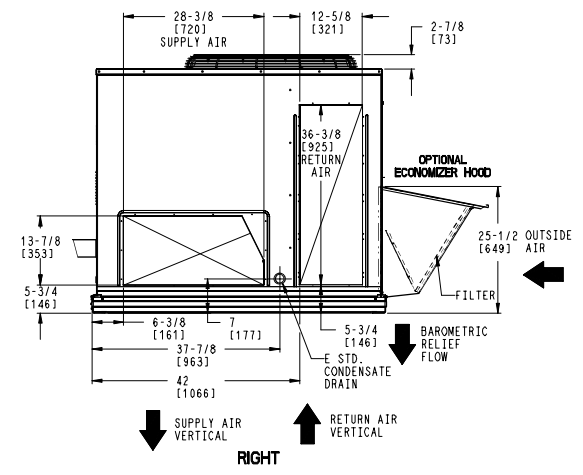
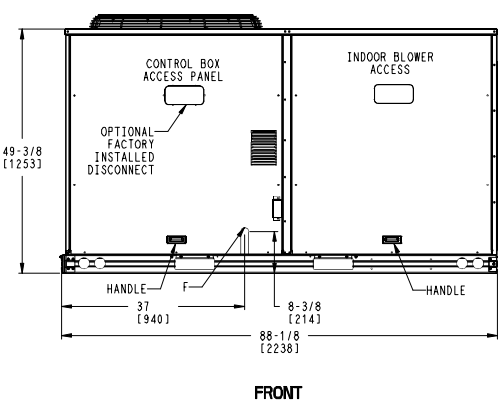
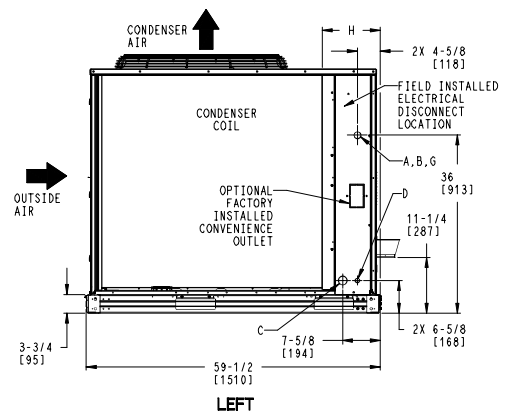
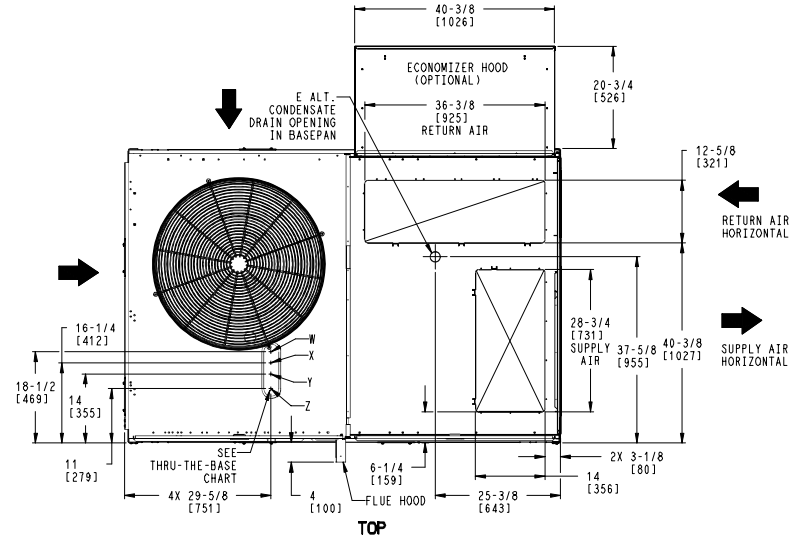
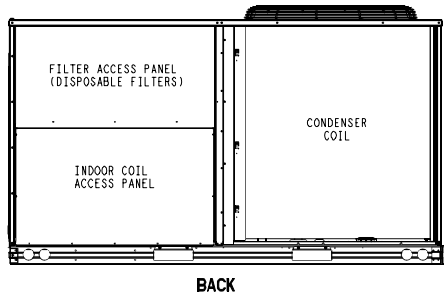
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CONNECTION SIZES	
A	1 3/8" [35] DIA FIELD POWER SUPPLY HOLE
B	2 1/2" [64] DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [51] DIA GAUGE ACCESS PLUG
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	3/4"-14 NPT GAS CONNECTION
G	2" [51]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



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC-14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006297	REV
U.S. ECCN:NSR	1 OF 3	03/12/21	-			-

Certified Drawing for 12.5 ton GH RTUs

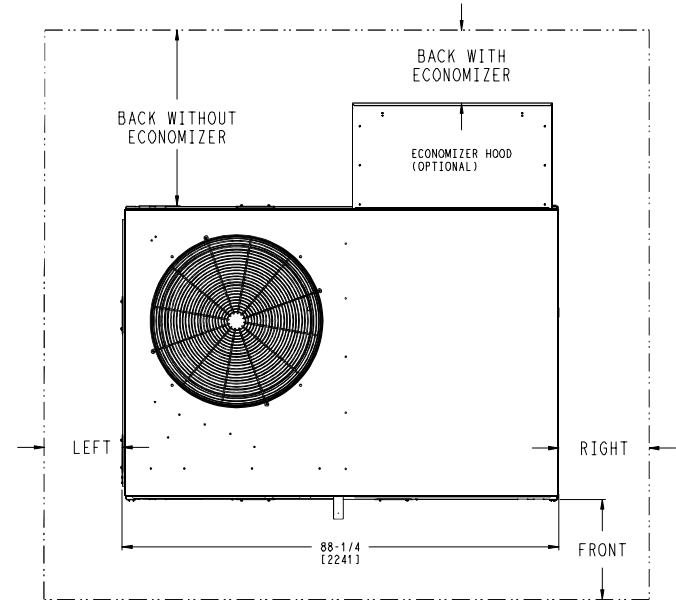
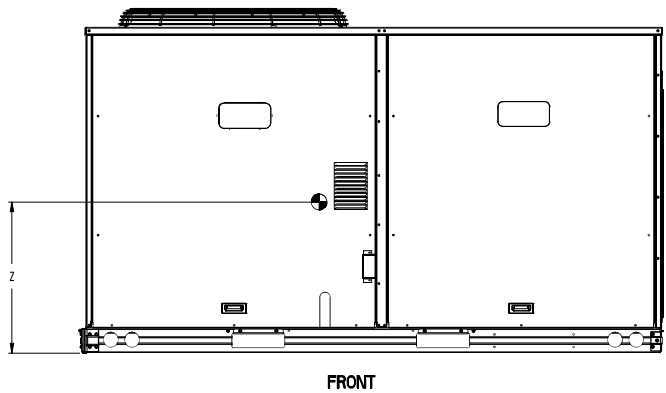
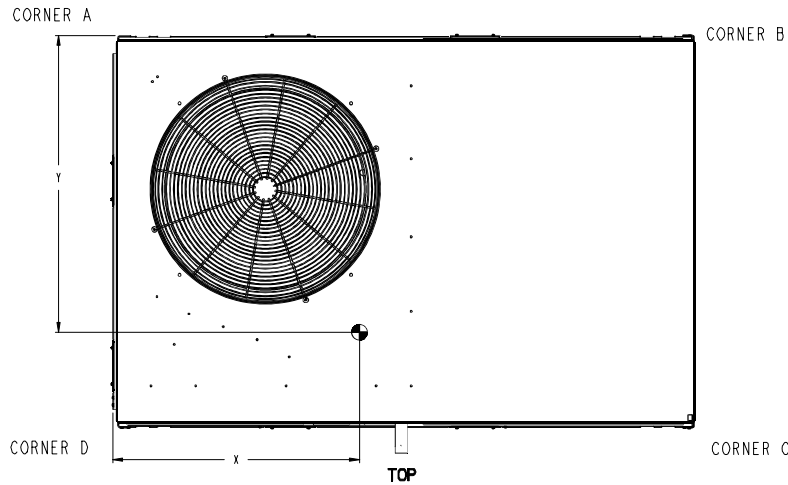
Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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			
48FC-M14	RTPF	1041	472	243	110	195	88	269	122	335	152	39 1/4	[997]	34 1/2	[876]	21 7/8	[556]

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

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NOTE:
 1. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

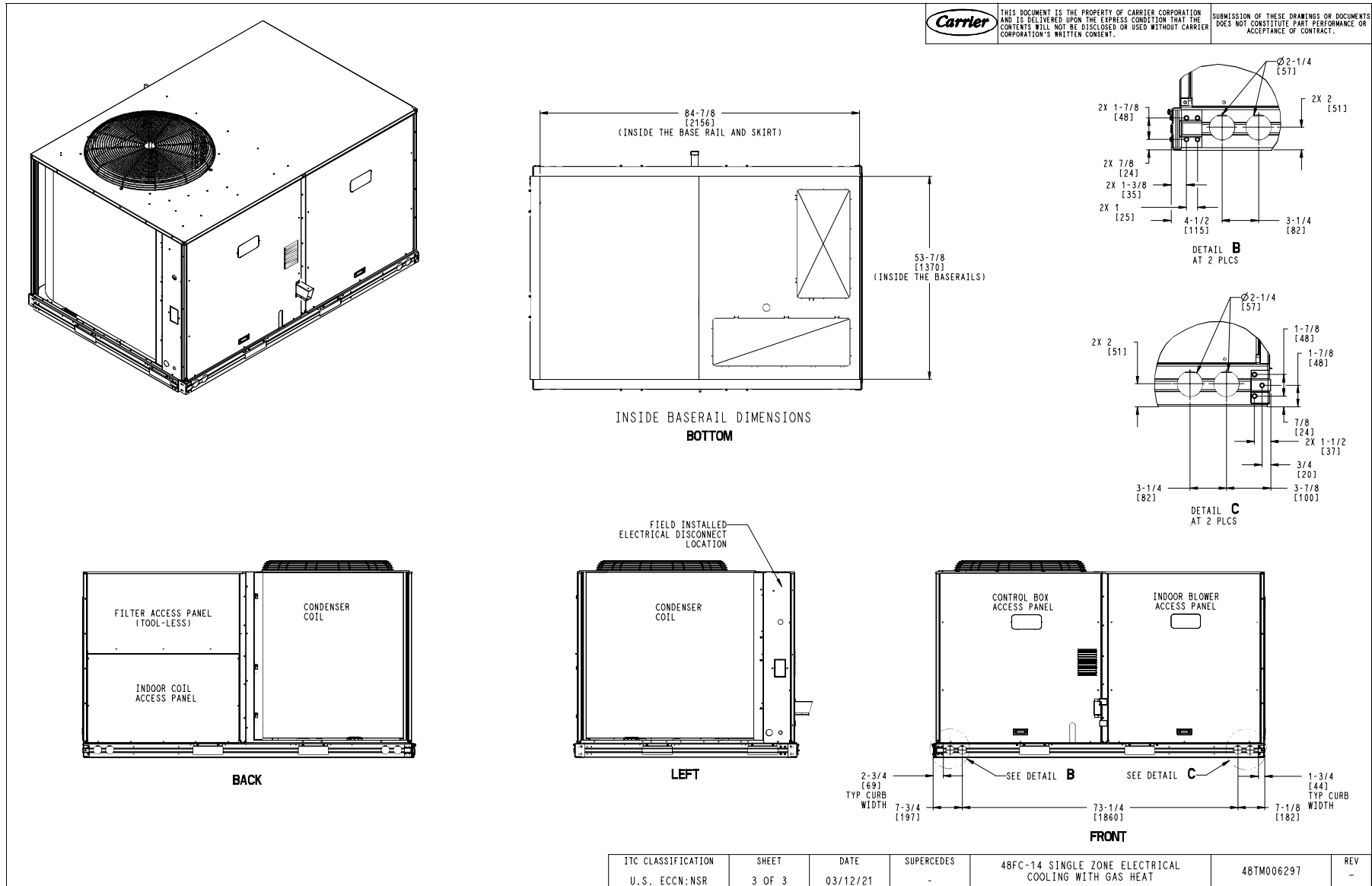
SURFACE	SERVICE WITH:		OPERATING CLEARANCE
	CONDUCTIVE BARRIER	NONCONDUCTIVE BARRIER	
FRONT	48 [1219mm]	36 [914mm]	18 [457mm]
LEFT	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/O ECON	48 [1219mm]	42 [1067mm]	18 [457mm]
BACK W/ECON	36 [914mm]	36 [914mm]	18 [457mm]
RIGHT	36 [914mm]	36 [914mm]	18 [457mm]
TOP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

ITC CLASSIFICATION U.S. ECCN:NSR	SHEET 2 OF 3	DATE 03/12/21	SUPERCEDES -	48FC-14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006297	REV -
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Certified Drawing for 12.5 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48FC-14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006297	REV
U.S. ECCN:NSR	3 OF 3	03/12/21	-			-

Performance Summary For 12.5 ton GH RTUs

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

Part Number:48FCEM14J3M6-3W5F0

ARI EER: 10.20
IEER: 15.0

Base Unit Dimensions

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

Operating Weight

Base Unit Weight: 978 lb
Medium Heat: 18 lb
Condensate Overflow Switch: 5 lb
High Static (EcoBlue): 30 lb
Al/Cu - Al/Cu - Louvered Hail Guards: 17 lb
SystemVu Controls: 2 lb
Enthalpy Ultra Low Leak Econo w/Baro Relief: 57 lb
Hinged Panels and Powered Convenience Outlet: 41 lb
Non-Fused Disconnect and Thru-The-Base Connections: 16 lb

Accessories

Power Exhaust System: 75 lb

Total Operating Weight: 1239 lb

Unit

Unit Voltage-Phase-Hertz: 460-3-60
Air Discharge: Vertical
Fan Drive Type: Vane Axial
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: 59.3 F
Evaporator Leaving Air WB: 57.3 F
Evaporator Leaving Air Enthalpy: 24.59 BTU/lb
Gross Cooling Capacity: 147.92 MBH
Gross Sensible Capacity: 107.39 MBH
Compressor Power Input: 11.23 kW
Coil Bypass Factor: 0.058

Heating Performance

Heating Airflow: 4800 CFM
Entering Air Temp: 70.0 F
Leaving Air Temp: 104.9 F
Gas Heating Input Capacity: 180.0 / 224.0 MBH
Gas Heating Output Capacity: 146.0 / 181.0 MBH
Temperature Rise: 34.9 F

Supply Fan

External Static Pressure: 1.00 in wg
Options / Accessories Static Pressure
Economizer: 0.30 in wg
Power Exhaust: (Fan Data Includes Drop)
MERV-13 Filter Kit: 0.29 in wg
Application External Static (ESP + Unit Opts/Acc.): 1.59 in wg
Fan RPM: 2092

Performance Summary For 12.5 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

Fan Power:..... **4.80** BHP
 NOTE:..... **Selected IFM RPM Range: 1308 - 2200**
 Supply Fan Motor Maximum Continuous BHP:..... **5.0** HP
 Supply Fan Motor Application HP:..... **5.0** HP

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

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

Filter pressure drop assumes a clean filter and is intended to be an estimate based on available supplier data. The actual pressure drop the unit experiences may vary due to alternate suppliers or filter loading over time.

Power Exhaust

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

Electrical Data

Voltage Range: **414 - 506**
 Compressor #1 RLA:..... **10.6**
 Compressor #1 LRA:..... **75**
 Compressor #2 RLA:..... **8.2**
 Compressor #2 LRA:..... **66**
 Indoor Fan Motor Type:..... **HIGH**
 Indoor Fan Motor FLA (Total):..... **5.6**
 Combustion Fan Motor FLA (ea):..... **0.25**
 Power Supply MCA:..... **39**
 Power Supply MOCP (Fuse or HACR):..... **45**
 Disconnect Size FLA:..... **41**
 Disconnect Size LRA:..... **160**
 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 / 7.4**

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

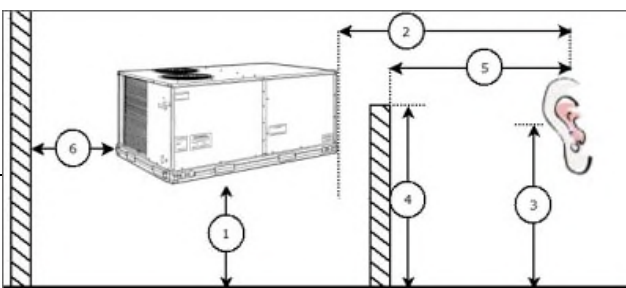
Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	99.0	95.6	85.6
125 Hz	96.7	90.3	84.7
250 Hz	85.0	76.2	80.5
500 Hz	78.9	71.2	76.0
1000 Hz	76.2	69.8	72.4
2000 Hz	73.2	65.7	68.0
4000 Hz	76.7	66.5	62.8
8000 Hz	79.4	63.5	59.3
A-Weighted	86.1	78.4	79.0

Advanced Acoustics



Performance Summary For 12.5 ton GH RTUs

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023
 11:31AM

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	85.6	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

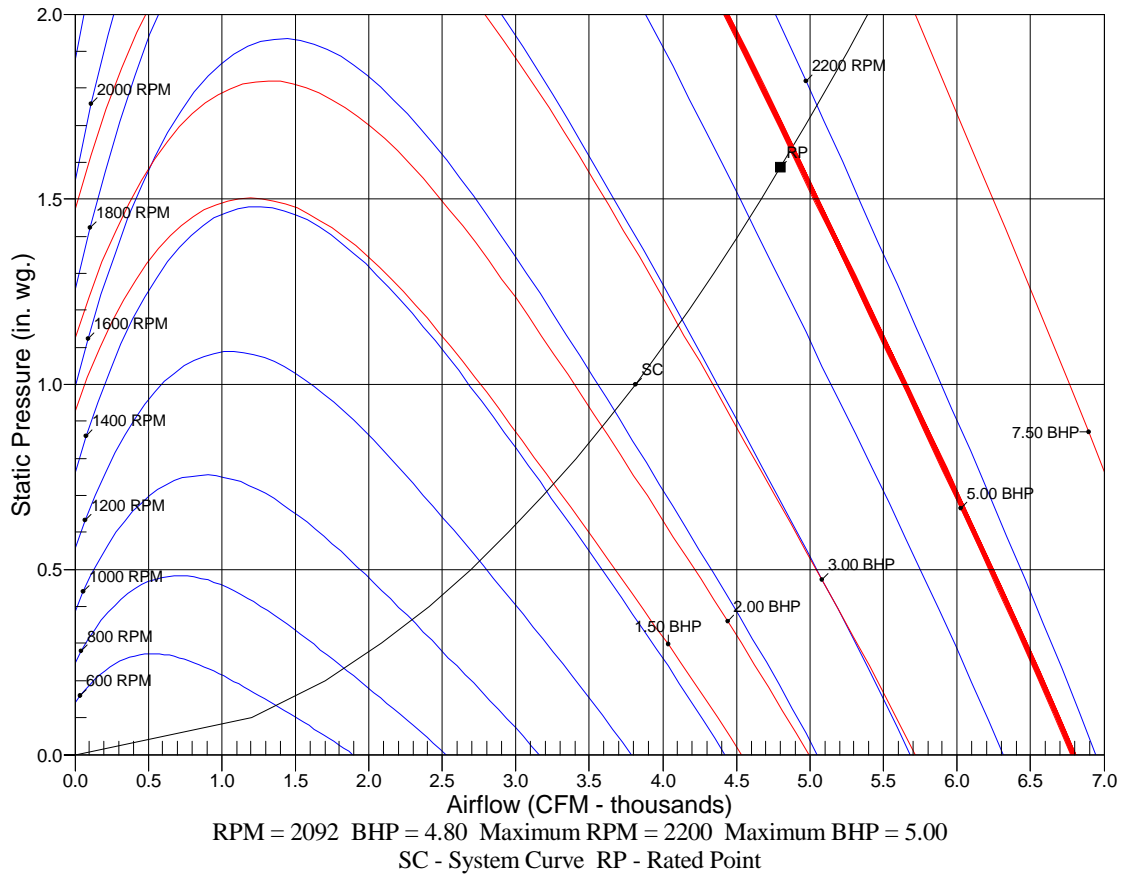
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Performance Summary For 12.5 ton GH RTUs

Project: BCF - Columbia, SC #128
Prepared By:

02/01/2023
11:31AM

Fan Curve



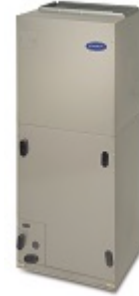
5 ton SS

**Submittal Cover Sheet
Unit Report
Performance Summary Report
Acoustic Summary
Certified Drawings**

Unit Report For 5 ton SS

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023



Outdoor Unit Parameters

Unit Model:.....**25HHA**
 Unit Size:..... **5 Tons (Size 60)**
 Voltage:.....**460-3-60** V-Ph-Hz

Indoor Coil Parameters

Unit Model:..... **FV4C**
 Unit Size:.....**Size 006 (30 - 60,000 Btuh)**
 Cabinet Insulation:**Modular with 1-in. super thick insulation**
 Voltage:.....**208-1-60** V-Ph-Hz
 Refrigerant Type:**Puron**
 Heating Size:.....**No Heat**

Outdoor Unit Dimensions and Weight

Unit Length:..... **43.125** in
 Unit Width: **17.0625** in
 Unit Height: **44.5** in
 Unit Shipping Weight:..... **288.** lb

Indoor Coil Dimensions and Weight

Unit Length:..... **22.0625** in
 Unit Width:..... **24.6875** in
 Unit Height: **59.1875** in
 Unit Shipping Weight:..... **207.** lb

RESIDENTIAL APPLICATIONS

This warranty is to the original purchasing owner and subsequent owners only to the extent and as stated in the Warranty Conditions and below. The limited warranty period in years, depending on the part and the claimant, is as shown in the table below.

Limited Warranty (Years)		
Item	Original Owner	Subsequent Owner
Parts	10* (or 5)	5
Compressor	10* (or 5)	5

*If properly registered within 90 days of original installation, otherwise 5 years (except in California and Quebec and other jurisdictions that prohibit warranty benefits conditioned on registration). See Warranty Conditions below.

OTHER APPLICATIONS

The warranty period is five (5) years on the compressor, and one (1) year on all other parts. The warranty is the original owner only and is not available for subsequent owners.

Ordering Information

Part Number	Description	Quantity
Outdoor Unit		
25HHA460A006	Performance Series Heat Pump with Puron 5 Tons Cooling 14 SEER @ ARI Conditions	1
Accessories		
KSALA0901AAA	Low Ambient Control for Outdoor Unit	1
KAACH1901AAA	Crankcase Heater for Outdoor Unit	1
KHAIR0201AAA	Isolation Relay for Outdoor Unit	1
KSAFT0101AAA	Evaporator Freeze Thermostat for Outdoor Unit	1
Indoor Coil		
FV4CNB006L00	FV4C Performance Series Fan Coil with Puron 6 Tons Cooling 208/230-1-60	1

Unit Report For 5 ton SS

Project: BCF - Columbia, SC #128

02/01/2023

Prepared By:

	Modular with 1-in. super thick insulation	
	Aluminum	

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahridirectory.org for the most up-to-date information.

Performance Summary For 5 ton SS

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023

System Performance

System: 25HHA/FV4C System Quantity:..... 1 Altitude: 0.0 ft Linear Pipe Length:..... 0.0 ft COP @ 47 F: 3.70 COP @ 17 F: 2.60 SEER @ ARI Conditions:..... 14.0 EER @ ARI Conditions: 11.0 HSPF @ ARI Conditions:..... 8.2	Actual Clg Airflow: 2000.0 CFM Standard Clg Airflow: 2000.0 CFM Total Net Clg Capacity: 58.93 MBH Net Sensible Clg Capacity: 46.71 MBH Htg HP Capacity:..... 56.64 MBH Htg HP Integrated Capacity:..... 56.64 MBH Heating HP Compressor Power: 3.98 kW Total System Power: 4.91 kW
---	---

System Parameters

Outdoor Unit Parameters

Unit Model:.....	25HHA460A006
Unit Size (Nominal):	5 Tons (Size 60)
Voltage:.....	460-3-60 V-Ph-Hz
Clg Ent Air DB Ambient:.....	95.0 °F
Htg Ent Air DB Ambient:.....	47.0 °F

Indoor Coil Parameters

Unit Model:.....	FV4CNB006L00
Unit Size (Nominal):.....	Size 006 (30 - 60,000 Btuh)
Voltage:.....	208-1-60 V-Ph-Hz
Ent Air DB:	80.00 °F
Ent Air WB:.....	67.00 °F
Ent Enthalpy:.....	31.44 BTU/lb
Lvg Air DB:.....	58.37 °F
Lvg Air WB:	57.77 °F
Lvg Enthalpy:	24.89 BTU/lb
Htg Ent Air DB:.....	70.0 °F
Htg Lvg Air DB:	96.2 °F
Heating Size (Nominal):	No Heat
Total External Static Pressure:.....	0.50 in wg
Clg Coil Note:***	Airflow adjusted to high (400 cfm/ton).

Electrical Data

Outdoor Electrical Data

Unit Voltage:	460-3-60 V-Ph-Hz
Fan Motor FLA:	0.80 Amps
MCA:	10.6 Amps
Max Fuse:	15 Amps
Operating Range Min:.....	414 V
Operating Range Max:.....	506 V
Compressor RLA:.....	7.8 Amps
Compressor LRA:.....	52.0 Amps

Indoor Electrical Data:

(For units with no factory installed electric heaters)

Unit Voltage:.....	208-1-60 V-Ph-Hz
Unit FLA:	6.8 Amps
Unit MCA:.....	8.5 Amps
Unit MOCP:.....	15.0 Amps
Unit Min Wire Size:.....	14.0
Unit Fuse/Ckt Bkr Amps:.....	15.0 Amps
Motor HP:	3/4 HP

Notice: Indoor Elect. data is for 208-1-60 voltage

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahridirectory.org for the most up-to-date information.

Acoustic Summary For 5 ton SS

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023

Outdoor Unit Parameters:

Unit Model: **25HHA**
 Unit Size: **5 Tons (Size 60)**
 Variations: **Standard**

Octave Band Center Frequency, Hz	125	250	500	1k	2k	4k	8k	dBA
Sound Power,dB	70.0	62.0	65.0	66.0	64.5	64.0	57.5	
A-Weighted Sound Power, dBA								74.0

Indoor Coil Parameters:

Unit Model: **FV4C**
 Unit Size: **Size 006 (30 - 60,000 Btuh)**
 Cabinet Insulation: **Modular with 1-in. super thick insulation**

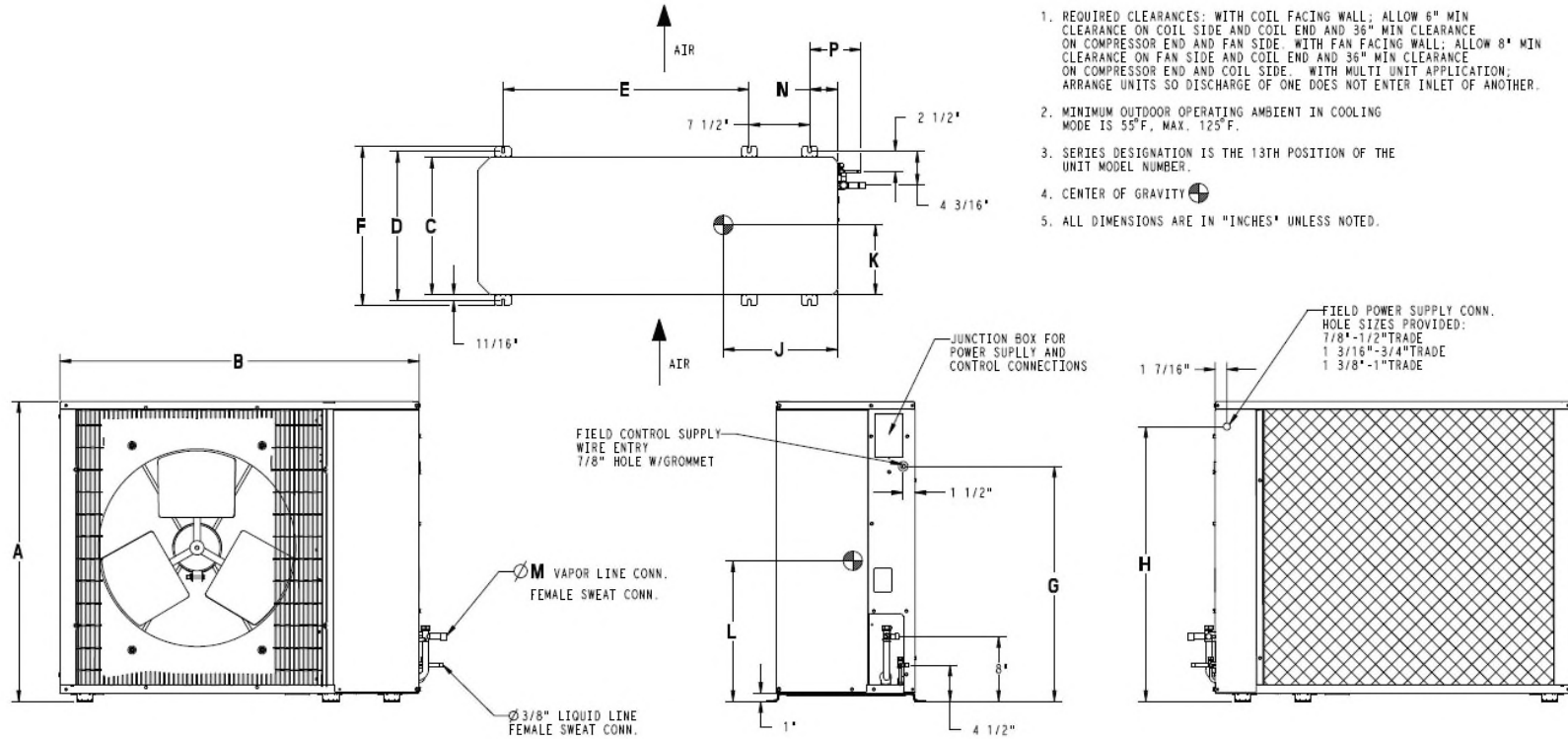
Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k
Sound Power,dB	70.0	66.0	62.0	59.0	57.0	55.0	51.0

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahridirectory.org for the most up-to-date information.

Certified Drawing For 5 ton SS

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023



1. REQUIRED CLEARANCES: WITH COIL FACING WALL; ALLOW 6" MIN CLEARANCE ON COIL SIDE AND COIL END AND 36" MIN CLEARANCE ON COMPRESSOR END AND FAN SIDE. WITH FAN FACING WALL; ALLOW 8" MIN CLEARANCE ON FAN SIDE AND COIL END AND 36" MIN CLEARANCE ON COMPRESSOR END AND COIL SIDE. WITH MULTI UNIT APPLICATION; ARRANGE UNITS SO DISCHARGE OF ONE DOES NOT ENTER INLET OF ANOTHER.
2. MINIMUM OUTDOOR OPERATING AMBIENT IN COOLING MODE IS 55°F, MAX. 125°F.
3. SERIES DESIGNATION IS THE 13TH POSITION OF THE UNIT MODEL NUMBER.
4. CENTER OF GRAVITY
5. ALL DIMENSIONS ARE IN "INCHES" UNLESS NOTED.

Outdoor Model

Unit Model:.....**25HHA**
 Unit Size:..... **5 Tons (Size 60)**
 Voltage:.....**460-3-60** V-Ph-Hz
 SEER:.....**14**
 PartNumber:..... **25HHA460A006**

Shipping Dimensions and Weights	Outdoor Unit
Height	40.13 in
Width	20.50 in
Length	50.50 in
Operating Weight	258. lb
Shipping Weight	288. lb

Dimensions												
A	B	C	D	E	F	G	K	L	M	N	P	
43.13 in	44.50 in	17.06 in	18.44 in	30.50 in	19.63 in	35.13 in	8.50 in	18.88 in	0.88 in	3.38 in	5.50 in	

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahridirectory.org for the most up-to-date information.

Certified Drawing For 5 ton SS

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023

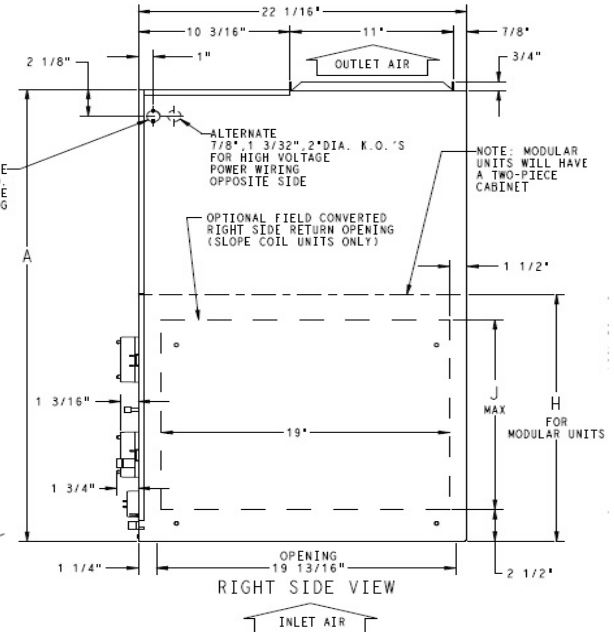
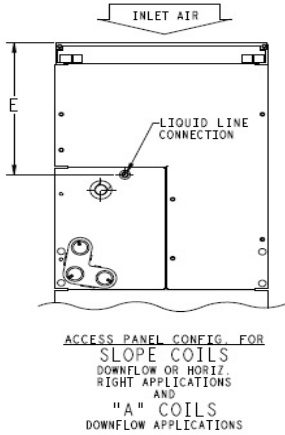
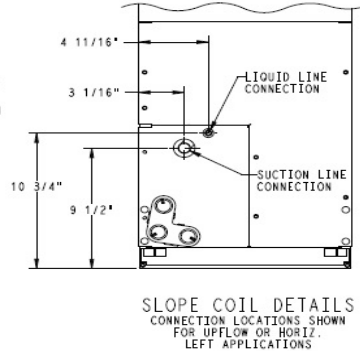
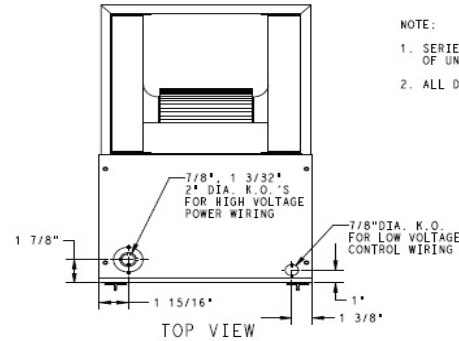
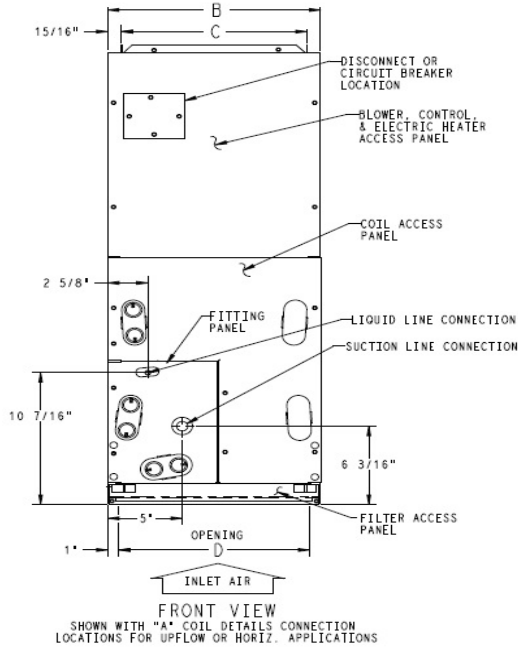
UNIT CONNECTION SIZES

SUCTION: 018 & 024 - 5/8" I.D. SWEAT
 030 & 036 - 3/4" I.D. SWEAT
 042 THRU 060 - 7/8" I.D. SWEAT
 LIQUID: 3/8" I.D. SWEAT
 CONDENSATE: 3/4" FPT

NOTE:

1. SERIES DESIGNATION IS THE 14TH POSITION OF UNIT PRODUCT NUMBER
2. ALL DIMENSIONS ARE IN "INCHES" UNLESS NOTED.

NOTE: ALLOW 21" FROM FRONT FOR SERVICE



Indoor Coil

Unit Model: **FV4C**
 Unit Size: **Size 006 (30 - 60,000 Btuh)**
 Voltage: **208-1-60** V-Ph-Hz
 Cabinet Insulation: **Modular with 1-in. super thick insulation**
 PartNumber: **FV4CNB006L00**

Dimensions and Weights	Indoor Coil
Height	59.19 in
Width	24.69 in
Length	22.06 in
Shipping Weight	207. lb

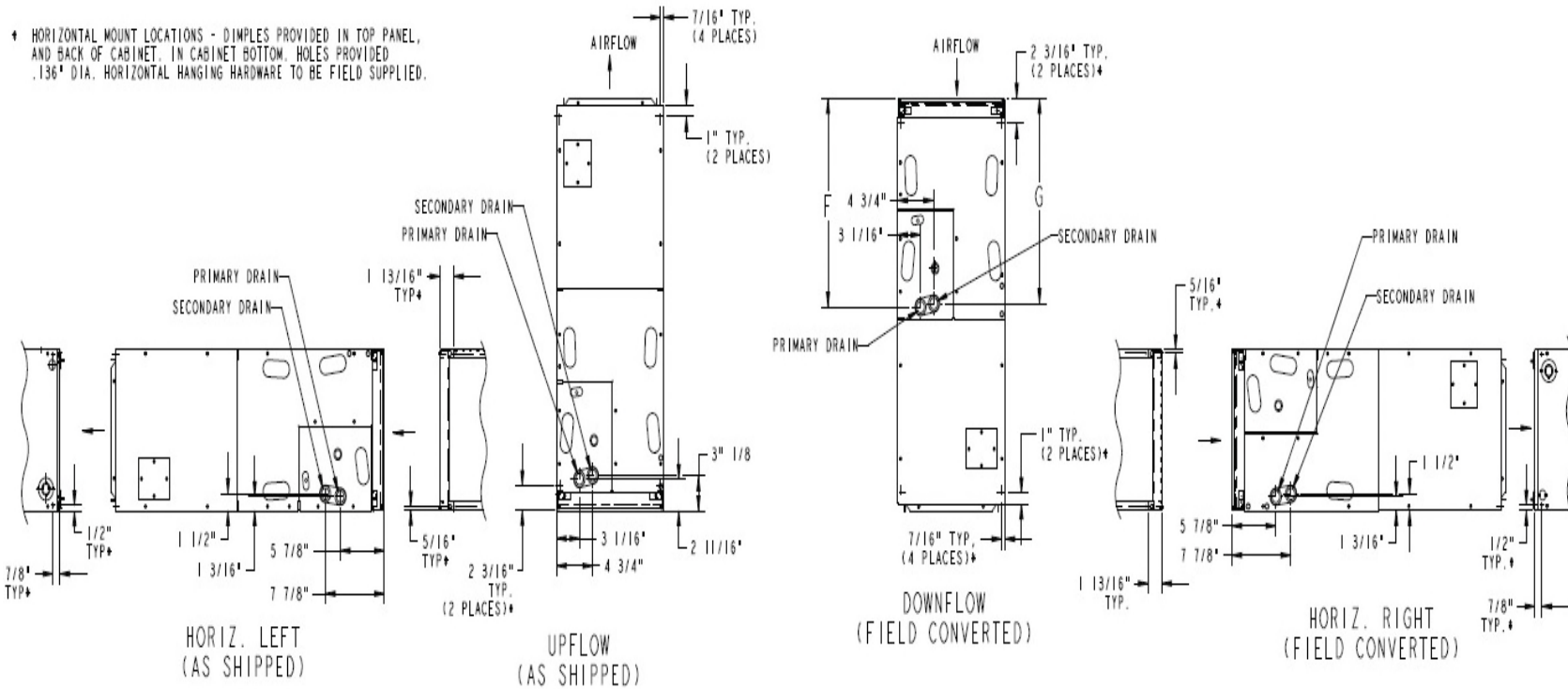
Dimensions									
A	B	C	D	E	F	G	H	J	
59.19 in	24.69 in	22.75 in	22.69 in	25.25 in	--	--	34.06 in	--	--

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahrirectory.org for the most up-to-date information.

Certified Drawing For 5 ton SS

Project: BCF - Columbia, SC #128
 Prepared By:

02/01/2023



A-COIL

Indoor Coil

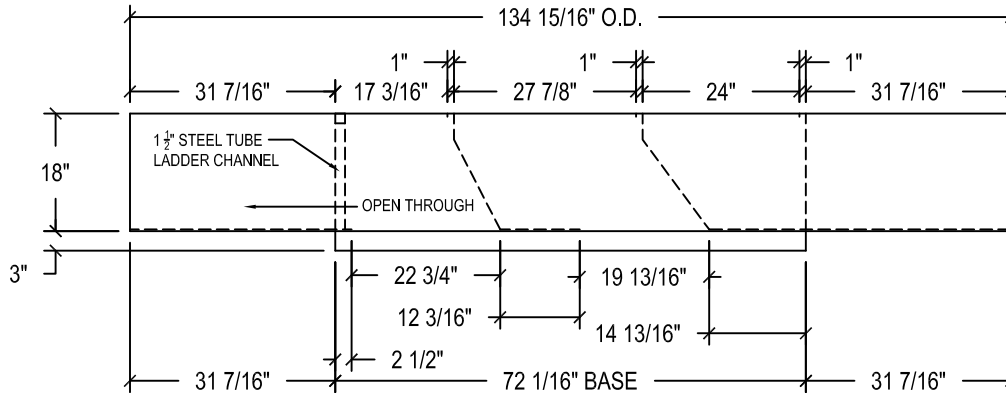
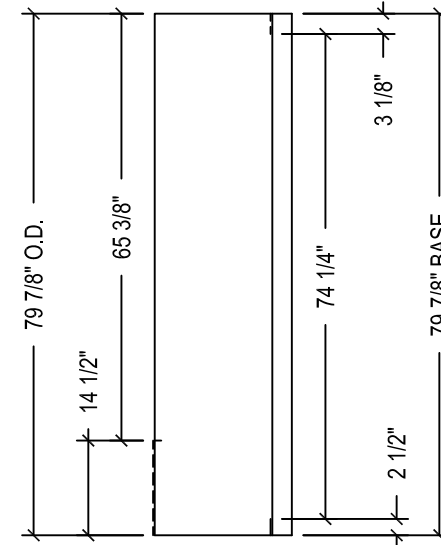
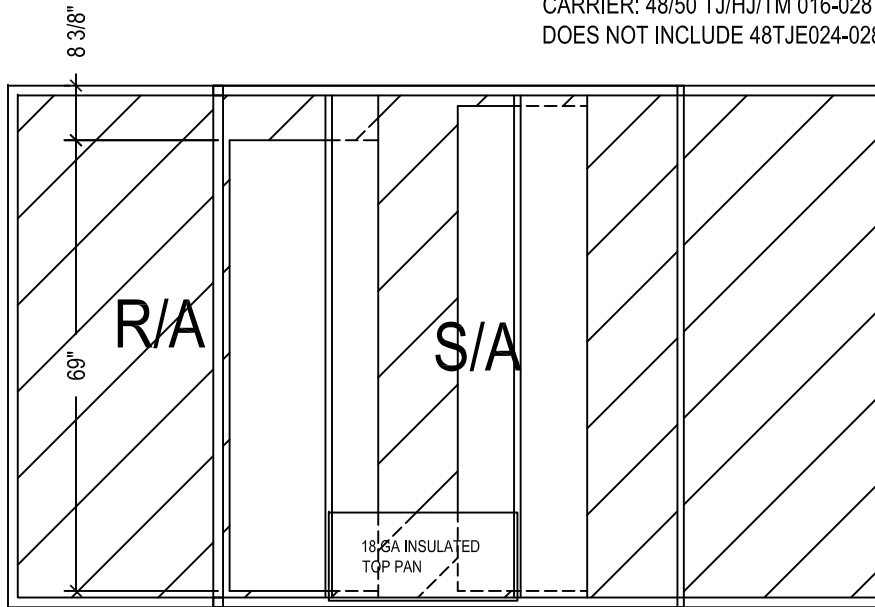
Unit Model:..... **FV4C**
 Unit Size:..... **Size 006 (30 - 60,000 Btuh)**
 Voltage:..... **208-1-60** V-Ph-Hz
 PartNumber:..... **FV4CNB006L00**

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahrirectory.org for the most up-to-date information.

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/HJ/TM 016-028 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.: 9	DRAWN BY.: SLR
NEW UNIT: CARRIER	
48FC**24	
OLD UNIT: CARRIER	
48TJD024	
ROLLS OF GASKET: 4	
TAG: RTU-1,2,4,8,10,11,12,13,16	



TRANSITION-CURB SYSTEM

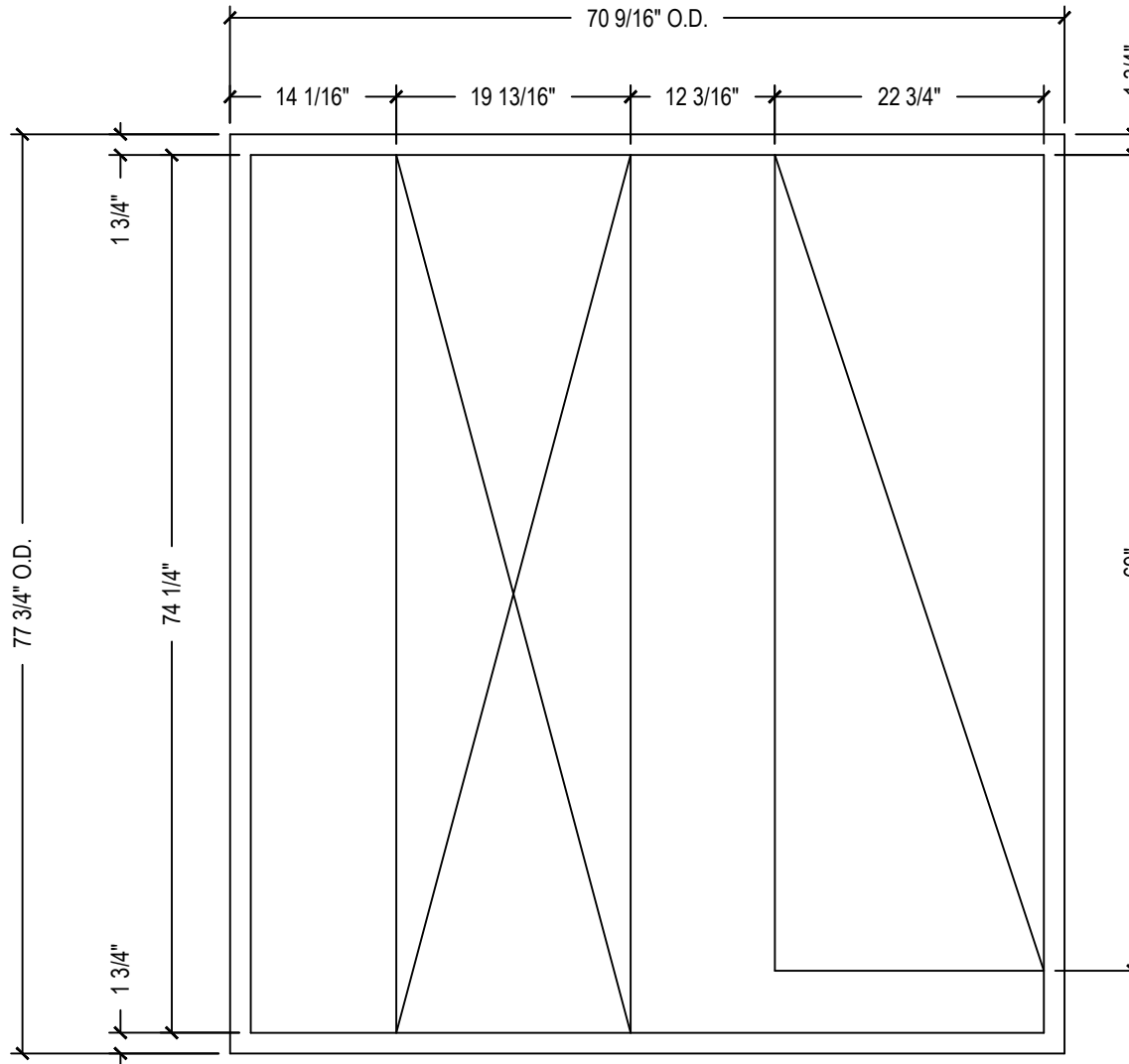
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TAG PLATE: CR322CR40

APPROXIMATE WEIGHT: 415 LBS



EXISTING CURB VERIFICATION SHEET



QTY:

TAG(S):

Qty: 9

Unit: CARRIER 48TJD024

Tag: RTU-1,2,4,8,10,11,12,13,16