



48FC 08-14 WEATHERMAKER® SERIES WITH ECOBLUE™ TECHNOLOGY SINGLE PACKAGE ROOFTOP GAS HEAT/ELECTRIC COOLING UNITS



- PERFORMANCE DATA**
- CERTIFIED DIMENSION PRINTS**
- CERTIFIED ROOF CURB DETAILS**



JOB NAME:		LOCATION:	
BUYER:		BUYER PO #:	CARRIER#:
UNIT NUMBER:		MODEL NUMBER:	
PERFORMANCE DATA CERTIFIED BY:			
DESCRIPTION 48FC 08-14 size units are single-packaged electric cooling, gas heating units that are pre-wired and pre-charged with Puron® (R-410A) HFC refrigerant. The units are factory tested in both heating and cooling modes. These units meet the upcoming DOE-2023 (Department of Energy) and ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) 90.1 minimum efficiencies. Models use Carrier's leading Ecoblue™ Vane Axial Indoor Fan System with built in speed control and no fan belts or pullies. All models have two-stage cooling and single circuit design to provide maximum efficiency and comfort control. FEATURES <u>Standard Base Unit</u> • Puron (R-410A) HFC refrigerant • Two-stage/one-circuit cooling capacity control on all models • DOE-2023, ASHRAE 90.1 compliant • Rated in accordance with AHRI Standard 340/360 • Designed in accordance with Underwriters Laboratories standard 60335-2-40 • Listed by ETL and ETL-Canada • Non-corrosive composite sloping design; side or center drain condensate pan. Meets ASHRAE Standard 62 • Standard cooling operating range from 40°F up to 125°F (except 115°F on 14 size models) (4°C up to 52°C). Field installable accessory extends the minimum down to -20°F (-29°C). • Field convertible from vertical to horizontal airflow for slab mounting • Two-inch disposable return air filters • Thru-the-bottom power and gas entry capability • Single point gas and electric connections • 24-volt control circuit protected with resettable circuit breaker and 75-VA transformer • Direct Drive - EcoBlue™ indoor fan system uses vane axial fan design and electronically commutated motor: – Shall have inherent automatic-reset thermal overload protection – Shall require no fan/motor belts for operation, adjustments, and/or initial fan speed setup – Shall be internally protected from electrical phase reversal and loss – Shall have slow ramp up to speed control capabilities to help reduce sound and comfort issues – Shall be a slide-out design with simple screw removal – Shall not require VFD fan speed control • Centralized terminal board facilitating simple safety circuit troubleshooting and simplified control box arrangement • New unit control board with intuitive quick fan speed adjustment • Totally enclosed condenser motors with permanently lubricated bearings • Low-pressure and high-pressure switches • Low return air temperature protection switch • Full perimeter base rail with built-in rigging adapters and fork truck slots • Central Terminal Board for component and unit wiring connections. • Access panels with easy grip handles and NO-STRIP screw collars • Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection • Fully insulated cabinet • Tool-less filter access door <u>Refrigerant System</u> • TXV refrigerant metering system • Liquid line filter drier • Tandem Scroll compressors with internal line-break overload protection • Copper tube, aluminum fin evaporator coils • Round Tube/Plate Fin (RTPF) condenser coils on all model sizes <u>Gas Heat</u> • IGC solid-state gas heat exchanger control for on-board diagnostics, anti-cycle protection, LED error code designation, burner control logic and energy saving indoor fan motor delay • Gas efficiencies up to 82% • Designed in accordance with ANSI Z21.47 (design and test standard for gas furnaces) and ANSI Z233.1 (National Fuel Gas code relating to appliance installation requirements) • Induced negative draft combustion system • Redundant gas valve, with up to 2 stages of heating • Flame roll-out safety protector • Solid-state electronic direct spark ignition system <u>Standard Limited Parts Warranty</u> • 15-year limited on all gas heat exchanger parts - Stainless Steel • 10-year limited on all gas heat exchanger parts - Aluminized • 5-year limited on all compressor parts • 5-year parts on Factory Installed Ultra Low Leak Economizer • 3-year limited on SystemVu controller • 1-year limited on all parts			

PERFORMANCE DATA

Unit Operating Weight _____ lb Curb Weight _____ lb

COOLING

Gross Total Capacity _____ Btuh

at Condenser Air Temperature _____ °F

Gross Sensible Capacity _____ Btuh

Compressor Power Input _____ kW

Indoor Entering: db _____ °F / wb _____ °F

Airflow _____ CFM External Static Pressure _____ in. wg

Indoor Fan Motor Size _____ HP

Exhaust Fan Motor Size _____ HP

Indoor Fan Motor Setting _____ Vdc

HEATING (GAS)

Heating Capacity:

Stage 1 _____ Btuh

Stage 2 _____ Btuh

Heating Capacity Total _____ Btuh

Stage 1 _____ kW

Stage 2 _____ kW

Heating Capacity Total _____ kW

ELECTRICAL DATA

Power Supply to Unit _____

Volts _____

Phase _____ Hz

Maximum Circuit Amps _____

Maximum Overcurrent Protection _____

SUBMITTAL DATA

Job Name _____

Architect _____

Engineer _____

Contractor _____

Unit Designation _____



FACTORY-INSTALLED OPTIONS

☐ Economizer with DRY BULB Sensing and Barometric Relief

Low Leak Air Dampers —

- Models with W7220 controller meet California Title 24-2016 (Section 120.2) for Fault Detection and Diagnostic (FDD) requirements (EconoMi\$er X system).
- Models with SystemVu controller meet California Title 24-2016 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements (EconoMi\$er 2 system).

☐ Economizer with ENTHALPY Sensing and Barometric Relief

Low Leak Air Dampers —

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- Models with SystemVu controller meet California Title 24-2016 (Section 120.2) Fault Detection and Diagnostic (FDD) requirements (EconoMi\$er 2 system).

☐ Economizer with DRY BULB Sensing and Barometric Relief

ULTRA LOW LEAK Air Dampers —

- Models with W7220 controller meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. For outside air, return, and relief air damper leakage requirements economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.

NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.

Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi\$er X system).

- Models with SystemVu meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic requirements. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12.

Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.

NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.

Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi\$er 2 system).

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Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi\$er X system).

- Models with SystemVu meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic requirements. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.

NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.

Outside air, return air, and relief air (volume) dampers are AMCA rated — plus 5 year limited parts warranty (EconoMi\$er 2 system).

NOTE: Production of single phase voltage models has been discontinued per DOE regulations. Single phase 48FC models are only available until current inventories are exhausted.

FACTORY-INSTALLED OPTIONS (CONT)

Standard Base Unit (United States Models)

Factory Options

- ☐ SystemVu™ controls that include:
 - Large full text - multi line display
 - USB Flash Port for data transfer
 - Built in i-Vu®, CCN and BACnet¹
 - Refrigerant pressure from display
 - Quick LED Status - Run, Alert, Fault
 - Conventional stat or sensor capabilities
 - Historical component runtime and starts
 - Supply air tempering
 - Equipment Touch™/ System Touch™ compatibility
 - Demand limiting and ZS sensor compatibility
- ☐ Through the base connectors for gas and electric conduit/piping
- ☐ Stainless steel gas heat exchanger (includes tubes, vestibule plate and collector box)

1. BACnet is a trademark of ASHRAE.

- ☐ Humidi-MiZer® adaptive dehumidification system
- ☐ Non-fused disconnect
- ☐ Powered 115-volt convenience outlet
- ☐ Non-powered 115-volt convenience outlet
- ☐ High static evaporator fan motor
- ☐ Return Air smoke detector
- ☐ Supply Air smoke detector
- ☐ CO₂ sensor
- ☐ Condenser hail guard-louvered style
- ☐ Special coating protection for evaporator and condenser coils
- ☐ Hinged access doors
- ☐ Condensate overflow switch

Optional Warranties

- ☐ Complete unit parts only, up to 5 years
- ☐ Complete unit parts and labor, up to 5 years

Many other optional warranties are available. See the Commercial Start-Up and Optional Extended Warranty Price pages for further information.

FIELD-INSTALLED ACCESSORIES

□ Economizer with DRY BULB Sensing and Barometric Relief

Standard Leak Air Dampers —

- Models with W7212 controller provide standard non-diagnostic control. EconoMiSer® IV.
- Models with W7220 controller meet California Title 24-2016 Section 120.2.i for Fault Detection and Diagnostic (FDD) requirements. EconoMiSer X.
- Models with SystemVu controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements. EconoMiSer 2.

□ Economizer with ENTHALPY Sensing and Barometric Relief

Standard Leak Air Dampers —

- Models with W7212 controller provide standard non-diagnostic control. EconoMiSer IV.
- Models with W7220 controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements. EconoMiSer X.
- Models with SystemVu controller meet California Title 24-2016 Section 120.2.i Fault Detection and Diagnostic (FDD) requirements. EconoMiSer 2.

□ Economizer with DRY BULB Sensing and Barometric Relief

ULTRA LOW LEAK Air Dampers —

- Models with W7220 controller meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.), and mandatory section 120.2.i for Fault Detection and Diagnostic controls. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. For outside air, return, and relief air damper leakage requirements economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.
NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.
Outside air, return air, and relief air (volume) dampers are AMCA rated.

- Models with SystemVu meet California Energy Commission Title 24-2016 perspective section 140.4 (damper leakage, etc.) and mandatory section 120.2.i for Fault Detection and Diagnostic requirements. Economizers meet ASHRAE 90.1-2016 damper leakage requirements as stated in section 6.5.1.1.4 and Table 6.4.3.4.3, and meet 2016 Fault Detection and Diagnosis requirements in section 6.4.3.12. Economizers meet IECC 2012 section C402.4.5.2 and, IECC 2015 sections C403.2.4.3 and C403.3.3.5 for outside air, return air, and relief air damper leakage requirements and IECC 2015 section C403.2.4.7 for Fault Detection and Diagnostic requirements.
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NOTE: IECC 2015 section C403.2.4.7.1 requires differential return air sensor, which must be ordered separately.
Outside air, return air, and relief air (volume) dampers are AMCA rated.

FIELD-INSTALLED ACCESSORIES (CONT)

- | | |
|---|---|
| ☐ Prop fan power exhaust | ☐ Low ambient head pressure controller, down to
–20°F (–29°C) |
| ☐ Two-position motorized outdoor air damper | ☐ Time Guard II compressor anti-cycle protection |
| ☐ Manual outside air damper 25% | ☐ Thermostats and Sensors |
| ☐ Manual outside air damper 50% | ☐ Condensate overflow switch |
| ☐ Roof Curb — 14 inch (356 mm) tall | ☐ Non-powered 115-volt (20 amp) convenience outlet |
| ☐ Roof Curb — 24 inch (610 mm) tall | ☐ Side access hinged filter door kit |
| ☐ Thru-the-bottom connections (electrical only) | ☐ Horn/strobe annunciator |
| ☐ Thru-the-bottom connections (electrical and gas) | <u>Economizer Sensors</u> |
| ☐ Condenser hail guard (louvered style) | ☐ Single Dry bulb control |
| ☐ Flue shield | ☐ Differential Dry bulb control |
| ☐ Flue discharge deflector | ☐ Single enthalpy control |
| ☐ Liquid propane (LP) conversion kit | ☐ Differential enthalpy control |
| ☐ High altitude conversion kit | ☐ CO ₂ — wall mounted |
| ☐ Phase monitor (loss of phase/phase reversal) | ☐ CO ₂ — duct mounted |
| ☐ Winter start kit, down to 25°F (–4°C) | ☐ CO ₂ — unit mounted |
| ☐ Low ambient head pressure controller, down to
0°F (–18°C) | |

NOTES:

1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [] ARE IN MILLIMETERS.

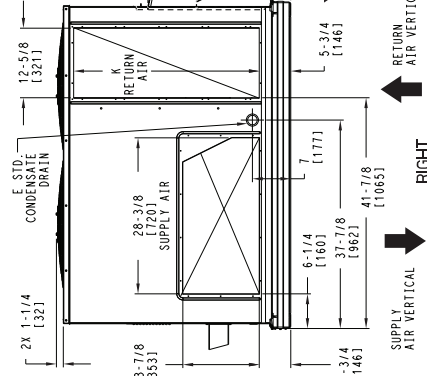
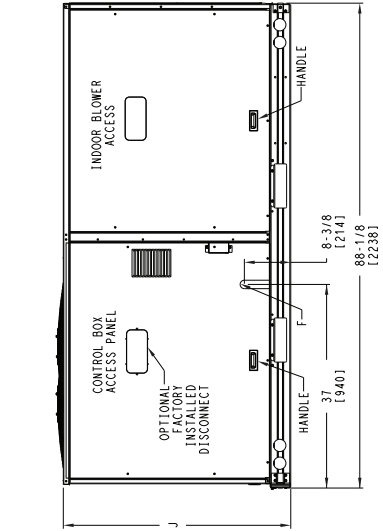
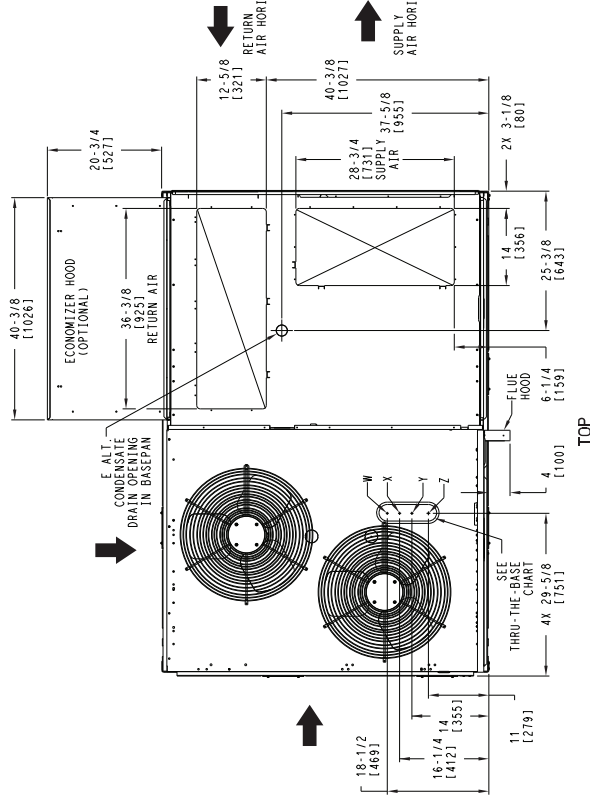
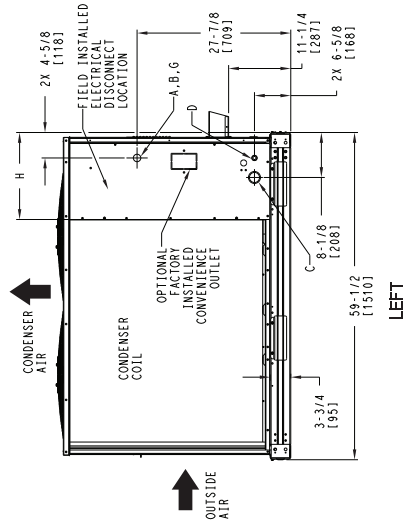
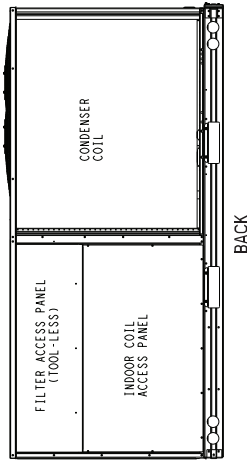
2.  CENTER OF GRAVITY

3. DIRECTION OF AIR FLOW

4. ALL VIEW DRAWN USING 3RD ANGLE

UNIT	OUTDOOR COIL TYPE	J	K	H
48FC-M08	R1PF	41 1/4 [1048]	33 3/4 [857]	15 7/8 [403]
48FC-M09	R1PF	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]
48FC-M12	R1PF	49 3/8 [1253]	36 3/8 [925]	15 7/8 [403]

R1PF = ROUND TUBE, PLATE FIN (COPPER/ALUM.)



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

THRU-THE-BASE CHART (FIELD INST)

	THREADED CONDUIT SIZE	WIRE ACC.	REQ'D HOLE SIZES (MAX.)
W	1/2"	24V	7/8" [22.2]
X	1/2"	24V	7/8" [22.2]
Y	1 1/4" (1002.004)	POWER	1 3/4" [44.4]
Z *	(004) 3/4" FPT	GAS	1 3/4" [44.4]
*	(002) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING. HOLE SIZE: [50.8]		

THRU-THE-BASE CHART (FIOP)

FOR "THRU-THE-BASEPAN" FACTORY OPTION.

FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED. **

FOR BELOW LISTED MODELS, A FIELD SUPPLIED 1/2" ADAPTER IS REQUIRED

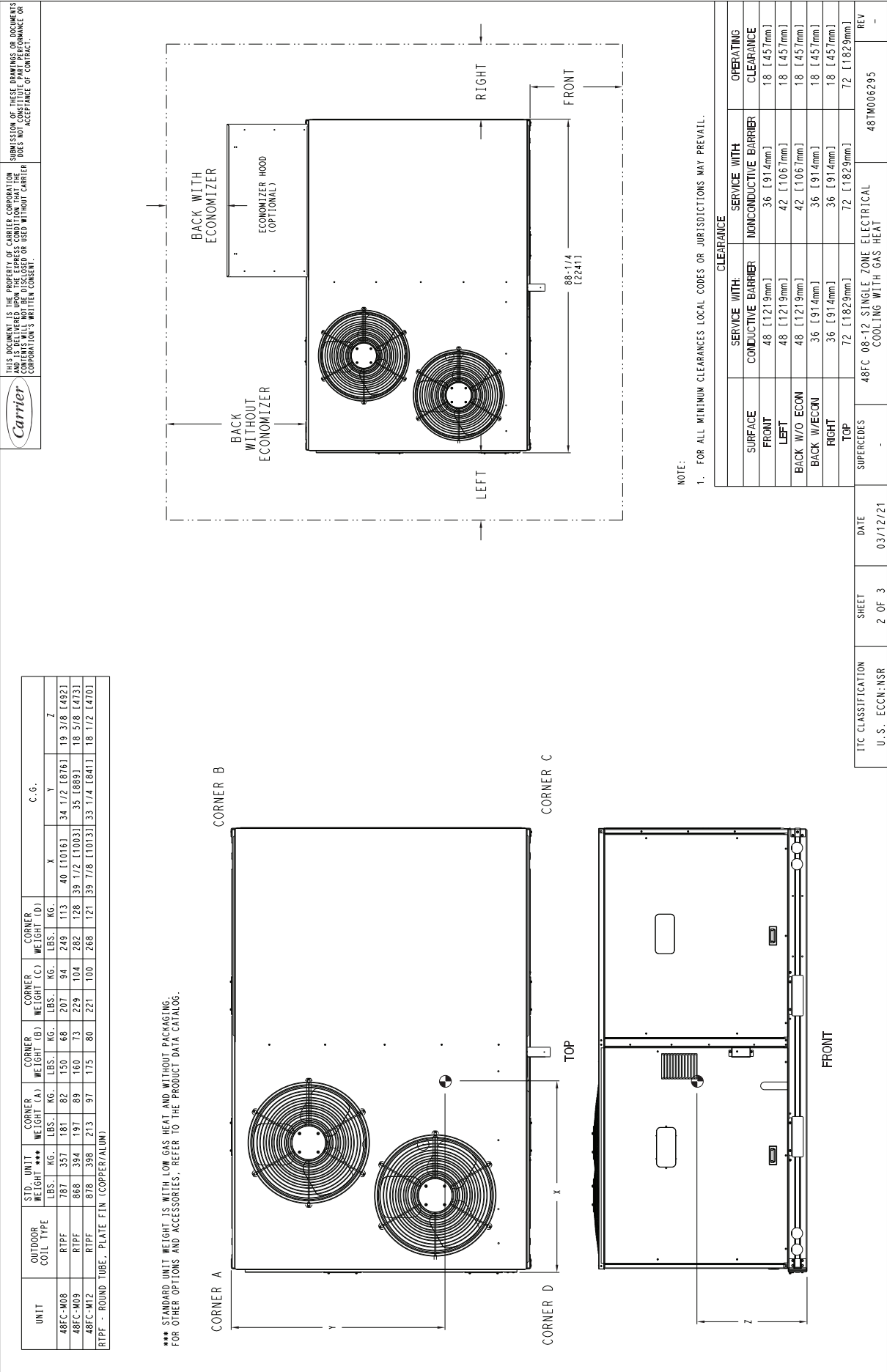
SUPPLIED 1/2" ADAPTER IS REQUIRED
BETWEEN BASE PAN FITTING AND GAS VALVE:

48FCD, S*08, 09

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	REV
II S EFCN-NSP	1 OF 3	03/12/21	48FC 08-12 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	48TM006295

Fig. 1 — Unit Dimensional Drawing – Sizes 08, 09, 12

CERTIFIED DIMENSION PRINT



CERTIFIED DIMENSION PRINT

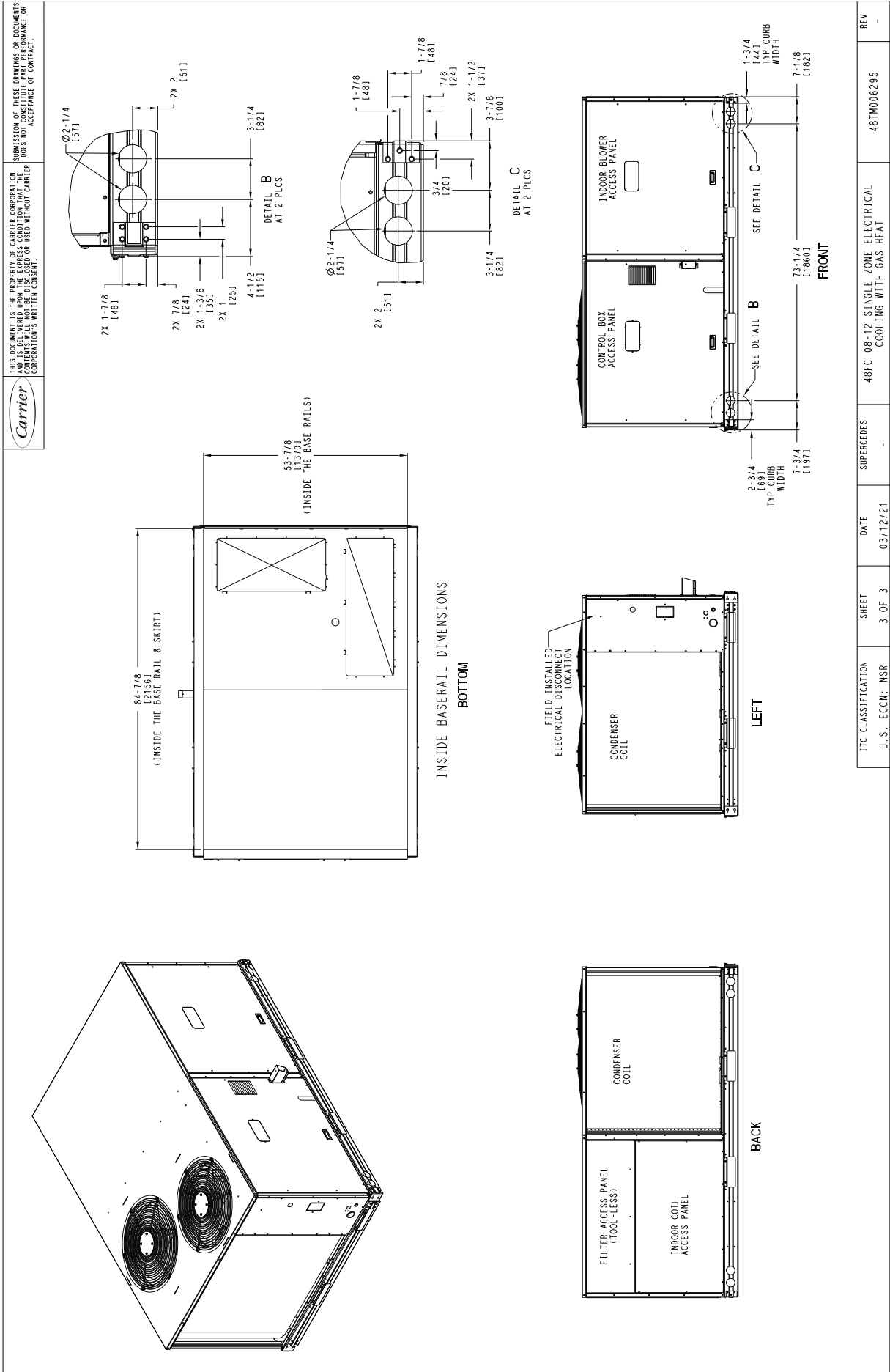


Fig. 1 — Unit Dimensional Drawing – Sizes 08, 09, 12 (cont)

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

UNIT	OUTDOOR COIL TYPE	H
48FC-M14	RTPF	15 7/8 [403]

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

CONNECTION SIZES

	A	B	C	D	E	F	G
1 3/8" [35]	DIA. FIELD POWER SUPPLY HOLE						
2 1/2" [64]	DIA. POWER SUPPLY KNOCKOUT						
1 3/4" [51]	DIA. GAUGE ACCESS PLUG						
7/8" [22]	DIA. FIELD CONTROL WIRING HOLE						
3/4"-1.4 NPT	CONDENSATE DRAIN						
3/4"-1.4 NPT	GAS CONNECTION						
2" [51]	DIA. POWER SUPPLY KNOCK-OUT						

THRU-THE-BASE CHART
 THESE HOLES REQUIRED FOR USE
 CRBIMPR002A01, 004A01

	W	X	Y	Z*
THREADED CONDUIT SIZE	1/2"	1/2"	1 1/4"	(004) 3/4" FPT
WIRE USE	ACC.	24V	POWER	GAS
REQ'D HOLE SIZES (MAX.)	7/8" [22.2]	7/8" [22.2]	1 3/4" [44.4]	1 5/8" [41.3]

* FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X, Y, & Z ARE PROVIDED
 (002) PROVIDES 3/4" FPT THRU CURB FLANGE & FITTING.

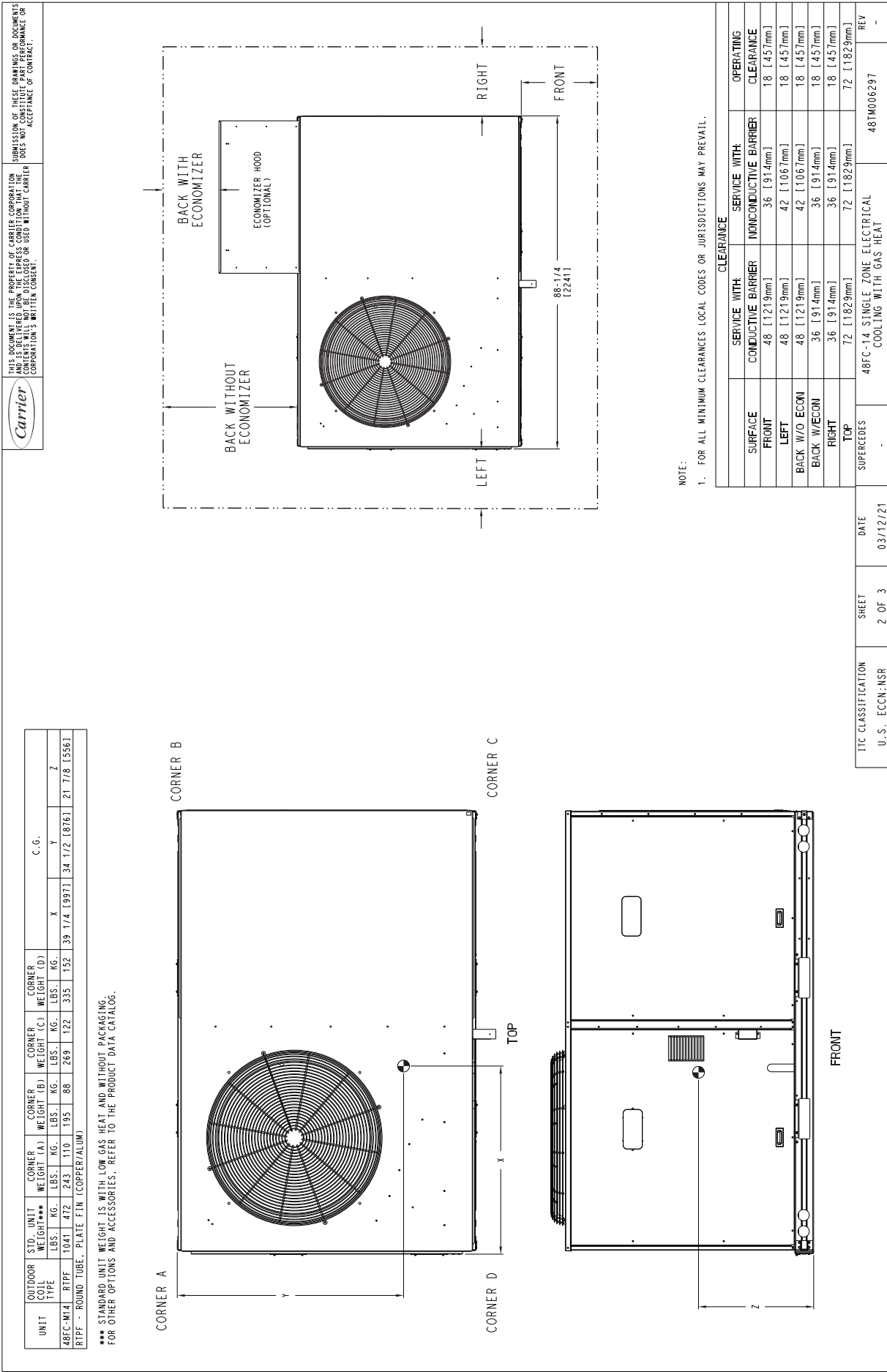
BACK

LEFT

RIGHT

Fig. 2 — Unit Dimensional Drawing – Sizes 14

CERTIFIED DIMENSION PRINT



CERTIFIED DIMENSION PRINT

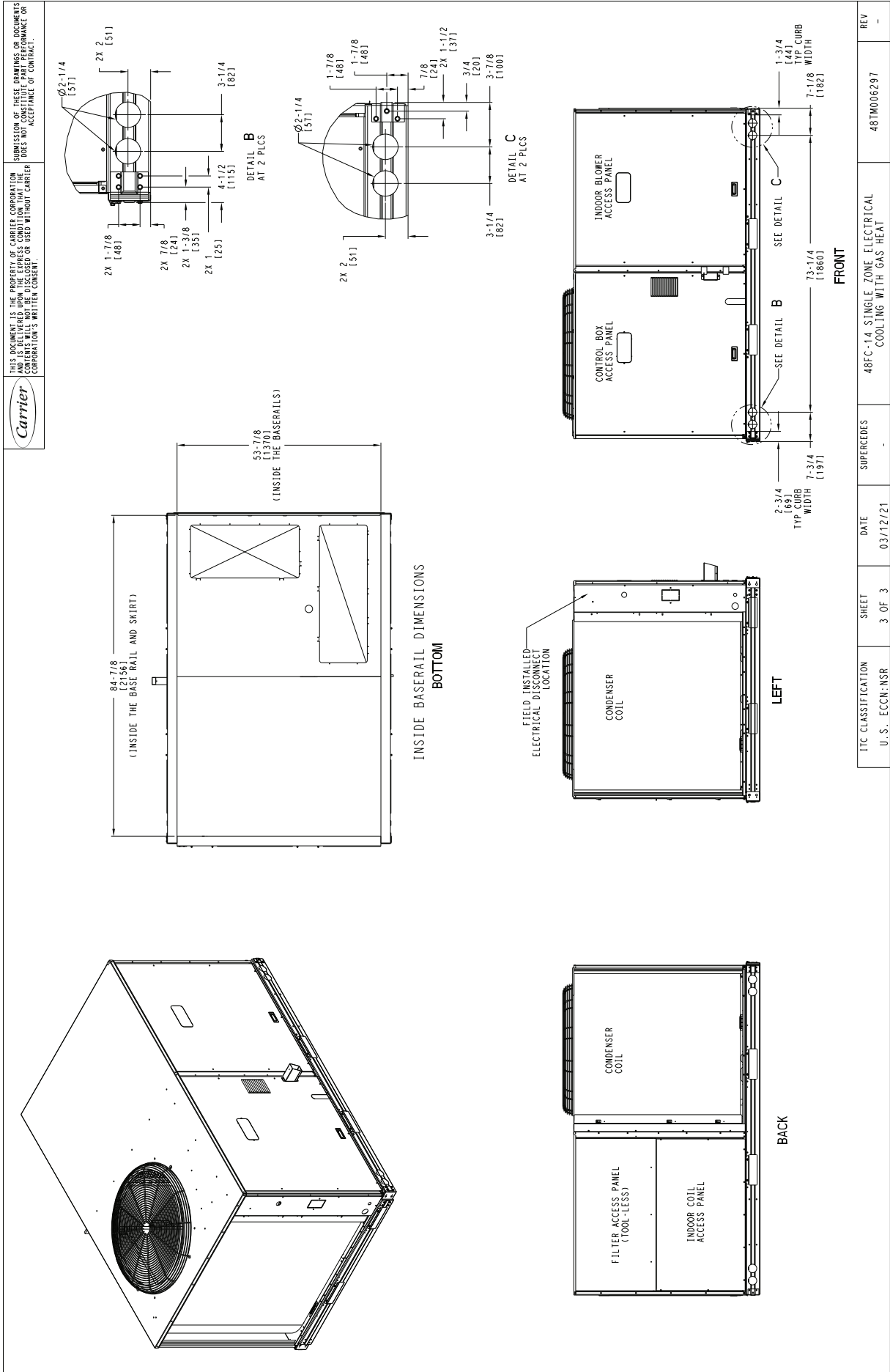


Fig. 2 — Unit Dimensional Drawing — Sizes 14 (cont)

[illegible]

14

