

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that * 39 LLC

Located At 39 FOREST

Job ID: 2011-02-482-ALTCOMM

CBL: 037 - - A - 012 - 001 - - - - -

has permission to Install Electric Trane Heat Pumps
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]
Code Enforcement Officer / Plan Reviewer

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

City of Portland, Maine - Building or Use Permit Application

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

| | | | |
|---|---|--|---|
| Job No: 2011-02-482-ALTCOMM 2011-2171 HVAC | Date Applied: 3/22/2011 | CBL: 037 - - A - 012 - 001 - - - - - | |
| Location of Construction: 39 FOREST AVE. | Owner Name: 39 LLC | Owner Address: 100 SILVER ST PORTLAND, ME - MAINE 04101 | Phone: |
| Business Name: | Contractor Name: Johnson & Jordan | Contractor Address: 18Mussey Rd., Scarborough ME 04074 | Phone: (207) 883-8345 |
| Lessee/Buyer's Name: | Phone: | Permit Type: HVAC | Zone: B-3c |
| Past Use: Offices | Proposed Use: Offices – install two heat pump systems in mechanical room | Cost of Work: 13000.00 | CEO District: |
| | | Fire Dept: <input checked="" type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A | Inspection: Use Group: Type: HVAC |
| Proposed Project Description: 39 Forest Ave RM / 100 Oak – install two heat pump systems | | Signature: CAPT. D. Gauthier | |
| Proposed Project Description: 39 Forest Ave RM / 100 Oak – install two heat pump systems | Pedestrian Activities District (P.A.D.) | | |
| Permit Taken By: | Zoning Approval | | |

| | Special Zone or Reviews | Zoning Appeal | Historic Preservation |
|---|---|--|--|
| 1. This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules. | <input type="checkbox"/> Shoreland | <input type="checkbox"/> Variance | <input type="checkbox"/> Not in Dist or Landmark |
| 2. Building Permits do not include plumbing, septic or electrical work. | <input type="checkbox"/> Wetlands | <input type="checkbox"/> Miscellaneous | <input type="checkbox"/> Does not Require Review |
| 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. | <input type="checkbox"/> Flood Zone | <input type="checkbox"/> Conditional Use | <input type="checkbox"/> Requires Review |
| | <input type="checkbox"/> Subdivision | <input type="checkbox"/> Interpretation | <input type="checkbox"/> Approved |
| | <input type="checkbox"/> Site Plan | <input type="checkbox"/> Approved | <input type="checkbox"/> Approved w/Conditions |
| | <input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM | <input type="checkbox"/> Denied | <input type="checkbox"/> Denied |
| | Date: OK w/ conditions 3/30/11 ABM | Date: | Date: Any exterior work requires a separate review & approval thru historic preservation |

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 | PHON |



FILL IN AND SIGN WITH INK

APPLICATION FOR PERMIT HEATING OR POWER EQUIPMENT



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 39 Forest Ave. Portland Use of Building 37A12 offices Date 3/21/11
Name and address of owner of appliance Commercial Properties, Inc.

Installer's name and address Johanson Jordan Inc.
18 Mussey Road Scarborough Maine 04054 Telephone 883-8345

Location of appliance:

Basement Floor
 Attic Roof

Type of Fuel:

Gas Oil Solid

Appliance Name: Trane Heat Pumps
(Electric)

U.L. Approved Yes No

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

IF NO Explain: _____

Electric Pumps MC60016965

The Type of License of Installer:

Master Plumber # _____
 Solid Fuel # _____
 Oil # _____
 Gas # _____
 Other HVAC CONTRACTOR

Type of Chimney:

Masonry Lined
Factory built N/A

Metal
Factory Built U.L. Listing # N/A

Direct Vent
Type _____ UL# _____

Type of Fuel Tank

Oil N/A
 Gas N/A

Size of Tank _____

Number of Tanks N/A

Distance from Tank to Center of Flame _____ feet.

Cost of Work: \$ 23,694.00

Permit Fee: \$ 260

RECEIVED
MAR 22 2011

Dept of Building Inspections
City of Portland Maine

55551#

Approved

Approved with Conditions

Fire: _____
Ele.: _____
Bldg.: _____

See attached letter or requirement

Signature of Installer Russell Chonte Inspector's Signature _____ Date Approved _____

SCOPE OF WORK

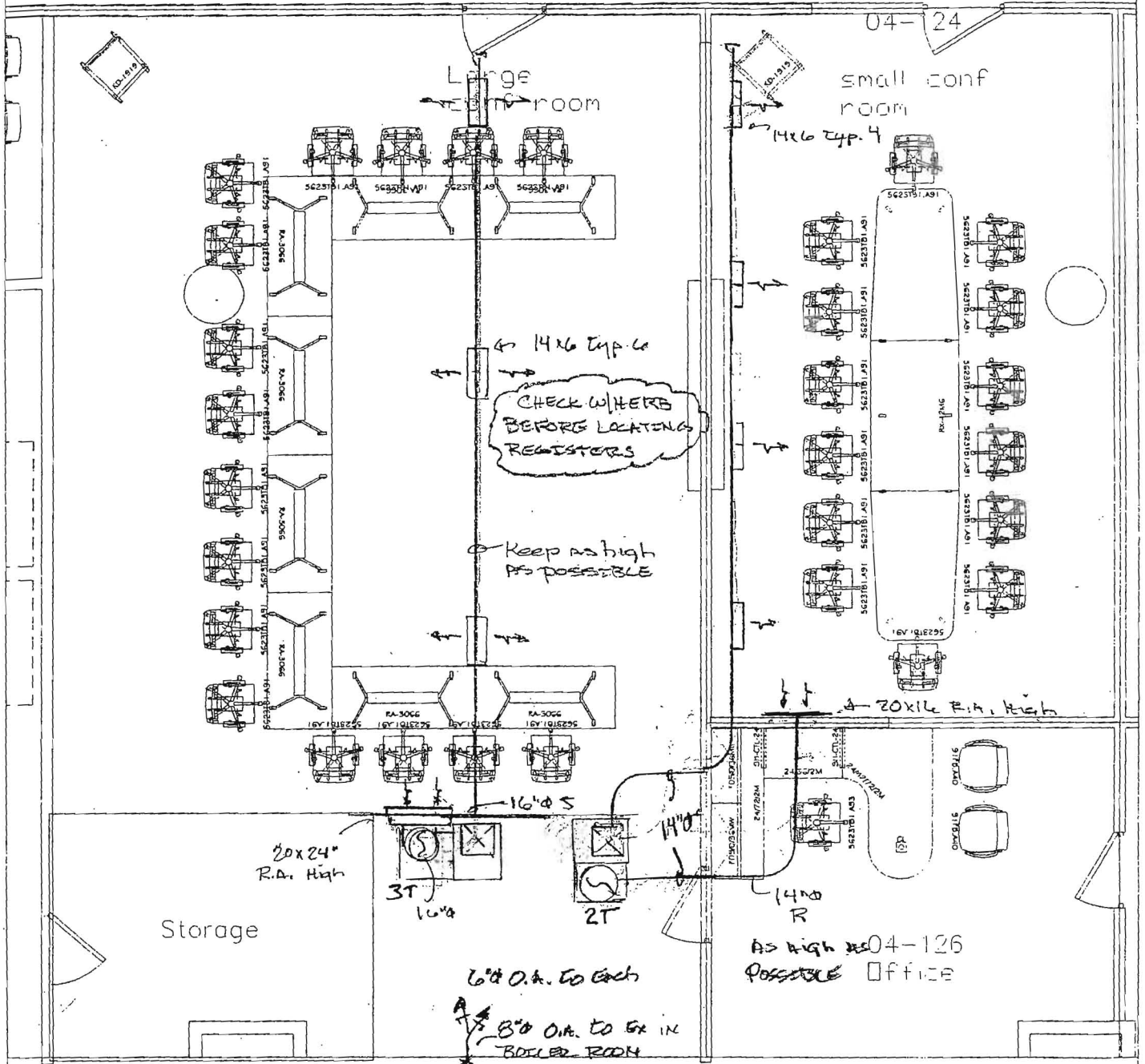
- 1. Installation of one 3 ton & one 2 ton high efficiency split heat pump systems in a new ground level mechanical room to serve two new conference rooms.**
- 2. Refrigerant piping of new HVAC equipment including hangers, supports, valves insulation and specialty items.**
- 3. Controls and control wiring for individual zone heating and cooling serving each conference room.**
- 4. Installation of sheet metal ductwork for HVAC system including duct adapters, hangers, grilles, diffusers, insulation and ventilation air supply.**
- 5. Installation of condensate removal system to serve the two new heat pumps.**
- 6. Start up, charging and testing of new heat pump systems and related controls.**
- 7. Two sets of equipment installation and owners manuals provided.**
- 8. Comfort balance of airflow for the new HVAC heat pump systems.**

Excluded: Asbestos abatement, electrical power wiring, cutting, patching and structural changes to building if needed.

04-122
39 Forest Conference

11-0301

Russell & J&J



NORTHSHORE CONSTRUCTION
HERB ROBBINSON
CELL 650-254.7 OFF. 774-2800

Environments at Work

FRESH THINKING IN THE WORKSPACE

300 A Street
Suite 4
Boston, MA 02210
Phone: 617.830.5300
Fax: 617.830.5310

| | | | | | | | |
|---------------------------------|---------|----------------------------------|-----------|-------------|-------|----------------|-----------------------|
| PROJECT: | | MAINE MEDICAL CENTER | | | | REVISION DATE: | REVISION DESCRIPTION: |
| | | 39 FOREST AVENUE PORTLAND, ME | | | | | |
| LARGE CONFERENCE ROOM VERSION 2 | | | | | | | |
| PROJECT#: | DATE: | SCALE: | DRAWN BY: | CHECKED BY: | PAGE: | | |
| 98622 | 1.12.11 | | JAS | | | | |

System Checksums

By Johnson & Jordan, Inc.

System - 001

Fan Coil

| COOLING COIL PEAK | | | | CLG SPACE PEAK | | | | HEATING COIL PEAK | | | | TEMPERATURES | | |
|-----------------------|--------------|--------------------------|------------------|----------------|------------------|-----------------------|---------------|-----------------------|---------|---------|--|--|--|--|
| Peaked at Time: | | Mo/Hr: 7 / 15 | | Mo/Hr: Sum of | | Mo/Hr: Heating Design | | Mo/Hr: Heating Design | | | | | | |
| Outside Air: | | OADB/WB/HR: 87 / 71 / 89 | | OADB: Peaks | | OADB: -6 | | OADB: -6 | | | | | | |
| Space Sens. | Plenum Sens. | Net Total | Percent Of Total | Space Sensible | Percent Of Total | Space Peak | Coil Peak Tot | Percent Of Total | | | | | | |
| + Lat. | + Lat | Btu/h | (%) | Btu/h | (%) | Space Sens | Btu/h | (%) | Cooling | Heating | | | | |
| Btu/h | Btu/h | | | | | | | | | | | | | |
| Envelope Loads | | | | | | | | | | | | AIR FLOWS Cooling Heating Diffuser 510 510 Terminal 510 510 Main Fan 510 510 Sec Fan 0 0 Nom Vent 260 260 AHU Vent 260 260 Infil 0 0 MinStop/Rh 0 0 Return 510 510 Exhaust 260 260 Rm Exh 0 0 Auxiliary 0 0 Leakage Dwn 0 0 Leakage Ups 0 0 | | |
| Skylite Solar | 0 | 0 | 0 | 0 | 0 | Skylite Solar | 0 | 0.00 | | | | | | |
| Skylite Cond | 0 | 0 | 0 | 0 | 0 | Skylite Cond | 0 | 0.00 | | | | | | |
| Roof Cond | 0 | 0 | 0 | 0 | 0 | Roof Cond | 0 | 0.00 | | | | | | |
| Glass Solar | 0 | 0 | 0 | 0 | 0 | Glass Solar | 0 | 0.00 | | | | | | |
| Glass/Door Cond | 0 | 0 | 0 | 0 | 0 | Glass/Door Cond | 0 | 0.00 | | | | | | |
| Wall Cond | 0 | 0 | 0 | 0 | 0 | Wall Cond | 0 | 0.00 | | | | | | |
| Partition/Door | 0 | 0 | 0 | 0 | 0 | Partition/Door | 0 | 0.00 | | | | | | |
| Floor | 0 | 0 | 0 | 0 | 0 | Floor | 0 | 0.00 | | | | | | |
| Adjacent Floor | 0 | 0 | 0 | 0 | 0 | Adjacent Floor | 0 | 0.00 | | | | | | |
| Infiltration | 0 | 0 | 0 | 0 | 0 | Infiltration | 0 | 0.00 | | | | | | |
| Sub Total ==> | 0 | 0 | 0 | 0 | 0 | Sub Total ==> | 0 | 0.00 | | | | | | |
| Internal Loads | | | | | | | | | | | | | | |
| Lights | 4,266 | 4,266 | 8,533 | 27 | 4,266 | Lights | 0 | 0.00 | | | | | | |
| People | 16,000 | 0 | 16,000 | 51 | 9,800 | People | 0 | 0.00 | | | | | | |
| Misc | 1,200 | 0 | 1,200 | 4 | 480 | Misc | 0 | 0.00 | | | | | | |
| Sub Total ==> | 21,466 | 4,266 | 25,733 | 82 | 14,546 | Sub Total ==> | 0 | 0.00 | | | | | | |
| Ceiling Load | 1,529 | -1,529 | 0 | 0 | 1,529 | Ceiling Load | 0 | 0.00 | | | | | | |
| Ventilation Load | 0 | 0 | 7,061 | 22 | 0 | Ventilation Load | 0 | 100.00 | -21,990 | | | | | |
| Adj Air Trans Heat | 0 | 0 | 0 | 0 | 0 | Adj Air Trans Heat | 0 | 0 | 0 | | | | | |
| Dehumid. Ov Sizing | 0 | 0 | 0 | 0 | 0 | Ov/Undr Sizing | 0 | 0.00 | | | | | | |
| Ov/Undr Sizing | 0 | 0 | 0 | 0 | 0 | Exhaust Heat | 0 | 0.00 | | | | | | |
| Exhaust Heat | 0 | -1,397 | -1,397 | -4 | 0 | OA Preheat Diff. | 0 | 0.00 | | | | | | |
| Sup. Fan Heat | 0 | 0 | 0 | 0 | 0 | RA Preheat Diff. | 0 | 0.00 | | | | | | |
| Ret. Fan Heat | 0 | 0 | 0 | 0 | 0 | Additional Reheat | 0 | 0.00 | | | | | | |
| Duct Heat Pkup | 0 | 0 | 0 | 0 | 0 | Underflr Sup Ht Pkup | 0 | 0.00 | | | | | | |
| Underflr Sup Ht Pkup | 0 | 0 | 0 | 0 | 0 | Supply Air Leakage | 0 | 0.00 | | | | | | |
| Supply Air Leakage | 0 | 0 | 0 | 0 | 0 | Supply Air Leakage | 0 | 0.00 | | | | | | |
| Grand Total ==> | 22,996 | 1,340 | 31,397 | 100.00 | 16,076 | Grand Total ==> | 0 | 100.00 | -21,990 | | | | | |

VENTILATION AIR

| COOLING COIL SELECTION | | | | | | | | | | AREAS | | | HEATING COIL SELECTION | | | | |
|------------------------|-----------|--------------|----------------|----------------|-------------|---------|---------|-----------------------|------|-------|----------|-------|------------------------|------|------|--|--|
| Total Capacity | Sens Cap. | Coil Airflow | Enter DB/WB/HR | Leave DB/WB/HR | Gross Total | | Glass | Capacity/Coil Airflow | | | Ent | Lvg | | | | | |
| ton | MBh | cfm | °F °F gr/lb | °F °F gr/lb | °F °F | ft² (%) | ft² (%) | MBh | cfm | °F | °F | | | | | | |
| Main Clg | 2.6 | 31.4 | 20.5 | 510 | 83.8 | 68.2 | 78.5 | 47.7 | 47.4 | 48.3 | Main Htg | -22.0 | 510 | 31.2 | 70.0 | | |
| Aux Clg | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Aux Htg | 0.0 | 0 | 0.0 | 0.0 | | |
| Opt Vent | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Preheat | -9.3 | 510 | 31.2 | 47.7 | | |
| Total | 2.6 | 31.4 | | | | | | | | | Humidif | 0.0 | 0 | 0.0 | 0.0 | | |
| | | | | | | | | | | | Opt Vent | 0.0 | 0 | 0.0 | 0.0 | | |
| | | | | | | | | | | | Total | -22.0 | | | | | |

COOLING LOAD

System Checksums

By Johnson & Jordan, Inc.

System - 002

Fan Coil

| COOLING COIL PEAK | | | | | CLG SPACE PEAK | | | HEATING COIL PEAK | | | | TEMPERATURES | | | |
|---------------------------|---------------------|--------------------------|------------------|----------------|-----------------------|---------------|-----------|-----------------------|---------------|------------|----------------|---------------|------|------|---------|
| Peaked at Time: | | Mo/Hr: 7 / 15 | | | Mo/Hr: Sum of | | | Mo/Hr: Heating Design | | | | Cooling | | | Heating |
| Outside Air: | | OADB/WB/HR: 87 / 71 / 89 | | | OADB: Peaks | | | OADB: -6 | | | | SADB | 46.9 | 70.0 | |
| Space Sens. + Lat. | Plenum Sens. + Lat. | Net Total | Percent Of Total | Space Sensible | Percent Of Total | Space Peak | Coil Peak | Percent | Percent | Space Sens | Tot Sens | Of Total | | | |
| Btu/h | Btu/h | Btu/h | (%) | Btu/h | (%) | Btu/h | Btu/h | (%) | (%) | Btu/h | Btu/h | (%) | | | |
| Envelope Loads | | | | | Envelope Loads | | | | | | | | | | |
| Skylite Solar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Skylite Cond | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Roof Cond | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Glass Solar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Glass/Door Cond | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Wall Cond | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Partition/Door | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Floor | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Adjacent Floor | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Infiltration | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Sub Total ==> | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Internal Loads | | | | | Internal Loads | | | | | | | | | | |
| Lights | 2,560 | 2,560 | 5,120 | 26 | 2,560 | 26 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| People | 9,600 | 0 | 9,600 | 50 | 5,880 | 60 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Misc | 1,200 | 0 | 1,200 | 6 | 480 | 5 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Sub Total ==> | 13,360 | 2,560 | 15,920 | 82 | 8,920 | 91 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Ceiling Load | 922 | -922 | 0 | 0 | 922 | 9 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Ventilation Load | 0 | 0 | 4,244 | 22 | 0 | 0 | -13,194 | 100.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Adj Air Trans Heat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Dehumid. Ov Sizing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Ov/Undr Sizing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Exhaust Heat | 0 | -842 | -842 | -4 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Sup. Fan Heat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Ret. Fan Heat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Duct Heat Pkup | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Underflr Sup Ht Pkup | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Supply Air Leakage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0.00 | 0 | 0 | 0.0 | |
| Grand Total ==> | 14,282 | 796 | 19,322 | 100.00 | 9,842 | 100.00 | 0 | -13,194 | 100.00 | 0 | -13,194 | 100.00 | | | |

| | Cooling | Heating |
|-----------|---------|---------|
| SADB | 46.9 | 70.0 |
| Ra Plenum | 80.9 | 70.0 |
| Return | 80.9 | 70.0 |
| Ret/OA | 83.9 | 30.9 |
| Fn MtrTD | 0.0 | 0.0 |
| Fn BldTD | 0.0 | 0.0 |
| Fn Frict | 0.0 | 0.0 |

| AIRFLOWS | | |
|-------------|---------|---------|
| | Cooling | Heating |
| Diffuser | 303 | 303 |
| Terminal | 303 | 303 |
| Main Fan | 303 | 303 |
| Sec Fan | 0 | 0 |
| Nom Vent | 156 | 156 |
| AHU Vent | 156 | 156 |
| Infil | 0 | 0 |
| MinStop/Rh | 0 | 0 |
| Return | 303 | 303 |
| Exhaust | 156 | 156 |
| Rm Exh | 0 | 0 |
| Auxiliary | 0 | 0 |
| Leakage Dwn | 0 | 0 |
| Leakage Ups | 0 | 0 |

| ENGINEERING CKS | | |
|-----------------|---------|---------|
| | Cooling | Heating |
| % OA | 51.4 | 51.4 |
| cfm/ft² | 0.51 | 0.51 |
| cfm/ton | 188.42 | |
| ft²/ton | 372.64 | |
| Btu/hr-ft² | 32.20 | -21.99 |
| No. People | 24 | |

| COOLING COIL SELECTION | | | | | | | | | | AREAS | | | HEATING COIL SELECTION | | | |
|------------------------|------------|--------------|----------------|-----|-------|----------------|------|-------|-------------|-------|--------------|--------------|------------------------|------|------|--|
| Total Capacity | Sens Cap. | Coil Airflow | Enter DB/WB/HR | | | Leave DB/WB/HR | | | Gross Total | Glass | Capacity | Coil Airflow | Ent | Lvg | | |
| ton | MBh | cfm | °F | °F | gr/lb | °F | °F | gr/lb | ft² (%) | MBh | cfm | °F | °F | | | |
| Main Clg | 1.6 | 19.3 | 12.5 | 303 | 83.9 | 68.2 | 78.5 | 46.9 | 46.6 | 46.7 | Floor | -13.2 | 303 | 30.9 | 70.0 | |
| Aux Clg | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Part | 0.0 | 0 | 0.0 | 0.0 | |
| Opt Vent | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Int Door | -5.4 | 303 | 30.9 | 46.9 | |
| | | | | | | | | | | | ExFlr | 0.0 | 0 | 0.0 | 0.0 | |
| Total | 1.6 | 19.3 | | | | | | | | | Roof | 0.0 | 0 | 0.0 | 0.0 | |
| | | | | | | | | | | | Wall | 0.0 | 0 | 0.0 | 0.0 | |
| | | | | | | | | | | | Ext Door | 0.0 | 0 | 0.0 | 0.0 | |
| | | | | | | | | | | | Total | -13.2 | | | | |

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.**

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.

3/22/11

Job Summary Report
Job ID: 2011-02-482-ALTCOMM

Report generated on Mar 25, 2011 11:48:30 AM

| | | | | | |
|----------------------------------|-----------------------|--|----------------------------|------------------------------|------|
| Job Type: | Adds/Alter Commercial | Job Description: | 39 Forest Ave RM / 100 Oak | Job Year: | 2011 |
| Building Job Status Code: | Permit Issued | Pin Value: | 730 | Tenant Name: | |
| Job Application Date: | | Public Building Flag: | N | Tenant Number: | |
| Estimated Value: | 13,000 | Square Footage: | | | |
| Related Parties: | | * 39 LLC | | <i>Property Owner</i> | |
| | | MACDONALD BROTHERS - JAMES MACDONALD | | <i>ELECTRICAL CONTRACTOR</i> | |
| | | JOHNSON & JORDAN INC. - JOHNSON INC | | <i>MECHANICAL CONTRACTOR</i> | |
| | | North Shore Construction Inc - Herb Robinson | | <i>GENERAL CONTRACTOR</i> | |
| | | North Shore Construction Inc - Herb Robinson | | <i>GENERAL CONTRACTOR</i> | |

Job Charges

| Fee Code Description | Charge Amount | Permit Charge Adjustment | Net Charge Amount | Payment Date | Receipt Number | Payment Amount | Payment Adjustment Amount | Net Payment Amount | Outstanding Balance |
|----------------------|---------------|--------------------------|-------------------|--------------|----------------|----------------|---------------------------|--------------------|---------------------|
|----------------------|---------------|--------------------------|-------------------|--------------|----------------|----------------|---------------------------|--------------------|---------------------|

Location ID: 5476

Location Details

| Alternate Id | Parcel Number | Census Tract | GIS X | GIS Y | GIS Z | GIS Reference | Longitude | Latitude |
|--------------|---------------|--------------|-------|-------|-------|---------------|------------|-----------|
| T13130 | 037 A 012 001 | | U | | | | -70.263388 | 43.655891 |

| Location Type | Subdivision Code | Subdivision Sub Code | Related Persons | Address(es) |
|---------------|------------------|----------------------|-----------------|------------------------|
| 1 | | | | 39 FOREST AVENUE NORTH |

| Location Use Code | Variance Code | Use Zone Code | Fire Zone Code | Inside Outside Code | District Code | General Location Code | Inspection Area Code | Jurisdiction Code |
|-------------------------|---------------|-------------------|----------------|---------------------|-------------------|-----------------------|----------------------|---------------------------|
| BENEVOLENT & CHARITABLE | | DOWNTOWN BUSINESS | B-3c | | Historic District | | DISTRCT 4 | CENTRAL BUSINESS DISTRICT |

Structure Details

Structure: Loc id 000005475 Alt id 004044

Occupancy Type Code:

| Structure Type Code | Structure Status Type | Square Footage | Estimated Value | Address |
|---------------------------------|-----------------------|----------------|-----------------|------------------------|
| Office & Professional Buildings | 6 | 22389,84 | | 39 FOREST AVENUE NORTH |

| Longitude | Latitude | GIS X | GIS Y | GIS Z | GIS Reference | User Defined Property | Value |
|-----------|----------|-------|-------|-------|---------------|-----------------------|-------|
| 0 | 0 | U | | | | Fixtures-Fluorescent | 0 |

Job Summary Report
Job ID: 2011-02-482-ALTCOMM

Report generated on Mar 25, 2011 11:48:30 AM

| Fee Code Description | Charge Amount | Permit Charge Adjustment | Permit Charge Adj Remark | Payment Date | Receipt Number | Payment Amount | Payment Adjustment Amount | Payment Adj Comment |
|--------------------------------|---------------|--------------------------|--------------------------|--------------|----------------|----------------|---------------------------|---------------------|
| Electric Commercial Permit Fee | \$55.00 | | | | | | | |

Permit #: 20112171

Permit Data

| Location Id | Structure Description | Permit Status | Permit Description | Issue Date | Reissue Date | Expiration Date |
|-------------|-----------------------|---------------|-----------------------------------|------------|--------------|-----------------|
| 5476 | Mixed Use | Initialized | Install Electric Trane Heat Pumps | | | |

Inspection Details

| Inspection Id | Inspection Type | Inspection Result Status | Inspection Status Date | Scheduled Start Timestamp | Result Status Date | Final Inspection Flag |
|---------------|-----------------|--------------------------|------------------------|---------------------------|--------------------|-----------------------|
| | | | | | | |

Fees Details

| Fee Code Description | Charge Amount | Permit Charge Adjustment | Permit Charge Adj Remark | Payment Date | Receipt Number | Payment Amount | Payment Adjustment Amount | Payment Adj Comment |
|----------------------|---------------|--------------------------|--------------------------|--------------|----------------|----------------|---------------------------|---------------------|
| HVAC Permit Fee | \$260.00 | | | | | | | |



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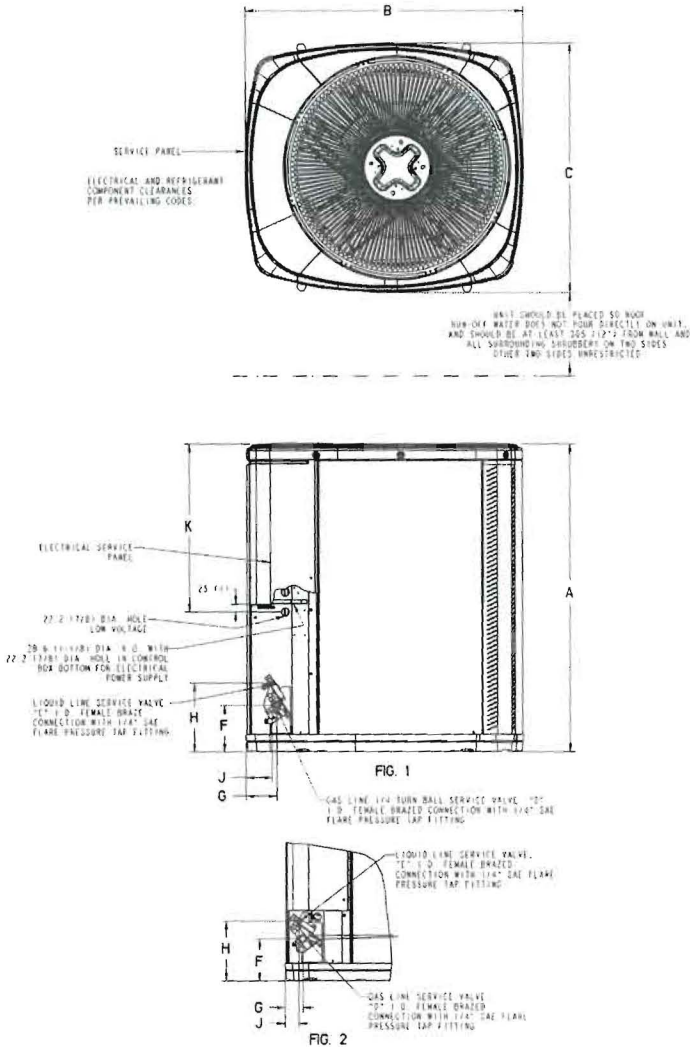
4TWB3024-SUB-101.01

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NOTE: All dimensions are in mm/inches.

**2 Ton Split System
Heat Pump — 1 Phase
4TWB3024A**



From Dwg. 21D153074 Rev. 13

Product Specifications

| OUTDOOR UNIT ①③ | 4TWB3024A1000A |
|-----------------------------|-----------------|
| POWER CONNS. — V/PH/HZ ④ | 200/230/1/60 |
| MIN. BRCH. CIR. AMPACITY | 12 |
| BR. CIR. } MAX. (AMPS) | 20 |
| PROT. RTG. } MIN. (AMPS) | 20 |
| COMPRESSOR | CLIMATUFF™ |
| NO. USED - NO. SPEEDS | 1 - 1 |
| VOLTS/PH/HZ | 200/230/1/60 |
| R.L. AMPS ⑦ - L.R. AMPS | 9.4 - 63 |
| FACTORY INSTALLED | |
| START COMPONENTS ⑧ | YES |
| INSULATION/SOUND BLANKET | NO |
| COMPRESSOR HEAT | YES |
| OUTDOOR FAN | PROPELLER |
| DIA. (IN.) - NO. USED | 23 - 1 |
| TYPE DRIVE - NO. SPEEDS | DIRECT - 1 |
| CFM @ 0.0 IN. W.G. ② | 3150 |
| NO. MOTORS - HP | 1 - 1/8 |
| MOTOR SPEED R.P.M. | 825 |
| VOLTS/PH/HZ | 200/230/1/60 |
| F.L. AMPS | 0.7 |
| OUTDOOR COIL — TYPE | SPINE FIN™ |
| ROWS - F.P.I. | 1 - 24 |
| FACE AREA (SQ. FT.) | 16.25 |
| TUBE SIZE (IN.) | 3/8 |
| REFRIGERANT CONTROL | EXPANSION VALVE |
| REFRIGERANT | |
| LBS. — R-410 (O.D. UNIT) ⑤ | 5 LBS. - 12 OZ. |
| FACTORY SUPPLIED | YES |
| LINE SIZE - IN. O.D. GAS ⑥ | 5/8 |
| LINE SIZE - IN. O.D. LIQ. ⑥ | 5/16 |

| CHARGING SPECIFICATION | 11° F |
|------------------------|-------|
| SUBCOOLING | |

| DIMENSIONS | H X W X D |
|--------------|----------------|
| CRATED (IN.) | 34 x 30.1 x 33 |

| WEIGHT | |
|-----------------|-----|
| SHIPPING (LBS.) | 224 |
| NET (LBS.) | 196 |

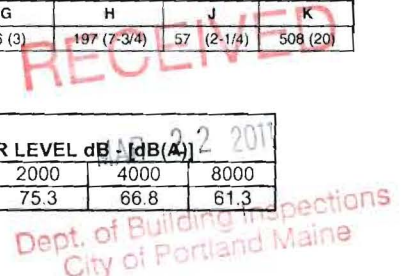
- ① Certified in accordance with the Air-Source Unitary Heat Pump Equipment certification program, which is based on ARI standard 210/240.
- ② Rated in accordance with ARI standard 270.
- ③ Calculated in accordance with Natl. Elec. Codes. Use only HACR circuit breakers or fuses.
- ④ Standard Air — Dry Coil — Outdoor
- ⑤ This value approximate. For more precise value see unit nameplate.
- ⑥ Max. linear length 60 ft.; Max. lift - Suction 60 ft.; Max. lift - Liquid 60 ft. For greater length consult refrigerant piping software Pub. No. 32-3312-0* (* denotes latest revision).
- ⑦ This value shown for compressor RLA on the unit nameplate and on this specification sheet is used to compute minimum branch circuit ampacity and max. fuse size. The value shown is the branch circuit selection current.
- ⑧ No means no start components. Yes means quick start kit components. PTC means positive temperature coefficient starter.

| MODELS | BASE | FIG. | A | B | C | D | E | F | G | H | J | K |
|-----------|------|------|--------------|--------------|--------------|-----|------|---------|--------|-------------|------------|----------|
| 4TWB3024A | 3 | 2 | 730 (28-3/4) | 829 (32-5/8) | 756 (29-3/4) | 5/8 | 5/16 | 127 (5) | 76 (3) | 197 (7-3/4) | 57 (2-1/4) | 508 (20) |

A-weighted Sound Power Level [dB(A)]

| MODEL | SOUND POWER LEVEL [dB(A)] | A-WEIGHTED FULL OCTAVE SOUND POWER LEVEL dB [dB(A)] | | | | | | | |
|------------|---------------------------|---|------|------|------|------|------|------|------|
| | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 4TWB3024A1 | 81 | 45.3 | 58.8 | 70.5 | 70.5 | 75.4 | 75.3 | 66.8 | 61.3 |

Note: Tested in accordance with ARI Standard 270.95. (Not listed with ARI)



Mechanical Specification Options

General

The 4TWB3 is fully charged from the factory for up to 15 feet of piping. This unit is designed to operate at outdoor ambient temperatures as high as 115°F. Cooling capacities are matched with a wide selection of air handlers and furnace coils that are A.R.I. certified. The unit is UL listed. Exterior is designed for outdoor application.

Casing

Unit casing is constructed of heavy gauge, G90 galvanized steel and painted with a weather-resistant powder paint on all louvers, panels, prepaint on all other panels. Corrosion and weather-proof CMBP-G30 DuraTuff™ base.

Refrigerant Controls

Refrigeration system controls include condenser fan, compressor contactor and high pressure switch. High and low pressure controls are inherent to the compressor. A factory installed liquid line drier is standard.

Compressor

The Climatuff® compressor features a 5 year limited warranty, internal over temperature and pressure protection and total dipped hermetic motor. Other features include: roto lock suction and discharge refrigerant connections, centrifugal oil pump and low vibration and noise.

Condenser Coil

The outdoor coil provides low airflow resistance and efficient heat transfer. The coil is protected on all four sides by louvered panels and has a 5 year limited warranty.

Low Ambient Cooling

As manufactured, this unit has a cooling capability to 55°F. The addition of an evaporator defrost control permits operation to 40° F. The addition of an evaporator defrost control with TXV permits low ambient cooling to 30° F.

Accessories

Thermostats — Cooling only and heat/cooling (manual and automatic changeover). Sub-base to match thermostat and locking thermostat cover.

Evaporator Defrost Control — See Low Ambient Cooling.



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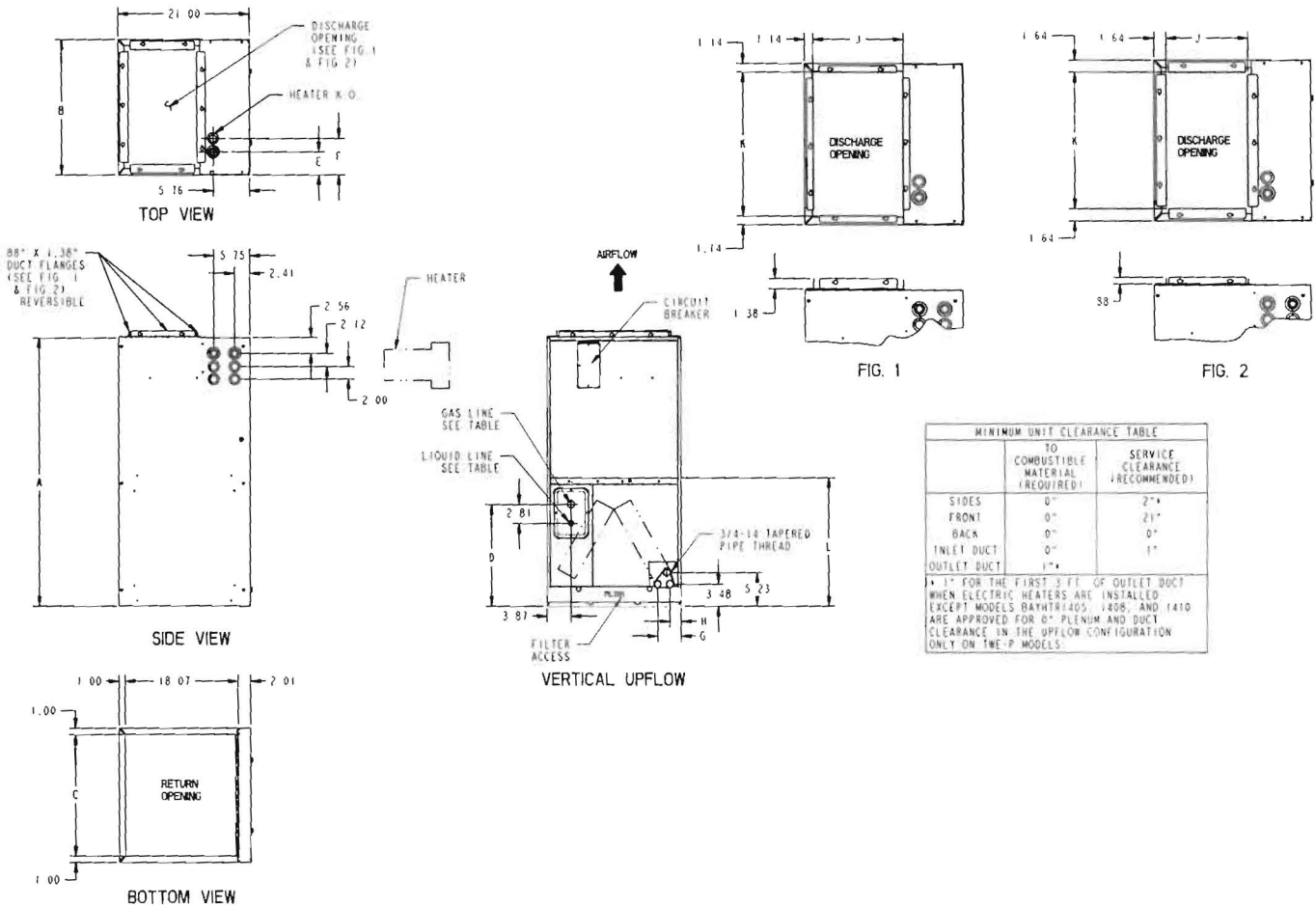


TEC3F24-SUB-1G

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2 Ton Convertible Air Handler 2/4TEC3F24B1000A



| | FIG 1 | | FIG 2 | | |
|------------------------|-------|-------|-------|-------|-----|
| MODEL NO. | J | K | J | K | L |
| 2/4TEC3F18, 24, 30, 36 | 12.02 | 19.22 | 11.02 | 18.22 | n/a |

| MODEL NO. | A | B | C | D | E | F | G | H | Flow Control | R22 Gas Line BRAZE | R22 Liq. Line BRAZE | R-410A Gas Line BRAZE | R-410A Liq. Line BRAZE |
|------------|----|-------|-------|-------|------|------|------|------|--------------|--------------------|---------------------|-----------------------|------------------------|
| 2/4TEC3F24 | 43 | 21.50 | 19.50 | 15.57 | 3.65 | 5.77 | 3.62 | 1.89 | TXV/NB | 3/4 | 5/16 | 5/8 | 5/16 |

PRODUCT SPECIFICATIONS

| | | |
|-----------------------------------|---------------------------|---------------|
| MODEL | 2/4TEC3F24B1000A | |
| RATED VOLTS/PH/HZ. | 208-230/1/60 | |
| RATINGS ① | See O.D. Specifications | |
| INDOOR COIL — Type | Plate Fin | |
| Rows — F.P.I. | 3 - 14 | |
| Face Area (sq. ft.) | 3.21 | |
| Tube Size (in.) | 3/8 - Copper | |
| Refrigerant Control | TXVNB ② | |
| Drain Conn. Size (in.) ② | 3/4 NPT | |
| DUCT CONNECTIONS | See Outline Drawing | |
| INDOOR FAN — Type | Centrifugal | |
| Diameter-Width (In.) | 9 X 8 | |
| No. Used | 1 | |
| Drive - No. Speeds | Direct - 3 | |
| CFM vs. in. w.g. ① | See Fan Performance Table | |
| No. Motors — H.P. | 1 - 1/3 | |
| Motor Speed R.P.M. | 1075 | |
| Volts/Ph/Hz | 200-230/1/60 | |
| F.L. Amps - L.R. Amps | 1.55 - 2.6 | |
| FILTER | | |
| Vertical Applications | | |
| Filter Furnished? | Yes | |
| Type Recommended | Throwaway | |
| No.-Size-Thickness | 1 - 20 X 20 - 1 in. | |
| Horizontal Applications | | |
| Filter Furnished? | No | |
| Recommended Size ③ | See Note ③ | |
| REFRIGERANT | R-22 | R-410A |
| Ref. Line Connections | Brazed | Brazed |
| Coupling or Conn. Size — in. Gas | 3/4 | 5/8 |
| Coupling or Conn. Size — in. Liq. | 5/16 | 5/16 |
| DIMENSIONS | H x W x D | |
| Crated (In.) | 44 1/2 x 24 x 23-1/2 | |
| Uncrated | See Outline Drawing | |
| WEIGHT | | |
| Shipping (Lbs.) / Net (Lbs) | 121/111 | |

① These Air Handlers are A.R.I. certified with various Split System Air Conditioners and Heat Pumps (ARI STANDARD 210/240). Refer to the Split System Outdoor Unit Product Data Guides for performance data.

② 3/4" Male Plastic Pipe (Ref.: ASTM 1785-76)

③ Minimum filter size for horizontal applications will be based on airflow selection and will be calculated as follows:

Low Velocity Filter: Face area (Sq. Ft.) = CFM / 300

High Velocity Filter: Face area (Sq. Ft.) = CFM / 500

④ Torque Spec for TXV = Tighten 1/6 turn passed finger tight



NOTES: Vertical: With filter, no horizontal drip tray, Small apex baffle. Subtract 0.06" W.G. for downflow.

Horizontal: As shipped but without filter. Subtract 0.05" W.G. for horizontal left.

| Airflow Performance 2/4TEC3F24B: Wet coil, No Heaters | | | | | | | | | | | | |
|--|---|-----|-----|-----------|-----|-----|---|-----|-----|-----------|-----|-----|
| EXTERNAL STATIC PRESSURE (in.w.g.) | AIRFLOW (CFM) | | | | | | | | | | | |
| | VERTICAL | | | | | | HORIZONTAL | | | | | |
| | 230 VOLTS | | | 208 VOLTS | | | 230 VOLTS | | | 208 VOLTS | | |
| | HI | MED | LO | HI | MED | LO | HI | MED | LO | HI | MED | LO |
| 0 | 1134 | 876 | 818 | 1093 | 781 | 723 | 1083 | 870 | 813 | 1050 | 780 | 739 |
| 0.1 | 1102 | 839 | 789 | 1073 | 751 | 696 | 1051 | 831 | 783 | 1020 | 745 | 697 |
| 0.2 | 1048 | 798 | 751 | 1020 | 713 | 661 | 996 | 783 | 739 | 967 | 703 | 657 |
| 0.3 | 984 | 750 | 705 | 953 | 668 | 618 | 930 | 728 | 687 | 903 | 655 | 614 |
| 0.4 | 912 | 694 | 649 | 880 | 614 | 567 | 858 | 667 | 628 | 833 | 600 | 563 |
| 0.5 | 833 | 622 | 581 | 802 | 548 | 504 | 782 | 597 | 561 | 758 | 533 | 499 |
| 0.6 | 738 | 532 | 496 | 714 | 465 | 425 | 693 | 512 | 479 | 669 | 452 | 417 |
| 0.7 | 614 | 416 | 385 | 599 | 358 | 321 | 579 | 406 | 375 | 554 | 349 | 313 |
| 0.8 | 442 | 268 | 240 | 434 | 216 | 184 | 418 | 266 | 236 | 391 | 217 | 182 |
| 0.9 | 197 | - | - | 187 | - | - | 184 | - | - | 156 | - | - |
| NOTES: | With filter, no horizontal drip tray Small apex baffle Subtract 0.06" W.G. for downflow | | | | | | As shipped except without filter Subtract 0.05" W.G. for horizontal left | | | | | |

SEE AIR FLOW RESISTANCE TABLE FOR PRESSURE LOSS WITH SUPPLEMENTARY HEATER.

PRESSURE DROP FOR ELECTRIC HEATERS IN AIR HANDLER MODELS

| AIRFLOW CFM | NUMBER OF RACKS | | | | |
|----------------|----------------------------------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 |
| | AIR PRESSURE DROP INCHES W.G. | | | | |
| 600 | 0.01 | 0.02 | 0.02 | | |
| 700 | 0.01 | 0.02 | 0.02 | | |
| 800 | 0.02 | 0.03 | 0.03 | 0.04 | |
| 900 | 0.03 | 0.03 | 0.04 | 0.05 | |
| 1000 | 0.04 | 0.04 | 0.05 | 0.06 | |
| 1100 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 |
| 1200 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 |
| 1300 | 0.06 | 0.07 | 0.08 | 0.09 | 0.11 |
| 1400 | 0.07 | 0.08 | 0.10 | 0.11 | 0.13 |
| 1500 | 0.08 | 0.09 | 0.11 | 0.13 | 0.15 |
| 1600 | 0.09 | 0.10 | 0.12 | 0.15 | 0.17 |
| 1700 | 0.10 | 0.11 | 0.14 | 0.17 | 0.19 |
| 1800 | 0.11 | 0.13 | 0.16 | 0.19 | 0.21 |
| 1900 | 0.13 | 0.15 | 0.18 | 0.21 | 0.23 |
| 2000 | 0.14 | 0.17 | 0.20 | 0.23 | 0.26 |

| HEATER RACKS | |
|------------------|--------------|
| HEATER MODEL NO. | NO. OF RACKS |
| BAYHTR1405 | 1 |
| BAYHTR1408 | 2 |
| BAYHTR1/3410 | 2 |
| BAYHTR1/3415 | 3 |
| BAYHTR1419 | 4 |

Notes:

1. See Product Data or Air Handler nameplate for approved combinations of Air Handlers and Heaters
2. Heater model numbers may have additional suffix digits.

| 2/4TEC3F24B WIRING DATA (Indoor Blower Motor Powered from Heater Circuit 1) | | | | | | | | | | | | |
|--|--------------------------|----------|-------|-------------------------|--------------------------|-----------------------------|----------|----------|-------------------------|--------------------------|-----------------------------|--|
| Heater Model No. | Number of Circuits/Phase | 240 VOLT | | | | | | 208 VOLT | | | | |
| | | Capacity | | Heater Amps per Circuit | Minimum Circuit Ampacity | Maximum Overload Protection | Capacity | | Heater Amps per Circuit | Minimum Circuit Ampacity | Maximum Overload Protection | |
| | | KW | BTUH | | | | KW | BTUH | | | | |
| NONE | 1/1 | N/A | N/A | N/A | 2 | 15 | N/A | N/A | N/A | 2 | 15 | |
| BAYHTR1405+++ | 1/1 | 4.80 | 16400 | 20 | 27 | 30 | 3.60 | 12300 | 17.3 | 24 | 25 | |
| BAYHTR1408+++ | 1/1 | 7.68 | 26200 | 32 | 42 | 45 | 5.76 | 19700 | 27.7 | 37 | 40 | |
| BAYHTR1410 +++ | 1/1 | 9.60 | 32800 | 40 | 52 | 60 | 7.20 | 24600 | 34.6 | 45 | 45 | |
| BAYHTR3410 000 | 1/3 | 9.60 | 32800 | 34.6 | 43 | 45 | 7.20 | 24600 | 30 | 37 | 40 | |
| BAYHTR1415 BRK | 2/1 | 15.36 | 52400 | 40/24 | 52*/30 | 60*/30 | 11.53 | 39300 | 34.6/20.8 | 45*/26 | 45*/30 | |
| BAYHTR1415 BRK with Single Circuit Power Source Kit BAYSPEK140B | 1/1 | 15.36 | 52400 | 64 | 90 | 90 | 11.53 | 39300 | 55.4 | 79 | 80 | |
| BAYHTR3415 000 | 1/3 | 15.36 | 52400 | 39.5 | 49 | 50 | 11.53 | 39300 | 34.4 | 43 | 45 | |

NOTES:
 * Circuit 1/Circuit 2 (Minimum Circuit Ampacity for Circuit 1 includes Blower Motor Amps)
 +++ = 000, BRK, PDC 000 = pigtails, BRK = contains circuit breakers, PDC= contains pull disconnect
 IMPORTANT: Any power supply and/or combination power supply, circuit or circuits must be wired and protected in accordance with local Electrical Codes.

| Air Handler Model | Unit Position | Application | HEATER MODEL NUMBER BAYHTR | | | | | |
|-------------------|---------------|----------------------|----------------------------|----------------|----------------|-----------------|-----------------|---------------------------|
| | | | 1405 4.80KW | 1408 7.68KW | *410 9.60KW | *415 15.36KW | 1419 19.20KW | 1425* = 1 or 3 24.98KW |
| 2/4TEC3F24B | Vertical | A/C or Elec. Furnace | L | L | L | L | — | — |
| | Upflow | Heat Pump | L | L | L | M | — | — |
| | Vertical | A/C or Elec. Furnace | L | L | L | L | — | — |
| | Downflow | Heat Pump | L | L | L | M | — | — |
| | Horizontal | A/C or Elec. Furnace | L | L | L | L | — | — |
| | Left | Heat Pump | L | L | L | M | — | — |
| | Horizontal | A/C or Elec. Furnace | L | L | L | L | — | — |
| | Right | Heat Pump | L | L | L | M | — | — |

Mechanical Specifications

General — Blower coil units shall be completely factory assembled including coil, condensate drain pan, fan, motor, filters and controls in an insulated casing that can be applied in horizontal or vertical configuration. This is an "Air-Tite" model with 4.2 "R" value insulation and additional sealing systems.

This new line of 2/4TEC3F Air handlers provides exclusive compact size combined with simple 6-Way convertibility in sizes up to 5 Tons. The unit ships in the vertical upflow configuration and converts to horizontal right just by laying the unit on its side. No tools required. Simple coil rotation provides downflow and horizontal left applications.

The 6-Way convertibility provides you inventory benefits and service/installation flexibility. The simple conversion provides opposite side access for installation and service.

Units shall be UL listed.

Casing — Units shall have a rugged sheet metal and steel frame construction and shall be painted with an enamel finish. Casing shall be insulated and knockouts for electrical power and control wiring.

Refrigerant Circuits — The 2/4TEC3F units have a single refrigerant circuit. The refrigerant circuit shall be controlled shall be controlled by a factory installed non-bleed thermal expansion valve.

Coil — Aluminum fin surface shall be mechanically bonded to 3/8 inch OD copper tubing. Coils are factory pressure and leak tested.

Fan — Forward curved, dynamically balanced and statically balanced with 3 speed direct drive shall be standard, fan motor bearing shall be permanently lubricated.

Controls — Low voltage wire nut connections, fan contactor, and plug in module for accessory electric heat control shall be included.

Filters — Filters shall be included as standard, One inch low velocity semi-permanent type (except 5 ton - washable filter).

Accessories

Electric Heaters — Shall be available in a wide range of capacities and voltages with various staging options, and plug-in control wiring. Heaters shall fit inside the internal compartment.



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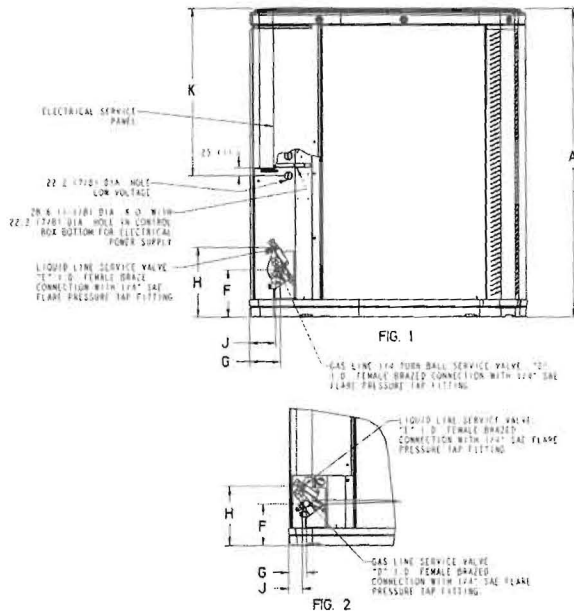
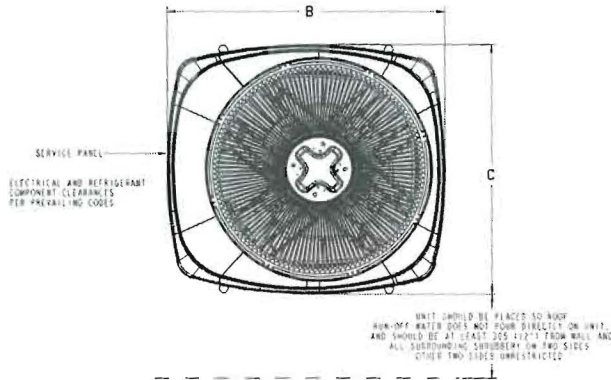
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NOTE: All dimensions are in mm/inches.

**3 Ton Split System
Heat Pump — 1 Phase
4TWB3036A**



From Dwg. 21D153074 Rev. 13

Product Specifications

| OUTDOOR UNIT ①② | 4TWR3036A1000A |
|-------------------------------|---------------------|
| POWER CONNS. — V/PH/HZ ③ | 208/230/1/60 |
| MIN. BRCH. CIR. AMPACITY | 21 |
| BR. CIR. } MAX. (AMPS) | 35 |
| PROT. RTG. } MIN. (AMPS) | 30 |
| COMPRESSOR | CLIMATUFF® - SCROLL |
| NO. USED - NO. SPEEDS | 1 - 1 |
| VOLTS/PH/HZ | 208/230/1/60 |
| R.L. AMPS ⑦ - L.R. AMPS | 15.4 - 83 |
| FACTORY INSTALLED | |
| START COMPONENTS ⑧ | NO |
| INSULATION/SOUND BLANKET | NO |
| COMPRESSOR HEAT | YES |
| OUTDOOR FAN | PROPELLER |
| DIA. (IN.) - NO. USED | 27.6 - 1 |
| TYPE DRIVE - NO. SPEEDS | DIRECT - 1 |
| CFM @ 0.0 IN. W.G. ④ | 4800 |
| NO. MOTORS - HP | 1 - 1/4 |
| MOTOR SPEED R.P.M. | 825 |
| VOLTS/PH/HZ | 200/230/1/60 |
| F.L. AMPS | 1.3 |
| OUTDOOR COIL — TYPE | SPINE FIN™ |
| ROWS - F.P.I. | 1 - 24 |
| FACE AREA (SQ. FT.) | 24.93 |
| TUBE SIZE (IN.) | 3/8 |
| REFRIGERANT CONTROL | EXPANSION VALVE |
| REFRIGERANT | |
| LBS. — R-410 (O.D. UNIT) ⑤ | 7 LBS. - 15 OZ. |
| FACTORY SUPPLIED | YES |
| LINE SIZE - IN. O.D. GAS ⑥ | 3/4 |
| LINE SIZE - IN. O.D. LIQ. ⑥ | 3/8 |
| CHARGING SPECIFICATION | |
| SUBCOOLING | 10° F |
| DIMENSIONS | H X W X D |
| CRATED (IN.) | 42.4 x 35.1 x 38.7 |
| WEIGHT | |
| SHIPPING (LBS.) | 277 |
| NET (LBS.) | 242 |

- ① Certified in accordance with the Air-Source Unitary Heat Pump Equipment certification program, which is based on ARI standard 210/240.
- ② Rated in accordance with ARI standard 270.
- ③ Calculated in accordance with Natl. Elec. Codes. Use only HACR circuit breakers or fuses.
- ④ Standard Air — Dry Coil — Outdoor
- ⑤ This value approximate. For more precise value see unit nameplate.
- ⑥ Max. linear length 60 ft.; Max. lift - Suction 60 ft.; Max. lift - Liquid 60 ft. For greater length consult refrigerant piping software Pub. No. 32-3312-0* (* denotes latest revision).
- ⑦ This value shown for compressor RLA on the unit nameplate and on this specification sheet is used to compute minimum branch circuit ampacity and max. fuse size. The value shown is the branch circuit selection current.
- ⑧ No means no start components. Yes means quick start kit components. PTC means positive temperature coefficient starter.

| MODELS | BASE | FIG. | A | B | C | D | E | F | G | H | J | K |
|-----------|------|------|--------------|--------------|--------------|-----|-----|---------|------------|-------------|------------|----------|
| 4TWB3036A | 4 | 1 | 943 (37-1/8) | 946 (37-1/4) | 870 (34-1/4) | 3/4 | 3/8 | 152 (6) | 98 (3-7/8) | 219 (8-5/8) | 86 (3-3/8) | 508 (20) |

A-weighted Sound Power Level [dB(A)]

| MODEL | SOUND POWER LEVEL [dB(A)] | A-WEIGHTED FULL OCTAVE SOUND POWER LEVEL dB - [dB(A)] | | | | | | | |
|------------|---------------------------|---|------|------|------|------|------|------|------|
| | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 4TWB3036A1 | 79 | 46.4 | 59.6 | 67.4 | 74.8 | 73.8 | 68.9 | 61.2 | 53.4 |

Note: Tested in accordance with ARI Standard 270.95. (Not listed with ARI)

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Dept. of Building Inspections
City of Portland, Maine

Mechanical Specification Options

General

The 4TWB3 is fully charged from the factory for up to 15 feet of piping. This unit is designed to operate at outdoor ambient temperatures as high as 115°F. Cooling capacities are matched with a wide selection of air handlers and furnace coils that are A.R.I. certified. The unit is UL listed. Exterior is designed for outdoor application.

Casing

Unit casing is constructed of heavy gauge, G90 galvanized steel and painted with a weather-resistant powder paint on all louvers, panels, prepaint on all other panels. Corrosion and weather-proof CMBP-G30 DuraTuff™ base.

Refrigerant Controls

Refrigeration system controls include condenser fan, compressor contactor and high pressure switch. High and low pressure controls are inherent to the compressor. A factory installed liquid line drier is standard.

Compressor

The Climatuff® compressor features a 5 year limited warranty, internal over temperature and pressure protection and total dipped hermetic motor. Other features include: roto lock suction and discharge refrigerant connections, centrifugal oil pump and low vibration and noise.

Condenser Coil

The outdoor coil provides low airflow resistance and efficient heat transfer. The coil is protected on all four sides by louvered panels and has a 5 year limited warranty.

Low Ambient Cooling

As manufactured, this unit has a cooling capability to 55°F. The addition of an evaporator defrost control permits operation to 40° F. The addition of an evaporator defrost control with TXV permits low ambient cooling to 30° F.

Accessories

Thermostats — Cooling only and heat/cooling (manual and automatic changeover). Sub-base to match thermostat and locking thermostat cover.

Evaporator Defrost Control — See Low Ambient Cooling.



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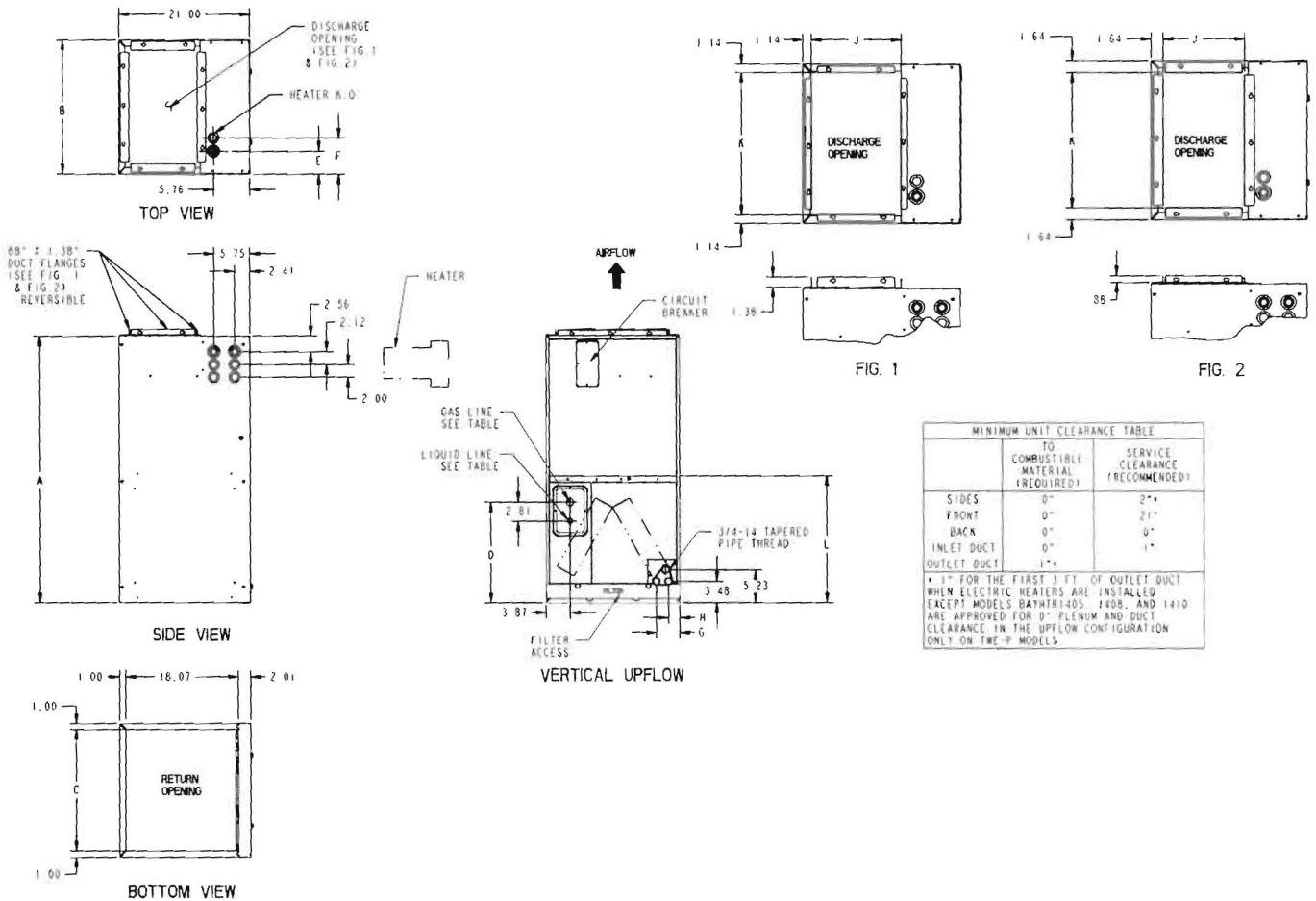
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TAG: _____

SUBMITTAL

**3 Ton Convertible
Air Handler
2/4TEC3F36B1000A**



| | FIG 1 | | FIG 2 | | |
|------------------------|-------|-------|-------|-------|-----|
| MODEL NO. | J | K | J | K | L |
| 2/4TEC3F18, 24, 30, 36 | 12.02 | 19.22 | 11.02 | 18.22 | n/a |

| MODEL NO. | A | B | C | D | E | F | G | H | Flow Control | R22 Gas Line BRAZE | R22 Liq. Line BRAZE | R-410A Gas Line BRAZE | R-410A Liq. Line BRAZE |
|-------------|----|-------|-------|-------|------|------|------|------|--------------|--------------------|---------------------|-----------------------|------------------------|
| 2/4TEC3F36B | 45 | 21.50 | 19.50 | 17.57 | 3.65 | 5.77 | 3.62 | 1.89 | TXV/NB | 7/8 | 3/8 | 3/4 | 3/8 |

PRODUCT SPECIFICATIONS

| | | |
|-----------------------------------|---------------------------|---------------|
| MODEL | 2/4TEC3F36B1000A | |
| RATED VOLTS/PH/HZ. | 208-230/1/60 | |
| RATINGS ① | See O.D. Specifications | |
| INDOOR COIL — Type | Plate Fin | |
| Rows — F.P.I. | 3 - 14.0 | |
| Face Area (sq. ft.) | 3.67 | |
| Tube Size (in.) | 3/8 - Copper | |
| Refrigerant Control | TXV - NonBleed ② | |
| Drain Conn. Size (in.) ② | 3/4 NPT | |
| DUCT CONNECTIONS | See Outline Drawing | |
| INDOOR FAN — Type | Centrifugal | |
| Diameter-Width (In.) | 10 X 7 | |
| No. Used | 1 | |
| Drive - No. Speeds | Direct - 3 | |
| CFM vs. in. w.g. ① | See Fan Performance Table | |
| No. Motors — H.P. | 1 - 1/3 | |
| Motor Speed R.P.M. | 1080 | |
| Volts/Ph/Hz | 200-230/1/60 | |
| F.L. Amps - L.R. Amps | 2.2 - 5.3 | |
| FILTER | | |
| Vertical Applications | | |
| Filter Furnished? | Yes | |
| Type Recommended | Throwaway | |
| No.-Size-Thickness | 1 - 20 X 20 - 1 in. | |
| Horizontal Applications | | |
| Filter Furnished? | No | |
| Recommended Size ③ | See Note ③ | |
| REFRIGERANT | | |
| | R-22 | R-410A |
| Ref. Line Connections | Brazed | Brazed |
| Coupling or Conn. Size — in. Gas | 7/8 | 3/4 |
| Coupling or Conn. Size — in. Liq. | 3/8 | 3/8 |
| DIMENSIONS | | |
| | H x W x D | |
| Crated (In.) | 46 1/2 x 24 x 23-1/2 | |
| Uncrated | | |
| WEIGHT | | |
| Shipping (Lbs.) / Net (Lbs) | 135 / 125 | |

① These Air Handlers are A.R.I. certified with various Split System Air Conditioners and Heat Pumps (ARI STANDARD 210/240). Refer to the Split System Outdoor Unit Product Data Guides for performance data.

② 3/4" Male Plastic Pipe (Ref.. ASTM 1785-76)

③ Minimum filter size for horizontal applications will be based on airflow selection and will be calculated as follows:
 Low Velocity Filter: Face area (Sq. Ft.) = CFM / 300
 High Velocity Filter: Face area (Sq. Ft.) = CFM / 500

④ Torque Spec for TXV - Tighten 1/6 turn passed finger tight



| Airflow Performance 2/4TEC3F36B: Wet coil, No Heaters | | | | | | | | | | | | |
|--|---|------|------|-----------|------|-----|---|------|------|-----------|------|-----|
| EXTERNAL STATIC PRESSURE (in.w.g.) | AIRFLOW (CFM) | | | | | | | | | | | |
| | VERTICAL | | | | | | HORIZONTAL | | | | | |
| | 230 VOLTS | | | 208 VOLTS | | | 230 VOLTS | | | 208 VOLTS | | |
| | HI | MED | LO | HI | MED | LO | HI | MED | LO | HI | MED | LO |
| 0 | 1484 | 1282 | 1077 | 1402 | 1200 | 963 | 1402 | 1265 | 1069 | 1349 | 1165 | 947 |
| 0.1 | 1412 | 1268 | 1082 | 1352 | 1166 | 948 | 1350 | 1228 | 1048 | 1298 | 1131 | 915 |
| 0.2 | 1344 | 1226 | 1055 | 1292 | 1130 | 924 | 1289 | 1180 | 1015 | 1243 | 1090 | 890 |
| 0.3 | 1277 | 1171 | 1013 | 1227 | 1089 | 893 | 1225 | 1127 | 976 | 1185 | 1047 | 866 |
| 0.4 | 1209 | 1110 | 965 | 1163 | 1040 | 856 | 1163 | 1073 | 933 | 1127 | 1001 | 836 |
| 0.5 | 1139 | 1049 | 915 | 1098 | 982 | 814 | 1104 | 1019 | 887 | 1066 | 953 | 795 |
| 0.6 | 1065 | 987 | 862 | 1031 | 915 | 764 | 1043 | 962 | 835 | 1001 | 898 | 743 |
| 0.7 | 988 | 916 | 799 | 957 | 839 | 703 | 977 | 897 | 771 | 929 | 829 | 677 |
| 0.8 | 907 | 827 | 713 | 870 | 757 | 624 | 894 | 815 | 689 | 846 | 736 | 599 |
| 0.9 | 823 | 702 | 584 | 760 | 671 | 521 | 783 | 707 | 579 | 745 | 609 | 513 |
| NOTES: | With filter, no horizontal drip tray Small apex baffle Subtract 0.06" W.G. for downflow | | | | | | As shipped except without filter Subtract 0.05" W.G. for horizontal left | | | | | |

PRESSURE DROP FOR ELECTRIC HEATERS IN AIR HANDLER MODELS

| AIRFLOW CFM | NUMBER OF RACKS | | | | |
|----------------|-----------------|------|------|------|------|
| | 1 | 2 | 3 | 4 | 5 |
| 600 | 0.01 | 0.02 | 0.02 | | |
| 700 | 0.01 | 0.02 | 0.02 | | |
| 800 | 0.02 | 0.03 | 0.03 | 0.04 | |
| 900 | 0.03 | 0.03 | 0.04 | 0.05 | |
| 1000 | 0.04 | 0.04 | 0.05 | 0.06 | |
| 1100 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 |
| 1200 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 |
| 1300 | 0.06 | 0.07 | 0.08 | 0.09 | 0.11 |
| 1400 | 0.07 | 0.08 | 0.10 | 0.11 | 0.13 |
| 1500 | 0.08 | 0.09 | 0.11 | 0.13 | 0.15 |
| 1600 | 0.09 | 0.10 | 0.12 | 0.15 | 0.17 |
| 1700 | 0.10 | 0.11 | 0.14 | 0.17 | 0.19 |
| 1800 | 0.11 | 0.13 | 0.16 | 0.19 | 0.21 |
| 1900 | 0.13 | 0.15 | 0.18 | 0.21 | 0.23 |
| 2000 | 0.14 | 0.17 | 0.20 | 0.23 | 0.26 |

| HEATER RACKS | |
|------------------|--------------|
| HEATER MODEL NO. | NO. OF RACKS |
| BAYHTR1405 | 1 |
| BAYHTR1408 | 2 |
| BAYHTR1/3410 | 2 |
| BAYHTR1/3415 | 3 |
| BAYHTR1419 | 4 |

Notes:

1. See Product Data or Air Handler nameplate for approved combinations of Air Handlers and Heaters
2. Heater model numbers may have additional suffix digits.

| 2/4TEC3F36B WIRING DATA (Indoor Blower Motor Powered from Heater Circuit 1) | | | | | | | | | | | |
|--|--------------------------|----------|-------|-------------------------|--------------------------|-----------------------------|----------|-------|-------------------------|--------------------------|-----------------------------|
| Heater Model No. | Number of Circuits/Phase | 240 VOLT | | | | | 208 VOLT | | | | |
| | | Capacity | | Heater Amps per Circuit | Minimum Circuit Ampacity | Maximum Overload Protection | Capacity | | Heater Amps per Circuit | Minimum Circuit Ampacity | Maximum Overload Protection |
| | | KW | BTUH | | | | KW | BTUH | | | |
| NONE | 1/1 | N/A | N/A | N/A | 3 | 15 | N/A | N/A | N/A | 3 | 15 |
| BAYHTR1405+++ | 1/1 | 4.80 | 16400 | 20 | 28 | 30 | 3.60 | 12300 | 17.3 | 24 | 25 |
| BAYHTR1408+++ | 1/1 | 7.68 | 26200 | 32 | 43 | 45 | 5.76 | 19700 | 27.7 | 37 | 40 |
| BAYHTR1410+++ | 1/1 | 9.60 | 32800 | 40 | 53 | 60 | 7.20 | 24600 | 34.6 | 46 | 50 |
| BAYHTR3410 000 | 1/3 | 9.60 | 32800 | 34.6 | 43 | 45 | 7.20 | 24600 | 30 | 37 | 40 |
| BAYHTR1415 BRK | 2/1 | 15.36 | 52400 | 40/24 | 53*/30 | 60*/30 | 11.53 | 39300 | 34.6/20.8 | 46*/26 | 50*/30 |
| BAYHTR1415 BRK with Single Circuit Power Source Kit BAYSPEK140B | 1/1 | 15.36 | 52400 | 64 | 90 | 90 | 11.53 | 39300 | 55.4 | 79 | 80 |
| BAYHTR3415 000 | 1/3 | 15.36 | 52400 | 40 | 50 | 50 | 11.53 | 39300 | 34.9 | 44 | 45 |
| BAYHTR1419 BRK | 2/1 | 19.20 | 65500 | 32/48 | 43*/60 | 45*/60 | 14.42 | 49200 | 27.7/41.6 | 37*/52 | 40*/60 |
| BAYHTR1419 BRK with Single Circuit Power Source Kit BAYSPEK140B | 1/1 | 19.2 | 65500 | 80 | 110 | 110 | 14.42 | 49200 | 69.3 | 96 | 100 |

NOTES:
 * Circuit 1/Circuit 2 (Minimum Circuit Ampacity for Circuit 1 includes Blower Motor Amps)
 +++ = 000, BRK, PDC 000 = pigtail, BRK = contains circuit breakers, PDC= contains pull disconnect

IMPORTANT Any power supply and/or combination power supply, circuit or circuits must be wired and protected in accordance with local Electrical Codes

| Air Handler Model | Unit Position | Application | HEATER MODEL NUMBER BAYHTR | | | | |
|-------------------|---------------|----------------------|----------------------------|----------------|----------------|-----------------|----------------|
| | | | 1405 4.80KW | 1408 7.68KW | *410 9.60KW | *415 15.36KW | 1419 19.20K |
| 2/4TEC3F36 | Vertical | A/C or Elec. Furnace | L | L | L | L | L |
| | Upflow | Heat Pump | L | L | L | H | H |
| | Vertical | A/C or Elec. Furnace | L | L | L | L | L |
| | Downflow | Heat Pump | L | L | L | H | H |
| | Horizontal | A/C or Elec. Furnace | L | L | L | L | L |
| | Left | Heat Pump | L | L | L | H | H |
| | Horizontal | A/C or Elec. Furnace | L | L | L | L | L |
| | Right | Heat Pump | L | L | L | H | H |

Mechanical Specifications

General — Blower coil units shall be completely factory assembled including coil, condensate drain pan, fan, motor, filters and controls in an insulated casing that can be applied in horizontal or vertical configuration. This is an "Air-Tite" model with 4.2 "R" value insulation and additional sealing systems.

This new line of 2/4TEC3F Air handlers provides exclusive compact size combined with simple 6-Way convertibility in sizes up to 5 Tons. The unit ships in the vertical upflow configuration and converts to horizontal right just by laying the unit on its side. No tools required. Simple coil rotation provides downflow and horizontal left applications.

The 6-Way convertibility provides you inventory benefits and service/installation flexibility. The simple conversion provides opposite side access for installation and service.

Units shall be UL listed.

Casing — Units shall have a rugged sheet metal and steel frame construction and shall be painted with an enamel finish. Casing shall be insulated and knockouts for electrical power and control wiring.

Refrigerant Circuits — The 2/4TEC3F units have a single refrigerant circuit. The refrigerant circuit shall be controlled shall be controlled by a factory installed non-bleed thermal expansion valve.

Coil — Aluminum fin surface shall be mechanically bonded to 3/8 inch OD copper tubing. Coils are factory pressure and leak tested.

Fan — Forward curved, dynamically balanced and statically balanced with 3 speed direct drive shall be standard, fan motor bearing shall be permanently lubricated.

Controls — Low voltage wire nut connections, fan contactor, and plug in module for accessory electric heat control shall be included.

Filters — Filters shall be included as standard, One inch low velocity semi-permanent type (except 5 ton washable filter).

Accessories

Electric Heaters — Shall be available in a wide range of capacities and voltages with various staging options, and plug-in control wiring. Heaters shall fit inside the internal compartment.



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