

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that BBB INC.

Located At 580 CONGRESS ST

Job ID: 2012-04-3722-HVAC

CBL: 037- G-005-001

has permission to Install rooftop/attic Carrier gas fired, direct vent HVAC system
provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of
the Statues of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of
the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured
before this building or part thereof is lathed or otherwise
closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner
before this building or part thereof is occupied. If a
certificate of occupancy is required, it must be

Fire Prevention Officer

[Signature] 7/17/12

Code Enforcement Officer / Plan Reviewer

**THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD**



PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Acting Director of Planning and Urban Development
Gregory Mitchell

Job ID: 2012-04-3722-HVAC

Located At: 580 CONGRESS ST

CBL: 037- G-005-001

Conditions of Approval:

Zoning

1. This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.
2. ANY exterior work requires a separate review and approval thru Historic Preservation. This property is located within an Historic District.
3. This B-3 zone has maximum noise allowances. The City of Portland strictly enforces the level of sound generated on the property. Any verified noise violations shall require the owner to take mitigating measures to bring the property and the noise it generates into compliance.

Fire

1. Installation shall comply with City Code Chapter 10.
2. Fuel-fired boilers shall be protected in accordance with NFPA 101, *Life Safety Code*.
3. Installation shall comply with NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*;
4. NFPA 54, *National Fuel Gas Code*;
5. NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*;
6. NFPA 91, *Standard for Exhaust Systems for Air Conveying Vapors, Gases, Mists, and Noncombustible Particulate Solids*;
7. NFPA 70, *National Electrical Code*; and the manufacturer's published instructions.

Building

1. Application approval based upon information provided by applicant. Any deviation from approved plans requires separate review and approval prior to work.
2. All penetrations through rated assemblies must be protected by an approved firestop system installed in accordance with ASTM E 814 or UL 1479, per IBC 2009 Section 713.
3. The installation must comply with the State of Maine Gas Regulations.
4. The appliance and venting shall be installed in accordance with the UL listing, manufacturer's specifications, and NFPA 211
5. Installation shall comply with the 2009 IBC for smoke or fire dampers or combination F/S dampers including actuation and access panels.

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No: 2012-04-3722-HVAC	Date Applied: 4/9/2012	CBL: 037- G-005-001	
Location of Construction: 580 CONGRESS ST	Owner Name: BBB INC.	Owner Address: 76 WOODLAND DR FALMOUTH, ME 04105	Phone:
Business Name:	Contractor Name: AVERY SERVICES	Contractor Address: 7 THOMAS DR, WESTBROOK MAINE 04092	Phone: 772-8687
Lessee/Buyer's Name:	Phone:	Permit Type: HVAC	Zone: B-3
Past Use: 1 st floor = retail Springers 2 nd & 3 rd floors = Offices 4 th floor = storage only	Proposed Use: Same: 1 st floor = retail; 2 nd & 3 rd floors = Offices & 4 th floor = storage only - to install roof top HVAC system	Cost of Work: \$78,000.00	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved w/conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: M/B Type: HVAC IBL 2004 ASHRAE 62.1 Signature: JMB
Proposed Project Description: natural gas carrier on roof/attic		Pedestrian Activities District (P.A.D.) 7/17/12	

Permit Taken By: Gayle	Zoning Approval		
<p>1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.</p> <p>2. Building Permits do not include plumbing, septic or electrical work.</p> <p>3. Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.</p>	Special Zone or Reviews <input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Date: <u>4/9/12</u>	Zoning Appeal <input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied	Historic Preservation - within - <input type="checkbox"/> Not in Dist or Landmark <input type="checkbox"/> Does not Require Review <input type="checkbox"/> Requires Review <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied Date: <u>4/17/12</u> J. Andrews
	CERTIFICATION		

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the application is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHONE

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

Final Inspection at completion of installation

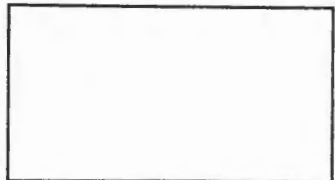
The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



2012 04 3 772 FILE IN AND SIGN WITH INK 66

APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



037 6 005

B-3 Historic

To the INSPECTOR OF BUILDINGS, PORTLAND, ME.

The undersigned hereby applies for a permit to install the following heating, cooking or power equipment in accordance with the Laws of Maine, the Building Code of the City of Portland, and the following specifications:

Location / CBL 580 Congress St Use of Building _____ Date 4-9-2012

Name and address of owner of appliance Springers Jewelers BBB INC

Installer's name and address Avery Services Inc 7 Thomas Dr Westbrook Telephone 772-8687 X105

Location of appliance:

- Basement
- Attic
- Floor
- Roof

Type of Fuel:

- Gas
- Oil
- Solid

Appliance Name: Carrier

U.L. Approved Yes No

Will appliance be installed in accordance with the manufacture's installation instructions? Yes No

IF NO Explain: _____

The Type of License of Installer:

- Master Plumber # _____
- Solid Fuel # _____
- Oil # _____
- Gas # PNT4626
- Other _____

Type of Chimney:

- Masonry Lined
Factory built N/A
- Metal
Factory Built U.L. Listing # _____
- Direct Vent
Type NAT UL# _____

RECEIVED

Type of Fuel Tank

- Oil
- Gas

APR 09 2012

Dept of Building Inspections
City of Portland Maine

Size of Tank Nat gas

Number of Tanks _____

Distance from Tank to Center of Flame _____ feet

Cost of Work: \$ ~~72,249~~ 77,913.00

Permit Fee: \$ _____ HP 50.00

Approved

Fire: _____
Ele.: _____
Bldg.: _____

Approved with Conditions

- See attached letter or requirement

Inspector's Signature _____

Date Approved _____

Signature of Installer Michael S. [Signature]

AVERY SERVICES, INC
7 Thomas Drive
WESTEROCK MAINE 04092
(207) 742-8687

TAX (207) 874-0935

TO: Springer's Jewelers
Attn: Rick
580 Congress Street
Portland ME 04101

*PO #35435
CR #43315*

PHONE 772-5404	DATE 4/4/2012
JOB NAME & LOCATION RAD Construction	
PROJECT # MSD #203525	BY PHONE

Avery Services, Inc. is pleased to submit a quote to perform the following work:

- Provide and install two (2) Carrier FE5AN06, 410A fan coil units with variable speed blower motor that uses 80% less electricity and is 12 times quieter than a standard unit.
- Provide and install two (2) Carrier 25VNA548, 410A heat pump condensing units, mounted on pressure treated lumber on the roof. *change to 20KW MSD*
- Provide and install two (2) 10kw electric heaters.
- Provide and install two (2) Carrier EZXCAB mechanical air cleaners.
- Provide and install refrigerant lines between the two components for each system (chase to roof and roof penetration provided by others).
- Provide and install two (2) emergency drain pans with float switch.
- Provide and install a galvanized ductwork system comprised of a total of twelve (12) 24x24 Tuttle & Bailey PW perforated supplies, adjustable pattern set in TRM 147 Trim Frame. Also install two (2) Titus 24x24 return grilles (per specs).
- All ductwork will be wrapped with 1-1/2" insulation with a vapor barrier.
- Demo existing ductwork on the first floor only.
- OPTION 1) Substitute standard 25HNB548 heat pump condensing units for the Carrier 25VNA048, Greenspeed Intelligence with variable speed. DEDUCT \$4,458.00 per system. _____ initials
- EXCLUSIONS: Power wiring, roofing, structural, structural engineering report, soffiting, carpentry, adequacy of existing systems.

Thirty Four Thousand Four Hundred Fifty Four and 00/100 Dollars

34,454.00

\$17,227.00 upon acceptance - Progress billing/net 5 days - All balances due upon substantial completion.

All material is guaranteed for 1 year. All work to be complete in a professional manner...
We warrant the materials and workmanship of our work for a period of 1 year...
We warrant the materials and workmanship of our work for a period of 1 year...

Acceptance of Proposal: The above price is in full and...
The above price is in full and...
The above price is in full and...

Authorized Signature: *[Signature]* PRES
 Date: 4/4/2012
 Signature: *[Signature]*
 Signature: *[Signature]*

EVERY SERVICES, INC.
 7 Thomas Drive
 WESTBROOK MAINE 04091
 (207) 772-8687

Page 1 of 2

FAX (207) 871-0832

10) Springer's Jewelers
 Attn: Rick
 580 Congress Street
 Portland ME 04101

PHONE 772-5404	DATE 4/5/2012
JOB NAME/LOCATION Package units	
JOB NUMBER MSD	

Avery Services, Inc. is pleased to submit a quote to perform the following work:

- Provide and install two (2) Carrier 48TCEA06, 5-ton package units.
- Provide and install two (2) Carrier Economizers for fresh air and free cooling.
- Provide and install two (2) Carrier Edge thermostats (one for each floor). Low voltage wire included.
- Provide and install gas piping to both rooftop units.
- Provide and install galvanized duct drops SA & RA on both units. Run out new main trunks for both systems. Retie into existing branch lines to the new main duct. Insulate all new ductwork and existing ductwork that gets tied back in.
- Provide crane for unit lift and permit required.
- Provide and install gas piping line for future apartment (does not include runouts to appliance locations).
- Provide and install refrigerant lines to the roof and the basement for future use.

OPTIONS:

- 1) Add basement demo of existing unit, boiler, and oil tank, per EPA laws.
 Demo existing ductwork. ADD \$2,969.00 RB initials.
- 2) Provide and install a Carrier 24ANB648A03 condensing unit.
 Place apartment unit on roof now. ADD \$2695.00 RB initials.

Cont'd

Cont'd

\$18,198.00 upon acceptance - Progress billing/net 5 days - All balances due upon substantial completion.

All work is to be done in the office. All work is to be performed by professional technicians according to standard practices. All alterations, construction, etc. shall be done in strict accordance with the manufacturer's instructions. All work shall be done in strict accordance with the manufacturer's instructions. All work shall be done in strict accordance with the manufacturer's instructions. All work shall be done in strict accordance with the manufacturer's instructions.

Acceptance of Proposal The above prices, specifications and conditions are hereby accepted. We are authorized to do the work as specified. Payment will be made as outlined above.

Signature
 Michael Darling VP

IF THIS PROPOSAL MAY BE
 WITHDRAWN BY US IF NOT ACCEPTED WITHIN

30

Signature

Signature

Date of Acceptance

EVERY SERVICES, INC
 7 Thomas Drive
 WESTBROCK, MAINE 04092
 (207) 772-8887

FAX (207) 874-0989

10 **Springer's Jewelers**
Attn: Rick
580 Congress Street
Portland ME 04101

PHONE 772-5404	DATE 4/5/2012
JOB NAME/LOCATION Package units	
TYPE NUMBER MSD	DATE ENTERED

- 3) Provide and install a Panasonic ductless split for the basement.
- Provide and install a CS-KE36WNKU wall unit.
- Provide and install a CU-KE36NKU condensing unit with low ambient kit. ADD \$4,100.00 _____ initials

EXCLUSIONS: Power wiring, roofing, structural, structural engineering report, soffiting, carpentry, adequacy of existing systems.

Thirty Seven Thousand Seven Hundred Ninety Five and 00/100 Dollars **37,795.00**

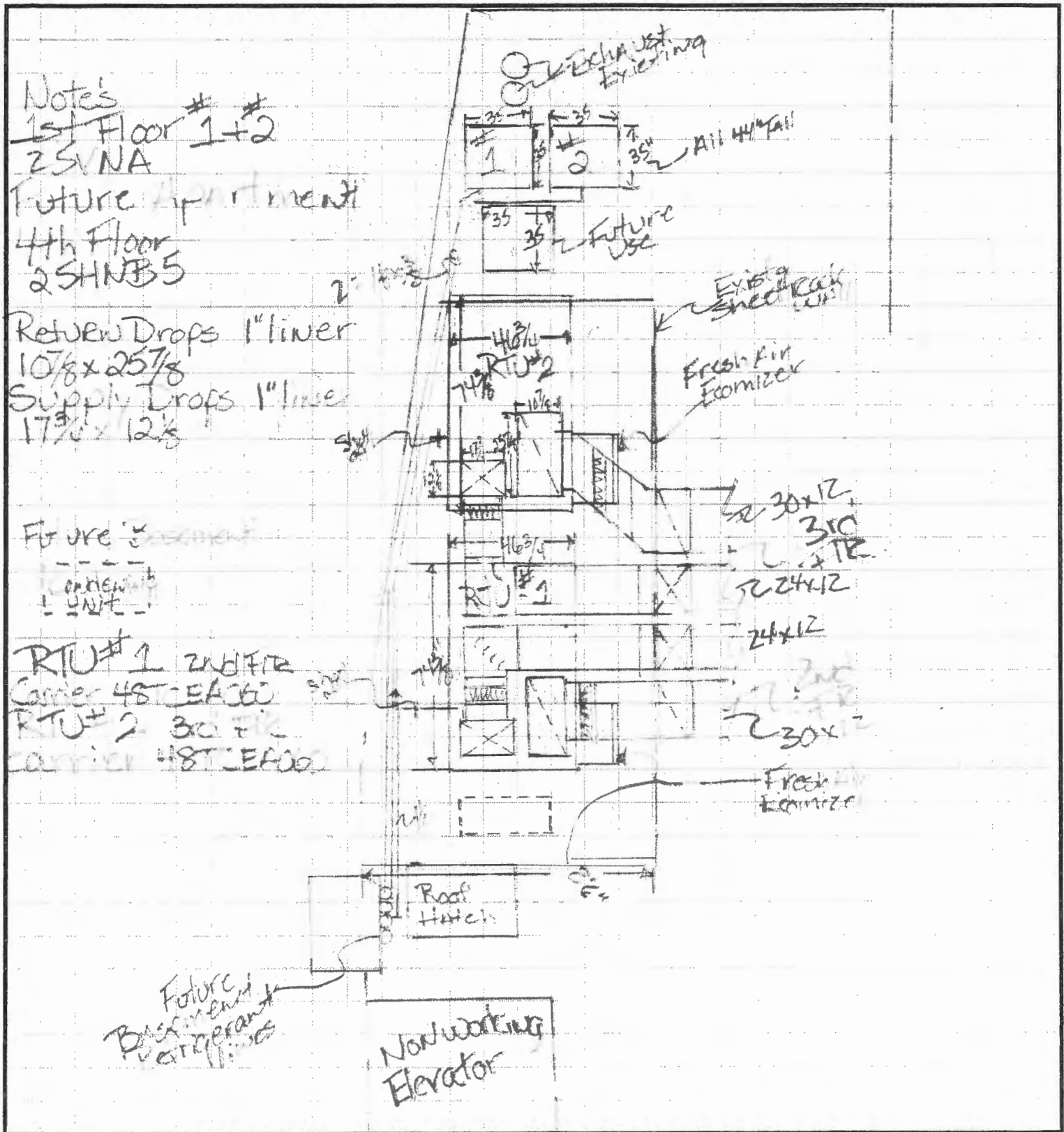
\$18,198.00 upon acceptance - Progress billing/net 5 days - All balances due upon substantial completion.

Acceptance of Proposal: The above price, specifications and conditions are satisfactory and are hereby accepted. Payment shall be made as follows:

Accepted by Signature: *Michael Sanhig VP*
 NOTE: This proposal may be withdrawn by us if not accepted within **30** days.
 Signature: *E. [unclear]*

Duct Layout

(See System Layout for Equipment Locations)



Notes
 1st Floor #1 #2
 2SVNA
 Future Apartment
 4th Floor
 2SHNBS
 Return Drops 1" liner
 10 7/8 x 25 7/8
 Supply Drops 1" liner
 17 5/8 x 12 5/8

Future in
 RTU #1 24x12
 Carrier 48 EA360
 RTU #2 30x12
 Carrier 48T EA360

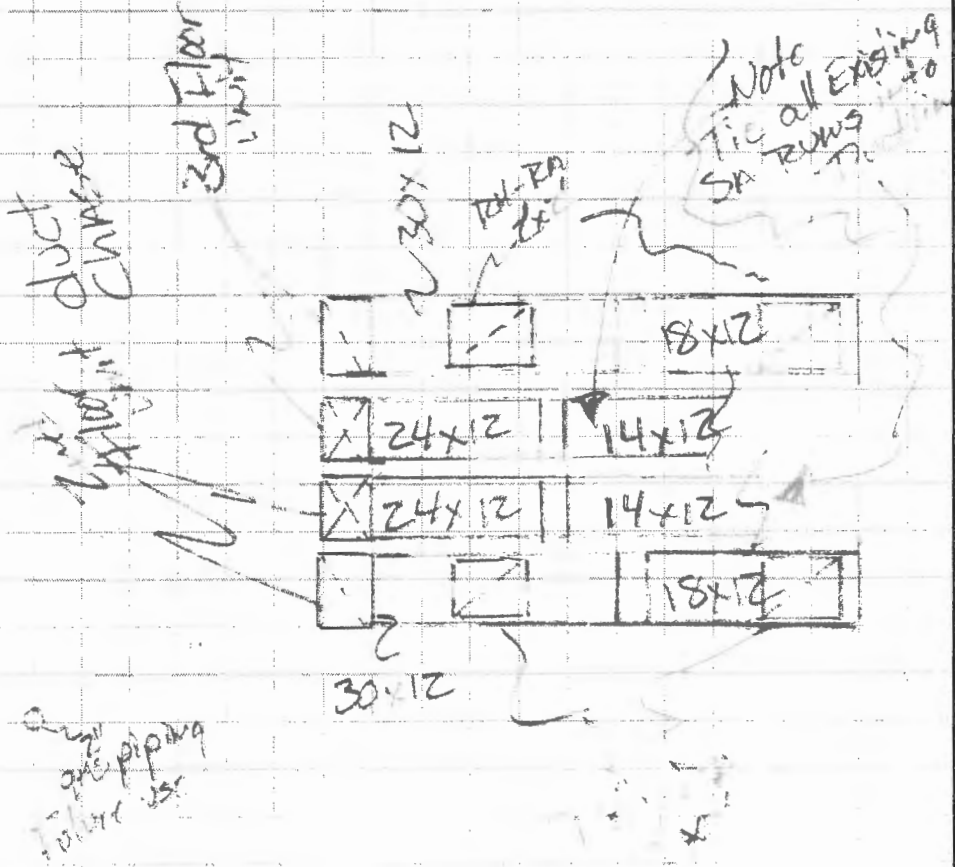
Future
 Basement
 water lines

Nonworking
 Elevator

Duct Layout

(See System Layout for Equipment Locations)

Note wrap & net work





SUBMITTAL

Project

~Untitled12

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03/22/2012
11:42AM

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5 TON

Project: ~Untitled12
Prepared By:

03/22/2012
11:42AM

5 TON

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

Unit Report For 5 TON

Project: ~Untitled12
Prepared By:

03/22/2012
11:42AM

Unit Parameters

Unit Model:.....48TCEA06A2A3-0A0A0
Unit Size:.....06 (5 Tons)
Volts-Phase-Hertz:.....230-1-60
Heating Type:.....Gas
Duct Cfg:.....Vertical Supply / Vertical Return
Medium Heat
Round Tube Plate Fin Coils

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

Unit Length:.....6' 2.375"
Unit Width:.....3' 8"
Unit Height:.....2' 9.375"
Base Unit Weight:.....569 lb

*** 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.

Unit Configuration

Medium Static Option
Al/Cu - Al/Cu
Base Electromechanical Controls
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
48TCEA06A2A3-0A0A0	Rooftop Unit	2
	Base Unit	
	Medium Static Option	
	Al/Cu - Al/Cu	
	Standard Packaging	
	Electromechanical control, No intake or exhaust option	

Certified Drawing for 5 TON

Project: ~Untitled12
Prepared By:

03/22/2012
11:42AM

NOTES:

1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN () ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW

UNIT	J	K
48TC--04	33 3/8 (847)	18 5/8 (472)
48TC--05	33 3/8 (847)	14 7/8 (377)
48TC--06	33 3/8 (847)	14 7/8 (377)
48TC--07	41 3/8 (1051)	14 7/8 (377)



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

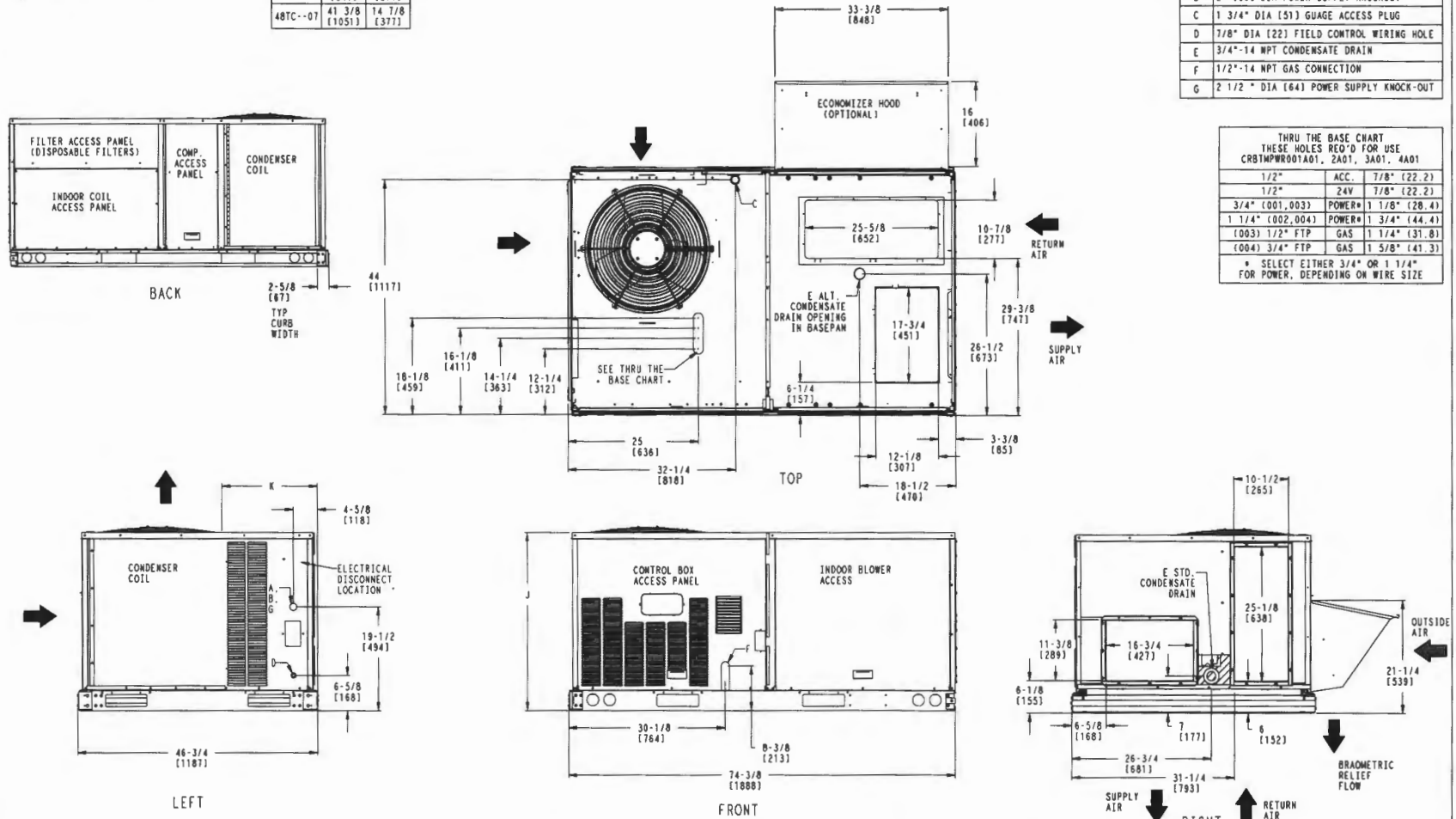
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CONNECTION SIZES	
A	1 3/8" DIA (35) FIELD POWER SUPPLY HOLE
B	2" (50) DIA POWER SUPPLY KNOCKOUT
C	1 3/4" DIA (51) GAUGE ACCESS PLUG
D	7/8" DIA (22) FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT CONDENSATE DRAIN
F	1/2"-14 NPT GAS CONNECTION
G	2 1/2" DIA (64) POWER SUPPLY KNOCK-OUT

THRU THE BASE CHART THESE HOLES REQ'D FOR USE CRB1MPPWR001A01, 2A01, 3A01, 4A01			
1/2"	ACC.	7/8"	(22.2)
1/2"	24V	7/8"	(22.2)
3/4"	(001,003)	POWER*	1 1/8" (28.4)
1 1/4"	(002,004)	POWER*	1 3/4" (44.4)
(003)	1/2" FTP	GAS	1 1/4" (31.8)
(004)	3/4" FTP	GAS	1 5/8" (41.3)

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



SCALE 1:8

SHEET	DATE	SUPERCEDS	DESCRIPTION	REV
1 OF 2	1-10-07	-	48TC 04-07 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	2.0

SCALE 1:8

Certified Drawing for 5 TON

Project: ~Untitled12
Prepared By:

03/22/2012
11:42AM

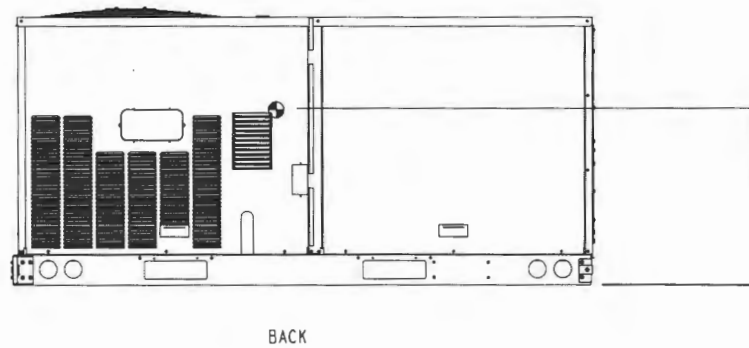
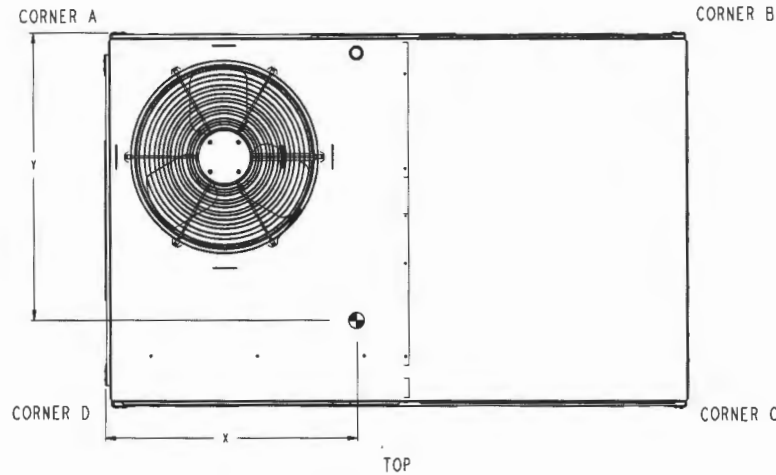
UNIT	STD. UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.			HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	
48TC--04	483	219	111	50	125	57	131	59	116	53	39 (991)	23 (584)	16 3/8 (416)	
48TC--05	537	244	124	56	139	63	145	66	129	59	39 (991)	23 (584)	17 (432)	
48TC--06	569	258	131	59	147	67	154	70	137	62	39 (991)	23 (584)	17 1/4 (438)	
48TC--07	652	296	150	68	169	76	176	80	157	71	39 (991)	23 (584)	20 1/8 (511)	



UNITED TECHNOLOGIES
SIRACUSE, NY 13221

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SCALE 5:32

SHEET	DATE	SUPERCEDES	DESCRIPTION	UNIT	REV
2 OF 2	1-10-07	-	48TC 04-07 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM500993	2.0

Performance Summary For 5 TON

Project: ~Untitled12
Prepared By:

03/22/2012
11:42AM

Part Number:48TCEA06A2A3-0A0A0

ARI SEER:..... 13.00
Base Unit Weight:..... 569 lb
Base Unit Dimensions
Unit Length:..... 74.4 in
Unit Width:..... 44.0 in
Unit Height:..... 33.4 in
Unit Voltage-Phase-Hertz:..... 230-1-60
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:..... 57.9 F
Evaporator Leaving Air WB:..... 57.3 F
Evaporator Leaving Air Enthalpy:..... 24.56 BTU/lb
Gross Cooling Capacity:..... 61.90 MBH
Gross Sensible Capacity:..... 47.70 MBH
Compressor Power Input:..... 4.43 kW
Coil Bypass Factor:..... 0.055

Heating Performance

Heating Airflow:..... 2000 CFM
Entering Air Temp:..... 70.0 F
Leaving Air Temp:..... 111.7 F
Gas Input Capacity:..... 115.0 MBH
Gas Heating Capacity:..... 90.00 MBH
Temperature Rise:..... 41.7 F

Supply Fan

External Static Pressure:..... 0.75 in wg
Fan RPM:..... 1306
Fan Power:..... 1.33 BHP
NOTE:..... Selected IFM RPM Range: 1035 - 1466

Electrical Data

Minimum Voltage:..... 187
Maximum Voltage:..... 253
Compressor RLA:..... 26.2
Compressor LRA:..... 134
Outdoor Fan Motor Qty:..... 1
Outdoor Fan FLA (ea):..... 1.5
Indoor Fan Motor Type:..... MED
Indoor Fan Motor FLA:..... 7
Combustion Fan Motor FLA (ea):..... 0.24
Power Supply MCA:..... 41.3
Power Supply MOCP (Fuse or HACR):..... 60
Min. Unit Disconnect FLA:..... 40
Min. Unit Disconnect LRA:..... 175
Electrical Convenience Outlet:..... None

Acoustics

Performance Summary For 5 TON

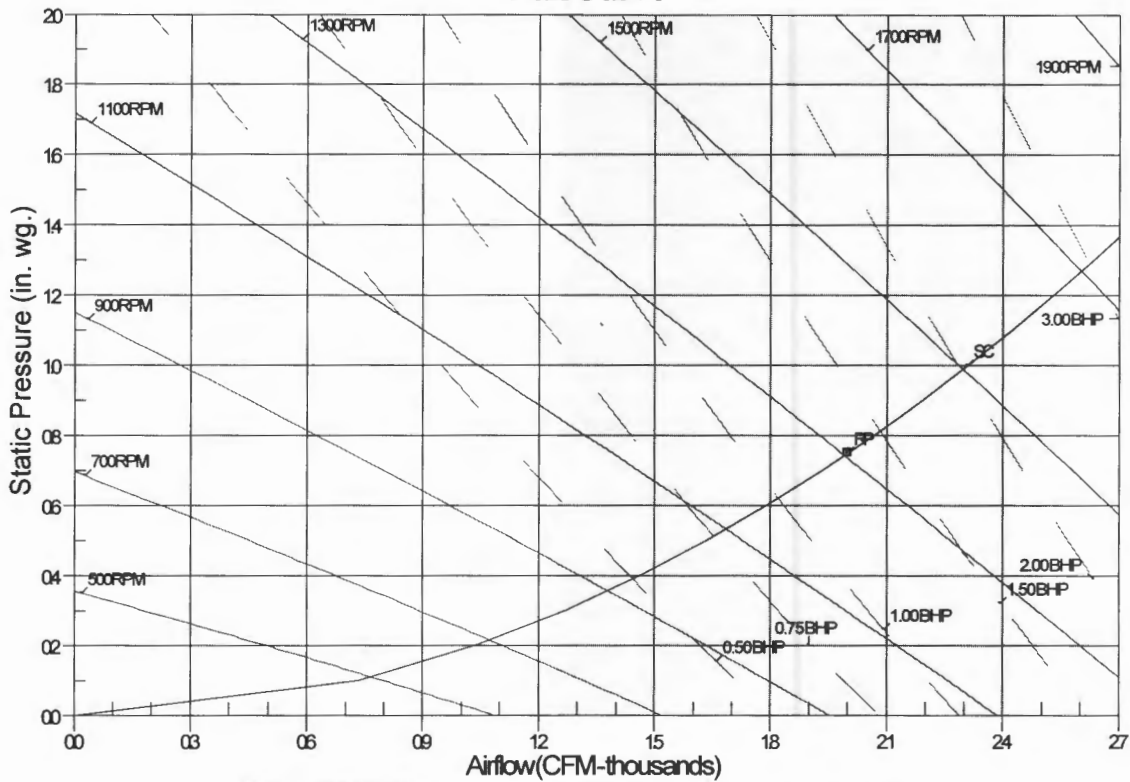
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Sound Power Levels, db re 10E-12 Watts

	Discharge	Inlet	Outdoor
63 Hz	88.1	87.6	84.0
125 Hz	83.3	80.3	82.2
250 Hz	76.3	67.4	76.3
500 Hz	72.0	64.5	74.8
1000 Hz	68.5	63.8	72.5
2000 Hz	62.9	58.0	68.8
4000 Hz	64.8	53.8	65.6
8000 Hz	60.4	46.6	61.8
A-Weighted	75.4	69.8	78.0

Fan Curve



RPM=1306 BHP=1.33 Maximum RPM=1466 Maximum HP=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

Project: ~Untitled12
Prepared By:

03/22/2012
11:42AM



WeatherMaker – 48TC

PACKAGED ROOFTOP GAS HEATING/ELECTRIC COOLING UNITS
3, 4, 5, 6, 7.5, 8.5, 10, 12.5, 15 TONS



Optional Louvered Hail Guard Shown

**ASHRAE
90.1
COMPLIANT**



WEATHERMAKER SERIES

WeatherMaker (48TC) units are one-piece gas heating, electric cooling units that are pre-wired and charged with Puron (R-410A) 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 (07-16 sizes). WeatherMaker units are designed in accordance with UL Standard 1995, and listed by the Underwriters' Laboratories.

Approved and certified by:



Certified to ISO 9001

STANDARD FEATURES INCLUDE:

- Puron (R-410A) HFC refrigerant
- ASHRAE 90.1 energy compliant
- Scroll compressors with internal line break and overload protection
- Single-stage cooling capacity control on 04-12 models
- Two-stage cooling capacity control on 08-16 models
- SEERs up to 13.0, EERs up to 11.1 and IEERs up to 11.8
- Accutrol™ refrigerant metering system
- Exclusive non-combustive composite condensate pan in accordance with ASHRAE Standard 62.5 sloping design, side or center drain
- Standard cooling operation up to 115°F (46°C) and down to 40°F (4°C) - down to 25°F (-4°C) with winter start kit
- Pre-painted exterior panels and powder-coated interior panels tested to 500 hours salt spray protection
- Fully insulated coil net
- Exclusive IGC so di-state control for on-board diagnostics with LED error code designation on burner control logic and energy saving indoor fan motor delay
- Low NOx modes 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, gripp handles
- Innovative easy-starting, no-torx screws on unit access panels
- Two non-drip disposable return air filters and "tool-less" filter access door
- Belt drive evaporator-fan motor and oil cyclone collection
- Two terminal board fastening, simple safety circuit troubleshooting and simple field control box arrangement
- Exclusive IGC so di-state control for on-board diagnostics with LED error code designation on 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 burner assembly with built-in gassing adapters and fork slots
- Field convertible from vertical to horizontal airflow for easy mounting. 16 size models require field installed supply duct cover.

STANDARD WARRANTY:

- 10-year heat exchanger - 15-year stainless steel bottom
- 5-year compressor
- 1-year parts
- 3-year parts on float on Condensate sump where applicable
- Many optional upgrades also available

OPTIONS INCLUDE BUT ARE NOT LIMITED TO:

- PremierLink™ and RTU Open Mult. Protocol BDC Controls
- Supply and Return Air Smoke Detectors, high static motors
- Louvered condensate coil guards
- Economizer, disconnect and convenience outlet options
- Stainless Steel heat exchanger option
- Corrosion resistant coil coating
- Humid-MiZe™ adaptive dehumidification systems available on a mode with RTPP condensate sump - MotorMaster™ controller included
- Hinged access panels

For a complete list of options and accessories refer to the Product Data Catalog for this unit.

Spec Sheet for 5 TON

Project: ~Untitled12
Prepared By:

03/22/2012
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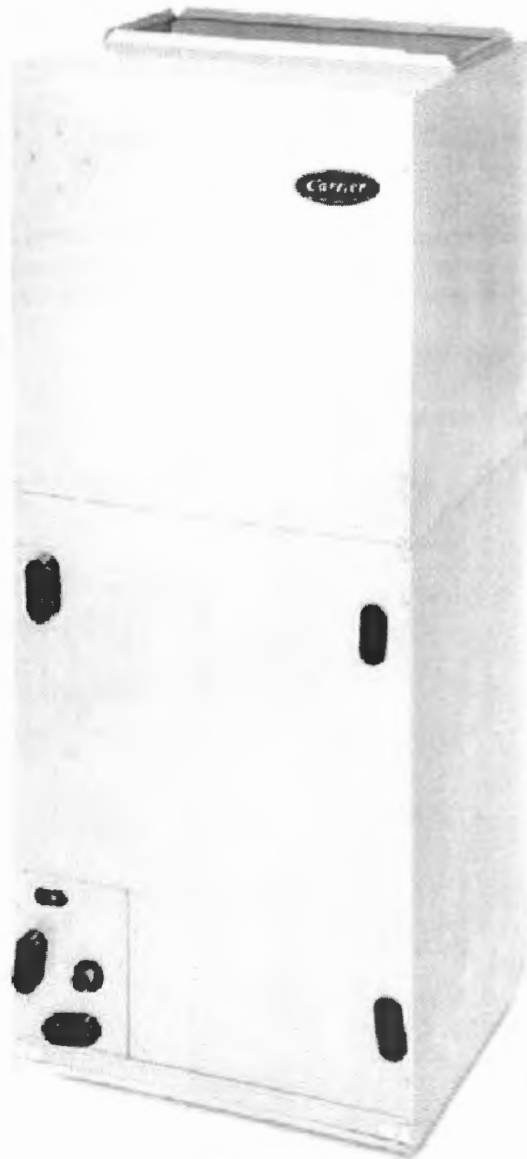
FE4A, FE5A Infinity™ Series
Communicating Variable-Speed Fan Coil
Puron® Refrigerant
Sizes 002 thru 006



Turn to the Experts.

Product Data

PREMIUM ENVIRONMENTALLY-SOUND FAN COIL



The latest in technology makes the FE4A and FE5A fan coil models the most advanced air handlers available. With attention to quiet, efficient, and comfortable operation, Carrier has developed a new benchmark for homeowner comfort and ease of installation.

The FE4A and FE5A utilize the Infinity™ Control as a required accessory to enable state of the art smart-diagnostics capability. This enables faster troubleshooting, providing ease of service and repair. The FE4A and FE5A also provide a 4-wire hook up with matching outdoor unit and the Infinity™ Control. This makes installation simpler and a lot quicker than with conventional fan coils. The FE4A and FE5A have advanced technology that allows the fan coil to self-configure with a matching outdoor unit and the Infinity™ Control, cutting down on installation time. ArmorCoat™ provides a tin plating of the indoor coil's copper hairpins. This creates a barrier between the corrosion-causing elements and the coil.

The FE4A and FE5A feature Puron® refrigerant, the chlorine-free alternate that is the future for the residential heating and cooling industry. The FE4A and FE5A using Puron® refrigerant maximize performance for environmentally sound systems. In addition to environmental safety, these systems are 30 to 40% more efficient than standard heating and cooling systems, thereby combining excellence in efficiency and environmental safety.

The FE4A and FE5A provide these benefits due to Carrier's command of Electronically Commutating Motor (ECM) technology. These motors are extremely efficient at all speeds, and enable the FE4A and FE5A to operate at the correct speed to deliver airflow precisely, ensuring proper performance across a wide range of duct static pressures. This adaptive efficiency also makes installation quality easier to achieve for today's demanding homeowner.

Carrier's command of ECM technology may be most evident in the comfort advantages that an ECM can deliver. For true comfort, the homeowner can achieve command of both temperature and humidity in cooling and heating modes.

Another feature which sets the FE4A and FE5A apart is the factory-installed TXV, which enhances efficiency and provides compressor-protecting operation at all recommended conditions. Grooved copper tubing, louvered aluminum fins, and the large face areas of the FE4A and FE5A refrigerant coils also provide superior efficiency, for high SEER and HSPF performance.

Carrier leads the way in condensate control, a hallmark of these multipoise fan coils. All of these featured components are protected within a rugged, pre-painted metal cabinet lined with super-thick, high-density insulation. For neat, high quality installations, the unit exterior features sweat refrigerant connections for simple leak free performance, and multiple electrical entry for both high and low voltage service.

For superior technology and unmatched comfort, the environmentally sound and efficient FE4A and FE5A fan coils can't be beat.

MODEL NUMBER NOMENCLATURE

1 2 3 4 5 6 7 8 9 10 11 12
 F E 4 A N B 0 0 2 0 0 0

Product
 F = Fan Coil

Type
 E = Infinity™, VS, Puron® Refrigerant

Position
 4 = Multi-poise
 5 = Upflow / Downflow

Series
 A

Electrical
 N = 208/230v, 1ph-60 Hz

Heating Size
 T00 = ArmorCoat™
 000 = No Heat

Capacity
 002 = 18-36,000
 003 = 24-42,000
 004 = 24-42,000
 005 = 30-48,000
 006 = 36-60,000

Cabinet / Insulation
 B = Modular
 F = Single piece

FE4A / FE5A

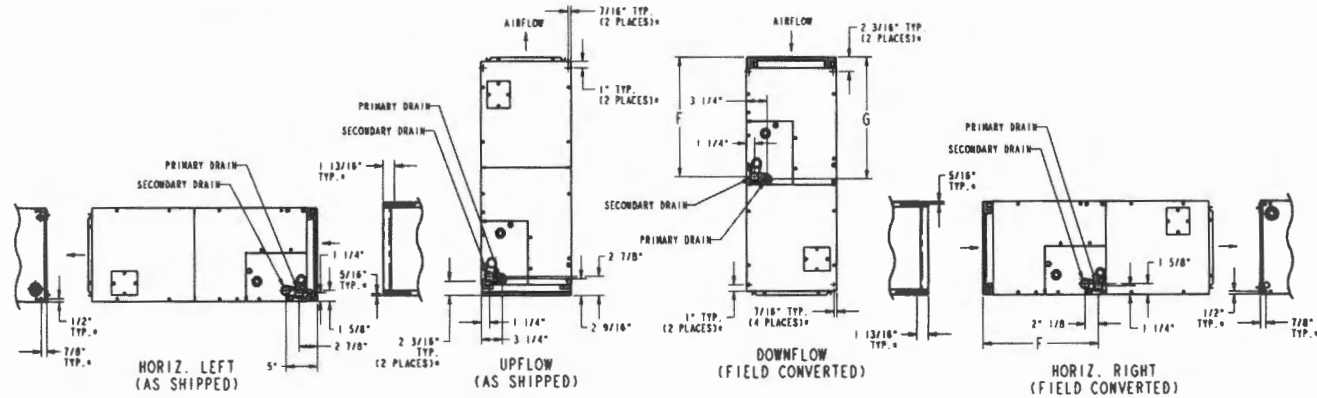


CERTIFICATION APPLIES ONLY WHEN THE COMPLETE SYSTEM IS LISTED WITH ARI

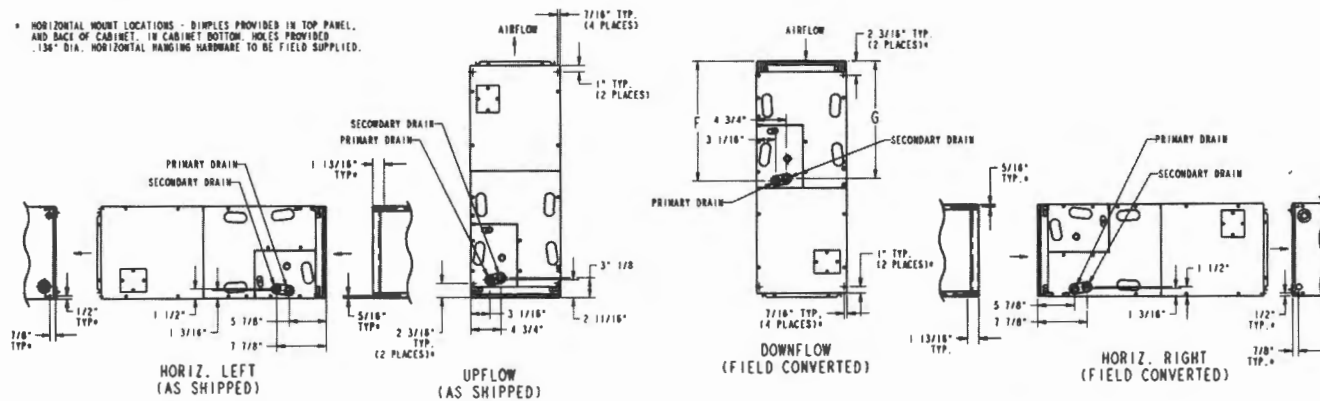


SLOPE COIL

NOTES:
1. CONDENSATE PAN DRAIN CAPS NOT SHOWN FOR CLARITY.



* HORIZONTAL MOUNT LOCATIONS - DIMPLES PROVIDED IN TOP PANEL AND BACK OF CABINET. 18 CABINET BOTTOM HOLES PROVIDED .136" DIA. HORIZONTAL HANGING HARDWARE TO BE FIELD SUPPLIED.



A-COIL

DIMENSIONS

UNIT	SIZE	F		G		COIL CONFIGURATION		SHIPPING WEIGHT
		in	mm	in	mm	Slope	"A"	lb / kg
FE4A	002	18-9/16	472	18-1/4	464	—	Yes	135 / 61
FE4A	003	26-15/16	684	27-1/2	699	Yes	—	150 / 68
FE4A	003*	26-15/16	684	27-1/2	699	Yes	—	150 / 68
FE4A	005	27-1/4	692	26-15/16	684	—	Yes	172 / 78
FE4A	005*	27-1/4	692	26-15/16	684	—	Yes	172 / 78
FE4A	006*	32-15/16	837	32-5/8	829	—	Yes	207 / 94
FE5A	004*	32-15/16	837	32-5/8	829	—	Yes	200 / 91

* Modular Cabinet

FE4A / FE5A

PERFORMANCE DATA

AIRFLOW DELIVERY — COOLING, HEATING, ELECTRIC HEATING MODES

The FE4 and FE5A fan coils will provide airflow at a rate that is requested by the Integrated System User Interface during air conditioning or heat pump heating (without electric heat) modes. The nominal airflow for both heating and cooling modes is 350 cfm/ton nominal size of the outdoor unit installed. The airflow actually requested by the User Interface is modified by its internal algorithms for zoning, comfort or efficiency concerns. Refer to the

documentation for the User Interface for more information on how the User Interface controls the fan coil. Safe operation of electric heaters requires airflow delivery at or above the minimum CFM for electric heater application listed in the chart below. The fan coil will adjust its airflow delivery to maintain safe airflow as operating mode and staging conditions require.

FE4A/FE5A FAN COIL AIRFLOW DELIVERY CHART (CFM) — ELECTRIC HEATING MODELS

MODEL FE4A	OUTDOOR UNIT CAPACITY BTUH	ELECTRIC HEATER kW RANGE						
		5	9	10	15	20	24	30
002	EMERGENCY	625	625	675	775	950	—	—
	18,000	625	625	675	—	—	—	—
	24,000	650	725	775	900	—	—	—
	30,000	800	875	875	925	1125	—	—
	36,000	975	975	975	1025	1125	—	—
003	EMERGENCY	675	700	775	850	1050	—	—
	24,000	675	875	875	1100	1150	—	—
	30,000	800	875	875	1100	1150	—	—
	36,000	975	975	1025	1150	1250	—	—
	42,000	1125	1125	1125	1150	1350	—	—
005	EMERGENCY	675	700	775	850	1050	1400	1425
	30,000	800	875	875	1100	1150	—	—
	36,000	975	975	1025	1150	1250	—	—
	42,000	1125	1125	1125	1150	1250	—	—
	48,000	1305	1305	1305	1305	1350	1500	1600
006	EMERGENCY	1050	1050	1050	1050	1125	1750	1750
	36,000	1050	1050	1100	1350	1350	—	—
	42,000	1125	1125	1150	1350	1350	—	—
	48,000	1300	1300	1300	1350	1500	1750	1750
	60,000	1625	1625	1625	1625	1750	1750	1750
MODEL FE5A	OUTDOOR UNIT CAPACITY BTUH	ELECTRIC HEATER kW RANGE						
		5	9	10	15	20	24	30
004	EMERGENCY	675	775	775	900	1125	—	—
	24,000	975	975	975	—	—	—	—
	30,000	1050	1050	1100	1125	—	—	—
	36,000	1050	1050	1100	1350	1350	—	—
	42,000	1125	1125	1150	1350	1350	—	—

Note 1: Emergency – Air conditioner with electric heater application, or emergency heat.

Note 2: These airflows are minimum airflows as UL listed.

Note 3: Dashed entry indicates that the heater/fan coil/outdoor unit combination is not approved. Do not apply.

FE4A / FE5A

ACCESSORY ELECTRIC HEATER ELECTRICAL DATA

HEATER PART NO.	kW		P H A S E	INTERNAL CIRCUIT PROTECTION	BRANCH CIRCUIT																		
					HEATER AMPS 208/230V						Min Ampacity 208/230V**			Min Wire Size (AWG) 208/230V††			Min Grd Wire Size 208/230V			Max Fuse/Ckt Bkr Amps 208/230V			Max Wire Length 208/230V (FT)‡‡
	240v	208v			Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		
						L1,L2	L3,L4		L1,L2	L3,L4		L1,L2	L3,L4		L1,L2	L3,L4		L1,L2	L3,L4		L1,L2	L3,L4	
KFCEH0401N03	3	2.3	1	None	10.9/12.0	—	—	15.9/17.3	—	—	12/12	—	—	12/12	—	—	20/20	—	—	67/68	—	—	
KFCEH0501N05 ¹	5	3.8	1	None	18.1/20.0	—	—	26.0/28.4	—	—	10/10	—	—	10/10	—	—	30/30	—	—	66/66	—	—	
KFCEH0501N05 ²	5	3.8	1	None	18.1/20.0	—	—	31.2/33.5	—	—	8/8	—	—	10/10	—	—	35/35	—	—	85/88	—	—	
KFCEH2401C05 ¹	5	3.8	1	Ckt Bkr	18.1/20.0	—	—	26.0/28.4	—	—	10/10	—	—	10/10	—	—	30/30	—	—	66/66	—	—	
KFCEH2401C05 ²	5	3.8	1	Ckt Bkr	18.1/20.0	—	—	31.2/33.5	—	—	8/8	—	—	10/10	—	—	35/35	—	—	85/88	—	—	
KFCEH0801N08	8	6.0	1	None	28.9/32.0	—	—	44.7/48.5	—	—	8/8	—	—	10/10	—	—	45/50	—	—	59/60	—	—	
KFCEH2501C08	8	6.0	1	Ckt Bkr	28.9/32.0	—	—	44.7/48.5	—	—	8/8	—	—	10/10	—	—	45/50	—	—	59/60	—	—	
KFCEH2901N09*	9	6.8	1	None	32.8/36.0	—	—	49.5/53.5	—	—	8/8	—	—	10/10	—	—	50/60	—	—	54/67	—	—	
KFCEH2901N09*‡	9	6.8	3	None	18.8/20.8	—	—	32.0/34.5	—	—	8/8	—	—	10/10	—	—	35/35	—	—	83/85	—	—	
KFCEH0901N10	10	7.5	1	None	36.2/40.0	—	—	53.8/58.5	—	—	6/6	—	—	10/10	—	—	60/60	—	—	78/80	—	—	
KFCEH2601C10	10	7.5	1	Ckt Bkr	36.2/40.0	—	—	53.8/58.5	—	—	6/6	—	—	10/10	—	—	60/60	—	—	78/80	—	—	
KFCEH3001F15*	15	11.3	1	Fuse	54.2/59.9	36.2/40.0	18.1/20.0	76.3/83.4	53.8/58.5	22.7/25.0	4/4	6/6	10/10	8/8	10/10	10/10	80/90	60/60	25/25	88/89	78/80	75/76	
KFCEH3101C15*	15	11.3	1	Ckt Bkr	—	36.2/40.0	18.1/20.0	—	53.8/58.5	22.7/25.0	—	6/6	10/10	—	10/10	10/10	—	60/60	25/25	—	78/80	75/76	
KFCEH1601315	15	11.3	3	None	31.3/34.6	—	—	47.7/51.8	—	—	8/6	—	—	10/10	—	—	50/60	—	—	59/60	—	—	
KFCEH2001316	18	13.5	3	None	37.6/41.5	—	—	55.5/60.4	—	—	6/6	—	—	10/8	—	—	60/70	—	—	78/77	—	—	
KFCEH3201F20*	20	15.0	1	Fuse	72.3/79.9	36.2/40.0	36.2/40.0	96.9/106.4	53.8/58.5	45.3/50.0	3/2	6/6	8/8	8/6	10/10	10/10	100/110	60/60	50/50	85/109	78/80	59/59	
KFCEH3301C20*	20	15.0	1	Ckt Bkr	—	36.2/40.0	36.2/40.0	—	53.8/58.5	45.3/50.0	—	8/6	8/8	—	10/10	10/10	—	60/60	50/50	—	78/80	59/59	
KFCEH3401F24*†	24	18.0	3	Fuse	50.1/56.4	—	—	71.2/77.6	—	—	4/4	—	—	8/8	—	—	80/80	—	—	94/95	—	—	
	24	18.0	1	Fuse	86.7/95.5	—	—	116.9/127.9	—	—	1/1	—	—	6/6	—	—	125/150	—	—	115/116	—	—	
KFCEH3501F30*†	30	22.5	3	Fuse	62.6/69.2	—	—	86.8/95.0	—	—	3/3	—	—	8/8	—	—	90/100	—	—	97/98	—	—	
	30	22.5	1	Fuse	109.0/120.0	—	—	144.8/158.5	—	—	0/00	—	—	6/6	—	—	150/175	—	—	117/150	—	—	

FIELD MULTIPOINT WIRING OF 24-AND 30-kW SINGLE PHASE

HEATER PART NO.	kW		P H A S E	HEATER AMPS 208/230V			MIN AMPACITY 208/230V**			MIN WIRE SIZE (AWG) 208/230V††			MIN GND WIRE SIZE 208/230V	MAX FUSE/CKT BKR AMPS 208/230V			MAX WIRE LENGTH 208/230V (FT)‡‡		
	240V	208V		L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6		L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6
KFCEH3401F24*†	24	18.0	1	28.9/32.0	28.9/32.0	28.9/32.0	44.7/48.5	36.2/40.0	36.2/40.0	8/8	8/8	8/8	10/10	45/50	40/40	40/40	59/60	73/73	73/73
KFCEH3501F30*†	30	22.5	1	36.2/40.0	36.2/40.0	36.2/40.0	53.8/58.5	45.3/50.0	45.3/50.0	6/6	8/8	8/8	10/10	60/60	50/50	50/50	78/80	59/59	59/59

* Heaters are Intelligent Heat capable when used with the FE fan coil and Comfort Zone II™ or Infinity Control™.

† Field convertible to 1 phase, single or multiple supply circuit.

‡ Field convertible to 3 phase.

** Includes blower motor amps of largest fan coil used with heater.

†† Copper wire must be used. If other than uncoated (non-plated), 75°C ambient, copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the National Electric Code (ANSI/NFPA 70).

‡‡ Length shown is as measured 1 way along wire path between unit and service panel for a voltage drop not to exceed 2%.

NOTES:

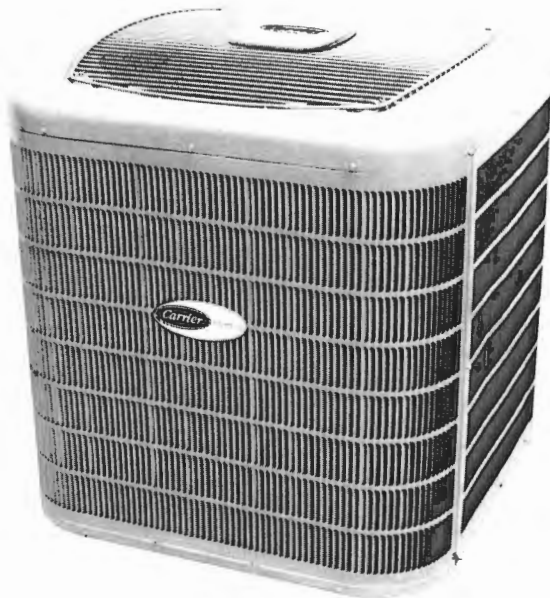
1. For fan coil sizes 018-037.
2. For fan coil sizes 042-061, and all FE, FK, and FV models.
3. Single circuit application of F15 and F20 heaters requires single-point wiring kit accessory.

25HNB5

Infinity® 15 Heat Pump with Puron® Refrigerant
1-1/2 to 5 Nominal Tons (Sizes 18-60)



Product Data



INFINITY SERIES

Carrier's heat pumps with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 25HNB5 has been designed utilizing Carrier's Puron® refrigerant. The environmentally sound refrigerant allows consumers to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Efficiency

- 15.3 SEER (nominal) / 11.0- 13.0 EER / 7.7 - 9.0 HSPF
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available

Sound

- Sound level as low as 68 dBA
- Quiet mount split post compressor grommets
- Forward-swept condenser fan blade
- Compressor sound hood
- Laminated steel compressor mounting plate
- 8 pole PSC ball bearing outdoor condenser fan motor
- Quiet shift defrost

Comfort

- System supports Infinity Control or standard thermostat controls

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Filter drier
- High pressure switches
- Loss-of-charge switch
- Balanced refrigeration system for maximum reliability

Durability

WeatherArmor™ protection package:

- Solid, durable sheet metal construction
- Louvered coil guard
- Baked-on, complete outer coverage, powder paint

Applications

- Long-line - up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)
- Low ambient (down to -20°F/-28.9°C) with accessory kit

ELECTRICAL DATA

UNIT SIZE - SERIES	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MIN WIRE SIZE†	MIN WIRE SIZE†	MAX LENGTH ft (m)‡	MAX LENGTH ft (m)‡	MAX FUSE** or CKT BRK AMPS
		MAX	MIN	LRA	RLA	FLA		60° C	75° C	60° C	75° C	
		18-30	208/230/1	253	197	48.0		9.0	0.5	11.8	14	
24-30	58.3	12.8				0.5	16.5	14	14	46 (14.0)	44 (13.4)	25
30-30	73.0	14.1				0.9	18.5	14	14	41 (12.4)	39 (11.8)	30
36-30	79.0	16.7				1.2	22.1	12	12	57 (17.4)	54 (16.5)	35
42-30	109.0	21.1				1.2	27.6	10	10	71 (21.6)	68 (20.7)	40
48-30	117.0	21.8				1.2	28.5	10	10	69 (21.0)	66 (20.1)	40
60-30	134.0	26.4				1.2	34.2	8	10	91 (27.7)	56 (17.1)	50

* Permissible limits of the voltage range at which the unit will operate satisfactorily

† If wire is applied at ambient greater than 30°C, consult table 310-16 of the NEC (NFPA 70). The ampacity of non-metallic-sheathed cable (NM), trade name ROMEX, shall be that of 60°C conditions, per the NEC (NFPA 70) Article 336-26. If other than uncoated (no-plated), 60 or 75°C insulation, copper wire (solid wire for 10 AWG or smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (NFPA 70).

‡ Length shown is as measured 1 way along wire path between unit and service panel for voltage drop not to exceed 2%.

** Time-Delay fuse.

FLA - Full Load Amps

LRA - Locked Rotor Amps

MCA - Minimum Circuit Amps

RLA - Rated Load Amps

NOTE: Control circuit is 24-V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

Complies with 2007 requirements of ASHRAE Standards 90.1

25HNB5

A-WEIGHTED SOUND LEVEL (dBA)

UNIT SIZE - SERIES	STANDARD RATING dBA	TYPICAL OCTAVE BAND SPECTRUM (Dba, without tone adjustment)						
		125	250	500	1000	2000	4000	8000
18-30	68	56.0	58.0	62.0	63.0	60.0	54.5	45.0
24-30	68	52.5	56.5	60.5	61.5	61.5	57.0	49.0
30-30	70	55.5	60.0	62.5	64.0	61.5	58.0	49.0
36-30	70	53.5	59.5	62.0	65.0	62.0	58.5	52.5
37-30	69	55.0	60.5	63.0	63.5	60.5	57.0	49.0
42-30	73	59.5	64.5	65.5	67.5	63.5	58.0	53.0
48-30	73	57.5	64.5	67.0	67.5	61.5	57.0	50.5
60-30	70	56.5	62.0	64.5	64.0	60.5	58.5	51.5

NOTE: Tested in accordance with AHRI Standard 270-08 (not listed in AHRI).

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE - SERIES	REQUIRED SUBCOOLING °F (°C)
18-30	12 (6.7)
24-30	14 (7.8)
30-30	10 (5.6)
36-30	10 (5.6)
42-30	10 (5.6)
48-30	13 (7.2)
60-30	11 (6.1)

GUIDE SPECIFICATIONS

GENERAL

System Description

Outdoor-mounted, air-cooled, split-system heat pump unit suitable for ground or rooftop installation. Unit consists of a hermetic compressor, an air-cooled coil, propeller-type condenser fan, and a control box. Unit will discharge supply air upward as shown on contract drawings. Unit will be used in a refrigeration circuit to match up to a packaged fan coil or coil unit.

Quality Assurance

- Unit will be rated in accordance with the latest edition of AHRI Standard 240.
- Unit will be certified for capacity and efficiency, and listed in the latest AHRI directory.
- Unit construction will comply with latest edition of ANSI/ASHRAE and with NEC.
- Unit will be constructed in accordance with UL standards and will carry the UL label of approval. Unit will have C-UL approval.
- Unit cabinet will be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500-hr salt spray test.
- Air-cooled condenser coils are pressure tested and the outdoor units are leak tested.
- Unit constructed in ISO9001 approved facility.

Delivery, Storage, and Handling

- Unit will be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

Warranty (for inclusion by specifying engineer)

- U.S. and Canada only.

PRODUCTS

Equipment

- Factory-assembled, single-piece, air-cooled heat pump unit. Contained within the unit enclosure is all factory wiring, piping, controls, compressor, refrigerant charge Puron® (R-410A), and special features required prior to field start-up.

Unit Cabinet

- Unit cabinet will be constructed of galvanized steel, bonderized, and coated with a powder coat paint.

Fans

- Condenser fan will be direct-drive propeller type, discharging air upward.

AIR-COOLED, SPLIT-SYSTEM HEAT PUMP 25HNBS

1-1/2 TO 5 NOMINAL TONS

- Condenser fan motors will be totally enclosed, 1-phase type with class B insulation and permanently lubricated bearings.
- Shafts will be corrosion resistant.
- Fan blades will be statically and dynamically balanced.
- Condenser fan openings will be equipped with steel wire safety guards.

Compressor

- Compressor will be hermetically sealed.
- Compressor will be mounted on rubber vibration isolators.

Condenser Coil

- Condenser coil will be air cooled.
- Coil will be constructed of aluminum fins mechanically bonded to copper tubes which are then cleaned, dehydrated, and sealed.

Refrigeration Components

- Refrigeration circuit components will include liquid-line shutoff valve with sweat connections, vapor-line shutoff valve with sweat connections, system charge of Puron® (R-410A) refrigerant, POE compressor oil, accumulator, and reversing valve.

Operating Characteristics

- The capacity of the unit will meet or exceed _____ Btuh at a suction temperature of _____ °F/°C. The power consumption at full load will not exceed _____ kW.
- Combination of the unit and the evaporator or fan coil unit will have a total net cooling capacity of _____ Btuh or greater at conditions of _____ CFM entering air temperature at the evaporator at _____ °F/°C wet bulb and _____ °F/°C dry bulb, and air entering the unit at _____ °F/°C.
- The system will have a SEER of _____ Btuh/watt or greater at DOE conditions.

Electrical Requirements

- Nominal unit electrical characteristics will be _____ v, single phase, 60 hz. The unit will be capable of satisfactory operation within voltage limits of _____ v to _____ v.
- Unit electrical power will be single point connection.
- Control circuit will be 24v.

Special Features

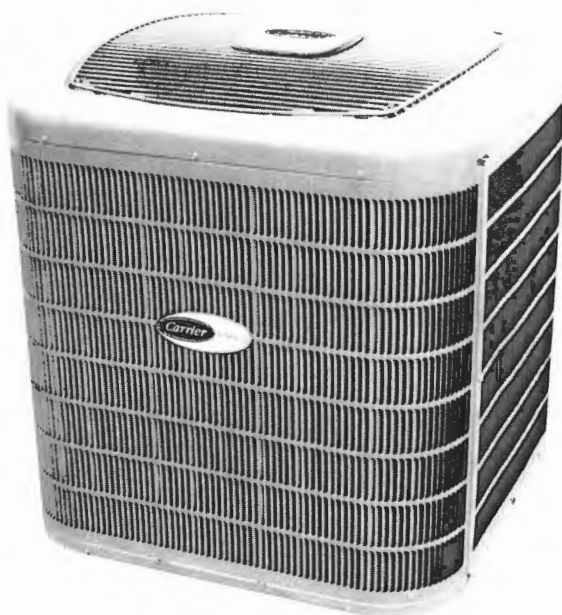
- Refer to section of this literature identifying accessories and descriptions for specific features and available enhancements.

**25VNA
Infinity™ Variable Speed Heat Pump
with Greenspeed™ Intelligence
2 to 5 Nominal Tons**



Product Data

INDUSTRY LEADING FEATURES / BENEFITS



INFINITY™ SYSTEM

Carrier's 25VNA with Greenspeed™ Intelligence is a breakthrough product providing up to 13 HSPF heating efficiency and up to 20.5 SEER cooling efficiency. The variable speed capacity control results in strong heating capacity as the outdoor temperature drops resulting in less reliance on auxiliary heat. Lower speed operation, when needed in cooling, for enhanced comfort and dehumidification.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

Energy Efficiency

- 18 - 20 SEER/12 - 13 HSPF
(based on tested combinations)
- Microtube Technology™ refrigeration system
- Indoor air quality accessories available

Sound

- Sound level as low as 58 dBA in low speed (Silencer System II).

Comfort

- Variable speed compressor with capacity range from 40-100%
- Air cooled Inverter variable speed drive
 - System requires Infinity Control with Greenspeed capability (SYSTXCCUID01-V or SYSTXCCUIZ01-V)

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Front-seating service valves
- Greenspeed Intelligence actively monitors critical system parameters
- High pressure switch
- Suction pressure transducer
- Electronic expansion valve (EXV) for heating, TXV for cooling
- Filter drier (field installed)
- External Muffler (field installed)
- Internal crankcase heater standard

Flexibility and installation:

- 2 control wires to outdoor unit
- Minimum and Maximum airflow adjustments
- Compressor Heating RPM control
- Hybrid Heat™ dual fuel capable

Durability

WeatherArmor™ protection package:

- Solid, Durable sheet metal construction
- Steel louver coil guard
- Baked-on, complete outer coverage, powder paint

Applications

- Long-line - up to 250 feet (76.2 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)

PHYSICAL DATA



UNIT SIZE SERIES	24-30	36-30	48-30	60-30
Operating Weight lb (kg)	324 (147)	324 (147)	334 (152)	334 (152)
Shipping Weight lb (kg)	367 (167)	367 (167)	375 (170)	375 (170)
Compressor Type	Variable Speed Scroll			
REFRIGERANT	Puron® (R-410A)			
Control	TXV (Puron® Hard Shutoff)			
Charge lb (kg)	13.12 (5.95)	13.12 (5.95)	13.30 (6.03)	13.30 (6.03)
Outdoor Htg Exp. Device	EXV	EXV	EXV	EXV
COND FAN	Forward Swept Propeller Type, Direct Drive			
Air Discharge	Vertical			
Air Qty (CFM)	2700	4269	4350	5000
Motor HP	1/3	1/3	1/3	1/3
Motor RPM	500-900	500-900	500-900	500-900
COND COIL				
Face Area (Sq ft)	30.25	30.25	30.25	30.25
Fins per In.	20	20	20	20
Rows	2	2	2	2
Circuits	8	8	9	9
VALVE CONNECT. (In. ID)				
Vapor	7/8	7/8	7/8	7/8
Liquid	3/8			
REFRIGERANT TUBES (In. OD)				
Rated Vapor*	7/8	7/8	1-1/8	1-1/8
Max Liquid Line	3/8			

* Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

Note: See unit Installation Instruction for proper installation.

ACCESSORIES

KIT NUMBER	KIT NAME	24-30	36-30	48-30	60-30
KHAEM0101EMI	ELECTRO-MAGNETIC INTERFERENCE KIT	X	X	X	X
KHALS0401LLS	SOLENOID VALVE	X	X	X	X
KHASS0606MPK*	SNOW STAND	X	X	X	X
KSASF0101AAA	SUPPORT FEET	X	X	X	X
KSATX0301PUR	TXV	X	X		
KSATX0401PUR	TXV			X	
KSATX0501PUR	TXV				X
STANDARD	CRANKCASE HEATER	S	S	S	S

x = Accessory S = Standard * Available from RCD

CONTROLS

SYSTXCCUID01-V	Infinity Control Deluxe 7-Day Programmable (Wall-mounted system control.)
SYSTXCCUIZ01-V	Infinity Control Deluxe Zoning 7-Day Programmable (Wall-mounted control for a multi-zone system.)
SYSTXCC4ZC01	Infinity 4-Zone Damper Control Module (Wall-mounted control for a four-zone system.)
SYSTXCCSMS01	Infinity Smart Sensor (Optional wall control used to monitor temperature and/or fan control in an individual zone.)
SYSTXCCRRS01	Infinity Remote Room Sensor (Monitors temperature in an individual zone.)
SYSTXCCRCT01 or SYSTXCCRWF01	Infinity System Access Module (Hardware for wireless access and control via internet.)
SYSTXCCNIM01	Infinity Network Interface Module (Connects Heat Recovery and Energy Recovery Ventilators on non-zoning applications.)
SYSTXX0LBP01	Decorative Back Plate for Infinity Control (Decorative wall plate.)

DETAILED COOLING CAPACITIES# CONTINUED

EVAP AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																							
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW			
25VNA048A**30 Outdoor Section With FE4ANB006 Indoor Section — Maximum																								
57 (13.9)	1550	48.58	46.58	2.78	1540	44.92	44.92	3.12	1510	43.03	43.03	3.49	1425	40.70	40.70	3.79	1340	38.16	38.18	4.20	1250	35.48	35.46	4.67
62 (16.7)		47.31	45.37	2.79		45.36	44.23	3.12		43.25	42.88	3.49		40.95	40.26	3.79		38.24	38.24	4.20		35.51	35.51	4.87
63 (17.2)††		48.14	36.56	2.79		46.09	35.57	3.13		43.86	34.32	3.49		41.45	32.51	3.79		38.80	30.58	4.20		35.97	28.50	4.67
67 (19.4)		52.09	38.16	2.82		49.89	37.18	3.15		47.50	35.90	3.52		44.95	34.03	3.80		42.11	32.02	4.21		39.07	29.87	4.68
72 (22.2)		57.88	30.69	2.86		55.26	29.75	3.20		52.62	28.62	3.56		49.89	27.18	3.82		46.78	25.58	4.23		43.45	23.86	4.69

EVAP AIR	CONDENSER ENTERING AIR TEMPERATURES °F (°C)																							
	75 (23.9)				85 (29.4)				95 (35)				105 (40.6)				115 (46.1)				125 (51.7)			
	EWB °F (°C)	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW	ID SCFM	Capacity MBtuh		Total Sys. KW			
25VNA048A**30 Outdoor Section With FE4ANB006 Indoor Section — Minimum																								
57 (13.9)	640	22.76	22.76	1.20	620	21.71	21.71	1.39	590	20.50	20.50	1.80	750	25.97	25.97	2.53	800	29.26	29.26	3.54	850	30.18	30.18	4.36
62 (16.7)		23.80	21.20	1.20		22.63	20.35	1.39		21.34	19.28	1.80		27.05	24.42	2.53		30.95	27.02	3.54		31.70	28.13	4.36
63 (17.2)††		24.30	17.40	1.20		23.10	16.67	1.39		21.80	15.77	1.60		27.64	19.99	2.53		31.66	22.31	3.54		32.43	23.13	4.36
67 (19.4)		26.35	16.13	1.20		25.07	17.37	1.39		23.87	16.45	1.80		30.07	20.87	2.53		34.37	23.23	3.54		35.25	24.12	4.37
72 (22.2)		29.31	15.02	1.20		27.91	14.37	1.39		26.38	13.60	1.60		33.47	17.25	2.52		38.24	19.38	3.54		39.23	20.04	4.38

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COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
*FE4ANB006	1.00	1.00	
FE4AN(B,F)005	0.98	1.02	
CAP**4817A**	0.96	1.04	58CV(A,X)090-16
CAP**4821A**	0.95	1.04	58CV(A,X)090-16
CAP**6021A**	0.97	1.04	58CV(A,X)090-16
CNPH*4821A**	0.96	1.03	58CV(A,X)090-16
CNPH*6024A**	0.97	1.03	58CV(A,X)090-16
CNPH*6124A**	0.98	1.04	58CV(A,X)090-16
CNPV*4821A**	0.96	1.03	58CV(A,X)090-16
CSPH*4812A**	0.96	1.03	58CV(A,X)090-16
CSPH*6012A**	0.98	1.03	58CV(A,X)090-16
CAP**4821A**	0.95	1.02	58CV(A,X)110-20
CAP**4823A**	0.95	1.02	58CV(A,X)110-20
CAP**4824A**	0.95	1.02	58CV(A,X)110-20
CAP**6025A**	0.97	1.02	58CV(A,X)110-20
CNPH*4821A**	0.96	1.03	58CV(A,X)110-20
CNPH*6024A**	0.97	1.01	58CV(A,X)110-20
CNPH*6124A**	0.98	1.02	58CV(A,X)110-20
CNPV*4821A**	0.96	1.03	58CV(A,X)110-20
CNPV*4824A**	0.96	1.03	58CV(A,X)110-20
CNPV*6024A**	0.97	1.01	58CV(A,X)110-20
CNPV*6124A**	0.99	1.02	58CV(A,X)110-20
CSPH*4812A**	0.96	1.03	58CV(A,X)110-20
CSPH*6012A**	0.98	1.02	58CV(A,X)110-20
CAP**4824A**	0.95	1.02	58CV(A,X)135-22
CAP**6024A**	0.98	1.01	58CV(A,X)135-22

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CAP**6025A**	0.98	1.01	58CV(A,X)135-22
CNPH*4821A**	0.96	1.01	58CV(A,X)135-22
CNPH*6024A**	0.96	1.01	58CV(A,X)135-22
CNPH*6124A**	0.99	1.02	58CV(A,X)135-22
CNPV*4824A**	0.96	1.01	58CV(A,X)135-22
CNPV*6024A**	0.98	1.01	58CV(A,X)135-22
CNPV*6124A**	1.00	1.02	58CV(A,X)135-22
CSPH*4812A**	0.97	1.02	58CV(A,X)135-22
CSPH*6012A**	0.98	1.00	58CV(A,X)135-22
CAP**4824A**	0.96	0.99	58CV(A,X)155-22
CAP**6024A**	0.98	1.00	58CV(A,X)155-22
CAP**6025A**	0.98	1.00	58CV(A,X)155-22
CNPH*4821A**	0.96	0.99	58CV(A,X)155-22
CNPH*6024A**	0.98	1.00	58CV(A,X)155-22
CNPH*6124A**	0.99	1.01	58CV(A,X)155-22
CNPV*4824A**	0.96	0.99	58CV(A,X)155-22
CNPV*6024A**	0.98	1.00	58CV(A,X)155-22
CNPV*6124A**	1.00	1.00	58CV(A,X)155-22
CSPH*4812A**	0.97	1.01	58CV(A,X)155-22
CSPH*6012A**	0.98	1.00	58CV(A,X)155-22
CAP**4821A**	0.95	1.07	58MV(B,C)080-20
CAP**4823A**	0.95	1.07	58MV(B,C)080-20
CAP**4824A**	0.95	1.06	58MV(B,C)080-20
CAP**6021A**	0.97	1.06	58MV(B,C)080-20
CAP**6024A**	0.97	1.05	58MV(B,C)080-20
CAP**6025A**	0.97	1.05	58MV(B,C)080-20
CNPH*4821A**	0.95	1.06	58MV(B,C)080-20
CNPH*6024A**	0.97	1.05	58MV(B,C)080-20

COOLING INDOOR MODEL	CAPACITY	POWER	FURNACE MODEL
CNPH*6124A**	0.97	1.05	58MV(B,C)080-20
CNPH*6124A**	0.98	1.06	58MV(B,C)080-20
CNPV*4821A**	0.95	1.06	58MV(B,C)080-20
CNPV*4824A**	0.95	1.06	58MV(B,C)080-20
CNPV*6024A**	0.97	1.05	58MV(B,C)080-20
CNPV*6124A**	0.99	1.06	58MV(B,C)080-20
CSPH*4812A**	0.96	1.07	58MV(B,C)080-20
CSPH*6012A**	0.97	1.05	58MV(B,C)080-20
CAP**4821A**	0.95	1.06	58MV(B,C)100-20
CAP**4823A**	0.95	1.06	58MV(B,C)100-20
CAP**4824A**	0.95	1.05	58MV(B,C)100-20
CAP**6021A**	0.97	1.05	58MV(B,C)100-20
CAP**6024A**	0.97	1.05	58MV(B,C)100-20
CAP**6025A**	0.97	1.05	58MV(B,C)100-20
CNPH*4821A**	0.95	1.04	58MV(B,C)100-20
CNPH*6024A**	0.97	1.05	58MV(B,C)100-20
CNPH*6124A**	0.98	1.06	58MV(B,C)100-20
CNPV*4821A**	0.95	1.04	58MV(B,C)100-20
CNPV*4824A**	0.95	1.04	58MV(B,C)100-20
CNPV*6024A**	0.97	1.05	58MV(B,C)100-20
CNPV*6124A**	0.99	1.05	58MV(B,C)100-20
CSPH*4812A**	0.96	1.06	58MV(B,C)100-20
CSPH*6012A**	0.97	1.05	58MV(B,C)100-20
CAP**4824A**	0.95	1.02	58MV(B,C)120-20
CAP**6024A**	0.97	1.03	58MV(B,C)120-20
CAP**6025A**	0.97	1.03	58MV(B,C)120-20
CNPH*4821A**	0.96	1.03	58MV(B,C)120-20
CNPH*6024A**	0.97	1.03	58MV(B,C)120-20

25VNA

HEAT PUMP HEATING PERFORMANCE CONTINUED

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)															
EDB ° F (° C)	ID SCFM	-3 (-19.4)			Total System KW†	7 (-13.9)			Total System KW†	17 (-8.3)			Total System KW†	27 (-2.8)			Total System KW†
		Capacity MBtuh		ID SCFM		Capacity MBtuh		ID SCFM		Capacity MBtuh		ID SCFM		Capacity MBtuh			
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*		
25VNA060A**30 Outdoor Section With FE4ANB006 Indoor Section - Maximum																	
65 (18.3)	2250	37.76	34.74	5.33	2250	45.75	42.05	5.79	2250	56.63	51.63	6.62	2100	62.61	55.81	6.44	
70 (21.1)		37.37	34.38	5.54		45.42	41.74	6.03		56.32	51.35	6.91		62.22	55.26	6.73	
75 (23.9)		36.90	33.94	5.73		45.04	41.39	6.28		55.97	51.03	7.21		61.83	54.92	7.04	

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)															
EDB ° F (° C)	ID SCFM	37 (2.8)			Total System KW†	47 (8.3)			Total System KW†	57 (13.9)			Total System KW†	67 (19.4)			Total System KW†
		Capacity MBtuh		ID SCFM		Capacity MBtuh		ID SCFM		Capacity MBtuh		ID SCFM		Capacity MBtuh			
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*		
25VNA060A**30 Outdoor Section With FE4ANB006 Indoor Section - Maximum																	
65 (18.3)	2000	60.88	55.40	5.22	2000	55.78	55.78	3.95	1700	57.61	57.61	3.57	1625	59.14	59.14	3.23	
70 (21.1)		60.45	55.01	5.48		55.30	55.30	4.15		57.05	57.05	3.76		58.51	58.51	3.40	
75 (23.9)		59.99	54.59	5.74		54.83	54.83	4.37		56.50	56.50	3.96		57.89	57.89	3.58	

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)															
EDB ° F (° C)	ID SCFM	-3 (-19.4)			Total System KW†	7 (-13.9)			Total System KW†	17 (-8.3)			Total System KW†	27 (-2.8)			Total System KW†
		Capacity MBtuh		ID SCFM		Capacity MBtuh		ID SCFM		Capacity MBtuh		ID SCFM		Capacity MBtuh			
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*		
25VNA060A**30 Outdoor Section With FE4ANB006 Indoor Section - Minimum																	
65 (18.3)	580	18.15	16.70	2.51	580	22.36	20.55	2.74	700	26.75	24.39	2.78	800	31.31	27.80	2.82	
70 (21.1)		17.77	16.34	2.61		22.05	20.26	2.86		26.49	24.16	2.93		31.05	27.58	2.98	
75 (23.9)		17.32	15.93	2.69		21.68	19.93	2.98		26.21	23.89	3.08		30.78	27.34	3.15	

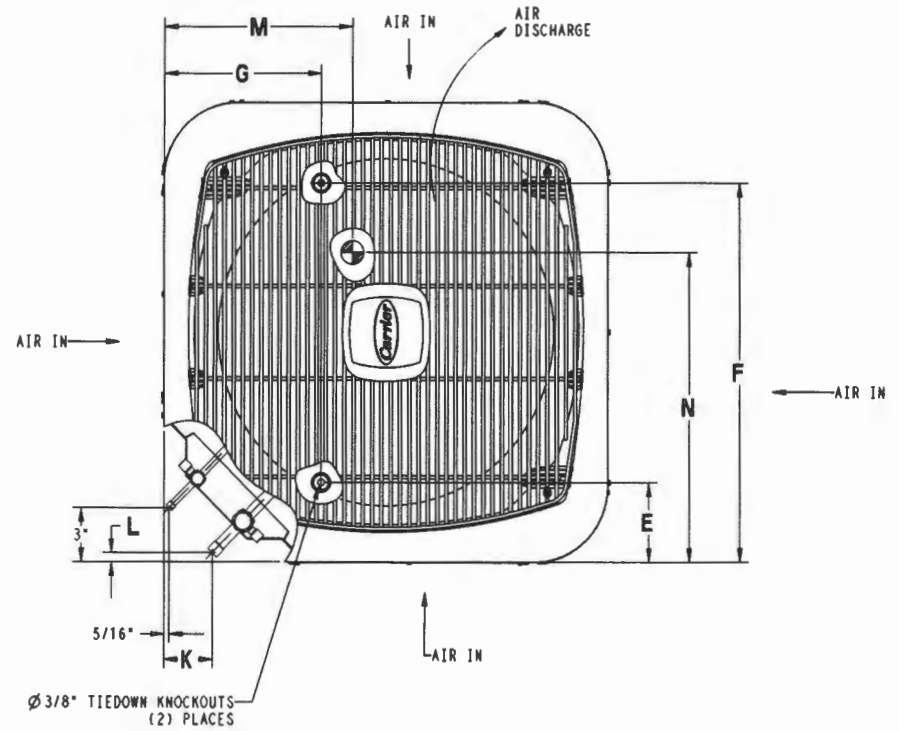
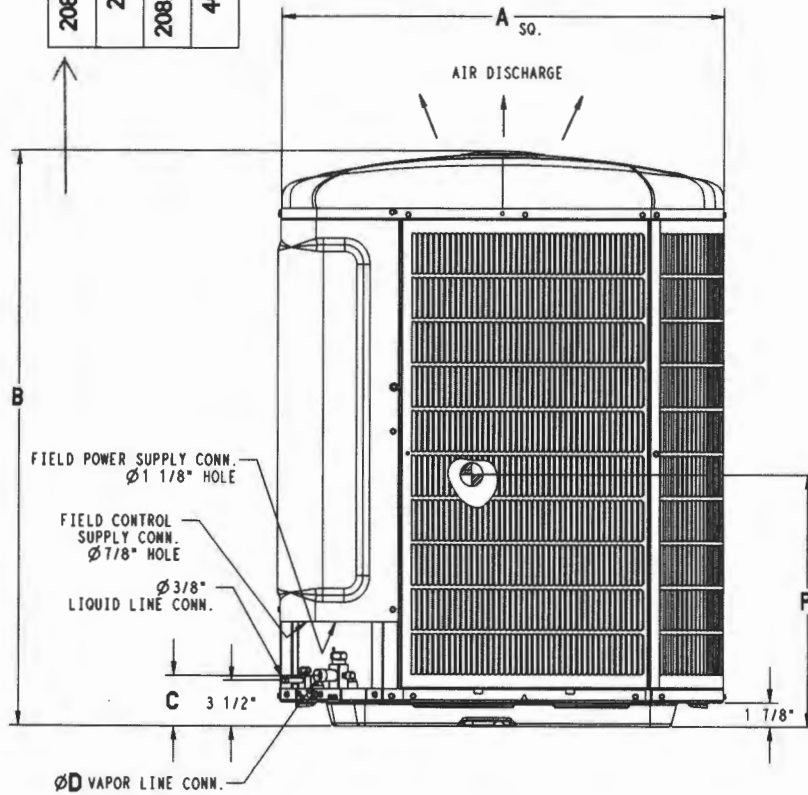
INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES ° F (° C)															
EDB ° F (° C)	ID SCFM	37 (2.8)			Total System KW†	47 (8.3)			Total System KW†	57 (13.9)			Total System KW†	67 (19.4)			Total System KW†
		Capacity MBtuh		ID SCFM		Capacity MBtuh		ID SCFM		Capacity MBtuh		ID SCFM		Capacity MBtuh			
		Total	Integ*			Total	Integ*			Total	Integ*			Total	Integ*		
25VNA060A**30 Outdoor Section With FE4ANB006 Indoor Section - Minimum																	
65 (18.3)	700	29.07	28.45	2.29	625	24.94	24.94	1.85	800	28.56	28.56	1.57	815	32.32	32.32	1.62	
70 (21.1)		28.82	26.22	2.43		24.69	24.69	1.75		28.25	28.25	1.67		31.99	31.99	1.73	
75 (23.9)		28.56	25.99	2.57		24.43	24.43	1.86		27.94	27.94	1.78		31.62	31.62	1.83	

DIMENSIONS - ENGLISH

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT (lbs)	SHIPPING WEIGHT (lbs)	SHIPPING DIMENSIONS (L x W x H)
25VNA024	0	X	0	0	0	35"	44"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	16 1/4"	16 1/4"	21 1/4"	324	367	36 1/8" X 39 1/4" X 50 3/16"
25VNA036	0	X	0	0	0	35"	44"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	16 1/4"	16 1/4"	21 1/4"	324	367	36 1/8" X 39 1/4" X 50 3/16"
25VNA048	0	X	0	0	0	35"	44"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	16 1/4"	16 1/4"	21 1/4"	334	375	36 1/8" X 39 1/4" X 50 3/16"
25VNA060	0	X	0	0	0	35"	44"	3 7/8"	7/8"	6 9/16"	28 7/16"	9 1/8"	2 15/16"	5/8"	16 1/4"	16 1/4"	21 1/4"	334	375	36 1/8" X 39 1/4" X 50 3/16"

208-230-160	230-160	208/230-3-60	460-3-60
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X = YES
O = NO



UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
-	31 1/2" X 31 1/2"
24, 36, 48, 60	35" X 35"



PORTLAND MAINE

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Receipts Details:

Tender Information: Check , BusinessName: Avery Services Inc, Check Number: 36028

Tender Amount: 850.00

Receipt Header:

Cashier Id: gguertin

Receipt Date: 4/9/2012

Receipt Number: 42655

Receipt Details:

Referance ID:	5992	Fee Type:	BP-Constr
Receipt Number:	0	Payment Date:	
Transaction Amount:	800.00	Charge Amount:	800.00
Job ID: Job ID: 2012-04-3722-HVAC - natural gas carrier on roof/attic.			
Additional Comments: 5980 congress			

Referance ID:	5993	Fee Type:	BP-HRAD
Receipt Number:	0	Payment Date:	
Transaction Amount:	50.00	Charge Amount:	50.00
Job ID: Job ID: 2012-04-3722-HVAC - natural gas carrier on roof/attic			

Additional Comments:

Thank You for your Payment!