Carrier

Product Data

WeatherMaster®
Single Packaged Rooftop

15 to 25 Nominal Tons

ecoblue™ technology

Puron ADVANCE™

48/50GE**17, 20, 24, 28
48GE: Single-Package Gas Heating/Electric Cooling Rooftop Units
50GE: Electric Cooling Rooftop Units with Accessory Electric Heat
with Puron Advance™ Refrigerant (R-454B) and EcoBlue Technology

Form 48-50GE-17-28-01PD

Features/Benefits

Introducing Carrier's WeatherMaster® rooftop units (RTUs) with Puron Advance™ and EcoBlue™ Fan Technology.

The WeatherMaster line has always stood for high efficiency cooling solutions that are innovative, high quality, and easy to use. Carrier's new 48/50GE rooftops continue that legacy with Puron Advance, our low global warming potential refrigerant. With high efficiency offerings, additional factory installed options, EcoBlue fan technology, locally available stock, and direct fit footprints, new installations and replacements are easier than ever.

New major design features include:

- Puron Advance (R-454B) refrigerant, which delivers a 75% reduction in global warming potential (GWP) compared to the original Puron (R-410A). Puron Advance's GWP of 466 easily exceeds the EPA (Environmental Protection Agency) requirement of <700 GWP.
- A patented, industry-first vane axial indoor fan system with an electronically commutated motor for simplicity and efficiency. When compared to traditional belt-driven forward curve fans, our reliable system has:
  - 75% fewer moving parts
  - Up to 40% greater efficiency
  - No fan belts, pulleys, shaft, or shaft bearings
  - Better sound and comfort due to slow ramp-up capability
  - Internal protection from phase reversal and phase loss situations
  - High external static capability
  - Slide-out blower assembly design
- Reliable and highly safety protected 2 stage cooling with tandem scroll compressors technology, fully active evaporator coil, and mixed air temperature protection on all models
- Unit control board (UCB) with intuitive indoor fan adjustment that uses simple dial and switch configuration
- Reliable copper tube/aluminum fin condenser coil with 5/16 in. tubing to help reduce refrigerant charge and weight versus prior designs

WeatherMaster® 48/50GE units up to 25 tons are specifically designed for dedicated factory-supplied vertical air flow or horizontal air flow. No special field kits are required. Designed to fit on pre-installed curbs by other manufacturer, these units can also fit on some of Carrier's past installed roof curbs.

Two-speed staged air volume (SAV) Vane Axial indoor fan speed control helps deliver IEERs up to 17.0.

With "no-strip" screw collars, handled access panels, and more, the unit is easy to install, easy to maintain, and easy to use. Your new 15 to 25 ton Carrier WeatherMaster rooftop unit (RTU) provides optimum comfort and control from a packaged rooftop.

Value-added features include:

- Optional Humidi-MiZer® adaptive dehumidification system for improved part load humidity performance
- SystemVu™ intuitive intelligent controls option that provides:
  - Large, full text, multi-line display
  - USB flash port for data transfer
  - Built-in i-Vu®, CCN, and BACnet®[1]
  - Easy to read refrigerant pressures shown via the display — no checking gauges
  - Quick LED Status for Run, Alert, and Fault
  - Conventional thermostat or sensor capabilities
  - Historical component runtime and starts
  - Supply air tempering
  - Network Service Tool compatible
- Single point gas and electrical connections
- TXV refrigerant metering devices on 15 to 25 ton models
- Scroll compressors with internal line-break overload protection
- Easy-to-access tool-less filter door, filter tracks that tilt out for filter removal and replacement, and filter size consistency across units

Installation ease

Lighter units make for easy replacement and aid in the structural approval process. Units have simple, fast plug-in connections to the standard integrated unit control board (UCB). Clearly labeled connections points to reduce installation time. Also, a large control box provides room to work and room to mount Carrier accessory controls.

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1. Third-party trademarks and logos are the property of their respective owners.

Features/Benefits (cont)

Easy to maintain

With the EcoBlue vane axial fan system and a direct drive ECM motor, belts and pulleys are a thing of the past. This frees up maintenance, installation and commissioning time. Should an adjustment be necessary, it can easily be made via the UCB in the control box. For regular service activities, our easy-access handles provide a quick solution to all commonly accessed service panels, and our sloped, corrosion-resistant composite drain pan sheds water and will not rust. Service gauge connections are included on compressor suction/discharge lines and before and after the filter drier to monitor system operation during maintenance.

Easy to use

Carrier's re-designed unit control board puts all connections and troubleshooting points in one convenient place. Most low voltage connections use the same board and are easy to access. Setting up the fan is simple using an intuitive switch and rotary dial arrangement. Our rooftops have high and low pressure switches, a new mixed air temperature switch, a filter drier, and 2 in. filters standard.

Puron Advance™ Features

In 2018, Carrier announced Puron Advance (R-454B) as our next generation refrigerant for light commercial rooftops. With a GWP of 466 and similar working pressure and performance to R-410A, Puron Advance easily exceeds the EPA's new, stringent <700 GWP refrigerant requirement while minimizing unit redesign. Like other next generation refrigerants (R-32, etc.), R-454B is classified as an "A2L" refrigerant by ASHRAE®[1] (American Society of Heating, Refrigerating, and Air-Conditioning Engineers). This designation means that R-454B is "mildly flammable" under certain conditions. While this is a change from legacy "A1 — No Flame Propagation" refrigerants like Puron (R-410A), A2Ls are still very low on the flammability scale and quite safe for use. A2L refrigerants are difficult to ignite and have an extremely low flame speed — much less so than natural gas, propane, or even rubbing alcohol. At Carrier, we are committed to safety. As such, all of our Puron Advance rooftop units include a factory-installed dissipation control board and leak sensor designed to last the lifetime of the unit. This system is certified to UL 60335-2-40 and designed to work right away, without any field configuration or wiring. In the event of a leak, these systems are designed to automatically identify and resolve the issue by dissipating the refrigerant to minimize risk to equipment, buildings, or occupants.

EcoBlue™ Technology

Our direct drive EcoBlue indoor fan system uses vane axial fan and electronically commutated motor. The benefit is clear: when compared to legacy belt drive systems, this vane axial design has 75% fewer moving parts, uses up to 40% less energy, and has no belts, blower bearings, or shaft. The full fan and motor assembly also slides out for easier maintenance and service.

Streamlined control and integration

Carrier controllers make connecting WeatherMaster rooftops into existing building automation systems easy. The units are compatible with conventional thermostat controls or SystemVu controls for greater comfort, diagnostics, and building network integration.

Operating efficiency and flexibility

The 48/50GE rooftops exceed the DOE 2023 efficiency standard, as well as ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) 90.1 and IECC®[1] (International Energy Conservation Code) requirements.

Comfort control

Carrier's patented Humidi-MiZer® adaptive dehumidification system is an all-inclusive factory-installed option on gas heating/electric cooling and electric cooling/electric heat models. This system provides reliable, flexible operation to meet indoor part load sensible and latent requirements as well as multiple gas heat and electric heat sized to fit an array of applications.

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Features/Benefits (cont)

Vane Axial Indoor Fan
– Direct drive ECM
– Slow ramp up
– Phase loss protection
– No belts or pulleys
– Slide out design

WeatherMaster®
with ecoblue™ technology
48/50GE 15 – 25 Ton Models

High Efficiency Outdoor Fan
– Quite operation
– Balanced blades
– Efficient airflow collar

Unit Controls
– E/M base unit controller
  Switch/dial fan setting
  Large terminal connections
– SystemVu™ control option

Compression
– Fully hermetic scroll
– Internally protected
– Multi stage design
– Safety switch protected

Air Management
– Factory - Field economizers
– Upgraded MERV-13 filters
– Tool-less Filter Access door

Efficient Coils
– Round tube/plate fin
– Copper/Aluminum
– Special coating available
– New 5/16 in. condenser tube
– Humidi-MiZer® system available
– TXV metering device

Heating
– Gas Heating
  Induced draft heat exchanger
  Multiple sizes available
  Efficient dimpled gas design
– Electric Heating
  Multiple sizes available
  Single point power

Cabinet Design
– Heavy gauge base rails
– Large handled access panels
– Embossed strengthened base pan

Model number nomenclature

48GE Model Number Nomenclature

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	4	8	G	E	E	M	2	0	A	2	A	6	-	0	A	0	A	0

Unit Heat Type
48 — Gas Heat Packaged Rooftop

Model Series - WeatherMaster®
GE — High Efficiency Puron Advance™

Heat Options
D = Low Heat
E = Medium Heat
F = High Heat
S = Low Heat w/ Stainless Steel Heat Exchanger
R = Medium Heat w/ Stainless Steel Heat Exchanger
T = High Heat w/ Stainless Steel Heat Exchanger

Refrig. Systems Options
M = Two Stage Cooling/Single Circuit
N = Two Stage Cooling/Single Circuit with Humidi-MiZer® System
P = Two Stage Cooling/Single Circuit with Head Pressure Control

Cooling Tons
17 = 15.0 tons
20 = 17.5 tons
24 = 20.0 tons
28 = 25.0 tons

Sensor Options
A = None
B = Return Air Smoke Detector (RA)
C = Supply Air Smoke Detector (SA)
D = RA + SA Smoke Detector
J = Condensate Overflow Switch
K = Condensate Overflow Switch + RA Smoke Detectors
L = Condensate Overflow Switch + RA and SA Smoke Detectors
M = Condensate Overflow Switch + SA Smoke Detector

Indoor Fan Options - Vane Axial EcoBlue Fan System
2 = Standard/Medium Static Motor - Vertical Supply
3 = High Static Motor - Vertical Supply
5 = Standard/Medium Static Motor - Vertical Supply and Filter Status Switch
6 = High Static Motor - Vertical Supply and Filter Status Switch
J = High Static Motor - Horizontal Supply
L = High Static Motor - Horizontal Supply and Filter Status Switch

Coil Options – RTPF (Outdoor – Indoor – Hail Guard)
A = Al/Cu – Al/Cu
B = Precoat Al/Cu – Al/Cu
C = E-coat Al/Cu – Al/Cu
D = E-coat Al/Cu – E-coat Al/Cu
M = Al/Cu – Al/Cu – Louvered Hail Guard
N = Precoat Al/Cu – Al/Cu – Louvered Hail Guard
P = E-coat Al/Cu – Al/Cu – Louvered Hail Guard
Q = E-coat Al/Cu – E-coat Al/Cu – Louvered Hail Guard
R = Cu/Cu – Al/Cu – Louvered Hail Guard
S = Cu/Cu – Cu/Cu – Louvered Hail Guard

Voltage
1 = 575-3-60
5 = 208/230-3-60
6 = 460-3-60

Design Revision
- = Factory Design Revision

Base Unit Controls
0 = Standard Electromechanical Controls (can be used with field installed economizers and dampers)
3 = SystemVu™ Controller
8 = Electromechanical Controls with POL224 EconomizerONE (with FDD[b])

Intake / Exhaust Options
A = None
B = Temperature Economizer with Barometric Relief
F = Enthalpy Economizer with Barometric Relief
L = ULL (Ultra Low Leak) Temperature Economizer with Barometric Relief and CO_2 Sensor
M = ULL Enthalpy Economizer with Barometric Relief and CO_2 Sensor
N = ULL Temperature Economizer with Power Exhaust and CO_2 Sensor, Vertical Only
P = ULL Enthalpy Economizer with Power Exhaust and CO_2 Sensor, Vertical Only
U = ULL Temperature Economizer with Barometric Relief
V = ULL Temperature Economizer with Power Exhaust, Vertical Only
W = ULL Enthalpy Economizer with Barometric Relief
X = ULL Enthalpy Economizer with Power Exhaust, Vertical Only

Service Options
0 = None
1 = Unpowered Convenience Outlet (NPCO)
2 = Powered Convenience Outlet (PCO)
3 = Hinged Panels (HP)
4 = Hinged Panels + NPCO
5 = Hinged Access Panels + PCO
6 = MERV-13 Filters (M13)
7 = NPCO + MERV-13 Filters
8 = PCO + MERV-13 Filters
9 = Hinged Panels + MERV-13 Filters
A = HP + NPCO + MERV-13 Filters
B = HP + PCO + MERV-13 Filters
C = Foil Faced Insulation (FF)
D = FF + NPCO
E = FF + PCO
F = FF + HP
G = FF + HP + NPCO
H = FF + HP + PCO
J = FF + MERV-13 Filters
K = FF + NPCO + MERV-13 Filters
L = FF + PCO + MERV-13 Filters
M = FF + HP + MERV-13 Filters
N = FF + HP + NPCO + MERV-13 Filters
P = FF + HP + PCO + MERV-13 Filters

Electrical Options
A = None
B = HACR Breaker
C = Non-Fused Disconnect (NFDC)
N = Phase Monitor/Protection (PMR)
P = PMR + HACR
Q = PMR + NFDC
1 = HSCCR[a] (High Short Circuit Current Rating) Protection

Packaging Compliance
0 = Standard

NOTE(S):
[a] Not available on the following models/options: 575V, Head Pressure Control, Phase Loss Monitor,Non-Fused Disconnect, HACR Breaker, Powered Convenience Outlet.
[b] FDD (Fault Detection and Diagnostic) capability per California Title 24 section 120.2

Model number nomenclature (cont)

50GE Model Number Nomenclature

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	5	0	G	E	-	M	2	0	A	2	A	6	-	0	A	0	A	0

Unit Type
50 — Cooling with Optional Electric Heat

Model Series - WeatherMaster®
GE — High Efficiency Puron Advance™

Electric Heat Size
- = No Heat
A = Low Electric Heat
B = Medium Electric Heat
C = High Electric Heat

Refrig. Systems Options
M = Two Stage Cooling/Single Circuit
N = Two Stage Cooling/Single Circuit with Humidi-MiZer® System
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P = E-coat Al/Cu – Al/Cu – Louvered Hail Guard
Q = E-coat Al/Cu – E-coat Al/Cu – Louvered Hail Guard
R = Cu/Cu – Al/Cu – Louvered Hail Guard
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E = Foil Faced Insulation + PCO
F = Foil Faced Insulation + Hinged Panels
G = FF + HP + NPCO
H = FF + HP + PCO
J = Foil Faced Insulation + MERV-13 Filters
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1 = HSCCR[a] (High Short Circuit Current Rating) Protection

Packaging Compliance
0 = Standard

NOTE(S):
[a] Not available on the following models/options: 575V, Head Pressure Control, Phase Loss Monitor, Non-Fused Disconnect, HACR Breaker, Powered Convenience Outlet.
[b] FDD (Fault Detection and Diagnostic) capability per California Title 24 section 120.2

Capacity ratings

48GE AHRI Ratings[a,b,c,d]

48GE UNIT	COOLING STAGES	NOMINAL CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (kW)	EER	IEER WITH 2-SPEED INDOOR FAN MOTOR	AHRI RATING CFM	AHRI PART LOAD CFM
VERTICAL AIR FLOW UNITS[e]								
48GE17**	2	15.0	170.0	14.4	11.8	16.5	6,000	3,600
48GE20**	2	17.5	206.0	17.6	11.7	16.3	6,250	3750
48GE24**	2	20.0	234.0	20.5	11.4	16.8	8,000	4,800
48GE28**	2	25.0	294.0	27.7	10.6	15.0	10,000	6,000
HORIZONTAL AIR FLOW UNITS[e]								
48GE17**	2	15.0	170.0	14.4	11.8	16.4	6,000	3,600
48GE20**	2	17.5	204.0	17.4	11.7	16.1	6,250	3750
48GE24**	2	20.0	232.0	20.7	11.2	16.3	8,000	4,800
48GE28**	2	25.0	292.0	28.3	10.3	14.4	10,000	6,000

NOTE(S):

a. Rated in accordance with AHRI Standards 340/360.
b. Rating are based on:
Cooling Standard: 80°F (27°C) db, 67°F (19°C) wb indoor air temperature and 95°F (35°C) db outdoor air temperature.
IEER Standard: A measure that expresses cooling part-load EER efficiency for commercial unitary air-conditioning and heat pump equipment on the basis of weighted operation at various load capacities.
c. All 48GE units comply with ASHRAE 90.1-2019 (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) and DOE-2023 (Department of Energy) Energy Standard for minimum IEER requirements.
d. 48GE units comply with US Energy Policy Act (2005). To evaluate code compliance requirements, refer to state and local codes.
e. See position 10 in the 48GE 17-28 model number nomenclature to determine if the unit is a Vertical or Horizontal air flow unit.

LEGEND

AHRI — Air-Conditioning, Heating and Refrigeration Institute
EER — Energy Efficiency Ratio
IEER — Integrated Energy Efficiency Ratio

50GE AHRI Ratings[a,b,c,d]

50GE UNIT	COOLING STAGES	NOMINAL CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (kW)	EER	IEER WITH 2-SPEED INDOOR FAN MOTOR	AHRI RATING CFM	AHRI PART LOAD CFM
VERTICAL AIR FLOW UNITS[e]								
50GE-*17	2	15.0	170.0	14.2	12.0	16.7	6,000	3,600
50GE-*20	2	17.5	206.0	17.3	11.9	16.5	6,250	3,750
50GE-*24	2	20.0	234.0	20.2	11.6	17.0	8,00	4,800
50GE-*28	2	25.0	294.0	27.2	10.8	15.2	10,000	6,000
HORIZONTAL AIR FLOW UNITS[e]								
50GE-*17	2	15.0	170.0	14.2	12.0	16.6	6,000	3,600
50GE-*20	2	17.5	204.0	17.1	11.9	16.3	6,250	3750
50GE-*24	2	20.0	232.0	20.4	11.4	16.5	8,000	4,800
50GE-*28	2	25.0	292.0	27.8	10.5	14.6	10,000	6,000

NOTE(S):

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e. See position 10 in the 50GE 17-28 model number nomenclature to determine if the unit is a Vertical or Horizontal air flow unit.

LEGEND

AHRI — Air-Conditioning, Heating and Refrigeration Institute
EER — Energy Efficiency Ratio
IEER — Integrated Energy Efficiency Ratio

Capacity ratings (cont)

Sound Ratings Table[a,b,c]

48/50GE UNIT	COOLING STAGES	OUTDOOR SOUND (dB) at 60 Hz								
		A-WEIGHTED	63	125	250	500	1000	2000	4000	8000
17	2	84.1	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
20	2	84.1	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
24	2	86.5	95.6	87.5	84.2	84.2	81.7	77.9	73.2	66.3
28	2	85.9	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3

NOTE(S):

a. Outdoor sound data is measured in accordance with AHRI.
b. Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environmental factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.
c. A-weighted sound ratings filter out very high and very low frequencies, to better approximate the response of "average" human ear. A-weighted measurements for Carrier units are taken in accordance with AHRI.

LEGEND

dB — Decibel

Minimum - Maximum Airflow Ratings (cfm) — Natural Gas and Propane

UNIT	HEAT LEVEL	COOLING			HEATING[a]	
		MINIMUM 2-SPEED AIRFLOW (LOW SPEED)	MINIMUM 2-SPEED AIRFLOW (HIGH SPEED)	MAXIMUM AIRFLOW CFM	MINIMUM AIRFLOW CFM	MAXIMUM AIRFLOW CFM
48GE17**	LOW	2,700	4,500	8,750	3,000	11,000
	MED				3,880	9,300
	HIGH				4,620	10,000
48GE20**	LOW	3,150	5,250	8,750	3,000	11,000
	MED				3,880	11,630
	HIGH				4,620	10,000
48GE24**	LOW	3,600	6,000	10,000	3,000	16,500
	MED				3,880	15,500
	HIGH				4,620	15,000
48GE28**	LOW	4,500	7,500	12,500	3,000	16,500
	MED				3,880	15,500
	HIGH				4,620	15,000

NOTE(S):

a. Heating rating values are identical for aluminum heat exchangers and stainless steel heat exchangers.

Minimum - Maximum Airflow Ratings (cfm) — Cooling Units and Accessory Electric Heat

UNIT	COOLING			ELECTRIC HEAT[a]	
	MINIMUM 2-SPEED AIRFLOW (LOW SPEED)	MINIMUM 2-SPEED AIRFLOW (HIGH SPEED)	MAXIMUM AIRFLOW CFM	MINIMUM AIRFLOW CFM	MAXIMUM AIRFLOW CFM
50GE17**	2,700	4,500	8,750	4,500	8,750
50GE20**	3,150	5,250	8,750	5,250	8,750
50GE24**	3,600	6,000	10,000	6,000	10,000
50GE28**	4,500	7,500	12,500	7,500	12,500

NOTE(S):

a. Electric heat modules are available as factory-installed options or field-installed accessories. For factory-installed electric heat modules single point kits, if required, are also included.

Capacity ratings (cont)

Heat Rating Table — Natural Gas and Propane

UNIT	GAS HEAT	AL/SS HEAT EXCHANGER		TEMPERATURE RISE (°F)	THERMAL EFFICIENCY (%)
		INPUT/OUTPUT STAGE 1 (MBH)	INPUT/OUTPUT STAGE 2 (MBH)		
48GE17**	LOW	176 / 142	220 / 178	20-45	81
	MED	248 / 200	310 / 251	30-55	81
	HIGH	320 / 260	400 / 324	35-60	81
48GE20**	LOW	176 / 142	220 / 178	15-45	81
	MED	248 / 200	310 / 251	25-55	81
	HIGH	320 / 260	400 / 324	30-60	81
48GE24**	LOW	176 / 142	220 / 178	15-45	81
	MED	248 / 200	310 / 251	20-55	81
	HIGH	320 / 260	400 / 324	30-60	81
48GE28**	LOW	176 / 142	220 / 178	10-45	81
	MED	248 / 200	310 / 251	15-55	81
	HIGH	320 / 260	400 / 324	20-60	81

LEGEND

MBH — Btuh in thousands

Physical data

48/50GE 17 to 20 Physical Data

48/50GE UNIT	48/50GE*M17	48/50GE*N17	48/50GE*M20	48/50GE*N20
NOMINAL TONS	15.0	15.0	17.5	17.5
BASE UNIT OPERATING WT (lb) 48GE/50GE[a]	1771/1644	1771/1644	2008/1880	2008/1880
REFRIGERATION SYSTEM				
No. Circuits/No. Compressors/Type	1/2/Scroll	1/2/Scroll	1/2/Scroll	1/2/Scroll
Puron Advance™ (R-454B) Charge (lb-oz)	24-9	—	32-0	—
Humidi-MiZer® Puron Advance (R-454B) Charge (lb-oz)	—	34-1	—	42-5
Metering Device	TXV	—	TXV	—
Humidi-MiZer Metering Device	—	TXV	—	TXV
High-Pressure Trip/Reset (psig)	630/505	630/505	630/505	630/505
Low-Pressure Trip/Reset	54/117	54/117	54/117	54/117
EVAPORATOR COIL				
Material (Tube/Fin)	Cu/Al	Cu/Al	Cu/Al	Cu/Al
Coil Type	3/8 in. RTPF	3/8 in. RTPF	3/8 in. RTPF	3/8 in. RTPF
Rows/FPI	4/15	4/15	4/15	4/15
Total Face Area (ft^2)	22	22	22	22
Condensate Drain Connection Size	3/4 in.	3/4 in.	3/4 in.	3/4 in.
CONDENSER COIL				
Material (Tube/Fin)	Cu/Al	Cu/Al	Cu/Al	Cu/Al
Coil Type	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF
Rows/FPI	2/18	2/18	2/18	2/18
Total Face Area (ft^2)	19.6	19.6	25.1	25.1
HUMIDI-MIZER COIL				
Material	—	Cu/Al	—	Cu/Al
Coil Type	—	5/16 in. RTPF	—	5/16 in. RTPF
Rows/FPI	—	1/18	—	1/18
Total Face Area (ft^2)	—	21.4	—	21.4
EVAPORATOR FAN AND MOTOR				
Vertical Standard Static 3 Phase				
Motor Qty / Drive Type	2 / Direct	2 / Direct	2 / Direct	2 / Direct
Maximum Cont bhp (per motor)	2.4	2.4	2.4	2.4
Range (rpm)	250-2000	250-2000	250-2000	250-2000
Fan Qty / Type	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial
Fan Diameter (in.)	22	22	22	22
Vertical High Static 3 Phase				
Motor Qty / Drive Type	2 / Direct	2 / Direct	2 / Direct	2 / Direct
Maximum Cont bhp (per motor)	3	3	3	3
Range (rpm)	250-2200	250-2200	250-2200	250-2200
Fan Qty / Type	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial
Fan Diameter (in.)	22	22	22	22
Horizontal High Static 3 Phase				
Motor Qty / Drive Type	2 / Direct	2 / Direct	2 / Direct	2 / Direct
Maximum Cont bhp (per motor)	5	5	5	5
Range (rpm)	250-2200	250-2200	250-2200	250-2200
Fan Qty / Type	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial
Fan Diameter (in.)	22	22	22	22
CONDENSER FAN AND MOTOR				
Qty / Motor Drive Type	3 / Direct	3 / Direct	4 / Direct	4 / Direct
Motor hp / rpm	1/4 / 1100	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan Diameter (in.)	22	22	22	22
FILTERS				
RA Filter Qty / Size (in.)	6 / 20x25x2	6 / 20x25x2	6 / 20x25x2	6 / 20x25x2
OA Inlet Screen Qty / Size (in.)	4 / 16x25x1	4 / 16x25x1	4 / 16x25x1	4 / 16x25x1

NOTE(S):

a. Base unit operating weight does not include weight of options.

LEGEND

bhp — Brake Horsepower
FPI — Fins Per Inch
OA — Outdoor Air
RA — Return Air

Physical data (cont)

48/50GE 24 to 28 Physical Data

48/50GE UNIT	48/50GE*M24	48/50GE*N24	48/50GE*M28	48/50GE*N28
NOMINAL TONS	20.0	20.0	25.0	25.0
BASE UNIT OPERATING WT (lb) 48GE/50GE[a]	2240/2203	2240/2203	2423/2296	2423/2296
REFRIGERATION SYSTEM				
No. Circuits/No. Compressors/Type	1/2/Scroll	1/2/Scroll	1/2/Scroll	1/2/Scroll
Puron Advance™ (R-454B) Charge (lb-oz)	32-5	—	36-6	—
Humidi-MiZer® Puron Advance (R-454B) Charge (lb-oz)	—	44-2	—	52-7
Metering Device	TXV	—	TXV	—
Humidi-MiZer Metering Device	—	TXV	—	TXV
High-Pressure Trip/Reset (psig)	630/505	630/505	630/505	630/505
Low-Pressure Trip/Reset	54/117	54/117	54/117	54/117
EVAPORATOR COIL				
Material (Tube/Fin)	Cu/Al	Cu/Al	Cu/Al	Cu/Al
Coil Type	3/8 in. RTPF	3/8 in. RTPF	3/8 in. RTPF	3/8 in. RTPF
Rows/FPI	4/15	4/15	4/15	4/15
Total Face Area (ft^2)	26	26	26	26
Condensate Drain Connection Size	3/4 in.	3/4 in.	3/4 in.	3/4 in.
CONDENSER COIL				
Material (Tube/Fin)	Cu/Al	Cu/Al	Cu/Al	Cu/Al
Coil Type	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF
Rows/FPI	2/18	2/18	3/18	3/18
Total Face Area (ft^2)	29.6	29.6	35.4	35.4
HUMIDI-MIZER COIL				
Material	—	Cu/Al	—	Cu/Al
Coil Type	—	5/16 in. RTPF	—	5/16 in. RTPF
Rows/FPI	—	1/18	—	1/18
Total Face Area (ft^2)	—	25.3	—	25.3
EVAPORATOR FAN AND MOTOR				
Vertical Standard Static 3 Phase				
Motor Qty / Drive Type	2 / Direct	2 / Direct	2 / Direct	2 / Direct
Maximum Cont bhp (per motor)	3	3	3	3
Range (rpm)	250-2000	250-2000	250-2200	250-2200
Fan Qty / Type	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial
Fan Diameter (in.)	22	22	22	22
Vertical High Static 3 Phase				
Motor Qty / Drive Type	2 / Direct	2 / Direct	2 / Direct	2 / Direct
Maximum Cont bhp (per motor)	5	5	5	5
Range (rpm)	250-2200	250-2200	250-2200	250-2200
Fan Qty / Type	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial
Fan Diameter (in.)	22	22	22	22
Horizontal High Static 3 Phase				
Motor Qty / Drive Type	2 / Direct	2 / Direct	2 / Direct	2 / Direct
Maximum Cont bhp (per motor)	5	5	5	5
Range (rpm)	250-2200	250-2200	250-2200	250-2200
Fan Qty / Type	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial	2 / Vane Axial
Fan Diameter (in.)	22	22	22	22
CONDENSER FAN AND MOTOR				
Qty / Motor Drive Type	4 / Direct	4 / Direct	6 / Direct	6 / Direct
Motor hp / rpm	1/4 / 1100	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan Diameter (in.)	22	22	22	22
FILTERS				
RA Filter Qty / Size (in.)	9 / 20x25x2	9 / 20x25x2	9 / 20x25x2	9 / 20x25x2
OA Inlet Screen Qty / Size (in.)	4 / 16x25x1	4 / 16x25x1	4 / 16x25x1	4 / 16x25x1

NOTE(S):

a. Base unit operating weight does not include weight of options.

LEGEND

bhp — Brake Horsepower
FPI — Fins Per Inch
OA — Outdoor Air
RA — Return Air

Physical data (cont)

48GE 17 to 28 Gas Heat Data

48GE UNIT	48GE**17	48GE**20	48GE**24	48GE**28
NOMINAL TONS	15.0	17.5	20.0	25.0
GAS CONNECTION				
No. of Gas Valves	1	1	1	1
Natural Gas Supply Line Pressure (in. wg)/(psig)	5-13 / 0.18-0.47	5-13 / 0.18-0.47	5-13 / 0.18-0.47	5-13 / 0.18-0.47
Liquid Propane Supply Line Pressure (in. wg)/(psig)	11-13 / 0.40-0.47	11-13 / 0.40-0.47	11-13 / 0.40-0.47	11-13 / 0.40-0.47
HEAT ANTICIPATOR SETTING (AMPS)				
First Stage	0.14	0.14	0.14	0.14
Second Stage	0.14	0.14	0.14	0.14
NATURAL GAS HEAT				
LOW				
No. of Stages / No. of Burners (total)	2 / 5	2 / 5	2 / 5	2 / 5
Connection Size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
Rollout Switch Opens / Closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115
Temperature Rise (°F)	20-45	15-45	15-45	10-45
MEDIUM				
No. of Stages / No. of Burners (total)	2 / 7	2 / 7	2 / 7	2 / 7
Connection Size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
Rollout Switch Opens / Closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115
Temperature Rise (°F)	30-55	25-55	20-55	15-55
HIGH				
No. of Stages / No. of Burners (total)	2 / 9	2 / 9	2 / 9	2 / 9
Connection Size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
Rollout Switch Opens / Closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115
Temperature Rise (°F)	35-60	30-60	30-60	20-60
LIQUID PROPANE HEAT				
LOW				
No. of Stages / No. of Burners (total)	2 / 5	2 / 5	2 / 5	2 / 5
Connection Size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
Rollout Switch Opens / Closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115
Temperature Rise (°F)	20-45	15-45	15-45	10-45
MEDIUM				
No. of Stages / No. of Burners (total)	2 / 7	2 / 7	2 / 7	2 / 7
Connection Size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
Rollout Switch Opens / Closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115
Temperature Rise (°F)	30-55	25-55	20-55	15-55
HIGH				
No. of Stages / No. of Burners (total)	2 / 9	2 / 9	2 / 9	2 / 9
Connection Size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
Rollout Switch Opens / Closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115
Temperature Rise (°F)	35-60	30-60	30-60	20-60

Options and accessories

ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
GAS HEAT (48GE units only)		
Low, Medium or High Gas Heat — Aluminized Heat Exchanger	X	
Low, Medium or High Gas Heat — Stainless Steel Heat Exchanger	X	
Propane Conversion Kit		X
High Altitude Conversion Kit		X
Flue Discharge Deflector		X
ELECTRIC HEAT (50GE units only)		
Electric Resistance Heaters		X
Single Point Kits		X
CABINET		
Hinged Access Panels	X	
MERV-13, 4 in. Filters	X	
MERV-13, 2 in. Filters		X
MERV-8, 2 in. Filters		X
4 in. Filter Rack (filters not included)		X
COIL OPTIONS		
Cu/Cu Indoor and/or Outdoor Coils[a]	X	
Pre-Coated Outdoor Coils	X	
Premium, E-Coated Outdoor Coils	X	
HUMIDITY CONTROL		
Humidi-MiZer® Adaptive Dehumidification System	X	
CONDENSER PROTECTION		
Condenser Coil Hail Guard (louvered design)	X	X
CONTROLS		
Thermostats, Temperature Sensors, and Subbases		X
SystemVu™ DDC Communicating Controller	X	
Smoke Detector (supply and/or return air)	X	X
Horn Strobe Annunciator[b]		X
Time Guard II Compressor Delay Control Circuit		X
Phase Monitor	X	X
ECONOMIZERS AND OUTDOOR AIR DAMPERS		
EconomizerONE for Electromechanical Controls, complies with FDD (Standard and Ultra Low Leak damper models)[c]	X	X
Wi-Fi Stick for EconomizerONE (optional)		X
EconoMi$er® 2 for DDC Controls (Low and Ultra Low Leak air damper models)[d]	X	X
Motorized Two-Position Outdoor-Air Damper		X
Manual Outdoor-Air Damper (25% and 50%)		X
Barometric Relief[e]	X	X
Power Exhaust — centrifugal design	X	X
Condensate Overflow Switch	X	X

ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
ECONOMIZER SENSORS AND IAQ DEVICES		
Single Dry Bulb Temperature Sensors[f]	X	X
Differential Dry Bulb Temperature Sensors[f]		X
Differential Enthalpy Sensors[f]		X
CO_2 Sensor (wall, duct, or unit mounted)[f]	X	X
INDOOR MOTOR AND DRIVE		
Multiple Motor and Drive Packages	X	
Fan Filter Status Switch	X	X
LOW AMBIENT CONTROLS		
Winter Start Kit[g]		X
Low Ambient Controller to 0°F (–18°C)[g]		X
POWER OPTIONS		
Convenience Outlet (powered)	X	
Convenience Outlet (unpowered)	X	
Convenience Outlet, 20 amp (unpowered)		X
HACR Circuit Breaker[h]	X	
Non-Fused Disconnect[i]	X	
High SCCR Protection[j]	X	
ROOF CURBS		
Roof Curb 14 in. (356 mm)		X
Roof Curb 24 in. (610 mm)		X

NOTE(S):

a. Cu/Cu coils are only available with louvered hail guards.
b. Requires a field-supplied 24V transformer for each application. See price pages for details.
c. FDD (Fault Detection and Diagnostic) capability per California Title 24 section 120.2.
d. Models with SystemVu controls comply with California Title 24 Fault Detection and Diagnostic (FDD).
e. Included with economizer.
f. Sensors used to optimize economizer performance.
g. See application data for assistance.
   Winter Start kit is not compatible with SystemVu units.
h. HACR circuit breaker cannot be used when unit MOCP electrical rating exceeds:
   17-24 sizes -
   208V/230V = 150 amps
   460V = 70 amps
   575V = 50 amps
   28 size -
   208V/230V = 200 amps
   460V = 90 amps
   575V = 70 amps
   HACR circuit breaker on 575 volt can only be used on Wye power supply. Delta power supply is prohibited.
   Carrier RTUBuilder automatically selects the amps limitations.
i. Non-fused disconnect switch cannot be used when unit FLA electrical rating exceeds:
   208V/230V = 200 amps
   460V/575V = 100 amps
j. High SCCR (Short Circuit Current Rating) is not available on the following: units with Humidi-MiZer system, Low Ambient controls, Phase loss monitor, Non-fused disconnect, Powered convenience outlet, and 575V models

Options and accessories (cont)

Factory-installed options

Economizer (dry-bulb or enthalpy)

Economizers save money. They bring in fresh, outside air for ventilation; and provide cool, outside air to cool your building. This is the preferred method of low-ambient cooling. When coupled to CO_2 sensors, economizers can provide even more savings by coupling the ventilation air to only that amount required.

Economizers are available, installed and tested by the factory, with either enthalpy or dry-bulb temperature inputs. Additional sensors are available as accessories to optimize the economizers. Economizers include barometric relief system to help equalize building pressures.

Economizers can be factory-installed or easily field-installed.

Unit mounted CO_2 sensor

The CO_2 sensor works with the economizer to intake only the correct amount of outside air for ventilation. As occupants fill your building, the CO_2 sensor detects their presence through increasing CO_2 levels, and opens the economizer appropriately. When the occupants leave, the CO_2 levels decrease, and the sensor appropriately closes the economizer. This intelligent control of the ventilation air, called demand controlled ventilation (DCV), reduces the overall load on the rooftop, saving money. It is also available as a field-installed accessory.

Smoke detector (supply and/or return air)

Our smoke detectors make your application safer and your job easier. Carrier smoke detectors immediately shut down the rooftop unit when smoke is detected. They are available, installed by the factory, for supply air, return air, or both.

Optional Humidi-MiZer® adaptive dehumidification system

Carrier's Humidi-MiZer adaptive dehumidification system is an all-inclusive factory-installed option that can be ordered with any WeatherMaster® 48/50GE 17-28 rooftop unit.

This system expands the envelope of operation of Carrier's WeatherMaster rooftop products to provide unprecedented flexibility to meet year round comfort conditions.

The Humidi-MiZer adaptive dehumidification system has a unique dual operational mode setting. The Humidi-MiZer system provides greater dehumidification of the occupied space by 2 modes of dehumidification operations in addition to its normal design cooling mode.

The WeatherMaster 48/50GE 17-28 rooftop coupled with the Humidi-MiZer system is capable of operating in normal design cooling mode, sub-cooling mode, and hot gas reheat mode. Normal design cooling mode is when the unit will operate under its normal sequence of operation by cycling compressors to maintain comfort conditions.

Sub-cooling mode will operate to satisfy part load type conditions when the space requires combined sensible and a higher proportion of latent load control. Hot Gas Reheat mode will operate when outdoor temperatures diminish and the need for latent capacity is required for sole humidity control Hot Gas Reheat mode will provide neutral air for maximum dehumidification operation.

NOTE: Humidi-MiZer system includes Low Ambient controller.

Hinged access panels

Allows access to unit's major components with specifically designed hinged access panels. Panels are filter, control box access indoor fan motor access.

Cu/Cu (indoor) coils

Copper fins and copper tubes are mechanically bonded to copper tubes and copper tube sheets. A polymer strip prevents coil assembly from contacting the sheet metal coil pan to minimize the potential for galvanic corrosion between coil and pan. Only available with louvered hail guards.

E-coated (outdoor and indoor) coils

These coils feature a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. The coating process ensures complete coil encapsulation of tubes, fins, and headers.

Pre-coated outdoor coils

These coils feature a durable epoxy-phenolic coating that provides protection in mildly corrosive coastal environments. The coating minimizes galvanic action between dissimilar metals. The coating is applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube.

Condenser coil hail guard

These sleek, louvered panels protect the condenser coil from hail damage, foreign objects, and incidental contact. This can be purchased as a factory-installed option or as a field-installed accessory.

Stainless steel heat exchanger (48GE units only)

For this option, the tubular heat exchanger is made out of a minimum 20 gauge type 409 stainless steel for applications where the mixed air going to the heat exchanger is expected to drop below 45°F (7°C). Stainless steel may be specified on applications where the presence of airborne contaminants require its use (applications such as paper mills) or in areas with very high outdoor humidity that may result in severe condensation in the heat exchanger during cooling operation.

Convenience outlet (powered or un-powered)

Reduce service and/or installation costs by including a convenience outlet in your specification. Carrier will install this service feature at our factory. Provides a convenient, 15 amp, 115v GFCI receptacle with "Wet in Use" cover. The "powered" option allows the installer to power the outlet from the line side of the disconnect or load side as required by code. The "unpowered" option is to be powered from a separate 115/120v power source.

The unpowered convenience outlet is available as a 15 amp factory-installed option or a 20 amp field-installed accessory.

Non-fused disconnect

This OSHA-compliant, factory-installed, safety switch allows a service technician to locally secure power to the rooftop. When selecting a factory-installed non-fused disconnect, note they are sized for the unit as ordered from the factory. The sizing of these do not accommodate field-installed items such as power exhaust devices, etc. If field installing electric heat with factory-installed non-fused disconnect switch, a single point kit may or may not be required.

Options and accessories (cont)

HACR Breaker

These manual reset devices provide overload and short circuit protection for the unit. Breakers are factory wired and mounted on the units, with an access cover to provide protection from the environment.

SystemVu™ controller

Carrier's SystemVu controller is an optional factory-installed and tested controller.

This option provides a whole new approach by using an intuitive, intelligent controller that not only monitors and controls the unit but also provides linkage to multiple building automation systems.

Each SystemVu controller makes it easy to set up, service, troubleshoot, access historical data, generate reports, and provide comfort Carrier is noted for.

Key features include:

- Easy-to-read backlit 4-line text screen for superior visibility
- Quick operational condition LEDs for Run, Alert, and Fault
- Simple navigation using large keypad buttons for Navigation arrows, Test, Back, Enter, and Menu.
- Capable of being controlled with a conventional thermostat, space sensor, or build automation system
- Service capabilities include:
  Auto run test
  Manual run test
  Component run hours and starts
  Commissioning reports
  Data logging
- Full range of diagnosis:
  Read refrigerant pressures without needing gauges
  Sensor faults
  Compressor reverse rotation
  Economizer diagnostics that meet California Title 24 requirements
- Quick data transfer via USB port:
  Unit configuration uploading/downloading
  Data logging
  Software upgrades
- Built in capacity for:
  i-Vu® open systems
  BACnet® systems
  CCN systems
- Configuration and alarm point capability:
  Contain over 100 alarm codes
  Contain over 260 status, troubleshooting, diagnostic, and maintenance points
  Contain over 270 control configuration setpoints

Condensate overflow switch

This sensor and related controller monitors the condensate level in the drain pan and shuts down compression operation when overflow conditions occur. It includes:

- Indicator light — solid red (more than 10 seconds on water contact — compressors disabled), blinking red (sensor disconnected)
- 10-second delay to break — eliminates nuisance trips from splashing or waves in pan (sensor needs 10 seconds of constant water contact before tripping)
- Disables the compressors operation when condensate plug is detected, but still allows fans to run for economizer.

Power exhaust with barometric relief

Superior internal building pressure control. This field-installed accessory may eliminate the need for costly, external pressure control fans.

MERV-13 4 in. return air filters

This factory option upgrades the return air filters from standard unit filters to high efficiency MERV-13 filters. Non-woven MERV-13 filter media with high strength, moisture-resistant frame. Filter media is securely fasted inside the filter frame on all 4 sides.

High Short Circuit Current Rating (SCCR) protection

This factory-installed option provides high short circuit current protection to each compressor, plus all indoor and outdoor fan motors of 60 kA (for 208/230-3-60 units) and 65 kA (for 460-3-60 units) against high potential fault current situations.

Standard unit comes with 5 kA rating.

This option is not available with factory installed Non-Fused Disconnect, Humidi-MiZer system, Low Ambient controls, Phase loss monitor/protection, Powered convenience outlet, and 575 Volt models.

Field-installed accessories

Filter maintenance indicator

When the optional factory-installed filter maintenance indicator is used, a factory-installed differential pressure switch measures pressure drop across the outside air filter and activates a field-supplied dry contact indicator when the pressure differential exceeds the adjustable switch setpoint.

Condenser coil hail guard

Sleek, louvered panels protect the condenser coil from hail damage, foreign objects, and incidental contact. This can be purchased as a factory-installed option or as a field-installed accessory.

Differential enthalpy sensor

The differential enthalpy sensor is comprised of an outdoor and return air enthalpy sensors to provide differential enthalpy control. The sensor allows the unit to determine if outside air is suitable for free cooling.

Wall or duct mounted CO_2 sensor

The IAQ sensor shall be available in duct or wall mount. The sensor provides demand ventilation indoor air quality (IAQ) control.

Propane conversion kit (48GE units only)

Convert your gas heat rooftop from standard natural gas operation to Propane using this field-installed kit.

High altitude conversion kit (48GE units only)

High altitudes have less oxygen, which affects the fuel/air mixture in heat exchangers. In order to maintain a proper fuel/air mixture, heat exchangers operating in altitudes above 2000 ft (610 m) require different orifices. To select the correct burner orifices or determine the heat capacity for a high altitude application, use either the selection software, or the unit's service manual. High altitudes have less oxygen, which means heat exchangers need less fuel. The new gas orifices in this field-installed kit make the

Options and accessories (cont)

necessary adjustment for high altitude applications. They restore the optimal fuel to air mixture and maintain healthy combustion on altitudes above 2000 ft (610 m).

NOTE: Typical natural gas heating value ranges from 975 to 1050 Btu/ft^3 at sea level nationally. The heating value goes down approximately 1.7% per every thousand feet elevation. Standard factory orifices can typically be used up to 2000 ft (610 m) elevation without any operational issues.

Flue discharge deflector (48GE units only)

The flue discharge deflector is a useful accessory when flue gas recirculation is a concern. By venting the flue discharge upwards, the deflector minimizes the chance for a neighboring unit to intake the flue exhaust.

4 in. filter rack kit

The 4 in. filter rack accessory kit is designed to hold 4 in. MERV-8 or MERV-13 filters. Filters not included in kit.

MERV-13 2 in. return air filters

This kit includes MERV-13 2 in. filters (qty 4) to accommodate unit filter rack size.

MERV-8 2 in. return air filters

This kit includes MERV-8 2 in. filters (qty 4) to accommodate unit filter rack size.

Phase monitor protection

The Phase Monitor Control will monitor the sequence of 3-phase electrical system to provide a phase reversal protection; and monitor the 3-phase voltage inputs to provide a phase loss protection for the 3-phase device. It will work on either a Delta or Wye power connection.

Winter start kit

The winter start kit by Carrier extends the low ambient limit of your rooftop to 25°F (–4°C). The kit bypasses the low pressure switch, preventing nuisance tripping of the low pressure switch. Other low ambient precautions may still be prudent.

Low ambient controller

The low ambient controller is a head pressure controller kit that is designed to maintain the unit's condenser head pressure during periods of low ambient cooling operation. This device should be used as an alternative to economizer free cooling when economizer usage is either not appropriate or desired. The low ambient controller will either cycle the outdoor fan motors or operate them at reduced speed to maintain the unit operation, depending on the model. This controller allows cooling operation down to 0°F (–18°C) ambient conditions.

Roof curb (14 in./356 mm or 24 in./610 mm)

Full perimeter roof curb with exhaust capability provides separate air streams for energy recovery from the exhaust air without supply air contamination.

Filter status indicator accessory

Monitors static pressure across supply and exhaust filters and provides indication when filters become clogged.

Power exhaust

Superior internal building pressure control. This field-installed accessory may eliminate the need for costly, external pressure control fans.

Manual OA damper

Manual outdoor air dampers are an economical way to bring in ventilation air. The dampers are available in 25% and 50% versions.

Motorized Two-Position damper

The Carrier two-position, motorized outdoor air damper admits up to 100% outside air. Using reliable, gear-driven technology, the two-position damper opens to allow ventilation air and closes when the rooftop stops, stopping unwanted infiltration.

Electric heaters (50GE units only)

Carrier offers a full-line of field-installed accessory heaters. The heaters are very easy to use, install and are all pre-engineered and certified.

Time Guard II control circuit

This accessory protects your compressor by preventing short-cycling in the event of some other failure, prevents the compressor from restarting for 30 seconds after stopping. Not required with SystemVu™ controller or authorized commercial thermostats.

Wi-Fi Stick for EconomizerONE (optional)

The accessory Wi-Fi/WLAN stick can be connected to the EconomizerONE POL224 economizer controller via the USB host interface. The Wi-Fi stick enables a wireless connection to be made between a smartphone and the economizer controller via the Climatix™[1] mobile application for commissioning, troubleshooting, and maintenance operations. The Wi-Fi stick is required to utilize the mobile application but is not required for EconomizerONE setup and commissioning.

Climatix™ mobile application

The Climatix™ mobile application offers a best-in-class user interface and a simple step-by-step commissioning workflow using a mobile device. The user interface walks users through the setup of the controller and allows users to view the operating mode and parameters. Users can adjust setpoints, initiate damper tests, and save the final configuration as a favorite to expedite setup in the future.

The application is available on Android™[1] and Apple iOS®[1] platforms. The Wi-Fi stick for the EconomizerONE is required to join the Siemens-WiFi-Stick network and setup the controller on a smartphone.

NOTE: The Climatix app is not required to commission the EconomizerONE controller. The unit can be set up using the controller's on board button system.

1. Third-party trademarks and logos are the property of their respective owners.

Options and accessories (cont)

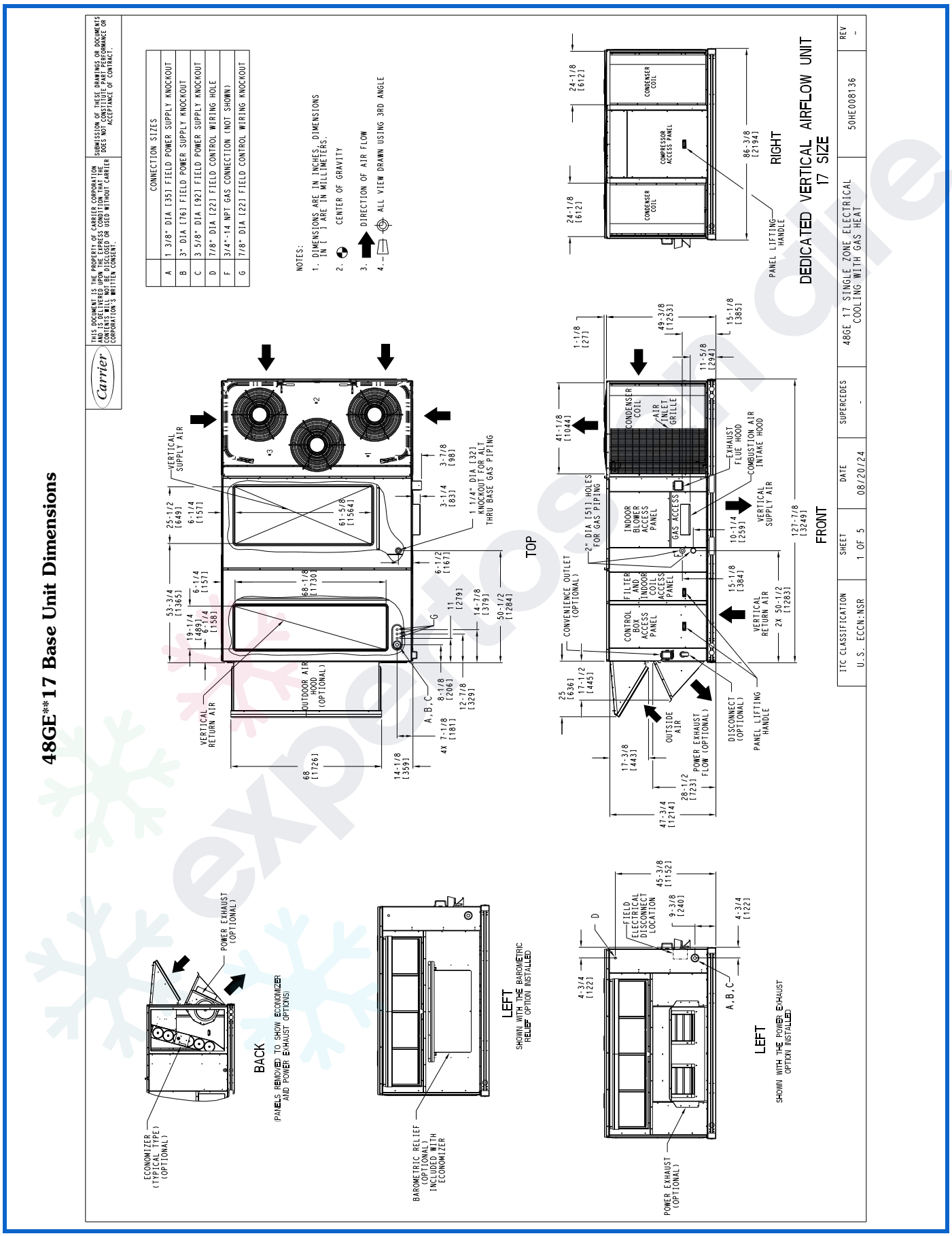
Options and Accessory Weights[a]

OPTION / ACCESSORY NAME	48/50GE UNIT WEIGHT							
	17		20		24		28	
	lb	kg	lb	kg	lb	kg	lb	kg
Humidi-MiZer® System[b]	82	37	82	37	82	37	90	41
Power Exhaust	198	90	198	90	198	90	198	90
EconomizerONE or EconoMi$er® 2	245	111	245	111	245	111	245	111
High Gas Heat (48GE units only)	127	58	127	58	127	58	127	58
Hail Guard (louvered)	90	41	90	41	100	46	100	46
Cu/Cu Condenser Coil	166	76	203	92	244	111	278	126
Cu/Cu Evaporator Coil	128	58	128	58	163	74	163	74
Roof Curb (14 in. curb)	240	109	255	116	255	116	255	116
Roof Curb (24 in. curb)	340	154	355	161	355	161	355	161
CO_2 Sensor	5	3	5	3	5	3	5	3
Flue Discharge Deflector	7	3	7	3	7	3	7	3
Optional Indoor Motor[c]	30	14	30	14	0	0	0	0
Low Ambient Controller	9	4	9	4	9	4	9	4
Winter Start Kit	5	2	5	2	5	2	5	2
Return Air Smoke Detector	7	3	7	3	7	3	7	3
Supply Air Smoke Detector	7	3	7	3	7	3	7	3
Fan Filter Switch	2	1	2	1	2	1	2	1
Non-Fused Disconnect	15	7	15	7	15	7	15	7
Powered Convenience Outlet[d]	36	16	36	16	36	16	36	16
Unpowered Convenience Outlet	4	2	4	2	4	2	4	2
Enthalpy Sensor	2	1	2	1	2	1	2	1
Differential Enthalpy Sensor	3	1	3	1	3	1	3	1

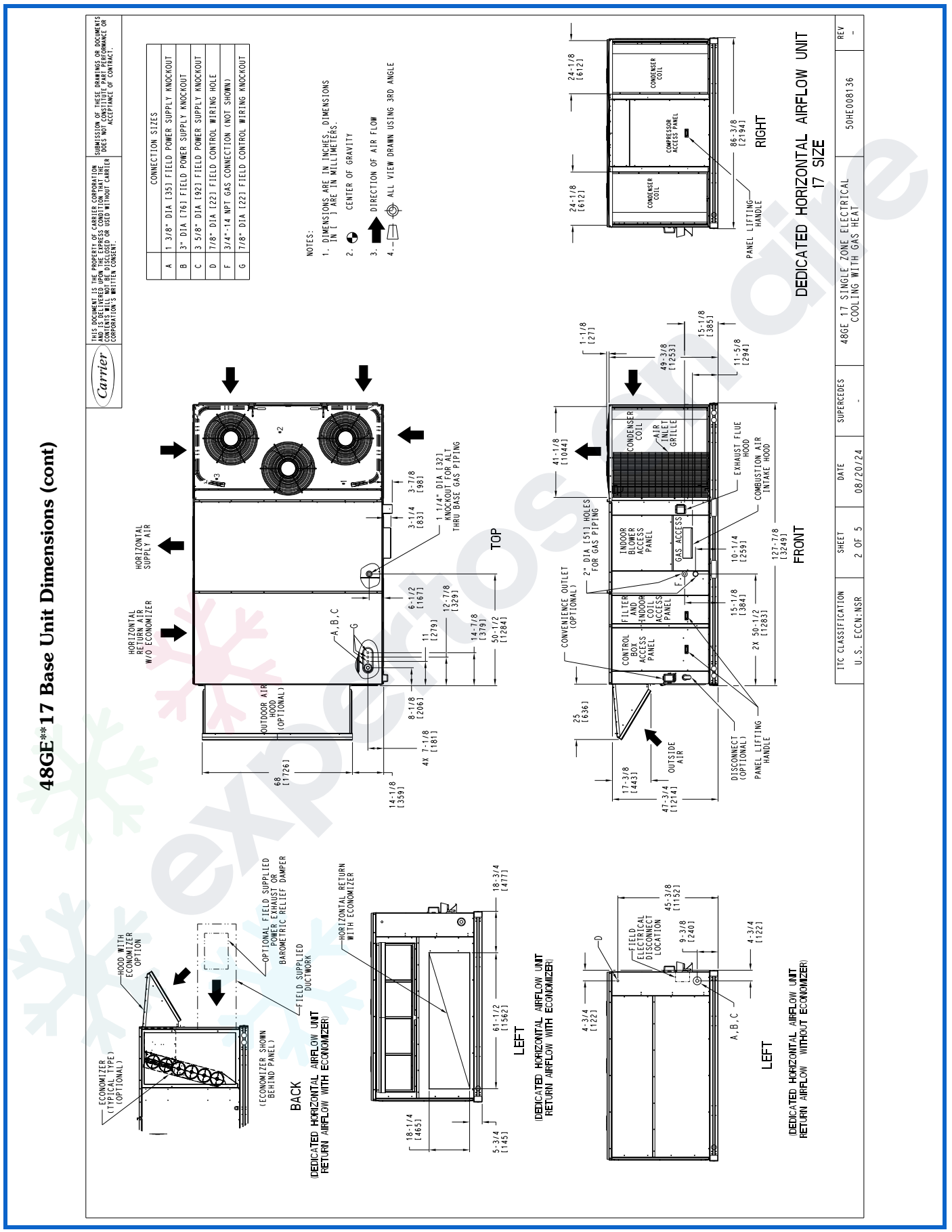
NOTE(S):

a. Where multiple variations are available, the heaviest combination is listed.
b. For Humidi-MiZer system, add Low Ambient controller weight.
c. Add the Optional Indoor Motor weight to the weight of the base unit.
d. Weight includes convenience outlet and convenience outlet transformer.

Base unit dimensions

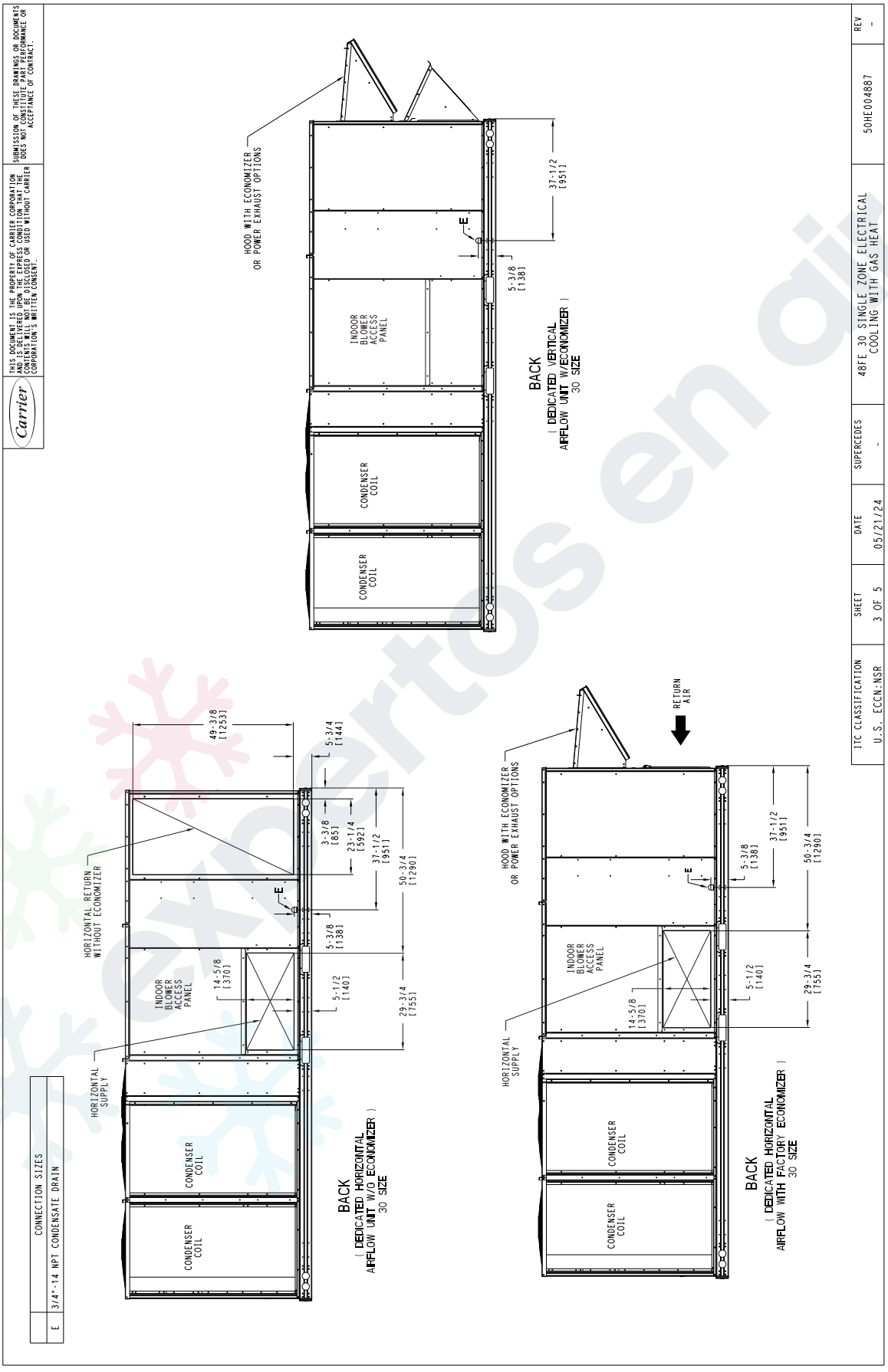


Base unit dimensions (cont)



Base unit dimensions (cont)

48GE**17 Base Unit Dimensions (cont)

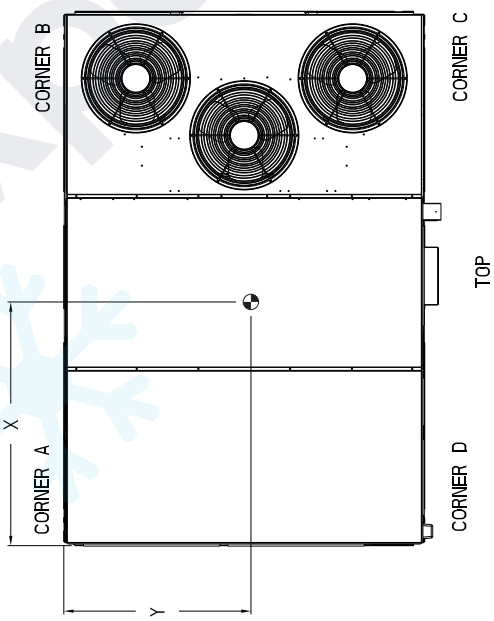


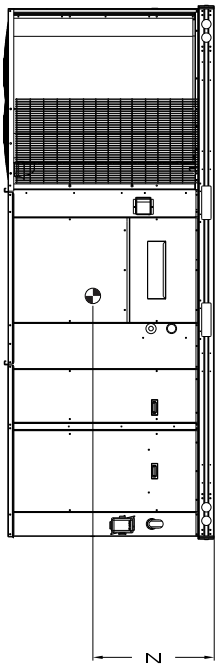
Base unit dimensions (cont)

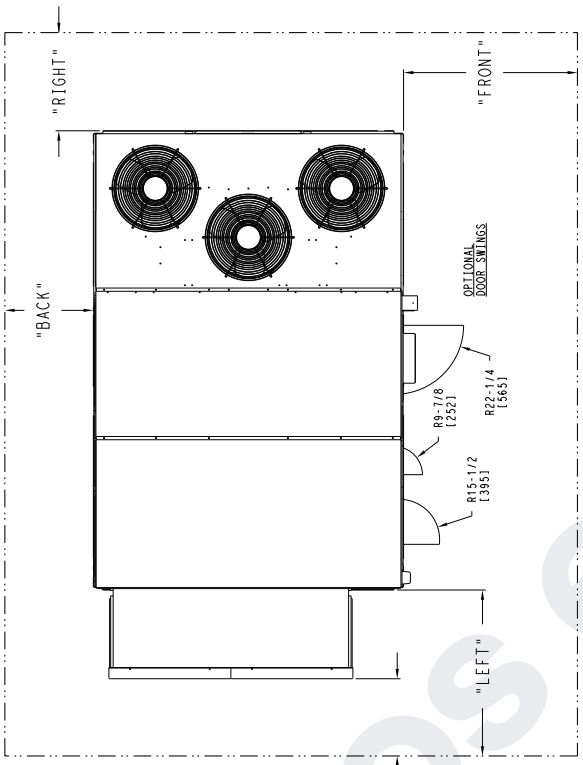
48GE**17 Base Unit Dimensions (cont)

UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.			
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X		Y	Z
48GE17	1771	804	377	171	471	214	512	232	410	186	71 [1803]		45 [1143]	16 1/2 [419]

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







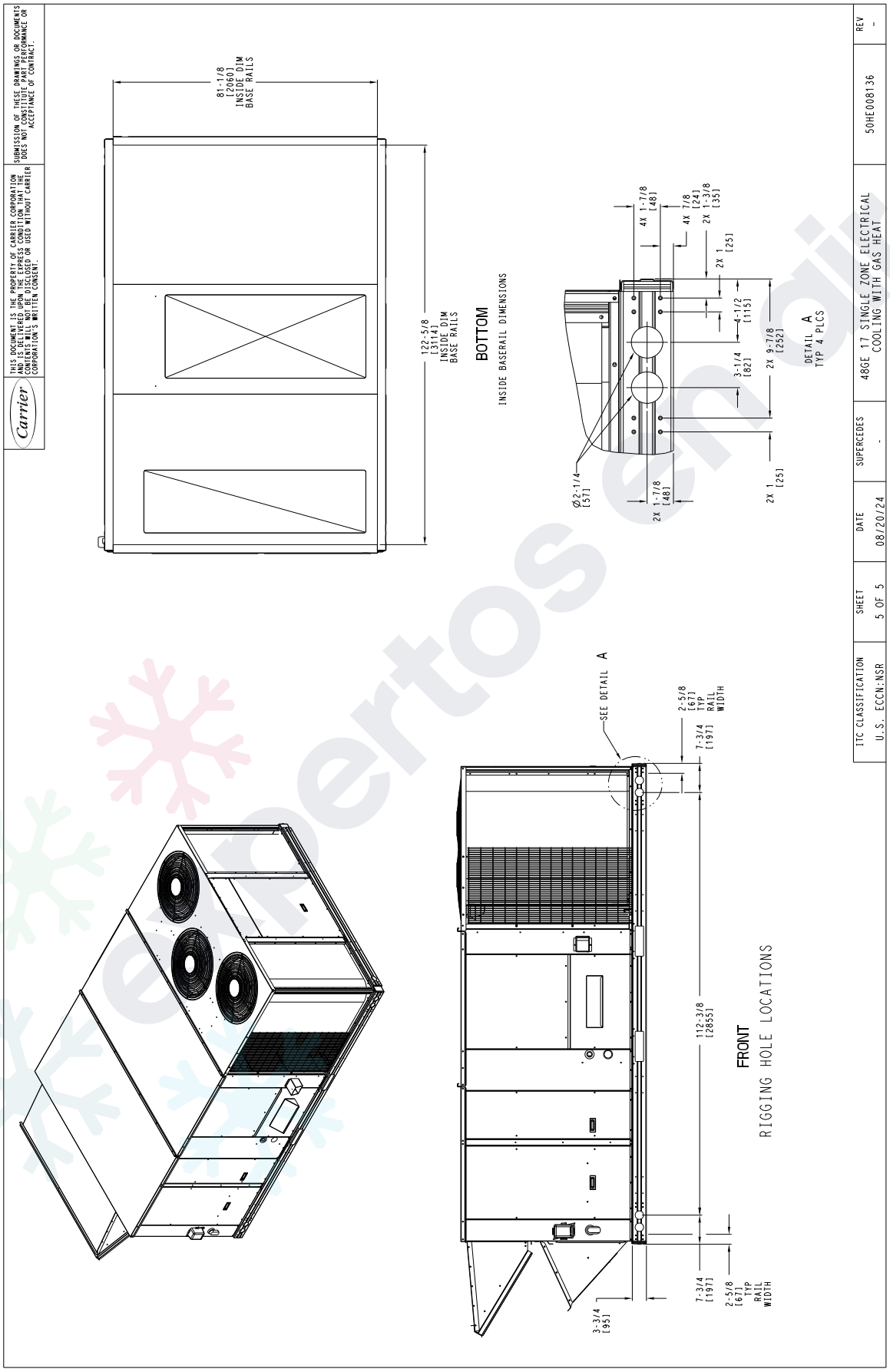
NOTES:
1. CLEARANCE ABOVE THE UNIT TO BE 72"
2. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

	CLEARANCE	
	SERVICE WITH CONDUCTIVE BARRIER	SERVICE WITH NONCONDUCTIVE BARRIER
SURFACE	OPERATING CLEARANCE	OPERATING CLEARANCE
FRONT	48 [1219mm]	36 [914mm]
LEFT	48 [1219mm]	42 [1067mm]
BACK	42 [1067mm]	36 [914mm]
LEFT WITH HOOD	36 [914mm]	36 [914mm]
RIGHT	36 [914mm]	36 [914mm]
TOP	72 [1829mm]	72 [1829mm]

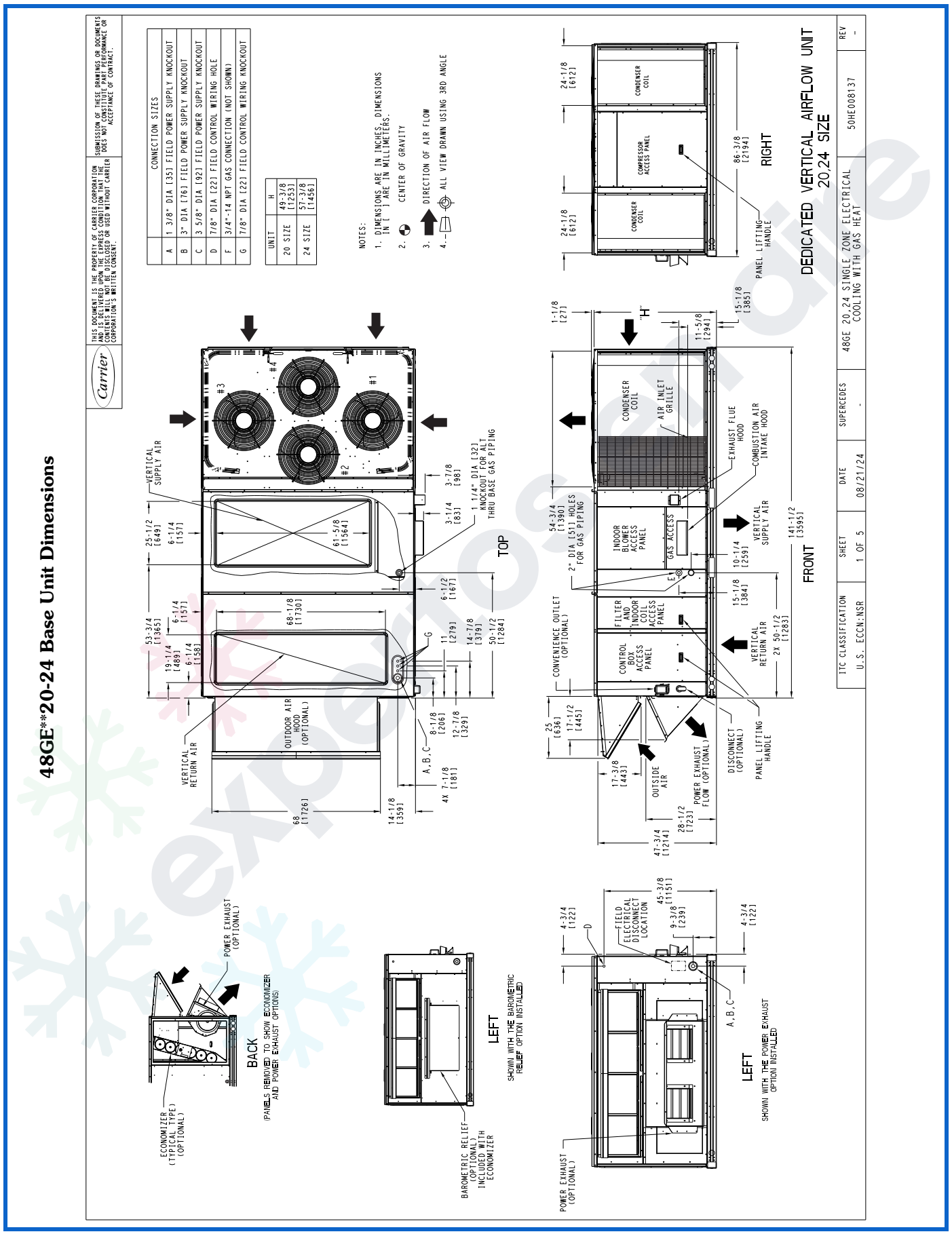
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	48GE 17 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50HE008136	REV
U.S. ECCN:NSR	4 OF 5	08/20/24	-			-

Base unit dimensions (cont)

48GE**17 Base Unit Dimensions (cont)

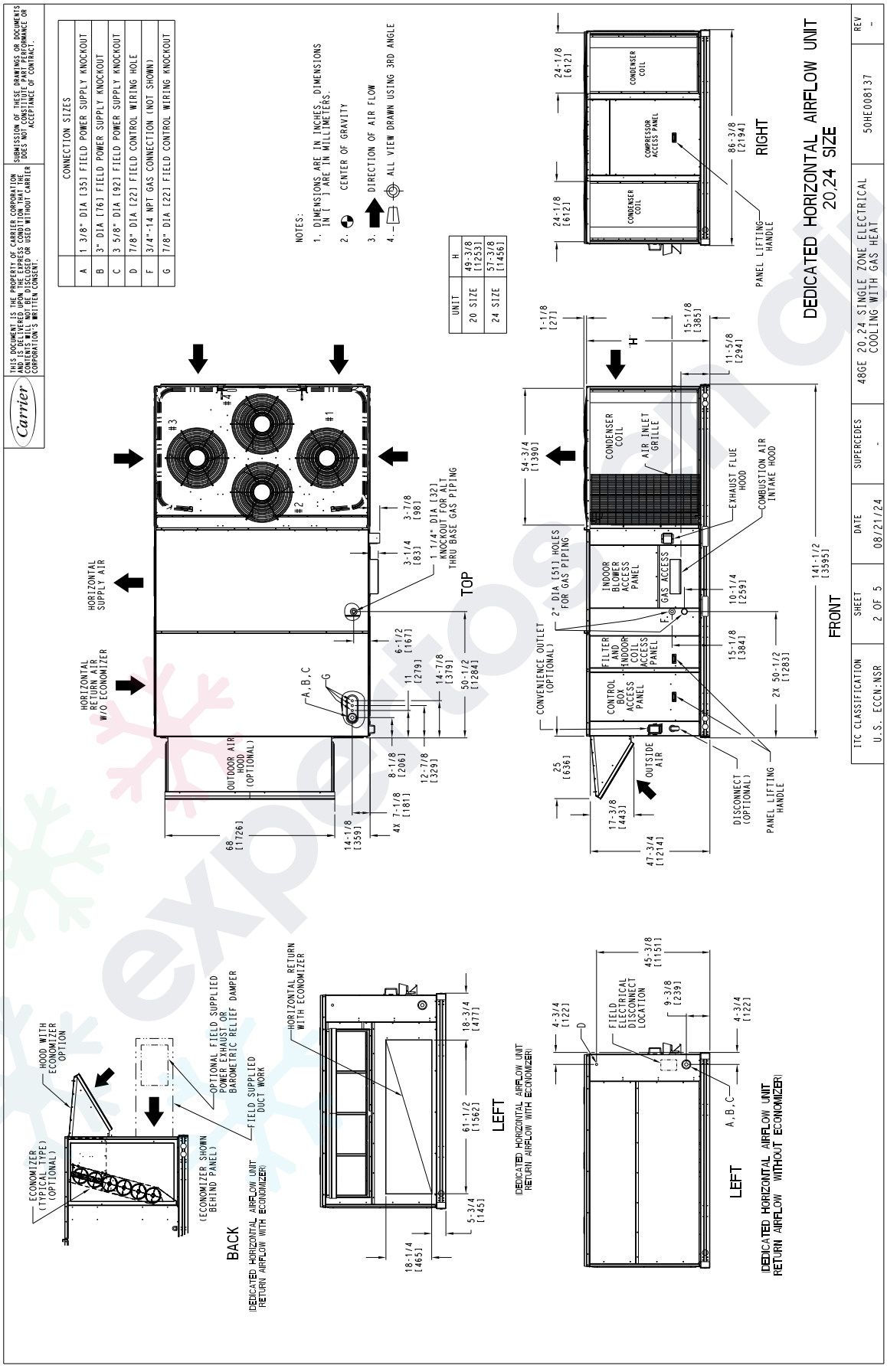


Base unit dimensions (cont)

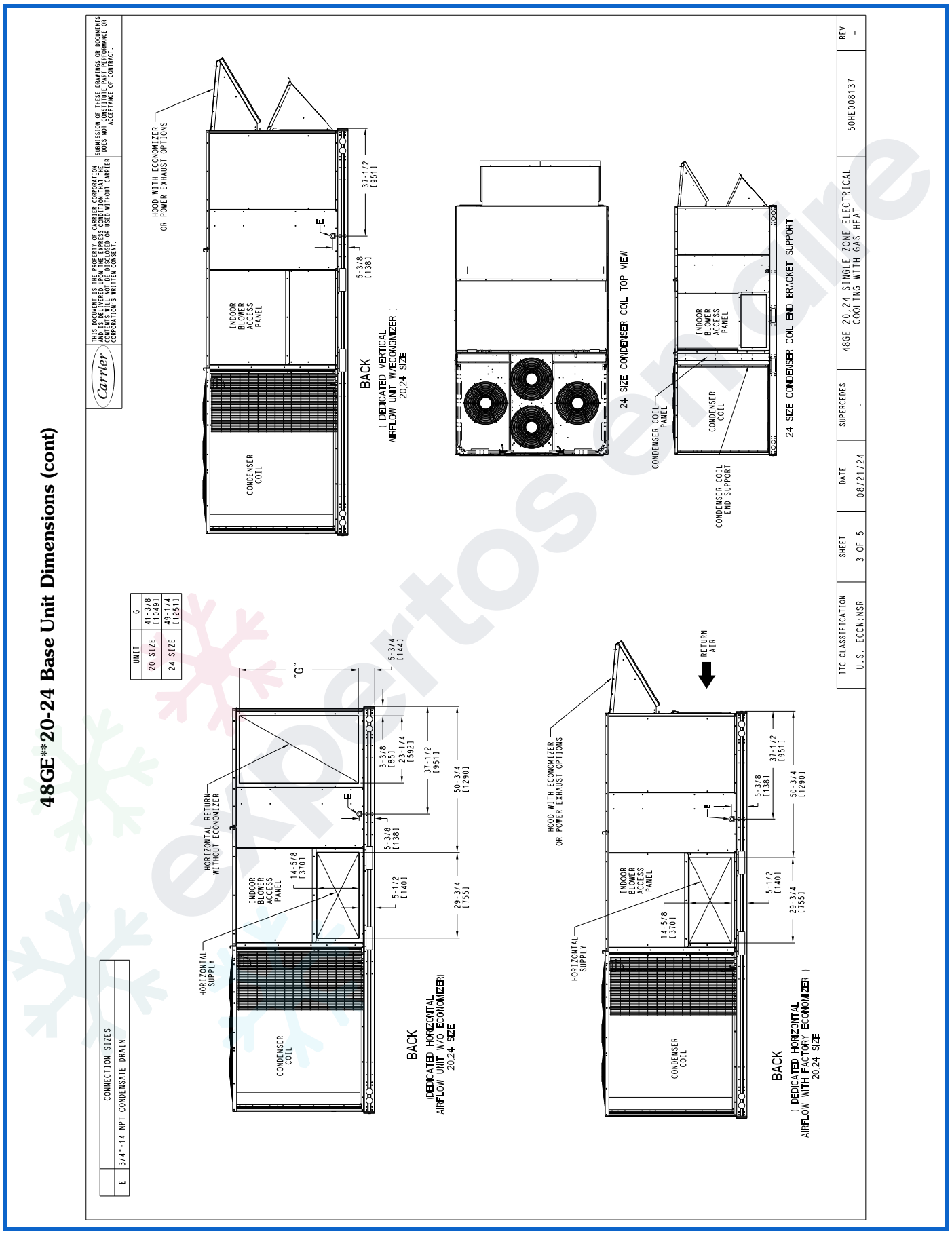


Base unit dimensions (cont)

48GE**20-24 Base Unit Dimensions (cont)



Base unit dimensions (cont)

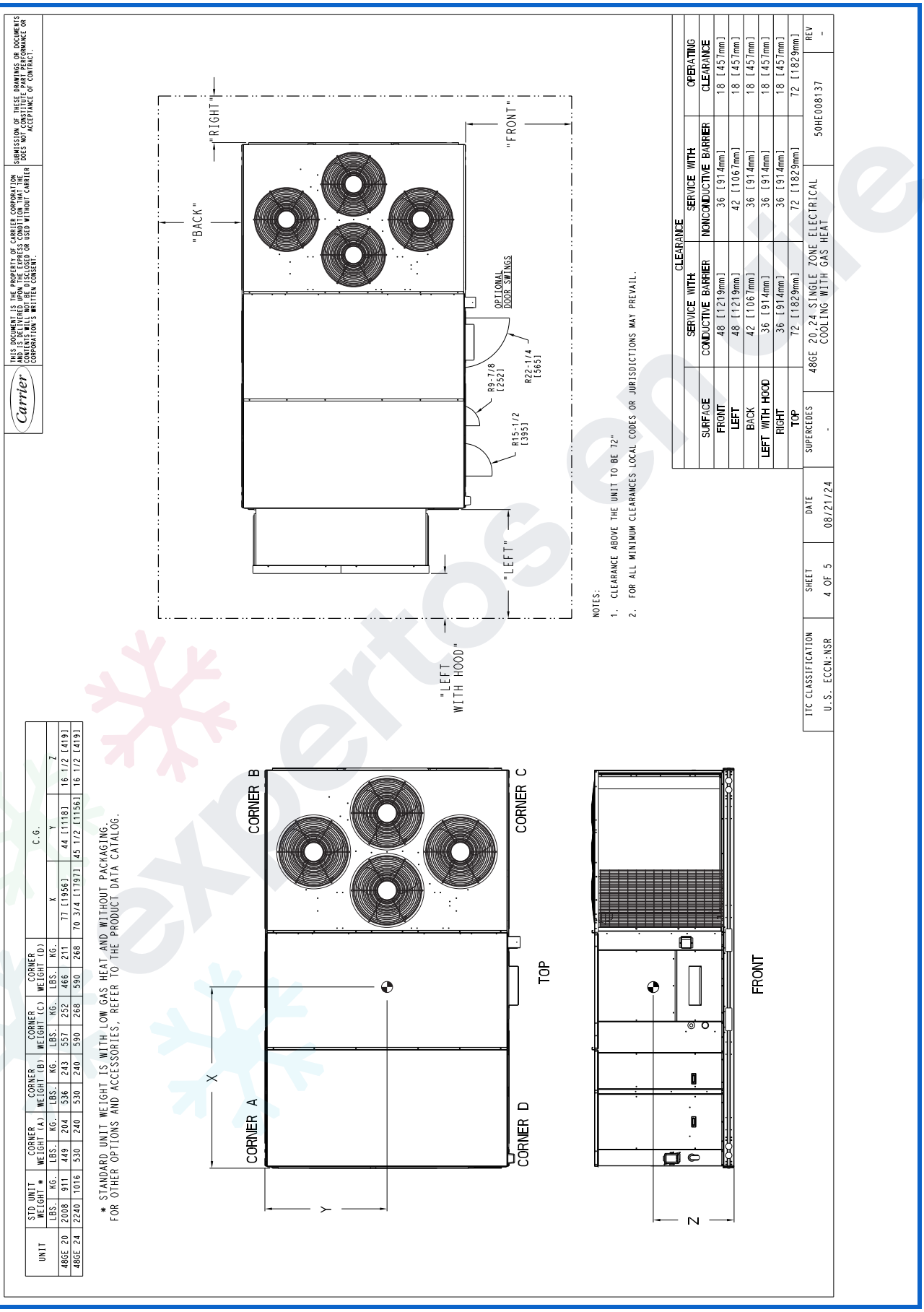


Base unit dimensions (cont)

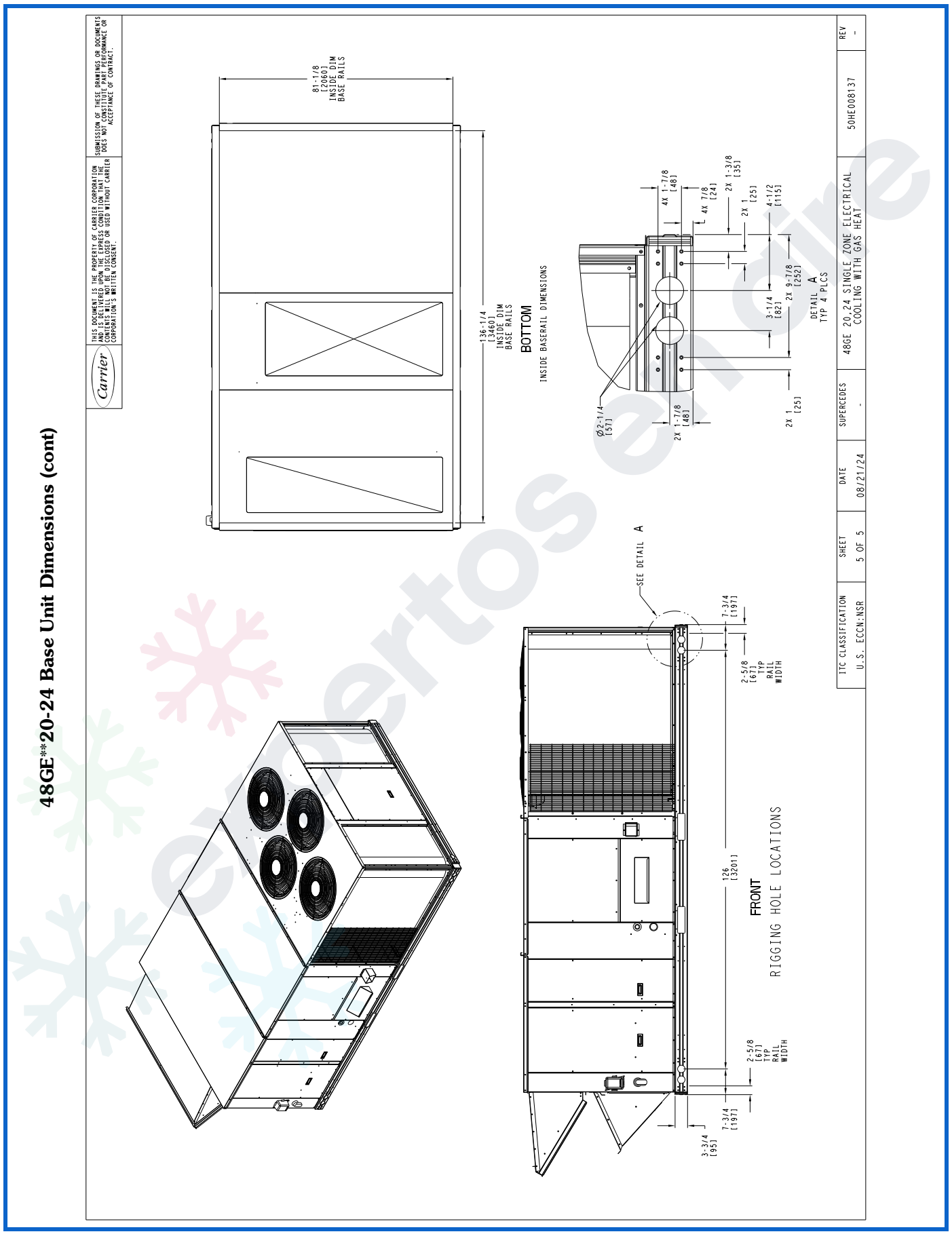
48GE**20-24 Base Unit Dimensions (cont)

UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.			
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X		Y	Z
48GE 20	2008	911	449	204	536	243	557	252	466	211	77 [1956]		44 [1118]	16 1/2 [419]
48GE 24	2240	1016	530	240	530	240	590	268	590	268	70 3/4 [1797]		45 1/2 [1156]	16 1/2 [419]

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

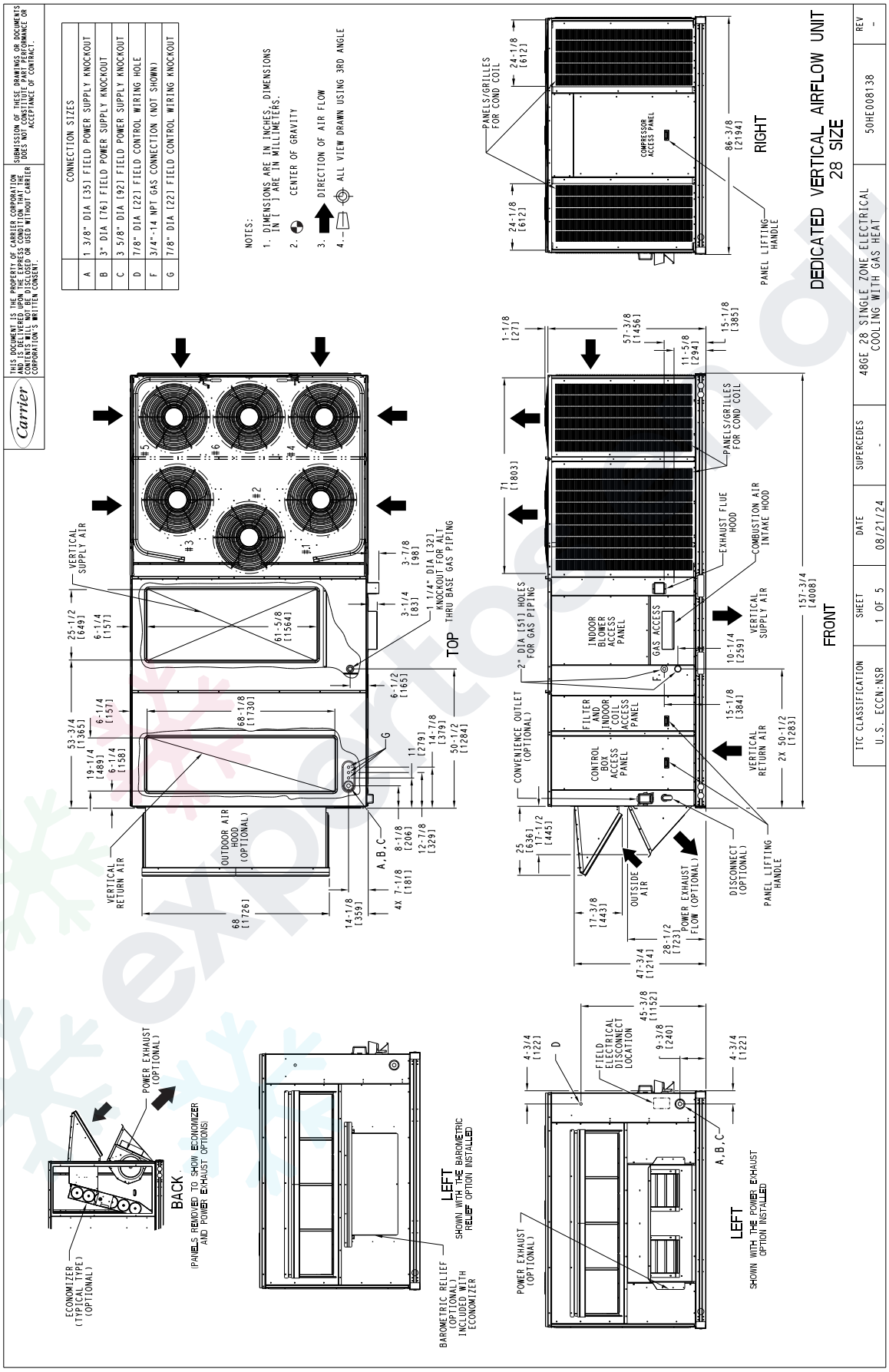


Base unit dimensions (cont)

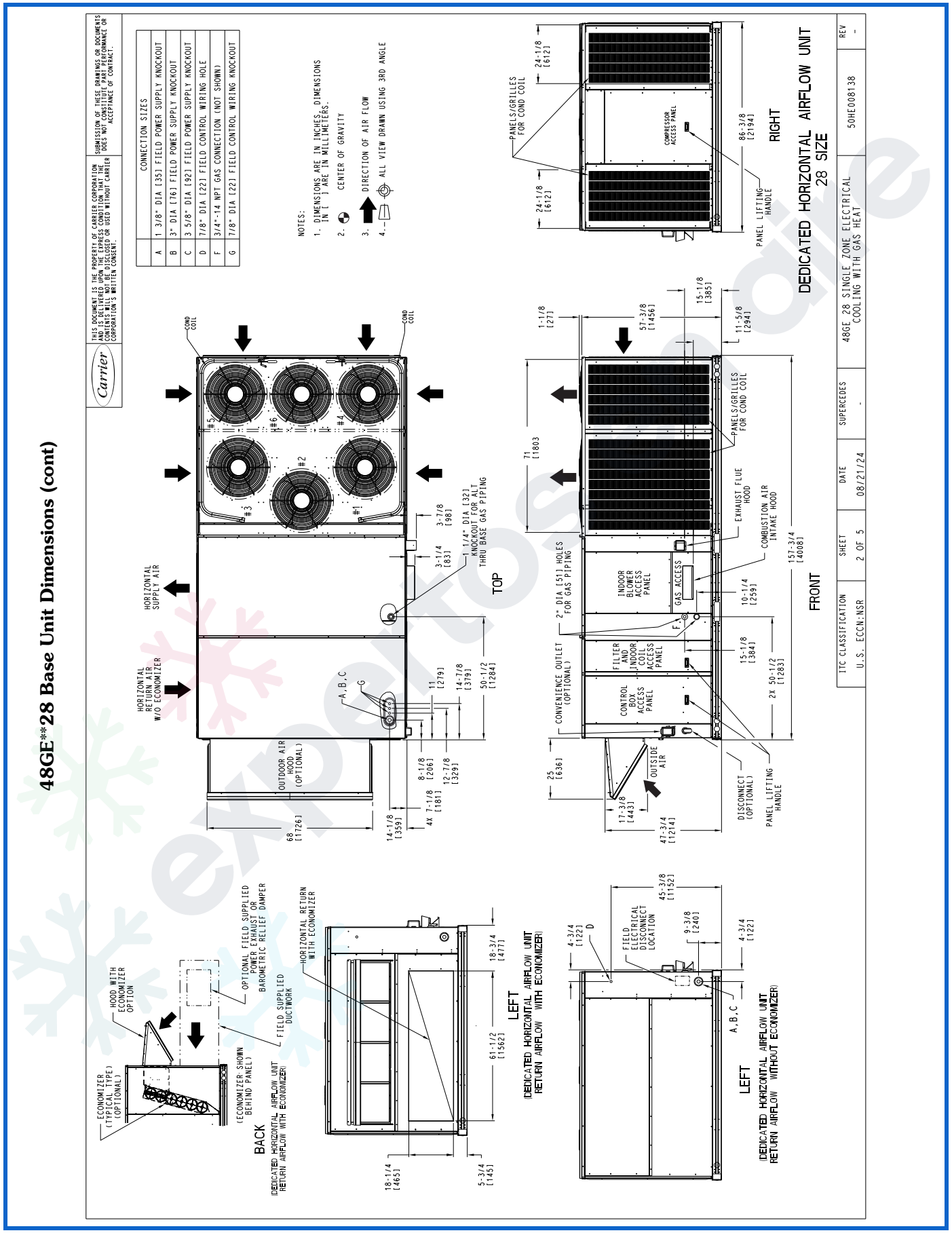


Base unit dimensions (cont)

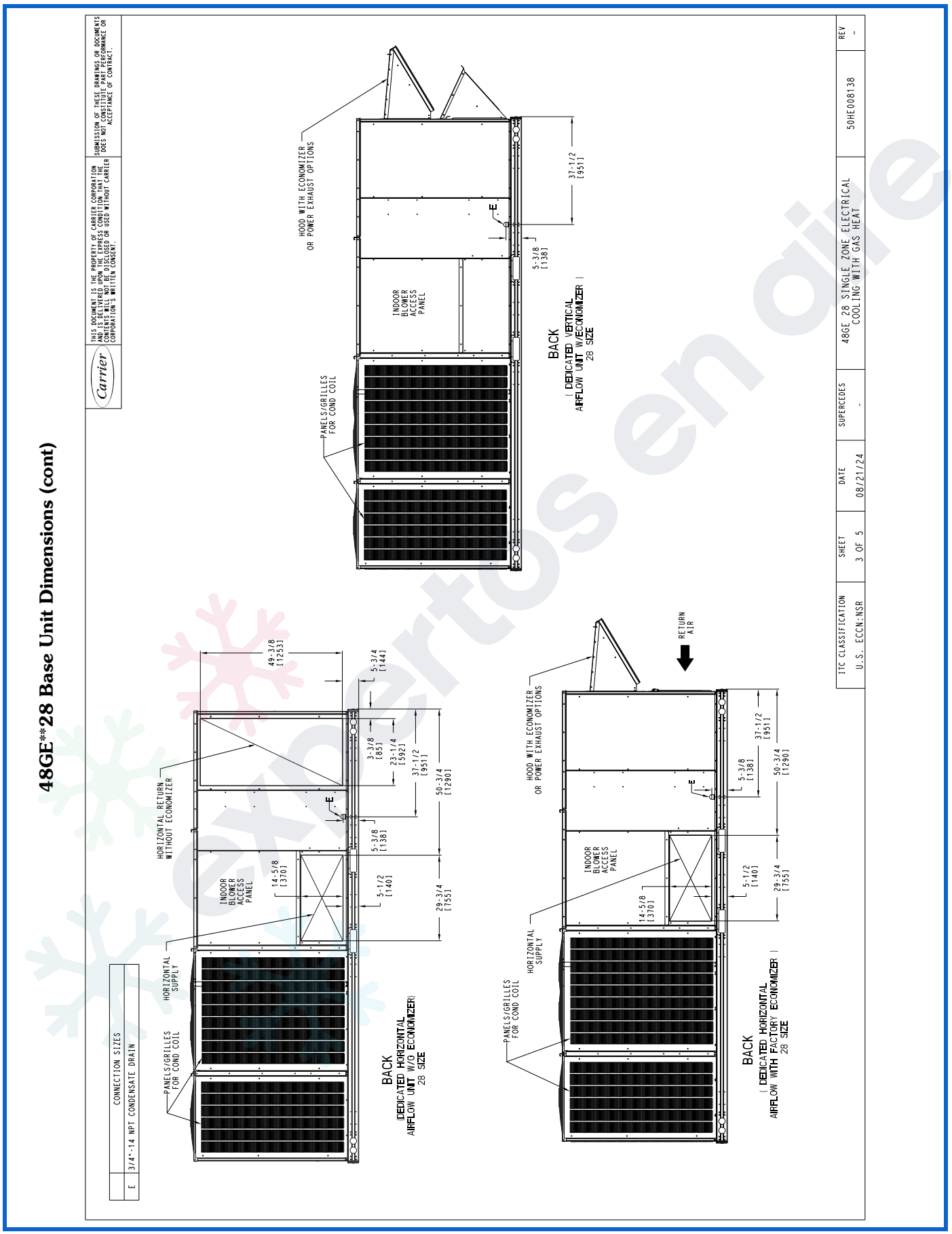
48GE**28 Base Unit Dimensions



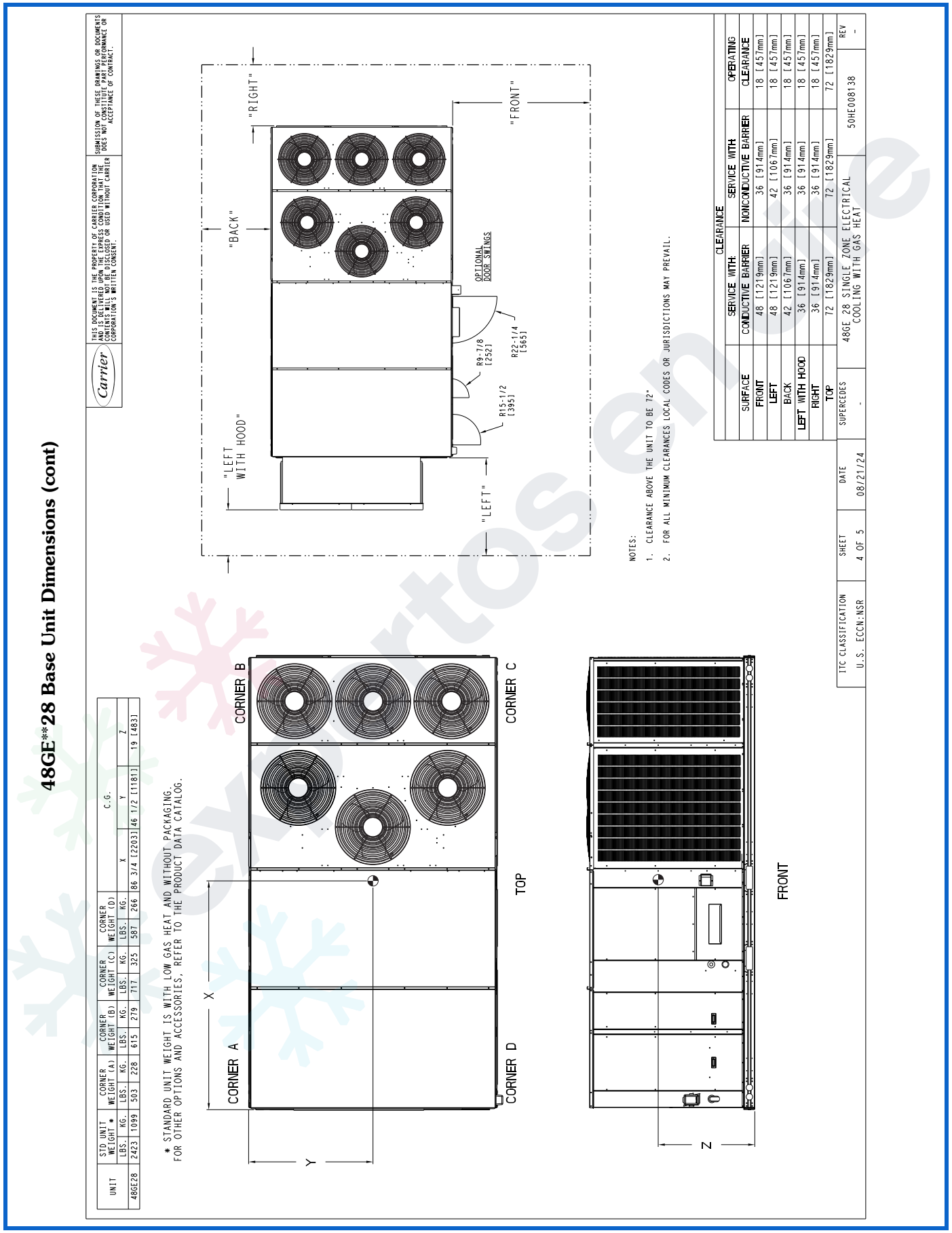
Base unit dimensions (cont)



Base unit dimensions (cont)

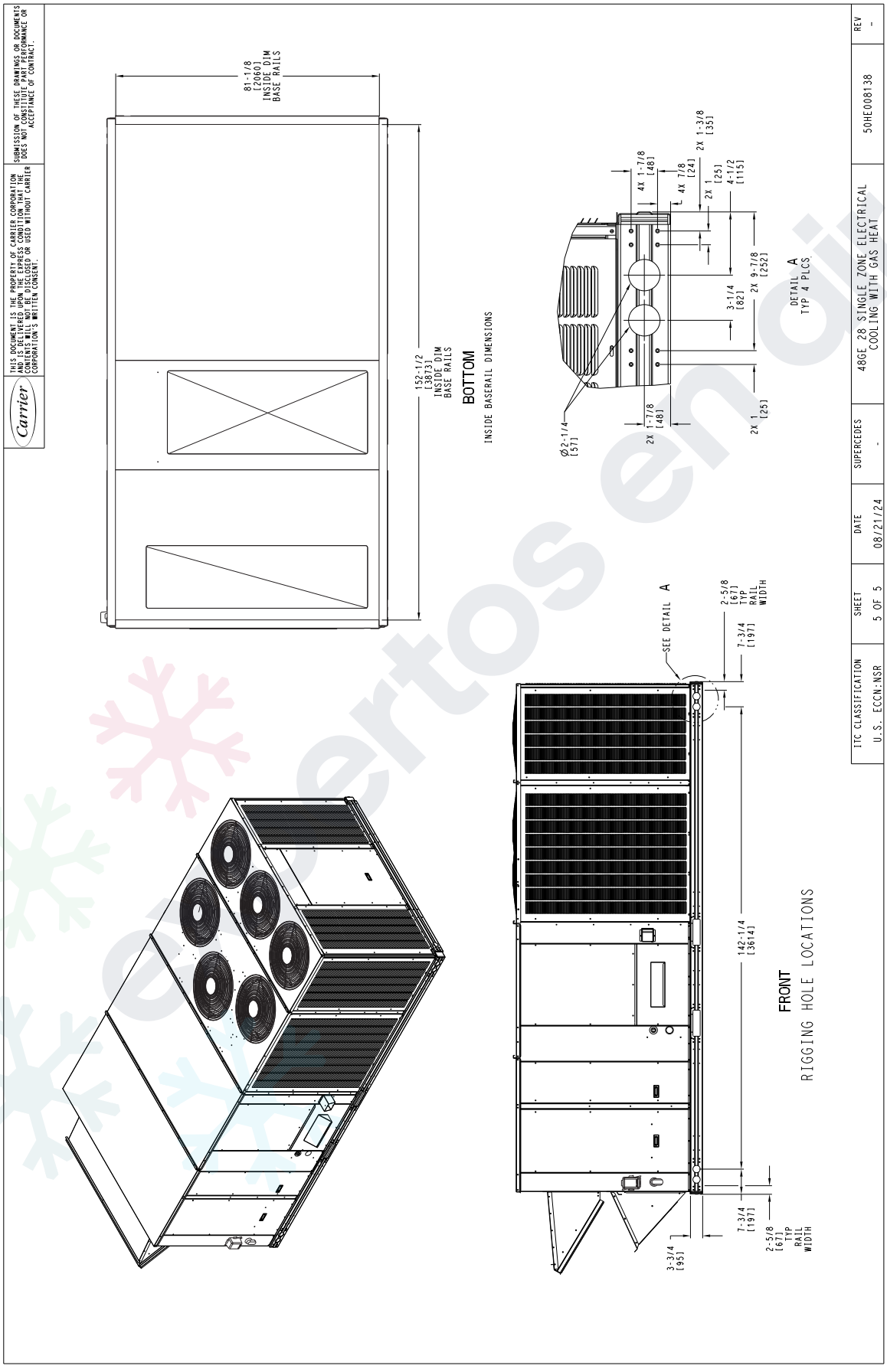


Base unit dimensions (cont)

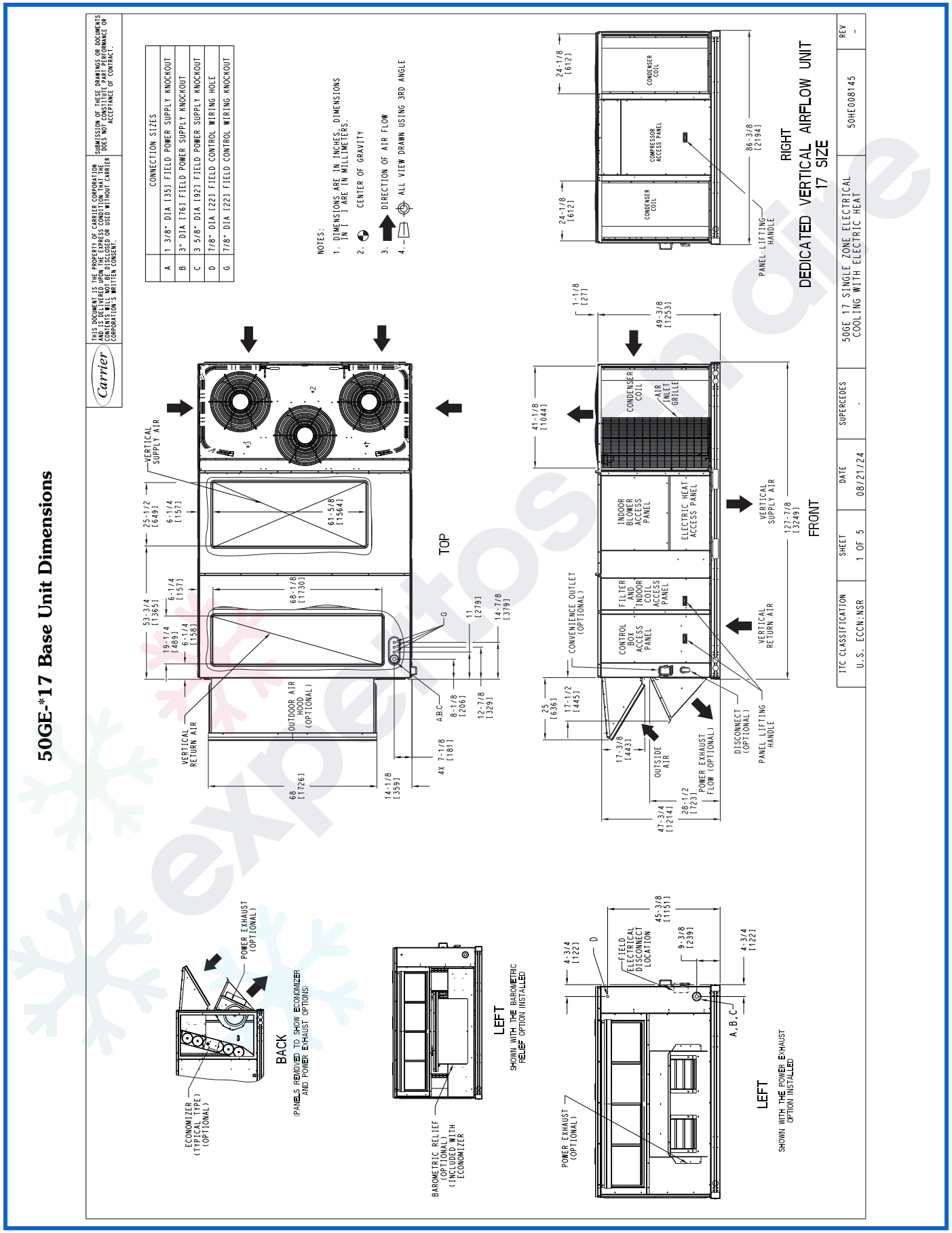


Base unit dimensions (cont)

48GE**28 Base Unit Dimensions (cont)

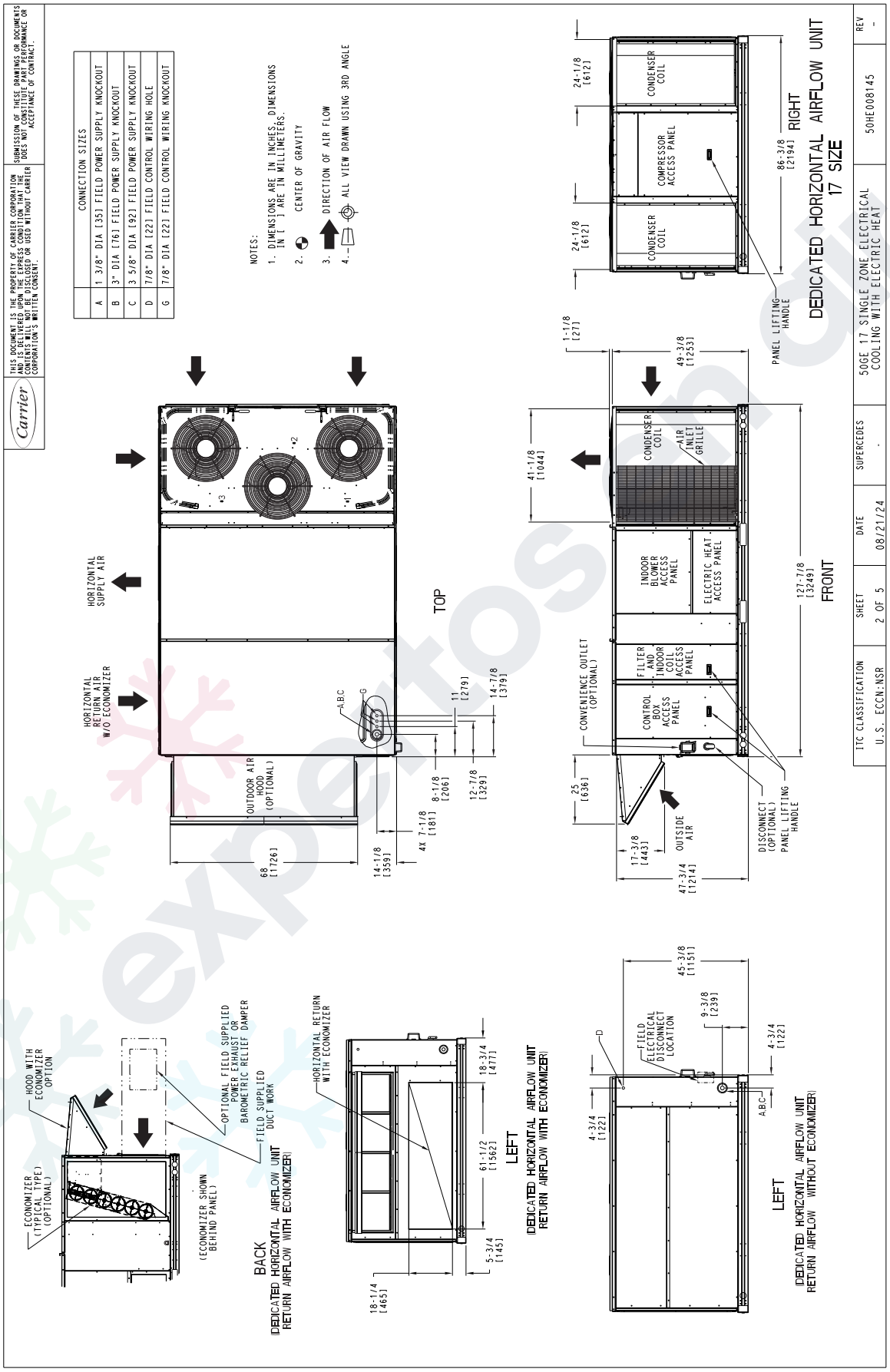


Base unit dimensions (cont)

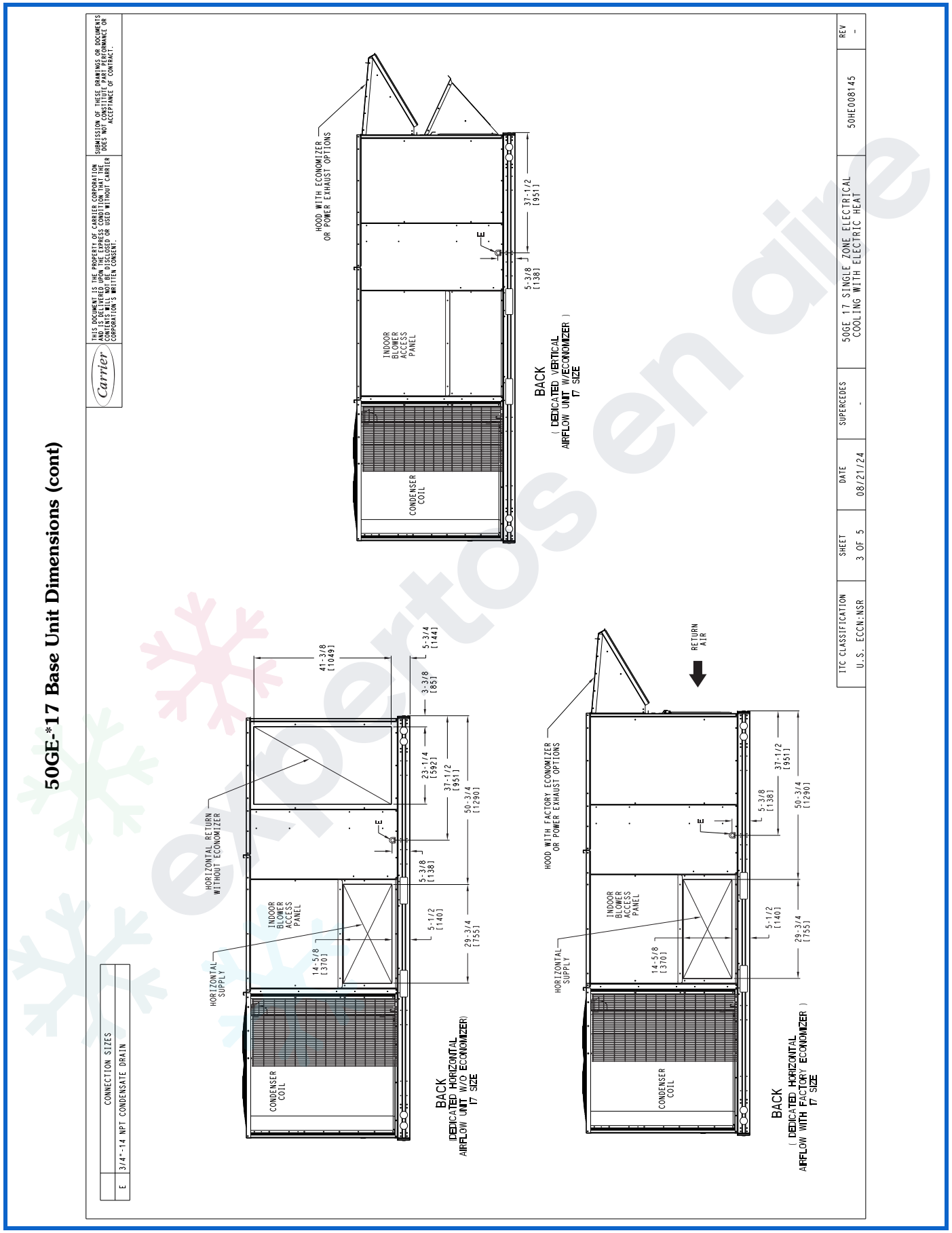


Base unit dimensions (cont)

50GE-*17 Base Unit Dimensions (cont)



Base unit dimensions (cont)

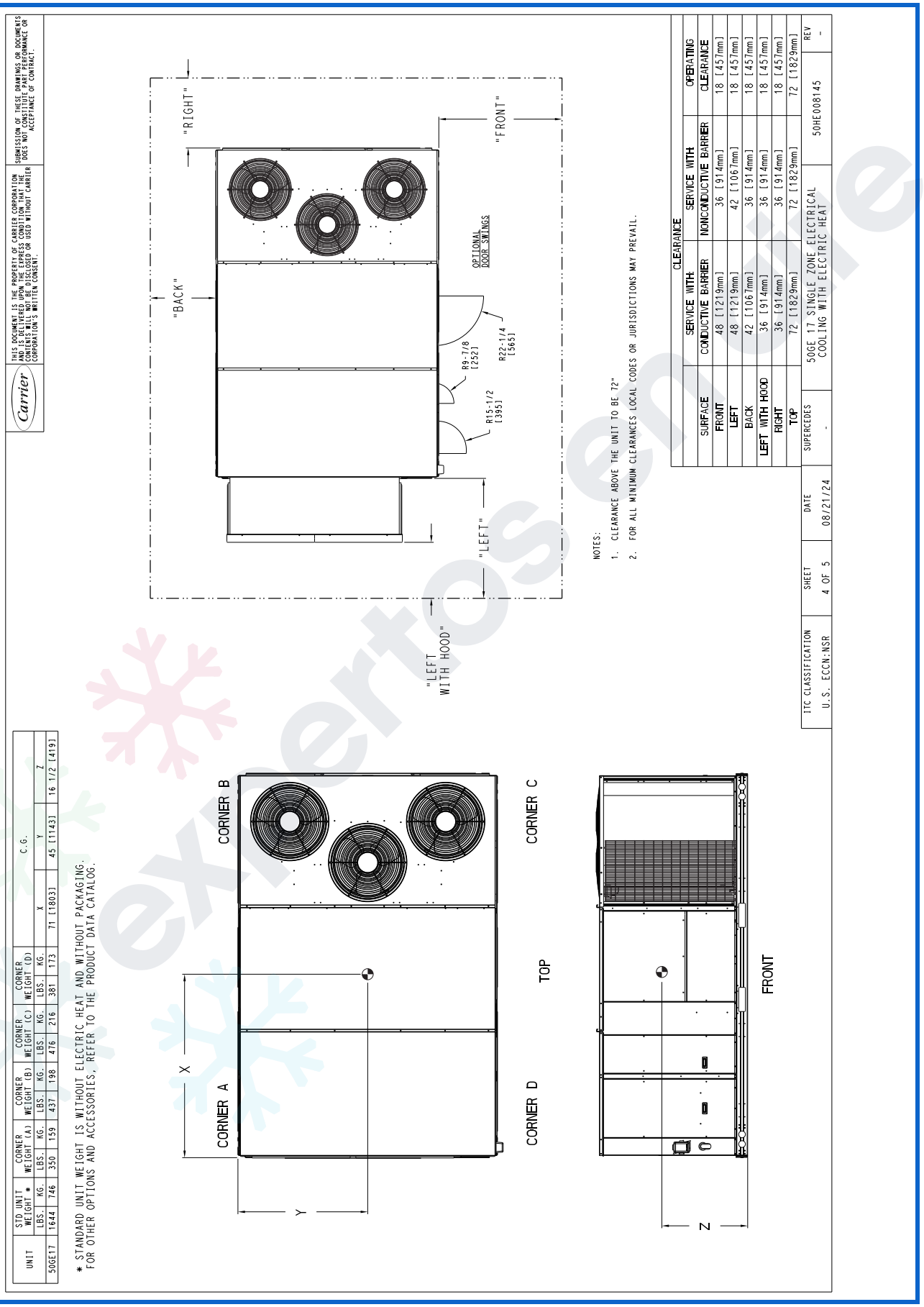


Base unit dimensions (cont)

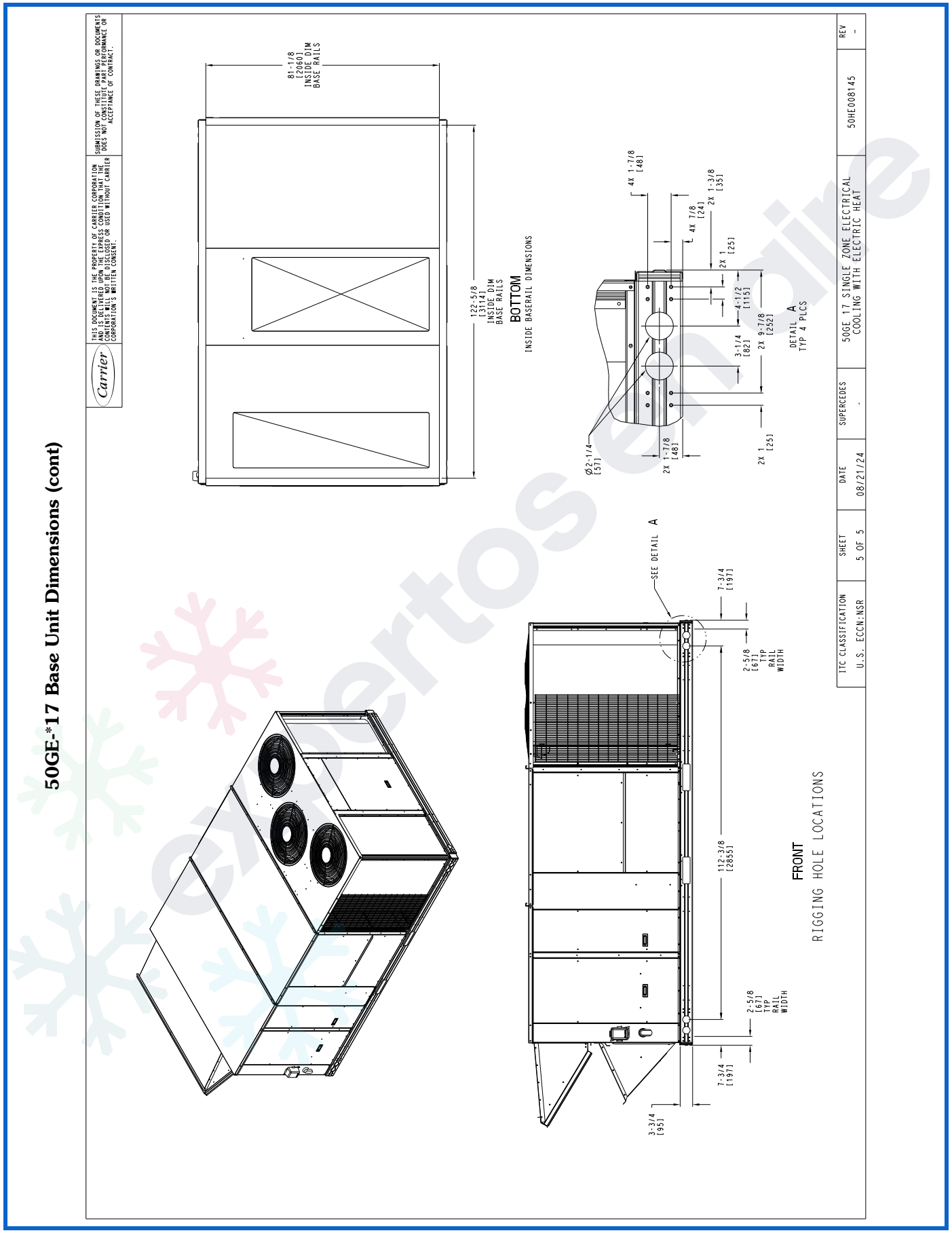
50GE-*17 Base Unit Dimensions (cont)

UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C. G.			
											X		Y	Z
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.				
50GE17	1644	746	350	159	437	198	476	216	381	173	71 [1803]		45 [1143]	16 1/2 [419]

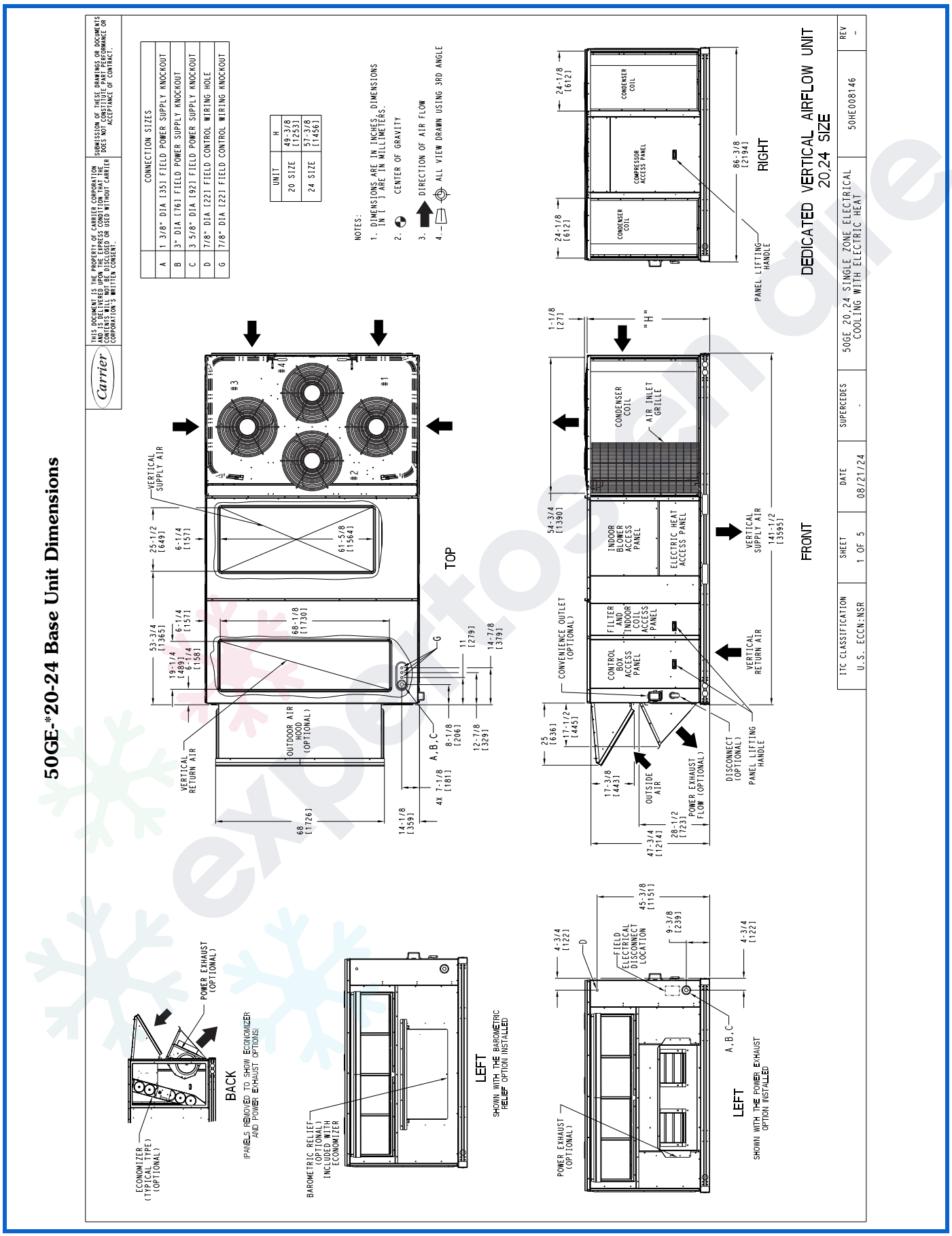
* STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING.
FOR OTHER OPTIONS AND ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.



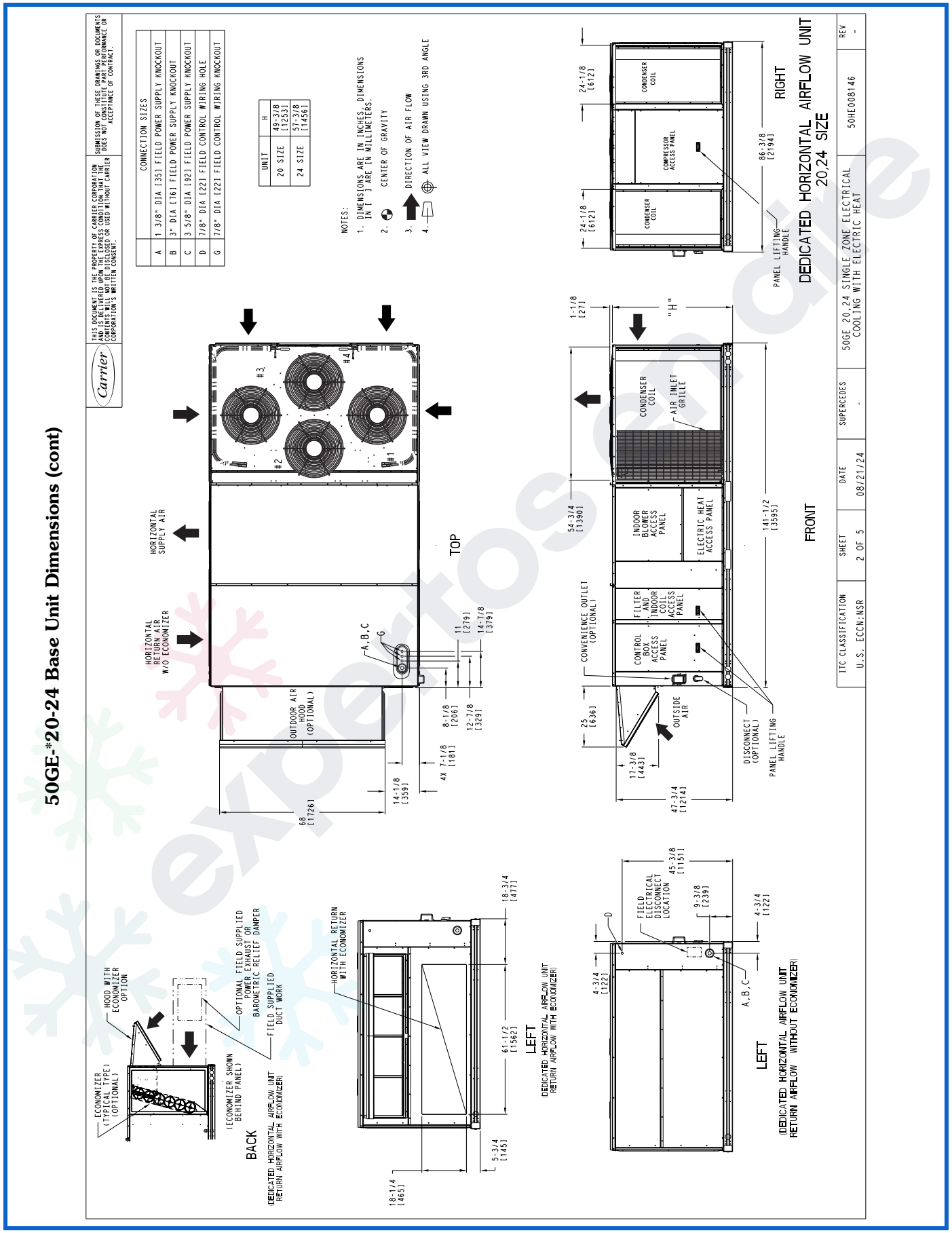
Base unit dimensions (cont)



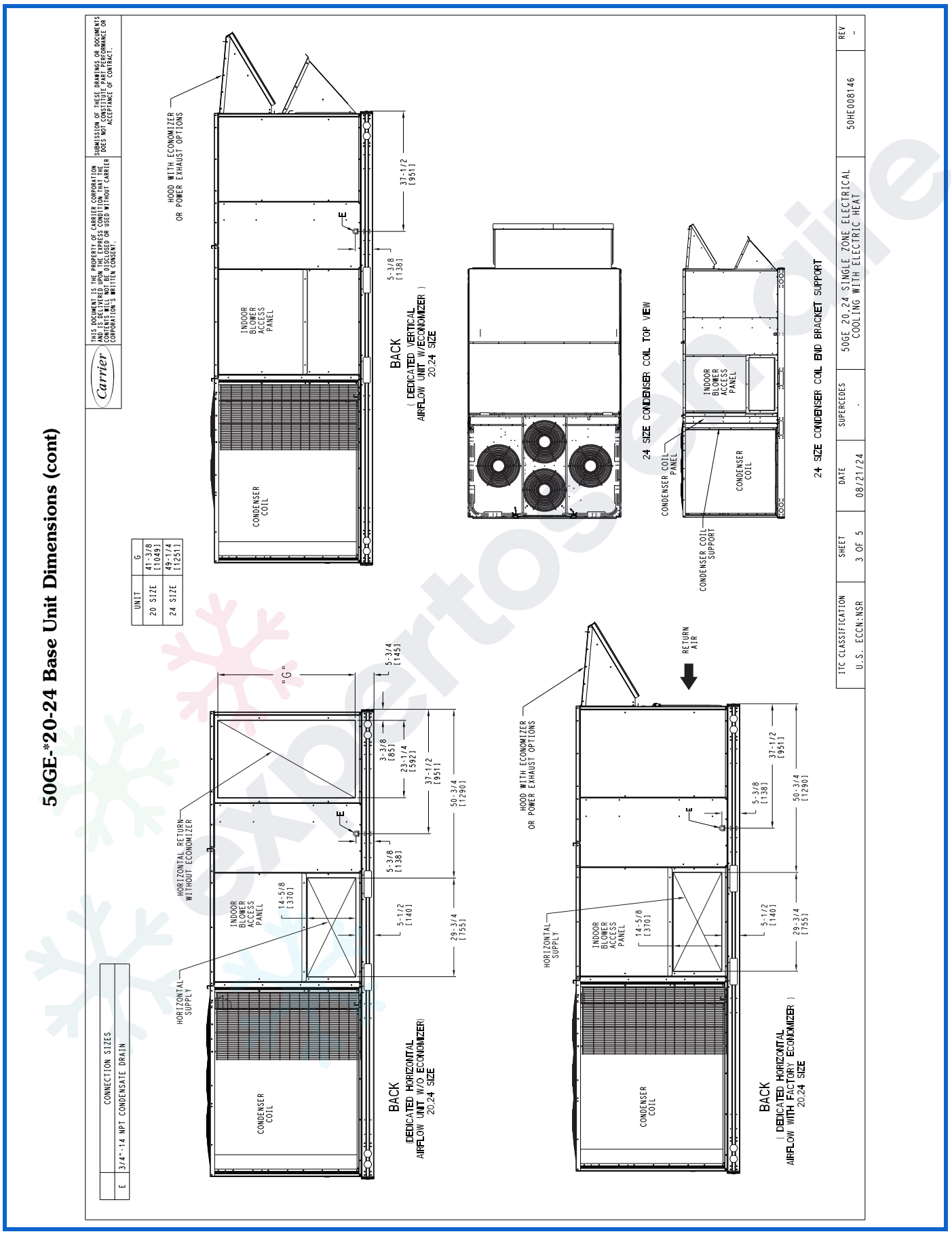
Base unit dimensions (cont)



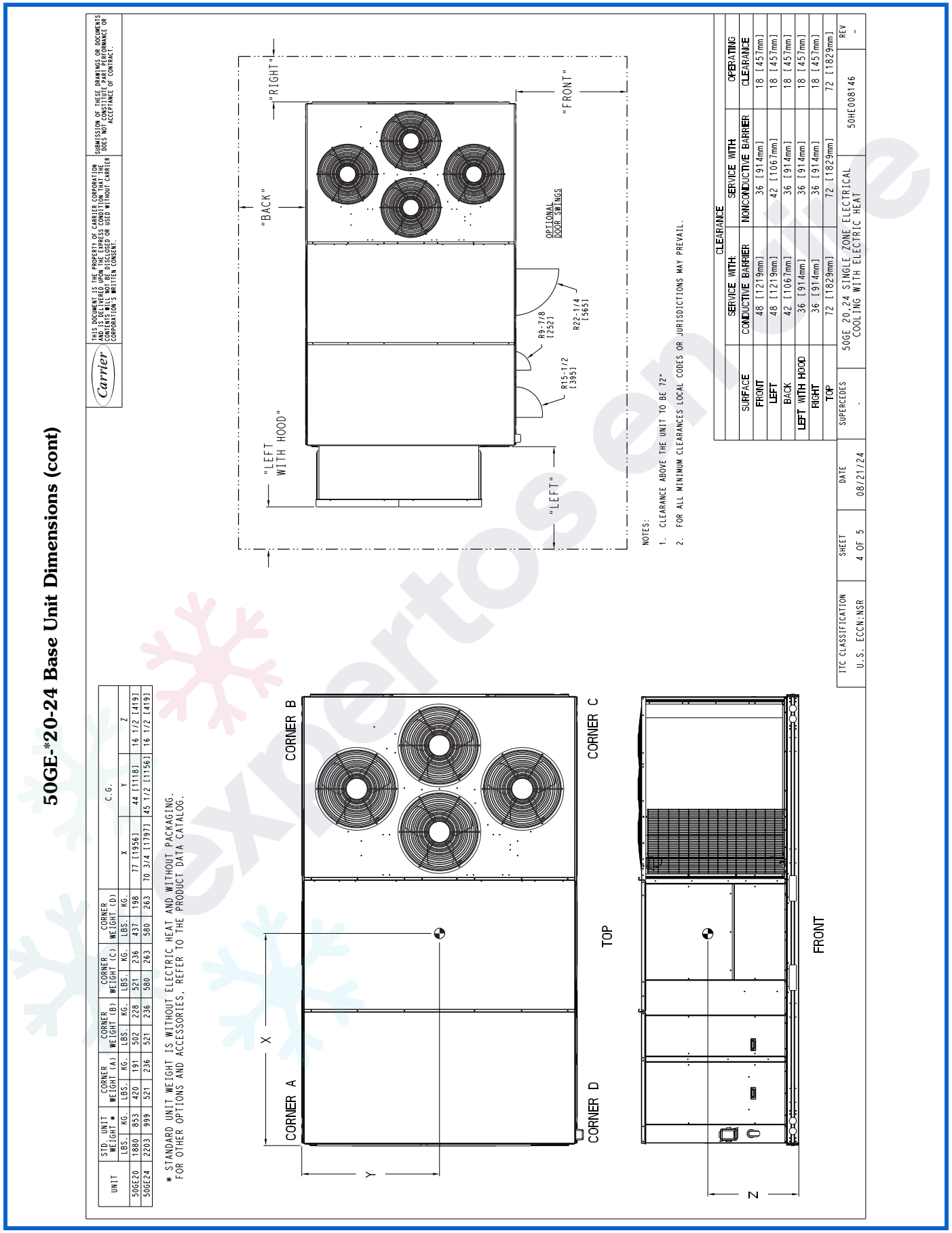
Base unit dimensions (cont)



Base unit dimensions (cont)



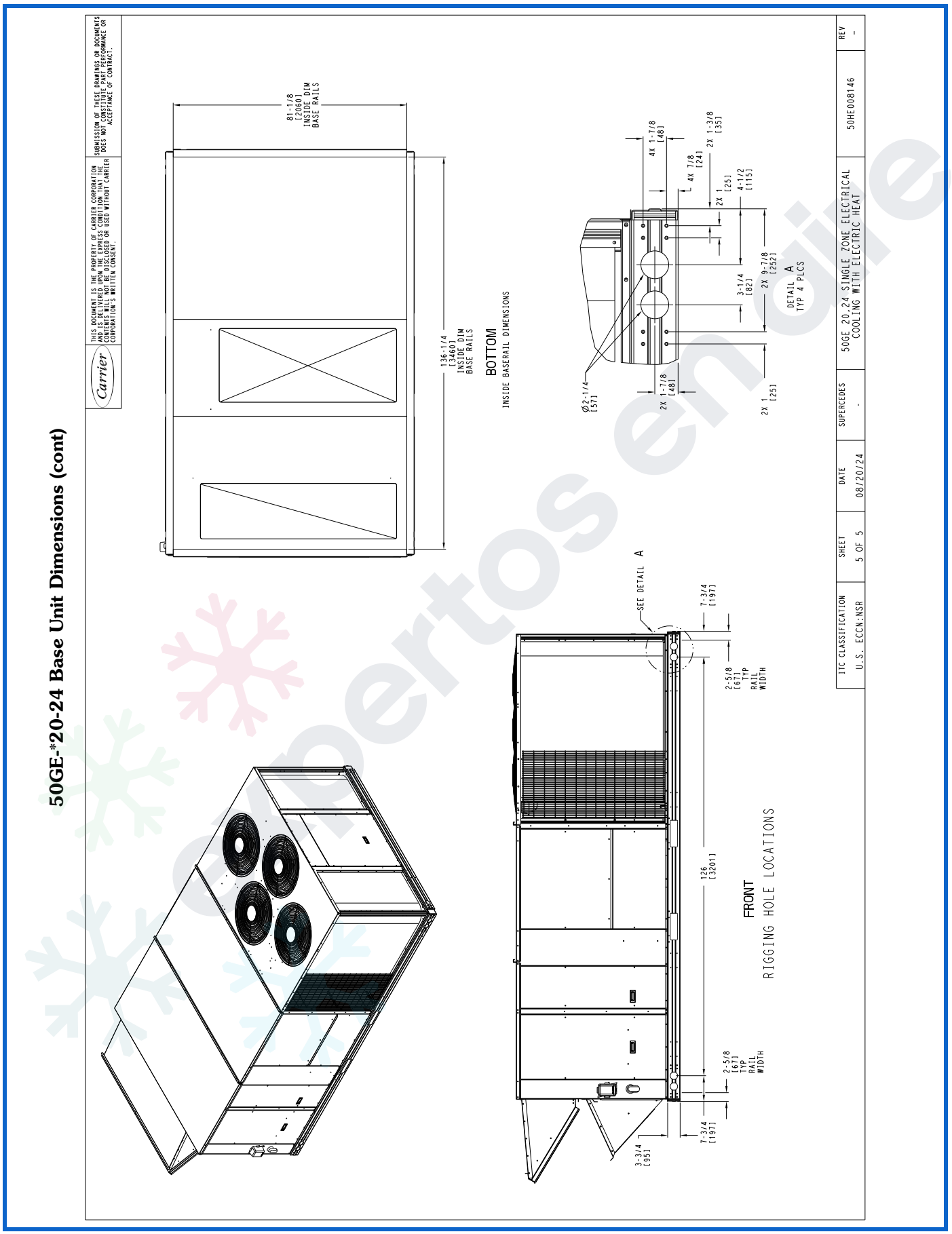
Base unit dimensions (cont)



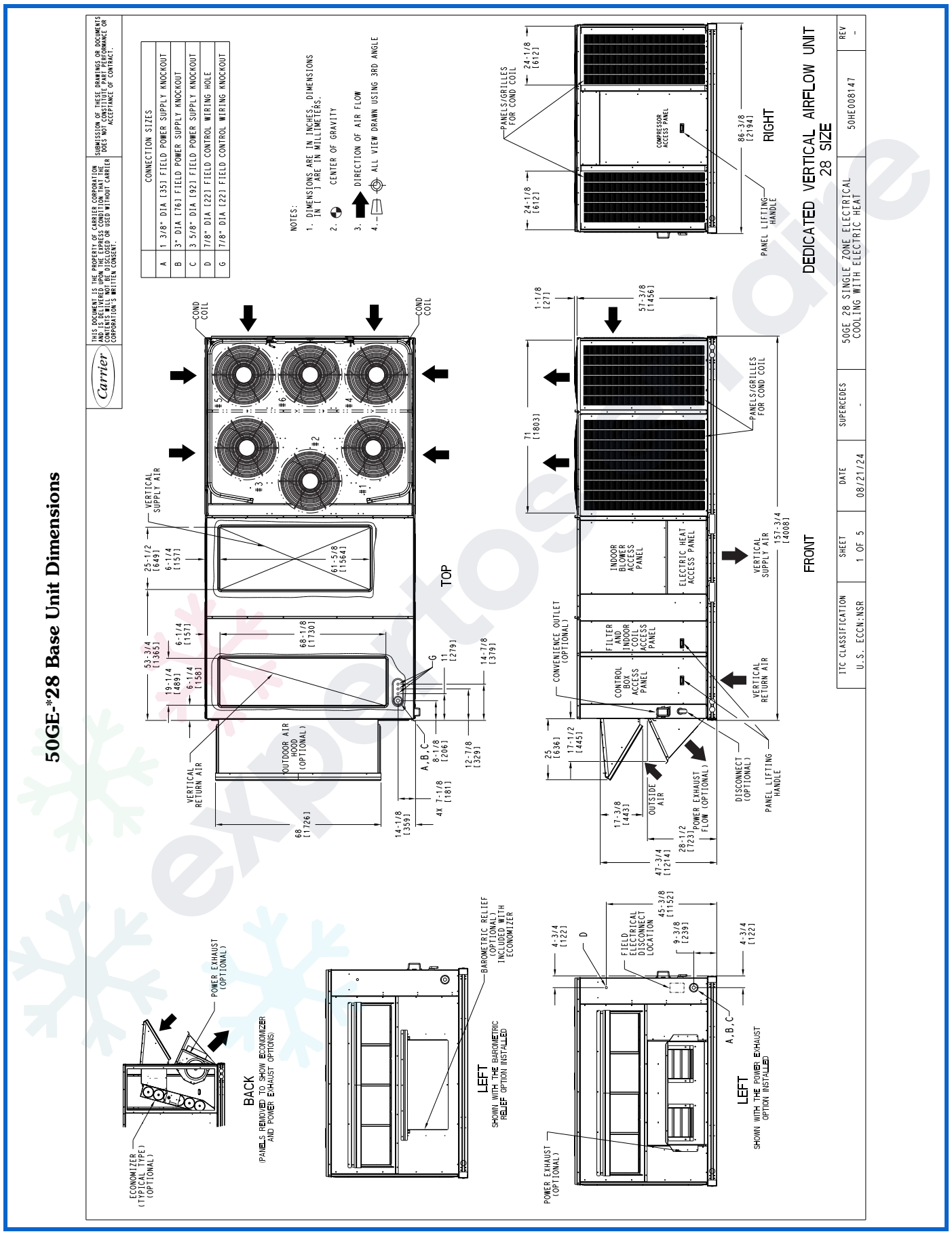
UNIT	STD. UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50GE20	1880	853	420	191	502	228	521	236	437	198	77 [1956]	44 [1118]	16 1/2 [419]
50GE24	2203	999	521	236	521	236	580	263	580	263	70 3/4 [1797]	45 1/2 [1156]	16 1/2 [419]

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

Base unit dimensions (cont)

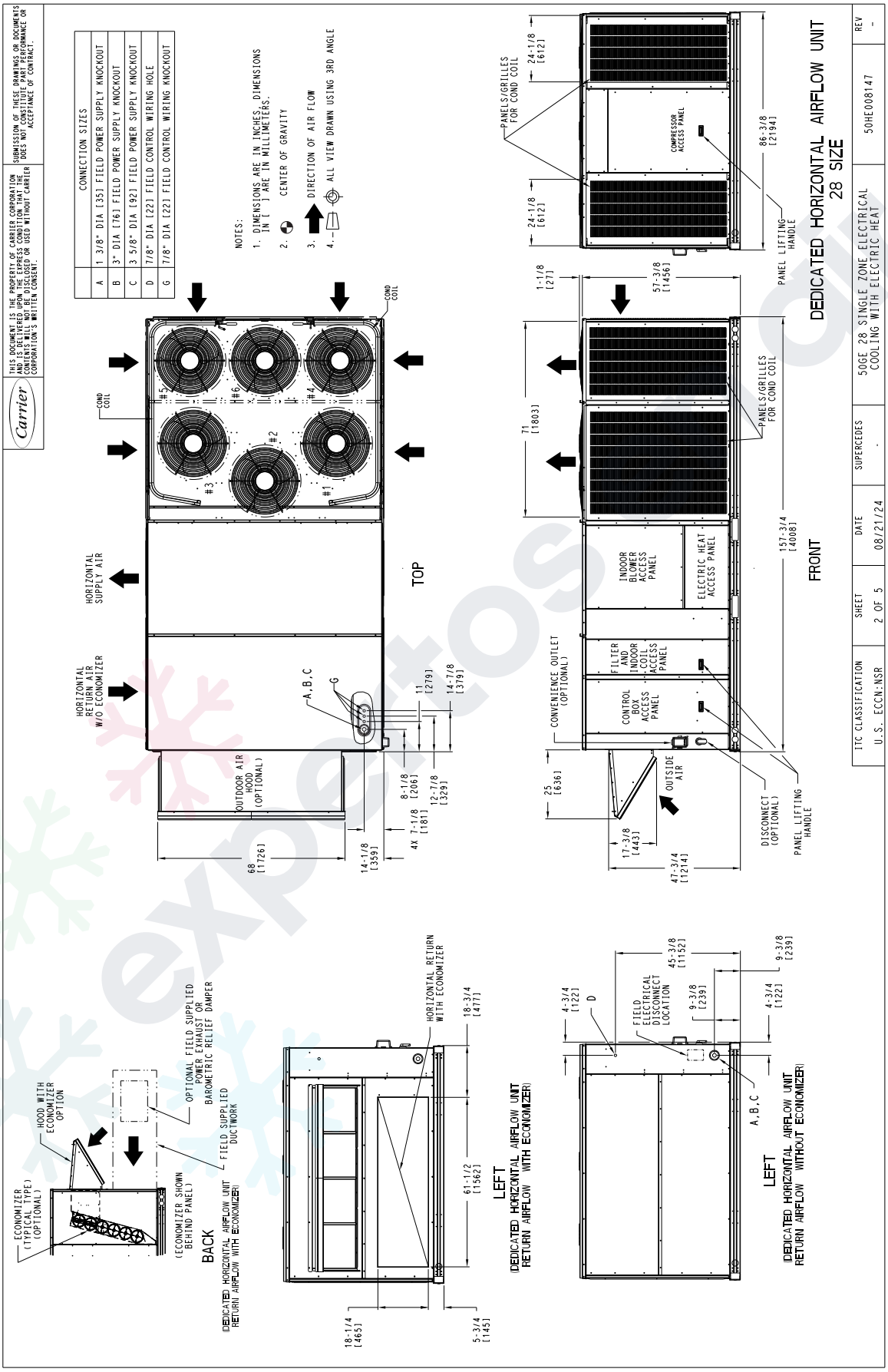


Base unit dimensions (cont)

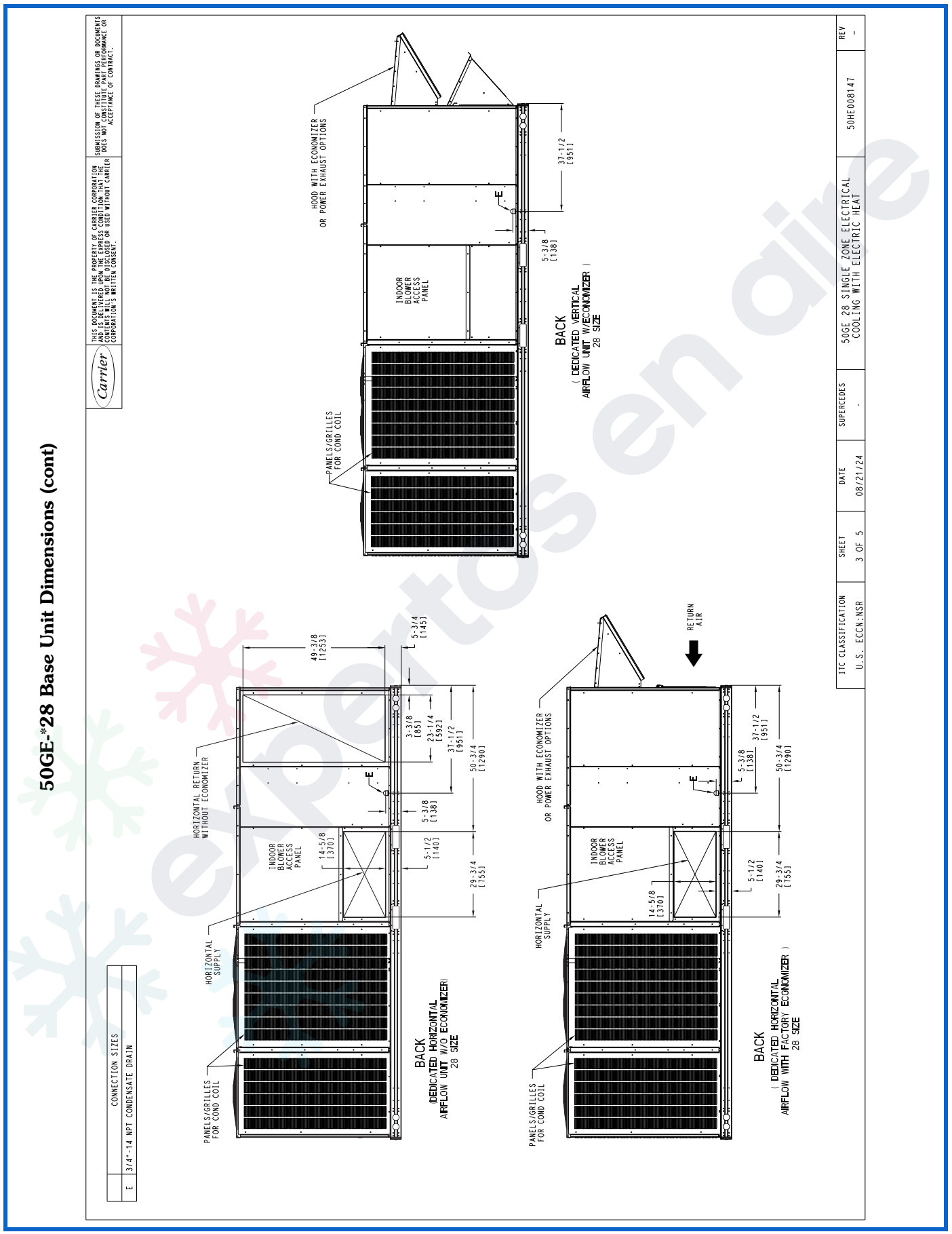


Base unit dimensions (cont)

50GE-*28 Base Unit Dimensions (cont)

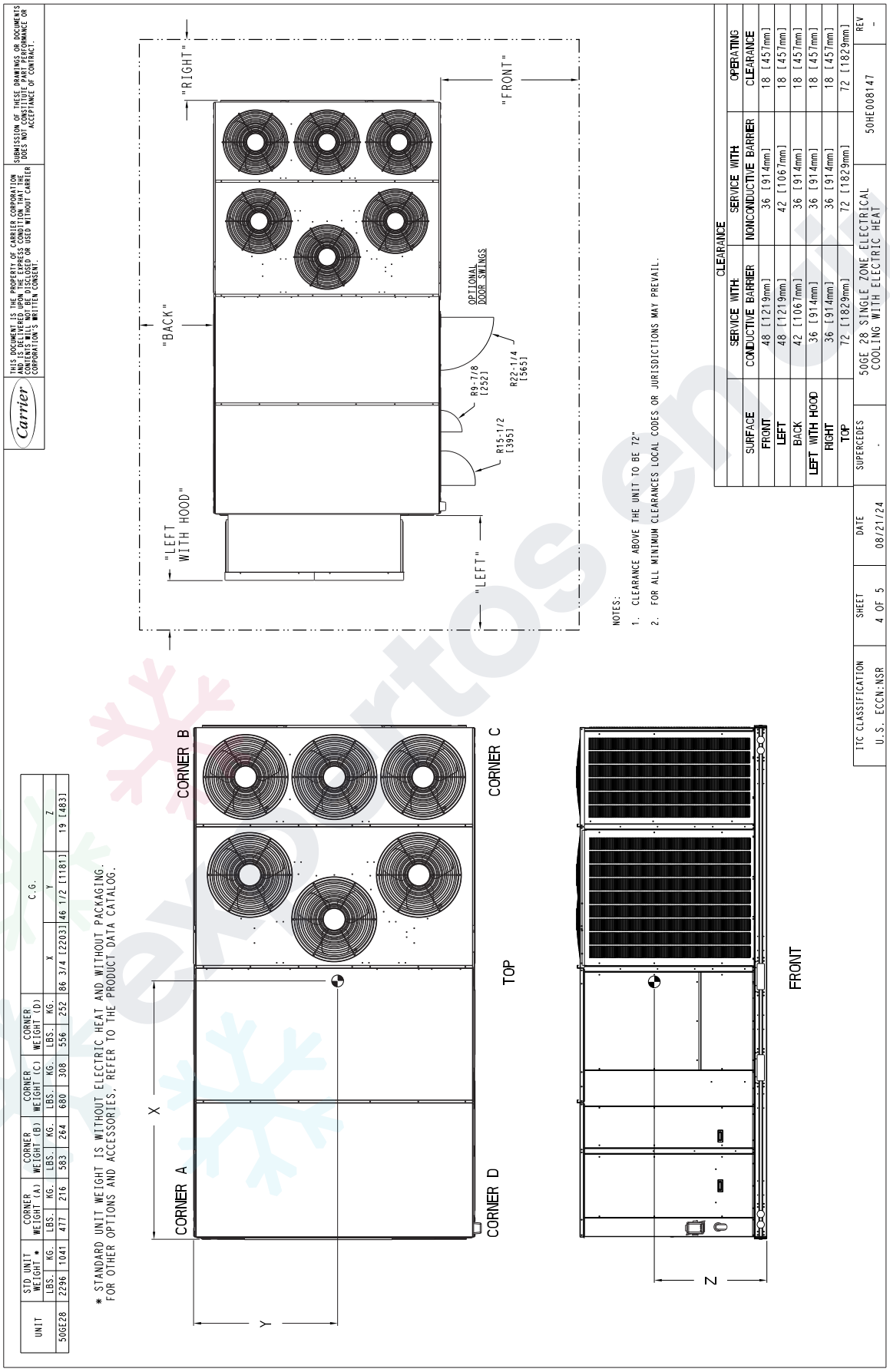


Base unit dimensions (cont)



Base unit dimensions (cont)

50GE-*28 Base Unit Dimensions (cont)



UNIT	STD UNIT WEIGHT *		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.			
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	
50GE28	2296	1041	477	216	583	264	680	308	556	252	86 3/4 [2203]	46 1/2 [1181]	19 [483]	

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

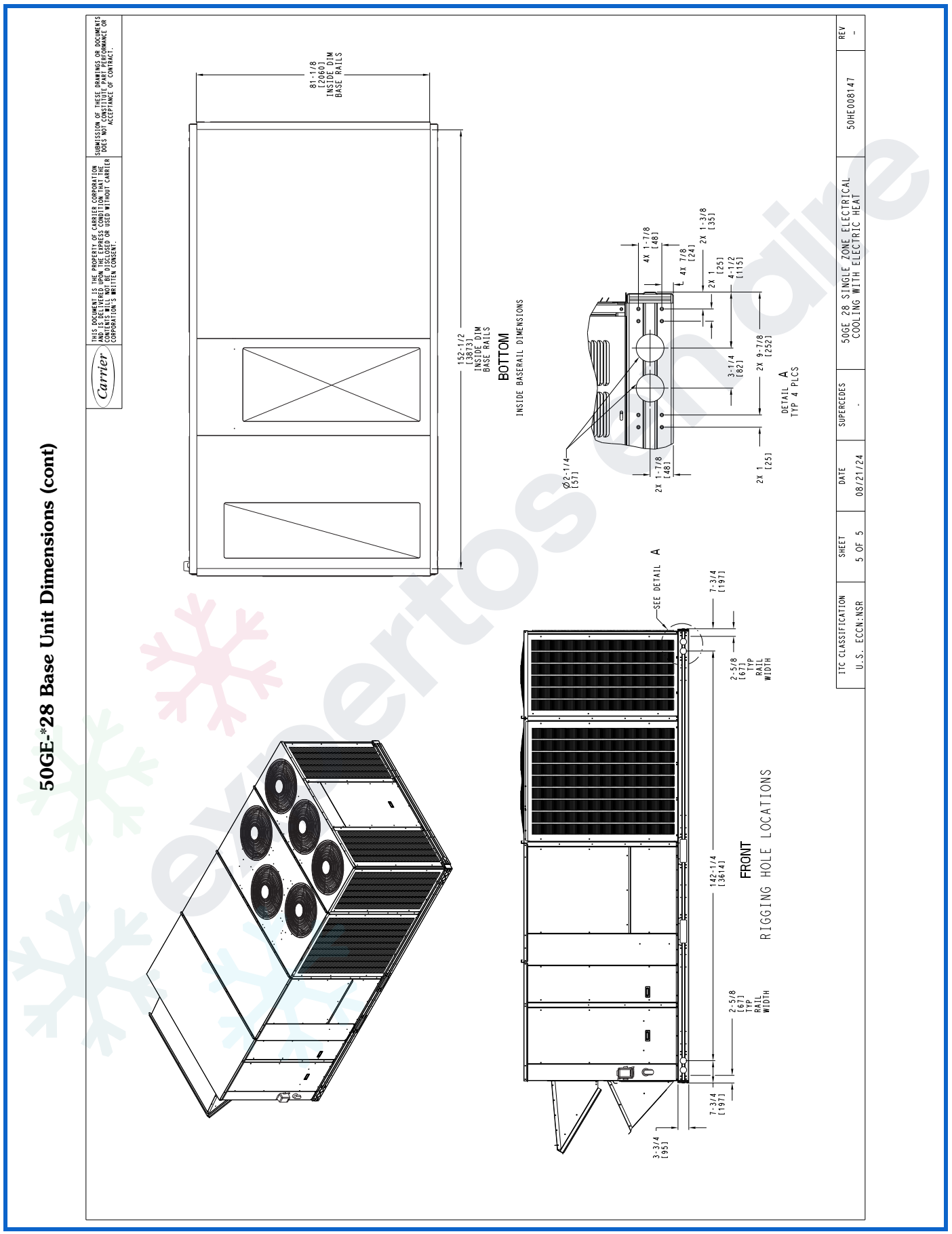
NOTES:
1. CLEARANCE ABOVE THE UNIT TO BE 72"
2. FOR ALL MINIMUM CLEARANCES LOCAL CODES OR JURISDICTIONS MAY PREVAIL.

CLEARANCE

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

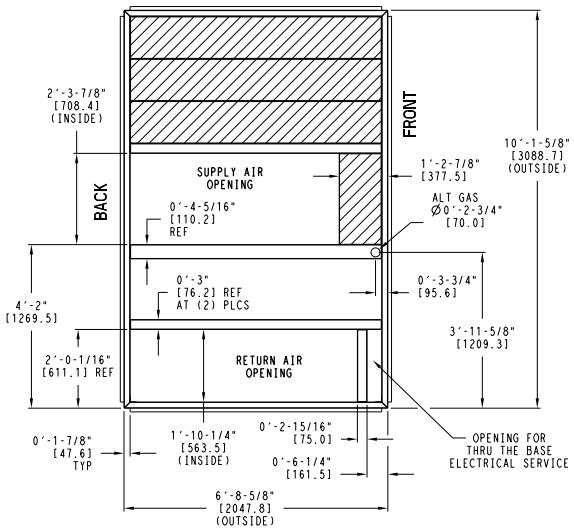
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	50GE 28 SINGLE ZONE ELECTRICAL COOLING WITH ELECTRIC HEAT	50HE008147	REV
U.S. ECCN:NSR	4 OF 5	08/21/24	-			-

Base unit dimensions (cont)



Roof Curb Dimensions — 48/50GE 17

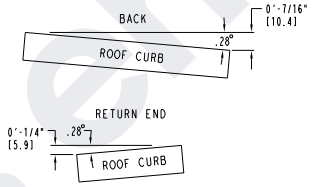
"A"	ROOF CURB ACCESSORY
1′-2" [356.0]	CRRFCURB045A00
2′-0" [610.0]	CRRFCURB046A00



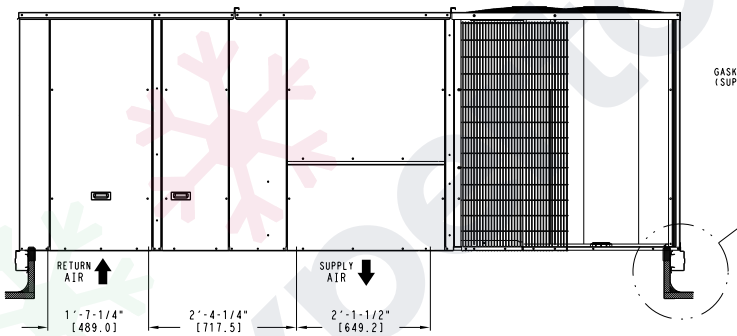
NOTES:

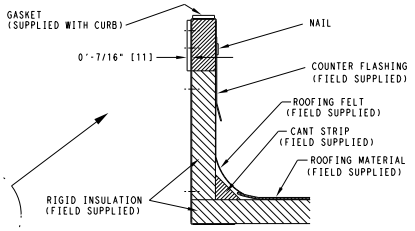
1. ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
2. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
3. ROOF CURB GALVANIZED STEEL.
4. ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB)
5. SERVICE CLEARANCE 4 ft ON EACH SIDE

DIRECTION OF AIR FLOW

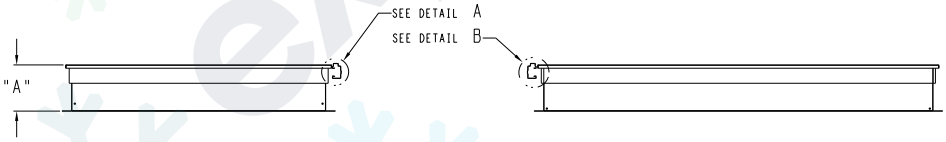


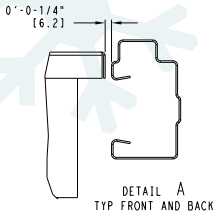
MAX CURB LEVELING TOLERANCES



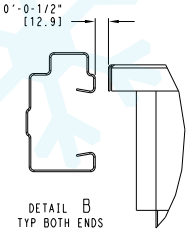


TYPICAL 4 SIDES

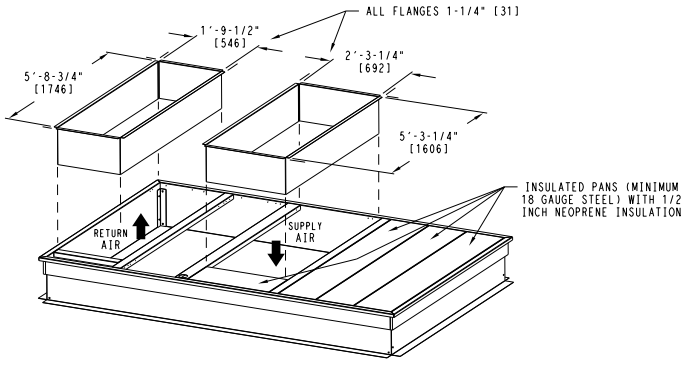




DETAIL A
TYP FRONT AND BACK



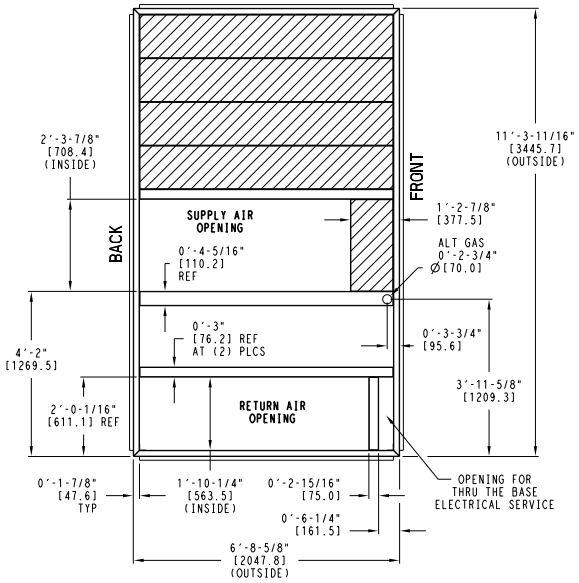
DETAIL B
TYP BOTH ENDS



Accessory dimensions (cont)

Roof Curb Dimensions — 48/50GE 20-24

"A"	ROOF CURB ACCESSORY
1′-2" [356.0]	CRRFCURB047A00
2′-0" [610.0]	CRRFCURB048A00



NOTES:

1 ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.

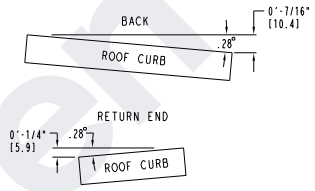
2 DIMENSIONS IN [ ] ARE IN MILLIMETERS.

3 ROOF CURB GALVANIZED STEEL.

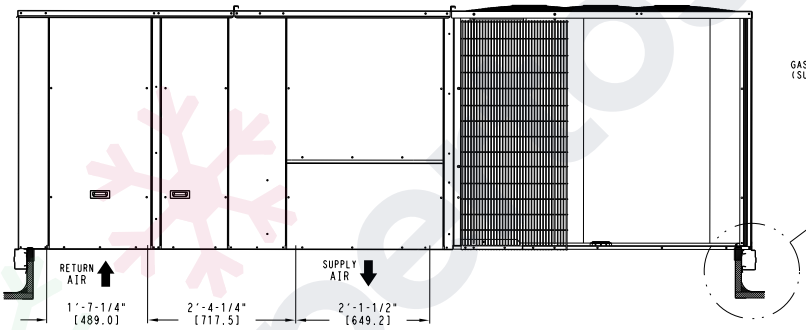
4 ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB)

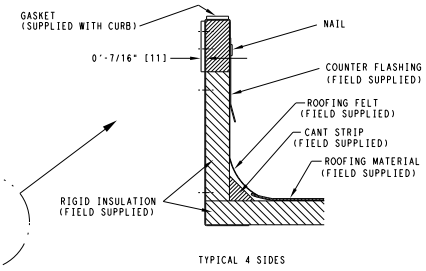
5 SERVICE CLEARANCE 4 ft ON EACH SIDE

➡ DIRECTION OF AIR FLOW

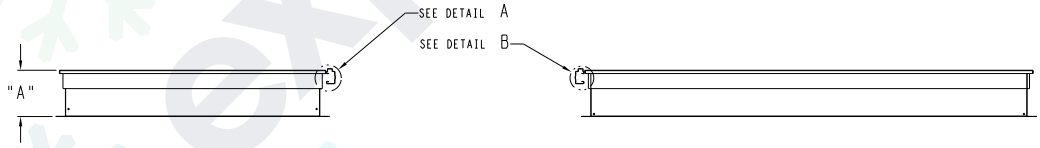


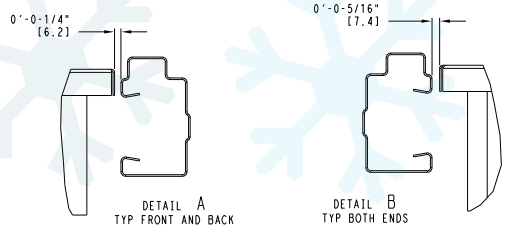
MAX CURB LEVELING TOLERANCES

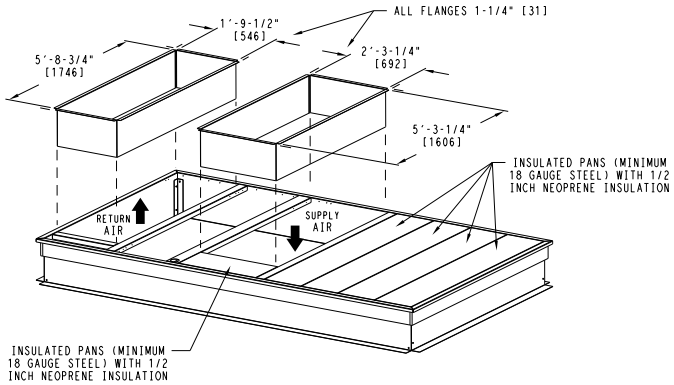




TYPICAL 4 SIDES



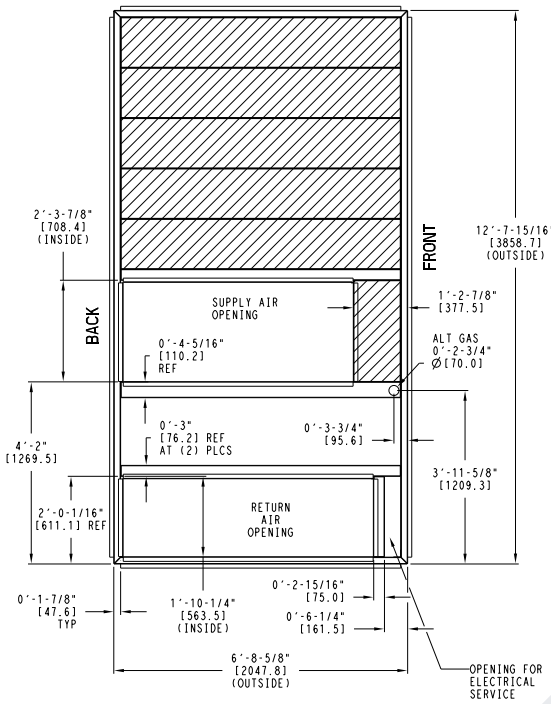




Accessory dimensions (cont)

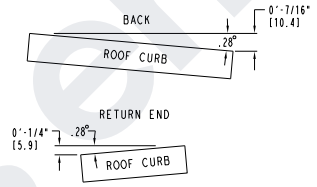
Roof Curb Dimensions — 48/50GE 28

"A"	ROOF CURB ACCESSORY
1′-2" [356.0]	CRRFCURB049A00
2′-0" [610.0]	CRRFCURB050A00

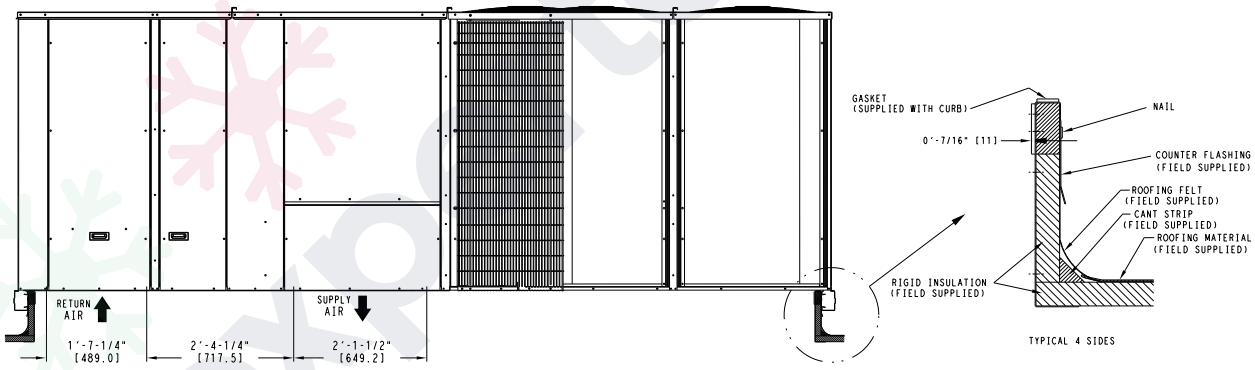


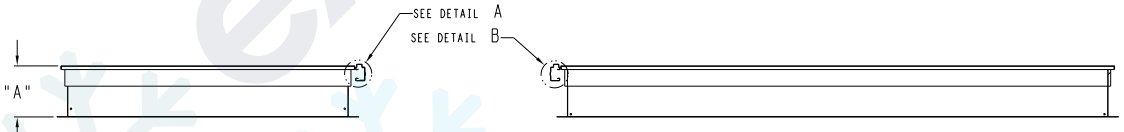
NOTES:
1. ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
2. BOLT HEADS TO BE ON INSIDE OF FLANGE. CLEARANCE IS [11] 0-0-7/16" TYP ALL CORNERS.
3. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
4. ROOF CURB GALVANIZED STEEL.
5. ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB)
6. SERVICE CLEARANCE 4 ft ON EACH SIDE

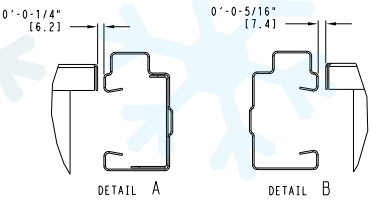
➡ DIRECTION OF AIR FLOW

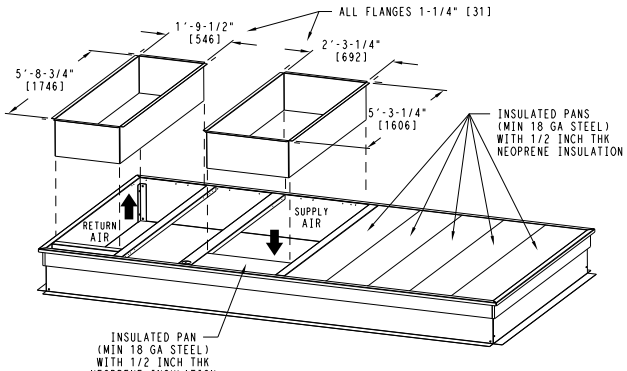


MAX CURB LEVELING TOLERANCES









Performance data

48/50GE**17 Two Stage Cooling Capacities

48/50GE**17				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
4500 cfm	EA (wb)	58	TC	155.5	155.5	176.9	146.8	146.8	167.5	137.7	137.7	157.6	127.7	127.7	146.7	117.3	117.3	135.3
			SHC	134.1	155.5	176.9	126.1	146.8	167.5	117.8	137.7	157.6	108.7	127.7	146.7	99.2	117.3	135.3
		62	TC	163.0	163.0	169.1	152.6	152.6	162.5	141.5	141.5	155.7	129.9	129.9	148.5	119.1	119.1	137.1
			SHC	120.8	144.9	169.1	114.2	138.4	162.5	107.5	131.6	155.7	100.4	124.5	148.5	91.4	114.2	137.1
		67	TC	180.2	180.2	180.2	169.1	169.1	169.1	157.3	157.3	157.3	144.8	144.8	144.8	131.8	131.8	131.8
			SHC	97.5	121.8	146.0	91.0	115.2	139.4	84.3	108.5	132.7	77.3	101.5	125.7	70.2	94.4	118.5
		72	TC	199.1	199.1	199.1	187.0	187.0	187.0	174.9	174.9	174.9	161.4	161.4	161.4	147.6	147.6	147.6
			SHC	74.0	98.2	122.4	67.4	91.6	115.8	60.9	85.0	109.2	53.8	78.0	102.2	46.8	70.9	95.1
		76	TC	—	215.7	215.7	—	203.2	203.2	—	190.0	190.0	—	176.0	176.0	—	161.6	161.6
			SHC	—	79.2	102.8	—	72.6	96.3	—	65.9	89.6	—	59.0	82.7	—	51.9	75.6
5250 cfm	EA (wb)	58	TC	165.2	165.2	187.7	155.9	155.9	177.5	146.3	146.3	167.2	135.6	135.6	155.5	124.6	124.6	143.4
			SHC	142.7	165.2	187.7	134.2	155.9	177.5	125.5	146.3	167.2	115.8	135.6	155.5	105.8	124.6	143.4
		62	TC	168.1	168.1	187.6	157.9	157.9	180.8	149.6	149.6	164.1	135.8	135.8	162.4	124.8	124.8	150.0
			SHC	131.8	159.7	187.6	125.2	153.0	180.8	113.9	139.0	164.1	109.3	135.8	162.4	99.6	124.8	150.0
		67	TC	185.5	185.5	185.5	174.1	174.1	174.1	162.0	162.0	162.0	149.2	149.2	149.2	135.5	135.5	135.5
			SHC	104.6	132.7	160.8	98.1	126.1	154.2	91.3	119.3	147.4	84.3	112.3	140.3	77.0	105.0	133.0
		72	TC	204.8	204.8	204.8	192.6	192.6	192.6	179.5	179.5	179.5	165.6	165.6	165.6	151.3	151.3	151.3
			SHC	77.0	105.0	133.1	70.4	98.4	126.5	63.6	91.6	119.6	56.5	84.5	112.6	49.3	77.3	105.3
		76	TC	—	221.7	221.7	—	208.6	208.6	—	194.9	194.9	—	180.3	180.3	—	165.4	165.4
			SHC	—	82.6	110.0	—	76.0	103.4	—	69.1	96.6	—	62.1	89.5	—	54.9	82.4
6000 cfm	EA (wb)	58	TC	173.2	173.2	196.6	163.4	163.4	185.9	153.2	153.2	174.8	142.2	142.2	162.8	130.7	130.7	150.2
			SHC	149.8	173.2	196.6	140.9	163.4	185.9	131.6	153.2	174.8	121.6	142.2	162.8	111.2	130.7	150.2
		62	TC	175.0	175.0	199.3	165.6	165.6	186.9	153.3	153.3	182.2	142.4	142.4	169.9	130.8	130.8	156.9
			SHC	139.6	169.5	199.3	130.3	158.6	186.9	124.5	153.3	182.2	114.9	142.4	169.9	104.8	130.8	156.9
		67	TC	189.9	189.9	189.9	177.9	177.9	177.9	165.5	165.5	165.5	152.1	152.1	154.4	138.3	138.3	147.0
			SHC	111.4	143.3	175.1	104.7	136.6	168.4	97.9	129.8	161.6	90.8	122.6	154.4	83.6	115.3	147.0
		72	TC	209.2	209.2	209.2	196.5	196.5	196.5	183.0	183.0	183.0	168.7	168.7	168.7	154.1	154.1	154.1
			SHC	79.5	111.4	143.2	72.9	104.7	136.5	66.0	97.8	129.6	58.8	90.6	122.4	51.6	83.4	115.2
		76	TC	—	226.1	226.1	—	212.6	212.6	—	198.6	198.6	—	183.7	183.7	—	168.4	168.4
			SHC	—	85.5	116.7	—	78.8	109.9	—	71.9	103.0	—	64.7	95.9	—	57.5	88.6
6750 cfm	EA (wb)	58	TC	179.9	179.9	204.0	169.7	169.7	193.0	159.0	159.0	181.3	147.7	147.7	168.9	135.8	135.8	155.8
			SHC	155.7	179.9	204.0	146.5	169.7	193.0	136.8	159.0	181.3	126.5	147.7	168.9	115.7	135.8	155.8
		62	TC	179.8	179.8	212.0	169.9	169.9	200.9	159.3	159.3	189.1	147.9	147.9	176.2	135.9	135.9	162.7
			SHC	147.7	179.8	212.0	138.9	169.9	200.9	129.6	159.3	189.1	119.5	147.9	176.2	109.1	135.9	162.7
		67	TC	193.3	193.3	193.3	181.1	181.1	182.3	168.3	168.3	175.2	154.6	154.6	168.0	140.6	140.6	160.5
			SHC	117.9	153.5	189.1	111.3	146.8	182.3	104.3	139.8	175.2	97.2	132.6	168.0	90.0	125.2	160.5
		72	TC	212.6	212.6	212.6	199.5	199.5	199.5	185.7	185.7	185.7	171.2	171.2	171.2	156.3	156.3	156.3
			SHC	81.8	117.3	152.9	75.0	110.6	146.1	68.1	103.6	139.2	60.9	96.4	131.9	53.7	89.2	124.6
		76	TC	—	229.6	229.6	—	215.8	215.8	—	201.4	201.4	—	186.2	186.2	—	170.6	170.6
			SHC	—	87.9	122.8	—	81.1	115.9	—	74.2	108.9	—	67.0	101.7	—	59.7	94.3
7500 cfm	EA (wb)	58	TC	185.7	185.7	210.5	175.2	175.2	199.0	164.2	164.2	187.0	152.4	152.4	174.1	140.1	140.1	160.6
			SHC	161.0	185.7	210.5	151.3	175.2	199.0	141.4	164.2	187.0	130.7	152.4	174.1	119.6	140.1	160.6
		62	TC	186.0	186.0	219.1	175.4	175.4	207.2	164.4	164.4	194.9	152.6	152.6	181.6	140.2	140.2	167.7
			SHC	152.9	186.0	219.1	143.6	175.4	207.2	133.9	164.4	194.9	123.6	152.6	181.6	112.8	140.2	167.7
		67	TC	196.1	196.1	202.6	183.6	183.6	195.7	170.5	170.5	188.7	156.7	156.7	181.3	142.5	142.5	173.4
			SHC	124.3	163.4	202.6	117.5	156.6	195.7	110.6	149.7	188.7	103.5	142.4	181.3	96.1	134.8	173.4
		72	TC	215.3	215.3	215.3	201.8	201.8	201.8	187.9	187.9	187.9	173.2	173.2	173.2	158.1	158.1	158.1
			SHC	83.7	123.0	162.2	76.9	116.1	155.4	70.0	109.2	148.3	62.8	102.0	141.1	55.6	94.7	133.7
		76	TC	—	232.4	232.4	—	218.4	218.4	—	203.7	203.7	—	188.3	188.3	—	172.4	172.4
			SHC	—	90.1	128.5	—	83.2	121.5	—	76.2	114.5	—	68.9	107.1	—	61.5	99.5

LEGEND

— — Do Not Operate
cfm — Cubic Feet Per Minute (Supply Air)
EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTE: See minimum-maximum airflow ratings on page 8.

Performance data (cont)

48/50GE**17 Single Stage Cooling Capacities

48/50GE**17				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
2700 cfm	EA (wb)	58	TC	87.0	87.0	99.8	80.6	80.6	93.0	74.1	74.1	86.1	67.3	67.3	78.7	60.1	60.1	71.1
			SHC	74.2	87.0	99.8	68.2	80.6	93.0	62.1	74.1	86.1	55.8	67.3	78.7	49.1	60.1	71.1
		62	TC	93.3	93.3	94.6	85.9	85.9	89.2	78.2	78.2	83.8	70.1	70.1	78.1	61.7	61.7	72.2
			SHC	66.5	80.5	94.6	61.2	75.2	89.2	55.8	69.8	83.8	50.2	64.2	78.1	44.5	58.4	72.2
		67	TC	105.5	105.5	105.5	97.8	97.8	97.8	89.6	89.6	89.6	81.0	81.0	81.0	72.0	72.0	72.0
			SHC	54.4	68.5	82.5	49.1	63.2	77.3	43.7	57.8	71.9	38.2	52.3	66.3	32.5	46.6	60.6
		72	TC	118.8	118.8	118.8	110.8	110.8	110.8	102.1	102.1	102.1	93.0	93.0	93.0	83.5	83.5	83.5
			SHC	42.0	56.2	70.4	36.8	51.0	65.2	31.4	45.6	59.7	25.9	40.0	54.2	20.2	34.4	48.5
		76	TC	—	130.5	130.5	—	121.7	121.7	—	112.6	112.6	—	103.0	103.0	—	93.1	93.1
			SHC	—	46.4	61.2	—	41.1	55.9	—	35.6	50.4	—	30.1	44.7	—	24.4	38.9
3150 cfm	EA (wb)	58	TC	93.5	93.5	107.0	86.9	86.9	100.0	80.0	80.0	92.6	72.8	72.8	84.9	65.2	65.2	76.7
			SHC	80.0	93.5	107.0	73.9	86.9	100.0	67.4	80.0	92.6	60.7	72.8	84.9	53.7	65.2	76.7
		62	TC	97.2	97.2	105.4	89.7	89.7	99.9	81.8	81.8	94.1	73.6	73.6	88.0	67.1	67.1	75.9
			SHC	73.1	89.3	105.4	67.8	83.8	99.9	62.2	78.1	94.1	56.3	72.2	88.0	47.8	61.8	75.9
		67	TC	109.6	109.6	109.6	101.6	101.6	101.6	93.1	93.1	93.1	84.1	84.1	84.1	74.7	74.7	74.7
			SHC	58.9	75.2	91.4	53.6	69.9	86.1	48.1	64.3	80.6	42.5	58.7	74.9	36.7	52.9	69.1
		72	TC	123.5	123.5	123.5	114.8	114.8	114.8	105.7	105.7	105.7	96.2	96.2	96.2	86.4	86.4	86.4
			SHC	44.5	60.8	77.2	39.1	55.4	71.7	33.5	49.8	66.1	27.9	44.2	60.5	22.1	38.4	54.6
		76	TC	—	134.8	134.8	—	125.9	125.9	—	116.4	116.4	—	106.4	106.4	—	96.0	96.0
			SHC	—	49.0	65.9	—	43.6	60.5	—	38.1	54.8	—	32.4	49.1	—	26.6	43.2
3600 cfm	EA (wb)	58	TC	99.1	99.1	113.2	92.2	92.2	105.8	85.0	85.0	98.1	77.4	77.4	90.0	69.5	69.5	81.5
			SHC	85.0	99.1	113.2	78.6	92.2	105.8	71.9	85.0	98.1	64.9	77.4	90.0	57.5	69.5	81.5
		62	TC	100.8	100.8	115.4	93.1	93.1	109.3	87.2	87.2	96.6	77.5	77.5	94.4	69.6	69.6	85.6
			SHC	79.3	97.4	115.4	73.7	91.5	109.3	64.9	80.8	96.6	60.7	77.5	94.4	53.6	69.6	85.6
		67	TC	112.8	112.8	112.8	104.6	104.6	104.6	95.8	95.8	95.8	86.5	86.5	86.5	76.9	76.9	77.2
			SHC	63.2	81.6	99.9	57.8	76.1	94.5	52.2	70.5	88.9	46.4	64.8	83.1	40.6	58.9	77.2
		72	TC	126.7	126.7	126.7	117.9	117.9	117.9	108.5	108.5	108.5	98.8	98.8	98.8	88.6	88.6	88.6
			SHC	46.4	64.9	83.3	41.0	59.4	77.9	35.4	53.8	72.2	29.6	48.0	66.4	23.8	42.1	60.5
		76	TC	—	138.5	138.5	—	129.1	129.1	—	119.3	119.3	—	109.0	109.0	—	98.3	98.3
			SHC	—	51.4	70.3	—	45.9	64.7	—	40.3	59.0	—	34.5	53.2	—	28.6	47.2
4050 cfm	EA (wb)	58	TC	103.8	103.8	118.4	96.7	96.7	110.9	89.2	89.2	102.8	81.4	81.4	94.4	73.2	73.2	85.5
			SHC	89.2	103.8	118.4	82.6	96.7	110.9	75.7	89.2	102.8	68.4	81.4	94.4	60.8	73.2	85.5
		62	TC	104.2	104.2	123.7	97.0	97.0	115.9	89.4	89.4	107.6	81.5	81.5	98.9	73.3	73.3	89.8
			SHC	84.6	104.2	123.7	78.1	97.0	115.9	71.3	89.4	107.6	64.1	81.5	98.9	56.7	73.3	89.8
		67	TC	115.7	115.7	115.7	107.0	107.0	107.0	97.9	97.9	97.9	88.5	88.5	91.0	78.6	78.6	84.9
			SHC	67.3	87.8	108.2	61.7	82.2	102.6	56.0	76.5	96.9	50.2	70.6	91.0	44.3	64.6	84.9
		72	TC	129.4	129.4	129.4	120.4	120.4	120.4	110.7	110.7	110.7	100.8	100.8	100.8	90.3	90.3	90.3
			SHC	48.2	68.8	89.3	42.7	63.2	83.7	37.0	57.5	78.0	31.2	51.7	72.1	25.3	45.7	66.1
		76	TC	—	141.0	141.0	—	131.6	131.6	—	121.6	121.6	—	111.1	111.1	—	100.1	100.1
			SHC	—	53.4	74.3	—	47.9	68.7	—	42.2	63.0	—	36.4	57.1	—	30.4	51.0
4500 cfm	EA (wb)	58	TC	107.9	107.9	122.9	100.6	100.6	115.2	92.9	92.9	106.9	84.8	84.8	98.2	76.3	76.3	89.0
			SHC	92.9	107.9	122.9	86.1	100.6	115.2	78.9	92.9	106.9	71.4	84.8	98.2	63.6	76.3	89.0
		62	TC	108.0	108.0	128.1	100.8	100.8	120.2	93.0	93.0	111.7	84.9	84.9	102.7	76.4	76.4	93.4
			SHC	88.0	108.0	128.1	81.4	100.8	120.2	74.4	93.0	111.7	67.1	84.9	102.7	59.4	76.4	93.4
		67	TC	117.8	117.8	117.8	108.9	108.9	110.4	99.7	99.7	104.5	90.1	90.1	98.5	80.1	80.1	92.2
			SHC	71.1	93.6	116.2	65.5	87.9	110.4	59.7	82.1	104.5	53.8	76.2	98.5	47.8	70.0	92.2
		72	TC	131.7	131.7	131.7	122.4	122.4	122.4	112.5	112.5	112.5	102.4	102.4	102.4	91.7	91.7	91.7
			SHC	49.9	72.4	95.0	44.3	66.8	89.4	38.5	61.0	83.5	32.7	55.2	77.7	26.7	49.1	71.6
		76	TC	—	143.3	143.3	—	133.6	133.6	—	123.4	123.4	—	112.7	112.7	—	101.6	101.6
			SHC	—	55.3	78.2	—	49.7	72.6	—	44.0	66.7	—	38.1	60.7	—	32.0	54.6

LEGEND

— — Do Not Operate
cfm — Cubic Feet Per Minute (Supply Air)
EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTE: See minimum-maximum airflow ratings on page 8.

Performance data (cont)

48/50GE*N17 — Unit with Humidi-MiZer® System in Subcooling Mode — Cooling Capacities

TEMP (°F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F db)								
		4500/0.10			6000 /0.13			7500/0.16		
		Air Entering Evaporator — Ewb (°F)								
		72	67	62	72	67	62	72	67	62
75	TC	199.5	172.4	161.4	212.1	182.6	173.3	219.5	189.4	182.4
	SHC	86.1	100.8	129.1	99.9	119.4	156.0	111.5	136.7	172.1
	kW	10.1	9.5	9.5	10.3	9.6	9.7	10.4	9.6	9.8
85	TC	175.5	167.1	150.7	195.4	178.7	161.6	205.4	181.8	168.4
	SHC	63.1	96.2	118.9	84.2	116.2	145.0	98.6	129.9	168.4
	kW	10.8	10.9	10.7	11.4	11.1	10.9	11.6	11.1	11.0
95	TC	173.6	156.0	139.9	184.8	165.5	149.5	191.3	172.7	155.9
	SHC	62.0	85.7	108.9	74.5	103.8	133.7	85.4	121.7	155.9
	kW	12.5	12.3	12.0	12.8	12.4	12.2	12.9	12.6	12.3
105	TC	161.4	144.0	128.5	171.1	153.3	137.6	177.0	159.2	143.5
	SHC	50.6	74.5	98.2	61.8	92.5	122.5	72.1	109.1	143.5
	kW	14.1	13.7	13.5	14.2	13.9	13.6	14.3	14.0	13.8
115	TC	148.4	131.6	117.0	157.4	140.4	125.3	131.2	144.3	130.0
	SHC	38.5	63.0	87.6	49.0	80.5	111.2	131.2	95.3	130.0
	kW	15.6	15.3	15.0	15.8	15.5	15.2	15.3	15.5	15.3
125	TC	134.0	118.1	104.3	142.1	125.9	111.8	146.8	130.9	117.4
	SHC	25.4	50.7	76.1	35.1	67.4	99.0	44.3	83.1	117.4
	kW	17.4	17.0	16.8	17.5	17.2	16.9	17.6	17.3	17.0

48/50GE*N17 — Unit with Humidi-MiZer System in Hot Gas Reheat Mode — Cooling Capacities

TEMP (°F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — Ewb (°F)								
		75 Dry Bulb 62.5 Wet Bulb (50% Relative)			75 Dry Bulb 64 Wet Bulb (56% Relative)			75 Dry Bulb 65.3 Wet Bulb (60% Relative)		
		Air Entering Evaporator — cfm								
		4500	6000	7500	4500	6000	7500	4500	6000	7500
80	TC	69.6	102.9	106.7	72.6	72.6	73.3	75.3	77.8	78.5
	SHC	11.5	4.4	-6.0	12.0	3.1	-4.1	12.5	3.3	-4.4
	kW	10.0	9.9	9.9	10.1	9.9	9.9	10.2	10.2	10.3
75	TC	73.3	74.8	77.1	73.3	76.2	77.1	79.7	79.5	80.5
	SHC	14.8	15.6	0.5	14.8	15.9	0.5	16.1	16.6	0.5
	kW	9.9	9.8	9.9	9.9	9.9	9.9	9.9	9.9	9.9
70	TC	76.8	78.4	83.6	76.8	79.8	80.8	80.2	83.2	84.3
	SHC	18.3	19.2	11.3	18.3	19.6	10.9	19.1	20.4	11.4
	kW	9.9	9.9	10.0	9.9	9.9	9.9	9.9	9.9	9.9
60	TC	83.3	86.4	87.4	83.5	86.8	87.9	86.9	90.3	91.4
	SHC	4.0	26.4	17.6	4.0	26.5	17.7	4.2	27.6	18.4
	kW	9.9	9.9	10.0	9.9	9.9	9.9	9.9	9.9	9.9
50	TC	90.1	93.5	94.7	89.9	93.4	94.8	93.4	97.0	98.4
	SHC	10.7	33.2	24.4	10.7	33.2	24.4	11.1	34.5	25.3
	kW	9.9	9.9	10.0	9.9	9.9	9.9	9.9	9.9	9.9
40	TC	96.7	100.3	101.8	102.0	99.7	101.2	99.6	103.4	104.9
	SHC	17.2	43.2	30.9	18.2	42.9	30.7	17.7	44.5	31.8
	kW	9.9	9.9	10.0	9.9	9.9	9.9	9.9	9.9	9.9

LEGEND

Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Compressor Power Input
SCFM/BF — Standard Cubic Feet per Minute/Bypass Factor
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

Performance data (cont)

48/50GE**20 Two Stage Cooling Capacities

48/50GE**20				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
5250 cfm	EA (wb)	58	TC	179.2	179.2	203.9	169.3	169.3	193.2	158.9	158.9	182.0	148.0	148.0	170.2	136.5	136.5	157.7
			SHC	154.4	179.2	203.9	145.3	169.3	193.2	135.8	158.9	182.0	125.9	148.0	170.2	115.3	136.5	157.7
		62	TC	191.3	191.3	191.3	179.5	179.5	183.0	167.2	167.2	175.0	154.2	154.2	166.6	140.5	140.5	157.8
			SHC	137.8	164.3	190.9	130.1	156.5	183.0	122.2	148.6	175.0	114.0	140.3	166.6	105.5	131.7	157.8
		67	TC	211.9	211.9	211.9	199.4	199.4	199.4	186.2	186.2	186.2	172.3	172.3	172.3	157.6	157.6	157.6
			SHC	112.8	139.4	166.0	105.1	131.6	158.2	97.2	123.7	150.2	89.1	115.6	142.1	80.8	107.2	133.6
		72	TC	234.3	234.3	234.3	220.8	220.8	220.8	206.7	206.7	206.7	191.8	191.8	191.8	176.1	176.1	176.1
			SHC	87.2	113.7	140.1	79.5	105.9	132.3	71.6	98.0	124.3	63.5	89.8	116.1	55.2	81.4	107.6
		76	TC	—	252.4	252.4	—	238.2	238.2	—	222.9	222.9	—	206.9	206.9	—	190.0	190.0
			SHC	—	92.5	118.4	—	84.8	110.5	—	76.8	102.5	—	68.5	94.2	—	60.1	85.6
6150 cfm	EA (wb)	58	TC	190.7	190.7	216.8	180.3	180.3	205.4	169.3	169.3	193.6	157.9	157.9	181.2	145.7	145.7	167.9
			SHC	164.7	190.7	216.8	155.1	180.3	205.4	145.1	169.3	193.6	134.6	157.9	181.2	123.5	145.7	167.9
		62	TC	198.7	198.7	211.0	193.2	193.2	193.2	173.5	173.5	194.2	160.1	160.1	185.0	147.0	147.0	172.9
			SHC	150.1	180.5	211.0	131.4	154.7	178.0	133.9	164.1	194.2	125.2	155.1	185.0	115.1	144.0	172.9
		67	TC	219.2	219.2	219.2	206.1	206.1	206.1	192.3	192.3	192.3	177.9	177.9	177.9	162.7	162.7	162.7
			SHC	120.8	151.4	182.0	112.9	143.5	174.1	104.9	135.4	165.9	96.7	127.1	157.5	88.1	118.5	148.9
		72	TC	241.6	241.6	241.6	227.5	227.5	227.5	212.8	212.8	212.8	197.2	197.2	197.2	181.0	181.0	181.0
			SHC	90.7	121.1	151.5	82.9	113.3	143.6	74.9	105.2	135.4	66.6	96.8	126.9	58.2	88.2	118.2
		76	TC	—	259.4	259.4	—	244.3	244.3	—	228.3	228.3	—	211.6	211.6	—	194.0	194.0
			SHC	—	96.3	125.8	—	88.3	117.8	—	80.1	109.5	—	71.7	100.9	—	63.0	91.9
7000 cfm	EA (wb)	58	TC	200.0	200.0	227.0	189.0	189.0	215.1	177.6	177.6	202.8	165.5	165.5	189.6	152.7	152.7	175.7
			SHC	172.9	200.0	227.0	162.8	189.0	215.1	152.4	177.6	202.8	141.3	165.5	189.6	129.8	152.7	175.7
		62	TC	204.1	204.1	228.1	191.6	191.6	219.4	178.2	178.2	211.2	165.7	165.7	197.9	152.9	152.9	183.6
			SHC	160.5	194.3	228.1	152.2	185.8	219.4	144.1	177.7	211.2	133.5	165.7	197.9	122.2	152.9	183.6
		67	TC	224.6	224.6	224.6	211.0	211.0	211.0	196.9	196.9	196.9	182.0	182.0	182.0	166.5	166.5	166.5
			SHC	127.7	162.0	196.3	119.8	154.0	188.2	111.6	145.8	179.9	103.2	137.3	171.3	94.6	128.5	162.3
		72	TC	246.9	246.9	246.9	232.2	232.2	232.2	217.1	217.1	217.1	201.0	201.0	201.0	184.3	184.3	184.3
			SHC	93.6	127.6	161.6	85.7	119.6	153.5	77.5	111.3	145.1	69.2	102.8	136.4	60.6	94.0	127.4
		76	TC	—	264.2	264.2	—	248.4	248.4	—	232.0	232.0	—	214.7	214.7	—	196.5	196.5
			SHC	—	99.2	132.1	—	91.2	123.9	—	82.8	115.3	—	74.2	106.5	—	65.3	97.2
7900 cfm	EA (wb)	58	TC	208.2	208.2	236.2	196.8	196.8	223.8	184.9	184.9	210.9	172.3	172.3	197.2	159.1	159.1	182.8
			SHC	180.2	208.2	236.2	169.8	196.8	223.8	158.9	184.9	210.9	147.4	172.3	197.2	135.4	159.1	182.8
		62	TC	208.8	208.8	246.3	197.2	197.2	233.4	185.1	185.1	219.8	172.5	172.5	205.8	159.2	159.2	190.9
			SHC	171.3	208.8	246.3	161.1	197.2	233.4	150.3	185.1	219.8	139.3	172.5	205.8	127.6	159.2	190.9
		67	TC	229.1	229.1	229.1	215.2	215.2	215.2	200.7	200.7	200.7	185.6	185.6	185.6	169.6	169.6	175.8
			SHC	134.6	172.6	210.6	126.6	164.5	202.4	118.3	156.1	193.9	109.8	147.4	185.0	101.0	138.4	175.8
		72	TC	251.2	251.2	251.2	236.3	236.3	236.3	220.6	220.6	220.6	204.3	204.3	204.3	187.1	187.1	187.1
			SHC	96.3	133.9	171.5	88.3	125.7	163.2	80.0	117.3	154.6	71.6	108.7	145.8	62.8	99.7	136.5
		76	TC	—	268.0	268.0	—	251.8	251.8	—	235.3	235.3	—	217.1	217.1	—	198.6	198.6
			SHC	—	102.0	138.2	—	93.7	129.7	—	85.4	121.1	—	76.4	111.7	—	67.3	102.2
8750 cfm	EA (wb)	58	TC	214.8	214.8	243.5	203.1	203.1	230.8	190.7	190.7	217.4	177.7	177.7	203.2	164.1	164.1	188.3
			SHC	186.0	214.8	243.5	175.3	203.1	230.8	164.1	190.7	217.4	152.2	177.7	203.2	139.8	164.1	188.3
		62	TC	215.0	215.0	253.4	203.3	203.3	240.4	190.9	190.9	226.5	177.9	177.9	211.9	164.2	164.2	196.5
			SHC	176.6	215.0	253.4	166.2	203.3	240.4	155.3	190.9	226.5	143.9	177.9	211.9	131.8	164.2	196.5
		67	TC	232.6	232.6	232.6	218.5	218.5	218.5	203.7	203.7	206.4	188.3	188.3	197.4	172.1	172.1	187.9
			SHC	140.7	182.1	223.5	132.6	173.8	215.0	124.3	165.3	206.4	115.7	156.5	197.4	106.8	147.4	187.9
		72	TC	254.6	254.6	254.6	239.3	239.3	239.3	223.4	223.4	223.4	206.6	206.6	206.6	189.2	189.2	189.2
			SHC	98.5	139.5	180.4	90.4	131.2	172.0	82.1	122.7	163.2	73.5	113.8	154.1	64.8	104.7	144.6
		76	TC	—	270.7	270.7	—	254.2	254.2	—	236.9	236.9	—	218.9	218.9	—	200.0	200.0
			SHC	—	104.2	143.4	—	95.8	134.7	—	87.1	125.7	—	78.2	116.2	—	68.9	106.4

LEGEND

— — Do Not Operate
cfm — Cubic Feet Per Minute (Supply Air)
EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTE: See minimum-maximum airflow ratings on page 8.

Performance data (cont)

48/50GE**20 Single Stage Cooling Capacities

48/50GE**20				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
3150 cfm	EA (wb)	58	TC	104.0	104.0	119.3	96.7	96.7	111.5	89.1	89.1	103.3	92.7	92.7	92.7	72.9	72.9	86.0
			SHC	88.8	104.0	119.3	82.0	96.7	111.5	74.9	89.1	103.3	38.6	55.3	71.9	59.8	72.9	86.0
		62	TC	111.8	111.8	112.4	103.2	103.2	106.3	94.2	94.2	100.0	84.9	84.9	93.5	75.1	75.1	86.8
			SHC	79.4	95.9	112.4	73.3	89.8	106.3	67.1	83.5	100.0	60.7	77.1	93.5	54.1	70.4	86.8
		67	TC	163.3	163.3	163.3	116.7	116.7	116.7	107.2	107.2	107.2	97.3	97.3	97.3	86.9	86.9	86.9
			SHC	23.1	40.4	57.7	59.0	75.4	91.9	52.7	69.2	85.7	46.4	62.8	79.3	39.9	56.3	72.7
		72	TC	140.6	140.6	140.6	130.8	130.8	130.8	120.7	120.7	120.7	110.1	110.1	110.1	99.1	99.1	99.1
			SHC	50.3	66.6	83.0	44.1	60.5	76.8	37.9	54.2	70.5	31.6	47.8	64.1	25.0	41.2	57.4
		76	TC	—	152.0	152.0	—	141.5	141.5	—	130.6	130.6	—	119.1	119.1	—	107.0	107.0
			SHC	—	54.1	69.9	—	47.9	63.7	—	41.6	57.3	—	35.0	50.6	—	28.3	43.8
3700 cfm	EA (wb)	58	TC	112.2	112.2	128.3	104.4	104.4	119.9	96.4	96.4	111.4	88.0	88.0	102.4	79.2	79.2	93.0
			SHC	96.1	112.2	128.3	88.8	104.4	119.9	81.3	96.4	111.4	73.6	88.0	102.4	65.5	79.2	93.0
		62	TC	116.7	116.7	125.9	107.8	107.8	119.5	98.6	98.6	112.8	89.0	89.0	105.9	79.4	79.4	97.7
			SHC	87.7	106.8	125.9	81.4	100.5	119.5	75.0	93.9	112.8	68.3	87.1	105.9	61.0	79.4	97.7
		67	TC	130.8	130.8	130.8	121.2	121.2	121.2	111.4	111.4	111.4	94.8	94.8	95.5	90.3	90.3	90.3
			SHC	70.6	89.8	108.9	64.4	83.5	102.6	58.0	77.1	96.2	58.7	77.1	95.5	44.9	63.8	82.8
		72	TC	145.3	145.3	145.3	135.2	135.2	135.2	124.6	124.6	124.6	113.7	113.7	113.7	102.1	102.1	102.1
			SHC	52.9	71.8	90.8	46.7	65.6	84.4	40.3	59.1	77.9	33.9	52.6	71.3	27.2	45.7	64.3
		76	TC	—	156.1	156.1	—	145.2	145.2	—	133.8	133.8	—	121.7	121.7	—	109.1	109.1
			SHC	—	56.9	74.9	—	50.5	68.5	—	43.8	61.5	—	37.2	54.8	—	30.2	47.6
4200 cfm	EA (wb)	58	TC	118.4	118.4	135.1	110.3	110.3	126.5	101.9	101.9	117.5	93.1	93.1	108.1	84.0	84.0	98.2
			SHC	101.6	118.4	135.1	94.1	110.3	126.5	86.3	101.9	117.5	78.2	93.1	108.1	69.8	84.0	98.2
		62	TC	120.5	120.5	137.2	111.4	111.4	130.3	102.1	102.1	123.0	93.3	93.3	113.2	84.1	84.1	103.2
			SHC	94.6	115.9	137.2	88.1	109.2	130.3	81.2	102.1	123.0	73.3	93.3	113.2	65.1	84.1	103.2
		67	TC	134.2	134.2	134.2	124.4	124.4	124.4	114.2	114.2	114.2	103.7	103.7	103.7	92.6	92.6	92.6
			SHC	75.3	96.8	118.2	68.9	90.4	111.8	62.5	83.8	105.2	55.9	77.2	98.5	49.1	70.3	91.6
		72	TC	148.6	148.6	148.6	138.2	138.2	138.2	127.5	127.5	127.5	115.9	115.9	115.9	113.0	113.0	113.0
			SHC	55.0	76.2	97.3	48.7	69.8	90.9	42.3	63.3	84.2	35.6	56.4	77.3	–8.7	14.4	37.5
		76	TC	—	158.6	158.6	—	147.4	147.4	—	135.4	135.4	—	123.0	123.0	—	109.6	109.6
			SHC	—	58.8	78.8	—	52.4	72.2	—	45.6	65.2	—	38.7	58.0	—	31.4	50.3
4750 cfm	EA (wb)	58	TC	124.2	124.2	141.6	115.8	115.8	132.5	107.0	107.0	123.2	97.9	97.9	113.3	88.3	88.3	103.1
			SHC	106.8	124.2	141.6	99.0	115.8	132.5	90.9	107.0	123.2	82.4	97.9	113.3	73.6	88.3	103.1
		62	TC	124.5	124.5	147.7	115.9	115.9	138.3	107.2	107.2	128.7	98.0	98.0	118.7	88.5	88.5	108.1
			SHC	101.2	124.5	147.7	93.5	115.9	138.3	85.6	107.2	128.7	77.4	98.0	118.7	68.8	88.5	108.1
		67	TC	137.3	137.3	137.3	127.3	127.3	127.3	116.9	116.9	116.9	105.9	105.9	107.9	94.8	94.8	100.8
			SHC	80.1	104.0	128.0	73.6	97.5	121.5	67.1	90.9	114.8	60.3	84.1	107.9	53.5	77.1	100.8
		72	TC	151.3	151.3	151.3	140.7	140.7	140.7	129.7	129.7	129.7	117.6	117.6	117.6	105.3	105.3	105.3
			SHC	57.0	80.5	104.1	50.6	74.0	97.4	44.1	67.4	90.6	37.2	60.2	83.1	30.3	52.9	75.5
		76	TC	—	160.4	160.4	—	148.7	148.7	—	136.2	136.2	—	123.7	123.7	—	110.5	110.5
			SHC	—	60.7	82.6	—	54.0	75.6	—	47.0	68.2	—	40.0	60.9	—	32.7	53.1
5250 cfm	EA (wb)	58	TC	128.7	128.7	146.6	120.0	120.0	137.2	110.9	110.9	127.5	101.5	101.5	117.4	91.7	91.7	106.7
			SHC	110.8	128.7	146.6	102.8	120.0	137.2	94.4	110.9	127.5	85.7	101.5	117.4	76.6	91.7	106.7
		62	TC	128.9	128.9	152.8	120.1	120.1	143.2	111.1	111.1	133.2	101.7	101.7	122.8	91.8	91.8	111.9
			SHC	105.0	128.9	152.8	97.1	120.1	143.2	89.0	111.1	133.2	80.5	101.7	122.8	71.7	91.8	111.9
		67	TC	115.8	115.8	134.4	87.9	87.9	103.2	118.7	118.7	123.0	107.9	107.9	116.0	96.4	96.4	108.7
			SHC	97.2	115.8	134.4	72.5	87.9	103.2	71.0	97.0	123.0	64.3	90.1	116.0	57.3	83.0	108.7
		72	TC	153.3	153.3	153.3	142.5	142.5	142.5	131.1	131.1	131.1	119.2	119.2	119.2	106.5	106.5	106.5
			SHC	58.7	84.2	109.7	52.2	77.6	103.0	45.5	70.7	95.9	38.7	63.6	88.4	31.6	55.9	80.3
		76	TC	—	161.6	161.6	—	149.6	149.6	—	137.2	137.2	—	124.3	124.3	—	110.9	110.9
			SHC	—	62.1	85.6	—	55.3	78.4	—	48.3	71.0	—	41.1	63.3	—	33.7	55.3

LEGEND

— — Do Not Operate
cfm — Cubic Feet Per Minute (Supply Air)
EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTE: See minimum-maximum airflow ratings on page 8.

Performance data (cont)

48/50GE*N20 — Unit with Humidi-MiZer® System in Subcooling Mode — Cooling Capacities

TEMP (°F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F db)								
		5250/0.07			7000 /0.15			8750/0.12		
		Air Entering Evaporator — Ewb (°F)								
		72	67	62	72	67	62	72	67	62
75	TC	241.0	216.5	193.9	251.0	231.2	208.2	266.0	240.6	217.7
	SHC	106.3	131.5	156.2	129.1	156.1	188.8	136.8	178.4	217.7
	kW	11.7	11.4	11.1	11.9	11.6	11.3	12.1	11.7	11.4
85	TC	225.9	202.0	180.3	235.1	215.7	193.6	248.9	224.4	202.8
	SHC	92.3	117.9	143.4	114.4	141.6	175.1	120.8	163.3	202.8
	kW	12.9	12.6	12.3	13.1	12.8	12.5	13.3	12.9	12.6
95	TC	210.2	187.2	166.4	217.8	199.8	178.8	231.2	207.8	187.5
	SHC	77.8	104.1	130.3	98.2	126.8	161.2	104.4	147.8	187.5
	kW	14.3	13.9	13.6	14.4	14.1	13.8	14.6	14.3	13.9
105	TC	193.9	171.9	152.1	205.6	183.5	163.5	213.2	190.8	171.8
	SHC	62.8	89.9	116.9	75.5	111.6	146.8	87.6	132.0	171.8
	kW	15.8	15.4	15.1	16.0	15.6	15.3	16.1	15.8	15.5
115	TC	177.1	156.3	137.4	187.1	166.7	147.7	194.6	172.8	155.6
	SHC	47.4	75.4	103.2	58.4	95.9	132.1	70.3	115.0	155.6
	kW	10.2	17.1	16.8	17.6	17.3	17.0	17.8	17.4	17.1
125	TC	159.8	140.1	122.2	169.5	149.5	131.5	175.0	154.8	138.7
	SHC	31.4	60.3	89.0	42.0	79.9	117.0	51.9	98.3	138.7
	kW	19.3	18.9	18.6	19.5	19.1	18.8	19.6	19.2	18.9

48/50GE*N20 — Unit with Humidi-MiZer System in Hot Gas Reheat Mode — Cooling Capacities

TEMP (°F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — Ewb (°F)								
		75 Dry Bulb 62.5 Wet Bulb (50% Relative)			75 Dry Bulb 64 Wet Bulb (56% Relative)			75 Dry Bulb 65.3 Wet Bulb (60% Relative)		
		Air Entering Evaporator — cfm								
		5250	7000	8750	5250	7000	8750	5250	7000	8750
80	TC	75.2	78.1	78.9	79.4	82.2	83.2	83.8	86.2	87.1
	SHC	8.8	0.6	0.0	9.3	0.6	0.0	9.8	0.6	0.0
	kW	11.6	11.6	11.6	11.6	11.6	11.7	12.0	11.7	11.7
75	TC	79.5	82.6	83.6	83.7	86.9	89.3	87.6	90.8	91.7
	SHC	13.1	4.7	–2.0	13.8	5.0	–2.1	14.4	5.2	–2.2
	kW	11.6	11.6	11.6	11.6	11.6	11.7	11.6	11.7	11.7
70	TC	83.9	87.1	88.2	88.0	91.3	92.4	92.0	95.2	96.3
	SHC	17.4	8.8	1.9	18.2	9.2	2.0	19.1	9.6	2.1
	kW	11.6	11.6	11.6	11.6	11.6	11.7	11.6	11.6	11.7
60	TC	92.5	96.0	97.4	96.7	100.3	101.7	100.7	104.2	105.6
	SHC	25.9	17.2	9.9	27.0	18.0	10.4	28.2	18.7	10.8
	kW	11.6	11.6	11.6	11.6	11.6	11.7	11.6	11.6	11.7
50	TC	100.6	104.5	106.1	104.9	108.9	110.5	109.0	112.9	114.5
	SHC	33.9	25.3	17.8	35.4	26.4	18.5	36.8	27.3	19.2
	kW	11.6	11.6	11.6	11.6	11.6	11.7	11.6	11.6	11.7
40	TC	108.6	112.9	114.6	113.0	117.3	119.0	117.0	121.3	123.1
	SHC	41.9	33.3	25.5	43.6	34.6	26.5	45.1	35.8	27.4
	kW	11.6	11.6	11.6	11.6	11.6	11.7	11.6	11.6	11.7

LEGEND

Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Compressor Power Input
SCFM/BF — Standard Cubic Feet per Minute/Bypass Factor
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

Performance data (cont)

48/50GE**24 Two Stage Cooling Capacities

48/50GE**24				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
6000 cfm	EA (wb)	58	TC	205.5	205.5	233.6	195.0	195.0	222.0	183.9	183.9	209.9	172.1	172.1	197.2	159.6	159.6	183.4
			SHC	177.5	205.5	233.6	167.9	195.0	222.0	157.8	183.9	209.9	147.0	172.1	197.2	135.8	159.6	183.4
		62	TC	219.8	219.8	219.8	207.0	207.0	209.8	193.6	193.6	202.0	179.4	179.4	193.0	164.4	164.4	183.9
			SHC	159.3	189.0	218.7	150.4	180.1	209.8	142.6	172.3	202.0	133.6	163.3	193.0	125.2	154.6	183.9
		67	TC	243.2	243.2	243.2	229.6	229.6	229.6	215.2	215.2	215.2	200.0	200.0	200.0	183.9	183.9	183.9
			SHC	130.5	160.5	190.5	121.5	151.5	181.5	114.5	144.2	173.9	106.3	136.0	165.7	97.2	126.9	156.6
		72	TC	269.6	269.6	269.6	254.9	254.9	254.9	239.5	239.5	239.5	223.1	223.1	223.1	205.9	205.9	205.9
			SHC	102.4	132.1	161.8	92.7	122.4	152.1	85.3	115.0	144.7	77.4	107.1	136.8	67.1	96.8	126.5
		76	TC	—	292.2	292.2	—	276.7	276.7	—	260.4	260.4	—	243.0	243.0	—	—	—
			SHC	—	108.1	135.8	—	99.6	127.7	—	91.1	119.5	—	82.6	111.3	—	—	—
7000 cfm	EA (wb)	58	TC	218.1	218.1	247.3	206.9	206.9	235.4	195.2	195.2	222.5	182.7	182.7	208.9	169.6	169.6	194.6
			SHC	188.8	218.1	247.3	178.4	206.9	235.4	167.9	195.2	222.5	156.5	182.7	208.9	144.5	169.6	194.6
		62	TC	227.8	227.8	238.9	214.5	214.5	231.2	200.5	200.5	222.3	185.8	185.8	211.9	174.1	174.1	189.8
			SHC	171.2	205.0	238.9	163.4	197.3	231.2	154.6	188.5	222.3	144.9	178.4	211.9	130.5	160.2	189.8
		67	TC	251.4	251.4	251.4	237.2	237.2	237.2	222.2	222.2	222.2	206.3	206.3	206.3	189.6	189.6	189.6
			SHC	139.2	173.5	207.7	131.8	166.0	200.3	121.3	155.5	189.8	114.3	148.5	182.8	104.1	138.4	172.6
		72	TC	278.0	278.0	278.0	262.7	262.7	262.7	246.6	246.6	246.6	229.5	229.5	229.5	211.6	211.6	211.6
			SHC	104.7	139.0	173.3	97.1	131.4	165.6	89.1	123.3	157.6	80.5	114.8	149.0	71.5	105.8	140.1
		76	TC	—	301.0	301.0	—	284.7	284.7	—	267.7	267.7	—	249.6	249.6	—	—	—
			SHC	—	111.4	144.1	—	102.5	135.2	—	96.4	129.5	—	87.4	120.5	—	—	—
8000 cfm	EA (wb)	58	TC	228.6	228.6	259.4	217.0	217.0	246.5	204.6	204.6	233.2	191.6	191.6	218.9	177.8	177.8	203.8
			SHC	197.8	228.6	259.4	187.5	217.0	246.5	176.0	204.6	233.2	164.4	191.6	218.9	151.8	177.8	203.8
		62	TC	234.2	234.2	260.3	220.6	220.6	249.6	208.1	208.1	233.3	192.0	192.0	228.5	181.5	181.5	200.1
			SHC	184.6	222.5	260.3	173.9	211.7	249.6	162.0	197.7	233.3	155.4	192.0	228.5	137.6	168.8	200.1
		67	TC	257.8	257.8	257.8	243.1	243.1	243.1	227.6	227.6	227.6	211.2	211.2	211.2	193.9	193.9	193.9
			SHC	146.9	185.6	224.3	139.2	177.5	215.7	130.1	168.4	206.7	120.1	158.4	196.7	111.1	149.3	187.6
		72	TC	284.4	284.4	284.4	268.7	268.7	268.7	252.1	252.1	252.1	234.4	234.4	234.4	—	—	—
			SHC	109.6	147.9	186.2	101.4	139.7	178.0	92.8	131.1	169.4	83.6	121.9	160.2	—	—	—
		76	TC	—	307.6	307.6	—	290.9	290.9	—	273.3	273.3	—	254.6	254.6	—	—	—
			SHC	—	113.8	150.8	—	107.6	144.6	—	98.4	135.8	—	89.1	126.5	—	—	—
9000 cfm	EA (wb)	58	TC	237.8	237.8	269.5	225.7	225.7	256.3	212.8	212.8	242.0	199.3	199.3	227.5	184.9	184.9	211.6
			SHC	206.1	237.8	269.5	195.0	225.7	256.3	183.6	212.8	242.0	171.0	199.3	227.5	158.1	184.9	211.6
		62	TC	240.8	240.8	274.1	226.2	226.2	267.3	217.3	217.3	235.0	199.5	199.5	237.1	185.0	185.0	220.7
			SHC	193.0	233.5	274.1	185.1	226.2	267.3	164.8	199.9	235.0	161.8	199.5	237.1	149.4	185.0	220.7
		67	TC	262.9	262.9	262.9	247.9	247.9	247.9	232.0	232.0	232.0	215.2	215.2	215.2	197.5	197.5	204.1
			SHC	154.6	197.2	239.8	145.8	188.4	230.9	136.1	178.6	221.2	127.9	170.0	212.0	119.9	162.0	204.1
		72	TC	289.7	289.7	289.7	273.5	273.5	273.5	256.4	256.4	256.4	238.4	238.4	238.4	—	—	—
			SHC	111.0	153.6	196.1	102.4	145.0	187.5	93.3	135.9	178.5	86.2	128.7	171.3	—	—	—
		76	TC	—	312.9	312.9	—	295.8	295.8	—	277.7	277.7	—	258.6	258.6	—	—	—
			SHC	—	118.9	160.0	—	109.4	150.5	—	100.0	141.1	—	93.1	134.7	—	—	—
10000 cfm	EA (wb)	58	TC	245.6	245.6	278.0	233.1	233.1	264.4	219.8	219.8	250.1	205.7	205.7	234.3	190.8	190.8	218.3
			SHC	213.1	245.6	278.0	201.7	233.1	264.4	189.6	219.8	250.1	177.1	205.7	234.3	163.3	190.8	218.3
		62	TC	250.6	250.6	269.0	238.2	238.2	253.6	224.3	224.3	242.1	205.9	205.9	244.4	191.0	191.0	227.9
			SHC	192.0	230.5	269.0	179.9	216.8	253.6	170.6	206.4	242.1	167.4	205.9	244.4	154.2	191.0	227.9
		67	TC	267.2	267.2	267.2	251.8	251.8	251.8	235.6	235.6	237.0	218.5	218.5	227.6	200.6	200.6	218.7
			SHC	161.7	208.5	255.2	152.7	198.9	245.1	144.6	190.8	237.0	135.2	181.4	227.6	126.3	172.5	218.7
		72	TC	294.0	294.0	294.0	277.5	277.5	277.5	260.0	260.0	260.0	241.6	241.6	241.6	—	—	—
			SHC	112.0	158.8	205.5	105.9	152.6	199.4	96.3	143.0	189.8	86.7	132.9	179.1	—	—	—
		76	TC	—	317.3	317.3	—	299.8	299.8	—	281.4	281.4	—	261.9	261.9	—	—	—
			SHC	—	120.6	165.7	—	110.9	156.0	—	104.1	149.2	—	94.3	139.4	—	—	—

LEGEND

— — Do Not Operate
cfm — Cubic Feet Per Minute (Supply Air)
EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTE: See minimum-maximum airflow ratings on page 8.

Performance data (cont)

48/50GE**24 Single Stage Cooling Capacities

48/50GE**24				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
3600 cfm	EA (wb)	58	TC	126.6	126.6	143.6	120.5	120.5	137.1	114.2	114.2	130.2	107.5	107.5	123.0	100.4	100.4	115.0
			SHC	109.5	126.6	143.6	103.9	120.5	137.1	98.2	114.2	130.2	92.1	107.5	123.0	85.7	100.4	115.0
		62	TC	135.5	135.5	135.5	128.0	128.0	129.6	120.3	120.3	125.2	112.1	112.1	120.0	103.4	103.4	115.2
			SHC	98.3	116.5	134.7	93.2	111.4	129.6	88.8	107.0	125.2	84.0	102.0	120.0	79.1	97.2	115.2
		67	TC	150.3	150.3	150.3	142.4	142.4	142.4	134.0	134.0	134.0	125.2	125.2	125.2	115.8	115.8	115.8
			SHC	81.0	99.2	117.4	77.2	95.4	113.6	71.6	89.8	108.0	66.9	85.1	103.3	61.7	79.9	98.1
		72	TC	166.7	166.7	166.7	158.1	158.1	158.1	149.1	149.1	149.1	139.5	139.5	139.5	129.4	129.4	129.4
			SHC	63.5	81.7	99.9	59.3	77.5	95.7	54.9	73.1	91.3	50.2	68.4	86.6	43.9	62.1	80.3
		76	TC	—	180.6	180.6	—	171.6	171.6	—	162.0	162.0	—	152.0	152.0	—	141.2	141.2
			SHC	—	66.8	83.4	—	63.5	80.5	—	58.3	75.6	—	53.2	70.6	—	48.0	65.6
4200 cfm	EA (wb)	58	TC	134.6	134.6	152.6	128.2	128.2	145.5	121.4	121.4	138.3	114.3	114.3	130.5	106.7	106.7	122.2
			SHC	116.6	134.6	152.6	110.8	128.2	145.5	104.6	121.4	138.3	98.1	114.3	130.5	91.2	106.7	122.2
		62	TC	140.6	140.6	147.3	132.8	132.8	142.9	124.7	124.7	138.0	116.2	116.2	132.1	107.1	107.1	127.7
			SHC	105.7	126.5	147.3	101.4	122.1	142.9	96.4	117.2	138.0	91.0	111.6	132.1	86.5	107.1	127.7
		67	TC	155.6	155.6	155.6	147.3	147.3	147.3	138.5	138.5	138.5	129.3	129.3	129.3	119.4	119.4	119.4
			SHC	86.3	107.4	128.4	82.1	103.1	124.1	77.3	98.3	119.4	72.3	93.1	113.9	67.6	88.4	109.2
		72	TC	171.8	171.8	171.8	162.9	162.9	162.9	153.5	153.5	153.5	143.6	143.6	143.6	133.0	133.0	133.0
			SHC	66.6	87.6	108.6	62.3	83.1	103.9	57.5	78.3	99.1	52.4	73.2	94.0	47.0	67.8	88.6
		76	TC	—	186.0	186.0	—	176.6	176.6	—	166.6	166.6	—	156.1	156.1	—	144.9	144.9
			SHC	—	70.7	90.5	—	65.3	85.4	—	61.7	81.8	—	56.2	76.3	—	50.7	71.0
4800 cfm	EA (wb)	58	TC	141.4	141.4	160.1	134.6	134.6	152.8	127.5	127.5	145.0	120.0	120.0	136.9	112.0	112.0	128.1
			SHC	122.7	141.4	160.1	116.4	134.6	152.8	110.1	127.5	145.0	103.1	120.0	136.9	95.9	112.0	128.1
		62	TC	144.7	144.7	160.7	136.8	136.8	155.9	129.4	129.4	146.4	121.8	121.8	136.5	112.1	112.1	133.5
			SHC	114.2	137.5	160.7	109.4	132.7	155.9	102.1	124.2	146.4	94.8	115.7	136.5	90.7	112.1	133.5
		67	TC	159.7	159.7	159.7	151.1	151.1	151.1	141.9	141.9	141.9	132.4	132.4	132.4	122.1	122.1	122.1
			SHC	91.2	115.0	138.8	86.8	110.3	133.8	81.5	105.0	128.5	77.1	100.6	124.1	71.8	95.3	118.8
		72	TC	175.9	175.9	175.9	166.7	166.7	166.7	157.0	157.0	157.0	146.7	146.7	146.7	135.8	135.8	135.8
			SHC	68.0	91.5	115.0	63.2	86.7	110.2	58.1	81.6	105.1	54.3	77.8	101.3	48.5	72.0	95.5
		76	TC	—	190.1	190.1	—	180.4	180.4	—	170.2	170.2	—	159.3	159.3	—	147.7	147.7
			SHC	—	72.3	95.0	—	68.6	91.3	—	63.0	85.7	—	58.9	81.9	—	53.2	76.1
5400 cfm	EA (wb)	58	TC	147.2	147.2	166.8	140.2	140.2	158.9	132.7	132.7	150.9	124.9	124.9	142.4	116.5	116.5	133.1
			SHC	127.6	147.2	166.8	121.4	140.2	158.9	114.6	132.7	150.9	107.4	124.9	142.4	99.9	116.5	133.1
		62	TC	150.4	150.4	163.3	142.8	142.8	157.1	132.9	132.9	157.2	125.0	125.0	148.2	116.6	116.6	138.6
			SHC	116.4	139.8	163.3	111.3	134.2	157.1	108.5	132.9	157.2	101.9	125.0	148.2	94.6	116.6	138.6
		67	TC	162.9	162.9	162.9	154.0	154.0	154.0	144.7	144.7	144.7	134.8	134.8	134.8	124.4	124.4	128.1
			SHC	96.0	122.2	148.3	90.9	117.0	143.2	86.7	112.8	139.0	81.7	107.9	134.0	75.9	102.0	128.1
		72	TC	179.2	179.2	179.2	169.7	169.7	169.7	159.7	159.7	159.7	149.2	149.2	149.2	138.0	138.0	138.0
			SHC	70.6	96.8	122.9	65.5	91.7	117.8	60.1	86.3	112.4	55.9	82.1	108.2	49.8	75.9	102.1
		76	TC	—	193.5	193.5	—	183.5	183.5	—	173.0	173.0	—	161.8	161.8	—	150.0	150.0
			SHC	—	75.5	100.7	—	69.7	95.0	—	65.7	91.0	—	59.9	85.4	—	55.5	81.0
6000 cfm	EA (wb)	58	TC	152.3	152.3	172.4	144.9	144.9	164.4	137.2	137.2	156.1	129.1	129.1	146.9	120.3	120.3	137.2
			SHC	132.1	152.3	172.4	125.5	144.9	164.4	118.4	137.2	156.1	111.3	129.1	146.9	103.5	120.3	137.2
		62	TC	154.8	154.8	169.9	147.5	147.5	162.1	137.4	137.4	162.5	129.2	129.2	153.0	120.4	120.4	143.2
			SHC	121.1	145.5	169.9	115.2	138.6	162.1	112.3	137.4	162.5	105.5	129.2	153.0	97.7	120.4	143.2
		67	TC	165.6	165.6	165.6	156.4	156.4	156.4	146.9	146.9	147.7	136.9	136.9	142.0	126.3	126.3	137.0
			SHC	100.4	129.1	157.8	96.4	125.2	153.9	90.3	119.0	147.7	85.2	113.6	142.0	80.2	108.6	137.0
		72	TC	181.9	181.9	181.9	172.2	172.2	172.2	162.0	162.0	162.0	151.3	151.3	151.3	139.8	139.8	139.8
			SHC	71.3	100.0	128.7	67.7	96.4	125.1	62.0	90.7	119.4	57.5	86.2	114.9	51.0	79.7	108.4
		76	TC	—	196.1	196.1	—	185.9	185.9	—	175.2	175.2	—	163.9	163.9	—	151.7	151.7
			SHC	—	76.5	104.2	—	72.5	100.6	—	66.6	94.6	—	62.3	90.3	—	56.1	84.2

LEGEND

— — Do Not Operate
cfm — Cubic Feet Per Minute (Supply Air)
EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTE: See minimum-maximum airflow ratings on page 8.

Performance data (cont)

48/50GE*N24 — Unit with Humidi-MiZer® System in Subcooling Mode — Cooling Capacities

TEMP (°F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F db)								
		6000/0.08			8000 /0.10			10000/0.13		
		Air Entering Evaporator — Ewb (°F)								
		72	67	62	72	67	62	72	67	62
75	TC	282.9	253.9	227.7	301.2	271.9	245.1	313.2	283.3	256.6
	SHC	121.7	150.4	179.0	139.6	178.2	216.1	155.7	203.3	248.5
	kW	14.7	14.2	13.8	15.0	14.5	14.1	15.2	14.8	14.3
85	TC	264.7	237.0	211.9	281.9	253.8	228.2	292.7	264.3	239.1
	SHC	104.5	134.3	163.6	121.4	161.0	200.0	136.3	185.3	231.6
	kW	16.2	15.7	15.4	16.5	16.0	15.6	16.7	16.2	15.8
95	TC	246.2	219.8	196.1	262.1	235.4	211.1	272.0	245.0	221.2
	SHC	87.0	117.8	148.7	102.6	143.4	183.6	116.5	166.9	214.5
	kW	17.8	17.3	16.9	18.1	17.6	17.2	18.3	17.8	17.4
105	TC	227.7	202.0	179.5	241.7	216.3	193.3	250.8	225.2	202.6
	SHC	69.5	101.1	133.0	83.3	125.4	166.8	96.3	148.1	196.8
	kW	19.7	19.2	18.7	20.0	19.5	19.0	20.2	19.7	19.2
115	TC	207.3	183.5	162.1	220.5	196.4	174.8	228.7	204.6	183.4
	SHC	50.5	83.7	116.8	63.3	106.8	149.6	75.5	128.7	178.6
	kW	21.7	21.2	20.7	22.0	21.5	21.0	22.2	21.7	21.2
125	TC	186.5	164.1	144.0	198.4	175.7	155.3	205.7	183.0	163.1
	SHC	31.3	65.8	100.2	42.7	87.6	131.8	53.9	108.7	159.8
	kW	23.8	23.3	22.9	24.1	23.6	23.2	24.3	23.8	23.4

48/50GE*N24 — Unit with Humidi-MiZer System in Hot Gas Reheat Mode — Cooling Capacities

TEMP (°F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — Ewb (°F)								
		75 Dry Bulb 62.5 Wet Bulb (50% Relative)			75 Dry Bulb 64 Wet Bulb (56% Relative)			75 Dry Bulb 65.3 Wet Bulb (60% Relative)		
		Air Entering Evaporator — cfm								
		6000	8000	10000	6000	8000	10000	6000	8000	10000
80	TC	113.7	119.0	121.0	120.4	126.0	128.1	126.5	132.3	134.7
	SHC	32.7	24.1	16.7	34.7	25.5	17.7	36.4	26.8	18.6
	kW	13.5	13.6	13.6	13.5	13.6	13.6	13.6	13.6	13.7
75	TC	118.5	123.9	126.1	125.4	131.2	133.5	131.3	137.2	139.7
	SHC	37.4	28.8	21.0	39.6	30.5	22.3	41.5	31.9	23.3
	kW	13.5	13.6	13.6	13.5	13.6	13.6	13.6	13.6	13.7
70	TC	123.2	128.9	131.2	129.9	135.8	138.2	136.0	142.0	144.5
	SHC	42.0	33.2	25.4	44.2	35.0	26.8	46.3	36.6	28.0
	kW	13.5	13.6	13.6	13.5	13.6	13.6	13.6	13.6	13.7
60	TC	131.7	137.8	140.3	138.4	144.7	147.2	144.7	151.1	153.8
	SHC	50.3	41.6	33.6	52.9	43.6	35.3	55.3	45.6	36.9
	kW	13.5	13.6	13.6	13.5	13.6	13.6	13.6	13.6	13.7
50	TC	139.9	146.0	148.5	146.5	153.0	155.7	153.0	159.6	162.6
	SHC	59.1	50.3	42.2	61.9	52.7	44.3	64.6	55.0	46.2
	kW	13.5	13.6	13.6	13.5	13.6	13.6	13.6	13.6	13.7
40	TC	147.5	154.0	156.6	154.5	161.2	164.1	160.9	167.7	170.9
	SHC	66.7	58.1	49.8	69.9	60.8	52.2	72.8	63.3	54.4
	kW	13.5	13.6	13.6	13.5	13.6	13.6	13.6	13.6	13.7

LEGEND

Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Compressor Power Input
SCFM/BF — Standard Cubic Feet per Minute/Bypass Factor
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

Performance data (cont)

48/50GE**28 Two Stage Cooling Capacities

48/50GE**28				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
7500 cfm	EA (wb)	58	TC	261.1	261.1	295.3	250.2	250.2	283.2	239.1	239.1	270.9	226.8	226.8	257.3	213.2	213.2	242.2
			SHC	227.0	261.1	295.3	217.3	250.2	283.2	207.3	239.1	270.9	196.3	226.8	257.3	184.2	213.2	242.2
		62	TC	279.7	279.7	279.7	266.8	266.8	266.8	252.8	252.8	258.2	237.3	237.3	249.5	220.5	220.5	239.8
			SHC	202.2	237.8	273.5	194.9	230.5	266.1	187.1	222.6	258.2	178.7	214.1	249.5	169.5	204.6	239.8
		67	TC	308.3	308.3	308.3	294.5	294.5	294.5	279.4	279.4	279.4	262.9	262.9	262.9	244.8	244.8	244.8
			SHC	166.9	202.8	238.6	159.8	195.5	231.3	152.2	187.9	223.7	144.0	179.7	215.4	135.3	170.9	206.6
		72	TC	339.2	339.2	339.2	324.3	324.3	324.3	308.1	308.1	308.1	290.4	290.4	290.4	271.1	271.1	271.1
			SHC	130.8	167.3	203.7	123.7	160.1	196.5	116.1	152.4	188.7	108.1	144.3	180.5	99.5	135.6	171.7
		76	TC	—	365.4	365.4	—	349.5	349.5	—	332.3	332.3	—	313.5	313.5	—	293.1	293.1
			SHC	—	138.5	179.1	—	131.4	171.3	—	123.8	163.2	—	115.7	154.6	—	107.1	145.5
8750 cfm	EA (wb)	58	TC	275.2	275.2	311.0	264.3	264.3	299.0	252.5	252.5	285.9	239.4	239.4	271.4	225.0	225.0	255.4
			SHC	239.4	275.2	311.0	229.7	264.3	299.0	219.0	252.5	285.9	207.4	239.4	271.4	194.6	225.0	255.4
		62	TC	289.0	289.0	298.1	275.6	275.6	290.3	261.0	261.0	281.8	245.1	245.1	272.3	228.0	228.0	261.2
			SHC	217.0	257.5	298.1	209.5	249.9	290.3	201.4	241.6	281.8	192.5	232.4	272.3	182.6	221.9	261.2
		67	TC	318.1	318.1	318.1	303.5	303.5	303.5	287.7	287.7	287.7	270.4	270.4	270.4	251.5	251.5	251.5
			SHC	176.5	217.4	258.2	169.2	210.0	250.8	161.4	202.2	243.0	153.1	193.9	234.6	144.3	185.0	225.7
		72	TC	349.5	349.5	349.5	333.8	333.8	333.8	316.8	316.8	316.8	298.3	298.3	298.3	278.2	278.2	278.2
			SHC	134.8	176.3	217.7	127.6	168.9	210.3	119.9	161.2	202.5	111.7	152.9	194.1	103.0	144.1	185.2
		76	TC	—	376.0	376.0	—	359.3	359.3	—	341.3	341.3	—	321.6	321.6	—	300.3	300.3
			SHC	—	143.1	187.8	—	135.8	180.1	—	128.1	172.0	—	119.8	163.3	—	111.1	154.3
10000 cfm	EA (wb)	58	TC	287.4	287.4	324.7	276.0	276.0	312.1	263.5	263.5	298.3	249.8	249.8	283.1	234.6	234.6	266.2
			SHC	250.1	287.4	324.7	239.9	276.0	312.1	228.8	263.5	298.3	216.5	249.8	283.1	203.1	234.6	266.2
		62	TC	296.7	296.7	320.6	282.9	282.9	312.1	268.0	268.0	302.7	254.0	254.0	281.8	235.0	235.0	277.2
			SHC	230.5	275.5	320.6	222.7	267.4	312.1	214.1	258.4	302.7	199.5	240.6	281.8	192.8	235.0	277.2
		67	TC	325.8	325.8	325.8	310.6	310.6	310.6	294.2	294.2	294.2	276.3	276.3	276.3	256.8	256.8	256.8
			SHC	185.3	231.1	276.8	177.9	223.6	269.3	170.1	215.7	261.4	161.8	207.3	252.9	152.9	198.4	243.9
		72	TC	357.5	357.5	357.5	341.3	341.3	341.3	323.6	323.6	323.6	304.5	304.5	304.5	283.6	283.6	283.6
			SHC	138.2	184.5	230.7	130.8	177.0	223.2	123.0	169.1	215.2	114.7	160.7	206.7	106.0	151.9	197.8
		76	TC	—	384.3	384.3	—	367.0	367.0	—	348.3	348.3	—	327.9	327.9	—	306.0	306.0
			SHC	—	146.9	196.0	—	139.6	188.3	—	131.7	180.2	—	123.4	171.5	—	114.5	162.3
11250 cfm	EA (wb)	58	TC	297.8	297.8	336.4	285.9	285.9	323.1	272.8	272.8	308.7	258.4	258.4	292.7	242.7	242.7	275.2
			SHC	259.2	297.8	336.4	248.6	285.9	323.1	236.9	272.8	308.7	224.1	258.4	292.7	210.2	242.7	275.2
		62	TC	303.2	303.2	340.6	291.7	291.7	318.3	276.7	276.7	307.3	258.7	258.7	304.5	242.9	242.9	286.4
			SHC	242.7	291.6	340.6	227.9	273.1	318.3	218.4	262.9	307.3	212.9	258.7	304.5	199.4	242.9	286.4
		67	TC	331.9	331.9	331.9	316.3	316.3	316.3	299.4	299.4	299.4	281.0	281.0	281.0	260.9	260.9	261.4
			SHC	193.6	244.1	294.6	186.2	236.6	287.0	178.3	228.7	279.0	169.9	220.2	270.5	161.0	211.2	261.4
		72	TC	364.0	364.0	364.0	347.2	347.2	347.2	329.0	329.0	329.0	309.4	309.4	309.4	288.0	288.0	288.0
			SHC	141.0	192.0	243.0	133.6	184.5	235.4	125.7	176.5	227.3	117.4	168.0	218.7	108.5	159.1	209.6
		76	TC	—	390.9	390.9	—	373.1	373.1	—	353.9	353.9	—	332.9	332.9	—	310.4	310.4
			SHC	—	150.2	203.7	—	142.7	196.0	—	134.8	187.8	—	126.3	179.0	—	117.4	169.8
12500 cfm	EA (wb)	58	TC	306.8	306.8	346.4	294.3	294.3	332.6	280.8	280.8	317.6	266.0	266.0	301.2	249.6	249.6	283.0
			SHC	267.1	306.8	346.4	256.0	294.3	332.6	244.0	280.8	317.6	230.8	266.0	301.2	216.3	249.6	283.0
		62	TC	310.9	310.9	348.2	295.2	295.2	346.5	281.1	281.1	330.3	266.2	266.2	313.2	249.8	249.8	294.4
			SHC	248.4	298.3	348.2	243.9	295.2	346.5	231.8	281.1	330.3	219.2	266.2	313.2	205.2	249.8	294.4
		67	TC	337.0	337.0	337.0	320.9	320.9	320.9	303.6	303.6	303.6	284.8	284.8	287.4	264.2	264.2	277.9
			SHC	201.5	256.6	311.7	194.1	249.1	304.1	186.2	241.2	296.1	177.7	232.6	287.4	168.7	223.3	277.9
		72	TC	369.3	369.3	369.3	352.1	352.1	352.1	333.5	333.5	333.5	313.4	313.4	313.4	291.6	291.6	291.6
			SHC	143.5	199.0	254.6	136.0	191.5	246.9	128.1	183.4	238.8	119.7	174.9	230.2	110.8	165.9	221.0
		76	TC	—	396.4	396.4	—	378.1	378.1	—	358.5	358.5	—	337.1	337.1	—	314.1	314.1
			SHC	—	153.0	210.9	—	145.4	203.1	—	137.4	194.8	—	128.9	186.0	—	119.9	176.7

LEGEND

— — Do Not Operate
cfm — Cubic Feet Per Minute (Supply Air)
EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTE: See minimum-maximum airflow ratings on page 8.

Performance data (cont)

48/50GE**28 Single Stage Cooling Capacities

48/50GE**28				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
4500 cfm	EA (wb)	58	TC	157.4	157.4	178.4	150.6	150.6	171.0	143.2	143.2	162.9	135.1	135.1	153.9	126.0	126.0	143.9
			SHC	136.4	157.4	178.4	130.2	150.6	171.0	123.5	143.2	162.9	116.2	135.1	153.9	108.0	126.0	143.9
		62	TC	167.7	167.7	167.7	159.5	159.5	162.4	150.4	150.4	156.9	140.4	140.4	150.9	129.3	129.3	144.3
			SHC	122.4	144.9	167.5	117.3	139.9	162.4	112.0	134.4	156.9	106.1	128.5	150.9	99.8	122.0	144.3
		67	TC	185.6	185.6	185.6	176.6	176.6	176.6	167.0	167.0	167.0	156.3	156.3	156.3	144.4	144.4	144.4
			SHC	101.0	123.7	146.3	96.0	118.6	141.2	90.7	113.3	136.0	85.0	107.6	130.2	79.0	101.6	124.1
		72	TC	204.7	204.7	204.7	195.2	195.2	195.2	184.9	184.9	184.9	173.5	173.5	173.5	161.1	161.1	161.1
			SHC	79.0	101.9	124.8	74.0	96.9	119.8	68.8	91.7	114.5	63.2	86.0	108.8	57.3	80.1	102.8
		76	TC	—	221.2	221.2	—	211.1	211.1	—	199.8	199.8	—	187.9	187.9	—	174.9	174.9
			SHC	—	84.3	108.9	—	79.4	103.7	—	74.0	98.1	—	68.5	92.4	—	62.6	86.3
5250 cfm	EA (wb)	58	TC	166.9	166.9	189.0	159.7	159.7	181.1	151.8	151.8	172.5	143.2	143.2	163.0	133.5	133.5	152.4
			SHC	144.8	166.9	189.0	138.2	159.7	181.1	131.1	151.8	172.5	123.3	143.2	163.0	114.7	133.5	152.4
		62	TC	173.6	173.6	183.8	165.0	165.0	178.4	155.6	155.6	172.6	145.4	145.4	166.0	138.9	138.9	147.4
			SHC	132.2	158.0	183.8	127.0	152.7	178.4	121.4	147.0	172.6	115.2	140.6	166.0	103.6	125.5	147.4
		67	TC	191.7	191.7	191.7	182.2	182.2	182.2	172.1	172.1	172.1	161.0	161.0	161.0	148.7	148.7	148.7
			SHC	107.6	133.6	159.6	102.4	128.4	154.4	97.1	123.0	149.0	91.3	117.3	143.2	85.2	111.1	137.0
		72	TC	211.1	211.1	211.1	200.8	200.8	200.8	190.1	190.1	190.1	178.3	178.3	178.3	165.5	165.5	165.5
			SHC	82.0	108.3	134.5	76.9	103.1	129.3	71.6	97.8	124.0	66.0	92.1	118.2	60.0	86.0	112.1
		76	TC	—	227.8	227.8	—	217.2	217.2	—	205.3	205.3	—	192.9	192.9	—	179.4	179.4
			SHC	—	87.9	115.4	—	82.8	110.2	—	77.3	104.5	—	71.8	98.8	—	65.8	92.7
6000 cfm	EA (wb)	58	TC	174.7	174.7	197.8	167.2	167.2	189.5	158.9	158.9	180.5	149.9	149.9	170.5	139.8	139.8	159.4
			SHC	151.7	174.7	197.8	144.8	167.2	189.5	137.4	158.9	180.5	129.3	149.9	170.5	120.2	139.8	159.4
		62	TC	178.4	178.4	198.7	169.7	169.7	192.8	160.3	160.3	185.9	152.4	152.4	168.2	140.0	140.0	166.1
			SHC	141.2	169.9	198.7	135.7	164.2	192.8	129.5	157.7	185.9	118.0	143.1	168.2	113.8	140.0	166.1
		67	TC	196.2	196.2	196.2	186.4	186.4	186.4	176.1	176.1	176.1	164.6	164.6	164.6	151.9	151.9	151.9
			SHC	113.6	142.9	172.2	108.4	137.7	167.0	103.0	132.3	161.5	97.2	126.4	155.7	91.0	120.2	149.4
		72	TC	215.9	215.9	215.9	205.4	205.4	205.4	194.4	194.4	194.4	182.2	182.2	182.2	168.9	168.9	168.9
			SHC	84.6	114.1	143.7	79.5	108.9	138.4	74.1	103.6	133.0	68.4	97.8	127.2	62.4	91.7	121.0
		76	TC	—	232.8	232.8	—	221.9	221.9	—	209.5	209.5	—	196.9	196.9	—	182.8	182.8
			SHC	—	91.0	121.6	—	85.9	116.3	—	80.3	110.6	—	74.7	104.8	—	68.6	98.6
6750 cfm	EA (wb)	58	TC	181.6	181.6	205.4	173.6	173.6	196.7	165.0	165.0	187.2	155.6	155.6	176.8	145.1	145.1	165.3
			SHC	157.7	181.6	205.4	150.5	173.6	196.7	142.7	165.0	187.2	134.3	155.6	176.8	124.9	145.1	165.3
		62	TC	185.0	185.0	201.5	174.0	174.0	204.9	165.1	165.1	194.8	155.7	155.7	184.1	145.3	145.3	172.2
			SHC	144.2	172.8	201.5	143.1	174.0	204.9	135.4	165.1	194.8	127.3	155.7	184.1	118.3	145.3	172.2
		67	TC	199.9	199.9	199.9	190.0	190.0	190.0	179.2	179.2	179.2	167.4	167.4	167.6	154.5	154.5	161.1
			SHC	119.3	151.9	184.4	114.2	146.7	179.2	108.6	141.1	173.6	102.8	135.2	167.6	96.5	128.8	161.1
		72	TC	219.7	219.7	219.7	209.4	209.4	209.4	197.6	197.6	197.6	185.1	185.1	185.1	171.6	171.6	171.6
			SHC	87.0	119.7	152.4	81.9	114.6	147.2	76.4	109.0	141.6	70.6	103.2	135.7	64.5	97.0	129.5
		76	TC	—	236.7	236.7	—	225.1	225.1	—	213.1	213.1	—	199.9	199.9	—	185.5	185.5
			SHC	—	93.8	127.4	—	88.5	122.0	—	83.1	116.5	—	77.4	110.6	—	71.2	104.2
7500 cfm	EA (wb)	58	TC	187.4	187.4	211.9	178.9	178.9	202.6	170.2	170.2	193.1	160.5	160.5	182.3	149.7	149.7	170.4
			SHC	162.9	187.4	211.9	155.2	178.9	202.6	147.4	170.2	193.1	138.6	160.5	182.3	129.0	149.7	170.4
		62	TC	187.6	187.6	220.4	179.3	179.3	211.0	170.4	170.4	200.9	160.6	160.6	189.8	149.8	149.8	177.5
			SHC	154.8	187.6	220.4	147.6	179.3	211.0	139.8	170.4	200.9	131.4	160.6	189.8	122.1	149.8	177.5
		67	TC	202.8	202.8	202.8	192.8	192.8	192.8	181.8	181.8	185.0	169.7	169.7	178.8	156.6	156.6	172.0
			SHC	124.7	160.4	196.0	119.5	155.1	190.7	114.0	149.5	185.0	108.0	143.4	178.8	101.6	136.8	172.0
		72	TC	223.0	223.0	223.0	212.4	212.4	212.4	200.1	200.1	200.1	187.5	187.5	187.5	173.7	173.7	173.7
			SHC	89.1	124.9	160.7	84.0	119.7	155.4	78.3	114.0	149.7	72.6	108.2	143.8	66.5	102.0	137.5
		76	TC	—	239.7	239.7	—	228.3	228.3	—	215.7	215.7	—	202.4	202.4	—	187.7	187.7
			SHC	—	96.3	132.9	—	91.1	127.6	—	85.5	121.9	—	79.7	115.9	—	73.5	109.5

LEGEND

— — Do Not Operate
cfm — Cubic Feet Per Minute (Supply Air)
EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTE: See minimum-maximum airflow ratings on page 8.

Performance data (cont)

48/50GE*N28 — Unit with Humidi-MiZer® System in Subcooling Mode — Cooling Capacities

TEMP (°F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F db)								
		7500/0.11			10000 /0.15			12500/0.18		
		Air Entering Evaporator — Ewb (°F)								
		72	67	62	72	67	62	72	67	62
75	TC	342.3	304.9	271.1	359.5	328.0	293.7	381.7	343.4	308.8
	SHC	144.7	177.2	209.6	160.2	210.4	253.9	185.5	240.3	293.0
	kW	18.8	18.2	17.6	18.9	18.6	18.0	19.5	18.8	18.3
85	TC	317.0	281.1	248.7	338.3	302.6	269.7	353.3	316.6	283.6
	SHC	120.6	154.2	188.0	140.2	186.0	230.7	158.3	214.5	268.7
	kW	20.6	20.0	19.4	20.9	20.4	19.8	21.3	20.6	20.1
95	TC	291.2	256.7	225.7	311.2	276.5	245.0	324.1	289.4	257.9
	SHC	96.1	130.8	165.7	114.4	161.0	207.1	130.4	188.5	244.0
	kW	22.6	22.0	21.4	23.0	22.4	21.8	23.3	22.6	22.1
105	TC	264.3	231.5	202.0	282.3	249.5	219.6	294.3	261.2	231.3
	SHC	70.8	106.9	143.1	87.0	135.4	182.9	101.9	161.6	218.7
	kW	24.9	24.3	23.7	25.2	24.6	24.1	25.5	24.9	24.3
115	TC	238.2	205.5	177.4	252.9	221.6	193.3	263.3	231.9	203.8
	SHC	46.4	82.4	119.9	59.4	109.0	158.2	72.5	134.0	192.7
	kW	27.5	26.8	26.2	27.8	27.2	26.6	28.0	27.4	26.9
125	TC	209.5	178.3	151.7	222.1	192.5	165.8	231.0	201.5	175.1
	SHC	19.9	57.0	96.0	30.6	81.8	132.6	42.0	105.4	165.8
	kW	30.2	29.5	29.0	30.5	29.9	29.3	30.7	30.1	29.6

48/50GE*N28 — Unit with Humidi-MiZer System in Hot Gas Reheat Mode — Cooling Capacities

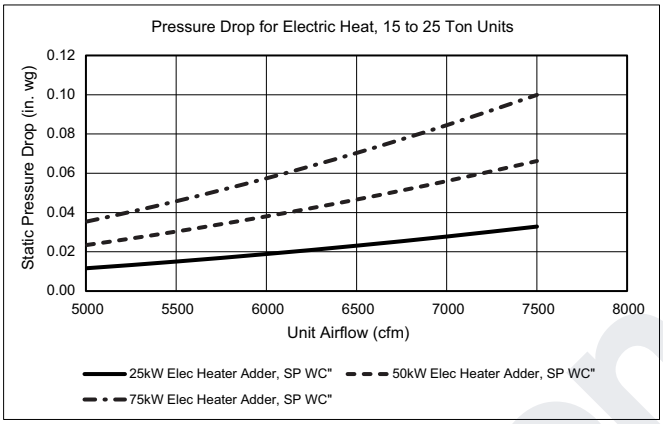
TEMP (°F) AIR ENTERING CONDENSER (Edb)		AIR ENTERING EVAPORATOR — Ewb (°F)								
		75 Dry Bulb 62.5 Wet Bulb (50% Relative)			75 Dry Bulb 64 Wet Bulb (56% Relative)			75 Dry Bulb 65.3 Wet Bulb (60% Relative)		
		Air Entering Evaporator — cfm								
		7500	10000	12500	7500	10000	12500	7500	10000	12500
80	TC	128.9	133.0	134.2	136.9	141.1	141.4	141.9	149.1	148.7
	SHC	26.0	15.3	4.4	27.6	16.2	4.6	28.6	17.1	4.9
	kW	17.9	18.0	18.1	18.0	18.1	18.2	18.2	18.2	18.2
75	TC	135.9	141.0	141.0	143.3	149.0	149.0	150.3	155.8	156.6
	SHC	32.8	21.5	12.6	34.5	22.7	13.4	36.2	23.8	14.0
	kW	17.9	18.0	18.1	18.0	18.1	18.2	18.0	18.2	18.2
70	TC	142.6	148.2	148.3	150.4	156.0	156.5	157.4	163.3	164.2
	SHC	39.4	28.2	18.8	41.5	29.7	19.9	43.4	31.1	20.9
	kW	17.9	18.0	18.1	18.0	18.1	18.2	18.0	18.1	18.2
60	TC	156.4	162.0	162.7	164.0	170.1	171.0	171.0	177.7	178.6
	SHC	52.9	41.2	31.2	55.4	43.3	32.8	57.8	45.2	34.3
	kW	17.9	18.0	18.1	18.0	18.1	18.2	18.0	18.1	18.2
50	TC	169.2	175.8	176.6	177.0	183.8	185.2	184.5	191.2	192.8
	SHC	65.5	54.0	43.7	68.5	56.5	45.8	71.4	58.7	47.7
	kW	17.9	18.0	18.1	18.0	18.1	18.2	18.0	18.1	18.2
40	TC	182.1	188.9	190.2	190.0	197.0	198.6	197.2	204.5	206.1
	SHC	78.2	66.7	55.8	81.6	69.6	58.3	84.7	72.2	60.5
	kW	17.9	18.0	18.1	18.0	18.1	18.2	18.0	18.1	18.2

LEGEND

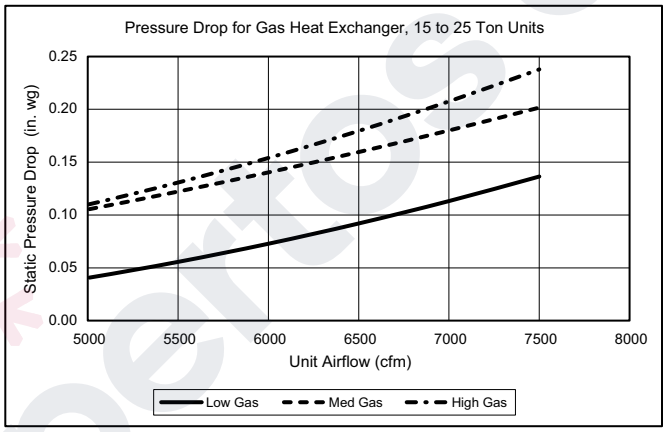
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Compressor Power Input
SCFM/BF — Standard Cubic Feet per Minute/Bypass Factor
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

Pressure Drop — Heating

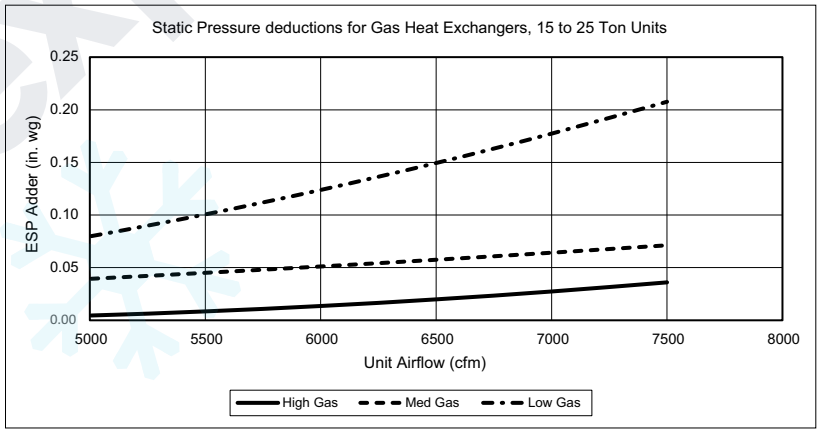
15 to 25 Ton Electric Heat Units



15 to 25 Ton Gas Heat Units

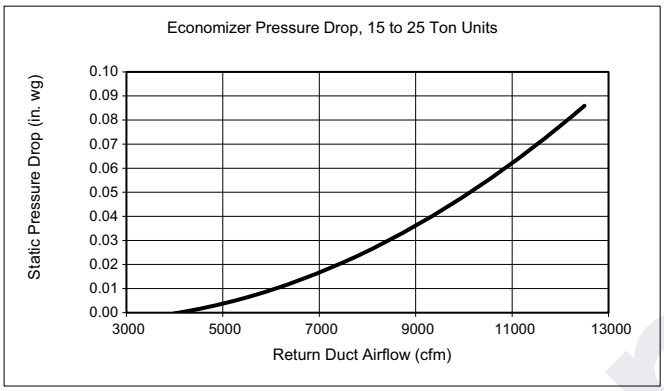


Static Pressure 15 to 25 Ton Units

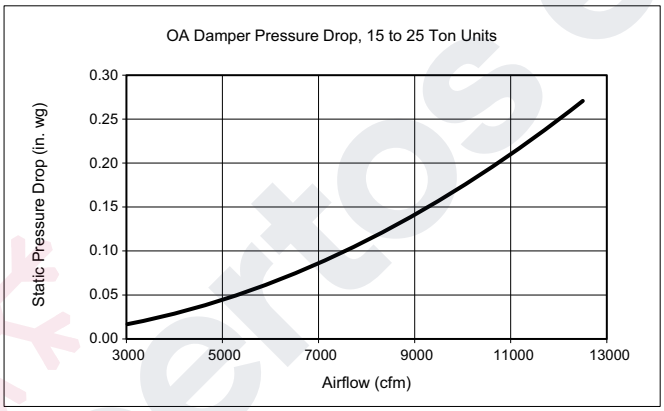


Pressure Drops for Options and Accessories

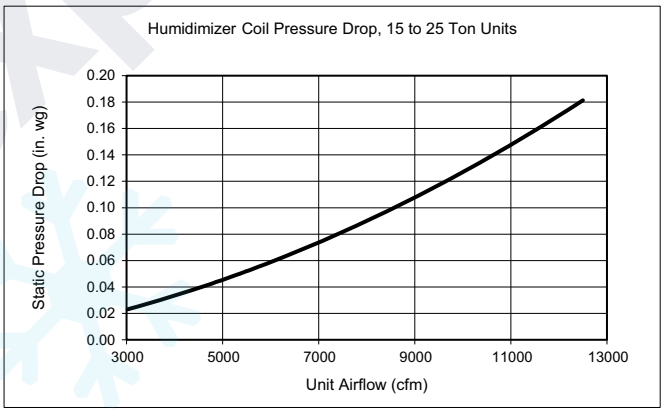
Economizer Pressure Drop, 15 to 25 Ton Units



Outside Air Damper Pressure Drop, 15 to 25 Ton Units



Humidi-Mizer Coil Pressure Drop, 15 to 25 Ton Units



General Fan Performance Notes

1. Interpolation is permissible. Do not extrapolate.
2. External static pressure is the static pressure difference between the return duct and the supply duct plus the static pressure caused by any FIOPs or accessories.
3. Tabular data accounts for pressure loss due to clean filters, unit casing, wet coils, and highest gas heat exchanger (when gas heat unit).
4. Factory options and accessories may effect static pressure losses. Gas heat unit fan tables assume highest gas heat models; for fan selections with low or medium heat models, the user must deduct low and medium heat static pressures. Selection software is available, through your salesperson, to help you select the best motor/drive combination for your application.
5. The fan performance tables offer motor recommendations. In cases when 2 motors would work, the lower horsepower option is recommended.
6. For information on the electrical properties of the fan motors, please see the Electrical information section of this book.
7. For more information on the performance limits of the fan motors, see the application data section of this book.
8. The EPACT (Energy Policy Act of 1992) regulates energy requirements for specific types of indoor fan motors. Motors regulated by EPACT include any general purpose, T-frame (3-digit, 143 and larger), single-speed, foot mounted, polyphase, squirrel cage induction motors of NEMA (National Electrical Manufacturers Association) design A and B, manufactured for use in the United States. Ranging from 1 to 200 Hp, these continuous-duty motors operate on 230 and 460 volt, 60 Hz power. If a motor does not fit into these specifications, the motor does not have to be replaced by an EPACT compliant energy-efficient motor. Variable-speed motors are exempt from EPACT compliance requirements.

Fan data (cont)

48GEFM17 — 15 Ton Vertical Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	977	0.70	1102	1.00	1213	1.34	1314	1.70	1408	2.09
4875	1037	0.84	1155	1.15	1263	1.51	1360	1.88	1451	2.29
5250	1099	1.00	1210	1.33	1313	1.70	1408	2.10	1496	2.51
5625	1162	1.18	1267	1.53	1366	1.92	1457	2.33	1543	2.76
6000	1225	1.38	1325	1.75	1419	2.15	1508	2.58	1591	3.03
6375	1290	1.61	1384	1.99	1474	2.41	1560	2.85	1641	3.32
6750	1355	1.86	1443	2.25	1530	2.68	1613	3.14	1692	3.62
7125	1421	2.13	1504	2.52	1588	2.97	1668	3.44	1744	3.94
7500	1488	2.42	1567	2.82	1646	3.27	1723	3.75	1797	4.26

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	1496	2.51	1579	2.95	1658	3.41	1732	3.89	1803	4.39
4875	1537	2.72	1618	3.17	1695	3.65	1768	4.14	1838	4.65
5250	1579	2.96	1658	3.42	1733	3.91	1805	4.42	1875	4.95
5625	1623	3.22	1700	3.70	1774	4.20	1844	4.72	1912	5.26
6000	1670	3.51	1745	4.00	1816	4.51	1885	5.04	1952	5.60
6375	1717	3.80	1790	4.31	1860	4.83	1928	5.38	1993	5.95
6750	1766	4.12	1837	4.64	1906	5.18	1972	5.74	2035	6.30
7125	1817	4.45	1886	4.98	1953	5.53	2017	6.09	—	—
7500	1868	4.78	1936	5.33	2001	5.88	—	—	—	—

Std/Med Static 977-2000 rpm, 4.8 maximum bhp (2.4 maximum bhp per fan motor)

High Static 977-2200 rpm, 6.0 maximum bhp (3.0 maximum bhp per fan motor)

48GEFM17 — Standard/Medium Static — 15 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	977	4.7	1102	5.4	1213	6.0	1314	6.5	1408	7.0
4875	1037	5.0	1155	5.7	1263	6.2	1360	6.7	1451	7.2
5250	1099	5.4	1210	5.9	1313	6.5	1408	7.0	1496	7.4
5625	1162	5.7	1267	6.2	1366	6.7	1457	7.2	1543	7.6
6000	1225	6.0	1325	6.5	1419	7.0	1508	7.5	1591	7.9
6375	1290	6.3	1384	6.8	1474	7.3	1560	7.7	1641	8.2
6750	1355	6.7	1443	7.1	1530	7.6	1613	8.0	1692	8.4
7125	1421	7.0	1504	7.4	1588	7.9	1668	8.3	1744	8.7
7500	1488	7.4	1567	7.8	1646	8.2	1723	8.6	1797	9.0

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	1496	7.4	1579	7.8	1658	8.2	1732	8.6	1803	9.0
4875	1537	7.6	1618	8.0	1695	8.4	1768	8.8	1838	9.2
5250	1579	7.8	1658	8.2	1733	8.6	1805	9.0	1875	9.4
5625	1623	8.1	1700	8.5	1774	8.8	1844	9.2	—	—
6000	1670	8.3	1745	8.7	1816	9.1	1885	9.4	—	—
6375	1717	8.5	1790	8.9	1860	9.3	—	—	—	—
6750	1766	8.8	1837	9.2	—	—	—	—	—	—
7125	1817	9.1	1886	9.4	—	—	—	—	—	—
7500	1868	9.3	—	—	—	—	—	—	—	—

Std/Med Static 977-2000 rpm

Fan data (cont)

48GEFM17 — High Static — 15 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	977	4.4	1102	4.9	1213	5.4	1314	5.9	1408	6.3
4875	1037	4.6	1155	5.2	1263	5.7	1360	6.1	1451	6.5
5250	1099	4.9	1210	5.4	1313	5.9	1408	6.3	1496	6.8
5625	1162	5.2	1267	5.7	1366	6.2	1457	6.6	1543	7.0
6000	1225	5.5	1325	6.0	1419	6.4	1508	6.8	1591	7.2
6375	1290	5.8	1384	6.2	1474	6.6	1560	7.0	1641	7.4
6750	1355	6.1	1443	6.5	1530	6.9	1613	7.3	1692	7.7
7125	1421	6.4	1504	6.8	1588	7.2	1668	7.5	1744	7.9
7500	1488	6.7	1567	7.1	1646	7.4	1723	7.8	1797	8.1

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	1496	6.8	1579	7.1	1658	7.5	1732	7.8	1803	8.2
4875	1537	6.9	1618	7.3	1695	7.7	1768	8.0	1838	8.3
5250	1579	7.1	1658	7.5	1733	7.8	1805	8.2	1875	8.5
5625	1623	7.3	1700	7.7	1774	8.0	1844	8.4	1912	8.7
6000	1670	7.6	1745	7.9	1816	8.2	1885	8.5	1952	8.9
6375	1717	7.8	1790	8.1	1860	8.4	1928	8.7	1993	9.0
6750	1766	8.0	1837	8.3	1906	8.6	1972	8.9	2035	9.2
7125	1817	8.2	1886	8.6	1953	8.9	2017	9.2	—	—
7500	1868	8.5	1936	8.8	2001	9.1	—	—	—	—

High Static 977-2200 rpm

Fan data (cont)

48GEFM20 — 17.5 Ton Vertical Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5250	1099	1.00	1210	1.33	1313	1.70	1408	2.10	1496	2.51
5690	1173	1.21	1277	1.57	1375	1.96	1466	2.37	1551	2.81
6125	1247	1.46	1344	1.83	1438	2.24	1525	2.67	1607	3.12
6565	1323	1.74	1414	2.12	1503	2.55	1587	3.00	1666	3.47
7000	1399	2.04	1484	2.43	1568	2.87	1649	3.34	1726	3.83
7440	1477	2.37	1557	2.78	1637	3.23	1714	3.70	1789	4.21
7875	1555	2.72	1629	3.13	1705	3.59	1779	4.07	1851	4.59
8315	1634	3.09	1704	3.50	1776	3.97	1847	4.46	1916	4.98
8750	1712	3.46	1778	3.88	1847	4.35	1915	4.84	1981	5.36

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5250	1579	2.96	1658	3.42	1733	3.91	1805	4.42	1875	4.95
5690	1631	3.26	1708	3.75	1781	4.25	1851	4.77	1919	5.32
6125	1685	3.60	1759	4.09	1830	4.61	1899	5.15	1965	5.71
6565	1742	3.96	1814	4.48	1883	5.01	1949	5.55	2014	6.13
7000	1800	4.34	1870	4.87	1937	5.41	2002	5.97	—	—
7440	1860	4.73	1928	5.27	1993	5.82	2056	6.39	—	—
7875	1920	5.12	1986	5.67	2050	6.23	—	—	—	—
8315	1983	5.52	2047	6.07	—	—	—	—	—	—
8750	2046	5.91	—	—	—	—	—	—	—	—

Std/Med Static 1099-2000 rpm, 4.8 maximum bhp (2.4 maximum bhp per fan motor)

High Static 1099-2200 rpm, 6.0 maximum bhp (3.0 maximum bhp per fan motor)

48GEFM20 — Standard/Medium Static — 17.5 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1099	5.4	1210	5.9	1313	6.5	1408	7.0	1496	7.4
5690	1173	5.7	1277	6.3	1375	6.8	1466	7.3	1551	7.7
6125	1247	6.1	1344	6.6	1438	7.1	1525	7.6	1607	8.0
6565	1323	6.5	1414	7.0	1503	7.4	1587	7.9	1666	8.3
7000	1399	6.9	1484	7.3	1568	7.8	1649	8.2	1726	8.6
7440	1477	7.3	1557	7.7	1637	8.1	1714	8.5	1789	8.9
7875	1555	7.7	1629	8.1	1705	8.5	1779	8.9	1851	9.2
8315	1634	8.1	1704	8.5	1776	8.8	1847	9.2	1916	9.6
8750	1712	8.5	1778	8.9	1847	9.2	1915	9.6	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1579	7.8	1658	8.2	1733	8.6	1805	9.0	1875	9.4
5690	1631	8.1	1708	8.5	1781	8.9	1851	9.2	—	—
6125	1685	8.4	1759	8.8	1830	9.1	—	—	—	—
6565	1742	8.7	1814	9.0	1883	9.4	—	—	—	—
7000	1800	9.0	1870	9.3	—	—	—	—	—	—
7440	1860	9.3	—	—	—	—	—	—	—	—
7875	—	—	—	—	—	—	—	—	—	—
8315	—	—	—	—	—	—	—	—	—	—
8750	—	—	—	—	—	—	—	—	—	—

Std/Med Static 1099-2000 rpm

Fan data (cont)

48GEFM20 — High Static — 17.5 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1099	4.9	1210	5.4	1313	5.9	1408	6.3	1496	6.8
5690	1173	5.3	1277	5.7	1375	6.2	1466	6.6	1551	7.0
6125	1247	5.6	1344	6.0	1438	6.5	1525	6.9	1607	7.3
6565	1323	6.0	1414	6.4	1503	6.8	1587	7.2	1666	7.5
7000	1399	6.3	1484	6.7	1568	7.1	1649	7.5	1726	7.8
7440	1477	6.7	1557	7.0	1637	7.4	1714	7.8	1789	8.1
7875	1555	7.0	1629	7.4	1705	7.7	1779	8.1	1851	8.4
8315	1634	7.4	1704	7.7	1776	8.0	1847	8.4	1916	8.7
8750	1712	7.7	1778	8.1	1847	8.4	1915	8.7	1981	9.0

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1579	7.1	1658	7.5	1733	7.8	1805	8.2	1875	8.5
5690	1631	7.4	1708	7.7	1781	8.1	1851	8.4	1919	8.7
6125	1685	7.6	1759	8.0	1830	8.3	1899	8.6	1965	8.9
6565	1742	7.9	1814	8.2	1883	8.5	1949	8.8	2014	9.1
7000	1800	8.2	1870	8.5	1937	8.8	2002	9.1	—	—
7440	1860	8.4	1928	8.7	1993	9.0	2056	9.3	—	—
7875	1920	8.7	1986	9.0	2050	9.3	—	—	—	—
8315	1983	9.0	2047	9.3	—	—	—	—	—	—
8750	2046	9.3	—	—	—	—	—	—	—	—

High Static 1099-2200 rpm

Fan data (cont)

48GEFM24 — 20 Ton Vertical Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1107	1.02	1212	1.34	1313	1.70	1411	2.11	1504	2.56
6,500	1182	1.24	1280	1.57	1374	1.95	1467	2.37	1556	2.83
7,000	1258	1.48	1350	1.83	1438	2.21	1525	2.64	1610	3.11
7,500	1335	1.75	1421	2.11	1504	2.50	1586	2.93	1667	3.40
8,000	1412	2.03	1494	2.40	1573	2.80	1650	3.23	1726	3.70
8,500	1490	2.32	1568	2.70	1643	3.11	1716	3.54	1788	4.00
9,000	1569	2.62	1643	3.01	1714	3.41	1783	3.84	1852	4.31
9,500	1647	2.92	1719	3.32	1786	3.72	1852	4.15	1918	4.61
10,000	1726	3.23	1795	3.64	1860	4.05	1923	4.47	1985	4.92

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1592	3.04	1674	3.53	1750	4.03	1821	4.54	1888	5.06
6,500	1641	3.32	1721	3.83	1797	4.35	1869	4.90	1936	5.45
7,000	1692	3.61	1770	4.13	1845	4.68	1916	5.24	1984	5.81
7,500	1745	3.90	1821	4.43	1894	4.99	1964	5.56	2032	6.16
8,000	1801	4.20	1874	4.73	1945	5.29	2014	5.88	2080	6.47
8,500	1859	4.50	1929	5.03	1998	5.59	2065	6.17	2129	6.76
9,000	1920	4.80	1987	5.32	2053	5.87	2117	6.43	2180	7.03
9,500	1982	5.09	2046	5.60	2110	6.14	2172	6.70	—	—
10,000	2047	5.40	2108	5.89	2169	6.42	—	—	—	—

Std/Med Static 1107-2000 rpm, 4.8 maximum bhp (2.4 maximum bhp per fan motor)

High Static 1107-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

48GEFM24 — Standard/Medium Static — 20 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1107	5.4	1212	5.9	1313	6.5	1411	7.0	1504	7.4
6,500	1182	5.8	1280	6.3	1374	6.8	1467	7.3	1556	7.7
7,000	1258	6.2	1350	6.7	1438	7.1	1525	7.6	1610	8.0
7,500	1335	6.6	1421	7.0	1504	7.4	1586	7.9	1667	8.3
8,000	1412	7.0	1494	7.4	1573	7.8	1650	8.2	1726	8.6
8,500	1490	7.4	1568	7.8	1643	8.2	1716	8.5	1788	8.9
9,000	1569	7.8	1643	8.2	1714	8.5	1783	8.9	1852	9.2
9,500	1647	8.2	1719	8.6	1786	8.9	1852	9.2	1918	9.6
10,000	1726	8.6	1795	8.9	1860	9.3	1923	9.6	1985	9.9

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1592	7.9	1674	8.3	1750	8.7	1821	9.1	1888	9.4
6,500	1641	8.2	1721	8.6	1797	9.0	1869	9.3	—	—
7,000	1692	8.4	1770	8.8	1845	9.2	—	—	—	—
7,500	1745	8.7	1821	9.1	1894	9.5	—	—	—	—
8,000	1801	9.0	1874	9.4	—	—	—	—	—	—
8,500	1859	9.3	1929	9.6	—	—	—	—	—	—
9,000	1920	9.6	—	—	—	—	—	—	—	—
9,500	1982	9.9	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—

Std/Med Static 1107-2000 rpm

Fan data (cont)

48GEFM24 — High Static — 20 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1107	5.0	1212	5.4	1313	5.9	1411	6.4	1504	6.8
6,500	1182	5.3	1280	5.8	1374	6.2	1467	6.6	1556	7.0
7,000	1258	5.7	1350	6.1	1438	6.5	1525	6.9	1610	7.3
7,500	1335	6.0	1421	6.4	1504	6.8	1586	7.2	1667	7.5
8,000	1412	6.4	1494	6.7	1573	7.1	1650	7.5	1726	7.8
8,500	1490	6.7	1568	7.1	1643	7.4	1716	7.8	1788	8.1
9,000	1569	7.1	1643	7.4	1714	7.8	1783	8.1	1852	8.4
9,500	1647	7.4	1719	7.8	1786	8.1	1852	8.4	1918	8.7
10,000	1726	7.8	1795	8.1	1860	8.4	1923	8.7	1985	9.0

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1592	7.2	1674	7.6	1750	7.9	1821	8.3	1888	8.6
6,500	1641	7.4	1721	7.8	1797	8.1	1869	8.5	1936	8.8
7,000	1692	7.7	1770	8.0	1845	8.4	1916	8.7	1984	9.0
7,500	1745	7.9	1821	8.3	1894	8.6	1964	8.9	2032	9.2
8,000	1801	8.2	1874	8.5	1945	8.8	2014	9.1	2080	9.4
8,500	1859	8.4	1929	8.7	1998	9.1	2065	9.4	2129	9.7
9,000	1920	8.7	1987	9.0	2053	9.3	2117	9.6	2180	9.9
9,500	1982	9.0	2046	9.3	2110	9.6	2172	9.9	–	–
10,000	2047	9.3	2108	9.6	2169	9.9	–	–	–	–

High Static 1107-2200 rpm

Fan data (cont)

48GEFM28 — 25 Ton Vertical Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7,500	1177	1.57	1260	1.92	1347	2.35	1437	2.85	1524	3.40
8,125	1263	1.95	1337	2.31	1417	2.75	1499	3.26	1581	3.82
8,750	1349	2.38	1418	2.77	1490	3.21	1565	3.72	1642	4.30
9,375	1437	2.88	1500	3.27	1566	3.72	1635	4.24	1706	4.82
10,000	1525	3.41	1583	3.81	1644	4.27	1708	4.79	1774	5.37
11,700	1613	3.97	1668	4.39	1724	4.85	1784	5.37	1845	5.94
11,250	1702	4.57	1753	4.99	1806	5.46	1861	5.97	1918	6.54
11,875	1791	5.22	1839	5.66	1889	6.13	1941	6.65	1994	7.21
12,500	1880	6.00	1926	6.46	1973	6.94	2021	7.46	2071	8.03

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7,500	1607	3.98	1686	4.60	1760	5.23	1830	5.88	1897	6.55
8,125	1661	4.43	1738	5.07	1811	5.74	1880	6.42	1947	7.13
8,750	1718	4.92	1792	5.59	1863	6.28	1932	7.00	1997	7.73
9,375	1778	5.45	1849	6.13	1918	6.84	1984	7.57	2049	8.34
10,000	1841	6.00	1908	6.68	1974	7.40	2039	8.15	2102	8.93
11,700	1907	6.56	1970	7.23	2033	7.95	2096	8.71	2157	9.50
11,250	1976	7.15	2036	7.82	2095	8.52	2155	9.28	—	—
11,875	2048	7.81	2104	8.47	2160	9.17	—	—	—	—
12,500	2122	8.63	2175	9.30	—	—	—	—	—	—

Std/Med Static 1177-2200 rpm, 6.0 maximum bhp (3.0 maximum bhp per fan motor)

High Static 1177-2200 rpm, 10.0 maximum bhp (5 maximum bhp per fan motor)

48GEFM28 — Standard/Medium Static — 25 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1177	5.3	1260	5.7	1347	6.1	1437	6.5	1524	6.9
8,125	1263	5.7	1337	6.0	1417	6.4	1499	6.8	1581	7.1
8,750	1349	6.1	1418	6.4	1490	6.7	1565	7.1	1642	7.4
9,375	1437	6.5	1500	6.8	1566	7.1	1635	7.4	1706	7.7
10,000	1525	6.9	1583	7.2	1644	7.4	1708	7.7	1774	8.0
11,700	1613	7.3	1668	7.5	1724	7.8	1784	8.1	1845	8.4
11,250	1702	7.7	1753	7.9	1806	8.2	1861	8.4	—	—
11,875	1791	8.1	1839	8.3	1889	8.6	—	—	—	—
12,500	1880	8.5	—	—	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1607	7.3	1686	7.6	1760	8.0	1830	8.3	—	—
8,125	1661	7.5	1738	7.9	1811	8.2	—	—	—	—
8,750	1718	7.8	1792	8.1	1863	8.4	—	—	—	—
9,375	1778	8.1	1849	8.4	—	—	—	—	—	—
10,000	1841	8.3	—	—	—	—	—	—	—	—
11,700	—	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—	—
11,875	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

Std/Med Static 1177-2200 rpm

Fan data (cont)

48GEFM28 — High Static — 25 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1177	5.3	1260	5.7	1347	6.1	1437	6.5	1524	6.9
8,125	1263	5.7	1337	6.0	1417	6.4	1499	6.8	1581	7.1
8,750	1349	6.1	1418	6.4	1490	6.7	1565	7.1	1642	7.4
9,375	1437	6.5	1500	6.8	1566	7.1	1635	7.4	1706	7.7
10,000	1525	6.9	1583	7.2	1644	7.4	1708	7.7	1774	8.0
11,700	1613	7.3	1668	7.5	1724	7.8	1784	8.1	1845	8.4
11,250	1702	7.7	1753	7.9	1806	8.2	1861	8.4	1918	8.7
11,875	1791	8.1	1839	8.3	1889	8.6	1941	8.8	1994	9.0
12,500	1880	8.5	1926	8.7	1973	9.0	2021	9.2	2071	9.4

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1607	7.3	1686	7.6	1760	8.0	1830	8.3	1897	8.6
8,125	1661	7.5	1738	7.9	1811	8.2	1880	8.5	1947	8.8
8,750	1718	7.8	1792	8.1	1863	8.4	1932	8.8	1997	9.1
9,375	1778	8.1	1849	8.4	1918	8.7	1984	9.0	2049	9.3
10,000	1841	8.3	1908	8.7	1974	9.0	2039	9.3	2102	9.5
11,700	1907	8.6	1970	8.9	2033	9.2	2096	9.5	2157	9.8
11,250	1976	9.0	2036	9.2	2095	9.5	2155	9.8	—	—
11,875	2048	9.3	2104	9.6	2160	9.8	—	—	—	—
12,500	2122	9.6	2175	9.9	—	—	—	—	—	—

High Static 1177-2200 rpm

Fan data (cont)

48GEFM17 — 15 Ton Horizontal Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	1092	0.79	1205	1.06	1311	1.36	1409	1.69	1500	2.04
4875	1164	0.95	1270	1.23	1370	1.55	1464	1.89	1552	2.25
5250	1237	1.14	1337	1.43	1432	1.76	1522	2.11	1607	2.49
5625	1311	1.34	1405	1.65	1496	2.00	1582	2.36	1664	2.75
6000	1386	1.58	1475	1.90	1561	2.25	1643	2.62	1722	3.02
6375	1461	1.83	1546	2.16	1627	2.52	1706	2.91	1782	3.31
6750	1538	2.10	1618	2.45	1696	2.82	1771	3.21	1844	3.62
7125	1614	2.39	1691	2.75	1765	3.13	1837	3.53	1907	3.94
7500	1691	2.71	1764	3.07	1835	3.46	1904	3.86	1972	4.29

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	1585	2.40	1667	2.79	1744	3.20	1819	3.88	1892	4.37
4875	1635	2.63	1714	3.03	1790	3.45	1862	3.88	1932	4.65
5250	1688	2.88	1764	3.29	1837	3.72	1908	4.17	1976	4.98
5625	1742	3.15	1816	3.57	1888	4.01	1956	4.46	2023	5.34
6000	1798	3.44	1870	3.87	1940	4.32	2007	4.78	2072	5.74
6375	1855	3.74	1926	4.18	1994	4.64	2059	5.11	2122	6.16
6750	1915	4.06	1983	4.50	2049	4.97	2113	5.45	2175	6.64
7125	1976	4.39	2042	4.84	2106	5.31	2168	5.80	—	—
7500	2038	4.74	2102	5.20	2164	5.67	—	—	—	—

High Static 1092-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

48GEFM17 — High Static — 15 ton Horizontal Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	1092	4.9	1205	5.4	1311	5.9	1409	6.3	1500	6.8
4875	1164	5.2	1270	5.7	1370	6.2	1464	6.6	1552	7.0
5250	1237	5.6	1337	6.0	1432	6.5	1522	6.9	1607	7.3
5625	1311	5.9	1405	6.3	1496	6.8	1582	7.1	1664	7.5
6000	1386	6.2	1475	6.7	1561	7.1	1643	7.4	1722	7.8
6375	1461	6.6	1546	7.0	1627	7.4	1706	7.7	1782	8.1
6750	1538	6.9	1618	7.3	1696	7.7	1771	8.0	1844	8.4
7125	1614	7.3	1691	7.7	1765	8.0	1837	8.3	1907	8.6
7500	1691	7.7	1764	8.0	1835	8.3	1904	8.6	1972	8.9

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	1585	7.2	1667	7.5	1744	7.9	1819	8.2	1892	8.6
4875	1635	7.4	1714	7.8	1790	8.1	1862	8.4	1932	8.8
5250	1688	7.6	1764	8.0	1837	8.3	1908	8.7	1976	9.0
5625	1742	7.9	1816	8.2	1888	8.6	1956	8.9	2023	9.2
6000	1798	8.1	1870	8.5	1940	8.8	2007	9.1	2072	9.4
6375	1855	8.4	1926	8.7	1994	9.0	2059	9.3	2122	9.6
6750	1915	8.7	1983	9.0	2049	9.3	2113	9.6	2175	9.9
7125	1976	9.0	2042	9.3	2106	9.6	2168	9.9	—	—
7500	2038	9.3	2102	9.5	2164	9.8	—	—	—	—

High Static 1092-2200 rpm

Fan data (cont)

48GEFM20 — 17.5 Ton Horizontal Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5250	1237	1.14	1337	1.43	1432	1.76	1522	2.11	1607	2.49
5690	1324	1.38	1417	1.69	1507	2.04	1592	2.40	1674	2.79
6125	1411	1.66	1499	1.99	1583	2.34	1664	2.72	1742	3.12
6565	1500	1.96	1582	2.30	1662	2.67	1739	3.06	1813	3.47
7000	1589	2.29	1666	2.64	1742	3.02	1815	3.42	1886	3.84
7440	1679	2.66	1752	3.02	1824	3.41	1893	3.81	1961	4.23
7875	1768	3.04	1838	3.42	1906	3.81	1973	4.23	2038	4.66
8135	1859	3.46	1926	3.85	1991	4.25	2054	4.67	2116	5.11
8750	1950	3.91	2013	4.30	2075	4.71	2136	5.14	2196	5.59

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5250	1688	2.88	1764	3.29	1837	3.72	1908	4.17	1976	4.63
5690	1751	3.20	1826	3.63	1897	4.07	1965	4.52	2031	4.99
6125	1817	3.54	1889	3.97	1958	4.43	2024	4.89	2088	5.37
6565	1885	3.89	1955	4.34	2022	4.81	2086	5.28	2149	5.77
7000	1955	4.27	2022	4.73	2087	5.20	2150	5.68	—	—
7440	2028	4.68	2092	5.14	2155	5.62	—	—	—	—
7875	2101	5.10	2163	5.57	—	—	—	—	—	—
8135	2177	5.56	—	—	—	—	—	—	—	—
8750	—	—	—	—	—	—	—	—	—	—

High Static 1237-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

48GEFM20 — High Static — 17.5 Ton Horizontal Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1237	5.6	1337	6.0	1432	6.5	1522	6.9	1607	7.3
5690	1324	6.0	1417	6.4	1507	6.8	1592	7.2	1674	7.6
6125	1411	6.4	1499	6.8	1583	7.2	1664	7.5	1742	7.9
6565	1500	6.8	1582	7.1	1662	7.5	1739	7.9	1813	8.2
7000	1589	7.2	1666	7.5	1742	7.9	1815	8.2	1886	8.6
7440	1679	7.6	1752	7.9	1824	8.3	1893	8.6	1961	8.9
7875	1768	8.0	1838	8.3	1906	8.6	1973	9.0	2038	9.3
8135	1859	8.4	1926	8.7	1991	9.0	2054	9.3	2116	9.6
8750	1950	8.8	2013	9.1	2075	9.4	2136	9.7	2196	10.0

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1688	7.6	1764	8.0	1837	8.3	1908	8.7	1976	9.0
5690	1751	7.9	1826	8.3	1897	8.6	1965	8.9	2031	9.2
6125	1817	8.2	1889	8.6	1958	8.9	2024	9.2	2088	9.5
6565	1885	8.5	1955	8.9	2022	9.2	2086	9.5	2149	9.8
7000	1955	8.9	2022	9.2	2087	9.5	2150	9.8	—	—
7440	2028	9.2	2092	9.5	2155	9.8	—	—	—	—
7875	2101	9.5	2163	9.8	—	—	—	—	—	—
8135	2177	9.9	—	—	—	—	—	—	—	—
8750	—	—	—	—	—	—	—	—	—	—

High Static 1237-2200 rpm

Fan data (cont)

48GEFM24 — 20 Ton Horizontal Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1326	1.38	1417	1.68	1505	2.01	1589	2.37	1670	2.75
6,500	1421	1.67	1506	1.99	1589	2.34	1668	2.70	1745	3.09
7,000	1518	2.00	1597	2.33	1674	2.68	1750	3.06	1823	3.46
7,500	1615	2.36	1689	2.70	1762	3.06	1833	3.45	1903	3.86
8,000	1713	2.75	1783	3.10	1852	3.48	1919	3.87	1985	4.28
8,500	1811	3.17	1877	3.53	1943	3.92	2007	4.32	2069	4.73
9,000	1910	3.63	1973	4.00	2035	4.39	2095	4.79	2155	5.21
9,500	2010	4.12	2069	4.50	2128	4.89	2186	5.30	—	—
10,000	2109	4.64	2166	5.03	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1748	3.16	1823	3.58	1894	4.02	1963	4.47	2030	4.94
6,500	1819	3.50	1891	3.94	1960	4.38	2027	4.85	2092	5.33
7,000	1893	3.88	1962	4.32	2029	4.78	2093	5.24	2156	5.73
7,500	1970	4.28	2036	4.73	2100	5.19	2162	5.66	—	—
8,000	2049	4.71	2112	5.16	2174	5.62	—	—	—	—
8,500	2131	5.17	2191	5.62	—	—	—	—	—	—
9,000	—	—	—	—	—	—	—	—	—	—
9,500	—	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—

High Static 1326-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

48GEFM24 — High Static — 20 Ton Horizontal Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1326	6.0	1417	6.4	1505	6.8	1589	7.2	1670	7.6
6,500	1421	6.4	1506	6.8	1589	7.2	1668	7.5	1745	7.9
7,000	1518	6.9	1597	7.2	1674	7.6	1750	7.9	1823	8.3
7,500	1615	7.3	1689	7.6	1762	8.0	1833	8.3	1903	8.6
8,000	1713	7.8	1783	8.1	1852	8.4	1919	8.7	1985	9.0
8,500	1811	8.2	1877	8.5	1943	8.8	2007	9.1	2069	9.4
9,000	1910	8.7	1973	9.0	2035	9.2	2095	9.5	2155	9.8
9,500	2010	9.1	2069	9.4	2128	9.7	2186	9.9	—	—
10,000	2109	9.6	2166	9.8	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1748	7.9	1823	8.3	1894	8.6	1963	8.9	2030	9.2
6,500	1819	8.2	1891	8.6	1960	8.9	2027	9.2	2092	9.5
7,000	1893	8.6	1962	8.9	2029	9.2	2093	9.5	2156	9.8
7,500	1970	8.9	2036	9.2	2100	9.5	2162	9.8	—	—
8,000	2049	9.3	2112	9.6	2174	9.9	—	—	—	—
8,500	2131	9.7	2191	10.0	—	—	—	—	—	—
9,000	—	—	—	—	—	—	—	—	—	—
9,500	—	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—

High Static 1326-2200 rpm

Fan data (cont)

48GEFM28 — 25 Ton Horizontal Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7,500	1486	2.49	1562	2.89	1639	3.34	1714	3.82	1786	4.32
8,125	1597	3.08	1668	3.51	1739	3.98	1809	4.48	1877	5.00
8,750	1709	3.75	1775	4.20	1841	4.69	1907	5.21	1971	5.75
9,375	1822	4.50	1884	4.97	1945	5.47	2007	6.01	2067	6.56
10,000	1936	5.31	1994	5.81	2051	6.32	2109	6.87	2166	7.44
10,625	2050	6.19	2104	6.69	2159	7.23	—	—	—	—
11,250	2164	7.09	—	—	—	—	—	—	—	—
11.875	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7,500	1856	4.85	1923	5.39	1988	5.96	2050	6.53	2110	7.12
8,125	1944	5.55	2008	6.12	2071	6.71	2131	7.32	2189	7.93
8,750	2034	6.32	2096	6.92	2156	7.53	—	—	—	—
9,375	2127	7.15	2186	7.76	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—
10,625	—	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—	—
11.875	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

High Static 1486-2200 rpm, 10.0 maximum bhp (maximum bhp 5.0 per fan motor)

48GEFM30 — High Static — 25 Ton Horizontal Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1486	6.7	1562	7.1	1639	7.4	1714	7.8	1786	8.1
8,125	1597	7.2	1668	7.5	1739	7.9	1809	8.2	1877	8.5
8,750	1709	7.7	1775	8.0	1841	8.3	1907	8.6	1971	8.9
9,375	1822	8.3	1884	8.5	1945	8.8	2007	9.1	2067	9.4
10,000	1936	8.8	1994	9.0	2051	9.3	2109	9.6	2166	9.8
10,625	2050	9.3	2104	9.6	2159	9.8	—	—	—	—
11,250	2164	9.8	—	—	—	—	—	—	—	—
11.875	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1856	8.4	1923	8.7	1988	9.0	2050	9.3	2110	9.6
8,125	1944	8.8	2008	9.1	2071	9.4	2131	9.7	2189	9.9
8,750	2034	9.2	2096	9.5	2156	9.8	—	—	—	—
9,375	2127	9.7	2186	9.9	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—
10,625	—	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—	—
11.875	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

High Static 1486-2200 rpm

Fan data (cont)

50GE-M17 — 15 Ton Vertical Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	936	0.61	1065	0.90	1180	1.23	1285	1.59	1380	1.97
4875	991	0.73	1112	1.03	1224	1.37	1325	1.74	1418	2.14
5250	1048	0.86	1161	1.18	1268	1.53	1366	1.91	1457	2.32
5625	1106	1.02	1211	1.34	1314	1.71	1410	2.11	1498	2.53
6000	1166	1.19	1263	1.52	1362	1.90	1454	2.31	1540	2.75
6375	1226	1.38	1317	1.72	1410	2.11	1499	2.53	1584	2.99
6750	1287	1.59	1371	1.93	1460	2.33	1546	2.76	1628	3.23
7125	1349	1.82	1428	2.16	1511	2.56	1594	3.01	1674	3.48
7500	1412	2.07	1485	2.40	1563	2.80	1643	3.26	1721	3.74

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	1470	2.38	1554	2.81	1634	3.27	1710	3.74	1782	4.24
4875	1505	2.55	1588	3.00	1666	3.46	1741	3.95	1812	4.46
5250	1542	2.75	1623	3.21	1700	3.69	1773	4.18	1844	4.71
5625	1581	2.97	1660	3.44	1735	3.93	1807	4.44	1876	4.97
6000	1622	3.21	1699	3.69	1772	4.19	1843	4.71	1911	5.25
6375	1663	3.46	1739	3.95	1811	4.46	1880	4.99	1946	5.54
6750	1706	3.71	1780	4.22	1850	4.74	1918	5.28	1983	5.83
7125	1750	3.98	1822	4.49	1891	5.02	1958	5.57	2022	6.14
7500	1794	4.24	1866	4.77	1933	5.30	1999	5.86	—	—

Std/Med Static 936-2000 rpm, 4.8 maximum bhp (2.4 maximum bhp per fan motor)

High Static 936-2200 rpm, 6.0 maximum bhp (3.0 maximum bhp per fan motor)

50GE-M17 — Standard/Medium Static — 15 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	936	4.5	1065	5.2	1180	5.8	1285	6.3	1380	6.8
4875	991	4.8	1112	5.4	1224	6.0	1325	6.5	1418	7.0
5250	1048	5.1	1161	5.7	1268	6.2	1366	6.7	1457	7.2
5625	1106	5.4	1211	5.9	1314	6.5	1410	7.0	1498	7.4
6000	1166	5.7	1263	6.2	1362	6.7	1454	7.2	1540	7.6
6375	1226	6.0	1317	6.5	1410	7.0	1499	7.4	1584	7.9
6750	1287	6.3	1371	6.8	1460	7.2	1546	7.7	1628	8.1
7125	1349	6.7	1428	7.1	1511	7.5	1594	7.9	1674	8.3
7500	1412	7.0	1485	7.4	1563	7.8	1643	8.2	1721	8.6

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	1470	7.3	1554	7.7	1634	8.1	1710	8.5	1782	8.9
4875	1505	7.5	1588	7.9	1666	8.3	1741	8.7	1812	9.0
5250	1542	7.6	1623	8.1	1700	8.5	1773	8.8	1844	9.2
5625	1581	7.8	1660	8.3	1735	8.6	1807	9.0	1876	9.4
6000	1622	8.1	1699	8.5	1772	8.8	1843	9.2	—	—
6375	1663	8.3	1739	8.7	1811	9.0	1880	9.4	—	—
6750	1706	8.5	1780	8.9	1850	9.2	—	—	—	—
7125	1750	8.7	1822	9.1	1891	9.4	—	—	—	—
7500	1794	8.9	1866	9.3	—	—	—	—	—	—

Std/Med Static 936-2000 rpm

Fan data (cont)

50GE-M17 — High Static — 15 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	936	4.2	1065	4.8	1180	5.3	1285	5.8	1380	6.2
4875	991	4.4	1112	5.0	1224	5.5	1325	6.0	1418	6.4
5250	1048	4.7	1161	5.2	1268	5.7	1366	6.2	1457	6.6
5625	1106	5.0	1211	5.4	1314	5.9	1410	6.4	1498	6.8
6000	1166	5.2	1263	5.7	1362	6.1	1454	6.6	1540	7.0
6375	1226	5.5	1317	5.9	1410	6.4	1499	6.8	1584	7.2
6750	1287	5.8	1371	6.2	1460	6.6	1546	7.0	1628	7.4
7125	1349	6.1	1428	6.4	1511	6.8	1594	7.2	1674	7.6
7500	1412	6.4	1485	6.7	1563	7.1	1643	7.4	1721	7.8

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	1470	6.6	1554	7.0	1634	7.4	1710	7.7	1782	8.1
4875	1505	6.8	1588	7.2	1666	7.5	1741	7.9	1812	8.2
5250	1542	7.0	1623	7.3	1700	7.7	1773	8.0	1844	8.4
5625	1581	7.1	1660	7.5	1735	7.9	1807	8.2	1876	8.5
6000	1622	7.3	1699	7.7	1772	8.0	1843	8.4	1911	8.7
6375	1663	7.5	1739	7.9	1811	8.2	1880	8.5	1946	8.8
6750	1706	7.7	1780	8.1	1850	8.4	1918	8.7	1983	9.0
7125	1750	7.9	1822	8.3	1891	8.6	1958	8.9	2022	9.2
7500	1794	8.1	1866	8.5	1933	8.8	1999	9.1	—	—

High Static 936-2200 rpm

Fan data (cont)

50GE-M20 — 17.5 Ton Vertical Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5250	1048	0.86	1162	1.18	1268	1.53	1366	1.91	1457	2.32
5690	1116	1.05	1220	1.37	1322	1.74	1417	2.14	1505	2.56
6125	1185	1.25	1281	1.58	1377	1.96	1469	2.39	1555	2.83
6565	1257	1.49	1344	1.82	1435	2.22	1523	2.65	1606	3.11
7000	1329	1.75	1409	2.08	1494	2.48	1578	2.92	1658	3.39
7440	1402	2.03	1476	2.36	1555	2.77	1635	3.21	1713	3.70
7875	1475	2.32	1543	2.66	1617	3.06	1693	3.51	1768	4.00
8315	1549	2.63	1613	2.97	1682	3.37	1753	3.81	1825	4.30
8750	1623	2.95	1682	3.28	1747	3.68	1815	4.12	1883	4.61

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5250	1543	2.76	1623	3.21	1700	3.69	1773	4.18	1844	4.71
5690	1588	3.01	1667	3.49	1741	3.97	1813	4.48	1882	5.02
6125	1635	3.29	1712	3.78	1785	4.28	1855	4.80	1922	5.34
6565	1685	3.59	1759	4.08	1830	4.60	1899	5.14	1965	5.69
7000	1735	3.89	1808	4.40	1877	4.92	1944	5.47	2009	6.04
7440	1787	4.20	1858	4.72	1926	5.25	1992	5.81	2055	6.38
7875	1840	4.51	1909	5.03	1976	5.58	2040	6.14	—	—
8315	1895	4.82	1962	5.35	2028	5.90	—	—	—	—
8750	1951	5.12	2016	5.65	2080	6.21	—	—	—	—

Std/Med Static 1048-2000 rpm, 4.8 maximum bhp (2.4 maximum bhp per fan motor)

High Static 1048-2200 rpm, 6.0 maximum bhp (3.0 maximum bhp per fan motor)

50GE-M20 — Standard/Medium Static — 17.5 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1048	5.1	1162	5.7	1268	6.2	1366	6.7	1457	7.2
5690	1116	5.5	1220	6.0	1322	6.5	1417	7.0	1505	7.5
6125	1185	5.8	1281	6.3	1377	6.8	1469	7.3	1555	7.7
6565	1257	6.2	1344	6.6	1435	7.1	1523	7.5	1606	8.0
7000	1329	6.5	1409	7.0	1494	7.4	1578	7.8	1658	8.2
7440	1402	6.9	1476	7.3	1555	7.7	1635	8.1	1713	8.5
7875	1475	7.3	1543	7.6	1617	8.0	1693	8.4	1768	8.8
8315	1549	7.7	1613	8.0	1682	8.4	1753	8.7	1825	9.1
8750	1623	8.1	1682	8.4	1747	8.7	1815	9.0	1883	9.4

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1543	7.6	1623	8.1	1700	8.5	1773	8.8	1844	9.2
5690	1588	7.9	1667	8.3	1741	8.7	1813	9.0	1882	9.4
6125	1635	8.1	1712	8.5	1785	8.9	1855	9.3	—	—
6565	1685	8.4	1759	8.8	1830	9.1	—	—	—	—
7000	1735	8.6	1808	9.0	1877	9.4	—	—	—	—
7440	1787	8.9	1858	9.3	—	—	—	—	—	—
7875	1840	9.2	1909	9.5	—	—	—	—	—	—
8315	1895	9.5	—	—	—	—	—	—	—	—
8750	—	—	—	—	—	—	—	—	—	—

Std/Med Static 1048-2000 rpm

Fan data (cont)

50GE-M20 — High Static — 17.5 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1048	4.7	1162	5.2	1268	5.7	1366	6.2	1457	6.6
5690	1116	5.0	1220	5.5	1322	5.9	1417	6.4	1505	6.8
6125	1185	5.3	1281	5.8	1377	6.2	1469	6.6	1555	7.0
6565	1257	5.6	1344	6.0	1435	6.5	1523	6.9	1606	7.3
7000	1329	6.0	1409	6.3	1494	6.7	1578	7.1	1658	7.5
7440	1402	6.3	1476	6.7	1555	7.0	1635	7.4	1713	7.8
7875	1475	6.7	1543	7.0	1617	7.3	1693	7.7	1768	8.0
8315	1549	7.0	1613	7.3	1682	7.6	1753	7.9	1825	8.3
8750	1623	7.3	1682	7.6	1747	7.9	1815	8.2	1883	8.5

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1543	7.0	1623	7.3	1700	7.7	1773	8.0	1844	8.4
5690	1588	7.2	1667	7.5	1741	7.9	1813	8.2	1882	8.5
6125	1635	7.4	1712	7.7	1785	8.1	1855	8.4	1922	8.7
6565	1685	7.6	1759	8.0	1830	8.3	1899	8.6	1965	8.9
7000	1735	7.9	1808	8.2	1877	8.5	1944	8.8	2009	9.1
7440	1787	8.1	1858	8.4	1926	8.7	1992	9.0	2055	9.3
7875	1840	8.3	1909	8.7	1976	9.0	2040	9.3	—	—
8315	1895	8.6	1962	8.9	2028	9.2	—	—	—	—
8750	1951	8.9	2016	9.2	2080	9.4	—	—	—	—

High Static 1048-2200 rpm

Fan data (cont)

50GE-M24 — 20 Ton Vertical Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1038	0.84	1148	1.14	1251	1.47	1351	1.86	1448	2.28
6,500	1103	1.01	1207	1.32	1304	1.66	1398	2.05	1490	2.48
7,000	1169	1.19	1269	1.52	1360	1.87	1448	2.26	1535	2.69
7,500	1234	1.38	1332	1.74	1418	2.09	1501	2.48	1583	2.91
8,000	1299	1.58	1395	1.95	1478	2.32	1557	2.72	1634	3.14
8,500	1364	1.78	1459	2.18	1540	2.56	1615	2.95	1689	3.37
9,000	1427	1.97	1524	2.40	1602	2.79	1674	3.18	1745	3.60
9,500	1491	2.17	1589	2.62	1665	3.02	1735	3.41	1802	3.83
10,000	1553	2.36	1653	2.84	1729	3.25	1797	3.65	1862	4.06

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1539	2.74	1624	3.22	1703	3.72	1777	4.22	1847	4.74
6,500	1578	2.95	1662	3.44	1741	3.96	1816	4.49	1887	5.04
7,000	1619	3.16	1701	3.66	1779	4.19	1854	4.74	1924	5.30
7,500	1663	3.38	1742	3.88	1818	4.41	1892	4.97	1962	5.55
8,000	1711	3.60	1786	4.10	1859	4.62	1931	5.18	2000	5.76
8,500	1761	3.83	1832	4.31	1903	4.83	1972	5.37	2039	5.94
9,000	1813	4.04	1882	4.52	1949	5.02	2015	5.55	2081	6.11
9,500	1868	4.26	1933	4.72	1998	5.21	2061	5.72	2124	6.27
10,000	1925	4.49	1987	4.94	2049	5.41	2110	5.91	2170	6.43

Std/Med Static 1038-2200 rpm, 4.8 maximum bhp (2.4 maximum bhp per fan motor)

High Static 1038-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

50GE-M24 — Standard/Medium Static — 20 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1038	5.1	1148	5.6	1251	6.1	1351	6.7	1448	7.2
6,500	1103	5.4	1207	5.9	1304	6.4	1398	6.9	1490	7.4
7,000	1169	5.7	1269	6.2	1360	6.7	1448	7.2	1535	7.6
7,500	1234	6.1	1332	6.6	1418	7.0	1501	7.4	1583	7.9
8,000	1299	6.4	1395	6.9	1478	7.3	1557	7.7	1634	8.1
8,500	1364	6.7	1459	7.2	1540	7.6	1615	8.0	1689	8.4
9,000	1427	7.1	1524	7.6	1602	8.0	1674	8.3	1745	8.7
9,500	1491	7.4	1589	7.9	1665	8.3	1735	8.6	1802	9.0
10,000	1553	7.7	1653	8.2	1729	8.6	1797	9.0	1862	9.3

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1539	7.6	1624	8.1	1703	8.5	1777	8.9	1847	9.2
6,000	1578	7.8	1662	8.3	1741	8.7	1816	9.1	1887	9.4
6,500	1619	8.0	1701	8.5	1779	8.9	1854	9.2	—	—
7,000	1663	8.3	1742	8.7	1818	9.1	1892	9.4	—	—
7,500	1711	8.5	1786	8.9	1859	9.3	—	—	—	—
8,000	1761	8.8	1832	9.1	1903	9.5	—	—	—	—
8,500	1813	9.0	1882	9.4	1949	9.7	—	—	—	—
9,000	1868	9.3	1933	9.7	—	—	—	—	—	—
9,500	1925	9.6	1987	9.9	—	—	—	—	—	—

Std/Med Static 1038-2000 rpm

Fan data (cont)

50GE-M24 — High Static — 20 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1038	4.6	1148	5.1	1251	5.6	1351	6.1	1448	6.5
6,500	1103	4.9	1207	5.4	1304	5.9	1398	6.3	1490	6.7
7,000	1169	5.2	1269	5.7	1360	6.1	1448	6.5	1535	6.9
7,500	1234	5.5	1332	6.0	1418	6.4	1501	6.8	1583	7.2
8,000	1299	5.8	1395	6.3	1478	6.7	1557	7.0	1634	7.4
8,500	1364	6.1	1459	6.6	1540	7.0	1615	7.3	1689	7.6
9,000	1427	6.4	1524	6.9	1602	7.2	1674	7.6	1745	7.9
9,500	1491	6.7	1589	7.2	1665	7.5	1735	7.9	1802	8.2
10,000	1553	7.0	1653	7.5	1729	7.8	1797	8.1	1862	8.4

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1539	6.9	1624	7.3	1703	7.7	1777	8.0	1847	8.4
6,500	1578	7.1	1662	7.5	1741	7.9	1816	8.2	1887	8.6
7,000	1619	7.3	1701	7.7	1779	8.1	1854	8.4	1924	8.7
7,500	1663	7.5	1742	7.9	1818	8.2	1892	8.6	1962	8.9
8,000	1711	7.7	1786	8.1	1859	8.4	1931	8.8	2000	9.1
8,500	1761	8.0	1832	8.3	1903	8.6	1972	8.9	2039	9.3
9,000	1813	8.2	1882	8.5	1949	8.8	2015	9.1	2081	9.5
9,500	1868	8.5	1933	8.8	1998	9.1	2061	9.4	2124	9.6
10,000	1925	8.7	1987	9.0	2049	9.3	2110	9.6	2170	9.9

High Static 1038-2200 rpm

Fan data (cont)

50GE-M28 — 25 Ton Vertical Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7,500	1099	1.27	1174	1.55	1256	1.90	1343	2.32	1433	2.82
8,125	1177	1.58	1246	1.87	1319	2.22	1397	2.64	1479	3.13
8,750	1256	1.92	1319	2.23	1385	2.58	1456	3.00	1530	3.48
9,375	1337	2.32	1394	2.63	1455	2.99	1519	3.40	1586	3.87
10,000	1417	2.74	1471	3.06	1526	3.42	1585	3.83	1646	4.29
10,625	1498	3.18	1548	3.51	1600	3.88	1654	4.28	1710	4.73
11,250	1579	3.65	1626	3.98	1675	4.36	1725	4.76	1777	5.20
11,875	1661	4.17	1705	4.51	1751	4.88	1798	5.29	1846	5.72
12,500	1743	4.78	1785	5.14	1828	5.52	1872	5.93	1917	6.37

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7,500	1521	3.38	1604	3.96	1683	4.58	1757	5.21	1828	5.86
8,125	1561	3.68	1642	4.28	1720	4.92	1794	5.58	1864	6.26
8,750	1606	4.02	1683	4.63	1758	5.28	1830	5.95	1900	6.66
9,375	1655	4.40	1727	5.00	1798	5.64	1869	6.33	1937	7.05
10,000	1710	4.81	1776	5.39	1843	6.02	1910	6.70	1976	7.42
10,625	1769	5.24	1829	5.79	1891	6.40	1954	7.06	2018	7.78
11,250	1831	5.69	1887	6.23	1944	6.81	2003	7.45	2063	8.14
11,875	1896	6.20	1948	6.72	2001	7.29	2056	7.90	2111	8.56
12,500	1964	6.85	2012	7.36	2061	7.91	2112	8.51	2164	9.16

Std/Med Static 1099-2200 rpm, 6.0 maximum bhp (3.0 maximum bhp per fan motor)

High Static 1099-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

50GE-M28 — Standard/Medium Static — 25 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1099	4.9	1174	5.3	1256	5.6	1343	6.0	1433	6.5
8,125	1177	5.3	1246	5.6	1319	5.9	1397	6.3	1479	6.7
8,750	1256	5.6	1319	5.9	1385	6.2	1456	6.6	1530	6.9
9,375	1337	6.0	1394	6.3	1455	6.6	1519	6.9	1586	7.2
10,000	1417	6.4	1471	6.6	1526	6.9	1585	7.2	1646	7.4
10,625	1498	6.8	1548	7.0	1600	7.2	1654	7.5	1710	7.7
11,250	1579	7.1	1626	7.4	1675	7.6	1725	7.8	1777	8.0
11,875	1661	7.5	1705	7.7	1751	7.9	1798	8.1	1846	8.4
12,500	1743	7.9	1785	8.1	1828	8.3	1872	8.5	1917	8.7

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1521	6.9	1604	7.2	1683	7.6	1757	8.0	1828	8.3
8,125	1561	7.1	1642	7.4	1720	7.8	1794	8.1	1864	8.4
8,750	1606	7.3	1683	7.6	1758	8.0	1830	8.3	—	—
9,375	1655	7.5	1727	7.8	1798	8.1	1869	8.5	—	—
10,000	1710	7.7	1776	8.0	1843	8.4	—	—	—	—
10,625	1769	8.0	1829	8.3	1891	8.6	—	—	—	—
11,250	1831	8.3	1887	8.6	—	—	—	—	—	—
11,875	1896	8.6	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

Std/Med Static 1099-2200 rpm

Fan data (cont)

50GE-M28 — High Static — 25 Ton Vertical Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1099	4.9	1174	5.3	1256	5.6	1343	6.0	1433	6.5
8,125	1177	5.3	1246	5.6	1319	5.9	1397	6.3	1479	6.7
8,750	1256	5.6	1319	5.9	1385	6.2	1456	6.6	1530	6.9
9,375	1337	6.0	1394	6.3	1455	6.6	1519	6.9	1586	7.2
10,000	1417	6.4	1471	6.6	1526	6.9	1585	7.2	1646	7.4
10,625	1498	6.8	1548	7.0	1600	7.2	1654	7.5	1710	7.7
11,250	1579	7.1	1626	7.4	1675	7.6	1725	7.8	1777	8.0
11,875	1661	7.5	1705	7.7	1751	7.9	1798	8.1	1846	8.4
12,500	1743	7.9	1785	8.1	1828	8.3	1872	8.5	1917	8.7

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1521	6.9	1604	7.2	1683	7.6	1757	8.0	1828	8.3
8,125	1561	7.1	1642	7.4	1720	7.8	1794	8.1	1864	8.4
8,750	1606	7.3	1683	7.6	1758	8.0	1830	8.3	1900	8.6
9,375	1655	7.5	1727	7.8	1798	8.1	1869	8.5	1937	8.8
10,000	1710	7.7	1776	8.0	1843	8.4	1910	8.7	1976	9.0
10,625	1769	8.0	1829	8.3	1891	8.6	1954	8.9	2018	9.2
11,250	1831	8.3	1887	8.6	1944	8.8	2003	9.1	2063	9.4
11,875	1896	8.6	1948	8.8	2001	9.1	2056	9.3	2111	9.6
12,500	1964	8.9	2012	9.1	2061	9.4	2112	9.6	2164	9.8

High Static 1099-2200 rpm

Fan data (cont)

50GE-M17 — 15 Ton Horizontal Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	1055	0.71	1171	0.97	1279	1.26	1379	1.58	1472	1.92
4875	1122	0.85	1231	1.12	1334	1.43	1430	1.76	1520	2.11
5250	1190	1.01	1293	1.30	1390	1.61	1482	1.95	1569	2.32
5625	1259	1.19	1356	1.49	1448	1.81	1536	2.16	1621	2.54
6000	1329	1.39	1420	1.69	1508	2.03	1592	2.39	1674	2.78
6375	1399	1.60	1486	1.92	1570	2.26	1650	2.63	1728	3.02
6750	1470	1.83	1553	2.16	1632	2.51	1710	2.89	1785	3.28
7125	1541	2.08	1620	2.42	1696	2.77	1770	3.15	1842	3.56
7500	1612	2.34	1688	2.69	1761	3.06	1832	3.44	1902	3.85

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4500	1560	2.29	1642	2.67	1721	3.29	1796	3.74	1870	4.22
4875	1605	2.49	1685	2.88	1762	3.29	1835	3.99	1906	4.47
5250	1652	2.70	1730	3.10	1805	3.53	1877	4.27	1946	4.75
5625	1701	2.94	1777	3.35	1850	3.78	1920	4.57	1988	5.07
6000	1751	3.18	1826	3.60	1897	4.04	1966	4.90	2032	5.41
6375	1803	3.43	1876	3.86	1945	4.31	2013	5.26	2078	5.79
6750	1857	3.70	1927	4.13	1995	4.59	2061	5.65	2125	6.19
7125	1913	3.98	1981	4.42	2047	4.88	2111	6.07	2173	6.62
7500	1969	4.27	2035	4.72	2099	5.18	2162	6.52	—	—

High Static 1055-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

50GE-M17 — High Static — 15 Ton Horizontal Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	1055	4.7	1171	5.3	1279	5.7	1379	6.2	1472	6.6
4875	1122	5.0	1231	5.5	1334	6.0	1430	6.4	1520	6.9
5250	1190	5.3	1293	5.8	1390	6.3	1482	6.7	1569	7.1
5625	1259	5.7	1356	6.1	1448	6.5	1536	6.9	1621	7.3
6000	1329	6.0	1420	6.4	1508	6.8	1592	7.2	1674	7.6
6375	1399	6.3	1486	6.7	1570	7.1	1650	7.5	1728	7.8
6750	1470	6.6	1553	7.0	1632	7.4	1710	7.7	1785	8.1
7125	1541	7.0	1620	7.3	1696	7.7	1770	8.0	1842	8.3
7500	1612	7.3	1688	7.6	1761	8.0	1832	8.3	1902	8.6

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
4500	1560	7.0	1642	7.4	1721	7.8	1796	8.1	1870	8.5
4875	1605	7.3	1685	7.6	1762	8.0	1835	8.3	1906	8.6
5250	1652	7.5	1730	7.8	1805	8.2	1877	8.5	1946	8.8
5625	1701	7.7	1777	8.0	1850	8.4	1920	8.7	1988	9.0
6000	1751	7.9	1826	8.3	1897	8.6	1966	8.9	2032	9.2
6375	1803	8.2	1876	8.5	1945	8.8	2013	9.1	2078	9.4
6750	1857	8.4	1927	8.7	1995	9.1	2061	9.4	2125	9.7
7125	1913	8.7	1981	9.0	2047	9.3	2111	9.6	2173	9.9
7500	1969	8.9	2035	9.2	2099	9.5	2162	9.8	—	—

High Static 1055-2200 rpm

Fan data (cont)

50GE-M20 — 17.5 Ton Horizontal Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5250	1190	1.01	1293	1.30	1390	1.61	1482	1.95	1569	2.32
5690	1271	1.22	1367	1.52	1458	1.85	1546	2.20	1630	2.58
6125	1352	1.46	1442	1.77	1528	2.10	1612	2.47	1692	2.86
6565	1435	1.72	1520	2.04	1601	2.39	1680	2.76	1757	3.15
7000	1517	2.00	1597	2.33	1675	2.69	1750	3.06	1823	3.46
7440	1601	2.30	1677	2.65	1751	3.01	1822	3.39	1892	3.80
7875	1684	2.63	1757	2.98	1827	3.36	1895	3.74	1962	4.16
8315	1769	2.98	1838	3.35	1905	3.73	1971	4.13	2035	4.54
8750	1853	3.36	1920	3.73	1984	4.12	2046	4.52	2108	4.94

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
5250	1652	2.70	1730	3.10	1805	3.53	1876	3.96	1946	4.42
5690	1709	2.97	1785	3.39	1858	3.82	1928	4.27	1995	4.73
6125	1769	3.26	1842	3.69	1913	4.13	1981	4.58	2047	5.06
6565	1831	3.57	1902	4.00	1971	4.45	2037	4.91	2101	5.39
7000	1894	3.88	1963	4.33	2029	4.78	2094	5.25	2157	5.74
7440	1960	4.22	2026	4.67	2091	5.13	2154	5.61	—	—
7875	2027	4.58	2091	5.03	2154	5.50	—	—	—	—
8315	2097	4.97	2159	5.42	—	—	—	—	—	—
8750	2168	5.38	—	—	—	—	—	—	—	—

High Static 1190-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

50GE-M20 — High Static — 17.5 Ton Horizontal Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1190	5.3	1293	5.8	1390	6.3	1482	6.7	1569	7.1
5690	1271	5.7	1367	6.2	1458	6.6	1546	7.0	1630	7.4
6125	1352	6.1	1442	6.5	1528	6.9	1612	7.3	1692	7.7
6565	1435	6.5	1520	6.9	1601	7.2	1680	7.6	1757	8.0
7000	1517	6.8	1597	7.2	1675	7.6	1750	7.9	1823	8.3
7440	1601	7.2	1677	7.6	1751	7.9	1822	8.3	1892	8.6
7875	1684	7.6	1757	8.0	1827	8.3	1895	8.6	1962	8.9
8315	1769	8.0	1838	8.3	1905	8.6	1971	8.9	2035	9.2
8750	1853	8.4	1920	8.7	1984	9.0	2046	9.3	2108	9.6

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
5250	1652	7.5	1730	7.8	1805	8.2	1876	8.5	1946	8.8
5690	1709	7.7	1785	8.1	1858	8.4	1928	8.7	1995	9.1
6125	1769	8.0	1842	8.3	1913	8.7	1981	9.0	2047	9.3
6565	1831	8.3	1902	8.6	1971	8.9	2037	9.2	2101	9.5
7000	1894	8.6	1963	8.9	2029	9.2	2094	9.5	2157	9.8
7440	1960	8.9	2026	9.2	2091	9.5	2154	9.8	—	—
7875	2027	9.2	2091	9.5	2154	9.8	—	—	—	—
8315	2097	9.5	2159	9.8	—	—	—	—	—	—
8750	2168	9.9	—	—	—	—	—	—	—	—

High Static 1190-2200 rpm

Fan data (cont)

50GE-M24 — 20 Ton Horizontal Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1267	1.20	1361	1.49	1451	1.81	1538	2.15	1621	2.52
6,500	1356	1.45	1443	1.75	1527	2.07	1609	2.43	1688	2.80
7,000	1446	1.73	1527	2.04	1606	2.37	1683	2.73	1758	3.11
7,500	1537	2.03	1612	2.35	1687	2.69	1760	3.05	1831	3.44
8,000	1628	2.36	1699	2.68	1769	3.03	1838	3.40	1906	3.79
8,500	1719	2.71	1786	3.04	1853	3.40	1918	3.77	1983	4.16
9,000	1811	3.09	1875	3.43	1938	3.79	2000	4.17	2061	4.56
9,500	1904	3.50	1964	3.85	2024	4.21	2083	4.59	2142	4.99
10,000	1997	3.94	2054	4.29	2111	4.66	2167	5.04	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6,000	1700	2.90	1777	3.32	1850	3.74	1921	4.19	1989	4.65
6,500	1764	3.20	1838	3.62	1909	4.05	1977	4.50	2043	4.97
7,000	1831	3.51	1901	3.93	1970	4.37	2036	4.83	2100	5.30
7,500	1900	3.84	1968	4.27	2033	4.71	2098	5.17	2160	5.64
8,000	1972	4.20	2037	4.63	2100	5.07	2162	5.53	—	—
8,500	2046	4.57	2108	5.00	2169	5.45	—	—	—	—
9,000	2122	4.97	2181	5.40	—	—	—	—	—	—
9,500	2199	5.40	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—

High Static 1267-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

50GE-M24 — High Static — 20 Ton Horizontal Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1267	5.7	1361	6.1	1451	6.5	1538	6.9	1621	7.3
6,500	1356	6.1	1443	6.5	1527	6.9	1609	7.3	1688	7.6
7,000	1446	6.5	1527	6.9	1606	7.3	1683	7.6	1758	8.0
7,500	1537	6.9	1612	7.3	1687	7.6	1760	8.0	1831	8.3
8,000	1628	7.4	1699	7.7	1769	8.0	1838	8.3	1906	8.6
8,500	1719	7.8	1786	8.1	1853	8.4	1918	8.7	1983	9.0
9,000	1811	8.2	1875	8.5	1938	8.8	2000	9.1	2061	9.4
9,500	1904	8.6	1964	8.9	2024	9.2	2083	9.5	2142	9.7
10,000	1997	9.1	2054	9.3	2111	9.6	2167	9.8	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
6,000	1700	7.7	1777	8.0	1850	8.4	1921	8.7	1989	9.0
6,500	1764	8.0	1838	8.3	1909	8.7	1977	9.0	2043	9.3
7,000	1831	8.3	1901	8.6	1970	8.9	2036	9.2	2100	9.5
7,500	1900	8.6	1968	8.9	2033	9.2	2098	9.5	2160	9.8
8,000	1972	8.9	2037	9.2	2100	9.5	2162	9.8	—	—
8,500	2046	9.3	2108	9.6	2169	9.9	—	—	—	—
9,000	2122	9.6	2181	9.9	—	—	—	—	—	—
9,500	2199	10.0	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—

High Static 1267-2200 rpm

Fan data (cont)

50GE-M28 — 25 Ton Horizontal Supply (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7,500	1406	2.11	1483	2.47	1559	2.87	1636	3.32	1711	3.80
8,125	1509	2.60	1580	2.98	1651	3.40	1722	3.86	1792	4.35
8,750	1614	3.16	1679	3.56	1744	3.98	1810	4.45	1876	4.96
9,375	1719	3.78	1779	4.19	1840	4.63	1902	5.11	1963	5.62
10,000	1824	4.44	1880	4.87	1938	5.33	1995	5.81	2053	6.34
10,625	1930	5.16	1983	5.60	2036	6.06	2091	6.56	2145	7.09
11,250	2036	5.91	2086	6.35	2137	6.83	2187	7.32	—	—
11,875	2143	6.67	2190	7.12	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
7,500	1783	4.30	1853	4.82	1921	5.37	1986	5.94	2048	6.51
8,125	1861	4.87	1928	5.42	1993	5.98	2055	6.56	2116	7.16
8,750	1941	5.49	2005	6.05	2067	6.63	2128	7.24	2187	7.86
9,375	2024	6.16	2085	6.74	2144	7.33	—	—	—	—
10,000	2111	6.89	2168	7.46	—	—	—	—	—	—
10,625	2199	7.63	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—	—
11,875	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

High Static 1406-2200 rpm, 10.0 maximum bhp (5.0 maximum bhp per fan motor)

50GE-M28 — High Static — 25 Ton Horizontal Supply (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1406	6.3	1483	6.7	1559	7.0	1636	7.4	1711	7.7
8,125	1509	6.8	1580	7.1	1651	7.5	1722	7.8	1792	8.1
8,750	1614	7.3	1679	7.6	1744	7.9	1810	8.2	1876	8.5
9,375	1719	7.8	1779	8.1	1840	8.3	1902	8.6	1963	8.9
10,000	1824	8.3	1880	8.5	1938	8.8	1995	9.1	2053	9.3
10,625	1930	8.8	1983	9.0	2036	9.2	2091	9.5	2145	9.7
11,250	2036	9.2	2086	9.5	2137	9.7	2187	9.9	—	—
11,875	2143	9.7	2190	10.0	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
7,500	1783	8.1	1853	8.4	1921	8.7	1986	9.0	2048	9.3
8,125	1861	8.4	1928	8.7	1993	9.0	2055	9.3	2116	9.6
8,750	1941	8.8	2005	9.1	2067	9.4	2128	9.7	2187	9.9
9,375	2024	9.2	2085	9.5	2144	9.7	—	—	—	—
10,000	2111	9.6	2168	9.9	—	—	—	—	—	—
10,625	2199	10.0	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—	—
11,875	—	—	—	—	—	—	—	—	—	—
12,500	—	—	—	—	—	—	—	—	—	—

High Static 1406-2200 rpm

Electrical data

Legend and Notes

Applicable for Electrical Data Tables on pages 91 to 115

LEGEND

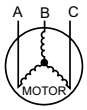
BRKR	—	Circuit Breaker
C.O.	—	Convenience Outlet
FLA	—	Full Load Amps
IFM	—	Indoor Fan Motor
LRA	—	Locked Rotor Amps
MCA	—	Minimum Circuit Amps
P.E.	—	Power Exhaust
PWRD C.O.	—	Powered Convenience Outlet
RLA	—	Rated Load Amps
SCCR	—	Short Circuit Current Rating
UNPWR C.O.	—	Unpowered Convenience Outlet

NOTES:

1. In compliance with NEC requirements for multi-motor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.
2. For 208/230 v units, where one value is show it is the same for either 208 or 230 volts.
3. **Unbalanced 3-Phase Supply Voltage**: Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

$$\text{\% Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 230-3-60



AB = 224-v
BC = 231-v
AC = 226-v

$$\text{Average Voltage} = \frac{(224 + 231 + 226)}{3} = \frac{681}{3} = 227$$

Determine maximum deviation from average voltage.
(AB) 227-224 = 3-v
(BC) 231-227 = 4-v
(AC) 227-226 = 1-v
Maximum deviation is 4-v.
Determine percent of voltage imbalance.

$$\text{\% Voltage Imbalance} = 100x \frac{4}{227} = 1.78\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

Electrical data (cont)

48/50GE**17-28 Cooling Electrical Data

48/50GE UNIT SIZE	V-Ph-Hz	UNIT VOLTAGE Range		STD SCCR kA	HIGH SCCR kA[a]	COMP 1		COMP 2		OFM (EA)		IFM			COMBUSTION FAN MOTOR (48 SERIES ONLY)	POWER EXHAUST	
		Min	Max			RLA	LRA	RLA	LRA	WATTS	FLA	Type	Effcy at Full Load	FLA	FLA	Motor Qty	FLA (Each motor)
17 Vertical	208-3-60	187	253	5	60	31.9	208	23.6	157	350	1.5	STD/MED	90.0%	6.4	0.52	2	5.9
												HIGH	90.0%	7.5			
	230-3-60	187	253	5	60	31.9	208	23.6	157	350	1.5	STD/MED	90.0%	6.4	0.52	2	5.9
												HIGH	90.0%	7.5			
	460-3-60	414	506	5	65	13.9	100	10.1	75	277	0.9	STD/MED	90.0%	3.0	0.3	2	3.1
												HIGH	90.0%	3.5			
	575-3-60	518	633	5	—	10.0	78	8.6	48	397	0.6	STD/MED	90.0%	2.5	0.24	2	2.4
												HIGH	90.0%	3.0			
20 Vertical	208-3-60	187	253	5	60	31.8	255	27.2	200	350	1.5	STD/MED	90.0%	6.4	0.52	2	5.9
												HIGH	90.0%	7.5			
	230-3-60	187	253	5	60	31.8	255	27.2	200	350	1.5	STD/MED	90.0%	6.4	0.52	2	5.9
												HIGH	90.0%	7.5			
	460-3-60	414	506	5	65	15.0	123	13.2	103	277	0.9	STD/MED	90.0%	3.0	0.3	2	3.1
												HIGH	90.0%	3.5			
	575-3-60	518	633	5	—	11.9	94	10.4	78	397	0.6	STD/MED	90.0%	2.5	0.24	2	2.4
												HIGH	90.0%	3.0			
24 Vertical	208-3-60	187	253	5	60	37.1	255	31.9	208	350	1.5	STD/MED	90.0%	6.4	0.52	2	5.9
												HIGH	90.0%	12.6			
	230-3-60	187	253	5	60	37.1	255	31.9	208	350	1.5	STD/MED	90.0%	6.4	0.52	2	5.9
												HIGH	90.0%	12.6			
	460-3-60	414	506	5	65	17.1	140	13.9	100	277	0.9	STD/MED	90.0%	3.0	0.3	2	3.1
												HIGH	90.0%	5.6			
	575-3-60	518	633	5	—	14.4	108	10.0	78	397	0.6	STD/MED	90.0%	2.5	0.24	2	2.4
												HIGH	90.0%	4.6			
28 Vertical	208-3-60	187	253	5	60	51.3	300	37.1	255	350	1.5	STD/MED	90.0%	7.5	0.52	2	5.9
												HIGH	90.0%	12.6			
	230-3-60	187	253	5	60	51.3	300	37.1	255	350	1.5	STD/MED	90.0%	7.5	0.52	2	5.9
												HIGH	90.0%	12.6			
	460-3-60	414	506	5	65	22.4	150	17.1	140	277	0.9	STD/MED	90.0%	3.5	0.3	2	3.1
												HIGH	90.0%	5.6			
	575-3-60	518	633	5	—	19.9	109	14.4	108	397	0.6	STD/MED	90.0%	3.0	0.24	2	2.4
												HIGH	90.0%	4.6			
17 Horizontal	208-3-60	187	253	5	60	31.9	208	23.6	157	350	1.5	HIGH	90.0%	12.6	0.52	2	5.9
	230-3-60	187	253	5	60	31.9	208	23.6	157	350	1.5	HIGH	90.0%	12.6	0.52	2	5.9
	460-3-60	414	506	5	65	13.9	100	10.1	75	277	0.9	HIGH	90.0%	5.6	0.3	2	3.1
	575-3-60	518	633	5	—	10.0	78	8.6	48	397	0.6	HIGH	90.0%	4.6	0.24	2	2.4
20 Horizontal	208-3-60	187	253	5	60	31.8	255	27.2	200	350	1.5	HIGH	90.0%	12.6	0.52	2	5.9
	230-3-60	187	253	5	60	31.8	255	27.2	200	350	1.5	HIGH	90.0%	12.6	0.52	2	5.9
	460-3-60	414	506	5	65	15.0	123	13.2	103	277	0.9	HIGH	90.0%	5.6	0.3	2	3.1
	575-3-60	518	633	5	—	11.9	94	10.4	78	397	0.6	HIGH	90.0%	4.6	0.24	2	2.4
24 Horizontal	208-3-60	187	253	5	60	37.1	255	31.9	208	350	1.5	HIGH	90.0%	12.6	0.52	2	5.9
	230-3-60	187	253	5	60	37.1	255	31.9	208	350	1.5	HIGH	90.0%	12.6	0.52	2	5.9
	460-3-60	414	506	5	65	17.1	140	13.9	100	277	0.9	HIGH	90.0%	5.6	0.3	2	3.1
	575-3-60	518	633	5	—	14.4	108	10.0	78	397	0.6	HIGH	90.0%	4.6	0.24	2	2.4
28 Horizontal	208-3-60	187	253	5	60	51.3	300	37.1	255	350	1.5	HIGH	90.0%	12.6	0.52	2	5.9
	230-3-60	187	253	5	60	51.3	300	37.1	255	350	1.5	HIGH	90.0%	12.6	0.52	2	5.9
	460-3-60	414	506	5	65	22.4	150	17.1	140	277	0.9	HIGH	90.0%	5.6	0.3	2	3.1
	575-3-60	518	633	5	—	19.9	109	14.4	108	397	0.6	HIGH	90.0%	4.6	0.24	2	2.4

NOTE(S):

a. High SCCR (Short Circuit Current Rating) is not available on the following: units with Humidi-MiZer system, Low Ambient controls, Phase loss monitor, Non-fused disconnect, Powered convenience outlet, and 575V models.

Electrical data (cont)

48GE**17-28 Unit Wire/Fuse Sizing Electrical Data

48GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	HIGH SCCR kA[a]	NO CONVENIENCE OUTLET OR UNPOWERED CONVENIENCE OUTLET							
					No Power Exhaust				With Power Exhaust (powered from unit)			
					MCA	Fuse or HACR Breaker	Disconnect Size		MCA	Fuse or HACR Breaker	Disconnect Size	
							FLA	LRA			FLA	LRA
48GE**17 Vertical	208/230-3-60	STD/MED	5	60	81	100	84	392	93	110	97	412
		HIGH			83	100	86	396	95	125	100	416
	460-3-60	STD/MED	5	65	36	50	38	189	42	50	45	201
		HIGH			37	50	39	191	43	50	46	203
	575-3-60	STD/MED	5	—	28	35	29	140	33	40	35	148
		HIGH			29	35	30	140	34	40	36	148
48GE**20 Vertical	208/230-3-60	STD/MED	5	60	86	100	89	485	98	125	103	505
		HIGH			88	100	92	489	100	125	106	509
	460-3-60	STD/MED	5	65	42	50	43	242	48	60	51	254
		HIGH			43	50	45	244	49	60	52	256
	575-3-60	STD/MED	5	—	33	40	34	188	38	45	40	196
		HIGH			34	45	35	188	38	50	41	196
48GE**24 Vertical	208/230-3-60	STD/MED	5	60	97	125	101	493	109	125	115	513
		HIGH			110	125	115	511	121	150	129	531
	460-3-60	STD/MED	5	65	45	60	47	256	51	60	54	268
		HIGH			50	60	53	264	56	70	60	276
	575-3-60	STD/MED	5	—	35	45	37	202	40	50	42	210
		HIGH			40	50	41	206	44	50	47	214
48GE**28 Vertical	208/230-3-60	STD/MED	5	60	125	175	129	595	137	175	143	615
		HIGH			135	175	141	609	147	175	155	629
	460-3-60	STD/MED	5	65	58	70	60	312	64	80	67	324
		HIGH			62	80	65	318	68	90	72	330
	575-3-60	STD/MED	5	—	49	60	50	237	54	60	56	245
		HIGH			52	60	54	241	57	70	60	249
48GE**17 Horizontal	208/230-3-60	HIGH	5	60	93	125	98	410	105	125	112	430
	460-3-60	HIGH	5	65	41	50	44	197	48	60	51	209
	575-3-60	HIGH	5	—	32	40	34	144	37	45	40	152
48GE**20 Horizontal	208/230-3-60	HIGH	5	60	98	125	104	503	110	125	117	523
	460-3-60	HIGH	5	65	47	60	49	250	53	60	57	262
	575-3-60	HIGH	5	—	37	45	39	192	42	50	45	200
48GE**24 Horizontal	208/230-3-60	HIGH	5	60	110	125	115	511	121	150	129	531
	460-3-60	HIGH	5	65	50	60	53	264	56	70	60	276
	575-3-60	HIGH	5	—	40	50	41	206	44	50	47	214
48GE**28 Horizontal	208/230-3-60	HIGH	5	60	135	175	141	609	147	175	155	629
	460-3-60	HIGH	5	65	62	80	65	318	68	90	72	330
	575-3-60	HIGH	5	—	52	60	54	241	57	70	60	249

NOTE(S):

a. High SCCR (Short Circuit Current Rating) is not available on the following: units with Humidi-MiZer system, Low Ambient controls, Phase loss monitor, Non-fused disconnect, and 575V models.

Electrical data (cont)

48GE**17-28 Unit Wire/Fuse Sizing Electrical Data (cont)

48GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	WITH POWERED CONVENIENCE OUTLET							
				No Power Exhaust				With Power Exhaust (powered from unit)			
				MCA	Fuse or HACR Breaker	Disconnect Size		MCA	Fuse or HACR Breaker	Disconnect Size	
						FLA	LRA			FLA	LRA
48GE**17 Vertical	208/230-3-60	STD/MED	5	86	100	89	397	97	125	103	417
		HIGH		88	100	92	401	100	125	105	421
	460-3-60	STD/MED	5	38	50	40	191	45	50	47	203
		HIGH		39	50	41	193	46	50	48	205
	575-3-60	STD/MED	5	30	35	31	142	34	40	37	150
		HIGH		31	40	32	142	35	45	38	150
48GE**20 Vertical	208/230-3-60	STD/MED	5	91	100	95	490	102	125	109	510
		HIGH		93	110	98	494	105	125	111	514
	460-3-60	STD/MED	5	44	50	46	244	50	60	53	256
		HIGH		45	50	47	246	51	60	54	258
	575-3-60	STD/MED	5	34	45	36	190	39	50	42	198
		HIGH		35	45	37	190	40	50	43	198
48GE**24 Vertical	208/230-3-60	STD/MED	5	102	125	106	498	114	150	120	518
		HIGH		114	150	121	516	126	150	134	536
	460-3-60	STD/MED	5	47	60	49	258	53	60	56	270
		HIGH		52	60	55	266	58	70	62	278
	575-3-60	STD/MED	5	37	50	39	204	42	50	44	212
		HIGH		41	50	43	208	46	60	49	216
48GE**28 Vertical	208/230-3-60	STD/MED	5	130	175	135	600	142	175	148	620
		HIGH		140	175	147	614	152	200	160	634
	460-3-60	STD/MED	5	60	80	62	314	66	80	69	326
		HIGH		64	80	67	320	70	90	74	332
	575-3-60	STD/MED	5	51	60	52	239	55	70	58	247
		HIGH		54	60	56	243	59	70	62	251
48GE**17 Horizontal	208/230-3-60	HIGH	5	98	125	104	415	110	125	117	435
	460-3-60	HIGH	5	44	50	46	199	50	60	53	211
	575-3-60	HIGH	5	34	40	36	146	39	45	42	154
48GE**20 Horizontal	208/230-3-60	HIGH	5	103	125	109	508	115	125	123	528
	460-3-60	HIGH	5	49	60	52	252	55	60	59	264
	575-3-60	HIGH	5	39	50	41	194	43	50	46	202
48GE**24 Horizontal	208/230-3-60	HIGH	5	114	150	121	516	126	150	134	536
	460-3-60	HIGH	5	52	60	55	266	58	70	62	278
	575-3-60	HIGH	5	41	50	43	208	46	60	49	216
48GE**28 Horizontal	208/230-3-60	HIGH	5	140	175	147	614	152	200	160	634
	460-3-60	HIGH	5	64	80	67	320	70	90	74	332
	575-3-60	HIGH	5	54	60	56	243	59	70	62	251

Electrical data (cont)

48GE**17-28 Unit HACR Sizing Electrical Data

48GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	NO CONVENIENCE OUTLET OR UNPOWERED CONVENIENCE OUTLET							
				No Power Exhaust				With Power Exhaust (powered from unit)			
				MCA	HACR Breaker	Disconnect Size		MCA	HACR Breaker	Disconnect Size	
						FLA	LRA			FLA	LRA
48GE**17 Vertical	208/230-3-60	STD/MED	5	81	100	84	392	93	110	97	412
		HIGH		83	100	86	396	95	125	100	416
	460-3-60	STD/MED	5	36	50	38	189	42	50	45	201
		HIGH		37	50	39	191	43	50	46	203
	575-3-60	STD/MED	5	28	35	29	140	33	40	35	148
		HIGH		29	35	30	140	34	40	36	148
48GE**20 Vertical	208/230-3-60	STD/MED	5	86	100	89	485	98	125	103	505
		HIGH		88	100	92	489	100	125	106	509
	460-3-60	STD/MED	5	42	50	43	242	48	60	51	254
		HIGH		43	50	45	244	49	60	52	256
	575-3-60	STD/MED	5	33	40	34	188	38	45	40	196
		HIGH		34	45	35	188	38	50	41	196
48GE**24 Vertical	208/230-3-60	STD/MED	5	97	125	101	493	109	125	115	513
		HIGH		110	125	115	511	121	150	129	531
	460-3-60	STD/MED	5	45	60	47	256	51	60	54	268
		HIGH		50	60	53	264	56	70	60	276
	575-3-60	STD/MED	5	35	45	37	202	40	50	42	210
		HIGH		40	50	41	206	44	50	47	214
48GE**28 Vertical	208/230-3-60	STD/MED	5	125	175	129	595	137	175	143	615
		HIGH		135	175	141	609	147	175	155	629
	460-3-60	STD/MED	5	58	70	60	312	64	80	67	324
		HIGH		62	80	65	318	68	90	72	330
	575-3-60	STD/MED	5	49	60	50	237	54	60	56	245
		HIGH		52	60	54	241	57	70	60	249
48GE**17 Horizontal	208/230-3-60	HIGH	5	93	125	98	410	105	125	112	430
	460-3-60	HIGH	5	41	50	44	197	48	60	51	209
	575-3-60	HIGH	5	32	40	34	144	37	45	40	152
48GE**20 Horizontal	208/230-3-60	HIGH	5	98	125	104	503	110	125	117	523
	460-3-60	HIGH	5	47	60	49	250	53	60	57	262
	575-3-60	HIGH	5	37	45	39	192	42	50	45	200
48GE**24 Horizontal	208/230-3-60	HIGH	5	110	125	115	511	121	150	129	531
	460-3-60	HIGH	5	50	60	53	264	56	70	60	276
	575-3-60	HIGH	5	40	50	41	206	44	50	47	214
48GE**28 Horizontal	208/230-3-60	HIGH	5	135	175	141	609	147	175	155	629
	460-3-60	HIGH	5	62	80	65	318	68	90	72	330
	575-3-60	HIGH	5	52	60	54	241	57	70	60	249

48GE**17-28 Unit HACR Sizing Electrical Data (cont)

48GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	WITH POWERED CONVENIENCE OUTLET							
				No Power Exhaust				With Power Exhaust (powered from unit)			
				MCA	HACR Breaker	Disconnect Size		MCA	HACR Breaker	Disconnect Size	
						FLA	LRA			FLA	LRA
48GE**17 Vertical	208/230-3-60	STD/MED	5	86	100	89	397	97	125	103	417
		HIGH		88	100	92	401	100	125	105	421
	460-3-60	STD/MED	5	38	50	40	191	45	50	47	203
		HIGH		39	50	41	193	46	50	48	205
	575-3-60	STD/MED	5	30	35	31	142	34	40	37	150
		HIGH		31	40	32	142	35	45	38	150
48GE**20 Vertical	208/230-3-60	STD/MED	5	91	100	95	490	102	125	109	510
		HIGH		93	110	98	494	105	125	111	514
	460-3-60	STD/MED	5	44	50	46	244	50	60	53	256
		HIGH		45	50	47	246	51	60	54	258
	575-3-60	STD/MED	5	34	45	36	190	39	50	42	198
		HIGH		35	45	37	190	40	50	43	198
48GE**24 Vertical	208/230-3-60	STD/MED	5	102	125	106	498	114	150	120	518
		HIGH		114	150	121	516	126	150	134	536
	460-3-60	STD/MED	5	47	60	49	258	53	60	56	270
		HIGH		52	60	55	266	58	70	62	278
	575-3-60	STD/MED	5	37	50	39	204	42	50	44	212
		HIGH		41	50	43	208	46	60	49	216
48GE**28 Vertical	208/230-3-60	STD/MED	5	130	175	135	600	142	175	148	620
		HIGH		140	175	147	614	152	200	160	634
	460-3-60	STD/MED	5	60	80	62	314	66	80	69	326
		HIGH		64	80	67	320	70	90	74	332
	575-3-60	STD/MED	5	51	60	52	239	55	70	58	247
		HIGH		54	60	56	243	59	70	62	251
48GE**17 Horizontal	208/230-3-60	HIGH	5	98	125	104	415	110	125	117	435
	460-3-60	HIGH	5	44	50	46	199	50	60	53	211
	575-3-60	HIGH	5	34	40	36	146	39	45	42	154
48GE**20 Horizontal	208/230-3-60	HIGH	5	103	125	109	508	115	125	123	528
	460-3-60	HIGH	5	49	60	52	252	55	60	59	264
	575-3-60	HIGH	5	39	50	41	194	43	50	46	202
48GE**24 Horizontal	208/230-3-60	HIGH	5	114	150	121	516	126	150	134	536
	460-3-60	HIGH	5	52	60	55	266	58	70	62	278
	575-3-60	HIGH	5	41	50	43	208	46	60	49	216
48GE**28 Horizontal	208/230-3-60	HIGH	5	140	175	147	614	152	200	160	634
	460-3-60	HIGH	5	64	80	67	320	70	90	74	332
	575-3-60	HIGH	5	54	60	56	243	59	70	62	251

Electrical data (cont)

50GE**17 Unit Wire/Fuse Sizing Electrical Data

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	HIGH SCCR kA[a]	ELECTRIC HEATER				NO CONVENIENCE OUTLET or UNPOWERED CONVENIENCE OUTLET							
									No Power Exhaust				With Power Exhaust (powered from unit)			
					STD SCCR CRHEATER ****00	HIGH SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	Fuse or HACR Breaker	Disconnect Size		MCA	Fuse or HACR Breaker	Disconnect Size	
											FLA	LRA			FLA	LRA
50GE**17 Vertical	208/230-3-60	STD/MED	5	60	—	—	—	—	81	100	84	392	93	110	97	412
					454A	454A	18.8/25.0	52.1/60.1	81/91	100/100	84/84	392/392	96/106	110/110	97/97	412/412
					455A	455A	37.6/50.0	104.2/120.3	146/136	150/150	135/153	392/392	161/151	175/175	148/167	412/412
					456A	456A	56.3/75.0	156.4/180.4	172/196	200/225	195/222	392/392	187/211	200/225	208/236	412/412
		HIGH	5	60	—	—	—	—	83	100	86	396	95	125	100	416
					454A	454A	18.8/25.0	52.1/60.1	84/94	100/100	86/86	396/396	99/109	125/125	100/100	416/416
					455A	455A	37.6/50.0	104.2/120.3	149/139	150/150	137/156	396/396	164/154	175/175	151/169	416/416
					456A	456A	56.3/75.0	156.4/180.4	175/199	200/225	197/225	396/396	190/214	200/225	211/238	416/416
	460-3-60	STD/MED	5	65	—	—	—	—	36	50	38	189	42	50	45	201
					457A	457A	25.0	30.1	45	50	42	189	53	60	49	201
					458A	458A	50.0	60.1	68	70	76	189	75	80	83	201
					459A	459A	75.0	90.2	98	100	111	189	106	110	118	201
		HIGH	5	65	—	—	—	—	37	50	39	191	43	50	46	203
					457A	457A	25.0	30.1	46	50	43	191	54	60	50	203
					458A	458A	50.0	60.1	69	80	77	191	77	80	84	203
					459A	459A	75.0	90.2	99	100	112	191	107	110	119	203
	575-3-60	STD/MED	5	—	—	—	—	—	28	35	29	140	33	40	35	148
					460A	—	24.8	23.9	36	40	33	140	42	45	39	148
					461A	—	49.6	47.7	66	70	61	140	72	80	66	148
					462A	—	74.4	71.6	78	80	88	140	84	90	94	148
		HIGH	5	—	—	—	—	—	29	35	30	140	34	40	36	148
					460A	—	24.8	23.9	37	40	34	140	43	45	40	148
					461A	—	49.6	47.7	67	70	62	140	73	80	67	148
					462A	—	74.4	71.6	79	90	89	140	85	90	95	148
50GE**17 Horizontal	208/230-3-60	HIGH	5	60	—	—	—	—	93	125	98	410	105	125	112	430
					463A	463A	18.8/25.0	52.1/60.1	97/107	125/125	98/98	410/410	111/121	125/125	112/112	430/430
					464A	464A	37.6/50.0	104.2/120.3	162/152	175/175	149/167	410/410	176/167	200/175	162/181	430/430
					465A	465A	56.3/75.0	156.4/180.4	188/212	200/225	209/236	410/410	203/227	225/250	222/250	430/430
	460-3-60	HIGH	5	65	—	—	—	—	41	50	44	197	48	60	51	209
					466A	466A	25.0	30.1	52	60	47	197	59	60	55	209
					467A	467A	50.0	60.1	74	80	82	197	82	90	89	209
					468A	468A	75.0	90.2	104	110	117	197	112	125	124	209
	575-3-60	HIGH	5	—	—	—	—	—	32	40	34	144	37	45	40	152
					469A	—	24.8	23.9	41	45	38	144	47	50	44	152
					470A	—	49.6	47.7	71	80	65	144	77	80	71	152
					471A	—	74.4	71.6	83	90	93	144	89	90	98	152

NOTE(S):

a. High SCCR (Short Circuit Current Rating) is not available on the following: units with Humidi-MiZer system, low ambient controls, phase loss monitor, non-fused disconnect, and 575V models.

Electrical data (cont)

50GE**17 Unit Wire/Fuse Sizing Electrical Data (cont)

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			WITH POWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	Fuse or HACR Breaker	FLA	LRA	MCA	Fuse or HACR Breaker	FLA	LRA
50GE**17 Vertical	208/230-3-60	STD/MED	5	—	—	—	86	100	89	397	97	125	103	417
				454A	18.8/25.0	52.1/60.1	87/97	100/100	89/89	397/397	102/112	125/125	103/103	417/417
				455A	37.6/50.0	104.2/120.3	152/142	175/150	140/159	397/397	167/157	175/175	154/172	417/417
				456A	56.3/75.0	156.4/180.4	178/202	200/225	200/228	397/397	193/217	200/225	214/241	417/417
		HIGH	5	—	—	—	88	100	92	401	100	125	105	421
				454A	18.8/25.0	52.1/60.1	90/100	100/100	92/92	401/401	105/115	125/125	105/105	421/421
				455A	37.6/50.0	104.2/120.3	155/145	175/150	143/161	401/401	170/160	175/175	156/175	421/421
				456A	56.3/75.0	156.4/180.4	181/205	200/225	203/230	401/401	196/220	200/225	216/244	421/421
	460-3-60	STD/MED	5	—	—	—	38	50	40	191	45	50	47	203
				457A	25.0	30.1	48	50	44	191	56	60	51	203
				458A	50.0	60.1	70	80	79	191	78	80	86	203
				459A	75.0	90.2	100	110	113	191	108	110	120	203
		HIGH	5	—	—	—	39	50	41	193	46	50	48	205
				457A	25.0	30.1	49	50	45	193	57	60	52	205
				458A	50.0	60.1	72	80	80	193	79	80	87	205
				459A	75.0	90.2	102	110	114	193	110	110	121	205
	575-3-60	STD/MED	5	—	—	—	30	35	31	142	34	40	37	150
				460A	24.8	23.9	38	40	35	142	44	45	41	150
				461A	49.6	47.7	68	70	63	142	74	80	68	150
				462A	74.4	71.6	80	90	90	142	86	90	96	150
		HIGH	5	—	—	—	31	40	32	142	35	45	38	150
				460A	24.8	23.9	40	40	36	142	46	50	42	150
				461A	49.6	47.7	69	70	64	142	75	80	69	150
				462A	74.4	71.6	81	90	91	142	87	90	97	150
50GE**17 Horizontal	208/230-3-60	HIGH	5	—	—	—	98	125	104	415	110	125	117	435
				463A	18.8/25.0	52.1/60.1	103/113	125/125	104/104	415/415	117/127	125/150	117/117	435/435
				464A	37.6/50.0	104.2/120.3	168/158	175/175	154/173	415/415	182/173	200/175	168/186	435/435
				465A	56.3/75.0	156.4/180.4	194/218	200/250	214/242	415/415	209/233	225/250	228/256	435/435
	460-3-60	HIGH	5	—	—	—	44	50	46	199	50	60	53	211
				466A	25.0	30.1	54	60	50	199	62	70	57	211
				467A	50.0	60.1	77	80	85	199	85	90	92	211
				468A	75.0	90.2	107	125	119	199	115	125	126	211
	575-3-60	HIGH	5	—	—	—	34	40	36	146	39	45	42	154
				469A	24.8	23.9	44	45	40	146	50	50	46	154
				470A	49.6	47.7	73	80	67	146	79	80	73	154
				471A	74.4	71.6	85	90	95	146	91	100	100	154

Electrical data (cont)

50GE**17 Unit HACR Sizing Electrical Data

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			NO CONVENIENCE OUTLET or UNPOWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	HACR Breaker	FLA	LRA	MCA	HACR Breaker	FLA	LRA
50GE**17 Vertical	208/230-3-60	STD/MED	5	—	—	—	81	100	84	392	93	110	97	412
				454A	18.8/25.0	52.1/60.1	91/91	100/100	84/84	392/392	106/106	110/110	97/97	412/412
				455A	37.6/50.0	104.2/120.3	146/146	150/150	135/153	392/392	161/161	175/175	148/167	412/412
				456A	56.3/75.0	156.4/180.4	196/196	200/225	195/222	392/392	211/211	225/225	208/236	412/412
		HIGH	5	—	—	—	83	100	86	396	95	125	100	416
				454A	18.8/25.0	52.1/60.1	94/94	100/100	86/86	396/396	109/109	125/125	100/100	416/416
				455A	37.6/50.0	104.2/120.3	149/149	150/150	137/156	396/396	164/164	175/175	151/169	416/416
				456A	56.3/75.0	156.4/180.4	199/199	200/225	197/225	396/396	214/214	225/225	211/238	416/416
	460-3-60	STD/MED	5	—	—	—	36	50	38	189	42	50	45	201
				457A	25.0	30.1	45	50	42	189	53	60	49	201
				458A	50.0	60.1	68	70	76	189	75	80	83	201
				459A	75.0	90.2	98	100	111	189	106	110	118	201
		HIGH	5	—	—	—	37	50	39	191	43	50	46	203
				457A	25.0	30.1	46	50	43	191	54	60	50	203
				458A	50.0	60.1	69	80	77	191	77	80	84	203
				459A	75.0	90.2	99	100	112	191	107	110	119	203
	575-3-60	STD/MED	5	—	—	—	28	35	29	140	33	40	35	148
				460A	24.8	23.9	36	40	33	140	42	45	39	148
				461A	49.6	47.7	66	70	61	140	72	80	66	148
				462A	74.4	71.6	78	80	88	140	84	90	94	148
		HIGH	5	—	—	—	29	35	30	140	34	40	36	148
				460A	24.8	23.9	37	40	34	140	43	45	40	148
				461A	49.6	47.7	67	70	62	140	73	80	67	148
				462A	74.4	71.6	79	90	89	140	85	90	95	148
50GE**17 Horizontal	208/230-3-60	HIGH	5	—	—	—	93	125	98	410	105	125	112	430
				463A	18.8/25.0	52.1/60.1	107/107	125/125	98/98	410/410	121/121	125/125	112/112	430/430
				464A	37.6/50.0	104.2/120.3	162/162	175/175	149/167	410/410	176/176	200/200	162/181	430/430
				465A	56.3/75.0	156.4/180.4	212/212	225/225	209/236	410/410	227/227	250/250	222/250	430/430
	460-3-60	HIGH	5	—	—	—	41	50	44	197	48	60	51	209
				466A	25.0	30.1	52	60	47	197	59	60	55	209
				467A	50.0	60.1	74	80	82	197	82	90	89	209
				468A	75.0	90.2	104	110	117	197	112	125	124	209
	575-3-60	HIGH	5	—	—	—	32	40	34	144	37	45	40	152
				469A	24.8	23.9	41	45	38	144	47	50	44	152
				470A	49.6	47.7	71	80	65	144	77	80	71	152
				471A	74.4	71.6	83	90	93	144	89	90	98	152

Electrical data (cont)

50GE**17 Unit HACR Sizing Electrical Data (cont)

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			WITH POWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	HACR Breaker	FLA	LRA	MCA	HACR Breaker	FLA	LRA
50GE**17 Vertical	208/230-3-60	STD/MED	5	—	—	—	86	100	89	397	97	125	103	417
				454A	18.8/25.0	52.1/60.1	97/97	100/100	89/89	397/397	112/112	125/125	103/103	417/417
				455A	37.6/50.0	104.2/120.3	152/152	175/175	140/159	397/397	167/167	175/175	154/172	417/417
				456A	56.3/75.0	156.4/180.4	202/202	225/225	200/228	397/397	217/217	225/225	214/241	417/417
		HIGH	5	—	—	—	88	100	92	401	100	125	105	421
				454A	18.8/25.0	52.1/60.1	100/100	100/100	92/92	401/401	115/115	125/125	105/105	421/421
				455A	37.6/50.0	104.2/120.3	155/155	175/175	143/161	401/401	170/170	175/175	156/175	421/421
				456A	56.3/75.0	156.4/180.4	205/205	225/225	203/230	401/401	220/220	225/225	216/244	421/421
	460-3-60	STD/MED	5	—	—	—	38	50	40	191	45	50	47	203
				457A	25.0	30.1	48	50	44	191	56	60	51	203
				458A	50.0	60.1	70	80	79	191	78	80	86	203
				459A	75.0	90.2	100	110	113	191	108	110	120	203
		HIGH	5	—	—	—	39	50	41	193	46	50	48	205
				457A	25.0	30.1	49	50	45	193	57	60	52	205
				458A	50.0	60.1	72	80	80	193	79	80	87	205
				459A	75.0	90.2	102	110	114	193	110	110	121	205
	575-3-60	STD/MED	5	—	—	—	30	35	31	142	34	40	37	150
				460A	24.8	23.9	38	40	35	142	44	45	41	150
				461A	49.6	47.7	68	70	63	142	74	80	68	150
				462A	74.4	71.6	80	90	90	142	86	90	96	150
		HIGH	5	—	—	—	31	40	32	142	35	45	38	150
				460A	24.8	23.9	40	40	36	142	46	50	42	150
				461A	49.6	47.7	69	70	64	142	75	80	69	150
				462A	74.4	71.6	81	90	91	142	87	90	97	150
50GE**17 Horizontal	208/230-3-60	HIGH	5	—	—	—	98	125	104	415	110	125	117	435
				463A	18.8/25.0	52.1/60.1	113/113	125/125	104/104	415/415	127/127	150/150	117/117	435/435
				464A	37.6/50.0	104.2/120.3	168/168	175/175	154/173	415/415	182/182	200/200	168/186	435/435
				465A	56.3/75.0	156.4/180.4	218/218	225/250	214/242	415/415	233/233	250/250	228/256	435/435
	460-3-60	HIGH	5	—	—	—	44	50	46	199	50	60	53	211
				466A	25.0	30.1	54	60	50	199	62	70	57	211
				467A	50.0	60.1	77	80	85	199	85	90	92	211
				468A	75.0	90.2	107	125	119	199	115	125	126	211
	575-3-60	HIGH	5	—	—	—	34	40	36	146	39	45	42	154
				469A	24.8	23.9	44	45	40	146	50	50	46	154
				470A	49.6	47.7	73	80	67	146	79	80	73	154
				471A	74.4	71.6	85	90	95	146	91	100	100	154

Electrical data (cont)

50GE**20 Unit Wire/Fuse Sizing Electrical Data

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	HIGH SCCR kA[a]	ELECTRIC HEATER				NO CONVENIENCE OUTLET or UNPOWERED CONVENIENCE OUTLET							
									No Power Exhaust				With Power Exhaust (powered from unit)			
					STD SCCR CRHEATER ****00	HIGH SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	Fuse or HACR Breaker	Disconnect Size		MCA	Fuse or HACR Breaker	Disconnect Size	
											FLA	LRA			FLA	LRA
50GE**20 Vertical	208/230-3-60	STD/MED	5	60	—	—	—	—	86	100	89	485	98	125	103	505
					454A	454A	18.8/25.0	52.1/60.1	86/91	100/100	89/89	485/485	98/106	125/125	103/103	505/505
					455A	455A	37.6/50.0	104.2/120.3	146/136	150/150	135/153	485/485	161/151	175/175	148/167	505/505
					456A	456A	56.3/75.0	156.4/180.4	172/196	200/225	195/222	485/485	187/211	200/225	208/236	505/505
		HIGH	5	60	—	—	—	—	88	100	92	489	100	125	106	509
					454A	454A	18.8/25.0	52.1/60.1	88/94	100/100	92/92	489/489	100/109	125/125	106/106	509/509
					455A	455A	37.6/50.0	104.2/120.3	149/139	150/150	137/156	489/489	164/154	175/175	151/169	509/509
					456A	456A	56.3/75.0	156.4/180.4	175/199	200/225	197/225	489/489	190/214	200/225	211/238	509/509
	460-3-60	STD/MED	5	65	—	—	—	—	42	50	43	242	48	60	51	254
					457A	457A	25.0	30.1	45	50	43	242	53	60	51	254
					458A	458A	50.0	60.1	68	70	76	242	75	80	83	254
					459A	459A	75.0	90.2	98	100	111	242	106	110	118	254
		HIGH	5	65	—	—	—	—	43	50	45	244	49	60	52	256
					457A	457A	25.0	30.1	46	50	45	244	54	60	52	256
					458A	458A	50.0	60.1	69	80	77	244	77	80	84	256
					459A	459A	75.0	90.2	99	100	112	244	107	110	119	256
	575-3-60	STD/MED	5	—	—	—	—	—	33	40	34	188	38	45	40	196
					460A	—	24.8	23.9	36	40	34	188	42	45	40	196
					461A	—	49.6	47.7	66	70	61	188	72	80	66	196
					462A	—	74.4	71.6	78	80	88	188	84	90	94	196
		HIGH	5	—	—	—	—	—	34	45	35	188	38	50	41	196
					460A	—	24.8	23.9	37	45	35	188	43	50	41	196
					461A	—	49.6	47.7	67	70	62	188	73	80	67	196
					462A	—	74.4	71.6	79	90	89	188	85	90	95	196
50GE**20 Horizontal	208/230-3-60	HIGH	5	60	—	—	—	—	98	125	104	503	110	125	117	523
					463A	463A	18.8/25.0	52.1/60.1	98/107	125/125	104/104	503/503	111/121	125/125	117/117	523/523
					464A	464A	37.6/50.0	104.2/120.3	162/152	175/175	149/167	503/503	176/167	200/175	162/181	523/523
					465A	465A	56.3/75.0	156.4/180.4	188/212	200/225	209/236	503/503	203/227	225/250	222/250	523/523
	460-3-60	HIGH	5	65	—	—	—	—	47	60	49	250	53	60	57	262
					466A	466A	25.0	30.1	52	60	49	250	59	60	57	262
					467A	467A	50.0	60.1	74	80	82	250	82	90	89	262
					468A	468A	75.0	90.2	104	110	117	250	112	125	124	262
	575-3-60	HIGH	5	—	—	—	—	—	37	45	39	192	42	50	45	200
					469A	—	24.8	23.9	41	45	39	192	47	50	45	200
					470A	—	49.6	47.7	71	80	65	192	77	80	71	200
					471A	—	74.4	71.6	83	90	93	192	89	90	98	200

NOTE(S):

a. High SCCR (Short Circuit Current Rating) is not available on the following: units with Humidi-MiZer system, low ambient controls, phase loss monitor, non-fused disconnect, and 575V models.

Electrical data (cont)

50GE**20 Unit Wire/Fuse Sizing Electrical Data (cont)

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			WITH POWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	Fuse or HACR Breaker	FLA	LRA	MCA	Fuse or HACR Breaker	FLA	LRA
50GE**20 Vertical	208/230-3-60	STD/MED	5	—	—	—	91	100	95	490	102	125	109	510
				454A	18.8/25.0	52.1/60.1	91/97	100/100	95/95	490/490	102/112	125/125	109/109	510/510
				455A	37.6/50.0	104.2/120.3	152/142	175/150	140/159	490/490	167/157	175/175	154/172	510/510
				456A	56.3/75.0	156.4/180.4	178/202	200/225	200/228	490/490	193/217	200/225	214/241	510/510
		HIGH	5	—	—	—	93	110	98	494	105	125	111	514
				454A	18.8/25.0	52.1/60.1	93/100	110/110	98/98	494/494	105/115	125/125	111/111	514/514
				455A	37.6/50.0	104.2/120.3	155/145	175/150	143/161	494/494	170/160	175/175	156/175	514/514
				456A	56.3/75.0	156.4/180.4	181/205	200/225	203/230	494/494	196/220	200/225	216/244	514/514
	460-3-60	STD/MED	5	—	—	—	44	50	46	244	50	60	53	256
				457A	25.0	30.1	48	50	46	244	56	60	53	256
				458A	50.0	60.1	70	80	79	244	78	80	86	256
				459A	75.0	90.2	100	110	113	244	108	110	120	256
		HIGH	5	—	—	—	45	50	47	246	51	60	54	258
				457A	25.0	30.1	49	50	47	246	57	60	54	258
				458A	50.0	60.1	72	80	80	246	79	80	87	258
				459A	75.0	90.2	102	110	114	246	110	110	121	258
	575-3-60	STD/MED	5	—	—	—	34	45	36	190	39	50	42	198
				460A	24.8	23.9	38	45	36	190	44	50	42	198
				461A	49.6	47.7	68	70	63	190	74	80	68	198
				462A	74.4	71.6	80	90	90	190	86	90	96	198
		HIGH	5	—	—	—	35	45	37	190	40	50	43	198
				460A	24.8	23.9	40	45	37	190	46	50	43	198
				461A	49.6	47.7	69	70	64	190	75	80	69	198
				462A	74.4	71.6	81	90	91	190	87	90	97	198
50GE**20 Horizontal	208/230-3-60	HIGH	5	—	—	—	103	125	109	508	115	125	123	528
				463A	18.8/25.0	52.1/60.1	103/113	125/125	109/109	508/508	117/127	125/150	123/123	528/528
				464A	37.6/50.0	104.2/120.3	168/158	175/175	154/173	508/508	182/173	200/175	168/186	528/528
				465A	56.3/75.0	156.4/180.4	194/218	200/250	214/242	508/508	209/233	225/250	228/256	528/528
	460-3-60	HIGH	5	—	—	—	49	60	52	252	55	60	59	264
				466A	25.0	30.1	54	60	52	252	62	70	59	264
				467A	50.0	60.1	77	80	85	252	85	90	92	264
				468A	75.0	90.2	107	125	119	252	115	125	126	264
	575-3-60	HIGH	5	—	—	—	39	50	41	194	43	50	46	202
				469A	24.8	23.9	44	50	41	194	50	50	46	202
				470A	49.6	47.7	73	80	67	194	79	80	73	202
				471A	74.4	71.6	85	90	95	194	91	100	100	202

Electrical data (cont)

50GE**20 Unit HRCR Sizing Electrical Data

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			NO CONVENIENCE OUTLET or UNPOWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	HACR Breaker	FLA	LRA	MCA	HACR Breaker	FLA	LRA
50GE**20 Vertical	208/230-3-60	STD/MED	5	—	—	—	86	100	89	485	98	125	103	505
				454A	18.8/25.0	52.1/60.1	91/91	100/100	89/89	485/485	106/106	125/125	103/103	505/505
				455A	37.6/50.0	104.2/120.3	146/146	150/150	135/153	485/485	161/161	175/175	148/167	505/505
				456A	56.3/75.0	156.4/180.4	196/196	200/225	195/222	485/485	211/211	225/225	208/236	505/505
		HIGH	5	—	—	—	88	100	92	489	100	125	106	509
				454A	18.8/25.0	52.1/60.1	94/94	100/100	92/92	489/489	109/109	125/125	106/106	509/509
				455A	37.6/50.0	104.2/120.3	149/149	150/150	137/156	489/489	164/164	175/175	151/169	509/509
				456A	56.3/75.0	156.4/180.4	199/199	200/225	197/225	489/489	214/214	225/225	211/238	509/509
	460-3-60	STD/MED	5	—	—	—	42	50	43	242	48	60	51	254
				457A	25.0	30.1	45	50	43	242	53	60	51	254
				458A	50.0	60.1	68	70	76	242	75	80	83	254
				459A	75.0	90.2	98	100	111	242	106	110	118	254
		HIGH	5	—	—	—	43	50	45	244	49	60	52	256
				457A	25.0	30.1	46	50	45	244	54	60	52	256
				458A	50.0	60.1	69	80	77	244	77	80	84	256
				459A	75.0	90.2	99	100	112	244	107	110	119	256
	575-3-60	STD/MED	5	—	—	—	33	40	34	188	38	45	40	196
				460A	24.8	23.9	36	40	34	188	42	45	40	196
				461A	49.6	47.7	66	70	61	188	72	80	66	196
				462A	74.4	71.6	78	80	88	188	84	90	94	196
		HIGH	5	—	—	—	34	45	35	188	38	50	41	196
				460A	24.8	23.9	37	45	35	188	43	50	41	196
				461A	49.6	47.7	67	70	62	188	73	80	67	196
				462A	74.4	71.6	79	90	89	188	85	90	95	196
50GE**20 Horizontal	208/230-3-60	HIGH	5	—	—	—	98	125	104	503	110	125	117	523
				463A	18.8/25.0	52.1/60.1	107/107	125/125	104/104	503/503	121/121	125/125	117/117	523/523
				464A	37.6/50.0	104.2/120.3	162/162	175/175	149/167	503/503	176/176	200/200	162/181	523/523
				465A	56.3/75.0	156.4/180.4	212/212	225/225	209/236	503/503	227/227	250/250	222/250	523/523
	460-3-60	HIGH	5	—	—	—	47	60	49	250	53	60	57	262
				466A	25.0	30.1	52	60	49	250	59	60	57	262
				467A	50.0	60.1	74	80	82	250	82	90	89	262
				468A	75.0	90.2	104	110	117	250	112	125	124	262
	575-3-60	HIGH	5	—	—	—	37	45	39	192	42	50	45	200
				469A	24.8	23.9	41	45	39	192	47	50	45	200
				470A	49.6	47.7	71	80	65	192	77	80	71	200
				471A	74.4	71.6	83	90	93	192	89	90	98	200

Electrical data (cont)

50GE**20 Unit HACR Sizing Electrical Data (cont)

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			WITH POWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	HACR Breaker	FLA	LRA	MCA	HACR Breaker	FLA	LRA
50GE**20 Vertical	208/230-3-60	STD/MED	5	—	—	—	91	100	95	490	102	125	109	510
				454A	18.8/25.0	52.1/60.1	97/97	100/100	95/95	490/490	112/112	125/125	109/109	510/510
				455A	37.6/50.0	104.2/120.3	152/152	175/175	140/159	490/490	167/167	175/175	154/172	510/510
				456A	56.3/75.0	156.4/180.4	202/202	225/225	200/228	490/490	217/217	225/225	214/241	510/510
		HIGH	5	—	—	—	93	110	98	494	105	125	111	514
				454A	18.8/25.0	52.1/60.1	100/100	110/110	98/98	494/494	115/115	125/125	111/111	514/514
				455A	37.6/50.0	104.2/120.3	155/155	175/175	143/161	494/494	170/170	175/175	156/175	514/514
				456A	56.3/75.0	156.4/180.4	205/205	225/225	203/230	494/494	220/220	225/225	216/244	514/514
	460-3-60	STD/MED	5	—	—	—	44	50	46	244	50	60	53	256
				457A	25.0	30.1	48	50	46	244	56	60	53	256
				458A	50.0	60.1	70	80	79	244	78	80	86	256
				459A	75.0	90.2	100	110	113	244	108	110	120	256
		HIGH	5	—	—	—	45	50	47	246	51	60	54	258
				457A	25.0	30.1	49	50	47	246	57	60	54	258
				458A	50.0	60.1	72	80	80	246	79	80	87	258
				459A	75.0	90.2	102	110	114	246	110	110	121	258
	575-3-60	STD/MED	5	—	—	—	34	45	36	190	39	50	42	198
				460A	24.8	23.9	38	45	36	190	44	50	42	198
				461A	49.6	47.7	68	70	63	190	74	80	68	198
				462A	74.4	71.6	80	90	90	190	86	90	96	198
		HIGH	5	—	—	—	35	45	37	190	40	50	43	198
				460A	24.8	23.9	40	45	37	190	46	50	43	198
				461A	49.6	47.7	69	70	64	190	75	80	69	198
				462A	74.4	71.6	81	90	91	190	87	90	97	198
50GE**20 Horizontal	208/230-3-60	HIGH	5	—	—	—	103	125	109	508	115	125	123	528
				463A	18.8/25.0	52.1/60.1	113/113	125/125	109/109	508/508	127/127	150/150	123/123	528/528
				464A	37.6/50.0	104.2/120.3	168/168	175/175	154/173	508/508	182/182	200/200	168/186	528/528
				465A	56.3/75.0	156.4/180.4	218/218	225/250	214/242	508/508	233/233	250/250	228/256	528/528
	460-3-60	HIGH	5	—	—	—	49	60	52	252	55	60	59	264
				466A	25.0	30.1	54	60	52	252	62	70	59	264
				467A	50.0	60.1	77	80	85	252	85	90	92	264
				468A	75.0	90.2	107	125	119	252	115	125	126	264
	575-3-60	HIGH	5	—	—	—	39	50	41	194	43	50	46	202
				469A	24.8	23.9	44	50	41	194	50	50	46	202
				470A	49.6	47.7	73	80	67	194	79	80	73	202
				471A	74.4	71.6	85	90	95	194	91	100	100	202

Electrical data (cont)

50GE**24 Unit Wire/Fuse Sizing Electrical Data

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	HIGH SCCR kA[a]	ELECTRIC HEATER				NO CONVENIENCE OUTLET or UNPOWERED CONVENIENCE OUTLET							
									No Power Exhaust				With Power Exhaust (powered from unit)			
					STD SCCR CRHEATER ****00	HIGH SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	Fuse or HACR Breaker	Disconnect Size		MCA	Fuse or HACR Breaker	Disconnect Size	
											FLA	LRA			FLA	LRA
50GE**24 Vertical	208/230-3-60	STD/MED	5	60	—	—	—	—	97	125	101	493	109	125	115	513
					454A	454A	18.8/25.0	52.1/60.1	97/97	125/125	101/101	493/493	109/109	125/125	115/115	513/513
					455A	455A	37.6/50.0	104.2/120.3	146/136	150/150	135/153	493/493	161/151	175/175	148/167	513/513
					456A	456A	56.3/75.0	156.4/180.4	172/196	200/225	195/222	493/493	187/211	200/225	208/236	513/513
		HIGH	5	60	—	—	—	—	110	125	115	511	121	150	129	531
					454A	454A	18.8/25.0	52.1/60.1	110/110	125/125	115/115	511/511	121/121	150/150	129/129	531/531
					455A	455A	37.6/50.0	104.2/120.3	162/152	175/175	149/167	511/511	176/167	200/175	162/181	531/531
					456A	456A	56.3/75.0	156.4/180.4	188/212	200/225	209/236	511/511	203/227	225/250	222/250	531/531
	460-3-60	STD/MED	5	65	—	—	—	—	45	60	47	256	51	60	54	268
					457A	457A	25.0	30.1	45	60	47	256	53	60	54	268
					458A	458A	50.0	60.1	68	70	76	256	75	80	83	268
					459A	459A	75.0	90.2	98	100	111	256	106	110	118	268
		HIGH	5	65	—	—	—	—	50	60	53	264	56	70	60	276
					457A	457A	25.0	30.1	52	60	53	264	59	70	60	276
					458A	458A	50.0	60.1	74	80	82	264	82	90	89	276
					459A	459A	75.0	90.2	104	110	117	264	112	125	124	276
	575-3-60	STD/MED	5	—	—	—	—	—	35	45	37	202	40	50	42	210
					460A	—	24.8	23.9	36	45	37	202	42	50	42	210
					461A	—	49.6	47.7	66	70	61	202	72	80	66	210
					462A	—	74.4	71.6	78	80	88	202	84	90	94	210
		HIGH	5	—	—	—	—	—	40	50	41	206	44	50	47	214
					460A	—	24.8	23.9	41	50	41	206	47	50	47	214
					461A	—	49.6	47.7	71	80	65	206	77	80	71	214
					462A	—	74.4	71.6	83	90	93	206	89	90	98	214
50GE**24 Horizontal	208/230-3-60	HIGH	5	60	—	—	—	—	110	125	115	511	121	150	129	531
					463A	463A	18.8/25.0	52.1/60.1	110/110	125/125	115/115	511/511	121/121	150/150	129/129	531/531
					464A	464A	37.6/50.0	104.2/120.3	162/152	175/175	149/167	511/511	176/167	200/175	162/181	531/531
					465A	465A	56.3/75.0	156.4/180.4	188/212	200/225	209/236	511/511	203/227	225/250	222/250	531/531
	460-3-60	HIGH	5	65	—	—	—	—	50	60	53	264	56	70	60	276
					466A	466A	25.0	30.1	52	60	53	264	59	70	60	276
					467A	467A	50.0	60.1	74	80	82	264	82	90	89	276
					468A	468A	75.0	90.2	104	110	117	264	112	125	124	276
	575-3-60	HIGH	5	—	—	—	—	—	40	50	41	206	44	50	47	214
					469A	—	24.8	23.9	41	50	41	206	47	50	47	214
					470A	—	49.6	47.7	71	80	65	206	77	80	71	214
					471A	—	74.4	71.6	83	90	93	206	89	90	98	214

NOTE(S):

a. High SCCR (Short Circuit Current Rating) is not available on the following: units with Humidi-MiZer system, low ambient controls, phase loss monitor, non-fused disconnect, and 575V models.

Electrical data (cont)

50GE**24 Unit Wire/Fuse Sizing Electrical Data (cont)

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			WITH POWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	Fuse or HACR Breaker	FLA	LRA	MCA	Fuse or HACR Breaker	FLA	LRA
50GE**24 Vertical	208/230-3-60	STD/MED	5	—	—	—	102	125	106	498	114	150	120	518
				454A	18.8/25.0	52.1/60.1	102/102	125/125	106/106	498/498	114/114	150/150	120/120	518/518
				455A	37.6/50.0	104.2/120.3	152/142	175/150	140/159	498/498	167/157	175/175	154/172	518/518
				456A	56.3/75.0	156.4/180.4	178/202	200/225	200/228	498/498	193/217	200/225	214/241	518/518
		HIGH	5	—	—	—	114	150	121	516	126	150	134	536
				454A	18.8/25.0	52.1/60.1	114/114	150/150	121/121	516/516	126/127	150/150	134/134	536/536
				455A	37.6/50.0	104.2/120.3	168/158	175/175	154/173	516/516	182/173	200/175	168/186	536/536
				456A	56.3/75.0	156.4/180.4	194/218	200/250	214/242	516/516	209/233	225/250	228/256	536/536
	460-3-60	STD/MED	5	—	—	—	47	60	49	258	53	60	56	270
				457A	25.0	30.1	48	60	49	258	56	60	56	270
				458A	50.0	60.1	70	80	79	258	78	80	86	270
				459A	75.0	90.2	100	110	113	258	108	110	120	270
		HIGH	5	—	—	—	52	60	55	266	58	70	62	278
				457A	25.0	30.1	54	60	55	266	62	70	62	278
				458A	50.0	60.1	77	80	85	266	85	90	92	278
				459A	75.0	90.2	107	125	119	266	115	125	126	278
	575-3-60	STD/MED	5	—	—	—	37	50	39	204	42	50	44	212
				460A	24.8	23.9	38	50	39	204	44	50	44	212
				461A	49.6	47.7	68	70	63	204	74	80	68	212
				462A	74.4	71.6	80	90	90	204	86	90	96	212
		HIGH	5	—	—	—	41	50	43	208	46	60	49	216
				460A	24.8	23.9	44	50	43	208	50	60	49	216
				461A	49.6	47.7	73	80	67	208	79	80	73	216
				462A	74.4	71.6	85	90	95	208	91	100	100	216
50GE**24 Horizontal	208/230-3-60	HIGH	5	—	—	—	114	150	121	516	126	150	134	536
				463A	18.8/25.0	52.1/60.1	114/114	150/150	121/121	516/516	126/127	150/150	134/134	536/536
				464A	37.6/50.0	104.2/120.3	168/158	175/175	154/173	516/516	182/173	200/175	168/186	536/536
				465A	56.3/75.0	156.4/180.4	194/218	200/250	214/242	516/516	209/233	225/250	228/256	536/536
	460-3-60	HIGH	5	—	—	—	52	60	55	266	58	70	62	278
				466A	25.0	30.1	54	60	55	266	62	70	62	278
				467A	50.0	60.1	77	80	85	266	85	90	92	278
				468A	75.0	90.2	107	125	119	266	115	125	126	278
	575-3-60	HIGH	5	—	—	—	41	50	43	208	46	60	49	216
				469A	24.8	23.9	44	50	43	208	50	60	49	216
				470A	49.6	47.7	73	80	67	208	79	80	73	216
				471A	74.4	71.6	85	90	95	208	91	100	100	216

Electrical data (cont)

50GE**24 Unit HACR Sizing Electrical Data

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			NO CONVENIENCE OUTLET or UNPOWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	HACR Breaker	FLA	LRA	MCA	HACR Breaker	FLA	LRA
50GE**24 Vertical	208/230-3-60	STD/MED	5	—	—	—	97	125	101	493	109	125	115	513
				454A	18.8/25.0	52.1/60.1	97/97	125/125	101/101	493/493	109/109	125/125	115/115	513/513
				455A	37.6/50.0	104.2/120.3	146/146	150/150	135/153	493/493	161/161	175/175	148/167	513/513
				456A	56.3/75.0	156.4/180.4	196/196	200/225	195/222	493/493	211/211	225/225	208/236	513/513
		HIGH	5	—	—	—	110	125	115	511	121	150	129	531
				454A	18.8/25.0	52.1/60.1	110/110	125/125	115/115	511/511	121/121	150/150	129/129	531/531
				455A	37.6/50.0	104.2/120.3	162/162	175/175	149/167	511/511	176/176	200/200	162/181	531/531
				456A	56.3/75.0	156.4/180.4	212/212	225/225	209/236	511/511	227/227	250/250	222/250	531/531
	460-3-60	STD/MED	5	—	—	—	45	60	47	256	51	60	54	268
				457A	25.0	30.1	45	60	47	256	53	60	54	268
				458A	50.0	60.1	68	70	76	256	75	80	83	268
				459A	75.0	90.2	98	100	111	256	106	110	118	268
		HIGH	5	—	—	—	50	60	53	264	56	70	60	276
				457A	25.0	30.1	52	60	53	264	59	70	60	276
				458A	50.0	60.1	74	80	82	264	82	90	89	276
				459A	75.0	90.2	104	110	117	264	112	125	124	276
	575-3-60	STD/MED	5	—	—	—	35	45	37	202	40	50	42	210
				460A	24.8	23.9	36	45	37	202	42	50	42	210
				461A	49.6	47.7	66	70	61	202	72	80	66	210
				462A	74.4	71.6	78	80	88	202	84	90	94	210
		HIGH	5	—	—	—	40	50	41	206	44	50	47	214
				460A	24.8	23.9	41	50	41	206	47	50	47	214
				461A	49.6	47.7	71	80	65	206	77	80	71	214
				462A	74.4	71.6	83	90	93	206	89	90	98	214
50GE**24 Horizontal	208/230-3-60	HIGH	5	—	—	—	110	125	115	511	121	150	129	531
				463A	18.8/25.0	52.1/60.1	110/110	125/125	115/115	511/511	121/121	150/150	129/129	531/531
				464A	37.6/50.0	104.2/120.3	162/162	175/175	149/167	511/511	176/176	200/200	162/181	531/531
				465A	56.3/75.0	156.4/180.4	212/212	225/225	209/236	511/511	227/227	250/250	222/250	531/531
	460-3-60	HIGH	5	—	—	—	50	60	53	264	56	70	60	276
				466A	25.0	30.1	52	60	53	264	59	70	60	276
				467A	50.0	60.1	74	80	82	264	82	90	89	276
				468A	75.0	90.2	104	110	117	264	112	125	124	276
	575-3-60	HIGH	5	—	—	—	40	50	41	206	44	50	47	214
				469A	24.8	23.9	41	50	41	206	47	50	47	214
				470A	49.6	47.7	71	80	65	206	77	80	71	214
				471A	74.4	71.6	83	90	93	206	89	90	98	214

Electrical data (cont)

50GE**24 Unit HACR Sizing Electrical Data (cont)

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			WITH POWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	HACR Breaker	FLA	LRA	MCA	HACR Breaker	FLA	LRA
50GE**24 Vertical	208/230-3-60	STD/MED	5	—	—	—	102	125	106	498	114	150	120	518
				454A	18.8/25.0	52.1/60.1	102/102	125/125	106/106	498/498	114/114	150/150	120/120	518/518
				455A	37.6/50.0	104.2/120.3	152/152	175/175	140/159	498/498	167/167	175/175	154/172	518/518
				456A	56.3/75.0	156.4/180.4	202/202	225/225	200/228	498/498	217/217	225/225	214/241	518/518
		HIGH	5	—	—	—	114	150	121	516	126	150	134	536
				454A	18.8/25.0	52.1/60.1	114/114	150/150	121/121	516/516	127/127	150/150	134/134	536/536
				455A	37.6/50.0	104.2/120.3	168/168	175/175	154/173	516/516	182/182	200/200	168/186	536/536
				456A	56.3/75.0	156.4/180.4	218/218	225/250	214/242	516/516	233/233	250/250	228/256	536/536
	460-3-60	STD/MED	5	—	—	—	47	60	49	258	53	60	56	270
				457A	25.0	30.1	48	60	49	258	56	60	56	270
				458A	50.0	60.1	70	80	79	258	78	80	86	270
				459A	75.0	90.2	100	110	113	258	108	110	120	270
		HIGH	5	—	—	—	52	60	55	266	58	70	62	278
				457A	25.0	30.1	54	60	55	266	62	70	62	278
				458A	50.0	60.1	77	80	85	266	85	90	92	278
				459A	75.0	90.2	107	125	119	266	115	125	126	278
	575-3-60	STD/MED	5	—	—	—	37	50	39	204	42	50	44	212
				460A	24.8	23.9	38	50	39	204	44	50	44	212
				461A	49.6	47.7	68	70	63	204	74	80	68	212
				462A	74.4	71.6	80	90	90	204	86	90	96	212
		HIGH	5	—	—	—	41	50	43	208	46	60	49	216
				460A	24.8	23.9	44	50	43	208	50	60	49	216
				461A	49.6	47.7	73	80	67	208	79	80	73	216
				462A	74.4	71.6	85	90	95	208	91	100	100	216
50GE**24 Horizontal	208/230-3-60	HIGH	5	—	—	—	114	150	121	516	126	150	134	536
				463A	18.8/25.0	52.1/60.1	114/114	150/150	121/121	516/516	127/127	150/150	134/134	536/536
				464A	37.6/50.0	104.2/120.3	168/168	175/175	154/173	516/516	182/182	200/200	168/186	536/536
				465A	56.3/75.0	156.4/180.4	218/218	225/250	214/242	516/516	233/233	250/250	228/256	536/536
	460-3-60	HIGH	5	—	—	—	52	60	55	266	58	70	62	278
				466A	25.0	30.1	54	60	55	266	62	70	62	278
				467A	50.0	60.1	77	80	85	266	85	90	92	278
				468A	75.0	90.2	107	125	119	266	115	125	126	278
	575-3-60	HIGH	5	—	—	—	41	50	43	208	46	60	49	216
				469A	24.8	23.9	44	50	43	208	50	60	49	216
				470A	49.6	47.7	73	80	67	208	79	80	73	216
				471A	74.4	71.6	85	90	95	208	91	100	100	216

Electrical data (cont)

50GE**28 Unit Wire/Fuse Sizing Electrical Data

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	HIGH SCCR kA[a]	ELECTRIC HEATER				NO CONVENIENCE OUTLET or UNPOWERED CONVENIENCE OUTLET							
									No Power Exhaust				With Power Exhaust (powered from unit)			
					STD SCCR CRHEATER ****00	HIGH SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	Fuse or HACR Breaker	Disconnect Size		MCA	Fuse or HACR Breaker	Disconnect Size	
											FLA	LRA			FLA	LRA
50GE**28 Vertical	208/230-3-60	STD/MED	5	60	—	—	—	—	125	175	129	595	137	175	143	615
					454A	454A	18.8/25.0	52.1/60.1	125/125	175/175	129/129	595/595	137/137	175/175	143/143	615/615
					455A	455A	37.6/50.0	104.2/120.3	149/139	175/175	137/156	595/595	164/154	175/175	151/169	615/615
					456A	456A	56.3/75.0	156.4/180.4	175/199	200/225	197/225	595/595	190/214	200/225	211/238	615/615
		HIGH	5	60	—	—	—	—	135	175	141	609	147	175	155	629
					454A	454A	18.8/25.0	52.1/60.1	135/135	175/175	141/141	609/609	147/147	175/175	155/155	629/629
					455A	455A	37.6/50.0	104.2/120.3	162/152	175/175	149/167	609/609	176/167	200/175	162/181	629/629
					456A	456A	56.3/75.0	156.4/180.4	188/212	200/225	209/236	609/609	203/227	225/250	222/250	629/629
	460-3-60	STD/MED	5	65	—	—	—	—	58	70	60	312	64	80	67	324
					457A	457A	25.0	30.1	58	70	60	312	64	80	67	324
					458A	458A	50.0	60.1	69	80	77	312	77	80	84	324
					459A	459A	75.0	90.2	99	100	112	312	107	110	119	324
		HIGH	5	65	—	—	—	—	62	80	65	318	68	90	72	330
					457A	457A	25.0	30.1	62	80	65	318	68	90	72	330
					458A	458A	50.0	60.1	74	80	82	318	82	90	89	330
					459A	459A	75.0	90.2	104	110	117	318	112	125	124	330
	575-3-60	STD/MED	5	—	—	—	—	—	49	60	50	237	54	60	56	245
					460A	—	24.8	23.9	49	60	50	237	54	60	56	245
					461A	—	49.6	47.7	67	70	62	237	73	80	67	245
					462A	—	74.4	71.6	79	90	89	237	85	90	95	245
		HIGH	5	—	—	—	—	—	52	60	54	241	57	70	60	249
					460A	—	24.8	23.9	52	60	54	241	57	70	60	249
					461A	—	49.6	47.7	71	80	65	241	77	80	71	249
					462A	—	74.4	71.6	83	90	93	241	89	90	98	249
50GE**28 Horizontal	208/230-3-60	HIGH	5	60	—	—	—	—	135	175	141	609	147	175	155	629
					463A	463A	18.8/25.0	52.1/60.1	135/135	175/175	141/141	609/609	147/147	175/175	155/155	629/629
					464A	464A	37.6/50.0	104.2/120.3	162/152	175/175	149/167	609/609	176/167	200/175	162/181	629/629
					465A	465A	56.3/75.0	156.4/180.4	188/212	200/225	209/236	609/609	203/227	225/250	222/250	629/629
	460-3-60	HIGH	5	65	—	—	—	—	62	80	65	318	68	90	72	330
					466A	466A	25.0	30.1	62	80	65	318	68	90	72	330
					467A	467A	50.0	60.1	74	80	82	318	82	90	89	330
					468A	468A	75.0	90.2	104	110	117	318	112	125	124	330
	575-3-60	HIGH	5	—	—	—	—	—	52	60	54	241	57	70	60	249
					469A	—	24.8	23.9	52	60	54	241	57	70	60	249
					470A	—	49.6	47.7	71	80	65	241	77	80	71	249
					471A	—	74.4	71.6	83	90	93	241	89	90	98	249

NOTE(S):

a. High SCCR (Short Circuit Current Rating) is not available on the following: units with Humidi-MiZer system, low ambient controls, phase loss monitor, non-fused disconnect, and 575V models.

Electrical data (cont)

50GE**28 Unit Wire/Fuse Sizing Electrical Data (cont)

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			WITH POWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	Fuse or HACR Breaker	FLA	LRA	MCA	Fuse or HACR Breaker	FLA	LRA
50GE**28 Vertical	208/230-3-60	STD/MED	5	—	—	—	130	175	135	600	142	175	148	620
				454A	18.8/25.0	52.1/60.1	130/130	175/175	135/135	600/600	142/142	175/175	148/148	620/620
				455A	37.6/50.0	104.2/120.3	155/145	175/175	143/161	600/600	170/160	175/175	156/175	620/620
				456A	56.3/75.0	156.4/180.4	181/205	200/225	203/230	600/600	196/220	200/225	216/244	620/620
		HIGH	5	—	—	—	140	175	147	614	152	200	160	634
				454A	18.8/25.0	52.1/60.1	140/140	175/175	147/147	614/614	152/152	200/200	160/160	634/634
				455A	37.6/50.0	104.2/120.3	168/158	175/175	154/173	614/614	182/173	200/200	168/186	634/634
				456A	56.3/75.0	156.4/180.4	194/218	200/250	214/242	614/614	209/233	225/250	228/256	634/634
	460-3-60	STD/MED	5	—	—	—	60	80	62	314	66	80	69	326
				457A	25.0	30.1	60	80	62	314	66	80	69	326
				458A	50.0	60.1	72	80	80	314	79	80	87	326
				459A	75.0	90.2	102	110	114	314	110	110	121	326
		HIGH	5	—	—	—	64	80	67	320	70	90	74	332
				457A	25.0	30.1	64	80	67	320	70	90	74	332
				458A	50.0	60.1	77	80	85	320	85	90	92	332
				459A	75.0	90.2	107	125	119	320	115	125	126	332
	575-3-60	STD/MED	5	—	—	—	51	60	52	239	55	70	58	247
				460A	24.8	23.9	51	60	52	239	55	70	58	247
				461A	49.6	47.7	69	70	64	239	75	80	69	247
				462A	74.4	71.6	81	90	91	239	87	90	97	247
		HIGH	5	—	—	—	54	60	56	243	59	70	62	251
				460A	24.8	23.9	54	60	56	243	59	70	62	251
				461A	49.6	47.7	73	80	67	243	79	80	73	251
				462A	74.4	71.6	85	90	95	243	91	100	100	251
50GE**28 Horizontal	208/230-3-60	HIGH	5	—	—	—	140	175	147	614	152	200	160	634
				463A	18.8/25.0	52.1/60.1	140/140	175/175	147/147	614/614	152/152	200/200	160/160	634/634
				464A	37.6/50.0	104.2/120.3	168/158	175/175	154/173	614/614	182/173	200/200	168/186	634/634
				465A	56.3/75.0	156.4/180.4	194/218	200/250	214/242	614/614	209/233	225/250	228/256	634/634
	460-3-60	HIGH	5	—	—	—	64	80	67	320	70	90	74	332
				466A	25.0	30.1	64	80	67	320	70	90	74	332
				467A	50.0	60.1	77	80	85	320	85	90	92	332
				468A	75.0	90.2	107	125	119	320	115	125	126	332
	575-3-60	HIGH	5	—	—	—	54	60	56	243	59	70	62	251
				469A	24.8	23.9	54	60	56	243	59	70	62	251
				470A	49.6	47.7	73	80	67	243	79	80	73	251
				471A	74.4	71.6	85	90	95	243	91	100	100	251

Electrical data (cont)

50GE**28 Unit HACR Sizing Electrical Data

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			NO CONVENIENCE OUTLET or UNPOWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	HACR Breaker	FLA	LRA	MCA	HACR Breaker	FLA	LRA
50GE**28 Vertical	208/230-3-60	STD/MED	5	—	—	—	125	175	129	595	137	175	143	615
				454A	18.8/25.0	52.1/60.1	125/125	175/175	129/129	595/595	137/137	175/175	143/143	615/615
				455A	37.6/50.0	104.2/120.3	149/149	175/175	137/156	595/595	164/164	175/175	151/169	615/615
				456A	56.3/75.0	156.4/180.4	199/199	200/225	197/225	595/595	214/214	225/225	211/238	615/615
		HIGH	5	—	—	—	135	175	141	609	147	175	155	629
				454A	18.8/25.0	52.1/60.1	135/135	175/175	141/141	609/609	147/147	175/175	155/155	629/629
				455A	37.6/50.0	104.2/120.3	162/162	175/175	149/167	609/609	176/176	200/200	162/181	629/629
				456A	56.3/75.0	156.4/180.4	212/212	225/225	209/236	609/609	227/227	250/250	222/250	629/629
	460-3-60	STD/MED	5	—	—	—	58	70	60	312	64	80	67	324
				457A	25.0	30.1	58	70	60	312	64	80	67	324
				458A	50.0	60.1	69	80	77	312	77	80	84	324
				459A	75.0	90.2	99	100	112	312	107	110	119	324
		HIGH	5	—	—	—	62	80	65	318	68	90	72	330
				457A	25.0	30.1	62	80	65	318	68	90	72	330
				458A	50.0	60.1	74	80	82	318	82	90	89	330
				459A	75.0	90.2	104	110	117	318	112	125	124	330
	575-3-60	STD/MED	5	—	—	—	49	60	50	237	54	60	56	245
				460A	24.8	23.9	49	60	50	237	54	60	56	245
				461A	49.6	47.7	67	70	62	237	73	80	67	245
				462A	74.4	71.6	79	90	89	237	85	90	95	245
		HIGH	5	—	—	—	52	60	54	241	57	70	60	249
				460A	24.8	23.9	52	60	54	241	57	70	60	249
				461A	49.6	47.7	71	80	65	241	77	80	71	249
				462A	74.4	71.6	83	90	93	241	89	90	98	249
50GE**28 Horizontal	208/230-3-60	HIGH	5	—	—	—	135	175	141	609	147	175	155	629
				463A	18.8/25.0	52.1/60.1	135/135	175/175	141/141	609/609	147/147	175/175	155/155	629/629
				464A	37.6/50.0	104.2/120.3	162/162	175/175	149/167	609/609	176/176	200/200	162/181	629/629
				465A	56.3/75.0	156.4/180.4	212/212	225/225	209/236	609/609	227/227	250/250	222/250	629/629
	460-3-60	HIGH	5	—	—	—	62	80	65	318	68	90	72	330
				466A	25.0	30.1	62	80	65	318	68	90	72	330
				467A	50.0	60.1	74	80	82	318	82	90	89	330
				468A	75.0	90.2	104	110	117	318	112	125	124	330
	575-3-60	HIGH	5	—	—	—	52	60	54	241	57	70	60	249
				469A	24.8	23.9	52	60	54	241	57	70	60	249
				470A	49.6	47.7	71	80	65	241	77	80	71	249
				471A	74.4	71.6	83	90	93	241	89	90	98	249

Electrical data (cont)

50GE**28 Unit HACR Sizing Electrical Data (cont)

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	ELECTRIC HEATER			WITH POWERED CONVENIENCE OUTLET							
							No Power Exhaust				With Power Exhaust (powered from unit)			
									Disconnect Size				Disconnect Size	
				STD SCCR CRHEATER ****00	NOM (kW)	FLA	MCA	HACR Breaker	FLA	LRA	MCA	HACR Breaker	FLA	LRA
50GE**28 Vertical	208/230-3-60	STD/MED	5	—	—	—	130	175	135	600	142	175	148	620
				454A	18.8/25.0	52.1/60.1	130/130	175/175	135/135	600/600	142/142	175/175	148/148	620/620
				455A	37.6/50.0	104.2/120.3	155/155	175/175	143/161	600/600	170/170	175/175	156/175	620/620
				456A	56.3/75.0	156.4/180.4	205/205	225/225	203/230	600/600	220/220	225/225	216/244	620/620
		HIGH	5	—	—	—	140	175	147	614	152	200	160	634
				454A	18.8/25.0	52.1/60.1	140/140	175/175	147/147	614/614	152/152	200/200	160/160	634/634
				455A	37.6/50.0	104.2/120.3	168/168	175/175	154/173	614/614	182/182	200/200	168/186	634/634
				456A	56.3/75.0	156.4/180.4	218/218	225/250	214/242	614/614	233/233	250/250	228/256	634/634
	460-3-60	STD/MED	5	—	—	—	60	80	62	314	66	80	69	326
				457A	25.0	30.1	60	80	62	314	66	80	69	326
				458A	50.0	60.1	72	80	80	314	79	80	87	326
				459A	75.0	90.2	102	110	114	314	110	110	121	326
		HIGH	5	—	—	—	64	80	67	320	70	90	74	332
				457A	25.0	30.1	64	80	67	320	70	90	74	332
				458A	50.0	60.1	77	80	85	320	85	90	92	332
				459A	75.0	90.2	107	125	119	320	115	125	126	332
	575-3-60	STD/MED	5	—	—	—	51	60	52	239	55	70	58	247
				460A	24.8	23.9	51	60	52	239	55	70	58	247
				461A	49.6	47.7	69	70	64	239	75	80	69	247
				462A	74.4	71.6	81	90	91	239	87	90	97	247
		HIGH	5	—	—	—	54	60	56	243	59	70	62	251
				460A	24.8	23.9	54	60	56	243	59	70	62	251
				461A	49.6	47.7	73	80	67	243	79	80	73	251
				462A	74.4	71.6	85	90	95	243	91	100	100	251
50GE**28 Horizontal	208/230-3-60	HIGH	5	—	—	—	140	175	147	614	152	200	160	634
				463A	18.8/25.0	52.1/60.1	140/140	175/175	147/147	614/614	152/152	200/200	160/160	634/634
				464A	37.6/50.0	104.2/120.3	168/168	175/175	154/173	614/614	182/182	200/200	168/186	634/634
				465A	56.3/75.0	156.4/180.4	218/218	225/250	214/242	614/614	233/233	250/250	228/256	634/634
	460-3-60	HIGH	5	—	—	—	64	80	67	320	70	90	74	332
				466A	25.0	30.1	64	80	67	320	70	90	74	332
				467A	50.0	60.1	77	80	85	320	85	90	92	332
				468A	75.0	90.2	107	125	119	320	115	125	126	332
	575-3-60	HIGH	5	—	—	—	54	60	56	243	59	70	62	251
				469A	24.8	23.9	54	60	56	243	59	70	62	251
				470A	49.6	47.7	73	80	67	243	79	80	73	251
				471A	74.4	71.6	85	90	95	243	91	100	100	251

Electrical data (cont)

50GE**17 Electric Heat Data — Standard SCCR Unit

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	STD ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	STD SCCR SINGLE POINT OR JUNCTION KIT PART NUMBER CRSINGLEXXXA00			
								No C.O. or Unpowered C.O.		With PWRD C.O.	
								No P.E.	With P.E. (pwrd fr/unit)	No P.E	With P.E. (pwrd fr/unit)
50GE-M17 Vertical	208/230-3-60	STD/ MED	5	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		HIGH	5	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	STD/ MED	5	CRHEATER457A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER458A00	50.0	45.9	156.7	—	057	057	057
				CRHEATER459A00	75.0	68.9	235.0	057	057	057	057
		HIGH	5	CRHEATER457A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER458A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER459A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	STD/ MED	5	CRHEATER460A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER461A00	49.6	45.6	155.4	—	057	—	057
				CRHEATER462A00	74.4	68.3	233.1	057	057	057	057
		HIGH	5	CRHEATER460A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER461A00	49.6	45.6	155.4	—	057	—	057
				CRHEATER462A00	74.4	68.3	233.1	057	057	057	057
50GE-M17 Horizontal	208/230-3-60	HIGH	5	CRHEATER463A00	25.0	18.8/23.0	64.1/78.3	—	—	—	056
				CRHEATER464A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER465A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	HIGH	5	CRHEATER466A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER467A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER468A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	HIGH	5	CRHEATER469A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER470A00	49.6	45.6	155.4	057	057	057	057
				CRHEATER471A00	74.4	68.3	233.1	057	057	057	057

50GE**17 Electric Heat Data — High SCCR Unit

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	HIGH SCCR kA	HIGH SCCR ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	HIGH SCCR SINGLE POINT OR JUNCTION KIT PART NUMBER CRSINGLEXXXA00	
								No C.O. or Unpowered C.O.	
								No P.E.	With P.E. (pwrd fr/unit)
50GE-M17 Vertical	208/230-3-60	STD/ MED	60	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	058	058
		HIGH	60	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	058	058
	460-3-60	STD/ MED	65	CRHEATER457A00	25.0	23.0	78.3	—	—
				CRHEATER458A00	50.0	45.9	156.7	—	059
				CRHEATER459A00	75.0	68.9	235.0	059	059
		HIGH	65	CRHEATER457A00	25.0	23.0	78.3	—	—
				CRHEATER458A00	50.0	45.9	156.7	059	059
				CRHEATER459A00	75.0	68.9	235.0	059	059
50GE-M17 Horizontal	208/230-3-60	HIGH	60	CRHEATER463A00	25.0	18.8/23.0	64.1/78.3	—	—
				CRHEATER464A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER465A00	75.0	56.3/68.9	192.2/235.0	058	058
	460-3-60	HIGH	65	CRHEATER466A00	25.0	23.0	78.3	—	—
				CRHEATER467A00	50.0	45.9	156.7	059	059
				CRHEATER468A00	75.0	68.9	235.0	059	059

50GE**20 Electric Heat Data — Standard SCCR Unit

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	STD ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	STD SCCR SINGLE POINT OR JUNCTION KIT PART NUMBER CRSINGLEXXXA00 — No C.O. or Unpowered C.O. — No P.E.	No C.O. or Unpowered C.O. — With P.E. (pwrd fr/unit)	With PWRD C.O. — No P.E	With PWRD C.O. — With P.E. (pwrd fr/unit)
50GE-M20 Vertical	208/230-3-60	STD/ MED	5	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		HIGH	5	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	STD/ MED	5	CRHEATER457A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER458A00	50.0	45.9	156.7	—	057	057	057
				CRHEATER459A00	75.0	68.9	235.0	057	057	057	057
		HIGH	5	CRHEATER457A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER458A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER459A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	STD/ MED	5	CRHEATER460A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER461A00	49.6	45.6	155.4	—	057	—	057
				CRHEATER462A00	74.4	68.3	233.1	057	057	057	057
		HIGH	5	CRHEATER460A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER461A00	49.6	45.6	155.4	—	057	—	057
				CRHEATER462A00	74.4	68.3	233.1	057	057	057	057
50GE-M20 Horizontal	208/230-3-60	HIGH	5	CRHEATER463A00	25.0	18.8/23.0	64.1/78.3	—	—	—	056
				CRHEATER464A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER465A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	HIGH	5	CRHEATER466A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER467A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER468A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	HIGH	5	CRHEATER469A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER470A00	49.6	45.6	155.4	057	057	057	057
				CRHEATER471A00	74.4	68.3	233.1	057	057	057	057

50GE**20 Electric Heat Data — High SCCR Unit

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	HIGH SCCR kA	HIGH SCCR ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	HIGH SCCR SINGLE POINT OR JUNCTION KIT PART NUMBER CRSINGLEXXXA00 — No C.O. or Unpowered C.O. — No P.E.	No C.O. or Unpowered C.O. — With P.E. (pwrd fr/unit)
50GE-M20 Vertical	208/230-3-60	STD/ MED	60	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	058	058
		HIGH	60	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	058	058
	460-3-60	STD/ MED	65	CRHEATER457A00	25.0	23.0	78.3	—	—
				CRHEATER458A00	50.0	45.9	156.7	—	059
				CRHEATER459A00	75.0	68.9	235.0	059	059
		HIGH	65	CRHEATER457A00	25.0	23.0	78.3	—	—
				CRHEATER458A00	50.0	45.9	156.7	059	059
				CRHEATER459A00	75.0	68.9	235.0	059	059
50GE-M20 Horizontal	208/230-3-60	HIGH	60	CRHEATER463A00	25.0	18.8/23.0	64.1/78.3	—	—
				CRHEATER464A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER465A00	75.0	56.3/68.9	192.2/235.0	058	058
	460-3-60	HIGH	65	CRHEATER466A00	25.0	23.0	78.3	—	—
				CRHEATER467A00	50.0	45.9	156.7	059	059
				CRHEATER468A00	75.0	68.9	235.0	059	059

Electrical data (cont)

50GE**24 Electric Heat Data — Standard SCCR Unit

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	STD ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	STD SCCR SINGLE POINT OR JUNCTION KIT PART NUMBER CRSINGLEXXXA00			
								No C.O. or Unpowered C.O.		With PWRD C.O.	
								No P.E.	With P.E. (pwrd fr/unit)	No P.E	With P.E. (pwrd fr/unit)
50GE-M24 Vertical	208/230-3-60	STD/MED	5	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—	—	056
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		HIGH	5	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	056	056	056
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	STD/MED	5	CRHEATER457A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER458A00	50.0	45.9	156.7	—	057	057	057
				CRHEATER459A00	75.0	68.9	235.0	057	057	057	057
		HIGH	5	CRHEATER457A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER458A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER459A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	STD/MED	5	CRHEATER460A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER461A00	49.6	45.6	155.4	—	057	—	057
				CRHEATER462A00	74.4	68.3	233.1	057	057	057	057
		HIGH	5	CRHEATER460A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER461A00	49.6	45.6	155.4	057	057	057	057
				CRHEATER462A00	74.4	68.3	233.1	057	057	057	057
50GE-M24 Horizontal	208/230-3-60	HIGH	5	CRHEATER463A00	25.0	18.8/23.0	64.1/78.3	—	056	056	056
				CRHEATER464A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER465A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	HIGH	5	CRHEATER466A00	25.0	23.0	78.3	—	—	—	—
				CRHEATER467A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER468A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	HIGH	5	CRHEATER469A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER470A00	49.6	45.6	155.4	057	057	057	057
				CRHEATER471A00	74.4	68.3	233.1	057	057	057	057

50GE**24 Electric Heat Data — High SCCR Unit

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	HIGH SCCR kA	HIGH SCCR ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	HIGH SCCR SINGLE POINT OR JUNCTION KIT PART NUMBER CRSINGLEXXXA00	
								No C.O. or Unpowered C.O.	
								No P.E.	With P.E. (pwrd fr/unit)
50GE-M24 Vertical	208/230-3-60	STD/MED	60	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	—
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	058	058
		HIGH	60	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	—	058
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	058	058
	460-3-60	STD/MED	65	CRHEATER457A00	25.0	23.0	78.3	—	—
				CRHEATER458A00	50.0	45.9	156.7	—	059
				CRHEATER459A00	75.0	68.9	235.0	059	059
		HIGH	65	CRHEATER457A00	25.0	23.0	78.3	—	—
				CRHEATER458A00	50.0	45.9	156.7	059	059
				CRHEATER459A00	75.0	68.9	235.0	059	059
50GE-M24 Horizontal	208/230-3-60	HIGH	60	CRHEATER463A00	25.0	18.8/23.0	64.1/78.3	—	058
				CRHEATER464A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER465A00	75.0	56.3/68.9	192.2/235.0	058	058
	460-3-60	HIGH	65	CRHEATER466A00	25.0	23.0	78.3	—	—
				CRHEATER467A00	50.0	45.9	156.7	059	059
				CRHEATER468A00	75.0	68.9	235.0	059	059

Electrical data (cont)

50GE**28 Electric Heat Data — Standard SCCR Unit

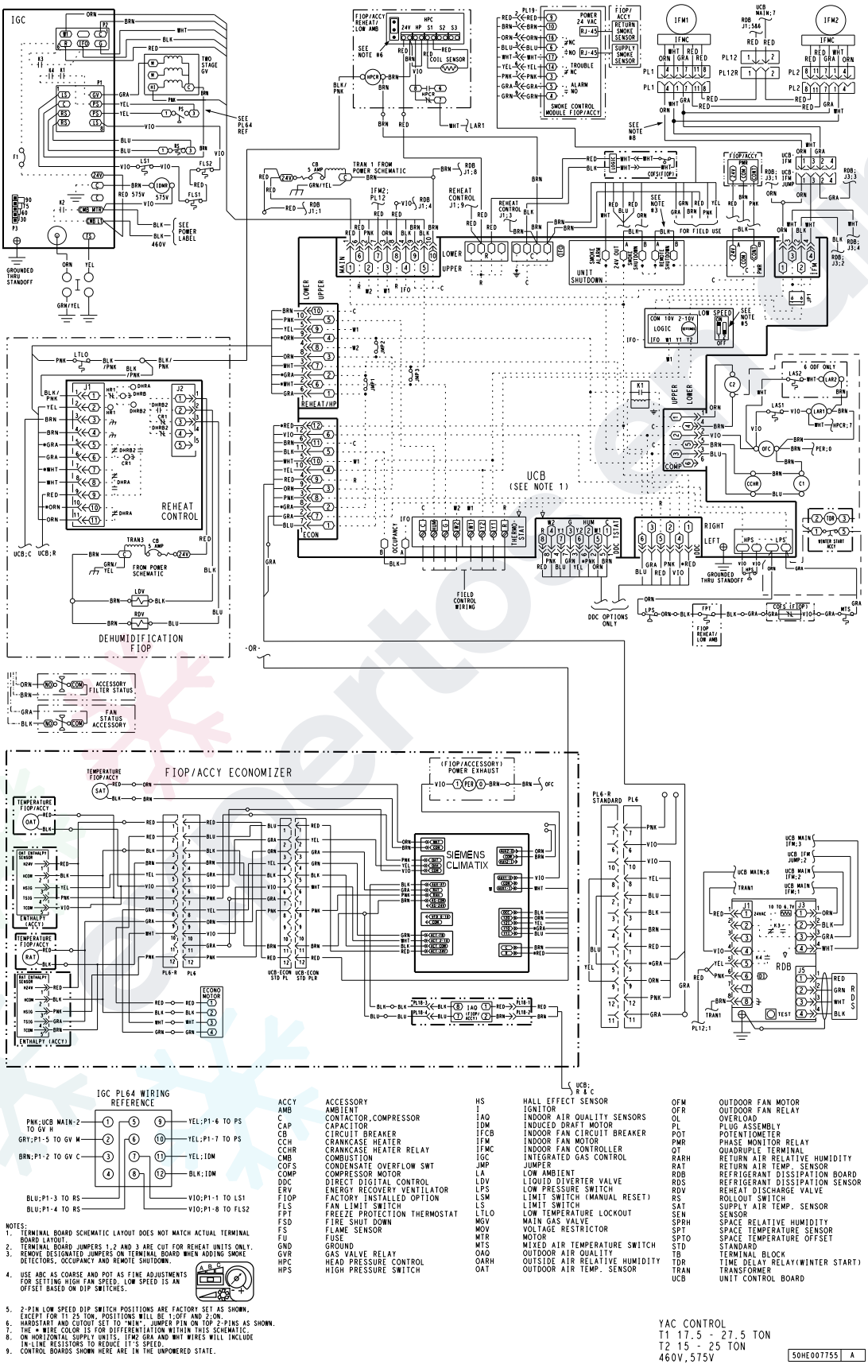
50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	STD SCCR kA	STD ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	STD SCCR SINGLE POINT OR JUNCTION KIT PART NUMBER CRSINGLEXXXA00			
								No C.O. or Unpowered C.O.		With PWRD C.O.	
								No P.E.	With P.E. (pwrd fr/unit)	No P.E	With P.E. (pwrd fr/unit)
50GE-M28 Vertical	208/230-3-60	STD/ MED	5	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	056	056	056	056
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
		HIGH	5	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	056	056	056	056
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	STD/ MED	5	CRHEATER457A00	25.0	23.0	78.3	—	057	057	057
				CRHEATER458A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER459A00	75.0	68.9	235.0	057	057	057	057
		HIGH	5	CRHEATER457A00	25.0	23.0	78.3	057	057	057	057
				CRHEATER458A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER459A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	STD/ MED	5	CRHEATER460A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER461A00	49.6	45.6	155.4	—	057	—	057
				CRHEATER462A00	74.4	68.3	233.1	057	057	057	057
		HIGH	5	CRHEATER460A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER461A00	49.6	45.6	155.4	057	057	057	057
				CRHEATER462A00	74.4	68.3	233.1	057	057	057	057
50GE-M28 Horizontal	208/230-3-60	HIGH	5	CRHEATER463A00	25.0	18.8/23.0	64.1/78.3	056	056	056	056
				CRHEATER464A00	50.0	37.6/45.9	128.1/156.7	056	056	056	056
				CRHEATER465A00	75.0	56.3/68.9	192.2/235.0	056	056	056	056
	460-3-60	HIGH	5	CRHEATER466A00	25.0	23.0	78.3	057	057	057	057
				CRHEATER467A00	50.0	45.9	156.7	057	057	057	057
				CRHEATER468A00	75.0	68.9	235.0	057	057	057	057
	575-3-60	HIGH	5	CRHEATER469A00	24.8	22.8	77.7	—	—	—	—
				CRHEATER470A00	49.6	45.6	155.4	057	057	057	057
				CRHEATER471A00	74.4	68.3	233.1	057	057	057	057

50GE**28 Electric Heat Data — High SCCR Unit

50GE UNIT SIZE	NOM. V-Ph-Hz	IFM TYPE	HIGH SCCR kA	HIGH SCCR ELECTRIC HEATER PART NUMBER	NOMINAL (kW)	APPLICATION (kW)	APPLICATION OUTPUT (MBH)	HIGH SCCR SINGLE POINT OR JUNCTION KIT PART NUMBER CRSINGLEXXXA00	
								No C.O. or Unpowered C.O.	
								No P.E.	With P.E. (pwrd fr/unit)
50GE-M28 Vertical	208/230-3-60	STD/ MED	60	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	058	058
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	058	058
		HIGH	60	CRHEATER454A00	25.0	18.8/23.0	64.1/78.3	058	058
				CRHEATER455A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER456A00	75.0	56.3/68.9	192.2/235.0	058	058
	460-3-60	STD/ MED	65	CRHEATER457A00	25.0	23.0	78.3	—	059
				CRHEATER458A00	50.0	45.9	156.7	059	059
				CRHEATER459A00	75.0	68.9	235.0	059	059
		HIGH	65	CRHEATER457A00	25.0	23.0	78.3	059	059
				CRHEATER458A00	50.0	45.9	156.7	059	059
				CRHEATER459A00	75.0	68.9	235.0	059	059
50GE-M28 Horizontal	208/230-3-60	HIGH	60	CRHEATER463A00	25.0	18.8/23.0	64.1/78.3	058	058
				CRHEATER464A00	50.0	37.6/45.9	128.1/156.7	058	058
				CRHEATER465A00	75.0	56.3/68.9	192.2/235.0	058	058
	460-3-60	HIGH	65	CRHEATER466A00	25.0	23.0	78.3	059	059
				CRHEATER467A00	50.0	45.9	156.7	059	059
				CRHEATER468A00	75.0	68.9	235.0	059	059

Typical wiring diagrams

48GE**17-28 Control Wiring Diagram, Electromechanical with POL224 Controller

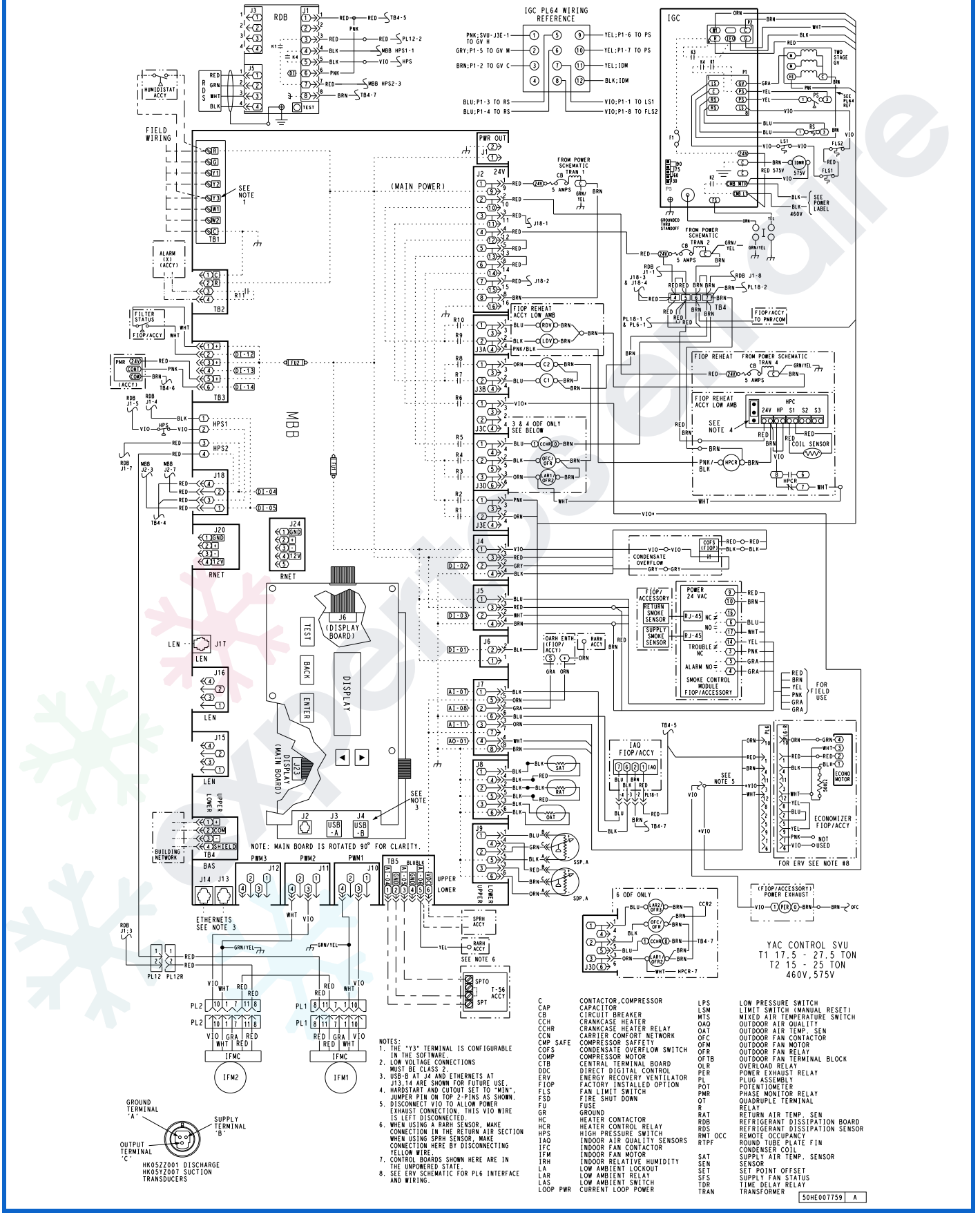


ACCY	ACCESSORY
AMB	AMBIENT
C	CONTACTOR,COMPRESSOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CCH	CRANKCASE HEATER
CCHR	CRANKCASE HEATER RELAY
CMB	COMBUSTION
COFS	CONDENSATE OVERFLOW SWT
COMP	COMPRESSOR MOTOR
DDC	DIRECT DIGITAL CONTROL
ERV	ENERGY RECOVERY VENTILATOR
FIOP	FACTORY INSTALLED OPTION
FLS	FAN LIMIT SWITCH
FPT	FREEZE PROTECTION THERMOSTAT
FSD	FIRE SHUT DOWN
FS	FLAME SENSOR
FU	FUSE
GND	GROUND
GVR	GAS VALVE RELAY
HPC	HEAD PRESSURE CONTROL
HPS	HIGH PRESSURE SWITCH
HS	HALL EFFECT SENSOR
I	IGNITOR
IAQ	INDOOR AIR QUALITY SENSORS
IDM	INDUCED DRAFT MOTOR
IFCB	INDOOR FAN CIRCUIT BREAKER
IFM	INDOOR FAN MOTOR
IFMC	INDOOR FAN CONTROLLER
IGC	INTEGRATED GAS CONTROL
JMP	JUMPER
LA	LOW AMBIENT
LDV	LIQUID DIVERTER VALVE
LPS	LOW PRESSURE SWITCH
LSW	LIMIT SWITCH (MANUAL RESET)
LS	LIMIT SWITCH
LTLO	LOW TEMPERATURE LOCKOUT
MGV	MAIN GAS VALVE
MOV	VOLTAGE RESTRICTOR
MTR	MOTOR
MTS	MIXED AIR TEMPERATURE SWITCH
OAQ	OUTDOOR AIR QUALITY
OARH	OUTSIDE AIR RELATIVE HUMIDITY
OAT	OUTDOOR AIR TEMP. SENSOR
OFM	OUTDOOR FAN MOTOR
OFR	OUTDOOR FAN RELAY
OL	OVERLOAD
PL	PLUG ASSEMBLY
POT	POTENTIOMETER
PMR	PHASE MONITOR RELAY
QT	QUADRUPLE TERMINAL
RARH	RETURN AIR RELATIVE HUMIDITY
RAT	RETURN AIR TEMP. SENSOR
RDB	REFRIGERANT DISSIPATION BOARD
RDS	REFRIGERANT DISSIPATION SENSOR
RDV	REHEAT DISCHARGE VALVE
RS	ROLLOUT SWITCH
SAT	SUPPLY AIR TEMP. SENSOR
SEN	SENSOR
SPRH	SPACE RELATIVE HUMIDITY
SPT	SPACE TEMPERATURE SENSOR
SPTO	SPACE TEMPERATURE OFFSET
STD	STANDARD
TB	TERMINAL BLOCK
TDR	TIME DELAY RELAY(WINTER START)
TRAN	TRANSFORMER
UCB	UNIT CONTROL BOARD

NOTES:
1. TERMINAL BOARD SCHEMATIC LAYOUT DOES NOT MATCH ACTUAL TERMINAL BOARD LAYOUT.
2. TERMINAL BOARD JUMPERS 1,2 AND 3 ARE CUT FOR REHEAT UNITS ONLY.
3. REMOVE DESIGNATED JUMPERS ON TERMINAL BOARD WHEN ADDING SMOKE DETECTORS, OCCUPANCY AND REMOTE SHUTDOWN.
4. USE ABC AS COARSE AND POT AS FINE ADJUSTMENTS FOR SETTING HIGH FAN SPEED. LOW SPEED IS AN OFFSET BASED ON DIP SWITCHES.
5. 2-PIN LOW SPEED DIP SWITCH POSITIONS ARE FACTORY SET AS SHOWN, EXCEPT FOR T1 25 TON; POSITIONS WILL BE 1:OFF AND 2:ON.
6. HARDSTART AND CUTOUT SET TO "MIN". JUMPER PIN ON TOP 2-PINS AS SHOWN.
7. THE * WIRE COLOR IS FOR DIFFERENTIATION WITHIN THIS SCHEMATIC.
8. ON HORIZONTAL SUPPLY UNITS, IFM2 GRA AND WHT WIRES WILL INCLUDE IN-LINE RESISTORS TO REDUCE IT'S SPEED.
9. CONTROL BOARDS SHOWN HERE ARE IN THE UNPOWERED STATE.

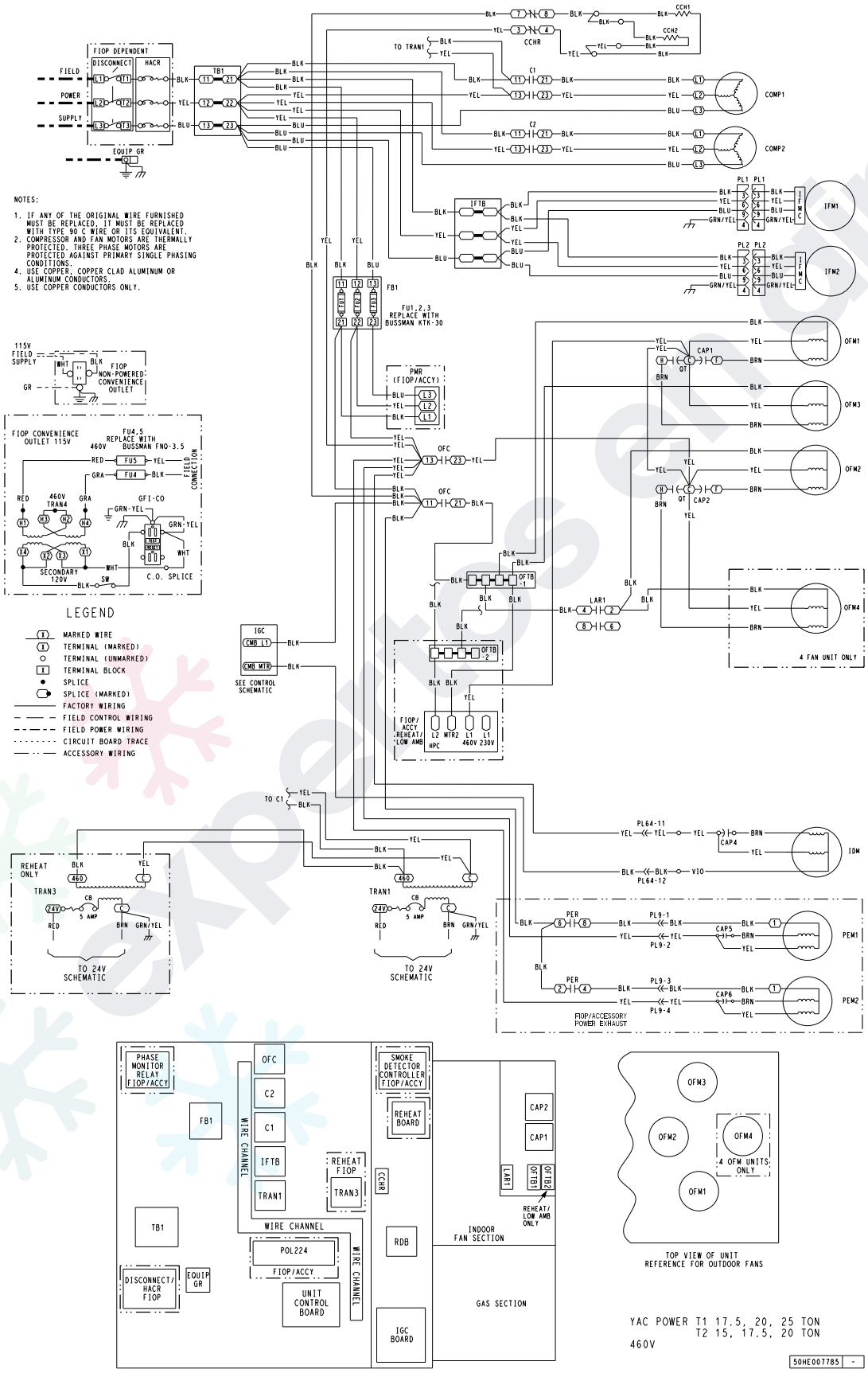
Typical wiring diagrams (cont)

48GE**17-28 Control Wiring Diagram, SystemVu™ Controller



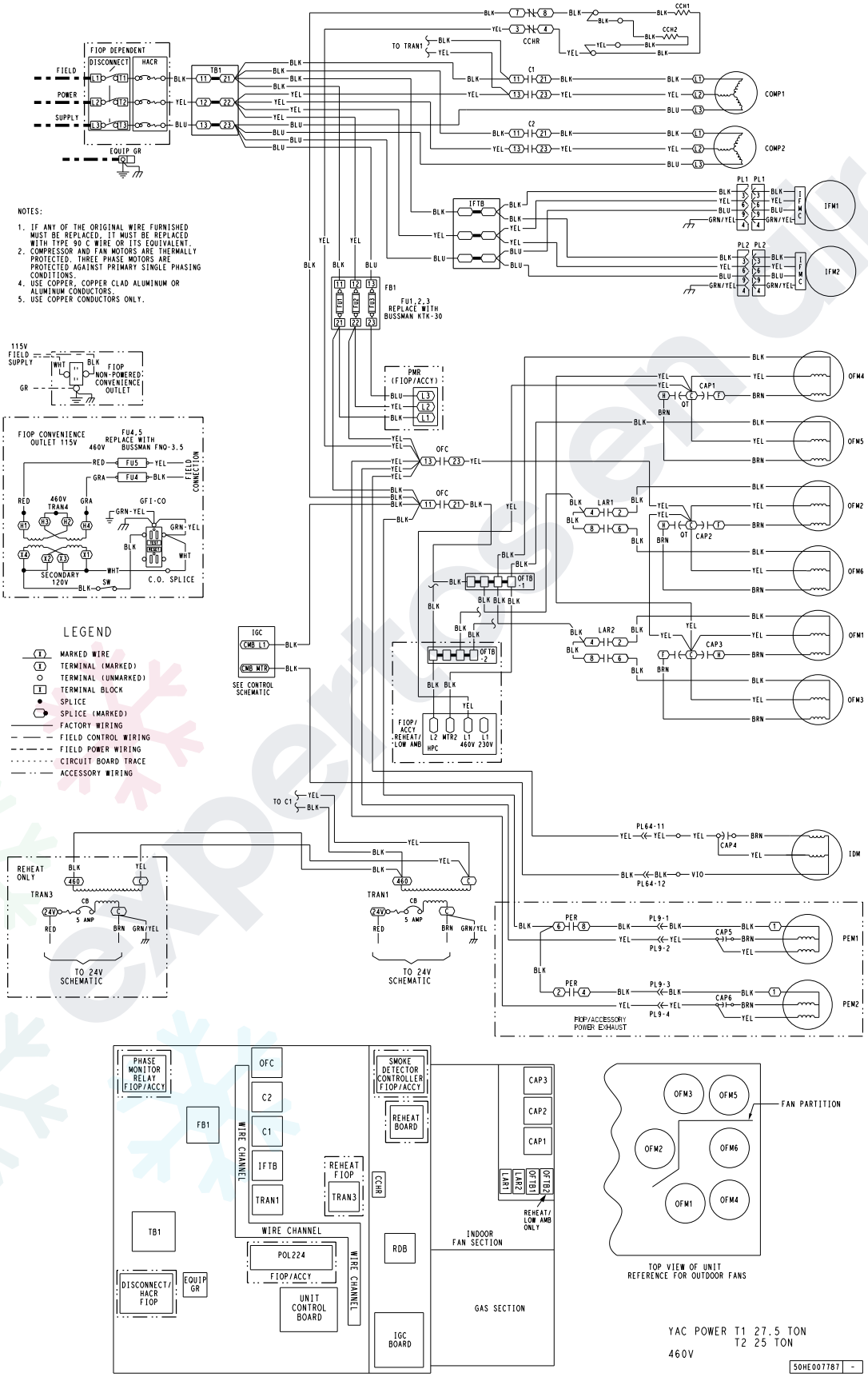
Typical wiring diagrams (cont)

48GE**17-24 Power Wiring Diagram, Electromechanical with POL224 Controller



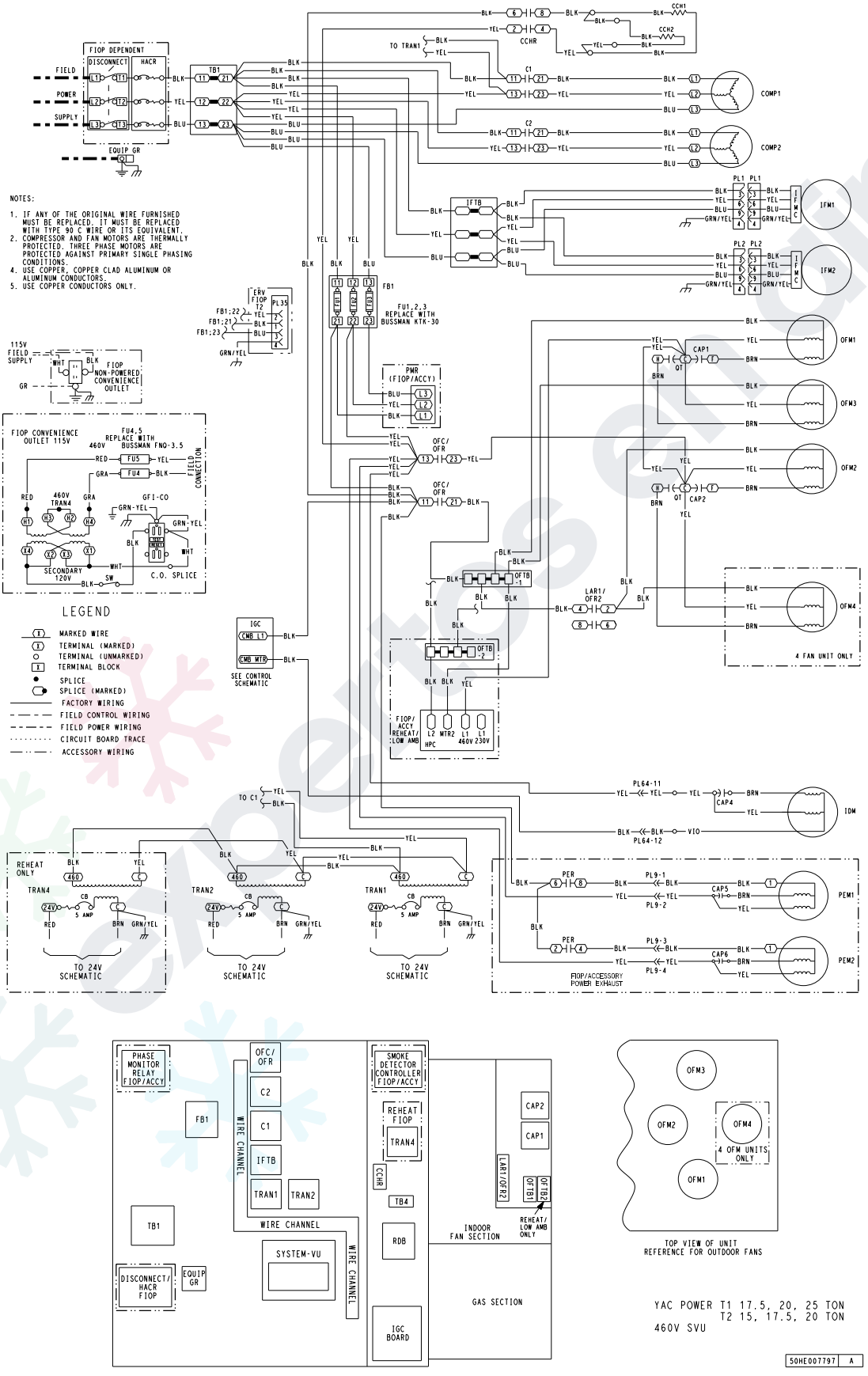
Typical wiring diagrams (cont)

48GE**28 Power Wiring Diagram, Electromechanical with POL224 Controller



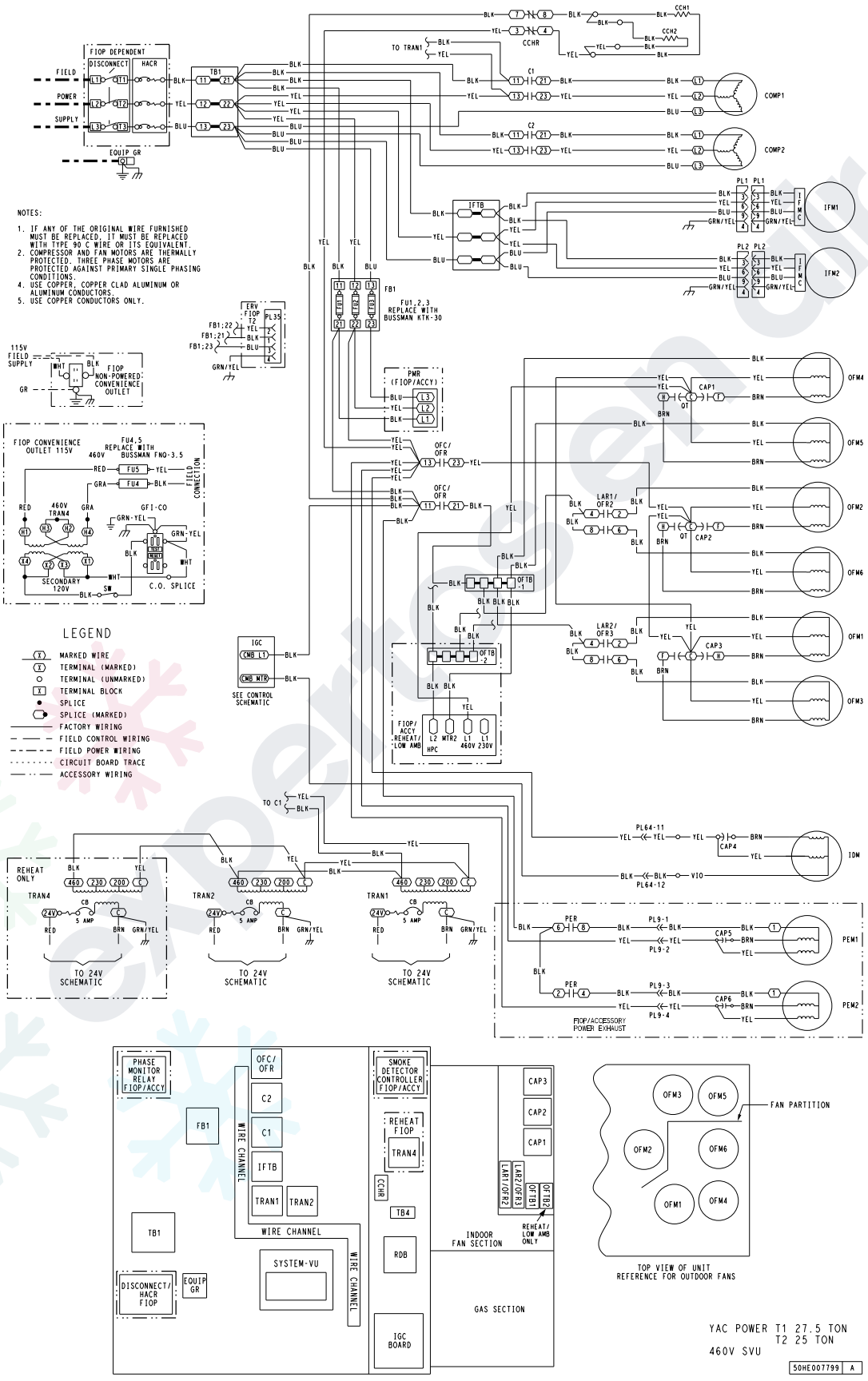
Typical wiring diagrams (cont)

48GE**17-24 Power Wiring Diagram, SystemVu™ Controller



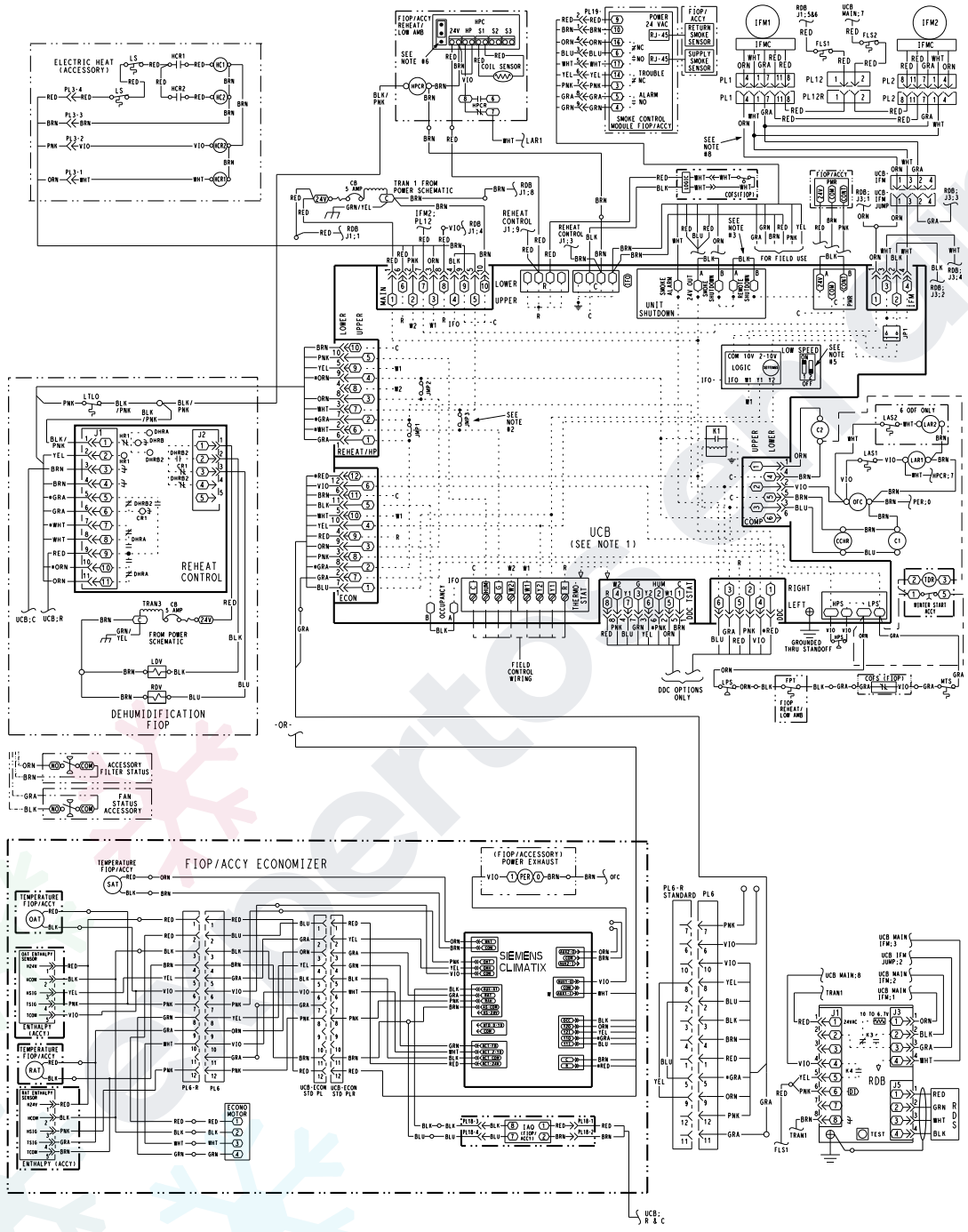
Typical wiring diagrams (cont)

48GE**28 Power Wiring Diagram, SystemVu™ Controller



Typical wiring diagrams (cont)

50GE-*17-28 Control Wiring Diagram, Electromechanical with POL224 Controller



NOTES:
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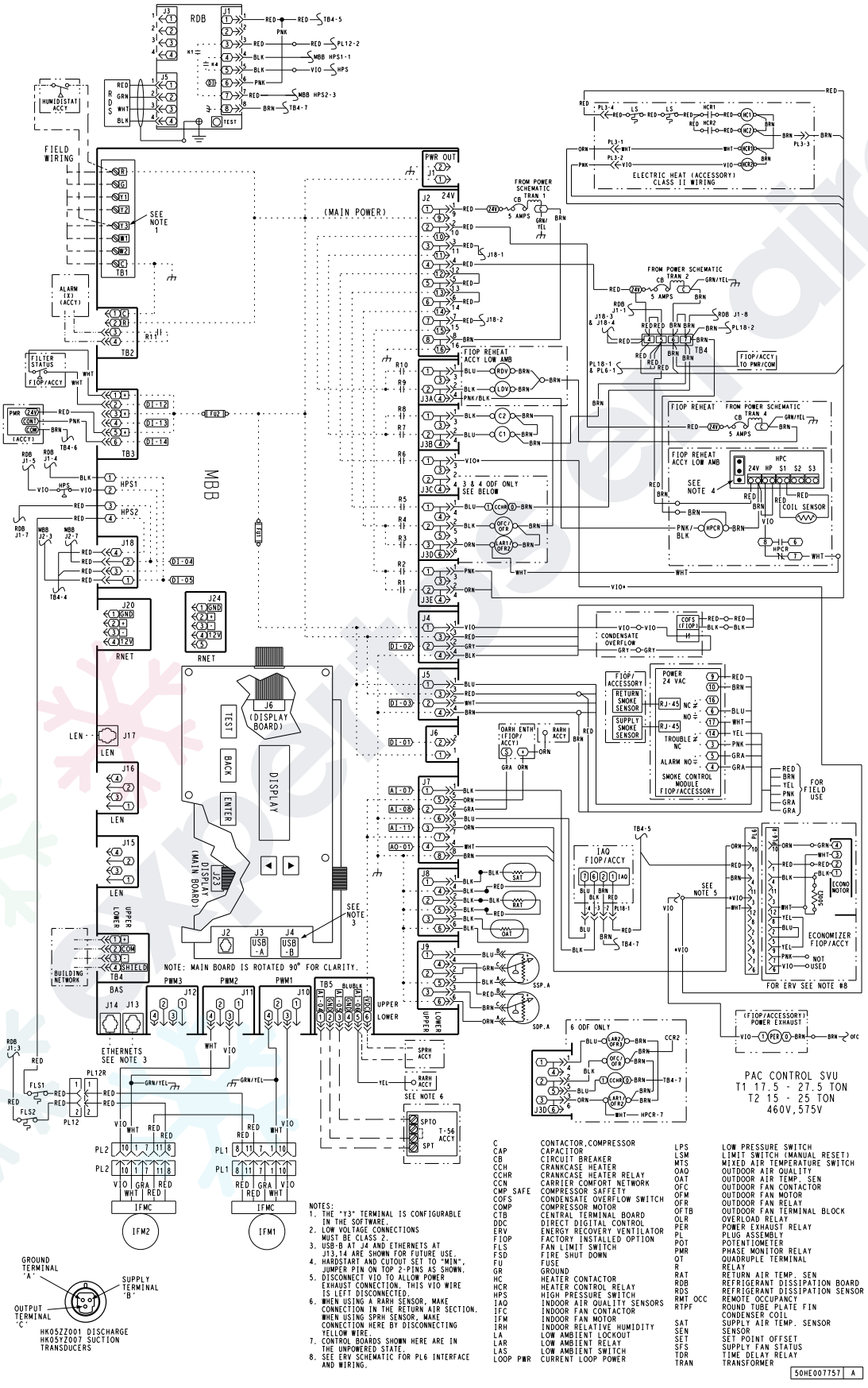
2. TERMINAL BOARD JUMPERS 1,2 AND 3 ARE CUT FOR REHEAT UNITS ONLY.
3. REMOVE DESIGNATED JUMPERS ON TERMINAL BOARD WHEN ADDING SMOKE DETECTORS, OCCUPANCY AND REMOTE SHUTDOWN.
4. USE ABC AS COARSE AND POT AS FINE ADJUSTMENTS FOR SETTING HIGH FAN SPEED. LOW SPEED IS AN OFFSET BASED ON DIP SWITCHES.
5. 2-PIN LOW SPEED DIP SWITCH POSITIONS ARE FACTORY SET AS SHOWN, EXCEPT FOR T1 25 TON, POSITIONS WILL BE 1:OFF AND 2:ON.
6. HARDSTART AND CUTOUT SET TO "MIN". JUMPER PIN ON TOP 2-PINS AS SHOWN.
7. THE * WIRE COLOR IS FOR DIFFERENTIATION WITHIN THIS SCHEMATIC.
8. ON HORIZONTAL SUPPLY UNITS, IFM2 GRA AND WHT WIRES WILL INCLUDE IN-LINE RESISTORS TO REDUCE IT'S SPEED.
9. CONTROL BOARDS SHOWN HERE ARE IN THE UNPOWERED STATE.

ACCY	ACCESSORY
AMB	AMBIENT
C	CONTACTOR,COMPRESSOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CCH	CRANKCASE HEATER
CCHR	CRANKCASE HEATER RELAY
CMB	COMBUSTION
COFS	CONDENSATE OVERFLOW SWT
COMP	COMPRESSOR MOTOR
DDC	DIRECT DIGITAL CONTROL
ERV	ENERGY RECOVERY VENTILATOR
FIOP	FACTORY INSTALLED OPTION
FLS	FAN LIMIT SWITCH
FPT	FREEZE PROTECTION THERMOSTAT
FSD	FIRE SHUT DOWN
FS	FLAME SENSOR
FU	FUSE
GND	GROUND
GVR	GAS VALVE RELAY
HPC	HEAD PRESSURE CONTROL
HPS	HIGH PRESSURE SWITCH
HS	HALL EFFECT SENSOR
I	IGNITOR
IAQ	INDOOR AIR QUALITY SENSORS
IDM	INDUCED DRAFT MOTOR
IFCB	INDOOR FAN CIRCUIT BREAKER
IFM	INDOOR FAN MOTOR
IFMC	INDOOR FAN CONTROLLER
IGC	INTEGRATED GAS CONTROL
JMP	JUMPER
LA	LOW AMBIENT
LDV	LIQUID DIVERTER VALVE
LPS	LOW PRESSURE SWITCH
LSM	LIMIT SWITCH (MANUAL RESET)
LS	LIMIT SWITCH
LTLO	LOW TEMPERATURE LOCKOUT
MGV	MAIN GAS VALVE
MOV	VOLTAGE RESTRICTOR
MTR	MOTOR
MTS	MIXED AIR TEMPERATURE SWITCH
OAQ	OUTDOOR AIR QUALITY
OARH	OUTSIDE AIR RELATIVE HUMIDITY
OAT	OUTDOOR AIR TEMP. SENSOR
OFM	OUTDOOR FAN MOTOR
OFR	OUTDOOR FAN RELAY
OL	OVERLOAD
PL	PLUG ASSEMBLY
POT	POTENTIOMETER
PWR	PHASE MONITOR RELAY
QT	QUADRUPLE TERMINAL
RARH	RETURN AIR RELATIVE HUMIDITY
RAT	RETURN AIR TEMP. SENSOR
RDB	REFRIGERANT DISSIPATION BOARD
RDS	REFRIGERANT DISSIPATION SENSOR
RDV	REHEAT DISCHARGE VALVE
RS	ROLLOUT SWITCH
SAT	SUPPLY AIR TEMP. SENSOR
SEN	SENSOR
SPRH	SPACE RELATIVE HUMIDITY
SPT	SPACE TEMPERATURE SENSOR
SPTO	SPACE TEMPERATURE OFFSET
STD	STANDARD
TB	TERMINAL BLOCK
TDR	TIME DELAY RELAY(WINTER START)
TRAN	TRANSFORMER
UCB	UNIT CONTROL BOARD

Typical wiring diagrams (cont)

50GE-*17-28 Control Wiring Diagram, SystemVu™ Controller

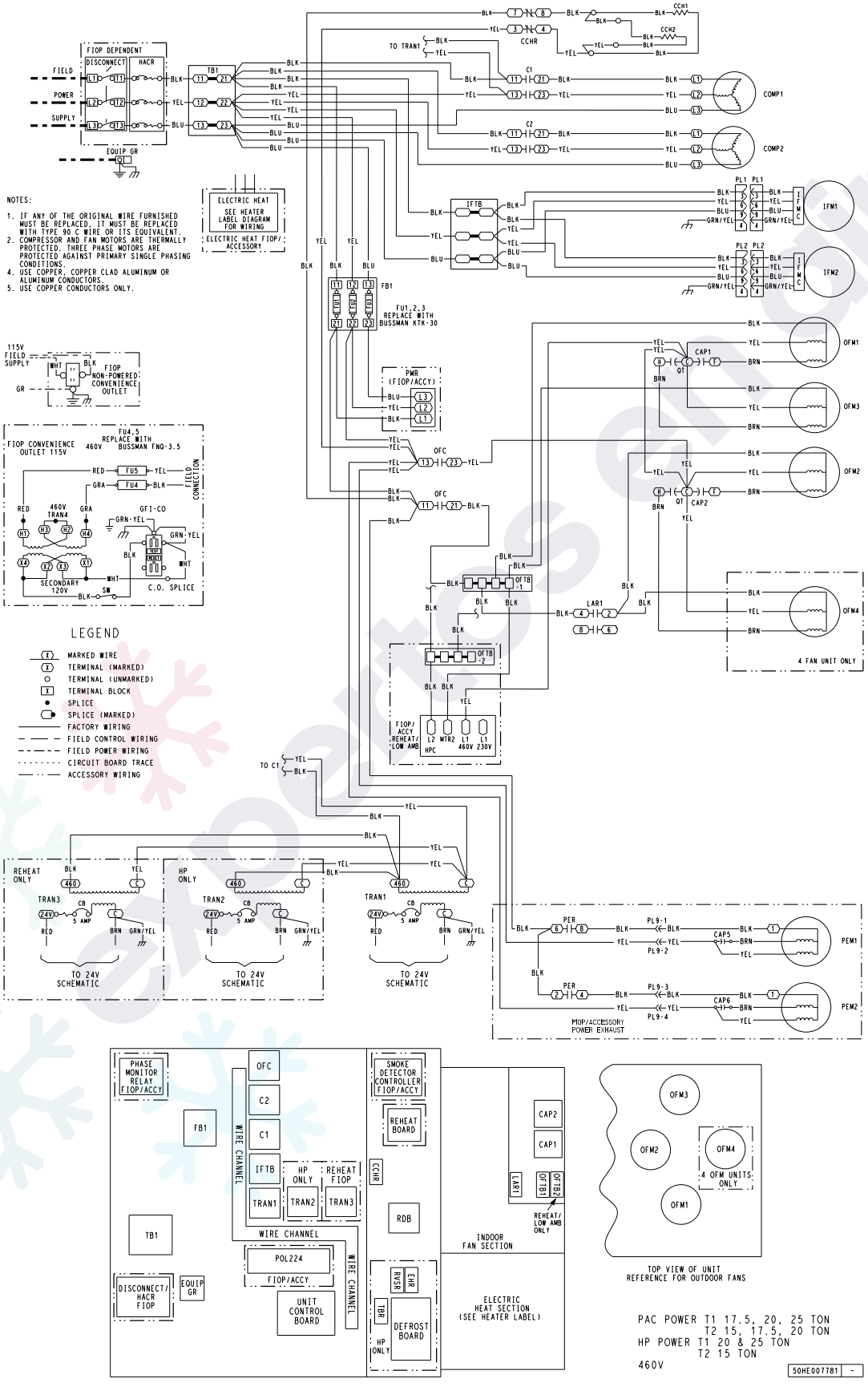


NOTES:
1. THE "Y3" TERMINAL IS CONFIGURABLE IN THE SOFTWARE.
2. LOW VOLTAGE CONNECTIONS MUST BE CLASS 2.
3. USB-B AT J4 AND ETHERNETS AT J13,14 ARE SHOWN FOR FUTURE USE.
4. HARDSTART AND CUTOUT SET TO "MIN", JUMPER PIN ON TOP 2-PINS AS SHOWN.
5. DISCONNECT VIO TO ALLOW POWER EXHAUST CONNECTION. THIS VIO WIRE IS LEFT DISCONNECTED.
6. WHEN USING A RARH SENSOR, MAKE CONNECTION IN THE RETURN AIR SECTION. WHEN USING SPRH SENSOR, MAKE CONNECTION HERE BY DISCONNECTING YELLOW WIRE.
7. CONTROL BOARDS SHOWN HERE ARE IN THE UNPOWERED STATE.
8. SEE ERV SCHEMATIC FOR PL6 INTERFACE AND WIRING.

C	CONTACTOR,COMPRESSOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CCH	CRANKCASE HEATER
CCHR	CRANKCASE HEATER RELAY
CCN	CARRIER COMFORT NETWORK
CMP SAFE	COMPRESSOR SAFFETY
COFS	CONDENSATE OVERFLOW SWITCH
COMP	COMPRESSOR MOTOR
CTB	CENTRAL TERMINAL BOARD
DDC	DIRECT DIGITAL CONTROL
ERV	ENERGY RECOVERY VENTILATOR
FIOP	FACTORY INSTALLED OPTION
FLS	FAN LIMIT SWITCH
FSD	FIRE SHUT DOWN
FU	FUSE
GR	GROUND
HC	HEATER CONTACTOR
HCR	HEATER CONTROL RELAY
HPS	HIGH PRESSURE SWITCH
IAQ	INDOOR AIR QUALITY SENSORS
IFC	INDOOR FAN CONTACTOR
IFM	INDOOR FAN MOTOR
IRH	INDOOR RELATIVE HUMIDITY
LA	LOW AMBIENT LOCKOUT
LAR	LOW AMBIENT RELAY
LAS	LOW AMBIENT SWITCH
LOOP PWR	CURRENT LOOP POWER
LPS	LOW PRESSURE SWITCH
LSM	LIMIT SWITCH (MANUAL RESET)
MTS	MIXED AIR TEMPERATURE SWITCH
OAQ	OUTDOOR AIR QUALITY
OAT	OUTDOOR AIR TEMP. SEN
OFC	OUTDOOR FAN CONTACTOR
OFM	OUTDOOR FAN MOTOR
OFR	OUTDOOR FAN RELAY
OFTB	OUTDOOR FAN TERMINAL BLOCK
OLR	OVERLOAD RELAY
PER	POWER EXHAUST RELAY
PL	PLUG ASSEMBLY
POT	POTENTIOMETER
PMR	PHASE MONITOR RELAY
QT	QUADRUPLE TERMINAL
R	RELAY
RAT	RETURN AIR TEMP. SEN
RDB	REFRIGERANT DISSIPATION BOARD
RDS	REFRIGERANT DISSIPATION SENSOR
RMT OCC	REMOTE OCCUPANCY
RTPF	ROUND TUBE PLATE FIN
	CONDENSER COIL
SAT	SUPPLY AIR TEMP. SENSOR
SEN	SENSOR
SET	SET POINT OFFSET
SFS	SUPPLY FAN STATUS
TDR	TIME DELAY RELAY
TRAN	TRANSFORMER

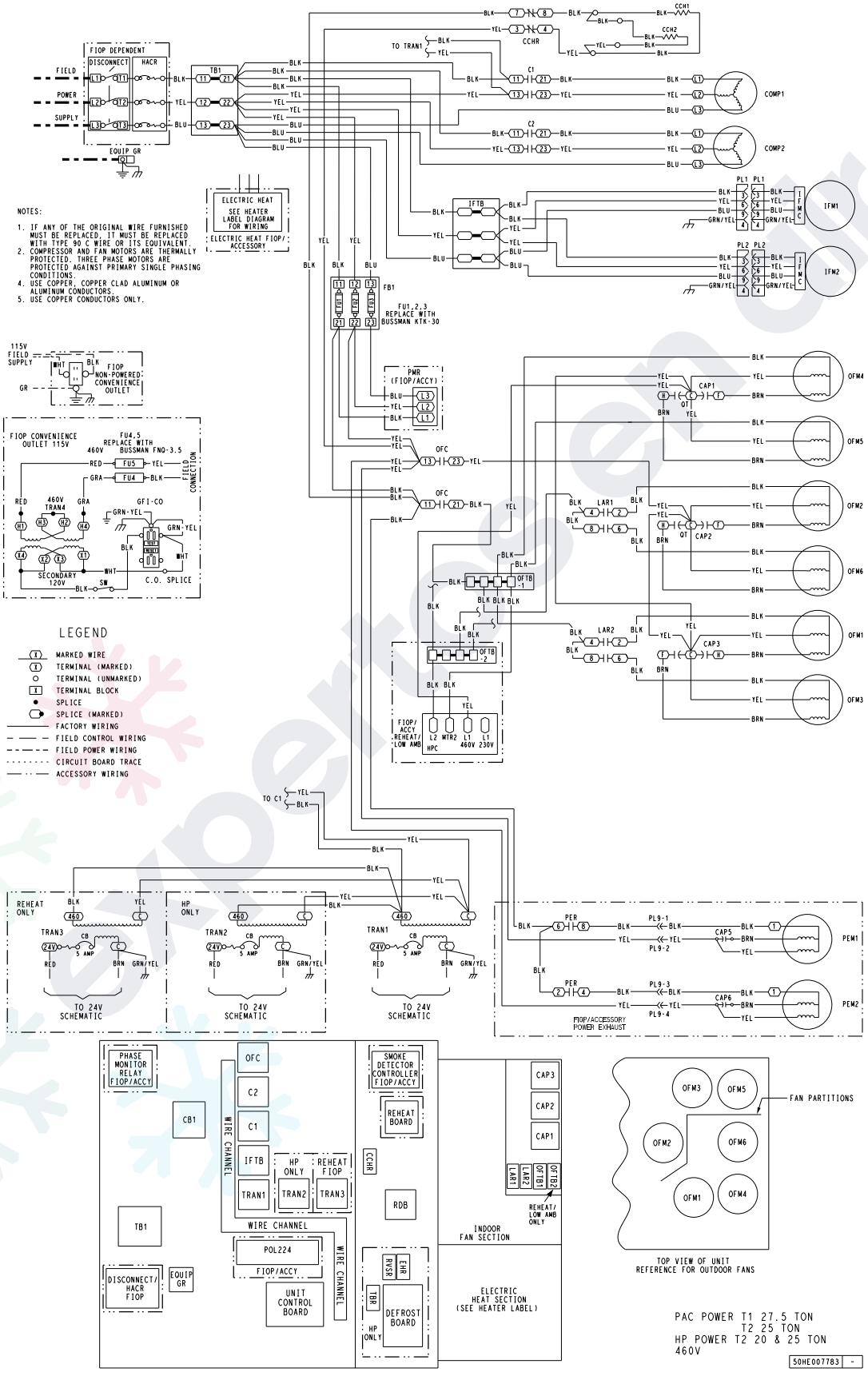
Typical wiring diagrams (cont)

50GE-*17-24 Power Wiring Diagram, Electromechanical with POL224 Controller



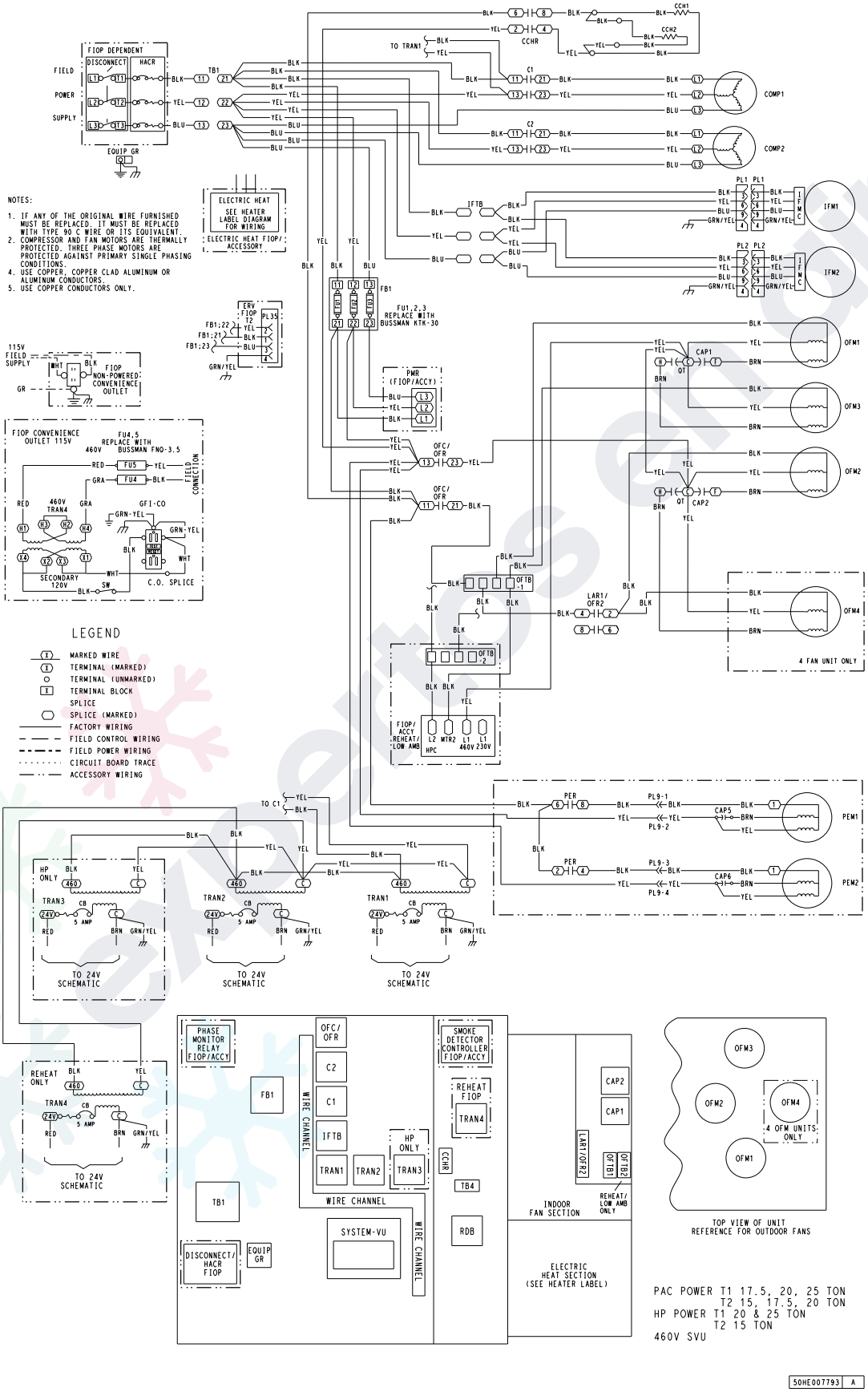
Typical wiring diagrams (cont)

50GE-*28 Power Wiring Diagram, Electromechanical with POL224 Controller



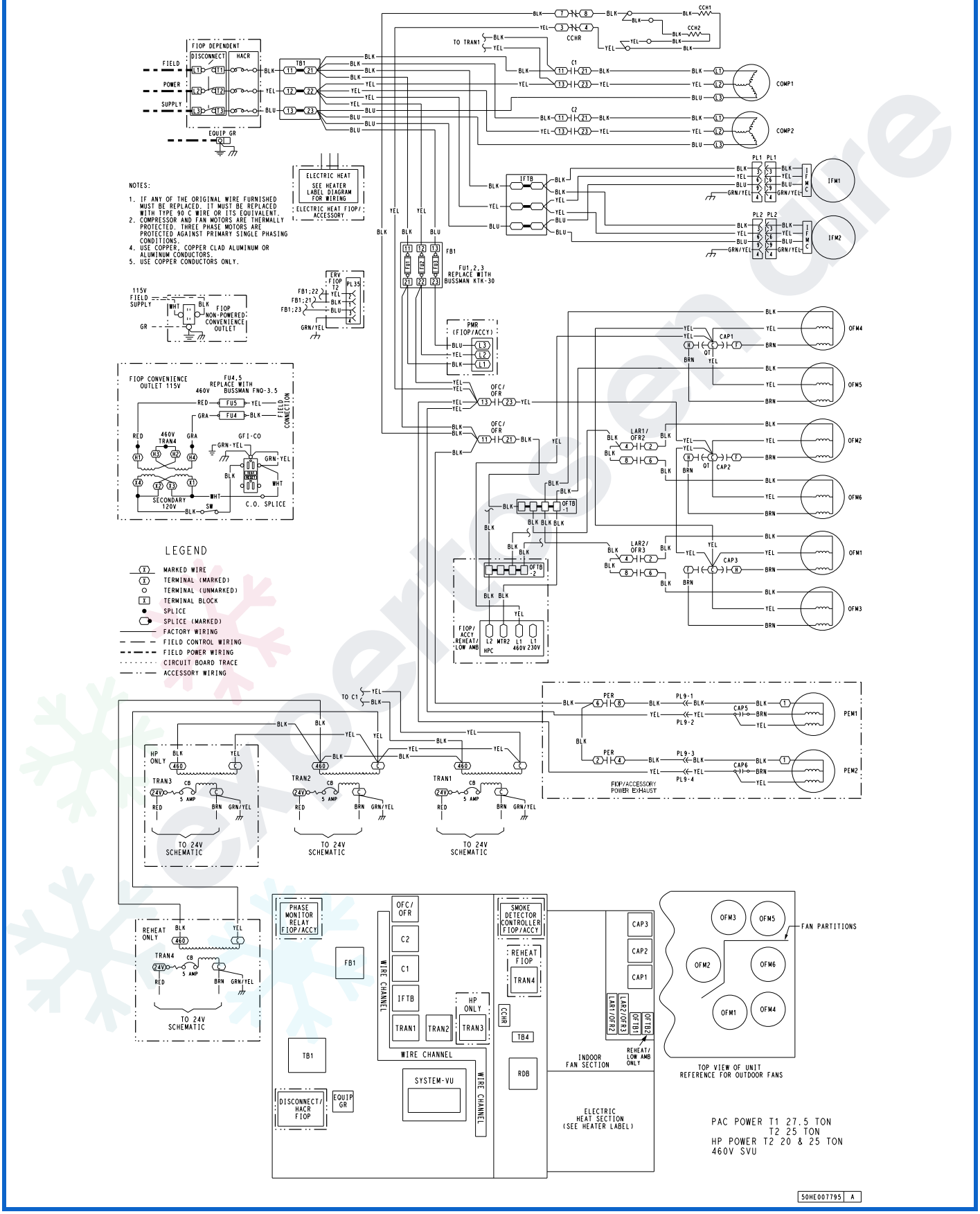
Typical wiring diagrams (cont)

50GE-*17-24 Power Wiring Diagram, SystemVu™ Controller



Typical wiring diagrams (cont)

50GE-*28 Power Wiring Diagram, SystemVu™ Controller



Sequence of operation

General

The sequence below describes the sequence of operation for an electromechanical unit with and without a factory-installed EconomizerONE (POL224 controller). For information regarding a direct digital controller, see the start-up, operations, and troubleshooting manual for the applicable controller.

Electromechanical Units without Economizer

Cooling (2-stage units)

When the thermostat calls for cooling, terminals G and Y1 are energized. The indoor fan will run at the low fan speed and the C1 compressor contactor (CC) is energized causing the compressor and outdoor fan to run. The low indoor fan speed is 60% or 66% of the user set fan speed depending on unit size.

If additional cooling is needed, the thermostat will add the call for Y2. This will increase the indoor fan speed to the user set fan speed and energize the C2 contactor and second compressor for full compressor capacity. The outdoor fan is the same speed for Y1 and Y2.

When the thermostat removes the call for Y2 but leaves the Y1, the indoor fan will slow to the reduced percentage of the user set fan speed, the C2 contactor will de-energize, the second compressor will turn off, and the outdoor fan will remain on. When the thermostat removes the call for Y1 the compressor contactor will de-energize shutting down the compressor and the outdoor fan. When the thermostat removes the call for G, the indoor fan will turn off after the specific unit fan off delay.

NOTE: Per ASHRAE 90.1-2019 and IECC-2018 standards, during the first stage cooling operation the Unit Control Board (UCB) will adjust the fan motor speed to provide 60% or 66% of the total cfm established for the unit.

Gas Heating (48GE units)

NOTE: WeatherMaster® units have 2 stages of gas heat.

When the thermostat calls for heating, power is sent to W on the Integrated Gas Controller (IGC) board. An LED (light-emitting diode) on the IGC board turns on and remains on during normal operation. A check is made to ensure that the roll-out switch and limit switch are closed. If the check was successful, the induced-draft motor is energized, and when its speed is satisfactory, as proven by the flue gas pressure switch, the ignition activation period begins. The burners will ignite within 5 seconds. If the burners do not light, there is a 22 second delay before another 5 second attempt. This sequence is repeated for 15 minutes or until the burners light. If, after the 15 minutes, the burners still have not lit, heating is locked out. To reset the control, break 24-v power to the thermostat.

When ignition occurs, the IGC board will continue to monitor the condition of the roll-out switch, the limit switches, the flue gas pressure switch, as well as the flame sensor. 45 seconds after ignition occurs, assuming the unit is controlled through a room thermostat set for fan auto, the indoor-fan motor will energize (and the outdoor-air dampers will open to their minimum position). If, for some reason, the over-temperature limit opens prior to the start of the indoor fan blower, the unit will shorten the 45 second delay to 5 seconds less than the time from initiation of heat to when the limit tripped. Gas will not be interrupted to the burners and heating will continue. Once the fan-on delay has been modified, it will not change back to 45 seconds until power is reset to the control. On units with 2 stages of heat, when additional heat is required, W2 closes and initiates power to the second stage of the main gas valve. When the thermostat is satisfied, W1 and W2 open and the gas valve closes, interrupting the flow of gas to the main burners. If the unit is controlled through a room thermostat set for fan auto, the indoor-fan motor will continue to operate for an additional 45 seconds then stop. A LED indicator is provided on the IGC to monitor operation.

Electric Heating (50GE units)

NOTE: 50GE units are sold as cooling only. If electric heaters are required, use only factory-approved heaters. They will operate as follows.

Units have either 1 or 2 stages of electric heat. When the thermostat calls for heating, power is applied to G and the W1 terminals at the unit. The unit control will energize the indoor fan contactor and the first stage of electric heat. On units with 2-stage heating, when additional heating is required, the second stage of electric heat (if equipped) will be energized when power is applied at the W2 terminal on the unit.

IMPORTANT: The thermostat must be configured for Electric Heat so it will energize G with the W1 call.

Electromechanical Units with Factory-Installed EconomizerONE

When free cooling is not available, the compressors will be controlled by the zone thermostat. When free cooling is available, the outdoor-air damper is modulated by the EconomizerONE control to provide a 50°F (10°C) to 55°F (13°C) mixed-air temperature into the zone. As the mixed air temperature fluctuates above 55°F (13°C) or below 50°F (10°C) dampers will be modulated (open or close) to bring the mixed-air temperature back within control. If mechanical cooling is utilized with free cooling, the outdoor-air damper will maintain its current position at the time the compressor is started. If the increase in cooling capacity causes the mixed-air temperature to drop below 45°F (7°C), then the outdoor-air damper position will be decreased to the minimum position. If the mixed-air temperature continues to fall, the outdoor-air damper will close. Control returns to normal once the mixed-air temperature rises above 48°F (9°C). The power exhaust fans will be energized and de-energized, if installed, as the outdoor-air damper opens and closes.

If field-installed accessory CO_2 sensors are connected to the EconomizerONE control, a demand controlled ventilation strategy will begin to operate. As the CO_2 level in the zone increases above the CO_2 setpoint (on the EconomizerONE controller), the minimum position of the damper will be increased proportionally until the Maximum Ventilation setting is reached. As the CO_2 level decreases because of the increase in fresh air, the outdoor-air damper will follow the higher demand condition from either the DCV mode or from the free cooling mode. For EconomizerONE operation, there must be a thermostat call for the fan (G). If the unit is occupied and the fan is on, the damper will operate at minimum position. Otherwise, the damper will be closed.

When the EconomizerONE control is in the occupied mode and a call for cooling exists (Y1 on the thermostat), the control will first check for indoor fan operation. If the fan is not on, then cooling will not be activated. If the fan is on, then the control will open the EconomizerONE damper to the minimum position.

Sequence of operation (cont)

On the initial power to the EconomizerONE control, it will take the damper up to 2 1/2 minutes before it begins to position itself. After the initial power-up, further changes in damper position can take up to 90 seconds to initiate. Damper movement from full closed to full open (or vice versa) will take between 1 1/2 and 2 1/2 minutes. If free cooling can be used as determined from the appropriate changeover command (dry bulb, outdoor enthalpy, differential dry bulb, or differential enthalpy), then the control will modulate the dampers open and closed to maintain the mixed-air temperature setpoint at 50°F (10°C) to 55°F (13°C). If there is a further demand for cooling (cooling second stage — Y2 is energized), then the control will bring on compressor stage 1 to maintain the mixed-air temperature setpoint. The EconomizerONE damper will be open at maximum position.

2-Speed Note: The EconomizerONE controller will adjust the damper position as the Indoor Fan Speed changes, per its configured values.

Heating

The sequence of operation for heating is the same as an electromechanical unit without an economizer. The only difference is how the economizer acts. The economizer will stay at the Economizer Minimum Position while the evaporator fan is operating. The outdoor-air damper is closed when the indoor fan is not operating. Refer to Service and Maintenance manual for further details.

Optional Humidi-MiZer® dehumidification system

Units with the factory equipped Humidi-MiZer system option are capable of providing multiple modes of improved dehumidification as a variation of the normal cooling cycle. The Humidi-MiZer system option includes additional valves in the liquid line and discharge line of each refrigerant circuit, a small reheat condenser coil downstream of the evaporator, and variable-speed control of some or all outdoor fans. Operation of the revised refrigerant circuit for each mode is described below.

The Humidi-MiZer system provides 3 sub-modes of operation: Cool, Reheat1, and Reheat2.

Cool mode — Provides a normal ratio of Sensible and Latent Cooling effect from the evaporator coil.

Reheat1 — Provides increased Latent Cooling while slightly reducing the Sensible Cooling effect.

Reheat2 — Provides normal Latent Cooling but with null or minimum Sensible Cooling effect delivered to the space.

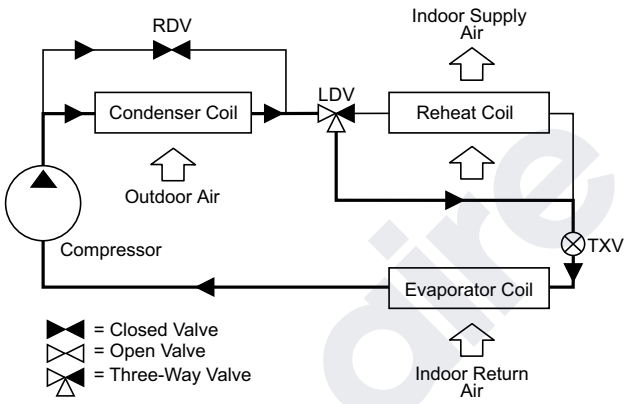
The Reheat1 and Reheat2 modes are available when the unit is not in a Heating mode and when the Low Ambient Lockout switch is closed.

Refer to the following figures for piping flow diagrams.

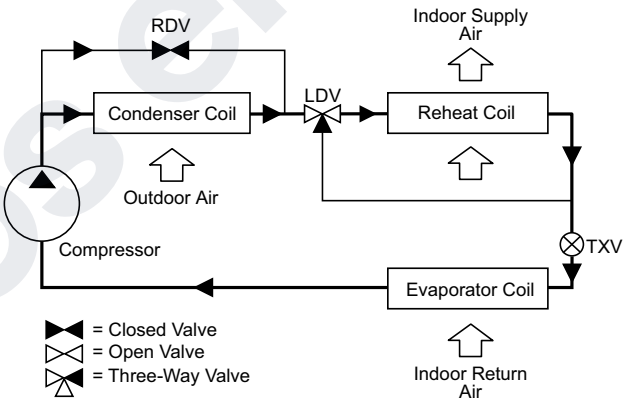
SystemVu™ controller (factory option)

For details on operating 48/50GE units equipped with the factory-installed SystemVu controller option, refer to FE/GE Series Single Package Rooftop Units with SystemVu Controller Controls, Start-Up, Operation and Troubleshooting manual.

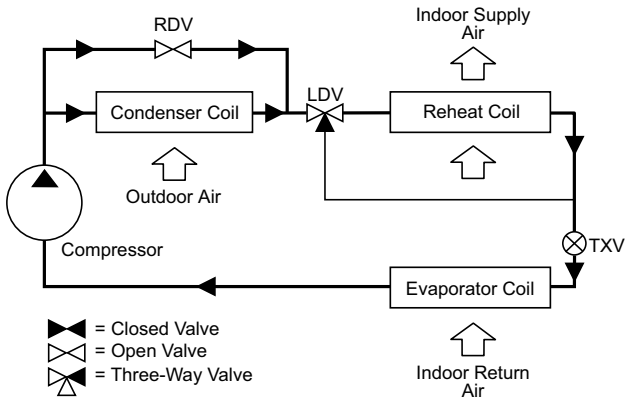
Normal Cooling Mode



Subcooling Mode (Reheat1)



Hot Gas Reheat Mode (Reheat2)



LEGEND

LDV — Liquid Diverter Valve
RDV — Reheat Discharge Valve
TXV — Thermostatic Expansion Valve

Application data

Minimum operating ambient temperature (cooling)

In mechanical cooling mode, your Carrier rooftop unit can safely operate down to an outdoor ambient temperature of 40°F (4°C). It is possible to provide cooling at lower outdoor ambient temperatures by using less outside air, economizers, and/or accessory low ambient kits.

Maximum operating ambient temperature (cooling)

The maximum operating ambient temperature for cooling mode is 125°F (52°C). While cooling operation above 125°F (52°C) may be possible, it could cause either a reduction in performance, reliability, or a protective action by the unit's internal safety devices.

Multiple motor and drive packages

Some applications need larger horsepower motors, some need more airflow, and some need both. Regardless of the case, your Carrier expert has a factory installed combination to meet your application. A wide selection of motors are available, factory installed, to handle nearly any application.

Stainless steel heat exchanger (48GE units only)

The stainless steel heat exchanger option provides the tubular heat exchanger be made out of a minimum 20 gauge type 409 stainless steel for applications where the mixed air to the heat exchanger is expected to drop below 45°F (7°C). Stainless steel may be specified on applications where the presence of airborne contaminants require its use (applications such as paper mills) or in area with very high outdoor humidity that may result in severe condensation in the heat exchanger during cooling operation.

Minimum mixed air temperature (heating) (48GE units only)

Using the factory settings, the minimum temperatures for the mixed air (the combined temperature of the warm return air and the cold outdoor air) entering the dimpled, gas heat exchangers are shown in the following table.

Minimum Temperature for Mixed Air Temperature

ALUMINIZED	STAINLESS STEEL
50°F (10°C) Continuous	40°F (4°C) Continuous
45°F (7°C) Intermittent	35°F (2°C) Intermittent

Operating at lower mixed-air temperatures may be possible, if a field-supplied, outdoor air thermostat initiates both heat stages when the temperature is less than the minimum temperatures listed above. Please contact your local Carrier representative for assistance.

Minimum and maximum airflow (heating and cooling)

To maintain safe and reliable operation of your rooftop, operate within the heating airflow limits during heating mode and cooling airflow limits during cooling mode. Operating above the maximum may cause blow-off, undesired airflow noise, or airflow related problems with the rooftop unit. Operating below the minimum may cause problems with coil freeze-up and unsafe heating operation. Heating and cooling limitations differ when evaluating operating cfm, minimum value is the HIGHER of the cooling and heating minimum cfm values published on page 8 and the maximum value is the LOWER of the cooling and heating minimum values published on page 8.

Heating-to-cooling changeover

Your unit will automatically change from heating to cooling mode when using a thermostat with an auto-changeover feature.

Airflow

All units are draw-though in cooling mode and blow-through in heating mode.

Outdoor air application strategies

Economizers reduce operating expenses and compressor run time by providing a free source of cooling and a means of ventilation to match application changing needs. In fact, they should be considered for most applications. Also, consider the various economizer control methods and their benefits, as well as sensors required to accomplish your application goals. Please contact your local Carrier representative for assistance.

Motor limits, brake horsepower (bhp)

Due to internal design of Carrier units, the air path, and specially designed motors, the full horsepower (maximum continuous bhp) band, as listed in the Fan Performance tables, can be used with the utmost confidence. There is no need for extra safety factors, as Carrier motors are designed and rigorously tested to use the entire, listed bhp range without either nuisance tripping or premature motor failure.

Propane heating (48GE units only)

Propane has different physical qualities than natural gas. As a result, propane requires different fuel to air mixture. To optimize the fuel/air mixture for propane, Carrier sells different burner orifices in an easy to install accessory kit. To select the correct burner orifices or determine the heat capacity for a propane application, use either the selection software, or the unit's service manual.

High altitude heating

High altitudes have less oxygen, which affects the fuel/air mixture in heat exchangers. In order to maintain a proper fuel/air mixture, heat exchangers operating in altitudes above 2000 ft (610 m) require different orifices. To select the correct burner orifices or determine the heat capacity for a high altitude application, use either the selection software, or the unit's service manual.

High altitudes have less oxygen, which means heat exchangers need less fuel. The new gas orifices in this field-installed kit make the necessary adjustment for high altitude applications. They restore the optimal fuel to air mixture and maintain healthy combustion on altitudes above 2000 ft (610 m).

NOTE: Typical natural gas heating value ranges from 975 to 1050 Btu/ft^3 at sea level nationally. The heating value goes down approximately 1.7% per every thousand feet elevation. Standard factory orifices can typically be used up to 2000 ft (610 m) elevation without any operational issues.

Application data (cont)

Sizing a rooftop

Bigger is not necessarily better. While an air conditioner needs to have enough capacity to meet the design loads, it does not need excess capacity. In fact, excess capacity typically results in very poor part load performance and humidity control.

Using higher design temperatures than ASHRAE recommends for your location, adding "safety factors" to the calculated load, are all signs of oversizing air conditioners. Oversizing the air conditioner leads to poor humidity control, reduced efficiency, higher utility bills, larger indoor temperature swings, excessive noise, and increased wear and tear on the air conditioner.

Rather than oversizing an air conditioner, engineers should "right-size" or even slightly "under-size" air conditioners. Correctly sizing an air conditioner controls humidity better; promotes efficiency; reduces utility bills; extends equipment life, and maintains even, comfortable temperatures. Please contact your local Carrier representative for assistance.

Low ambient applications

The optional Carrier economizer can adequately cool your space by bringing in fresh, cool outside air. In fact, when so equipped, accessory low-ambient kit may not be necessary. In low ambient conditions, unless the outdoor air is excessively humid or contaminated, economizer-based "free cooling" is the preferred less costly and energy conscious method. In low ambient applications where outside air might not be desired (such as contaminated or excessively humid outdoor environments), your Carrier rooftop can operate to ambient temperatures down to –0°F (–18°C) using the recommended accessory low ambient controller.

Guide specifications — 48GE

Note about this specification:
This specification is in the "Masterformat" as published by the Construction Specification Institute. Please feel free to copy this specification directly into your building spec.

Puron ADVANCE™

Gas Heat/Electric Cooling Packaged Rooftop

HVAC Guide Specifications

Size Range: **15 to 25 Nominal Tons**
Carrier Model Number: **48GE*17-28**

Part 1 — (23 06 80) Schedules for Decentralized HVAC Equipment

1.01 (23 06 80.13) Decentralized Unitary HVAC Equipment Schedule

A. (23 06 80.13.A.) Rooftop Unit (RTU) Schedule:

Schedule is per the project specification requirements.

Part 2 — (23 07 16) HVAC Equipment Insulation

2.01 (23 07 16.13) Decentralized, Rooftop Units:

A. (23 07 16.13.A.) Evaporator Fan Compartment:

1. Interior cabinet surfaces shall be insulated with a minimum 1/2 in. thick, minimum 1 1/2 lb density, flexible fiberglass insulation bonded with a phenolic binder, neoprene coated on the air side.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

B. (23 07 16.13.B.) Gas Heat Compartment:

1. Aluminum foil-faced fiberglass insulation shall be used.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

Part 3 — (23 09 13) Instrumentation and Control Devices for HVAC

3.01 (23 09 13.23) Sensors and Transmitters

A. (23 09 13.23.A.) Thermostats:

1. Thermostat must:
   a. energize both "W" and "G" when calling for heat.
   b. have capability to energize 1 or 2 stages of cooling, and 2 different stages of heating.
   c. include capability for occupancy scheduling.

Part 4 — (23 09 23) Direct Digital Control system for HVAC

4.01 (23 09 23.13) Decentralized, Rooftop Units:

A. (23 09 23.13.A.) SystemVu™ intelligent integrated Direct Digital Control (DDC) shall provide:

1. Integrated unit operation for comfort cooling, heating ventilation as well as all monitoring, recording and reporting capabilities. Controller shall also provide diagnostics and alarms of abnormal unit operation through the controller. Controller shall have an intuitive user display and be able to be used in a standalone operation or via building automation system (BAS).
2. Quick Unit Status LEDs of: RUN — meaning all systems are go, ALERT — that indicates there is currently a non-critical issue with the unit, like filters need to be replaced and FAULT — that indicates the unit has a critical issue and will possibly shut down.
3. Six large navigation keys for easy access. Navigation keys shall consist of: TEST, BACK, ENTER, and MENU along with UP and DOWN arrows.
4. Full back lit user display with 4 line by 30 character text capabilities. Display menu shall be designed to provide guided major menus and sub menus main menus provided below:
   a. Shutdown Unit
   b. Run Status
   c. Settings
   d. Alerts/Faults
   e. Service
   f. Inputs
   g. Outputs
   h. USB
5. The capability for standalone operation with conventional thermostat/sensor or use with building automation systems (BAS) of Carrier i-Vu®, BACnet®[1] and Carrier Comfort Network® (CCN) systems. No special modules or boards are required for these capabilities. Has the capability to work with Equipment Touch™ and System Touch™ devices and ZS Sensors.
6. The ability to read refrigerant pressures at display or via BAS network of Discharge Pressure and Suction Pressure. The need for traditional refrigerant gauges is not required.
7. USB Data Port for flash drive interaction. This will allow the transfer of data for uploads, downloads, perform software upgrades, back-up and restore data and file transfer data such as component number of starts and run hours.
8. Reverse Rotation Protection of compressors if field 3-phase wiring is misapplied.
9. Provide service capabilities of:
   a. Auto run test
   b. Manual run test
   c. Component run hours and starts
   d. Commissioning reports
   e. Data logging
   f. Alarm history

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10. Economizer control and diagnostics. Set up economizer operation, receive feedback from actuator. Also meets the most recent California Title 24, ASHRAE 90.1 and IECC®[1] Fault Detection and Diagnostic (FDD) requirements.
11. Unit cooling operation down to 40°F (4°C).
12. Controller shall have easy access connections around the controller perimeter area and consist of Mate-N-Lok®[1], terminal block and RJ style modular jack connections.
13. 365 day real time clock, 20 holiday schedules along with occupied and unoccupied scheduling.
14. Auto-Recognition for easy installation and commissioning of devices like economizers, space sensors etc.
15. A 5°F (3°C) temperature difference between cooling and heating setpoints to meet the latest ASHRAE 90.1 Energy Standard.
16. Contains return air sensor, supply air sensor and outdoor air sensor to help monitor and provide data for the unit comfort operation, diagnostic and alarms.
17. Use of Carrier's field accessory Equipment Touch and System Touch devices.
18. Units with the factory-installed Humidi-MiZer® system option are capable of providing multiple modes of improved dehumidification as a variation of the normal cooling cycle.
19. Supply Air Tempering control operates the gas or electric heat to maintain a minimum supply air temperature during conditions where very cold outdoor air causes the supply air temperature to fall below the configured Supply Air Tempering Setpoint. This occurs during periods where DCV is active and increasing the amount of outdoor air or in cases where the system is operating at very low airflow and the calculated economizer position has increased to maintain a constant ventilation rate.
20. Demand limiting in SystemVu™ controller is achieved through setpoint expansion. The systems heating and cooling setpoints are expanded in steps or levels. The degree to which the setpoints may be expanded is defined by the 6 demand level offsets and the 2 commanded demand limit levels.
21. 3-year limited part warranty.

Part 5 — (23 09 33) Electric and Electronic Control System for HVAC

5.01 (23 09 33.13) Decentralized, Rooftop Units:

A. (23 09 33.13.A.) General:

1. Shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-v transformer side. Transformer shall have 75VA capability.
2. Shall utilize color-coded wiring.
3. Shall include a Unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, gas controller, economizer, thermostat, DDC control options, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.
4. The heat exchanger shall be controlled by an integrated gas controller (IGC) microprocessor. See gas heat section of this specification.
5. Unit shall include a minimum of one 8-pin screw terminal connection board for connection of control wiring.

B. (23 09 33.13.B.) Safeties:

1. Compressor over-temperature, over-current. High internal pressure differential.
2. Low Pressure Switch.

   Low pressure switch shall use different color wire than the high pressure switch. The purpose is to assist the installer and service technician to correctly wire and or troubleshoot the rooftop unit.
3. High Pressure Switch.

   High pressure switch shall use different color wire than the low pressure switch. The purpose is to assist the installer and service technician to correctly wire and or troubleshoot the rooftop unit.
4. Mixed Air Auto Reset Temperature Switch.

   All cooling units contain a low return air (or mixed air - depending on unit configuration) temperature switch for compressor protection. The switch prevents compressor operation at mixed air temperatures below 60°F (16°C) to ensure long term reliability but allows continued fan and economizer operation (if in-stalled). The switch will automatically reset when the return/mixed air temperature warms above 65°F (18°C) and will allow compressor operation to continue.
5. Automatic Reset, Motor Thermal Overload Protector.
6. Heating section shall be provided with the following minimum protections:
   a. High temperature limit switches.
   b. Induced draft motor speed sensor.
   c. Flame rollout switch.
   d. Flame proving controls.

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7. A2L Refrigerant Leak Dissipation System (Electromechanical)
   a. Leak dissipation system shall consist of control board and A2L sensor certified to UL 60335-2-40.
   b. System shall be designed for the life of the unit.
   c. Dissipation system shall be automatic, ship pre-wired, and require no additional field connections to thermostat to function.
   d. Refrigerant leak sensor shall be installed in UL certified location and orientation. Sensor shall be self-correcting and resettable. Single use refrigerant leak sensor shall not be permitted.
   e. Factory installed dissipation controller shall use onboard microprocessor and include:
      1) Automatic reset after a dissipation event has occurred
      2) Onboard LED with flash code to indicate current unit status and hardware failures
      3) Depressible "Test" button to allow for a system test and recall/reset of leak detection history
      4) 24V dry contact alarm terminal to allow for external notification of leak detection
   f. Dissipation control board shall be accessible via normal maintenance locations and LED shall be visible.
   g. Dissipation system shall "Fail Safe" per UL requirements.
   h. Dissipation shall allow smoke and building fire systems to override in case of event.
8. A2L Refrigerant Leak Dissipation System (SystemVu)
   a. Leak dissipation system shall consist of control board and A2L sensor certified to UL 60335-2-40, integrated with SystemVu controller.
   b. System shall be designed for the life of the unit.
   c. Dissipation system shall be automatic, ship pre-wired, and require no additional field connections to function.
   d. Refrigerant leak sensor shall be installed in UL certified location and orientation. Sensor shall be self-correcting and resettable. Single use refrigerant leak sensor shall not be permitted.
   e. Factory installed dissipation system shall use onboard microprocessor and include:
      1) Automatic leak detection and dissipation algorithm
      2) Automatic reset after a dissipation event has occurred
      3) Onboard LED with flash code to indicate current unit status and hardware failures
      4) Depressible "Test" button to allow for a system test and recall/reset of leak detection history
      5) 24V dry contact alarm terminal on dissipation control board to allow for external notification of leak detection
      6) Ability to notify BAS system of dissipation event via readable alarm point through SystemVu
      7) Recallable dissipation alarm history on SystemVu controller
   f. Dissipation control board shall be accessible via normal maintenance locations and LED shall be visible.
   g. Dissipation system shall "Fail Safe" per UL requirements.
   h. Dissipation shall allow smoke and building fire systems to override in case of event.

Part 6 — (23 09 93) Sequence of Operation for HVAC Controls

6.01 (23 09 93.13) Decentralized, Rooftop Units:
   A. (23 09 93.13.A.) INSERT SEQUENCE OF OPERATION

Part 7 — (23 40 13) Panel Air Filters

7.01 (23 40 13.13) Decentralized, Rooftop Units:
   A. (23 40 13.13.A.) Standard Filter Section:
      1. Shall consist of factory installed, low velocity, disposable 2 in. thick fiberglass filters of commercially available sizes.
      2. Unit shall use only one filter size. Multiple sizes are not acceptable.
      3. Filters shall be accessible through an access panel with "no-tool" removal as described in the unit cabinet section of this specification (23 81 19.13.G).

Part 8 — (23 81 19) Self-Contained Air Conditioners

8.01 (23 81 19.13) Small-Capacity Self-Contained Air Conditioners:
   A. (23 81 19.13.A.) General:
      1. Outdoor, rooftop mounted, electrically controlled, heating and cooling unit utilizing a fully hermetic scroll compressor(s) for cooling duty and gas combustion for heating duty.
      2. Factory assembled, single-piece heating and cooling rooftop unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and special features required prior to field start-up.
      3. Unit shall use Puron Advance™ (R-454B) refrigerant.
      4. Unit shall be installed in accordance with the manufacturer's instructions.
      5. Unit must be selected and installed in compliance with local, state, and federal codes.

B. (23 81 19.13.B.) Quality Assurance:
   1. Unit meets DOE and ASHRAE 90.1 minimum efficiency requirements.
   2. Unit shall be rated in accordance with AHRI Standards 340/360.
   3. Unit shall be designed to conform to ASHRAE 15.
   4. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements.
   5. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
   6. Unit casing shall be capable of withstanding 500 hour salt spray exposure per ASTM B117 (scribed specimen).
   7. Unit shall be designed in accordance with ISO 9001, and shall be manufactured in a facility registered by ISO 9001:2015.
   8. Roof curb shall be designed to conform to NRCA Standards.
   9. Unit shall be subjected to a completely automated run test on the assembly line. The data for each unit will be stored at the factory, and must be available upon request.
   10. Unit shall be designed in accordance with UL Standard 600335-1 and 60335-2-40,to withstand rain. Unit shall be IPX4 rated.
   11. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph.
   12. Unit shake tested to assurance level 1, ASTM D4169 to ensure shipping reliability.

C. (23 81 19.13.C.) Delivery, Storage, and Handling:
   1. Unit shall be stored and handled per manufacturer's recommendations.
   2. Lifted by crane requires either shipping top panel or spreader bars.
   3. Unit shall only be stored or positioned in the upright position.

D. (23 81 19.13.D.) Project Conditions:
   1. As specified in the contract.

E. (23 81 19.13.E.) Operating Characteristics:
   1. Unit shall be capable of starting and running at 125°F (52°C) ambient outdoor temperature meeting maximum load criteria of AHRI Standard 340/360 at ±10% voltage.
   2. Compressor with standard controls shall be capable of operation down to 40°F (4°C) ambient outdoor temperatures.
   3. Unit shall discharge supply air vertically or horizontally as shown on contract drawings.
   4. Unit shall be factory configured for vertical supply and return configurations or horizontal supply and return configurations. Unit shall not require field conversion.

F. (23 81 19.13.F.) Electrical Requirements:
   1. Main power supply voltage, phase, and frequency must match those required by the manufacturer.

G. (23 81 19.13.G.) Unit Cabinet:
   1. Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a prepainted baked enamel finish on all externally exposed surfaces.
   2. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003 inches minimum, gloss (per ASTM D523, 60°F/16°C): 60, Hardness: H-2H Pencil hardness.
   3. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 340/360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum 1/2 in. thick, 1 lb density, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the heat compartment.
   4. Base of unit shall have a minimum of 4 locations for thru-the-base gas and electrical connections (factory-installed or field-installed), standard.
   5. Base Rail:
      a. Unit shall have base rails on a minimum of 2 sides.
      b. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.
      c. Holes shall be provided in the base rail for moving the rooftop by fork truck.
      d. Base rail shall be a minimum of 16 gauge thickness.
   6. Condensate Pan and Connections:
      a. Shall be a sloped condensate drain pan made of a corrosion resistant material.
      b. Shall comply with ASHRAE Standard 62.
      c. Shall use a 3/4 in. 14 NPT drain connection, possible either through the side of the drain pan. Connection shall be made per manufacturer's recommendations.
   7. Top Panel:
      a. Shall be a multi-top panel linked with watertight flanges and locking systems.
   8. Gas Connections:
      a. All gas piping connecting to unit gas valve shall enter the unit cabinet at a single location on side of unit (horizontal plane).
      b. Thru-the-base capability.
         1) Standard unit shall have thru-the-base gas-line location using a raised, embossed portion of the unit basepan standard.

2) No basepan penetration, other than those authorized by the manufacturer, is permitted.

9. Electrical Connections:
   a. All unit power wiring shall enter unit cabinet at a single, factory prepared, knockout location.
   b. Thru-the-base capability.
      1) Standard unit shall have a thru-the-base electrical location(s) using a raised, embossed portion of the unit basepan.
      2) No basepan penetration, other than those authorized by the manufacturer, is permitted.
10. Component Access Panels (standard):
   a. Cabinet panels shall be easily removable for servicing.
   b. Unit shall have one factory installed, tool-less, filter access panel.
   c. Panels covering control box, indoor fan, indoor fan motor, gas components (where applicable), and compressors shall have molded composite handles.
   d. Handles shall be UV modified, composite. They shall be permanently attached, and recessed into the panel.
   e. Screws on the vertical portion of all removable access panel shall engage into heat resistant, molded composite collars.
   f. Collars shall be removable and easily replaceable using manufacturer recommended parts.

H. (23 81 19.13.H.) Gas Heat:
1. General:
   a. Heat exchanger shall be an induced draft design. Positive pressure heat exchanger designs shall not be allowed.
   b. Shall incorporate a direct-spark ignition system and redundant main gas valve.
   c. Gas supply pressure at the inlet to the rooftop unit gas valve must match that required by the manufacturer.
2. The heat exchanger shall be controlled by an integrated gas controller (IGC) microprocessor:
   a. IGC board shall notify users of fault using an LED (light-emitting diode).
   b. The LED shall be visible without removing the control box access panel.
   c. IGC board shall contain algorithms that modify evaporator fan operation to prevent future cycling on high temperature limit switch.
   d. Unit shall be equipped with anti-cycle protection with one short cycle on unit flame rollout switch or 4 continuous short cycles on the high temperature limit switch. Fault indication shall be made using an LED.
3. Standard Heat Exchanger Construction:
   a. Heat exchanger shall be of the tubular-section type constructed of a minimum of 20 gauge steel coated with a nominal 1.2 mil aluminum-silicone alloy for corrosion resistance.
   b. Burners shall be of the in-shot type constructed of aluminum-coated steel.
   c. Burners shall incorporate orifices for rated heat output up to 2000 ft (610 m) elevation. Additional accessory kits may be required for applications above 2000 ft (610 m) elevation, depending on local gas supply conditions.
   d. Each heat exchanger tube shall contain multiple dimples for increased heating effectiveness.
4. Optional Stainless Steel Heat Exchanger Construction:
   a. Use energy saving, direct-spark ignition system.
   b. Use a redundant main gas valve.
   c. Burners shall be of the in-shot type constructed of aluminum-coated steel.
   d. All gas piping shall enter the unit cabinet at a single location on side of unit (horizontal plane).
   e. The optional stainless steel heat exchanger shall be of the tubular-section type, constructed of a minimum of 20 gauge type 409 stainless steel.
   f. Type 409 stainless steel shall be used in heat exchanger tubes and vestibule plate.
   g. Complete stainless steel heat exchanger allows for greater application flexibility.
5. Induced Draft Combustion Motor and Blower:
   a. Shall be a direct-drive, single inlet, forward-curved centrifugal type.
   b. Shall be made from steel with a corrosion resistant finish.
   c. Shall have permanently lubricated sealed bearings.
   d. Shall have inherent thermal overload protection.
   e. Shall have an automatic reset feature.

I. (23 81 19.13.I.) Coils:
1. Standard Aluminum Fin-Copper Tube Coils:
   a. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally helical grooved copper tubes with all joints brazed.
   b. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and

qualified to UL 60335-2-40 burst test at 1775 psig.

c. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 60335-2-40 burst test at 1980 psig.

2. Optional Pre-coated Aluminum-Fin Condenser Coils:
   a. Shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments.
   b. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube.
   c. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.
   d. Corrosion durability of fin stock shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117.
   e. Corrosion durability of fin stock shall be confirmed through testing to have no visible corrosion after 48 hour immersion in a room temperature solution of 5% salt, 1% acetic acid.
   f. Fin stock coating shall pass 2000 hours of the following: one week exposure in the prohesion chamber followed by one week of accelerated ultraviolet light testing. Prohesion chamber: the solution shall contain 3.5% sodium chloride and 0.35% ammonium sulfate. The exposure cycle is one hour of salt fog application at ambient followed by one hour drying at 95°F (35°C).
3. Optional Copper-fin Evaporator and Condenser Coils:
   a. Shall be constructed of copper fins mechanically bonded to copper tubes and copper tube sheets.
   b. Galvanized steel tube sheets shall not be acceptable.
   c. A polymer strip shall prevent coil assembly from contacting the sheet metal coil pan to minimize potential for galvanic corrosion between coil and pan.
4. Optional E-coated Aluminum-Fin Evaporator and Condenser Coils:
   a. Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins.
   b. Coating process shall ensure complete coil encapsulation of tubes, fins and headers.
   c. Color shall be high gloss black with gloss per ASTM D523-89.
   d. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges.
   e. Superior hardness characteristics of 2H per ASTM D3363- and cross-hatch adhesion of 4B-5B per ASTM D3359.
   f. Impact resistance shall be up to 160 in. lb (ASTM D2794).
   g. Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247 and ASTM D870).
   h. Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117.

J. (23 81 19.13.J.) Refrigerant Components:
1. Refrigerant circuit shall include the following control, safety, and maintenance features:
   a. Thermostatic Expansion Valve (TXV) shall help provide optimum performance across the entire operating range. Shall contain removable power element to allow change out of power element and bulb without removing the valve body.
   b. Refrigerant filter drier — Solid core design with pre and post filter service gauge connections for filter diagnostics and maintenance.
   c. Service gauge connections on suction and discharge lines.
   d. Pressure gauge access through a specially designed access port in the unit.
2. There shall be gauge line access port in the skin of the rooftop, covered by a black, removable plug.
   a. The plug shall be easy to remove and replace.
   b. When the plug is removed, the gauge access port shall enable maintenance personnel to route their pressure gauge lines.
   c. This gauge access port shall facilitate correct and accurate condenser pressure readings by enabling the reading with the compressor access panel on.
   d. The plug shall be made of leak proof, UV-resistant, composite material.
3. Compressors:
   a. Unit shall use tandem scroll compressor assembly on single independent refrigeration circuit with two stages of cooling for efficient comfort cooling operation.
   b. Evaporator coils shall be a full active design to help better control latent removal and minimize unconditioned bypass air.
   c. Compressor motors shall be cooled by refrigerant gas passing through motor windings.
   d. Compressors shall be internally protected from high discharge temperature conditions.

e. Compressors shall be protected from an over-temperature and over-amperage conditions by an internal, motor overload device.
f. Compressor shall be factory-mounted on rubber grommets.
g. Compressor motors shall have internal line break thermal, current overload and high pressure differential protection.
h. Crankcase heaters shall not be required for normal operating range, unless required by the manufacturer due to refrigerant charge limits.

K. (23 81 19.13.K.) Filter Section:
1. Filters access is specified in the unit cabinet section of this specification.
2. Filters shall be held in place by a pivoting filter tray, facilitating easy removal and installation.
3. Shall consist of factory installed, low velocity, throw-away 2 in. thick fiberglass filters.
4. Filters shall be standard, commercially available sizes.
5. Only one size filter per unit is allowed.

L. (23 81 19.13.L.) Evaporator Fan and Motor with EcoBlue™ Technology:
1. Direct Drive Evaporator Fan Motor:
a. Shall be a ECM motor design.
b. Shall be direct drive design for all static options.
c. Shall have permanently lubricated bearings.
d. Shall have inherent automatic-reset thermal overload protection.
e. Shall have slow ramp up to speed capabilities.
f. Shall require no fan/motor belts for operation, adjustments and or initial fan speed set up.
g. Fan DC voltage set up on Unit Control Board shall eliminate the need of removal of blower access door, required on conventional belt drive systems.
h. Shall be internally protected from electrical phase reversal.
2. Evaporator Fan:
a. Speed shall be easily set with dedicated selection switch and adjustment pot on unit control board or through SystemVu™ controller.
b. Shall provide 2 stage cooling capacity control, the indoor fan speed is automatically controlled to meet the code-compliant <66% low fan speed and 100% at full fan speed operation.
c. Blower fans shall be a Vane Axial fan design with fan assembly secured directly to ECM motor. Additional shafts, belts, pulleys/ sheaves, and bearing blocks to drive fan shall not be permitted or necessary.
d. Additional variable frequency drive to control fan motor speed shall not be permitted or necessary. All speed control electronics must be onboard fan motor assembly.
e. Shall be constructed of a high impact composite material on stator, rotor and air inlet casing.
f. Shall be a patented / pending design with a corrosion resistant material.
g. Fan assembly design shall be integrated to fan deck, dynamically balanced, and require no additional vibration isolation for normal operation.
h. Shall have slow ramp up to speed capabilities to help reduce sound and comfort issues typically associated with single speed belt drive systems.
i. Units shall contain 2 separate vane axial fan assemblies.
j. Shall be a slide out design with removal of a few support brackets.
3. Shall include an easily accessible Unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, gas controller, economizer, thermostat, DDC control options, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.

M. (23 81 19.13.M.) Condenser Fans and Motors:
1. Condenser Fan Motors:
a. Shall be a totally enclosed motor.
b. Shall use permanently lubricated bearings.
c. Shall have inherent thermal overload protection with an automatic reset feature.
d. Shall use a shaft-down design on all sizes.
2. Condenser Fans:
a. Shall be a direct-driven propeller type fan.
b. Shall have galvalum blades riveted to steel spider that have corrosion-resistant properties and shall be dynamically balanced.

N. (23 81 19.13.N.) Special Features Options and Accessories:
1. Integrated EconomizerONE and EconoMi$er® 2 Low Leak Rate Models:
a. Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
b. Independent modules for vertical or horizontal return configuration shall be available. Vertical return modules shall be available as a factory installed option.
c. Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.

d. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below set points.
e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
f. Low leak rate shall be equipped with dampers not to exceed 2% leakage at 1 in. wg pressure differential.
g. Economizer controller on EconomizerONE models shall be Siemens POL224 that provides:
   1) Combined minimum and DCV maximum damper position potentiometers with compressor staging relay.
   2) Optional configuration via WLAN stick and Siemens Climatix™[1] smartphone app for easy setup.
   3) Functions with solid-state analog enthalpy or dry bulb changeover control sensing.
   4) LED indication for free cooling, sensor, and damper operation.
   5) One-line LCD interface screen for setup, configuration and troubleshooting.
   6) On-board Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24, ASHRAE 90.1 and IECC®[1].
   7) Sensor failure loss of communication identification.
   8) Capabilities for use with multiple-speed or single speed indoor fan systems.
   9) Digital sensors: Dry bulb and Enthalpy.
h. Economizer controller on EconoMi$er 2 models with SystemVu™ controls shall be a 4-20mA design controlled directly by the controller. SystemVu controllers meet California Title 24, ASHRAE 90.1 and IECC Fault Detection and Diagnostic (FDD) requirements.
i. Shall be capable of introducing up to 100% outdoor air.
j. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air and contain seals that meet ASHRAE 90.1 requirements.
k. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
l. Dry bulb outdoor air temperature sensor shall be provided as standard. Enthalpy sensor is also available on factory-installed economizers only. Outdoor air sensor setpoint shall be adjustable and shall range from 40°F to 100°F (4°C to 38°C). Additional sensor options shall be available as accessories.
m. The economizer controller shall also provide control of an accessory power exhaust unit function. Factory set at 100%, with a range of 0% to 100%.
n. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy.
o. Dampers shall be completely closed when the unit is in the unoccupied mode.
p. Economizer controller shall accept a 0 to 10 vdc CO_2 sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper to provide ventilation based on the sensor input.
q. Compressor lockout temperature on POL224 control is adjustable from –45°F to 80°F (–43°C to 26°C), set at a factory default of 32°F (0°C).
r. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
s. Contain LED indication for free cooling, sensor, and damper operation.

2. Integrated EconomizerONE and EconoMi$er® 2 Ultra Low Leak Rate Models:
   a. Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
   b. Independent modules for vertical or horizontal return configuration shall be available. Vertical return modules shall be available as a factory-installed option.
   c. Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
   d. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
   e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
   f. Ultra Low Leak design meets California Title 24 section 140.4 and ASHRAE 90.1 requirements for 4 cfm per sq ft on the outside air dampers and 10 cfm per sq ft on the return dampers.
   g. Economizer controller on EconomizerONE models shall be the Siemens POL224 that provides:
      1) One-line LCD interface screen for setup, configuration and troubleshooting.

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2) Optional configuration via WLAN stick and Siemens Climatix™ smartphone app for easy setup.
3) On-board Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24, ASHRAE 90.1 and IECC.
4) Sensor failure loss of communication identification.
5) Capabilities for use with multiple-speed indoor fan systems.
6) Digital sensors: Dry bulb and Enthalpy.

h. Economizer controller on EconoMi$er 2 models with SystemVu™ controls shall be a 4-20mA design controlled directly by the controller. SystemVu controller meets California Title 24, ASHRAE 90.1 and IECC Fault Detection and Diagnostic (FDD) requirements.
i. Shall be capable of introducing up to 100% outdoor air.
j. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air and contain seals that meet ASHRAE 90.1 requirements.
k. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
l. Dry bulb outdoor air temperature sensor shall be provided as standard. Enthalpy sensor is also available on factory-installed economizers only. Outdoor air sensor setpoint shall be adjustable and shall range from 40°F to 100°F (4°C to 38°C). Additional sensor options shall be available as accessories.
m. The economizer controller shall also provide control of an accessory power exhaust unit function. Factory set at 100%, with a range of 0% to 100%.
n. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy.
o. Dampers shall be completely closed when the unit is in the unoccupied mode.
p. Economizer controller shall accept a 0 to 10 vdc CO_2 sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper to provide ventilation based on the sensor input.
q. Compressor lockout temperature on POL224 control is adjustable from –45°F to 80°F (–43°C to 26°C), set at a factory default of 32°F (0°C).
r. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
s. Contains LED indication for free cooling, sensor, and damper operation.

3. Wi-Fi/WLAN Stick for EconomizerONE POL224 (field-installed):

   This item allows use of the Siemens Climatix™ mobile application.
4. Two-Position Damper (Field-installed only):
   a. Damper shall be a Two-Position Damper. Damper travel shall be from the full closed position to the field adjustable %-open set-point.
   b. Damper shall include adjustable damper travel from 25% to 100% (full open).
   c. Damper shall include single or dual blade, gear driven dampers and actuator motor.
   d. Actuator shall be direct coupled to damper gear. No linkage arms or control rods shall be acceptable.
   e. Damper will admit up to 100% outdoor air for applicable rooftop units.
   f. Damper shall close upon indoor (evaporator) fan shutoff and/or loss of power.
   g. The damper actuator shall plug into the rooftop unit's wiring harness plug. No hard wiring shall be required.
   h. Outside air hood shall include aluminum water entrainment filter.
5. Manual Damper (Field-installed only):

   Manual damper package shall consist of damper, air inlet screen, and rain hood which can be preset to admit up to 25 or 50% outdoor air for year round ventilation.
6. Humidi-MiZer® Adaptive Dehumidification System:

   The Humidi-MiZer Adaptive Dehumidification System shall be factory installed and shall provide greater dehumidification of the occupied space by 2 modes of dehumidification operations in addition to its normal design cooling mode:
   a. Subcooling mode further sub cools the hot liquid refrigerant leaving the condenser coil when both temperature and humidity in the space are not satisfied.
   b. Hot gas reheat mode shall mix a portion of the hot gas from the discharge of the compressor with the hot liquid refrigerant leaving the condenser coil to create a 2-phase heat transfer in the system, resulting in a neutral leaving air temperature when only humidity in the space is not satisfied.
   c. Includes low ambient controller.
7. Low Ambient Control Package:
   a. Controller shall control coil head pressure by condenser fan speed modulation or condenser fan cycling and wind baffles.

b. Shall consist of solid-state control and condenser coil temperature sensor to maintain condensing temperature between 90°F (32°C) and 110°F (43°C) at outdoor ambient temperatures down to –20°F (–28°C). For full low ambient control range Winter Start kit is required.

8. Propane Conversion Kit:
   a. Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit for use with liquefied propane, up to 2000 ft (610 m) elevation.
   b. Additional accessory kits may be required for applications above 2000 ft (610 m) elevation.
9. Condenser Coil Hail Guard Assembly (Factory or field installed):
   a. Shall protect against hail and additional coil damage.
   b. Shall be louvered type.
10. Unit-Mounted, Non-Fused Disconnect Switch:
   a. Available on 15 to 25 ton units with FLA of 100 amps (460/575V) or 200 amps or less (208/230V).
   b. Switch shall be factory installed, internally mounted.
   c. National Electric Code (NEC) and UL approved non-fused switch shall provide unit power shutoff.
   d. Shall be accessible from outside the unit.
   e. Shall provide local shutdown and lockout capability.
   f. Sized **only** for the unit as ordered from the factory. Does not accommodate field-installed devices.
11. HACR Breaker:
   a. These manual reset devices provide overload and short circuit protection for the unit. Factory wired and mounted with the units, with access cover to help provide environmental protection. On 575V applications, HACR breaker can only be used with WYE power distribution systems. Use on Delta power distribution systems is prohibited.
   b. Sized **only** for the unit as ordered from the factory. Does not accommodate field-installed devices.
12. Convenience Outlet:
   a. Factory-Installed Powered Convenience Outlet.
      1) Outlet shall be powered from main line power to the rooftop unit.
      2) Outlet shall be powered from line side or load side of disconnect by installing contractor, as required by code. If outlet is powered from load side of disconnect, unit electrical ratings shall be UL certified and rated for additional outlet amperage.
      3) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
      4) Outlet shall include 15 amp GFI receptacles with independent fuse protection.
      5) Voltage required to operate convenience outlet shall be provided by a factory installed step-down transformer.
      6) Outlet shall be accessible from outside the unit.
      7) Outlet shall include a field installed “Wet in Use” cover.
   b. Factory-Installed Non-Powered Convenience Outlet.
      1) Outlet shall be powered from a separate 115/120v power source.
      2) A transformer shall not be included.
      3) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
      4) Outlet shall include 15 amp GFI receptacles with independent fuse protection.
      5) Outlet shall be accessible from outside the unit.
      6) Outlet shall include a field installed “Wet in Use” cover.
   c. Field-Installed Non-Powered Convenience Outlet.
      1) Outlet shall be powered from a separate 115/120v power source.
      2) A transformer shall not be included.
      3) Outlet shall be field-installed and internally mounted with easily accessible 115-v female receptacle.
      4) Outlet shall include 20 amp GFI receptacles. This kit provides a flexible installation method which allows code compliance for height requirements of the GFCI outlet from the finished roof surface as well as the capability to relocate the outlet to a more convenient location.
      5) Outlet shall be accessible from outside the unit.
      6) Outlet shall include a field installed “Wet in Use” cover.
13. Flue Discharge Deflector:
   a. Flue discharge deflector shall direct unit exhaust vertically instead of horizontally.
   b. Deflector shall be defined as a “natural draft” device by the National Fuel and Gas (NFG) code.

14. Thru-the-Base Connectors:
    a. Shall provide connectors to permit gas and electrical connections to be brought to the unit through the unit basepan.
    b. Minimum of 4 connection locations per unit.
15. Centrifugal Fan Power Exhaust:
    a. Power exhaust shall be used in conjunction with an integrated economizer.
    b. Horizontal power exhaust shall be mounted in return ductwork.
    c. Power exhaust shall be controlled by economizer controller operation. Exhaust fans shall be energized when dampers open past the 0 to 100% adjustable setpoint on the economizer control.
16. Roof Curbs (Vertical):
    a. Full perimeter roof curb with exhaust capability providing separate air streams for energy recovery from the exhaust air without supply air contamination.
    b. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
    c. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.
17. High Altitude Gas Conversion Kit:

    Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit to operate from 2000 to 7000 ft (610 to 2134 m) elevation with natural gas or from 0 to 7000 ft (0 to 2134 m) elevation with liquefied propane.
18. Outdoor Air Enthalpy Sensor:

    The outdoor air enthalpy sensor shall be used to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the unit will provide differential enthalpy control. The sensor allows the unit to determine if outside air is suitable for free cooling.
19. Return Air Enthalpy Sensor:

    The return air enthalpy sensor shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.
20. Indoor Air Quality (CO_2) Sensor:
    a. Shall be able to provide demand ventilation indoor air quality (IAQ) control.
    b. The IAQ sensor shall be available in duct mount, wall mount, or wall mount with LED display. The setpoint shall have adjustment capability.
21. Smoke Detectors:
    a. Shall be a 4-Wire Controller and Detector.
    b. Shall be environmental compensated with differential sensing for reliable, stable, and drift-free sensitivity.
    c. Shall use magnet-activated test/reset sensor switches.
    d. Shall have tool-less connection terminal access.
    e. Shall have a recessed momentary switch for testing and resetting the detector.
    f. Controller shall include:
        1) One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel.
        2) Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment.
        3) One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
        4) Capable of direct connection to 2 individual detector modules.
        5) Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.
22. Winter Start Kit:
    a. Shall contain a bypass device around the low pressure switch.
    b. Shall be required when mechanical cooling is required down to 40°F (4°C).
    c. Shall not be required to operate on an economizer when below an outdoor ambient of 40°F (4°C).
    d. Is not compatible with SystemVu controls.
23. Time Guard:
    a. Shall prevent compressor short-cycling by providing a 5-minute delay (±2 minutes) before restarting a compressor after shutdown for any reason.
    b. One device shall be required per compressor.
24. Hinged Access Panels:
    a. Shall provide easy access through integrated quarter turn latches.
    b. Shall be on major panels of: filter, control box, fan motor, and compressor.
25. Condensate Overflow Switch:

    The sensor and related controller monitors the condensate level in the drain pan and shuts down compression operation when overflow conditions occur. It includes:
    a. Indicator light — solid red (more than 10 seconds on water contact — compressors disabled), blinking red (sensor disconnected).
    b. 10 second delay to break — eliminates nuisance trips from splashing or eaves in pan (sensor needs 10 seconds of constant water contact before tripping).

c. Disables the compressor(s) operation when condensate plug is detected, but still allows fans to run for Economizer.

26. Foil Faced Insulation:
    a. Throughout unit cabinet air stream, non-fibrous and cleanable foil faced insulation is used.
27. MERV-13 — 4 in. Return Air Filters (Factory Installed Only):
    a. Factory option to upgrade standard unit filters to 4 in. MERV-13 filters.
    b. Upgrade option shall include factory installed 4 in. Filter Rack kit.
28. 4 in. Return Air Rack (Field Installed Only);
    a. Accessory kit is designed to hold 4 in. MERV-8 or MERV-13 filters. Filters not included in kit.
29. 2 in. MERV-13 Return Air Filters:
    a. Accessory kit to field upgrade standard unit filters to 2 in. MERV-13 filters.
    b. Correct size and quantity of filters shall ship in a single box.
30. 2 in. MERV-8 Return Air filters:
    a. Accessory kit to field upgrade standard unit filters to 2 in. MERV-8 filters.
    b. Correct size and quantity of filters shall ship in a single box.
31. Phase Monitor Control:
    a. Shall monitor the sequence of 3-phase electrical system to provide a phase reversal protection.
    b. Shall monitor the 3-phase voltage inputs to provide a phase loss protection for the 3-phase device.
    c. Will work on either a Delta or Wye power connection.
32. Horn/Strobe Annunciator:
    a. Provides an audible/visual signaling device for use with factory-installed option or field installed accessory smoke detectors.
    b. Requires installation of a field-supplied 24-v transformer suitable for 4.2 VA (AC) or 3.0 VA (DC) per horn/strobe accessory.
    c. Requires field-supplied electrical box, North American 1-gang box, 2 in. x 4 in. (51 mm x 102 mm).
    d. Shall have a clear colored lens.
33. High Short Circuit Current Rating (SCCR) Protection:
    a. Factory-installed option shall provide high short circuit current protection to compressor and all indoor and outdoor fan motors rated at is 208/230V = 60kA, 460V = 65kA against high potential fault current situations. (Standard unit comes with 5 kA rating.)
    b. This option is not available with factory installed Humidi-MiZer system, Powered Convenience Outlet, Non-Fused Disconnect, Low Ambient controls, Phase Loss monitor/protection and 575 Volt models.

Note about this specification:
This specification is in the "Masterformat" as published by the Construction Specification Institute. Please feel free to copy this specification directly into your building spec.

Puron ADVANCE™

Electric Cooling Packaged Rooftop

HVAC Guide Specifications

Size Range: **15 to 25 Nominal Tons**

Carrier Model Number: **50GE*17-28**

Part 1 — (23 06 80) Schedules for Decentralized HVAC Equipment

1.01 (23 06 80.13) Decentralized Unitary HVAC Equipment Schedule:

A. (23 06 80.13.A.) Rooftop Unit (RTU) Schedule:

Schedule is per the project specification requirements.

Part 2 — (23 07 16) HVAC Equipment Insulation

2.01 (23 07 16.13) Decentralized, Rooftop Units:

A. (23 07 16.13.A.) Evaporator Fan Compartment:

1. Interior cabinet surfaces shall be insulated with a minimum 1/2 in. thick, minimum 1 1/2 lb density, flexible fiberglass insulation bonded with a phenolic binder, neoprene coated on the air side.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

B. (23 07 16.13.B.) Electric Heat Compartment:

1. Aluminum foil-faced fiberglass insulation shall be used.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

Part 3 — (23 09 13) Instrumentation and Control Devices for HVAC

3.01 (23 09 13.23) Sensors and Transmitters:

A. (23 09 13.23.A.) Thermostats:

1. Thermostat must:
   a. energize both "W" and "G" when calling for heat.
   b. have capability to energize 1 or 2 stages of cooling, and 2 different stages of heating.
   c. include capability for occupancy scheduling.

Part 4 — (23 09 23) Direct Digital Control System for HVAC

4.01 (23 09 23.13) Decentralized, Rooftop Units:

A. (23 09 23.13.A.) SystemVu™ intelligent integrated Direct Digital Control (DDC) shall provide:

1. Integrated unit operation for comfort cooling, heating ventilation as well as all monitoring, recording and reporting capabilities. Controller shall also provide diagnostics and alarms of abnormal unit operation through the controller. Controller shall have an intuitive user display and be able to be used in a standalone operation or via building automation system (BAS).
2. Quick Unit Status LEDs of: RUN — meaning all systems are go, ALERT — that indicates there is currently a non-critical issue with the unit, like filters need to be replaced and FAULT — that indicates the unit has a critical issue and will possibly shut down.
3. Six large navigation keys for easy access. Navigation keys shall consist of: TEST, BACK, ENTER, and MENU along with UP and DOWN arrows.
4. Full back lit user display with 4 line by 30 character text capabilities. Display menu shall be designed to provide guided major menus and sub menus main menus provided below:
   a. Shutdown Unit
   b. Run Status
   c. Settings
   d. Alerts/Faults
   e. Service
   f. Inputs
   g. Outputs
   h. USB
5. The capability for standalone operation with conventional thermostat/sensor or use with building automation systems (BAS) of Carrier i-Vu®, BACnet®[1] and Carrier Comfort Network® (CCN) systems. No special modules or boards are required for these capabilities. Has the capability to work with Equipment Touch™ and System Touch™ devices and ZS Sensors.
6. The ability to read refrigerant pressures at display or via BAS network of; Discharge Pressure and Suction Pressure. The need for traditional refrigerant gauges is not required.
7. USB Data Port for flash drive interaction. This will allow the transfer of data for uploads, downloads, perform software upgrades, back-up and restore data and file transfer data such as component number of starts and run hours.
8. Reverse Rotation Protection of compressors if field 3-phase wiring is misapplied.
9. Provide service capabilities of:
   a. Auto run test
   b. Manual run test
   c. Component run hours and starts
   d. Commissioning reports
   e. Data logging
   f. Alarm history

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10. Economizer control and diagnostics. Set up economizer operation, receive feedback from actuator. Also meets the most recent California Title 24, ASHRAE 90.1 and IECC®[1] Fault Detection and Diagnostic (FDD) requirements.
11. Unit cooling operation down to 40°F (4°C).
12. Controller shall have easy access connections around the controller perimeter area and consist of Mate-N-Lok®[1], terminal block and RJ style modular jack connections.
13. 365 day real time clock, 20 holiday schedules along with occupied and unoccupied scheduling.
14. Auto-Recognition for easy installation and commissioning of devices like economizers, space sensors, etc.
15. A 5°F (3°C) temperature difference between cooling and heating setpoints to meet the latest ASHRAE 90.1 Energy Standard.
16. Contains return air sensor, supply air sensor and outdoor air sensor to help monitor and provide data for the unit comfort operation, diagnostic and alarms.
17. Use of Carrier's field accessory Equipment Touch and System Touch devices.
18. Units with the factory-installed Humidi-MiZer® system option are capable of providing multiple modes of improved dehumidification as a variation of the normal cooling cycle.
19. Supply Air Tempering control operates the gas or electric heat to maintain a minimum supply air temperature during conditions where very cold outdoor air causes the supply air temperature to fall below the configured Supply Air Tempering Setpoint. This occurs during periods where DCV is active and increasing the amount of outdoor air or in cases where the system is operating at very low airflow and the calculated economizer position has increased to maintain a constant ventilation rate.
20. Demand limiting in SystemVu™ controller is achieved through set point expansion. The systems heating and cooling set points are expanded in steps or levels. The degree to which the set points may be expanded is defined by the 6 demand level offsets and the 2 commanded demand limit levels.
21. 3-year limited part warranty.

Part 5 — (23 09 33) Electric and Electronic Control System for HVAC

5.01 (23 09 33.13) Decentralized, Rooftop Units:

A. (23 09 33.13.A.) General:

1. Shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-v transformer side. Transformer shall have 75VA capability.
2. Shall utilize color-coded wiring.
3. Shall include a Unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, DDC control options, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.
4. Unit shall include a minimum of one 8-pin screw terminal connection board for connection of control wiring.

B. (23 09 33.13.B.) Safeties:

1. Compressor over-temperature, over-current. High internal pressure differential.
2. Low Pressure Switch.

   Low pressure switch shall use different color wire than the high pressure switch. The purpose is to assist the installer and service technician to correctly wire and or troubleshoot the rooftop unit.
3. High Pressure Switch.

   High pressure switch shall use different color wire than the low pressure switch. The purpose is to assist the installer and service technician to correctly wire and or troubleshoot the rooftop unit.
4. Mixed Air Auto Reset Temperature Switch.

   All cooling units contain a low return air (or mixed air - depending on unit configuration) temperature switch for compressor protection. The switch prevents compressor operation at mixed air temperatures below 60°F (16°C) to ensure long term reliability but allows continued fan and economizer operation (if in-stalled). The switch will automatically reset when the return/mixed air temperature warms above 65°F (18°C) and will allow compressor operation to continue.
5. Heating section shall be provided with the following minimum protections:

   High temperature limit switches.
6. A2L Refrigerant Leak Dissipation System (Electromechanical)
   a. Leak dissipation system shall consist of control board and A2L sensor certified to UL 60335-2-40.
   b. System shall be designed for the life of the unit.
   c. Dissipation system shall be automatic, ship pre-wired, and require no additional field connections to thermostat to function.
   d. Refrigerant leak sensor shall be installed in UL certified location and orientation. Sensor shall be self-correcting and resettable. Single use refrigerant leak sensor shall not be permitted.

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e. Factory installed dissipation controller shall use onboard microprocessor and include:
   1) Automatic reset after a dissipation event has occurred
   2) Onboard LED with flash code to indicate current unit status and hardware failures
   3) Depressible "Test" button to allow for a system test and recall/reset of leak detection history
   4) 24V dry contact alarm terminal to allow for external notification of leak detection
f. Dissipation control board shall be accessible via normal maintenance locations and LED shall be visible.
g. Dissipation system shall "Fail Safe" per UL requirements.
h. Dissipation shall allow smoke and building fire systems to override in case of event.

7. A2L Refrigerant Leak Dissipation System (SystemVu)
   a. Leak dissipation system shall consist of control board and A2L sensor certified to UL 60335-2-40, integrated with SystemVu controller.
   b. System shall be designed for the life of the unit.
   c. Dissipation system shall be automatic, ship pre-wired, and require no additional field connections to function.
   d. Refrigerant leak sensor shall be installed in UL certified location and orientation. Sensor shall be self-correcting and resettable. Single use refrigerant leak sensor shall not be permitted.
   e. Factory installed dissipation system shall use onboard microprocessor and include:
      1) Automatic leak detection and dissipation algorithm
      2) Automatic reset after a dissipation event has occurred
      3) Onboard LED with flash code to indicate current unit status and hardware failures
      4) Depressible "Test" button to allow for a system test and recall/reset of leak detection history
      5) 24V dry contact alarm terminal on dissipation control board to allow for external notification of leak detection
      6) Ability to notify BAS system of dissipation event via readable alarm point through SystemVu
      7) Recallable dissipation alarm history on SystemVu controller
   f. Dissipation control board shall be accessible via normal maintenance locations and LED shall be visible.
   g. Dissipation system shall "Fail Safe" per UL requirements.
   h. Dissipation shall allow smoke and building fire systems to override in case of event.

Part 6 — (23 09 93) Sequence of Operation for HVAC Controls

6.01 (23 09 93.13) Decentralized, Rooftop Units:
   A. (23 09 93.13.A.) INSERT SEQUENCE OF OPERATION

Part 7 — (23 40 13) Panel Air Filters

7.01 (23 40 13.13) Decentralized, Rooftop Units:
   A. (23 40 13.13.A.) Standard Filter Section:
      1. Shall consist of factory installed, low velocity, disposable 2 in. thick fiberglass filters of commercially available sizes.
      2. Unit shall use only one filter size. Multiple sizes are not acceptable.
      3. Filters shall be accessible through an access panel with "no-tool" removal as described in the unit cabinet section of this specification (23 81 19.13.G).

Part 8 — (23 81 19) Self-Contained Air Conditioners

8.01 (23 81 19.13) Small-Capacity Self-Contained Air Conditioners:
   A. (23 81 19.13.A.) General:
      1. Outdoor, rooftop mounted, electrically controlled, cooling unit utilizing fully hermetic scroll compressors for cooling duty.
      2. Factory assembled, single-piece cooling rooftop unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and special features required prior to field start-up.
      3. Unit shall use Puron Advance™ (R-454B) refrigerant.
      4. Unit shall be installed in accordance with the manufacturer's instructions.
      5. Unit must be selected and installed in compliance with local, state, and federal codes.
   B. (23 81 19.13.B.) Quality Assurance:
      1. Unit meets DOE and ASHRAE 90.1 minimum efficiency requirements.
      2. Unit shall be rated in accordance with AHRI Standards 340/360.
      3. Unit shall be designed to conform to ASHRAE 15.
      4. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements.
      5. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
      6. Unit casing shall be capable of withstanding 500 hour salt spray exposure per ASTM B117 (scribed specimen).

7. Unit shall be designed in accordance with ISO 9001, and shall be manufactured in a facility registered by ISO 9001:2015.
8. Roof curb shall be designed to conform to NRCA Standards.
9. Unit shall be subjected to a completely automated run test on the assembly line. The data for each unit will be stored at the factory, and must be available upon request.
10. Unit shall be designed in accordance with UL Standard 60335-1 and 60335-2-40, including testing to with-stand rain. Unit shall be IPX4 rated.
11. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph.
12. Unit shake tested to assurance level 1, ASTM D4169 to ensure shipping reliability.

C. (23 81 19.13.C.) Delivery, Storage, and Handling:
1. Unit shall be stored and handled per manufacturer's recommendations.
2. Lifted by crane requires either shipping top panel or spreader bars.
3. Unit shall only be stored or positioned in the upright position.

D. (23 81 19.13.D.) Project Conditions:
1. As specified in the contract.

E. (23 81 19.13.E.) Operating Characteristics:
1. Unit shall be capable of starting and running at 125°F (52°C) ambient outdoor temperature meeting maximum load criteria of AHRI Standard 340/360 at ±10% voltage.
2. Compressor with standard controls shall be capable of operation down to 40°F (4°C) ambient outdoor temperatures.
3. Unit shall discharge supply air vertically or horizontally as shown on contract drawings.
4. Unit shall be factory configured for either vertical or horizontal supply and return configurations. Unit shall not require field conversion.

F. (23 81 19.13.F.) Electrical Requirements:
1. Main power supply voltage, phase, and frequency must match those required by the manufacturer.

G. (23 81 19.13.G.) Unit Cabinet:
1. Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a prepainted baked enamel finish on all externally exposed surfaces.
2. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003 in. minimum, gloss (per ASTM D523, 60°F/16°C): 60, Hardness: H-2H Pencil hardness.
3. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 340/360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum 1/2 in. thick, 1 lb density, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the heat compartment.
4. Base of unit shall have a minimum of 4 locations for thru-the-base gas and electrical connections (factory-installed or field-installed), standard.
5. Base Rail:
   a. Unit shall have base rails on a minimum of 2 sides.
   b. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.
   c. Holes shall be provided in the base rail for moving the rooftop by fork truck.
   d. Base rail shall be a minimum of 16 gauge thickness.
6. Condensate Pan and Connections:
   a. Shall be a sloped condensate drain pan made of a corrosion resistant material.
   b. Shall comply with ASHRAE Standard 62.
   c. Shall use a 3/4 in. 14 NPT drain connection, possible either through the bottom or side of the drain pan. Connection shall be made per manufacturer's recommendations.
7. Top Panel:
   a. Shall be a multi-top panel with watertight flanges and locking systems.
8. Electrical Connections:
   a. All unit power wiring shall enter unit cabinet at a single, factory prepared, knockout location.
   b. Thru-the-base capability.
      1) Standard unit shall have a thru-the-base electrical location(s) using a raised, embossed portion of the unit basepan.
      2) No basepan penetration, other than those authorized by the manufacturer, is permitted.
9. Component Access Panels (standard):
   a. Cabinet panels shall be easily removable for servicing.
   b. Unit shall have one factory installed, tool-less, removable, filter access panel.
   c. Panels covering control box, indoor fan, indoor fan motor, gas components (where applicable), and compressors shall have molded composite handles.
   d. Handles shall be UV modified, composite. They shall be permanently attached, and recessed into the panel.

e. Screws on the vertical portion of all removable access panel shall engage into heat resistant, molded composite collars.

f. Collars shall be removable and easily replaceable using manufacturer recommended parts.

H. (23 81 19.13.H.) Coils:

1. Standard Aluminum Fin-Copper Tube Coils:

a. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.

b. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 60335-2-40 burst test at 1775 psig.

c. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 60335-2-40burst test at 1980 psig.

2. Optional Pre-coated Aluminum-Fin Condenser Coils:

a. Shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments.

b. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube.

c. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.

d. Corrosion durability of fin stock shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117.

e. Corrosion durability of fin stock shall be confirmed through testing to have no visible corrosion after 48 hour immersion in a room temperature solution of 5% salt, 1% acetic acid.

f. Fin stock coating shall pass 2000 hours of the following: one week exposure in the prohesion chamber followed by one week of accelerated ultraviolet light testing. Prohesion chamber: the solution shall contain 3.5% sodium chloride and 0.35% ammonium sulfate. The exposure cycle is one hour of salt fog application at ambient followed by one hour drying at 95°F (35°C).

3. Optional Copper-Fin Evaporator and Condenser Coils:

a. Shall be constructed of copper fins mechanically bonded to copper tubes and copper tube sheets.

b. Galvanized steel tube sheets shall not be acceptable.

c. A polymer strip shall prevent coil assembly from contacting the sheet metal coil pan to minimize potential for galvanic corrosion between coil and pan.

4. Optional E-coated Aluminum-Fin Evaporator and Condenser Coils:

a. Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins.

b. Coating process shall ensure complete coil encapsulation of tubes, fins and headers.

c. Color shall be high gloss black with gloss per ASTM D523.

d. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges.

e. Superior hardness characteristics of 2H per ASTM D3363 and cross-hatch adhesion of 4B-5B per ASTM D3359.

f. Impact resistance shall be up to 160 in.-lb (ASTM D2794).

g. Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247 and ASTM D870).

h. Corrosion durability shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117.

I. (23 81 19.13.I.) Refrigerant Components:

1. Refrigerant circuit shall include the following control, safety, and maintenance features:

a. Thermostatic Expansion Valve (TXV) shall help provide optimum performance across the entire operating range. Shall contain removable power element to allow change out of power element and bulb without removing the valve body.

b. Refrigerant filter drier — Solid core design with pre and post filter service gauge connections for filter diagnostics and maintenance.

c. Service gauge connections on suction and discharge lines.

d. Pressure gauge access through a specially designed access port in the unit.

2. There shall be gauge line access port in the skin of the rooftop, covered by a black, removable plug.

a. The plug shall be easy to remove and replace.

b. When the plug is removed, the gauge access port shall enable maintenance personnel to route their pressure gauge lines.

c. This gauge access port shall facilitate correct and accurate condenser pressure readings by enabling the reading with the compressor access panel on.

d. The plug shall be made of a leak proof, UV-resistant, composite material.

3. Compressors:
   a. Unit shall use tandem scroll compressor assembly on a on single independent refrigeration circuit with two stages of cooling for efficient comfort cooling operation.
   b. Evaporator coils shall be a full active design to help better control latent removal and minimize unconditioned bypass air.
   c. Compressor motors shall be cooled by refrigerant gas passing through motor windings.
   d. Compressors shall be internally protected from high discharge temperature conditions.
   e. Compressors shall be protected from an over-temperature and over-amperage conditions by an internal, motor overload device.
   f. Compressor shall be factory mounted on rubber grommets.
   g. Compressor motors shall have internal line break thermal, current overload and high pressure differential protection.
   h. Crankcase heaters shall not be required for normal operating range, unless required by compressor manufacturer due to refrigerant charge limits.

J. (23 81 19.13.J.) Filter Section:
1. Filters access is specified in the unit cabinet section of this specification.
2. Filters shall be held in place by a pivoting filter tray, facilitating easy removal and installation.
3. Shall consist of factory installed, low velocity, throw-away 2 in. thick fiberglass filters.
4. Filters shall be standard, commercially available sizes.
5. Only one size filter per unit is allowed.

K. (23 81 19.13.K.) Evaporator Fan and Motor with EcoBlue™ Technology:
1. Direct Drive Evaporator fan motor:
   a. Shall be a ECM motor design.
   b. Shall be direct drive design for all static options.
   c. Shall have permanently lubricated bearings.
   d. Shall have inherent automatic-reset thermal overload protection.
   e. Shall have slow ramp up to speed capabilities.
   f. Shall require no fan/motor belts for operation, adjustments and or initial fan speed set up.
   g. Fan DC voltage set up on Unit Control Board can eliminate the need of removal of blower access door, required on conventional belt drive systems.
   h. Shall be internally protected from electrical phase reversal and loss.
2. Evaporator Fan:
   a. Speed shall be easily set with dedicated selection switch and adjustment pot on unit control board or through SystemVu™ controller.
   b. Shall provide 2 stage cooling capacity control, the indoor fan speed is automatically controlled to meet the code-compliant <60% low fan speed and 100% at full fan speed operation.
   c. Blower fan shall be a Vane Axial fan design with fan assembly secured directly to ECM motor. Additional shafts, belts, pulleys/sheaves, and bearing blocks to drive fan shall not be permitted or necessary.
   d. Additional variable frequency drive to control fan motor speed shall not be permitted or necessary. All speed control electronics must be onboard fan motor assembly.
   e. Shall be constructed of a high impact composite material on stator, rotor, and air inlet casing.
   f. Shall be a patented / pending design with a corrosion resistant material.
   g. Fan assembly design shall be integrated to fan deck, dynamically balanced, and require no additional vibration isolation for normal operation.
   h. Shall have slow ramp up to speed capabilities to help reduce sound and comfort issues typically associated with single speed belt drive systems.
   i. Units shall contain 2 separate vane axial fan assemblies.
   j. Shall be a slide out design with removal of a few support brackets.
3. Shall include an easily accessible Unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, gas controller, economizer, thermostat, DDC control options, and low, high and mixed air temperature switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.

L. (23 81 19.13.L.) Condenser Fans and Motors:
1. Condenser Fan Motors:
   a. Shall be a totally enclosed motor.
   b. Shall use permanently lubricated bearings.
   c. Shall have inherent thermal overload protection with an automatic reset feature.
   d. Shall use a shaft-down design on all sizes.
2. Condenser Fans:
   a. Shall be a direct-driven propeller type fan.
   b. Shall have galvalum blades riveted to steel spider that have corrosion-resistant properties and shall be dynamically balanced.

M. (23 81 19.13.M.) Special Features Options and Accessories:

1. Integrated EconomizerONE and EconoMi$er® 2 Low Leak Rate Models.
   a. Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
   b. Independent modules for vertical or horizontal return configuration shall be available. Vertical return modules shall be available as a factory installed option.
   c. Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
   d. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below set points.
   e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
   f. Low leak rate shall be equipped with dampers not to exceed 2% leakage at 1 in. wg pressure differential.
   g. Economizer controller on EconomizerONE models shall be Siemens POL224 that provides:
      1) Combined minimum and DCV maximum damper position potentiometers with compressor staging relay.
      2) Optional configuration via WLAN stick and Siemens Climatix™[1] smartphone app for easy setup.
      3) Functions with solid-state analog enthalpy or dry bulb changeover control sensing.
      4) LED indication for free cooling, sensor, and damper operation.
      5) One-line LCD interface screen for setup, configuration and troubleshooting.
      6) On-board Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24, ASHRAE 90.1 and IECC®[1].
      7) Sensor failure loss of communication identification.
      8) Capabilities for use with multiple-speed or single speed indoor fan systems.
      9) Utilize digital sensors: Dry bulb and Enthalpy.
   h. Economizer controller on EconoMi$er 2 models with SystemVu™ controls shall be a 4-20mA design controlled directly by the controller. SystemVu controllers meet California Title 24, ASHRAE 90.1 and IECC Fault Detection and Diagnostic (FDD) requirements.
   i. Shall be capable of introducing up to 100% outdoor air.
   j. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air and contain seals that meet ASHRAE 90.1 requirements.
   k. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
   l. Dry bulb outdoor air temperature sensor shall be provided as standard. Enthalpy sensor is also available on factory installed only. Outdoor air sensor set point shall be adjustable and shall range from 40°F to 100°F (4°C to 38°C). Additional sensor options shall be available as accessories.
   m. The economizer controller shall also provide control of an accessory power exhaust unit function. Factory set at 100%, with a range of 0% to 100%.
   n. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy.
   o. Dampers shall be completely closed when the unit is in the unoccupied mode.
   p. Economizer controller shall accept a 0 to 10 vdc CO_2 sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper to provide ventilation based on the sensor input.
   q. Compressor lockout temperature on POL224 control is adjustable from –45°F to 80°F (–43°C to 26°C), set at a factory default of 32°F (0°C).
   r. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
   s. Shall contain LED indication for free cooling, sensor, and damper operation.
2. Integrated EconomizerONE and EconoMi$er® 2 Ultra Low Leak Rate Models.
   a. Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
   b. Independent modules for vertical or horizontal return configuration shall be available. Vertical return modules shall be available as a factory-installed option.
   c. Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
   d. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below set points.

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e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.

f. Ultra Low Leak design meets California Title 24 section 140.4 and ASHRAE 90.1 requirements for 4 cfm per sq ft on the outside air dampers and 10 cfm per sq ft on the return dampers.

g. Economizer controller on EconomizerONE models shall be the Siemens POL224 that provides:

1) One-line LCD interface screen for setup, configuration and troubleshooting.

2) Optional configuration via WLAN stick and Siemens Climatix™ smartphone app for easy setup.

3) On-board Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24, ASHRAE 90.1 and IECC.

4) Sensor failure loss of communication identification.

5) Capabilities for use with multiple-speed indoor fan systems.

6) Digital sensors: Dry bulb and Enthalpy.

h. Economizer controller on EconoMi$er 2 models with SystemVu™ controls shall be a 4-20mA design controlled directly by the controller. SystemVu controller meets California Title 24, ASHRAE 90.1 and IECC Fault Detection and Diagnostic (FDD) requirements.

i. Shall be capable of introducing up to 100% outdoor air.

j. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air and contain seals that meet ASHRAE 90.1 requirements.

k. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.

l. Dry bulb outdoor air temperature sensor shall be provided as standard. Enthalpy sensor is also available on factory installed only. Outdoor air sensor setpoint shall be adjustable and shall range from 40°F to 100°F (4°C to 38°C). Additional sensor options shall be available as accessories.

m. The economizer controller shall also provide control of an accessory power exhaust unit function. Factory set at 100%, with a range of 0% to 100%.

n. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy.

o. Dampers shall be completely closed when the unit is in the unoccupied mode.

p. Economizer controller shall accept a 0 to 10 vdc CO_2 sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper to provide ventilation based on the sensor input.

q. Compressor lockout temperature on POL224 control is adjustable from –45°F to 80°F (–43°C to 26°C), set at a factory default of 32°F (0°C).

r. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.

s. Contains LED indication for free cooling, sensor, and damper operation.

3. Wi-Fi/WLAN Stick for EconomizerONE POL224 (field-installed):

This item allows use of the Siemens Climatix™ mobile application.

4. Two-Position Damper (Field-installed only):

a. Damper shall be a Two-Position Damper. Damper travel shall be from the full closed position to the field adjustable %-open set point.

b. Damper shall include adjustable damper travel from 25% to 100% (full open).

c. Damper shall include single or dual blade, gear driven dampers and actuator motor.

d. Actuator shall be direct coupled to damper gear. No linkage arms or control rods shall be acceptable.

e. Damper will admit up to 100% outdoor air for applicable rooftop units.

f. Damper shall close upon indoor (evaporator) fan shutoff and/or loss of power.

g. The damper actuator shall plug into the rooftop unit's wiring harness plug. No hard wiring shall be required.

h. Outside air hood shall include aluminum water entrainment filter.

5. Manual Damper (Field-installed only):

Manual damper package shall consist of damper, air inlet screen, and rain hood which can be preset to admit up to 25% or 50% outdoor air for year round ventilation.

6. Humidi-MiZer® Adaptive Dehumidification System:

The Humidi-MiZer Adaptive Dehumidification System shall be factory installed and shall provide greater dehumidification of the occupied space by 2 modes of dehumidification operations in addition to its normal design cooling mode:

a. Subcooling mode further sub cools the hot liquid refrigerant leaving the condenser coil

when both temperature and humidity in the space are not satisfied.

b. Hot gas reheat mode shall mix a portion of the hot gas from the discharge of the compressor with the hot liquid refrigerant leaving the condenser coil to create a 2-phase heat transfer in the system, resulting in a neutral leaving air temperature when only humidity in the space is not satisfied.

c. Includes low ambient controller.

7. Low Ambient Control Package:
   a. Controller shall control coil head pressure by condenser fan speed modulation or condenser fan cycling and wind baffles.
   b. Shall consist of solid-state control and condenser coil temperature sensor to maintain condensing temperature between 90°F (32°C) and 110°F (43°C) at outdoor ambient temperatures down to –20°F (–29°C). For full low ambient control range, Winter Start kit is required.
8. Condenser Coil Hail Guard Assembly:
   a. Shall protect against hail and additional coil damage.
   b. Shall be louvered type.
9. Unit-Mounted, Non-Fused Disconnect Switch:
   a. Available on 15 to 25 ton units with FLA of 100 amps or less (460/575V) or 200 amps or less (208/230V).
   b. Switch shall be factory installed, internally mounted.
   c. National Electric Code (NEC) and UL approved non-fused switch shall provide unit power shutoff.
   d. Shall be accessible from outside the unit.
   e. Shall provide local shutdown and lockout capability.
   f. Sized **only** for the unit as ordered from the factory. Does not accommodate field-installed devices.
10. HACR Breaker:
    a. These manual reset devices provide overload and short circuit protection for the unit. Factory wired and mounted with the units, with access cover to help provide environmental protection. On 575V applications, HACR breaker can only be used with WYE power distribution systems. Use on Delta power distribution systems is prohibited.
    b. Sized **only** for the unit as ordered from the factory. Does not accommodate field-installed devices.
11. Convenience Outlet:
    a. Factory-Installed Powered Convenience Outlet.
       1) Outlet shall be powered from main line power to the rooftop unit.
       2) Outlet shall be powered from line side or load side of disconnect by installing contractor, as required by code. If outlet is powered from load side of disconnect, unit electrical ratings shall be UL certified and rated for additional outlet amperage.
       3) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
       4) Outlet shall include 15 amp GFI receptacles with independent fuse protection.
       5) Voltage required to operate convenience outlet shall be provided by a factory installed step-down transformer.
       6) Outlet shall be accessible from outside the unit.
       7) Outlet shall include a field installed “Wet in Use” cover.
    b. Factory-Installed Non-Powered Convenience Outlet.
       1) Outlet shall be powered from a separate 115/120v power source.
       2) A transformer shall not be included.
       3) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
       4) Outlet shall include 15 amp GFI receptacles with independent fuse protection.
       5) Outlet shall be accessible from outside the unit.
       6) Outlet shall include a field installed “Wet in Use” cover.
    c. Field-Installed Non-Powered Convenience Outlet.
       1) Outlet shall be powered from a separate 115/120v power source.
       2) A transformer shall not be included.
       3) Outlet shall be field-installed and internally mounted with easily accessible 115-v female receptacle.
       4) Outlet shall include 20 amp GFI receptacles. This kit provides a flexible installation method which allows code compliance for height requirements of the GFCI outlet from the finished roof surface as well as the capability to relocate the outlet to a more convenient location.
       5) Outlet shall be accessible from outside the unit.

6) Outlet shall include a field installed "Wet in Use" cover.

12. Thru-the-Base Connectors:
    a. Shall provide connectors to permit gas and electrical connections to be brought to the unit through the unit basepan.
    b. Minimum of 4 connection location per unit.
13. Centrifugal Fan Power Exhaust:
    a. Power exhaust shall be used in conjunction with an integrated economizer.
    b. Horizontal power exhaust shall be mounted in return ductwork.
    c. Power exhaust shall be controlled by economizer controller operation. Exhaust fans shall be energized when dampers open past the 0 to 100% adjustable setpoint on the economizer control.
14. Roof Curbs (Vertical):
    a. Full perimeter roof curb with exhaust capability providing separate air streams for energy recovery from the exhaust air without supply air contamination.
    b. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
    c. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.
15. Outdoor Air Enthalpy Sensor:

    The outdoor air enthalpy sensor shall be used to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the unit will provide differential enthalpy control. The sensor allows the unit to determine if outside air is suitable for free cooling.
16. Return Air Enthalpy Sensor:

    The return air enthalpy sensor shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.
17. Indoor Air Quality (CO_2) Sensor:
    a. Shall be able to provide demand ventilation indoor air quality (IAQ) control.
    b. The IAQ sensor shall be available in duct mount, wall mount, or wall mount with LED display. The setpoint shall have adjustment capability.
18. Smoke Detectors:
    a. Shall be a 4-wire controller and detector.
    b. Shall be environmental compensated with differential sensing for reliable, stable, and drift-free sensitivity.
    c. Shall use magnet-activated test/reset sensor switches.
    d. Shall have tool-less connection terminal access.
    e. Shall have a recessed momentary switch for testing and resetting the detector.
    f. Controller shall include:
        1) One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel.
        2) Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment.
        3) One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
        4) Capable of direct connection to 2 individual detector modules.
        5) Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.
19. Winter Start Kit:
    a. Shall contain a bypass device around the low pressure switch.
    b. Shall be required when mechanical cooling is required down to 40°F (4°C).
    c. Shall not be required to operate on an economizer when below an outdoor ambient of 40°F (4°C).
    d. Is not compatible with SystemVu controls.
20. Time Guard:
    a. Shall prevent compressor short-cycling by providing a 5 minute delay (±2 minutes) before restarting a compressor after shutdown for any reason.
    b. One device shall be required per compressor.
21. Hinged Access Panels:
    a. Shall provide easy access through integrated quarter turn latches.
    b. Shall be on major panels of: filter, control box, fan motor, and compressor.
22. Condensate Overflow Switch:

    This sensor and related controller monitors the condensate level in the drain pan and shuts down compression operation when overflow conditions occur. It includes:
    a. Indicator light — solid red (more than 10 seconds on water contact — compressors disabled), blinking red (sensor disconnected).
    b. 10 second delay to break — eliminates nuisance trips from splashing or waves in pan (sensor needs 10 seconds of constant water contact before tripping).
    c. Disables the compressor(s) operation when condensate plug is detected, but still allows fans to run for Economizer.

Guide specifications — 50GE (cont)

23. Foil Faced Insulation:

    Throughout unit cabinet air stream, non-fibrous and cleanable foil faced insulation is used.

24. MERV-13 — 4 in. Return Air Filters (Factory Installed Only):
    a. Factory option to upgrade standard unit filters to 4 in. MERV-13 filters.
    b. Upgrade option shall include factory installed 4 in. Filter Rack kit.
25. 4 in. Return Air Rack (Field Installed Only);
    a. Accessory kit is designed to hold 4 in. MERV-8 or MERV-13 filters. Filters not included in kit.
26. 2 in. MERV-13 Return Air Filters:
    a. Accessory kit to field upgrade standard unit filters to 2 in. MERV-13 filters.
    b. Correct size and quantity of filters shall ship in a single box.
27. 2 in. MERV-8 Return Air filters:
    a. Accessory kit to field upgrade standard unit filters to 2 in. MERV-8 filters.
    b. Correct size and quantity of filters shall ship in a single box.
28. Phase Monitor Control:
    a. Shall monitor the sequence of 3-phase electrical system to provide a phase reversal protection.
    b. Shall monitor the 3-phase voltage inputs to provide a phase loss protection for the 3-phase device.
    c. Will work on either a Delta or Wye power connection.
29. Horn/Strobe Annunciator:
    a. Provides an audible/visual signaling device for use with factory-installed option or field installed accessory smoke detectors.
    b. Requires installation of a field-supplied 24-v transformer suitable for 4.2 VA (AC) or 3.0 VA (DC) per horn/strobe accessory.
    c. Requires field-supplied electrical box, North American 1-gang box, 2 in. x 4 in. (51 mm x 102 mm).
    d. Shall have a clear colored lens.
30. Electric Heat:
    a. Heating Section:
        1) Heater element open coil resistance wire, nickel-chrome alloy, 0.29 inches inside diameter, strung through ceramic insulators mounted on metal frame. Coil ends are staked and welded to terminal screw slots.
        2) Heater assemblies are provided with integral fusing for protection of internal heater circuits not exceeding 48 amps each. Auto reset thermo limit controls, magnetic heater contactors (24-v coil) and terminal block all mounted in electric heater control box (minimum 18 ga galvanized steel) attached to end of heater assembly.
31. High Short Circuit Current Rating (SCCR) Protection:
    a. Factory-installed option shall provide high short circuit current protection to compressor and all indoor and outdoor fan motors rated at 208/230V = 60kA, 460V = 65kA against high potential fault current situations. (Standard unit comes with 5 kA rating.)
    b. This option is not available with factory installed Humidi-MiZer system, Powered Convenience Outlet, Non-Fused Disconnect, Low Ambient controls, Phase Loss monitor/protection and 575 Volt models.

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