BENNETT ENGINEERING
MECHANICAL • ELECTRICAL
(207) 865-9475

RESURGAM CITY OF PORTLAND, MAINE
Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

- ☒ NO EXCEPTIONS TAKEN
- ☐ MAKE CORRECTIONS NOTED
- ☐ AMEND & RE-SUBMIT
- ☐ SUBMIT SPECIFIED ITEM
- ☐ REJECTED-SEE REMARKS
- ☐ SEE COMMENTS BELOW

CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE, FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATION OF THE WORK WITH THAT OF OTHER TRADES AND THE SATISFACTORY PERFORMANCE OF THE WORK.

Stephen P. Doel	3/12/14
SIGNATURE	REVIEW DATE

Project: Maine Wharf

Submittal: HVAC Equipment

Comments: NONE

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

SUBMITTAL

Project

ATLANTIC MAINE WHARF REVISED 04 06 14

Date

Thursday, March 06, 2014

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Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

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5 TON

Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report
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Spec Sheet

Unit Report For 5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
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Unit Parameters

Unit Model: **48HCEA06A2A5-0F0A0**
Unit Size: **06 (5 Tons)**
Volts-Phase-Hertz: **208-3-60**
Heating Type: **Gas**
Duct Cfg: **Vertical Supply / Vertical Return**
Medium Heat
Single stage cooling models

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

Unit Length:
Unit Width:
Unit Height: **3' 5.375"**
*** Total Operating Weight: **784** 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**

Unit Configuration

Medium Static Option - Belt Drive
Al/Cu - Al/Cu
Base Electromechanical Controls
Enthalpy Economizer w/ Barometric Relief
Standard Packaging

Warranty Information

1-Year parts
5-Year compressor parts
10-Year heat exchanger - Aluminized

No optional warranties were selected.

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

Ordering Information

Part Number	Description	Quantity
48HCEA06A2A5-0F0A0	Rooftop Unit	2
	Base Unit	
	Medium Static Option - Belt Drive	
	Electromechanical control, enthalpy economizer with barometric relief	
	None	
Accessories		
CRRFCURB001A01	14-inch Tall Roof Curb	2

Certified Drawing for 5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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NOTES:

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

UNIT	J	K
48HC-A04	33 3/8 [847]	18 5/8 [472]
48HC-A05	41 3/8 [1051]	14 7/8 [377]
48HC-A06	41 3/8 [1051]	14 7/8 [377]

UNITED TECHNOLOGIES CARRIER P.O. BOX 4808 SYRACUSE, NY 13221

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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
CRBTMPWR001A01, 003A01

	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC.	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y *	3/4" (001,003)	POWER	1 1/8" [28.4]
Z**	(003) 1/2" FPT	GAS	1 3/16" [30.0]
	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		
**	(001) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.		

SHEET	DATE	SUPERCEDES			REV
1 OF 2	01/14/10	10/12/09	48HC 04-06 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502588	A

Certified Drawing for 5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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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
48HC-A04	505	229	124	56	117	53	128	58	136	62	36 1/8 [918]	24 3/8 [619]	19 [483]
48HC-A05	590	268	151	69	144	65	144	65	151	69	36 1/4 [921]	23 3/8 [594]	20 1/8 [511]
48HC-A06	600	271	156	71	145	66	144	65	155	70	35 7/8 [911]	23 1/4 [591]	19 1/2 [495]

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

SHEET	DATE	SUPERCEDES	48HC 04-06 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502588	REV
2 OF 2	01/14/10	10/12/09			A

Certified Drawing for 5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
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ROOFCURB ACCESSORY#	A
CRRFCURB001A01	14" [356]
CRRFCURB002A01	24" [610]

NOTES:
1.ROOFCURBACCESSORYISSHIPPEDDISASSEMBLED.
2.INSULATEDPANELS:25.4[1"]THK.POLYURETHANEFOAM,44.5[1-3/4]#DENSITY.
3.DIMENSIONSIN[ ]AREINMILLIMETERS.
4.ROOFCURB:18GAGESTEEL.
5.ATTACHDUCTWORKTOCURB.(FLANGESOFDUCTRESTONCURB).
6.SERVICECLEARANCE4FEETONEACHSIDE.
7. DIRECTIONOFAIRFLOW.
8.CONNECTORPACKAGECRBTMPWR001A01ISFORTHRU-THE-CURBGASTYPE PACKAGECRBTMPWR003A01ISFORTHRU-THE-BOTTOMTYPEGASCONNECTIONS.

CONNECTORPKG.ACC.	GASCONNECTIONTYPE	GASFITTING	POWERWIR FITTING
CRBTMPWR001A01	THRUTHECURB	3/4"[19]NPT	3/4"[19]NI
CRBTMPWR003A01	THRUTHEBOTTOM	1/2"[12.7]NPT	

SECTION E-E
SCALE 0.250

VIEW"B"
CORNERDETAIL

SEE VIEW "B"

CERTIFIEDDRAWING

REV	REVISIONRECORD	DATE	BY	CHK'D	APP'D	ECNNO.
A	OVERALLDIM.5'-73/8"WAS5'-77/8;18GA MATERIALWA16GA.;NAILFIELDSUPPLIEDWAS WITHCURB	04/22/13	MMC	-	-	1067898

DRAWINGRELEASELEVEL: PRODUCTION

THIRDANGLE PROJECTION

UNLESSOTHERWISESPECIFIED DIMENSIONSAREININCHES TOLERANCESON:
1DEC ± - 2DEC ± - 3DEC ± - ANG ± °

MATERIAL
-
-
-

AUTHORIZATIONNUMBER 1041738

ENGINEERING - - MANUFACTURING - -

ENGINEERINGREQUIREMENTS T-005, Y-002

DRAFTER MMC 06/17/11 CHECKER - -

WEIGHT: -

SURFACEFINISH - MFG/PURCH PURCH

MODEL (INTERNALUSEONLY)

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TITLE CURBASY,ROOF (004-007)

SIZE D DRAWINGNUMBER 48TC400427 SHEET5OF5 REV B

NEXTDRAWING - SCALE N/A DISTRIBUTION MMC

Performance Summary For 5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Inspections Division
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Part Number:48HCEA06A2A5-0F0A0

Date: 05/23/14

ARI SEER:	**15.20**	

Base Unit Dimensions

Unit Length:	**74.4**	in
Unit Width:	**46.8**	in
Unit Height:	**41.4**	in

Operating Weight

Base Unit Weight:	**600**	lb
Medium Heat:	**9**	lb
Medium Static Option - Belt Drive:	**10**	lb
Enthalpy Economizer w/ Barometric Relief:	**50**	lb
Accessories		
14-inch Tall Roof Curb:	**115**	lb
Total Operating Weight:	**784**	lb

Unit

Unit Voltage-Phase-Hertz:	**208-3-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Belt**	
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:	**57.8**	F
Evaporator Leaving Air WB:	**57.5**	F
Evaporator Leaving Air Enthalpy:	**24.72**	BTU/lb
Gross Cooling Capacity:	**60.42**	MBH
Gross Sensible Capacity:	**47.99**	MBH
Compressor Power Input:	**3.96**	kW
Coil Bypass Factor:	**0.198**	

Heating Performance

Heating Airflow:	**2000**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**113.1**	F
Gas Input Capacity:	**82.0 / 115.0**	MBH
Gas Heating Capacity:	**93.00**	MBH
Temperature Rise:	**43.1**	F
NOTE:	**Second Stage**	

Supply Fan

External Static Pressure:	**0.70**	in wg
Options / Accessories Static Pressure		
EconoMi$erIV / EconoMi$er2:	**0.12**	in wg
Total External Static:	**0.82**	in wg
Fan RPM:	**1329**	
Fan Power:	**1.40**	BHP
NOTE:	**Selected IFM RPM Range: 1035 - 1466**	

Electrical Data (Before July 30, 2012)

Minimum Voltage:	**187**
Maximum Voltage:	**253**
Compressor #1 RLA:	**15.9**

Performance Summary For 5 TON

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Date: 05/23/14

Compressor #1 LRA:	**1**
Outdoor Fan Motor Qty:	
Outdoor Fan FLA (ea):	
Indoor Fan Motor Type:	**MI**
Indoor Fan Motor FLA:	
Combustion Fan Motor FLA (ea):	**0.48**
Power Supply MCA:	**26.5**
Power Supply MOCP (Fuse or HACR):	**40**
Min. Unit Disconnect FLA:	**26**
Min. Unit Disconnect LRA:	**143**
Electrical Convenience Outlet:	**None**

Electrical Data (July 30, 2012 and Beyond)

Indoor Fan Motor FLA:	**6.9**
Power Supply MCA:	**29**
Power Supply MOCP:	**40**
Disconnect Size FLA:	**28**
Disconnect Size LRA:	**170**

July 30th and beyond units can be identified by serial number 3112XXXXXXXXX and higher

Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	88.3	87.7	87.5
125 Hz	83.5	80.5	82.5
250 Hz	76.6	67.7	76.1
500 Hz	72.3	64.7	73.6
1000 Hz	68.7	64.0	71.3
2000 Hz	63.2	58.2	67.1
4000 Hz	65.1	54.1	64.1
8000 Hz	60.7	47.0	60.0
A-Weighted	75.6	70.1	77.0

Advanced Acoustics

Advanced Accoustics Parameters

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

Performance Summary For 5 TON

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Detailed Acoustics Information

Octave Band Center Freq. Hz	63	125	250	500	1k	2k	4k	8k	Overall
A	87.5	82.5	76.1	73.6	71.3	67.1	64.1	60.0	89.2 Lw
B	61.3	66.4	67.5	70.4	71.3	68.3	65.1	58.9	76.7 LwA
C	55.1	50.1	43.7	41.2	38.9	34.7	31.7	27.6	56.8 Lp
D	28.9	34.0	35.1	38.0	38.9	35.9	32.7	26.5	44.3 LpA

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

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

RPM = 1329 BHP = 1.40 Maximum RPM = 1585 Maximum BHP = 2.90
Note: Please contact application engineering for selections outside the shaded region.
SC - System Curve RP - Rated Point

Unit Feature Sheet for 5 TON

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Carrier®

WeatherMaster® – 48HC

PACKAGED ROOFTOP GAS HEATING/ELECTRIC COOLING UNITS
3, 4, 5, 6, 7.5, 8.5, 10 and 12.5 TONS

Optional Louvered Hail Guard Shown

ENERGY STAR

ASHRAE 90.1 COMPLIANT

Puron

WEATHERMASTER SERIES

WeatherMaster (48HC) units are high efficiency, single packaged gas heating, electric cooling units that are pre-wired and charged with Puron® (R-410) refrigerant. They are factory tested in both heating and cooling modes, and rated in accordance with AHRI Standards 210/240 (04-06 sizes) and 340/360 (07-14 sizes). WeatherMaster units are designed in accordance with UL Standard 1995, and listed by UL or ETL.

c UL us

- or -

c ETL us

AHRI CERTIFIED

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

Certified to ISO 9001

For a complete list of options and accessories refer to the product data catalog.

STANDARD FEATURES INCLUDE:

- Puron® (R-410A) HFC refrigerant charged
- ASHRAE 90.1 compliant and Energy Star qualified
- Scroll compressors with internal line break and overload protection
- Single-stage cooling capacity control on all 04-07 models
- Two-stage cooling capacity control on 08-14 models
- SEERs up to 15.6 and EERs up to 13.0
- IEERs up to 13.0 with single speed indoor fan motor
- IEERs up to 13.9 with 2-speed/VFD indoor fan motor
- TXV metering device on each independent circuit
- 04-06 models use X-13 (5 Speed/Torque) Direct Drive Motor standard
- Belt drive fan and pulley combinations - all three phase models
- Exclusive non-corrosive composite condensate pan in accordance with ASHRAE Standard 62, sloping design, side or center drain
- Standard cooling operation to 125°F (52°C) to 35°F (2°C)
- Units use high performance copper tube / aluminum fin condenser and evaporator coils
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Fully insulated cabinet
- Exclusive IGC solid-state control for on-board diagnostics with LED error code designation burner control logic and energy saving indoor fan motor delay
- Low NOx models that meet California Air Quality Management
- Induced draft gas heat combustion design
- Redundant gas valves with up to two stages of heating
- Low pressure and high pressure switch protected

MAINTENANCE FEATURES:

- Access panels with easy grip handles
- Innovative easy starting, no-strip screws on unit access panels
- Two-inch disposable return air filters and Tool-less filter access
- New terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement
- Exclusive IGC solid-state control for on-board diagnostics with LED error code designation, burner control logic and energy saving indoor fan motor delay

INSTALLATION FEATURES:

- Thru-the-bottom power entry capability
- Single point gas and electric connections
- Full perimeter base rail with built-in rigging adapters and fork slots
- Convertible from vertical to horizontal airflow for slab mounting

STANDARD PARTS WARRANTY:

- 10-year heat exchanger – 15-year stainless steel option
- 5-year compressor
- 1-year parts
- Many optional upgrades also available

OPTIONS INCLUDE BUT ARE NOT LIMITED TO:

- PremierLink™ and Multi Protocol Direct Digital Controls (DDC)
- ComfortLink controls
- Supply and Return Air Smoke Detectors, high static motors
- Louvered condenser coil guards and coil coating options
- Economizer, disconnect and convenience outlet options
- Stainless Steel heat exchanger (standard with Low Nox)
- Hinged access panels
- Humidi-MiZer adaptive dehumidification system
- Foil faced insulation throughout entire cabinet
- Low ambient cooling operation controls
- HACR circuit breaker

Spec Sheet for 5 TON

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7.5 TON

Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report
Unit Feature Sheet
Spec Sheet

Unit Report For 7.5 TON

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Date: 05/23/14

Unit Parameters

Unit Model: **48HCED08A2A5-0F0A0**
Unit Size: **08 (7.5 Tons)**
Volts-Phase-Hertz: **208-3-60**
Heating Type: **Gas**
Duct Cfg: **Vertical Supply / Vertical Return**
Medium Heat
Two stage cooling models

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

Unit Length:
Unit Width:
Unit Height: **4' 1.375"**
*** Total Operating Weight: **1172** 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**

Unit Configuration

Medium Static Option - Belt Drive
Al/Cu - Al/Cu
Base Electromechanical Controls
Enthalpy Economizer w/ Barometric Relief
Standard Packaging

Warranty Information

1-Year parts
5-Year compressor parts
10-Year heat exchanger - Aluminized

No optional warranties were selected.

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

Ordering Information

Part Number	Description	Quantity
48HCED08A2A5-0F0A0	Rooftop Unit	3
	Base Unit	
	Medium Static Option - Belt Drive	
	Electromechanical control, enthalpy economizer with barometric relief	
	None	
Accessories		
CRRFCURB003A01	14-inch Tall Roof Curb	3

Certified Drawing for 7.5 TON

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NOTES:

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2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW

UNIT	J	K	H
48HC-A07	41 1/4 [1048]	33 3/4 [857]	15 7/8 [403]
48HC-D08	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]
48HC-D09	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]

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BACK

TOP

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 3/4"-14 NPT GAS CONNECTION
G	2 " [51] DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART (FIELD INST)

THESE HOLES REQUIRED FOR USE WITH ACCY KITS:
CRBTMPWR001A01: 07 - GAS THRU CURB
CRBTMPWR002A01: 08,09 - GAS THRU CURB
CRBTMPWR003A01: 07 - GAS THRU BASEPAN
CRBTMPWR004A01: 08,09 - GAS THRU BASEPAN

	THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC.	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	3/4" (001,003) 1 1/4" (002,004)	POWER	1 1/8" [28.6] 1 3/4" [44.4]
Z *	(003) 1/2" FPT (004) 3/4" FPT	GAS	1 1/8" [28.6] 1 3/4" [44.4]
*	(001 & 002) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING. HOLE SIZE: 2" [50.8]		

THRU-THE-BASE CHART (FIOP)

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

**	FOR BELOW LISTED MODELS, A FIELD SUPPLIED 1/2" ADAPTER IS REQUIRED BETWEEN BASE PAN FITTING AND GAS VALVE: 48HCD,E,S,R-07 48HCD,S-08 48HCD,S-09

LEFT

FRONT

RIGHT

SHEET	DATE	SUPERCEDES			REV
1 OF 2	10-05-10	10-16-09	48HC 07-09 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502708	A

Certified Drawing for 7.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
48HC-A07	765	347	165.3	75	152.7	69.3	214.7	97.4	232.3	105.4	42 3/8 [1076]	34 3/4 [882.6]	19 7/8 [505]
48HC-D08	925	419.5	204.1	92.6	190.9	86.6	256.1	116.2	273.9	124.2	42 5/8 [1082]	34 1/8 [867]	22 7/8 [581]
48HC-D09	925	419.5	204.1	92.6	190.9	86.6	256.1	116.2	273.9	124.2	42 5/8 [1082]	34 1/8 [867]	22 7/8 [581]

* STANDARD UNIT WEIGHT IS WITH LOW GAS HEAT AND WITH
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PROD

Date: 05/23/14

SHEET	DATE	SUPERCEDES			REV
2 OF 2	10-05-10	10-16-09	48HC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM502708	A

Certified Drawing for 7.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

ROOFCURB ACCESSORY#	A
CRRFCURB003A01	14" [356]
CRRFCURB004A01	24" [610]

NOTES:
1.ROOFCURBACCESSORYISSHIPPEDDISASSEMBLED.
2.INSULATEDPANELS:25.4[1"]THK.POLYURETHANEFOAM,44.5[1-3/4]#DENSITY.
3.DIMENSIONSIN[ ]AREINMILLIMETERS.
4.ROOFCURB:18GAGESTEEL.
5.ATTACHDUCTWORKTOCURB.(FLANGESOFDUCTRESTONCURB).
6.SERVICECLEARANCE4FEETONEACHSIDE.
7. DIRECTIONOFAIRFLOW.
8.CONNECTORPACKAGECRBTMPWR002A01ISFORTHRU-THE-CURBGASTYPE PACKAGECRBTMPWR004A01ISFORTHRU-THE-BOTTOMTYPEGASCONNECTIONS.

CONNECTORPKG.ACC.	GASCONNECTIONTYPE	GASFITTING	POWERWIR FITTING
CRBTMPWR002A01	THRUTHECURB	3/4"[19]NPT	11/4"[31.7]N
CRBTMPWR004A01	THRUTHEBOTTOM		

VIEW"B"
CORNERDETAIL

SECTIONTHRUSIDE

CERTIFIEDDRAWING

REV	REVISIONRECORD	DATE	BY	CHK'D	APP'D	ECNNO.
C	6' 61/4" WAS 6' 7 1/6", 4'2' WAS 4' 2 13/16"; 18GAWAS16GA.;1513/16"WAS1515/16";NAIL FIELDSUPPLIEDWASWITHCURB	4/22/13	MMC	-	-	1067898

DRAWINGRELEASELEVEL: PRODUCTION			
THIRDANGLE PROJECTION	UNLESSOTHERWISESPECIFIED DIMENSIONSAREININCHES TOLERANCESON: 1DEC ± - 2DEC ± - 3DEC ± - ANG ± -		THIS DOCUMENT AND THE INFORMATION CONTAINED THEREIN IS PROPRIETARY TO CARRIER CORPORATION AND SHALL NOT BE USED OR DISCLOSED TO OTHERS, IN WHOLE OR IN PART, WITHOUT THE WRITTEN AUTHORIZATION OF CARRIER CORPORATION.
MATERIAL - - -	AUTHORIZATIONNUMBER 1029120		TITLE CURBASY,ROOF
ENGINEERINGREQUIREMENTS T-005, Y-002	ENGINEERING - -	MANUFACTURING - -	SIZE D / DRAWINGNUMBER 50HJ405012 / REV C
WEIGHT: -	DRAFTER MMC 12/16/09	CHECKER - -	SHEET5OF5
SURFACEFINISH - / MFG/PURCH PURCH	MODEL (INTERNALUSEONLY)		NEXTDRAWING - / SCALE N/A / DISTRIBUTION -

Performance Summary For 7.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Part Number:48HCED08A2A5-0F0A0

Date: 05/23/14

ARI EER:	12.00	
IEER:	13.0	

Base Unit Dimensions

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

Operating Weight

Base Unit Weight:	925	lb
Medium Heat:	15	lb
Medium Static Option - Belt Drive:	15	lb
Enthalpy Economizer w/ Barometric Relief:	74	lb
Accessories		
14-inch Tall Roof Curb:	143	lb
Total Operating Weight:	1172	lb

Unit

Unit Voltage-Phase-Hertz:	208-3-60	
Air Discharge:	Vertical	
Fan Drive Type:	Belt	
Actual Airflow:	3000	CFM
Site Altitude:	0	ft

Cooling Performance

Condenser Entering Air DB:	95.0	F
Evaporator Entering Air DB:	80.0	F
Evaporator Entering Air WB:	67.0	F
Entering Air Enthalpy:	31.44	BTU/lb
Evaporator Leaving Air DB:	57.7	F
Evaporator Leaving Air WB:	57.2	F
Evaporator Leaving Air Enthalpy:	24.53	BTU/lb
Gross Cooling Capacity:	93.30	MBH
Gross Sensible Capacity:	72.19	MBH
Compressor Power Input:	6.24	kW
Coil Bypass Factor:	0.198	

Heating Performance

Heating Airflow:	3000	CFM
Entering Air Temp:	70.0	F
Leaving Air Temp:	115.7	F
Gas Input Capacity:	120.0 / 180.0	MBH
Gas Heating Capacity:	148.00	MBH
Temperature Rise:	45.7	F
NOTE:	Second Stage	

Supply Fan

External Static Pressure:	0.70	in wg
Options / Accessories Static Pressure		
EconoMi$erIV / EconoMi$er2:	0.11	in wg
Total External Static:	0.81	in wg
Fan RPM:	823	
Fan Power:	1.37	BHP
NOTE:	Selected IFM RPM Range: 690 - 936	

Electrical Data (Before July 30, 2012)

Minimum Voltage:	187
Maximum Voltage:	253

Performance Summary For 7.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

Compressor #1 RLA:	13
Compressor #1 LRA:	
Compressor #2 RLA:	13
Compressor #2 LRA:	
Outdoor Fan Motor Qty:	
Outdoor Fan FLA (ea):	1.5
Indoor Fan Motor Type:	**MED**
Indoor Fan Motor FLA:	**5.2**
Combustion Fan Motor FLA (ea):	**0.48**
Power Supply MCA:	**38.8**
Power Supply MOCP (Fuse or HACR):	**50**
Min. Unit Disconnect FLA:	**41**
Min. Unit Disconnect LRA:	**202**
Electrical Convenience Outlet:	**None**

Electrical Data (July 30, 2012 and Beyond)

Indoor Fan Motor FLA:	**6.9**
Power Supply MCA:	**41**
Power Supply MOCP:	**50**
Disconnect Size FLA:	**43**
Disconnect Size LRA:	**229**

July 30th and beyond units can be identified by serial number 3112XXXXXXXXX and higher

Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	97.0	94.2	90.6
125 Hz	91.1	84.7	84.3
250 Hz	75.9	69.2	80.2
500 Hz	69.5	64.5	79.3
1000 Hz	65.0	61.9	77.1
2000 Hz	63.2	57.1	72.2
4000 Hz	65.9	56.6	67.4
8000 Hz	66.8	55.9	63.7
A-Weighted	78.3	72.8	82.0

Advanced Acoustics

Advanced Accoustics 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

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Inspections Division
Approved with Conditions

Date: 05/23/14

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

Detailed Acoustics Information

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

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

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

Performance Summary For 7.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
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Date: 05/23/14

RPM = 823 BHP = 1.37 Maximum RPM = 1084 Maximum BHP = 3.70
Note: Please contact application engineering for selections outside the shaded region.
SC - System Curve RP - Rated Point

Unit Feature Sheet for 7.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Inspections Division
Approved with Conditions

Date: 05/23/14

Carrier®

WeatherMaster® – 48HC

PACKAGED ROOFTOP GAS HEATING/ELECTRIC COOLING UNITS
3, 4, 5, 6, 7.5, 8.5, 10 and 12.5 TONS

Optional Louvered Hail Guard Shown

ENERGY STAR

ASHRAE 90.1 COMPLIANT

Puron

WEATHERMASTER SERIES

WeatherMaster (48HC) units are high efficiency, single packaged gas heating, electric cooling units that are pre-wired and charged with Puron® (R-410) refrigerant. They are factory tested in both heating and cooling modes, and rated in accordance with AHRI Standards 210/240 (04-06 sizes) and 340/360 (07-14 sizes). WeatherMaster units are designed in accordance with UL Standard 1995, and listed by UL or ETL.

c UL us

- or -

c ETL us

AHRI CERTIFIED

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

Certified to ISO 9001

For a complete list of options and accessories refer to the product data catalog.

STANDARD FEATURES INCLUDE:

- Puron® (R-410A) HFC refrigerant charged
- ASHRAE 90.1 compliant and Energy Star qualified
- Scroll compressors with internal line break and overload protection
- Single-stage cooling capacity control on all 04-07 models
- Two-stage cooling capacity control on 08-14 models
- SEERs up to 15.6 and EERs up to 13.0
- IEERs up to 13.0 with single speed indoor fan motor
- IEERs up to 13.9 with 2-speed/VFD indoor fan motor
- TXV metering device on each independent circuit
- 04-06 models use X-13 (5 Speed/Torque) Direct Drive Motor standard
- Belt drive fan and pulley combinations - all three phase models
- Exclusive non-corrosive composite condensate pan in accordance with ASHRAE Standard 62, sloping design, side or center drain
- Standard cooling operation to 125°F (52°C) to 35°F (2°C)
- Units use high performance copper tube / aluminum fin condenser and evaporator coils
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Fully insulated cabinet
- Exclusive IGC solid-state control for on-board diagnostics with LED error code designation burner control logic and energy saving indoor fan motor delay
- Low NOx models that meet California Air Quality Management
- Induced draft gas heat combustion design
- Redundant gas valves with up to two stages of heating
- Low pressure and high pressure switch protected

MAINTENANCE FEATURES:

- Access panels with easy grip handles
- Innovative easy starting, no-strip screws on unit access panels
- Two-inch disposable return air filters and Tool-less filter access
- New terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement
- Exclusive IGC solid-state control for on-board diagnostics with LED error code designation, burner control logic and energy saving indoor fan motor delay

INSTALLATION FEATURES:

- Thru-the-bottom power entry capability
- Single point gas and electric connections
- Full perimeter base rail with built-in rigging adapters and fork slots
- Convertible from vertical to horizontal airflow for slab mounting

STANDARD PARTS WARRANTY:

- 10-year heat exchanger – 15-year stainless steel option
- 5-year compressor
- 1-year parts
- Many optional upgrades also available

OPTIONS INCLUDE BUT ARE NOT LIMITED TO:

- PremierLink™ and Multi Protocol Direct Digital Controls (DDC)
- ComfortLink controls
- Supply and Return Air Smoke Detectors, high static motors
- Louvered condenser coil guards and coil coating options
- Economizer, disconnect and convenience outlet options
- Stainless Steel heat exchanger (standard with Low Nox)
- Hinged access panels
- Humidi-MiZer adaptive dehumidification system
- Foil faced insulation throughout entire cabinet
- Low ambient cooling operation controls
- HACR circuit breaker

Spec Sheet for 7.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

12.5 TON

Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report
Unit Feature Sheet
Spec Sheet

Unit Report For 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

Unit Parameters

Unit Model: **48HCFD14ACA5-0F0A0**
Unit Size: **14 (12.5 Tons)**
Volts-Phase-Hertz: **208-3-60**
Heating Type: **Gas**
Duct Cfg: **Vertical Supply / Vertical Return**
High Heat
Two stage cooling models

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

Unit Length:
Unit Width:
Unit Height: **4' 9.375"**
*** Total Operating Weight: **1800** 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: **18 x 24 x 2**

Unit Configuration

High Static Option with High Efficiency Motor
Al/Cu - Al/Cu
Base Electromechanical Controls
Enthalpy Economizer w/ Barometric Relief
Standard Packaging

Warranty Information

1-Year parts
5-Year compressor parts
10-Year heat exchanger - Aluminized

No optional warranties were selected.

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

Ordering Information

Part Number	Description	Quantity
48HCFD14ACA5-0F0A0	Rooftop Unit	2
	Base Unit	
	High Static Option with High Efficiency Motor	
	Electromechanical control, enthalpy economizer with barometric relief	
	None	
Accessories		
CRRFCURB074A00	14-inch Roof Curb	2

Certified Drawing for 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Inspections Division
Approved with Conditions

Date: 05/23/14

NOTES:

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

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	CONNECTION SIZES
B	2 1/2" [64] DIA POWER SUPPLY HOLE
D	7/8" [22] DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	7/8" [22] DIA FIELD CONVENIENCE OUTLET HOLE

THRU-THE-BASE CHART
THESE HOLES REQUIRED FOR USE
CRBTMPWR005A00,006A00,007A00

ACCESSORY NO.		THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
005	W	1/2"	ACC.	7/8" [22.2]
	X	1/2"	24V	7/8" [22.2]
	Y	1 1/4"	POWER	1 1/2" [38.1]
	Z	3/4" PIPE	GAS	1 3/4" [44.5]
006	W	1/2"	ACC.	7/8" [22.2]
	X	1/2"	24V	7/8" [22.2]
	Y	1 1/2"	POWER	2" [50.8]
	Z	3/4" PIPE	GAS	1 3/4" [44.5]
007	W	1/2"	ACC.	7/8" [22.2]
	X	1/2"	24V	7/8" [22.2]
	Y	2"	POWER	2 1/2" [63.5]
	Z	3/4" PIPE	GAS	1 3/4" [44.5]
	FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR X & Y ARE PROVIDED AS SPECIFIED ON "006".			

DATE	SUPERCEDES	48HCD 14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50TM501227	REV
08/23/10	-			A

Certified Drawing for 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Inspections Division
Approved with Conditions

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
48HCD 14	1430	649	342	155	377	171	372	169	338	153	60 3/4 [1543]	31 1/2 [800]	20 5/8 [524]

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

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Date: 05/23/14

HORIZONTAL ECONOMIZER

DATE	SUPERCEDES			REV
06/15/11	-	48HCD 14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50TM501227	C

Certified Drawing for 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

ROOF CURB ACCESSORY #	A
CRRFCURB074A00	14" [356]
CRRFCURB075A00	24" [610]

NOTES:
1. ROOFCURB ACCESSORY IS SHIPPED DISASSEMBLED.
2. INSULATED PANELS: 1/2" THK, NEOPRENE FOAM, 1.0# DENSITY.
3. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
4. ROOFCURB SIDEWALLS: 16 GAGE STEEL.
5. ATTACH DUCTWORK TO CURB. (FLANGES OF DUCT REST ON CURB).
6. SERVICE CLEARANCE 4 FT ON EACH SIDE.
7. ➡ DIRECTION OF AIR FLOW.
8. "L" & "S" DESIGNATIONS DENOTE LOCATION OF COMMON CROSS RAIL. (POSITION "L" FOR LARGE DUCT OPENING CURB).

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MAX CURB LEVELING TOLERANCES

LARGE DUCT OPENINGS

DATE	SUPERCEDES			REV
02/15/13	-	48/50HCD14 / 48/50TCD16 / 48/50LC08,09,12 ROOF CURB	50TM500780	A

Performance Summary For 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Part Number:48HCFD14ACA5-0F0A0

Date: 05/23/14

ARI EER:	12.20	
IEER:	13.0	

Base Unit Dimensions

Unit Length:	115.9	in
Unit Width:	63.4	in
Unit Height:	57.4	in

Operating Weight

Base Unit Weight:	1430	lb
High Heat:	42	lb
High Static Option with High Efficiency Motor:	45	lb
Enthalpy Economizer w/ Barometric Relief:	103	lb
Accessories		
14-inch Roof Curb:	180	lb
Total Operating Weight:	1800	lb

Unit

Unit Voltage-Phase-Hertz:	208-3-60	
Air Discharge:	Vertical	
Fan Drive Type:	Belt	
Actual Airflow:	5000	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:	58.1	F
Evaporator Leaving Air WB:	57.5	F
Evaporator Leaving Air Enthalpy:	24.70	BTU/lb
Gross Cooling Capacity:	151.51	MBH
Gross Sensible Capacity:	118.53	MBH
Compressor Power Input:	9.73	kW
Coil Bypass Factor:	0.198	

Heating Performance

Heating Airflow:	5000	CFM
Entering Air Temp:	70.0	F
Leaving Air Temp:	106.1	F
Gas Input Capacity:	192.0 / 240.0	MBH
Gas Heating Capacity:	195.00	MBH
Temperature Rise:	36.1	F
NOTE:	Second Stage	

Supply Fan

External Static Pressure:	1.10	in wg
Options / Accessories Static Pressure		
EconoMi$erIV / EconoMi$er2:	0.04	in wg
Total External Static:	1.14	in wg
Fan RPM:	800	
Fan Power:	3.02	BHP
NOTE:	Selected IFM RPM Range: 776 - 955	

Electrical Data (Before July 30, 2012)

Minimum Voltage:	187
Maximum Voltage:	253

Performance Summary For 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

Compressor #1 RLA:	
Compressor #1 LRA:	**1**
Compressor #2 RLA:	
Compressor #2 LRA:	**1**
Outdoor Fan Motor Qty:	
Outdoor Fan FLA (ea):	**1.5**
Indoor Fan Motor Type:	**High Eff. High**
Indoor Fan Motor FLA:	**20.4**
Combustion Fan Motor FLA (ea):	**0.48**
Power Supply MCA:	**68**
Power Supply MOCP (Fuse or HACR):	**80**
Min. Unit Disconnect FLA:	**72**
Min. Unit Disconnect LRA:	**350**
Electrical Convenience Outlet:	**None**

Electrical Data (July 30, 2012 and Beyond)

Indoor Fan Motor FLA:	**20.4**
Power Supply MCA:	**68**
Power Supply MOCP:	**80**
Disconnect Size FLA:	**72**
Disconnect Size LRA:	**350**

July 30th and beyond units can be identified by serial number 3112XXXXXXXXX and higher

Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	97.0	93.6	89.3
125 Hz	95.8	87.5	86.0
250 Hz	81.6	69.5	82.9
500 Hz	76.9	67.7	80.7
1000 Hz	72.3	65.9	78.5
2000 Hz	68.6	62.2	73.6
4000 Hz	73.8	63.0	69.6
8000 Hz	73.9	60.4	64.5
A-Weighted	83.5	75.2	83.0

Advanced Acoustics

Advanced Accoustics 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

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

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	89.3	86.0	82.9	80.7	78.5	73.6	69.6	64.5	92.2 Lw
B	63.1	69.9	74.3	77.5	78.5	74.8	70.6	63.4	83.2 LwA
C	56.9	53.6	50.5	48.3	46.1	41.2	37.2	32.1	59.8 Lp
D	30.7	37.5	41.9	45.1	46.1	42.4	38.2	31.0	50.8 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 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

RPM = 800 BHP = 3.02 Maximum RPM = 1100 Maximum BHP = 6.50
Note: Please contact application engineering for selections outside the shaded region.
SC - System Curve RP - Rated Point

Unit Feature Sheet for 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

Carrier®

WeatherMaster® – 48HC

PACKAGED ROOFTOP GAS HEATING/ELECTRIC COOLING UNITS
3, 4, 5, 6, 7.5, 8.5, 10 and 12.5 TONS

Optional Louvered Hail Guard Shown

ENERGY STAR

ASHRAE 90.1 COMPLIANT

Puron

WEATHERMASTER SERIES

WeatherMaster (48HC) units are high efficiency, single packaged gas heating, electric cooling units that are pre-wired and charged with Puron® (R-410) refrigerant. They are factory tested in both heating and cooling modes, and rated in accordance with AHRI Standards 210/240 (04-06 sizes) and 340/360 (07-14 sizes). WeatherMaster units are designed in accordance with UL Standard 1995, and listed by UL or ETL.

c UL us

- or -

c ETL us

AHRI CERTIFIED

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

Certified to ISO 9001

For a complete list of options and accessories refer to the product data catalog.

STANDARD FEATURES INCLUDE:

- Puron® (R-410A) HFC refrigerant charged
- ASHRAE 90.1 compliant and Energy Star qualified
- Scroll compressors with internal line break and overload protection
- Single-stage cooling capacity control on all 04-07 models
- Two-stage cooling capacity control on 08-14 models
- SEERs up to 15.6 and EERs up to 13.0
- IEERs up to 13.0 with single speed indoor fan motor
- IEERs up to 13.9 with 2-speed/VFD indoor fan motor
- TXV metering device on each independent circuit
- 04-06 models use X-13 (5 Speed/Torque) Direct Drive Motor standard
- Belt drive fan and pulley combinations - all three phase models
- Exclusive non-corrosive composite condensate pan in accordance with ASHRAE Standard 62, sloping design, side or center drain
- Standard cooling operation to 125°F (52°C) to 35°F (2°C)
- Units use high performance copper tube / aluminum fin condenser and evaporator coils
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Fully insulated cabinet
- Exclusive IGC solid-state control for on-board diagnostics with LED error code designation burner control logic and energy saving indoor fan motor delay
- Low NOx models that meet California Air Quality Management
- Induced draft gas heat combustion design
- Redundant gas valves with up to two stages of heating
- Low pressure and high pressure switch protected

MAINTENANCE FEATURES:

- Access panels with easy grip handles
- Innovative easy starting, no-strip screws on unit access panels
- Two-inch disposable return air filters and Tool-less filter access
- New terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement
- Exclusive IGC solid-state control for on-board diagnostics with LED error code designation, burner control logic and energy saving indoor fan motor delay

INSTALLATION FEATURES:

- Thru-the-bottom power entry capability
- Single point gas and electric connections
- Full perimeter base rail with built-in rigging adapters and fork slots
- Convertible from vertical to horizontal airflow for slab mounting

STANDARD PARTS WARRANTY:

- 10-year heat exchanger – 15-year stainless steel option
- 5-year compressor
- 1-year parts
- Many optional upgrades also available

OPTIONS INCLUDE BUT ARE NOT LIMITED TO:

- PremierLink™ and Multi Protocol Direct Digital Controls (DDC)
- ComfortLink controls
- Supply and Return Air Smoke Detectors, high static motors
- Louvered condenser coil guards and coil coating options
- Economizer, disconnect and convenience outlet options
- Stainless Steel heat exchanger (standard with Low Nox)
- Hinged access panels
- Humidi-MiZer adaptive dehumidification system
- Foil faced insulation throughout entire cabinet
- Low ambient cooling operation controls
- HACR circuit breaker

Spec Sheet for 12.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
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17.5 TON

Tag Cover Sheet
Unit Report
Certified Drawing
Performance Report
Unit Feature Sheet
Spec Sheet

Unit Report For 17.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 05/23/14

Unit Parameters

Unit Model: **48HCFD20ECA5-0F0A0**
Unit Size: **20 (17.5 Tons)**
Volts-Phase-Hertz: **208-3-60**
Heating Type: **Gas**
Duct Cfg: **Vertical Supply / Vertical Return**
High Heat
Two Stage Compressor Models

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

Unit Length:
Unit Width:
Unit Height: **4' 1.375"**
*** Total Operating Weight: **2733** 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**

Unit Configuration

CO2 Sensor
High Static Option with High Efficiency Motor - Vertical Models
Al/Cu - Al/Cu
Base Electromechanical Controls
Enthalpy Economizer w/ Barometric Relief. Vertical and Horizontal Air Flow.
Standard Packaging

Warranty Information

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

No optional warranties were selected.

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

Ordering Information

Part Number	Description	Quantity
48HCFD20ECA5-0F0A0	Rooftop Unit	1
	Base Unit	
	CO2 Sensor	
	High Static Option with High Efficiency Motor - Vertical Models	
	Electromechanical control, enthalpy economizer with barometric relief	
	None	
Accessories		
CRRFCURB047A00	14-inch Tall Roof Curb	1

Certified Drawing for 17.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Inspections Division
Approved with Conditions

UNITED TECHNOLOGIES CARRIER P.O. BOX 4808 SYRACUSE, NY 13221

THIS DOCUMENT IS THE PROPER AND IS DELIVERED UPON THE E CONTENTS WILL NOT BE DISCLO CORPORATION'S WRITTEN CONSE

Date: 05/23/14

	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
E	3/4"-14 NPT CONDENSATE DRAIN
F	3/4"-14 NPT GAS CONNECTION (NOT SHOWN)

UNIT	G	H
20 SIZE	41-3/8 [1051]	49-3/8 [1253]
24 SIZE	49-3/8 [1253]	57-3/8 [1456]

SHEET	DATE	SUPERCEDES			REV
1 OF 2	06/21/10	-	48HC 20,24 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE502158	-

Certified Drawing for 17.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Inspections Division
Approved with Conditions

Date: 05/23/14

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

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

TOP

FRONT

SHEET	DATE	SUPERCEDES			REV
2 OF 2	06/21/10	-	48HC 20,24 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE502158	-

Certified Drawing for 17.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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MAX CURB LEVELING TOLERANCES

UNIT SIZE	"A"	ROOF CURB ACCESSORY
48TC/50TC 24,28	1'-2" [356.0] 2'-0" [610.0]	CRRFCURB047A00 CRRFCURB048A00
50TCQ 24		
48HC/50HC 20,24		
48LC/50LC 17,20		

1 ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
2 DIMENSIONS IN [ ] ARE IN MILLIMETERS.
3 ROOF CURB GALVANIZED STEEL.
4 ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB)
5 SERVICE CLEARANCE 4 ft ON EACH SIDE

DIRECTION OF AIR FLOW

TYPICAL 4 SIDES

DETAIL A
SCALE 1:2
TYP FRONT AND BACK

DETAIL B
SCALE 1:2
TYP BOTH ENDS

DATE	SUPERCEDES			REV
02/18/13	08/24/10	48TC/50TC 24,28 50TCQ 24 48HC/50HC 20,24 48LC/50LC 17,20 ROOF CURB	50HE501128	D

Performance Summary For 17.5 TON

Project: ATLANTIC MAINE WHARF REVISED 04 06 14
Prepared By:

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Inspections Division
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Part Number:48HCFD20ECA5-0F0A0

Date: 05/23/14

ARI EER:	**12.00**	
IEER:	**13.0**	

Base Unit Dimensions

Unit Length:	**141.5**	in
Unit Width:	**86.4**	in
Unit Height:	**49.4**	in

Operating Weight

Base Unit Weight:	**2102**	lb
High Heat:	**113**	lb
CO2 Sensor:	**5**	lb
High Static Option with High Efficiency Motor - Vertical Models:	**12**	lb
Enthalpy Economizer w/ Barometric Relief. Vertical and Horizontal Air Flow.:	**246**	lb
Accessories		
14-inch Tall Roof Curb:	**255**	lb
Total Operating Weight:	**2733**	lb

Unit

Unit Voltage-Phase-Hertz:	**208-3-60**	
Air Discharge:	**Vertical**	
Fan Drive Type:	**Belt**	
Actual Airflow:	**7000**	CFM
Site Altitude:	**0**	ft

Cooling Performance

Condenser Entering Air DB:	**95.0**	F
Evaporator Entering Air DB:	**80.0**	F
Evaporator Entering Air WB:	**67.0**	F
Entering Air Enthalpy:	**31.44**	BTU/lb
Evaporator Leaving Air DB:	**58.3**	F
Evaporator Leaving Air WB:	**57.5**	F
Evaporator Leaving Air Enthalpy:	**24.68**	BTU/lb
Gross Cooling Capacity:	**212.79**	MBH
Gross Sensible Capacity:	**164.33**	MBH
Compressor Power Input:	**14.32**	kW
Coil Bypass Factor:	**0.198**	

Heating Performance

Heating Airflow:	**7000**	CFM
Entering Air Temp:	**70.0**	F
Leaving Air Temp:	**112.9**	F
Gas Input Capacity:	**320.0 / 400.0**	MBH
Gas Heating Capacity:	**324.00**	MBH
Temperature Rise:	**42.9**	F
NOTE:	**Second Stage**	

Supply Fan

External Static Pressure:	**1.00**	in wg
Options / Accessories Static Pressure		
EconoMi$erIV / EconoMi$er2:	**0.07**	in wg
Total External Static:	**1.07**	in wg
Fan RPM:	**918**	
Fan Power:	**4.27**	BHP
NOTE:	**Selected IFM RPM Range: 882 - 1078**	

Electrical Data (Before July 30, 2012)

Minimum Voltage:	**187**	

Performance Summary For 17.5 TON

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Maximum Voltage:	**2**
Compressor #1 RLA:	**27**
Compressor #1 LRA:	**1**
Compressor #2 RLA:	
Compressor #2 LRA:	**1**
Outdoor Fan Motor Qty:	**4**
Outdoor Fan FLA (ea):	**1.5**
Indoor Fan Motor Type:	**High Eff. High**
Indoor Fan Motor FLA:	**17.1**
Combustion Fan Motor FLA (ea):	**0.52**
Power Supply MCA:	**82.6**
Power Supply MOCP (Fuse or HACR):	**100**
Min. Unit Disconnect FLA:	**87**
Min. Unit Disconnect LRA:	**451**
Electrical Convenience Outlet:	**None**

Electrical Data (July 30, 2012 and Beyond)

Indoor Fan Motor FLA:	**17.1**
Power Supply MCA:	**82.6**
Power Supply MOCP:	**100**
Disconnect Size FLA:	**87**
Disconnect Size LRA:	**451**

July 30th and beyond units can be identified by serial number 3112XXXXXXXXX and higher

Control Panel SCCR: 5kA RMS at Rated Symmetrical Voltage

Acoustics

Sound Rating: **84.0** db

Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	92.1	91.6	92.2
125 Hz	86.3	76.1	83.9
250 Hz	78.7	70.6	80.4
500 Hz	77.9	63.3	81.8
1000 Hz	72.4	57.7	78.7
2000 Hz	70.7	53.0	76.5
4000 Hz	70.7	47.0	72.2
8000 Hz	61.9	35.5	65.4
A-Weighted	80.1	69.0	84.1

Advanced Acoustics

Advanced Accoustics Parameters

1. Unit height above ground: **30.0** ft
2. Horizontal distance from unit to receiver: **50.0** ft

Performance Summary For 17.5 TON

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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	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4	93.6 Lw
B	66.0	67.8	71.8	78.6	78.7	77.7	73.2	64.3	84.1 LwA
C	59.8	51.5	48.0	49.4	46.3	44.1	39.8	33.0	61.2 Lp
D	33.6	35.4	39.4	46.2	46.3	45.3	40.8	31.9	51.7 LpA

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

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

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RPM = 918 BHP = 4.27 Maximum RPM = 1290 Maximum BHP = 10.00
SC - System Curve RP - Rated Point

Unit Feature Sheet for 17.5 TON

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Carrier®

WeatherMaster® – 48HC

PACKAGED ROOFTOP GAS HEATING/ELECTRIC COOLING UNITS
15, 17.5, 20, 25 TONS

Optional Economizer and Power Exhaust Shown

ENERGY STAR

ASHRAE 90.1 COMPLIANT

Puron

WEATHERMASTER SERIES

WeatherMaster (48HC) units are high efficient one-piece gas heating, electric cooling units that are pre-wired and charged with Puron (R-410) refrigerant. They are factory tested in both heating and cooling modes, and rated in accordance with ARI Standard 340/360. WeatherMaster units are designed in accordance with UL Standard 1995, and listed by ETL.

C ETL LISTED US

AHRI CERTIFIED

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

Certified to ISO 9001

For a complete list of options and accessories refer to the product data catalog.

STANDARD FEATURES INCLUDE:

- Puron (R-410A) HFC refrigerant
- ASHRAE 90.1 compliant and Energy Star certified
- Scroll compressors with internal line break and overload protection
- Two-stage cooling capacity control on all models
- Units use high performance copper tube / aluminum fin condenser and evaporator coils
- EERs up to 12.0
- IEERs up to 13.2 with single speed indoor fan motor
- IEERs up to 13.8 with 2-speed/VFD indoor fan motor
- TXV refrigerant metering device on each circuit
- Exclusive non-corrosive composite condensate pan in accordance with ASHRAE Standard 62, sloping design
- Standard cooling operation up to 125°F (52°C) and down to 35°F (2°C) ambient temperatures
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection
- Fully insulated cabinet
- Induced draft gas heat combustion design
- Redundant gas valves with up to two stages of heating
- Low pressure and high pressure switch protected

MAINTENANCE FEATURES:

- Major access panels with easy grip handles
- Innovative easy starting, no-strip screws on unit access panels
- Two-inch disposable return air filters with integral easy opening access flange and slide out filter track
- Belt drive evaporator-fan motor and pulley combinations
- New terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement
- Exclusive IGC solid-state control for on-board diagnostics with LED error code designation, burner control logic and indoor fan delay

INSTALLATION FEATURES:

- Thru-the-bottom power entry capability
- Single point gas and electric connections
- Full perimeter base rail with built-in rigging adapters and fork slots
- Dedicated vertical and horizontal airflow models available and ordered as a factory option only. No special kits required

STANDARD WARRANTY:

- 10-year heat exchanger parts – 15-year parts stainless steel option
- 5-year compressor parts
- 1-year parts
- Many optional upgrades also available

OPTIONS INCLUDE BUT ARE NOT LIMITED TO:

- PremierLink™ and Multi Protocol Direct Digital Controls (DDC)
- ComfortLink controls
- Supply and Return Air Smoke Detectors
- Medium and High static motors
- Louvered condenser coil guards, Manual Damper, CO2 sensor
- Economizer, disconnect and convenience outlet options
- Stainless Steel heat exchanger option
- Corrosion resistant coil coating, 4" field filter track
- Hinged assess panels
- Humidi-MiZer® adaptive dehumidification system
- Foil faced insulation throughout entire cabinet
- Low ambient cooling operation controls
- HACR circuit breaker

Spec Sheet for 17.5 TON

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