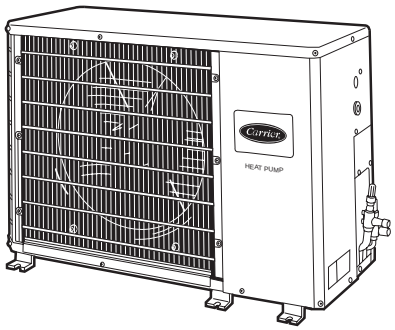
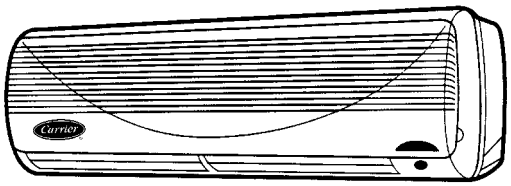
Product Data

53QAE/53QKE/53QNE Duct-Free Heat Pump Split Systems

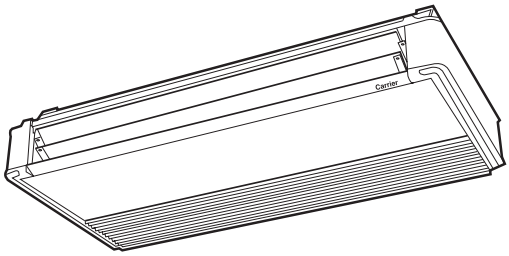
¾ to 5 Nominal Tons



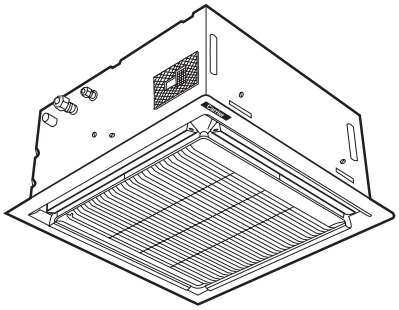
38QR-C



40QNE



40QAE



40QKE

The Ideal Complement to Your Ducted System When It Is Impractical or Prohibitively Expensive to Use Ductwork

- cooling and heating duty
- choice of 3 compact, attractive fan coil types for ultimate flexibility in any room decor
- wide range of accessories available to meet a variety of installation requirements
- year-round comfort control

Features/Benefits

An inexpensive and creative solution to design problems

Carrier's heat pump duct-free split systems are a matched combination of an outdoor heat pump unit and a decorative indoor fan coil unit connected only by refrigerant tubing and wires. One of the 3 fan coil choices will fit any application you might encounter.

The fan coils can be mounted on the wall, at the ceiling, or in the ceiling. This selection of fan coils permits inexpensive and creative solutions to design problems such as:

- add-ons to current space (an office or family room addition)
- special space requirements (a computer room)
- when changes in the cooling or heating load cannot be handled by the existing system (when adding heat-generating equipment to a currently conditioned space)
- historical renovations or any application where preserving the looks of the original structure is essential

These compact indoor fan coil units take up very little space in the room and will not obstruct windows. The fan coils are attractively styled to blend with most room decors.

Advanced system components incorporate innovative technology to provide reliable cooling and heating performance at high efficiencies and low sound levels.

Carrier's duct-free split systems offer the solution of choice. The compressor is outdoors, linked by refrigerant lines to an indoor fan coil located directly in the room it will cool or heat. These systems have minimal impact on the existing structure, and the design and interior of the conditioned space is not compromised by bulky ductwork. Because of these features, Carrier's duct-free split systems can be installed in places where conventional ducted cooling and heating units simply cannot go.

Low sound levels

When noise is a concern, the duct-free split systems are the answer because you do not have to worry about duct design. There are no compressors indoors, either in the conditioned space or directly over it, and there is none of the noise usually generated by air being forced through ductwork. These indoor units are whisper quiet. The outdoor units operate at sound levels as low as 65 Decibels, and are the perfect answer to sound level ordinances.

When sound ordinances and proximity to neighbors demand ultra-quiet operation, the 38QR-C and 38BK are the right choices: The advanced, horizontal airflow design distributes air more evenly over the coil. On the 38QR-C unit and 38BK018 and 024 units, the coil acts as an extra sound-muffling device before the air is discharged at a very low velocity.

High efficiency

With SEERs (seasonal energy efficiency ratios) up to 11.5 and HSPFs (heating seasonal performance factors) up to 7.6, the Carrier duct-free split systems save energy and may qualify for utility company rebates in some areas.

Secure operation

If security is an issue, outdoor and indoor units are connected only by refrigerant piping and wiring to prevent intruders from crawling through ductwork. In addition, since 38QR-C units can be installed 6 in. away from outside walls, coils are protected from vandals and severe weather.

Fast installation

Carrier's compact duct-free split systems take just a few hours to install, since only wire and piping need to be run. The fast and easy installation permits minimal disruption to customers in the home or workplace. This is an added advantage of Carrier's duct-free split systems, especially in retrofit situations.

Features like mounting brackets and templates make the unit very easy to install. In fact, the ceiling-suspended units are even furnished with indoor-to-outdoor connecting cables.

Simple servicing and maintenance

Removing a single panel on outdoor units provides immediate access to the isolated compressor and control compartment, allowing a service technician access to check unit operation without a loss of condenser airflow. In addition, on 38QR-C units, the blow-thru design of the outdoor section means that dirt accumulates on the inside surface of the coil. Coils can be cleaned quickly from the outside using a pressure hose and detergent without removing grilles or using fin combs.

On indoor units, service and maintenance expense is reduced due to easy-to-change cleanable filters on all units. In addition, the high wall systems have extensive self-diagnostics to assist in troubleshooting. All units have easy-access coils and cleanable condensate pans to assist in meeting indoor air quality standards.

Both refrigerant service valves are brass, back-seating type with sweat (38QR-C and 38BK018,024) or flare (38BK009,012) connections. The valves are externally located so refrigerant tube connections can be made quickly and easily. Each valve has a service port for ease of checking operating refrigerant pressures (38QR-C and 38BK018,024 units). Internal service ports (38QR-C and 38BK018,024) are also provided to make servicing even easier, and the heating refrigerant metering device is conveniently located in the liquid-line service valve (38QR-C and 38BK018,024 only).

Built-in reliability

Carrier duct-free split system indoor and outdoor units are designed to provide years of trouble-free operation.

The high wall indoor units include freeze-up protection, high temperature protection, and self diagnostics. Other indoor units are protected by outdoor unit controls and have limited diagnostics available through standard or accessory 24v thermostats.

Carrier's 38QR-C and 38BK018, 024 outdoor units are the only dedicated commercial units with all safety features standard to ensure high performance and lasting reliability under the most demanding situations. For example, an accumulator safeguards the compressor against loss of lubrication, while start capacitors and relays (non-scroll units) assure dependable start-ups, especially during low voltage conditions down to 187 v. High- and low-pressure safety switches, crankcase heater (non-scroll units), bi-flow liquid line filter drier, and lockout protection are standard on most sizes and Time Guard® compressor protection can be included.

NOTE: Time delay compressor protection is provided by the microprocessor or 24v thermostat when outdoor unit is matched with 40QAE or 40QKE fan coil units.

The totally-enclosed outdoor-fan motor means greater reliability under rain conditions, ensuring dependable performance for many years.

Table of contents

Features/Benefits (cont)

Individual room comfort

Maximum comfort is provided because each space can have individual set points and may be controlled based on actual usage. The air sweep feature provided on high wall and ceiling-suspended systems permits optimal room air mixing to eliminate hot and cold spots and enhance occupant comfort.

Heat pumps with booster heat mode (cassette and ceiling suspended units) provide even greater comfort in heat pump operation. With the high wall unit, warm-start features mean occupants are never subjected to cold drafts on start-up or defrost.

Economical operation

Carrier's duct-free split system design allows individual room cooling and heating only where required. There is no need to run large supply-air fans or chilled water pumps to handle a few spaces with unique load patterns. In addition, because air is moved only in the space required, no energy is wasted moving air through ducts.

Features like the permanent split-capacitor type motors provide more economical operation, and the rifled copper tube with louvered aluminum plate fin coil provides maximum heat transfer.

When demand defrost is used with high wall units, only the minimum amount of energy is used to defrost the coil. In addition, the blow-thru design of the 38QR-C units results in even lower energy usage in defrost mode.

Lightweight, compact size

The small footprint of these units provides additional benefits. Carrier's exclusive aeroacoustics make these units the most compact in the industry. Because they require minimal service and airflow clearances, outdoor units can be located virtually anywhere — on the ground, roof, balcony, under a deck, or even mounted to an outside wall.

The outdoor unit can be mounted on any type or weight roof, and the indoor units take up little valuable, rentable space. Because they are duct-free, not having to run large ductwork leaves additional space to be rented or utilized, making the building even more profitable.

In addition, the small size makes these units easily moveable. When floor plans change, the units can be quickly reinstalled.

Easy-to-use controls

The microprocessor-based control in the high-wall unit is easy to use, permitting quick changes for maximum comfort. The microprocessor offers the ultimate in comfort and efficiency. All units automatically restart and retain their memories after a power failure, eliminating unnecessary service calls and service disruption. High-wall units are equipped with a wireless remote controller. Under-ceiling and in-ceiling cassette units feature standard 24v controls with new solid-state multifeatured electronic thermostats. All units can be easily integrated into most building control systems, and offer auto-changeover from heating to cooling mode and back.

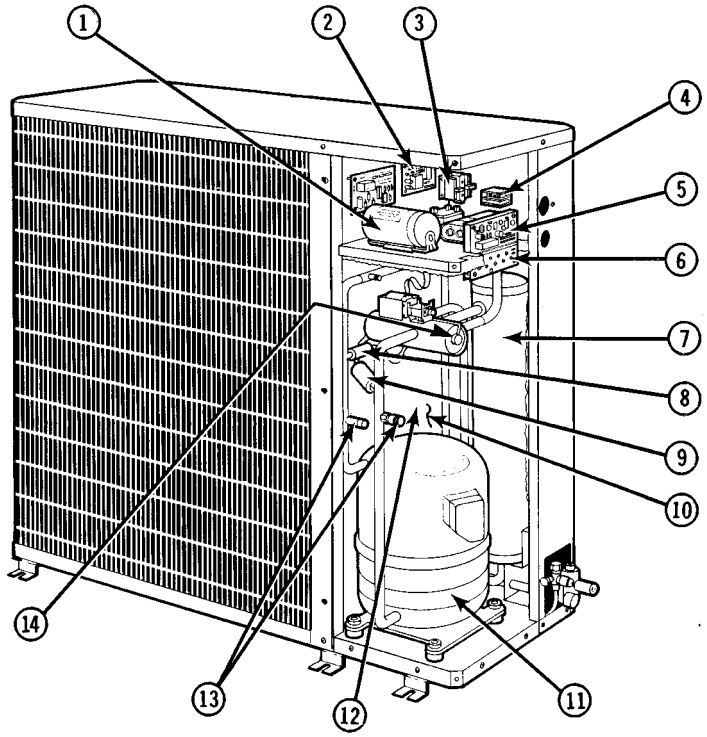
Wide range of accessories

Customizing the Carrier duct-free split systems to your application is easily accomplished through the many accessories available. Low-ambient temperature capability (permitting cooling operation down to –20 F outdoor ambient) is easily added on all units.

Accessories for the high-wall and ceiling-suspended fan coils include an internal condensate pump to provide installation flexibility. Condensate pumps are standard on in-ceiling cassettes. Ventilation-air capability is available as an accessory on ceiling suspended units and in-ceiling cassettes. In addition, limited ducting capability is available to connect in-ceiling cassettes (for example, to duct to an adjacent room).

Agency listings

All systems are listed with ARI (Air Conditioning & Refrigeration Institute), UL (Underwriters' Laboratories), CSA (Canadian Standards Association), and CEC (California Energy Commission).



LEGEND

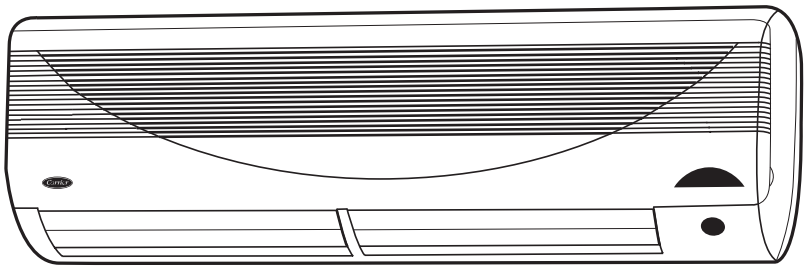
1 — Start Capacitor and Relay
2 — Lockout
3 — 3-Pole Contactor
4 — High-Voltage Terminal Block
5 — Time Temperature Solid-State Defrost Board (Not used with 40QNE fan coil units)
6 — Low-Voltage Terminal Block
7 — Accumulator
8 — Liquid Line Low-Pressure Switch
9 — High-Pressure Switch
10 — Acoustic Lining
11 — Crankcase Heater
12 — Isolated Compressor/Control Area
13 — Discharge and Suction Pressure Gage Ports
14 — Reversing Valve

UNIT SHOWN IS
38QR-C HEAT PUMP

Features/Benefits (cont)

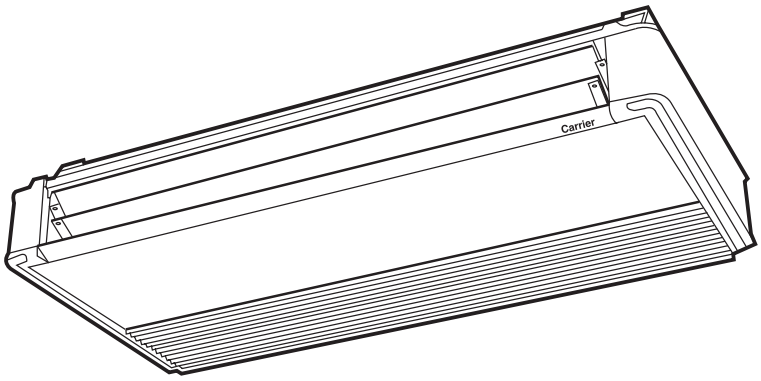
HIGH WALL FAN COILS —
40QNE (¾ - 2 Tons)

High wall systems are the most cost-effective duct-free split systems. They can be used for simple add-ons and retrofits where wall space is available.



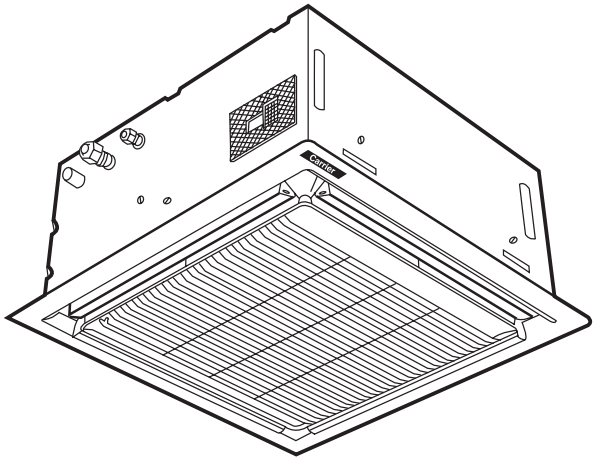
CEILING-SUSPENDED FAN COILS —
40QAE (1½ - 5 Tons)

Use ceiling-suspended systems for office and retrofit applications where there is little or no wall space.



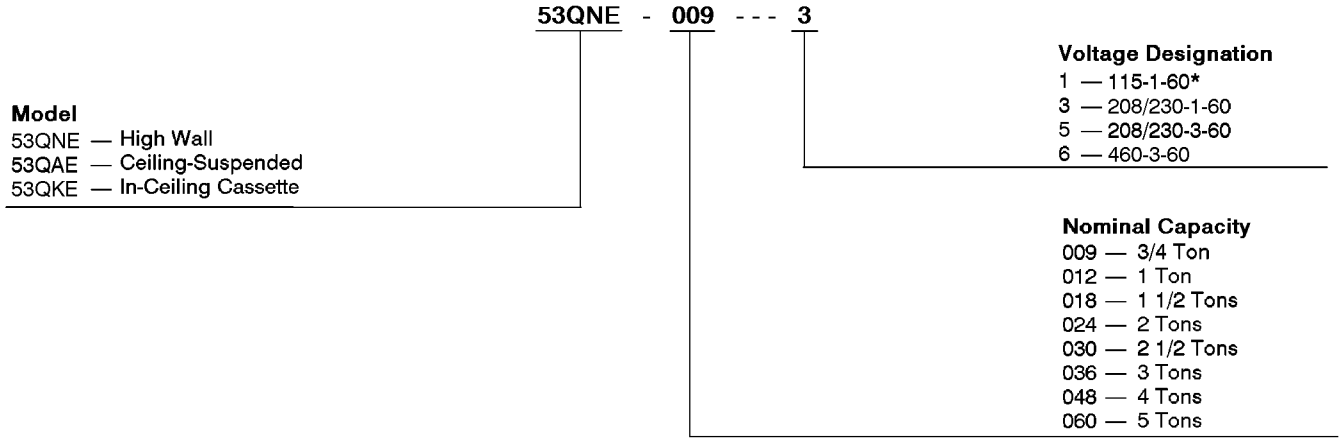
IN-CEILING CASSETTE FAN COILS —
40QKE (2 - 4 Tons)

Cassette systems are ideal for retrofit and modernization projects with standard 2-ft x 4-ft hung ceilings.



Model number nomenclature

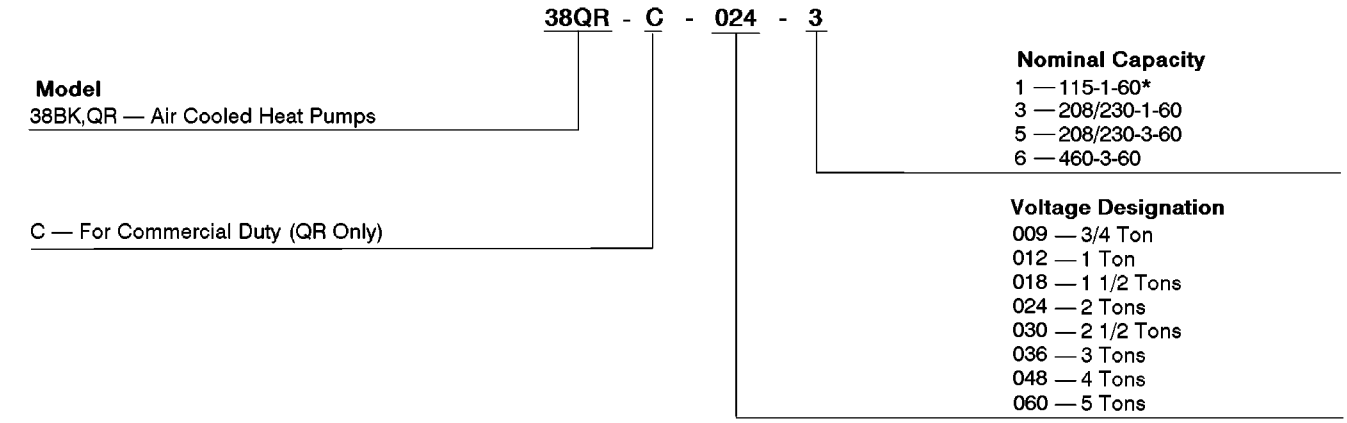
53 SERIES DUCT-FREE HEAT PUMP SPLIT SYSTEMS



*53QNE009 only.

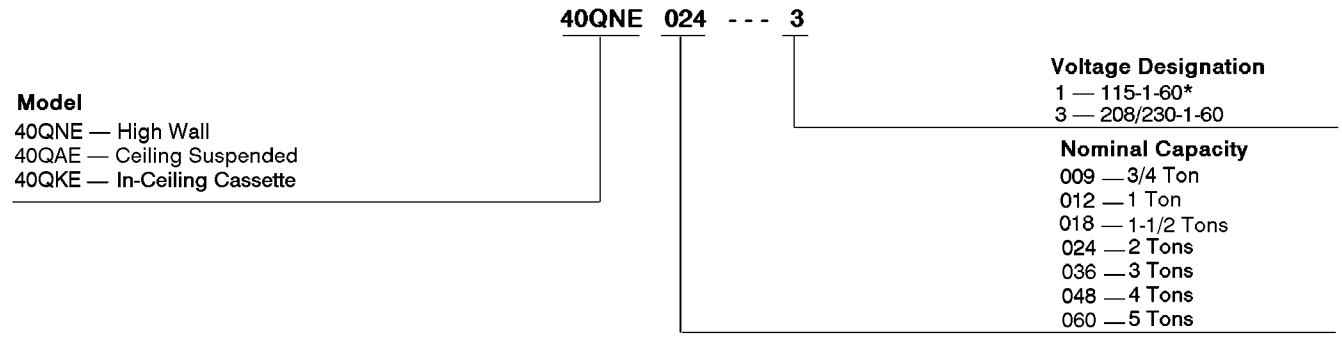
NOTE: System voltage is the voltage of the outdoor unit.

38 SERIES HEAT PUMP OUTDOOR UNITS



*38BK009 only.

40 SERIES HEAT PUMP FAN COILS



*40QNE009 only.

Model number nomenclature (cont)

SYSTEM AND COMPONENT AVAILABILITY

SYSTEM OR COMPONENT	SIZE							
	009	012	018	024	030	036	048	060
53QNE	X	X	X	X				
53QAE			X*	X	X†	X	X	X
53QKE			X*	X†	X†	X**		
38BK	X	X	X	X				
38QR-C			X	X	X	X	X	X
40QNE	X	X	X	X				
40QAE				X		X	X	X
40QKE				X		X	X	

*Uses an 024 size indoor unit.
†Uses an 036 size indoor unit.
**Uses an 048 size indoor unit.

NOTE: See Systems Index Index table, page 26 for a complete list of systems including components used for each.

ARI* capacities

SYSTEM MODEL NO.	FAN COIL TYPE	INDOOR SECTION	OUTDOOR SECTION	STANDARD CFM	NET COOLING (BTUH)	TOTAL kW	SEER	EER	HIGH HEAT CAP (BTUH)	HIGH HEAT COP	HIGH HEAT HSPF	HEAT LOW CAP (BTUH)	HEAT LOW COP	OUTDOOR SOUND RATING (Decibels)
53QNE009	High Wall	40QNE009	38BK009	252	8,700	0.95	10.0	9.2	9,000	3.20	6.80	5,120	2.2	65
53QNE012	High Wall	40QNE012	38BK012	302	12,500	1.28	10.5	9.8	12,500	3.00	6.80	7,190	2.3	65
53QNE018	High Wall	40QNE018	38BK018	455	17,300	1.71	11.5	10.1	16,900	2.85	6.80	10,100	2.05	68
53QNE024	High Wall	40QNE024	38BK024	525	23,200	2.23	11.0	10.4	21,400	2.90	6.80	12,700	2.20	68
53QAE018	Ceiling Suspended	40QAE024	38QR-C018	500	19,000	1.90	11.00	10.0	17,000	3.20	7.20	9,800	2.1	70
53QAE024	Ceiling Suspended	40QAE024	38QR-C024	525	24,000	2.40	11.00	10.0	22,600	3.00	7.30	12,500	2.0	68
53QAE030	Ceiling Suspended	40QAE036	38QR-C030	870	30,000	2.94	11.00	10.2	28,000	3.30	7.40	15,600	2.2	68
53QAE036	Ceiling Suspended	40QAE036	38QR-C036 Single-Phase Unit	870	34,600	3.39	11.50	10.2	33,000	3.30	7.15	19,000	2.2	68
53QAE036	Ceiling Suspended	40QAE036	38QR-C036 3-Phase Unit	870	36,000	3.67	11.00	9.8	34,400	3.00	6.80	19,800	2.0	74
53QAE048	Ceiling Suspended	40QAE048	38QR-C048	1100	48,000	5.00	10.20	9.6	45,500	3.20	7.30	28,200	2.2	76
53QAE060	Ceiling Suspended	40QAE060	38QR-C060	1600	58,000	5.85	11.00	9.9	57,500	3.15	7.40	32,000	2.2	72
53QKE018	In-Ceiling Cassette	40QKE024	30QR-C018	525	18,000	2.00	10.00	9.0	17,600	3.04	6.80	11,000	2.0	68
53QKE024	In-Ceiling Cassette	40QKE036	38QR-C024	980	25,000	2.44	10.70	10.2	23,800	3.34	7.60	13,400	2.3	68
53QKE030	In-Ceiling Cassette	40QKE036	38QR-C030	980	29,000	2.61	11.50	11.1	27,000	3.27	7.60	15,900	2.3	68
53QKE036	In-Ceiling Cassette	40QKE048	38QR-C036 Single-Phase Unit	1100	33,000	3.47	10.50	9.5	33,000	3.30	6.80	20,000	2.2	70
53QKE036	In-Ceiling Cassette	40QKE048	38QR-C036 3-Phase Unit	1100	34,400	3.65	10.00	9.2	34,000	3.00	6.80	21,000	2.0	74

LEGEND

COP — Coefficient of Performance
db — Dry-Bulb
EER — Energy Efficiency Ratio
HSPF — Heating Seasonal Performance Factor
SEER — Seasonal Energy Efficiency Ratio
wb — Wet-Bulb

ARI 210/240

(When used with matching unit.)

ARI 270

*Air Conditioning & Refrigeration Institute.

NOTES:
1. Ratings are net values reflecting the effects of circulating fan heat. Supplemental electric heat is not included. Ratings are based on:
   Cooling Standard: 80 F db, 67 F wb indoor entering air temperature and 95 F db air entering outdoor unit.
   High-Temperature Heating Standard: 70 F db indoor entering air temperature and 47 F db, 43 F wb air entering outdoor unit.
   Low-Temperature Heating Standard: 70 F db indoor entering air temperature and 17 F db, 15 F wb air entering outdoor unit.
2. Ratings are based on 15 ft of interconnecting refrigerant line.
3. The total kW is for the total system, including compressor and indoor and outdoor fans.

Accessories (field installed)

STANDARD FEATURES AND FIELD-INSTALLED ACCESSORIES

STANDARD FEATURE/FIELD-INSTALLED ACCESSORY	53QNE (High Wall)	53QAE (Ceiling Suspended)	53QKE (In-Ceiling Cassette)
Condensate Pump	A	A	S
Mounting Brackets	S	S	S
Microprocessor Controls	S	—	—
24-V Electro-Mechanical Controls	—	S	S
Cleanable Filters	S	S	S
Charcoal Filter Kit	A	—	—
Programmable Electronic Thermostat	—	A	A
3-Speed Indoor-Fan Motor	S	S	S
Automatic Indoor-Fan Speed Control	S	S	S
Diagnostics	S	S*	S*
Galvanized Steel Casing (Indoor Unit)	—	—	S
Wired and Wireless Remote Controllers	S (WR)	S (W)	S (W)
Fully Insulated Indoor Unit Cabinet	S	S	S
Automatic Air Sweep	S	S	—
User-Controlled Air Distribution	—	—	S
Power Ventilation Kit	—	A	A
Fresh Air Intake Kit	—	A	A
Indoor Guard (Discharge Grille)	—	A	—
Auto Restart Function	S	S	S
24-Hour Automatic Start/Stop Timer	S	A	A
50-ft 24v Control Power Cable†	—	S	—
35-ft 24v Control Power Cable	S (018,024)	—	—
35-ft Power and Control Cable	S (009,012)	—	—
Refrigerant Line Turn Elbow†	—	S	—
Thermistor Cable Assembly	S	—	—
High- and Low-Voltage Terminal Blocks (Indoor)	S	S	S
AccuRater® Refrigerant Metering Device	S	S	S
Electric Heat	—	S	S
Demand Defrost	S	—	—
Time/Temperature Defrost	—	S	S
Warm Start (in heating)	S	—	—
Evaporator Coil Freeze Protection	S	—	—
Outdoor High- and Low-Voltage Terminal Block	S	S	S
Accumulator	S	S	S
Crankcase Heater (Reciprocating Compressors)	S	S	S
Crankcase Heater (Scroll Compressor Units)**	A	A	A
High-Pressure Switch†	S	S	S
Loss of Charge Switch†	S	S	S
5-Year Compressor Warranty	S	S	S
Compressor Start Assistance (non-scroll units)	S	S	S
Cycle-LOC™ Device†	S	S	S
Suction and Discharge Service Taps††	S	S	S
Totally Enclosed Outdoor Fan Motor	S	S	S
Acoustically-Lined Compressor Compartment	S	S	S
Low Ambient Temperature Controls (down to −20 F)	A	A	A
Heating Operation to −20 F	S	S	S
Auto Changeover from Cooling to Heating	S	S	S
Liquid Solenoid Valve†	A	A	A
FIELD FABRICATED AND FIELD INSTALLED ACCESSORIES‖			
Stacking Rails†	A	A	A
Condensing Unit Wall Mount Kit†	A	A	A
Snow Stand†	A	A	A
Ice Stand†	A	A	A
Wind Baffles†	A	A	A

LEGEND

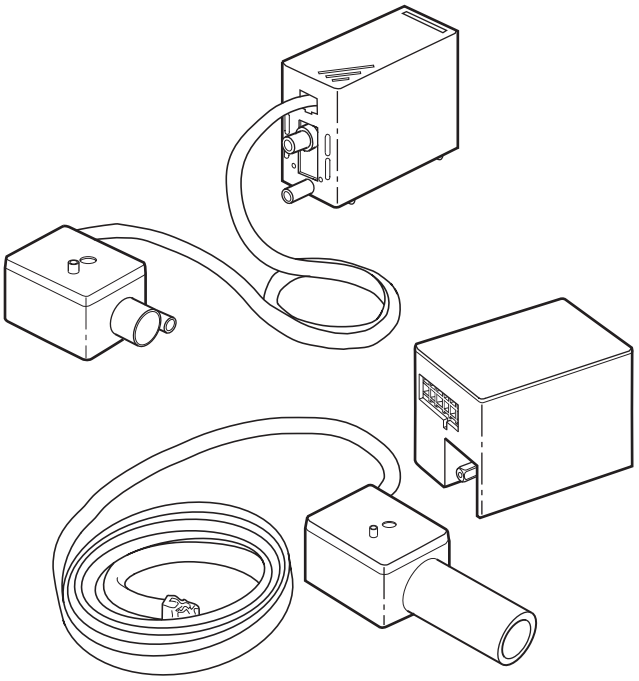
A — Field-Installed Accessory
S — Standard from the Factory
W — Wired (24v)
WR — Wireless Remote
— — Not Available on this System

*Limited diagnostics through standard 24v control.
†For size 018 and larger.
**Crankcase heaters are standard on 38QR-C units without scroll compressors, and are recommended as an accessory for scroll compressor applications with line lengths over 100 ft and applications using low-ambient kits.
††The 38QR-C units are equipped with 4 taps; one for each service valve, and one each on compressor suction and discharge.
‖Drawings available from Carrier representative for field fabricated accessories.

Accessories (field installed) (cont)

See Standard Features and Field-Installed Accessories table on page 7 for information on system features and accessories.

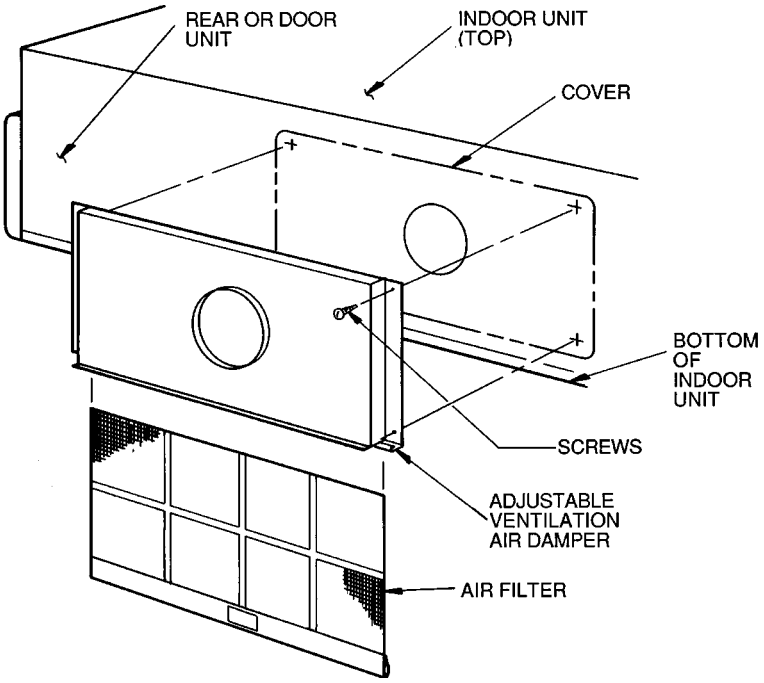
CONDENSATE PUMPS



Condensate pumps provide condensate lift capability of 20 in. on ceiling-suspended (40QAE) fan coils. On high wall fan coils, condensate pump has a lift capability of 1 to 10 ft (009 unit) or 3 to 25 ft (012-024 units). The pump mounts inside the unit with quick plug-in connections, and is recommended when adequate drain line pitch cannot be provided.

NOTE: This pump is standard on the in-ceiling cassette (40QKE) fan coils, where it provides a lift capability of 20 in. above the condensate pan.

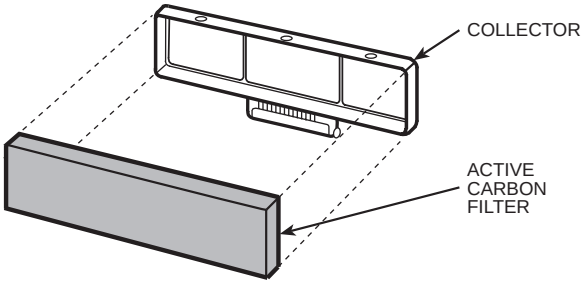
FRESH AIR INTAKE KIT



Fresh air intake kit provides for a variable amount of outdoor-air capability for the ceiling-suspended (40QAE) and cassette (40QKE) fan coils. Up to 30% outdoor-air can be supplied to 40QAE units and up to 10% can be supplied to 40QKE units. The filter is mounted at the fan coil unit and provides filtering of outdoor air before it enters the unit. (Ceiling-suspended system application is shown.)

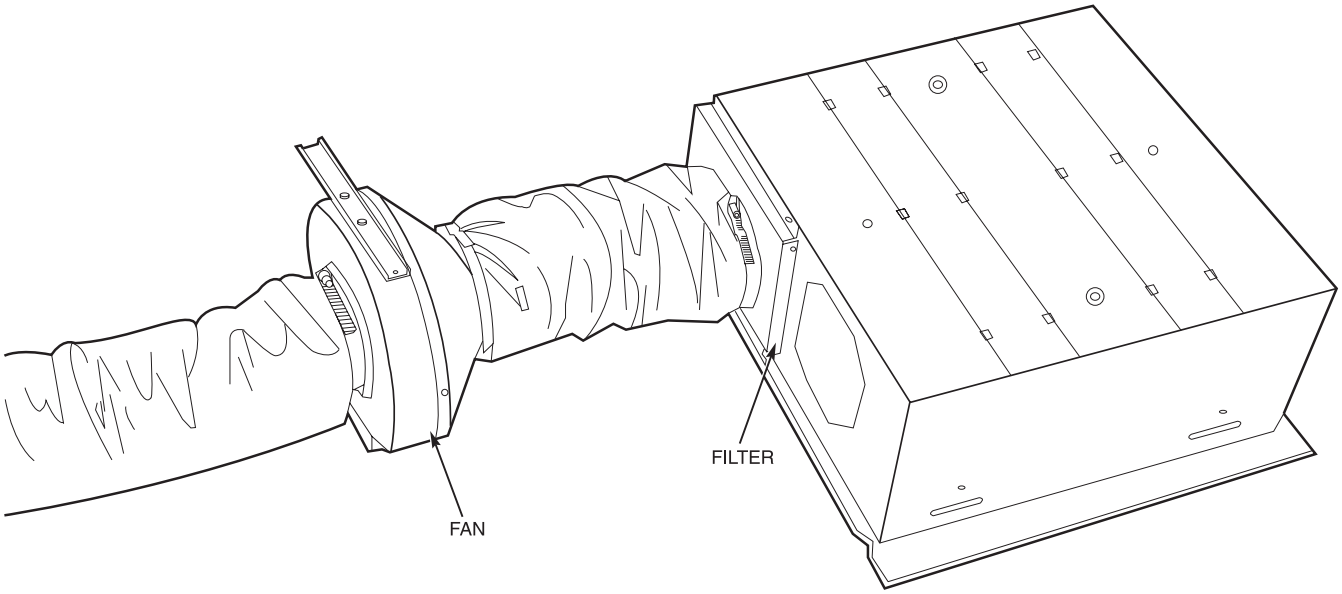
CHARCOAL FILTER KIT

The charcoal (carbon) filter kit is available for duct-free high wall fan coil units. This accessory improves indoor air quality by removing volatile organic compounds (VOCs), odors, and micro-particles from the air. The filter kit can be installed either before or after the unit has been mounted to the wall. Filters must be changed approximately every 3 months.



(FILTER FOR 009 SIZE SHOWN)

POWER VENTILATION KIT



Power ventilation kit provides for up to 10% outdoor air intake capability for the in-ceiling cassette (40QKE) units and up to 30% capability on ceiling-suspended (40QAE) units. The filter is mounted at the fan coil unit and filters the outdoor air. A booster fan with speed control is provided to allow for long duct runs and to balance airflow to the unit for consistent unit operation.

Accessories (field installed) (cont)

Outdoor units

Low-ambient kit includes a solid-state head pressure controller designed to control condenser fan cycling, and is activated by a pressure sensor. It is specifically designed to control fan-motor cycles in response to saturated condensing pressure. This device maintains a constant saturated condensing temperature of 100 F ± 10 F at outdoor-air temperatures between 55 F and –20 F, and can be used on all outdoor units without changing the outdoor-fan motor.

Liquid solenoid valve is an electrically operated shutoff valve that is installed at the outdoor unit to stop and start refrigerant flow in response to compressor operation. The valve maintains a column of refrigerant in the liquid line between compressor operating cycles and is required for certain long-line applications and to improve system performance. The valve should be used with all long-line applications (over 100 ft).

Crankcase heater is available for units with scroll compressors. Heater clamps onto compressor oil sump. Recommended for low-ambient applications.

Field fabricated accessories

Field fabricated accessories including the stacking kit, snow or ice stand, wind baffles, and wall mount brackets must be constructed in the field using field-supplied materials. For drawings, contact your Carrier representative.

Stacking rails allow stacking of equally-sized units or permit smaller units to be stacked on top of larger units. These field fabricated rails can be used for stacking all size 018 and larger units.

Snow or ice stands raise the outdoor unit above snow and ice surfaces to permit normal air circulation, condensate drainage, and maintenance clearances in areas where prolonged subfreezing temperatures or heavy snowfalls occur. The snow rack/ice stand must be field fabricated and can be used on all size 018 and larger outdoor units.

Wind baffle is a field fabricated sheet metal wrapper used to provide improved unit operation during high winds, and is recommended for size 018 or larger outdoor units whenever the low-ambient accessory is used.

Wall mount brackets are mounted to the outside of the structure to raise unit from ground level, or to mount the unit on a wall adjacent to a sloping roof. Wall mounts are also useful in areas of heavy snowfall or where space is at a premium. Wall mounts must be field fabricated and can be used with any size 018 or larger outdoor unit.

Fan coils

Indoor guard is a decorative wire guard for the ceiling-suspended (40QAE) fan coils. The guard mounts over the fan coil discharge to prevent objects from entering the unit and air sweep.

Electronic programable thermostats are available for in-ceiling cassette (40QKE) and ceiling-suspended (40QAE) fan coils. These commercial-grade thermostats provide 7-day, 4 event-per-day scheduling. The integral subbase provides 3-speed fan switchover capability, air sweep, auto changeover, and non-volatile memory (no battery required).

Physical data — 38BK009,012 outdoor heat pump units*

UNIT 38BK	009	012
NOMINAL CAPACITY (Tons)	¾	1
OPERATING WEIGHT (lb)	60.7	66.5
REFRIGERANT TYPE	R-22	
Control (Cooling)	AccuRater® Piston at Outdoor Unit	
Control (Heating)	AccuRater Piston at Outdoor Unit	
Factory Charge (lb)	1.5	2.0
COMPRESSOR TYPE	Carrier Hermetic Rotary	
Model	EBA095111H	EBB130111H
Oil (Recharge) (oz)	10.1	10.1
CRANKCASE HEATER (Watts)	40	
OUTDOOR FAN	Propeller, Direct Drive	
Rpm	850	850
Diameter (in.)...No. of Blades	12¼...4	12¼...4
Motor Watts	87	87
Nominal Air Cfm	756	756
OUTDOOR COIL	Copper Tube, Aluminum Fin	
Face Area (sq ft)...No. of Rows	3.5...1	3.5...2
Fins/in.	18	17
CONTROLS		
Fusible Plug	210 F	210 F
Accumulator	Yes	Yes
Defrost Method	Demand	Demand
Control Voltage	115 v	230 v
REFRIGERANT LINES		
Connection Type	Male Flare	
Liquid Line OD (in.)	1/4	1/4
Vapor Line OD (in.)	1/2	1/2
Maximum Length (ft)	35	35
Maximum Lift (Fan Coil Above) (ft)	16	16
Maximum Lift (Fan Coil Below) (ft)	30	30
EXTERNAL FINISH	White	

*These units may only be used with 40QNE fan coil units.

Physical data — 38BK018,024 and 38QR-C outdoor heat pump units

UNIT	38BK-018* 38QR-C018	38BK024* 38QR-C024	38QR-C030	38QR-C036 (Single-Phase)
NOMINAL CAPACITY (Tons)	1½	2	2½	3
OPERATING WEIGHT (lb)	154	167	180	184
REFRIGERANT TYPE	R-22			
Control (Cooling)	AccuRater® Piston at Fan Coil Unit			
Control (Heating)	AccuRater Piston at Outdoor Unit			
Factory Charge (lb)†	1.5			
COMPRESSOR TYPE	Tecumseh Reciprocating		Copeland Scroll	
Model	AW5519G	AW5524G	ZR28K1	ZR34K1
Oil (Recharge) (oz)	30	30	24	30
CRANKCASE HEATER (Watts)	19	19	None	None
OUTDOOR FAN	Propeller, Direct Drive			
Rpm	850	850	850	850
Diameter (in.)...No. of Blades	18...3	18...3	18...3	18...3
Pitch (Degrees)	25	27	27	31
Motor Hp	1/8	1/8	1/8	1/8
Nominal Air Cfm	1720	1720	1720	1720
OUTDOOR COIL	Copper Tube, Aluminum Fin			
Face Area (sq ft)...No. of Coils	6.1...1.5	6.1...2	6.1...3	6.1...3
Fins/in.	15	15	15	15
CONTROLS				
High-Pressure (psig)				
Cutout	320 ± 20			
Cut-in	426 ± 7			
Liquid Line Low-Pressure (psig)				
Cutout	7 ± 3			
Cut-in	22 ± 5			
Fusible Plug	210 F			
Defrost Method**	Time and Temperature Defrost			
Accumulator	Yes			
Control Voltage††	24 v			
REFRIGERANT LINES				
Connection Type	Sweat—Suction; Flare—Liquid			
Liquid Line OD (in.)	3/8	3/8	3/8	3/8
Vapor Line OD (in.)	5/8	5/8	3/4	7/8 ‖
Maximum Length (ft)	200	200	200	200
Maximum Lift (Fan Coil Above) (ft)	65	65	65	65
Maximum Lift (Fan Coil Below) (ft)	150	150	150	150
EXTERNAL FINISH	Alpine Mist (Beige)			

*These units may only be used with 40QNE fan coil units.
†See Piston Guide tables on page 66 for proper charge. These units are shipped with a holding charge only.
**Demand defrost when used with 40QNE fan coil units.
††A 24-v transformer is provided in the fan coil unit; 38BK018 and 024 units have their own transformers.
‖ Valve connection size is 3/4 inch. Recommended line size is 7/8 inch.

UNIT	38QR-C036 (3-Phase)	38QR-C048	38QR-C060
NOMINAL CAPACITY (Tons)	3	4	5
OPERATING WEIGHT (lb)	249	252	272
REFRIGERANT TYPE	R-22		
Control (Cooling)	AccuRater® Piston at Fan Coil Unit		
Control (Heating)	AccuRater Piston at Outdoor Unit		
Factory Charge (lb)*	2.0		
COMPRESSOR TYPE	Copeland Reciprocating	Tecumseh Reciprocating	Copeland Reciprocating
Model	CRH3-0275	AV5549G	CRP5-0450
Oil (Recharge) (oz)	51	50	66
CRANKCASE HEATER (Watts)	40	27	40
OUTDOOR FAN	Propeller, Direct Drive		
Rpm	850	850	850
Diameter (in.)...No. of Blades	24...3	24...3	24...3
Pitch (Degrees)	24	24	24
Motor Hp	¼	¼	¼
Nominal Air Cfm	3900	3900	3900
OUTDOOR COIL	Copper Tube, Aluminum Fin		
Face Area (sq ft)...No. of Coils	12.3...2	12.3...2	12.3...3
Fins/in.	15	15	15
CONTROLS			
High-Pressure (psig)			
Cutout	320 ± 20		
Cut-in	426 ± 7		
Liquid Line Low-Pressure (psig)			
Cutout	7 ± 3		
Cut-in	22 ± 5		
Fusible Plug	210 F		
Defrost Method	Time and Temperature		
Accumulator	Yes		
Control Voltage†	24 v		
REFRIGERANT LINES			
Connection Type	Sweat—Suction; Flare—Liquid		
Liquid Line OD (in.)	⅜	⅜	⅜
Vapor Line OD (in.)	¾	⅞	1⅛**
Maximum Length (ft)	200	200	200
Maximum Lift Fan Coil (Above) (ft)	65	65	65
Maximum Lift Fan Coil (Below) (ft)	150	150	150
EXTERNAL FINISH	Alpine Mist (Beige)		

*See Piston Guide tables on page 66 for proper charge. These units are shipped with a holding charge only.
†A 24-v transformer is provided in the fan coil unit.
**Valve connection is ⅞ inch. Recommended line size is 1⅛ inch.

Physical data — high wall units

UNIT 40QNE	009*	012*
NOMINAL CAPACITY (Tons)	¾	1
NOMINAL SIZE (Btuh)	9000	12,000
OPERATING WEIGHT (lb)	18.7	24.2
MOISTURE REMOVAL RATE (Pints/hr)	2.4	3.4
FINISH	White	
REFRIGERANT	R-22	
Control (Cooling)	AccuRater® Piston at Outdoor Unit	
Control (Heating)	AccuRater Piston at Outdoor Unit	
Factory Charge (lb)†	1.5	2.0
INDOOR FAN	Direct Drive Centrifugal	
Rpm/Cfm High	1200/240	1040/260
Rpm/Cfm Medium	1100/210	940/240
Rpm/Cfm Low	1000/180	850/210
Motor Watts	34	35
Blowers Quantity...Size (in.)	1...3.54 × 27.75	1...3.94 × 27.75
INDOOR COIL	Copper Tube, Aluminum Fin	
Face Area	1.45	1.6
No. of Rows	2	2
Fins/in.	18	17
Circuits	2	3
FILTERS	Cleanable	
Quantity...Size (in.)	2...9 x 12	2...9½ x 13¾
AIRSWEEP		
Horizontal	Manual	
Vertical	Automatic	
CONTROLS	Integrated Microprocessor	
Remote Controller Options	Wireless	
Diagnostics	Yes	
Defrost Method	Demand Defrost	
Timer Mode	Yes	
Warm Start Feature	Yes	
Test Mode	Yes	
Freeze Protection	Yes	
Dehumidification Mode	Yes	
Fan Mode	High/Medium/Low/Auto	
Auto Changeover	Yes	
Auto Restart	Yes	
Control Voltage	115 v	230 v
REFRIGERANT LINES		
Connection Type	Male Flare	
Liquid Line OD (in.)	¼	¼
Vapor Line OD (in.)	½	½
Maximum Length (ft)	35	35
Maximum Lift (Fan Coil Above) (ft)	16	16
Maximum Lift (Fan Coil Below) (ft)	30	30
CONDENSATE DRAIN SIZE (in.)	⅝ OD, 7/16 ID	

*These units may only be matched with 38BK outdoor units.
†Full factory charge is shipped in the outdoor unit. The charge is determined based on 25 ft of line.

UNIT 40QNE	018	024
NOMINAL CAPACITY (Tons)	1½	2
NOMINAL SIZE (Btuh)	18,000	24,000
OPERATING WEIGHT (lb)	38.5	42.9
MOISTURE REMOVAL RATE (Pints/Hr)	5.6	6.3
FINISH	White	
REFRIGERANT	R-22	
Control (Cooling)	AccuRater® Piston in Fan Coil	
Control (Heating)	AccuRater Piston in Outdoor Unit	
Charge Required (lb)	4.95	5.1
INDOOR FAN	Direct Drive Centrifugal	
Rpm/Cfm High	1120/530	1470/570
Rpm/Cfm Medium	1050/490	1370/466
Rpm/Cfm Low	950/430	1270/447
Motor Watts	42.3	49
Blowers Quantity...Size (in.)	2...3.94 x 17.8	2...3.94 x 17.8
INDOOR COIL	Copper Tube, Aluminum Fin	
Face Area (sq ft)	2.56	2.56
No. of Rows	2	3
Fins/in.	15.9	18.1
Circuits	2	3
FILTERS	Cleanable	
Quantity...Size (in.)	2...11½ x 17¾	
AIRSWEEP		
Horizontal	Manual	
Vertical	Automatic	
CONTROLS	Integrated Microprocessor	
Remote Controller Options	Wireless	
Diagnostics	Yes	
Defrost Method	Demand Defrost	
Timer Mode	Yes	
Warm Start Feature	Yes	
Test Mode	Yes	
Freeze Protection	Yes	
Dehumidification	Yes	
Auto. Changeover	Yes	
Fan Mode	High/Medium/Low/Auto.	
Auto Restart	Yes	
Control Voltage	24 v (provided)	
REFRIGERANT LINES		
Connection Type	Flare	
Liquid Line OD (in.)	⅜	
Vapor Line OD (in.)	⅝	
Maximum Length (ft)	200	
Maximum Lift (Fan Coil Above) (ft)	65	
Maximum Lift (Fan Coil Below) (ft)	150	
CONDENSATE DRAIN CONNECTION (in.)	⅝ OD, 7/16 ID	

*Outdoor unit is shipped with a holding charge. The amount of the charge is determined based on 25 ft of line. See Application Data section on page 64 for information on longer line lengths and condensing unit combinations.

Physical data — ceiling-suspended units

UNIT	40QAE018*	40QAE024	40QAE036	40QAE048	40QAE060
NOMINAL CAPACITY (Tons)	1½	2	3	4	5
NOMINAL SIZE (Btuh)	18,000	24,000	36,000	48,000	60,000
OPERATING WEIGHT (lb)	110	110	119	151	181
MOISTURE REMOVAL RATE (Pints/hr)	5.8	7.1	9.5	13.4	15.1
FINISH	GM Motorhome White with Black Trim				
REFRIGERANT	R-22				
Control (Cooling)	AccuRater® Piston in Fan Coil				
Control (Heating)	AccuRater Piston in Fan Coil				
Charge Required (lb) Single Phase/3 Phase†	4.3/—	6.3/—	7.5/8.7	10.0/—	11.9/—
INDOOR FAN	Direct Drive Centrifugal				
Rpm/Cfm High	900/480	1050/550	1275/870	1435/1130	1275/1600
Rpm/Cfm Medium	862/400	900/480	972/750	1388/975	972/1220
Rpm/Cfm Low	770/320	862/400	830/630	1315/820	830/1040
High Speed Watts	92	92	282	425	564
Motor Quantity...Hp	1...1/16	1...1/16	1...1/6	1...1/16, 1...1/6	2...1/6
Blowers Quantity...Size (in.)	2...6 x 8	2...6 x 8	2...6 x 8	3...6 x 8	4...6 x 8
INDOOR COIL	Copper Tube, Aluminum Fin				
Face Area (sq ft)	2.2	2.2	2.6	3.0	4.0
No. of Rows	4	4	4	4	4
Fins/in.	14.9	14.9	14.9	14.9	14.9
Circuits	4	4	4	8	8
FILTERS	Cleanable				
Quantity...Size (in.)	4...12 x 8¾	4...12 x 8¾	5...10⅝ x 8¾	4...10⅝ x 8¾ 2...12 x 8¾	6...12 x 8¾
AIRSWEEP	—				
Horizontal	Automatic				
Vertical					
HEATER (kW)	2.0	2.0	3.0	4.0	5.0
CONTROLS	Solid-State Electromechanical				
Remote Controller Options	Hard-Wired				
Diagnostics	Yes (with Optional Thermostat)				
Defrost Method	Time/Temperature				
Timer Mode	Yes (with Optional Thermostat)				
Freeze Protection	Through Outdoor Unit Low-Pressure Switch				
Test Mode	Yes				
Auto. Changeover	Yes				
Auto. Restart	Yes				
Fan Mode	High/Medium/Low/Auto				
Booster Heat Mode	Yes				
Control Voltage	24 v (provided)				
REFRIGERANT LINES					
Connection Type	Flare				
Liquid Line OD (in.)	⅜				
Vapor Line OD (in.)	⅝	⅝	¾	⅞**	⅞**
Maximum Length (ft)	200				
Maximum Lift (Fan Coil Above) (ft)	65				
Maximum Lift (Fan Coil Below) (ft)	150				
CONDENSATE DRAIN CONNECTION (in. MPT)	¾††				

*The 40QAE018 fan coil is a 40QAE024 fan coil, but uses a different motor speed fan tap plug than the 40QAE024. Refer to unit installation instructions for more details.

†Outdoor unit is shipped with a holding charge. The amount of charge listed is determined based on 25 ft of line. See Application Data section on page 64 for information on longer line lengths and outdoor unit combinations.

**Valve connection size is ¾ inch. Recommended line size is ⅞ inch.

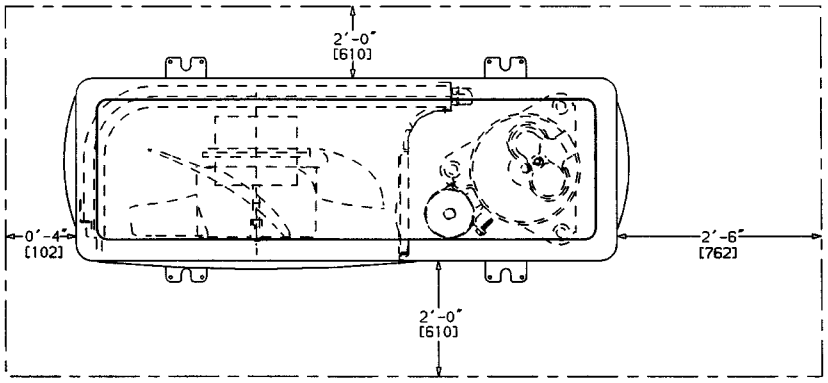
††Flexible tubing (⅝ in.) is required when the accessory condensate pump is used.

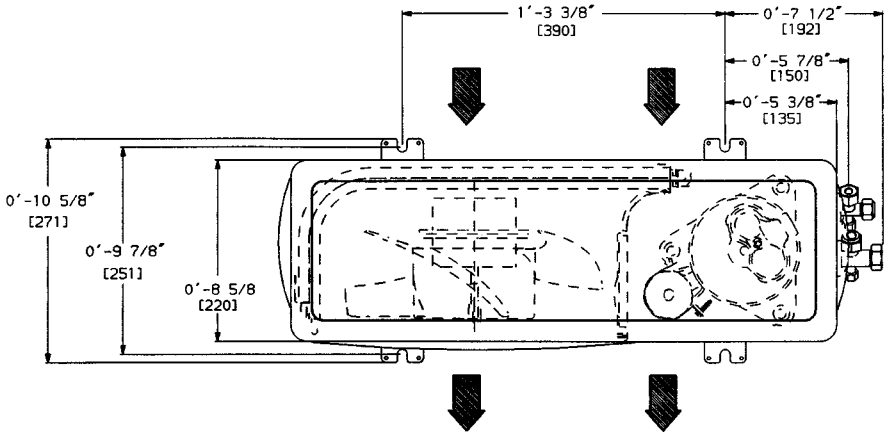
Physical data — in-ceiling cassette units

UNIT	40QKE024	40QKE036	40QKE048
NOMINAL CAPACITY (Tons)	2	3	4
NOMINAL SIZE (Btuh)	24,000	30,000	36,000
OPERATING WEIGHT (lb)	66.1	105.8	118.0
MOISTURE REMOVAL RATE (Pints/hr)	7.0	8.6	9.6
FINISH	White with Black Discharge Grille		
REFRIGERANT	R-22		
Control (Cooling)	AccuRater® Piston in Fan Coil		
Control (Heating)	AccuRater Piston in Outdoor Unit		
Charge Required (lb) Single Phase/3 Phase*	5.5/—	5.9/8.0	5.9/8.0
INDOOR FAN	Direct Drive Centrifugal		
Rpm/Cfm High	1190/525	970/915	1180/1100
Rpm/Cfm Medium	930/430	790/745	920/880
Rpm/Cfm Low	840/400	635/635	830/680
High Speed Watts	100	160	180
Motor Quantity...Hp	1...1/16	2...1/16	2...1/16
Blowers Quantity...Size (in.)	1...10 x 8	2...10 x 8	2...10 x 8
INDOOR COIL	Copper Tube, Aluminum Fin		
Face Area (sq ft)	2.66	5.67	5.67
No. of Rows	3	2	2
Fins/in.	14.0	14.0	14.0
Circuits	4	4	4
FILTERS	Cleanable		
Quantity...Size (in.)	1...16½ x 16½	2...16½ x 16½	2...16½ x 16½
AIRSWEEP	None		
HEATER kW	1.8	2.7	2.7
CONTROLS	Solid-State Electromechanical		
Remote Controller	Hard Wired		
Auto. Restart	Yes		
Diagnostics	Yes (with Optional Thermostat)		
Timer Mode	Yes (with Optional Thermostat)		
Auto. Changeover	Yes		
Defrost Method	Time/Temperature		
Freeze Protection	Yes (Through Outdoor Unit Low-Pressure Switch)		
Fan Mode	High/Medium/Low/—Auto/Continuous		
Control Voltage	24 v (provided)		
REFRIGERANT LINES			
Connection Type	Flare		
Liquid Line OD (in.)	3/8		
Vapor Line OD (in.)	5/8	3/4	3/4
Maximum Length (ft)	200		
Maximum Lift (Fan Coil Above) (ft)	65		
Maximum Lift (Fan Coil Below) (ft)	150		
CONDENSATE DRAIN CONNECTION	Hose		
CONDENSATE DRAIN SIZE (in.)	1.0		

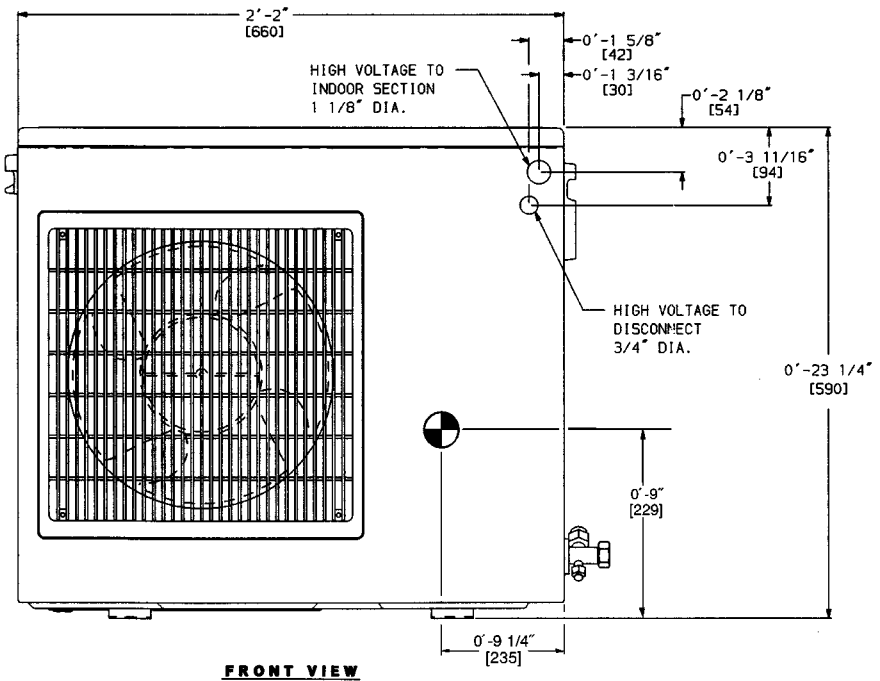
*The outdoor unit is shipped with a holding charge. The amount of charge listed is determined based on 25 ft of line. See Refrigerant Lines section on page 65 for information on longer line lengths.
†When appropriate thermostat is used.

Base unit dimensions — 38BK009,012 outdoor units

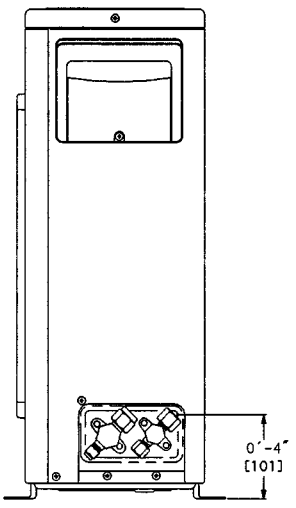




TOP VIEW



FRONT VIEW



RIGHT SIDE VIEW

NOTES:
1. Dimensions in [ ] are in millimeters.
2. Direction of airflow.
3. Center of Gravity.
4. Minimum clearances: 4 in. on coil sides, 24 in. on fan side, and 30 in. on service side.

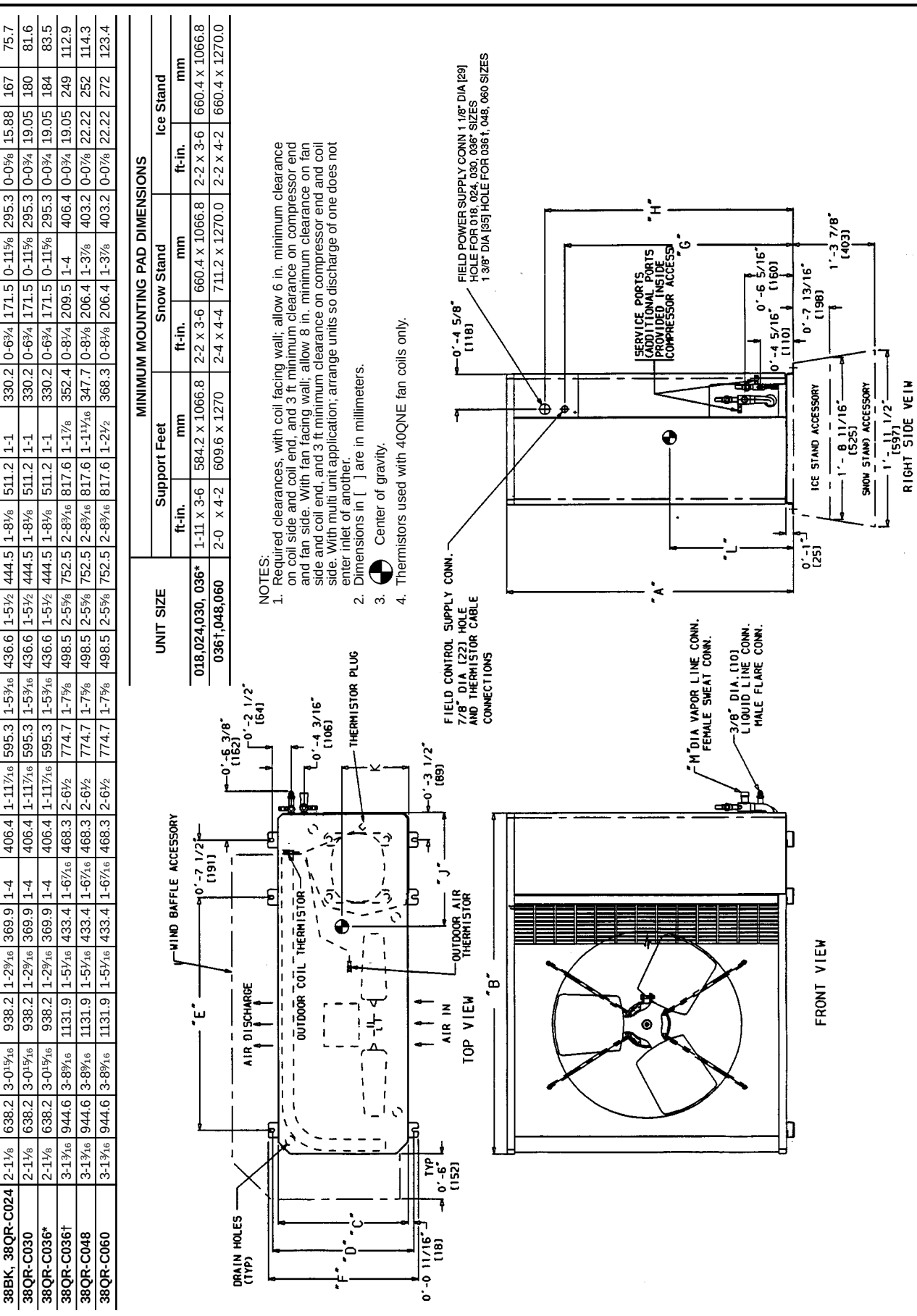
UNIT 38BK	WEIGHT	
	Lb	Kg
009	60.7	27.5
012	66.5	30.2

Base unit dimensions; 38BK018,024 and 38QR-C outdoor units

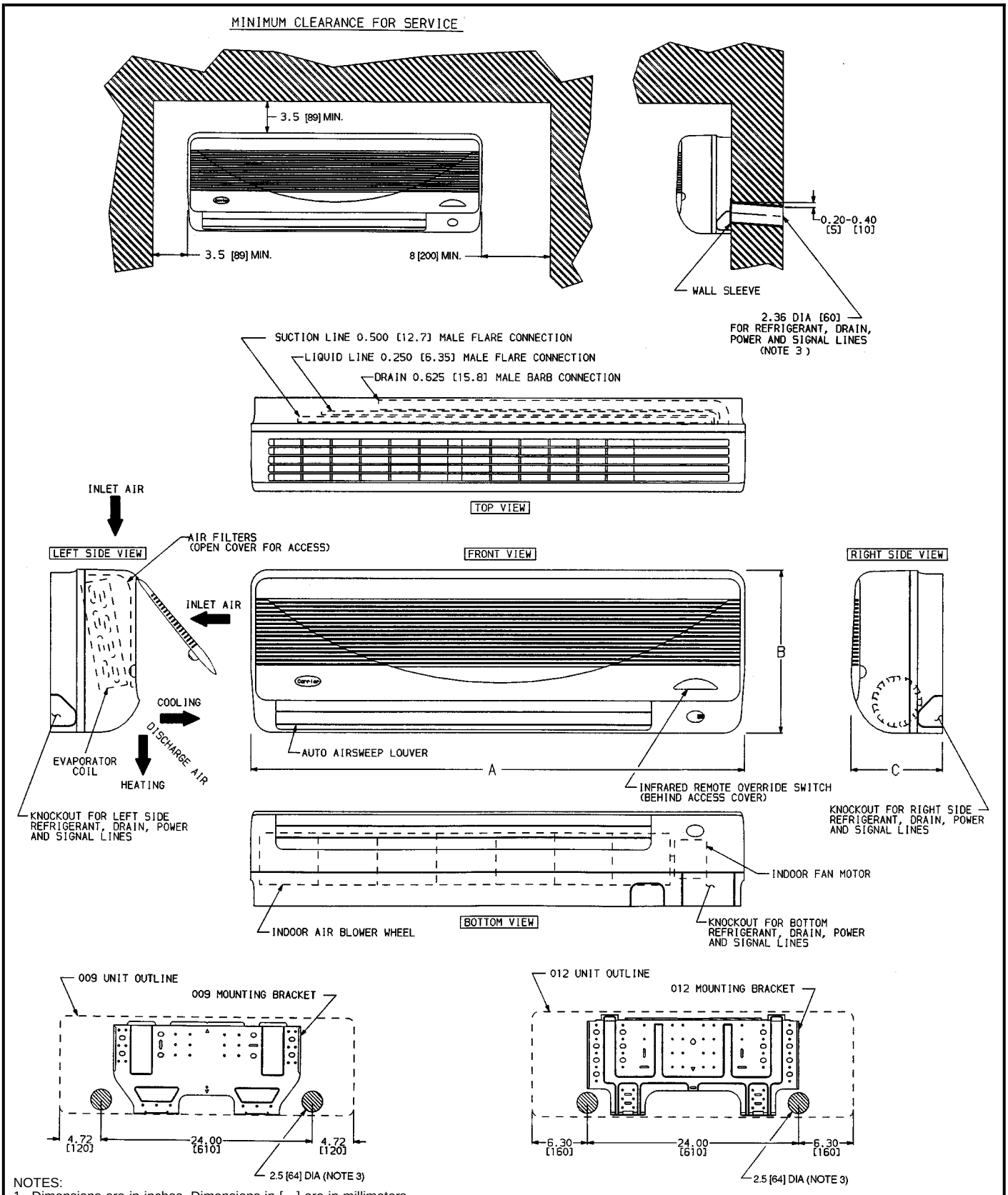
UNIT	A		B		C		D		E		F		G		H		J		K		L		M		OPERATING WEIGHT	
	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	lb	Kg
38BK, 38QR-C018	2-1⅛	638.2	3-0 15/16	938.2	1-2 9/16	369.9	1-4	406.4	1-11 7/16	595.3	1-5 3/16	436.6	1-5½	444.5	1-8⅛	511.2	1-1	330.2	0-6⅝	168.3	0-11¼	285.8	0-0⅝	15.88	154	69.8
38BK, 38QR-C024	2-1⅛	638.2	3-0 15/16	938.2	1-2 9/16	369.9	1-4	406.4	1-11 7/16	595.3	1-5 3/16	436.6	1-5½	444.5	1-8⅛	511.2	1-1	330.2	0-6¾	171.5	0-11⅝	295.3	0-0⅝	15.88	167	75.7
38QR-C030	2-1⅛	638.2	3-0 15/16	938.2	1-2 9/16	369.9	1-4	406.4	1-11 7/16	595.3	1-5 3/16	436.6	1-5½	444.5	1-8⅛	511.2	1-1	330.2	0-6¾	171.5	0-11⅝	295.3	0-0¾	19.05	180	81.6
38QR-C036*	2-1⅛	638.2	3-0 15/16	938.2	1-2 9/16	369.9	1-4	406.4	1-11 7/16	595.3	1-5 3/16	436.6	1-5½	444.5	1-8⅛	511.2	1-1	330.2	0-6¾	171.5	0-11⅝	295.3	0-0¾	19.05	184	83.5
38QR-C036†	3-1¾16	944.6	3-8 9/16	1131.9	1-5 1/16	433.4	1-6 7/16	468.3	2-6½	774.7	1-7⅝	498.5	2-5⅝	752.5	2-8 3/16	817.6	1-1 7/8	352.4	0-8¼	209.5	1-4	406.4	0-0¾	19.05	249	112.9
38QR-C048	3-1¾16	944.6	3-8 9/16	1131.9	1-5 1/16	433.4	1-6 7/16	468.3	2-6½	774.7	1-7⅝	498.5	2-5⅝	752.5	2-8 3/16	817.6	1-1 1/16	347.7	0-8⅛	206.4	1-3⅞	403.2	0-0⅞	22.22	252	114.3
38QR-C060	3-1¾16	944.6	3-8 9/16	1131.9	1-5 1/16	433.4	1-6 7/16	468.3	2-6½	774.7	1-7⅝	498.5	2-5⅝	752.5	2-8 3/16	817.6	1-2½	368.3	0-8⅛	206.4	1-3⅞	403.2	0-0⅞	22.22	272	123.4

UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS					
	Support Feet		Snow Stand		Ice Stand	
	ft-in.	mm	ft-in.	mm	ft-in.	mm
018,024,030, 036*	1-11 x 3-6	584.2 x 1066.8	2-2 x 3-6	660.4 x 1066.8	2-2 x 3-6	660.4 x 1066.8
036†,048,060	2-0 x 4-2	609.6 x 1270	2-4 x 4-4	711.2 x 1270.0	2-2 x 4-2	660.4 x 1270.0

NOTES:
1. Required clearances, with coil facing wall; allow 6 in. minimum clearance on coil side and coil end, and 3 ft minimum clearance on compressor end and fan side. With fan facing wall; allow 8 in. minimum clearance on fan side and coil end, and 3 ft minimum clearance on compressor end and coil side. With multi unit application; arrange units so discharge of one does not enter inlet of another.
2. Dimensions in [ ] are in millimeters.
3. Center of gravity.
4. Thermistors used with 40QNE fan coils only.



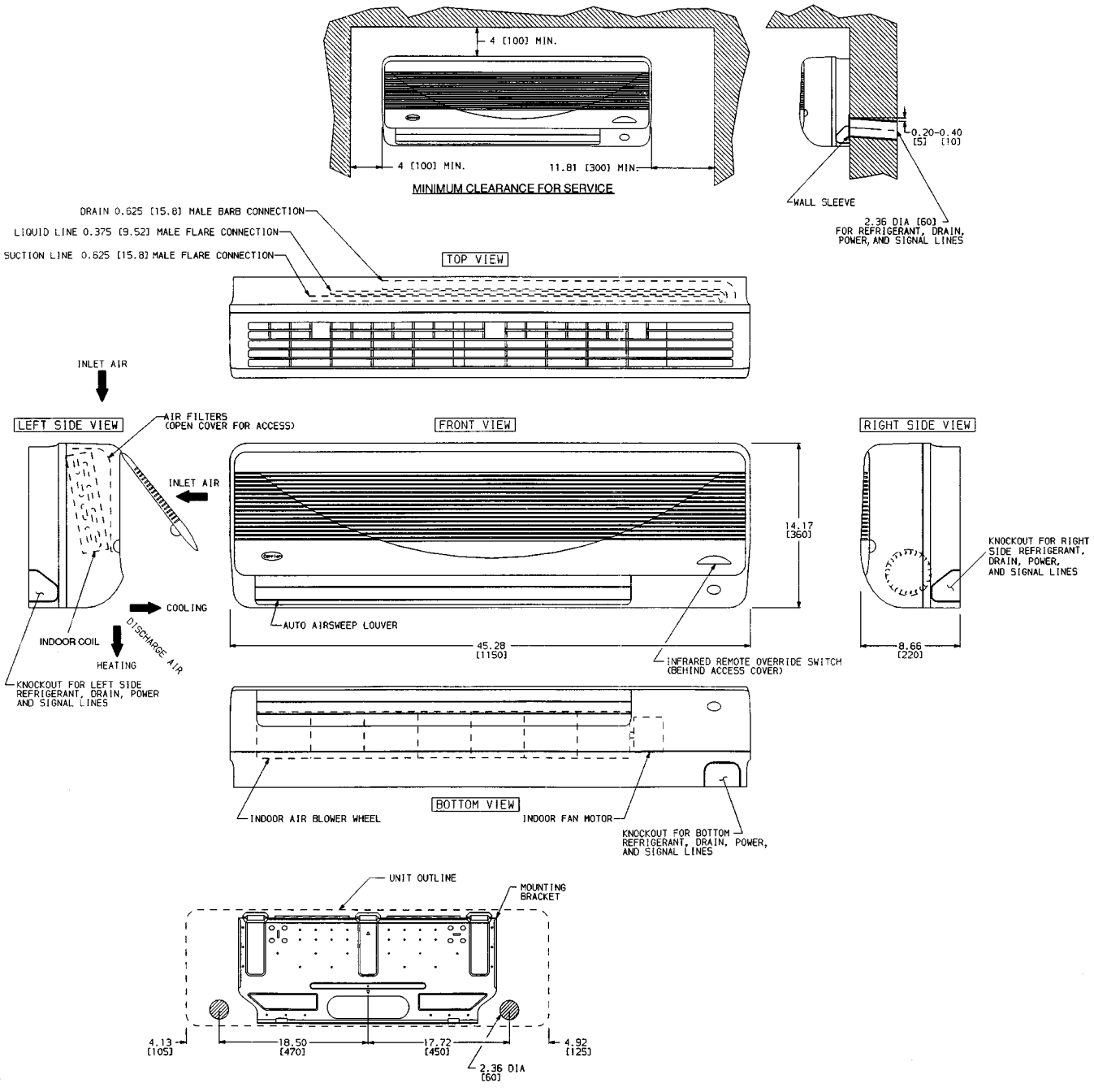
Base unit dimensions — 40QNE009,012 high wall fan coil units



NOTES:
1. Dimensions are in inches. Dimensions in [ ] are in millimeters.
2. ➡ Direction of airflow.
3. Refrigerant, drain, and power connections may be made rear, left side or right side.
4. Refrigerant is metered by AccuRater® metering device in outdoor unit. Insulate both refrigerant lines.
5. Clearances of 3½″ on top of and to the left of the fan coil unit are absolute minimums. Clearances of 10″ are recommended.

UNIT 40QNE	WEIGHT		A		B		C	
	Lb	Kg	in.	mm	in.	mm	in.	mm
009	18.7	8.5	33.46	850	11.02	280	6.29	160
012	24.2	11.0	36.61	930	11.81	300	7.28	185

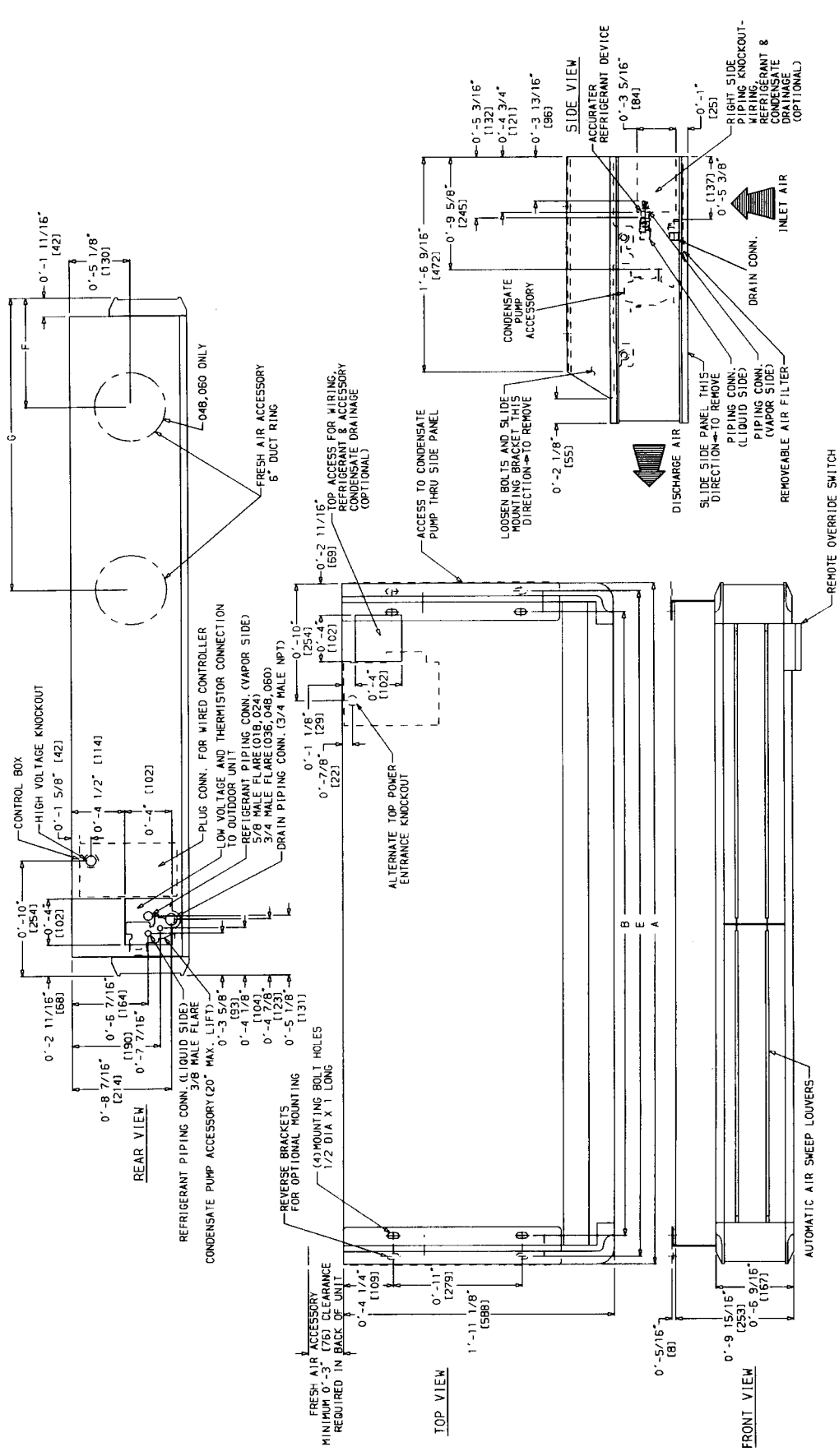
Base unit dimensions — 40QNE018,024 high wall fan coil units



NOTES:
1. Dimensions in ( ) are in millimeters.
2. ➡ Direction of airflow.
3. Refrigerant, drain, and power connections may be made rear, bottom, left side, or right side.
4. Refrigerant is metered by AccuRater® device at the fan coil unit.
5. The 4″ top and left side clearances are absolute minimums. Clearances of 10″ are recommended.

UNIT 40QNE	WEIGHT — LB (KG)
018	38.5 (17.5)
024	42.9 (19.5)

Base unit dimensions — 40QAE ceiling-suspended fan coil units



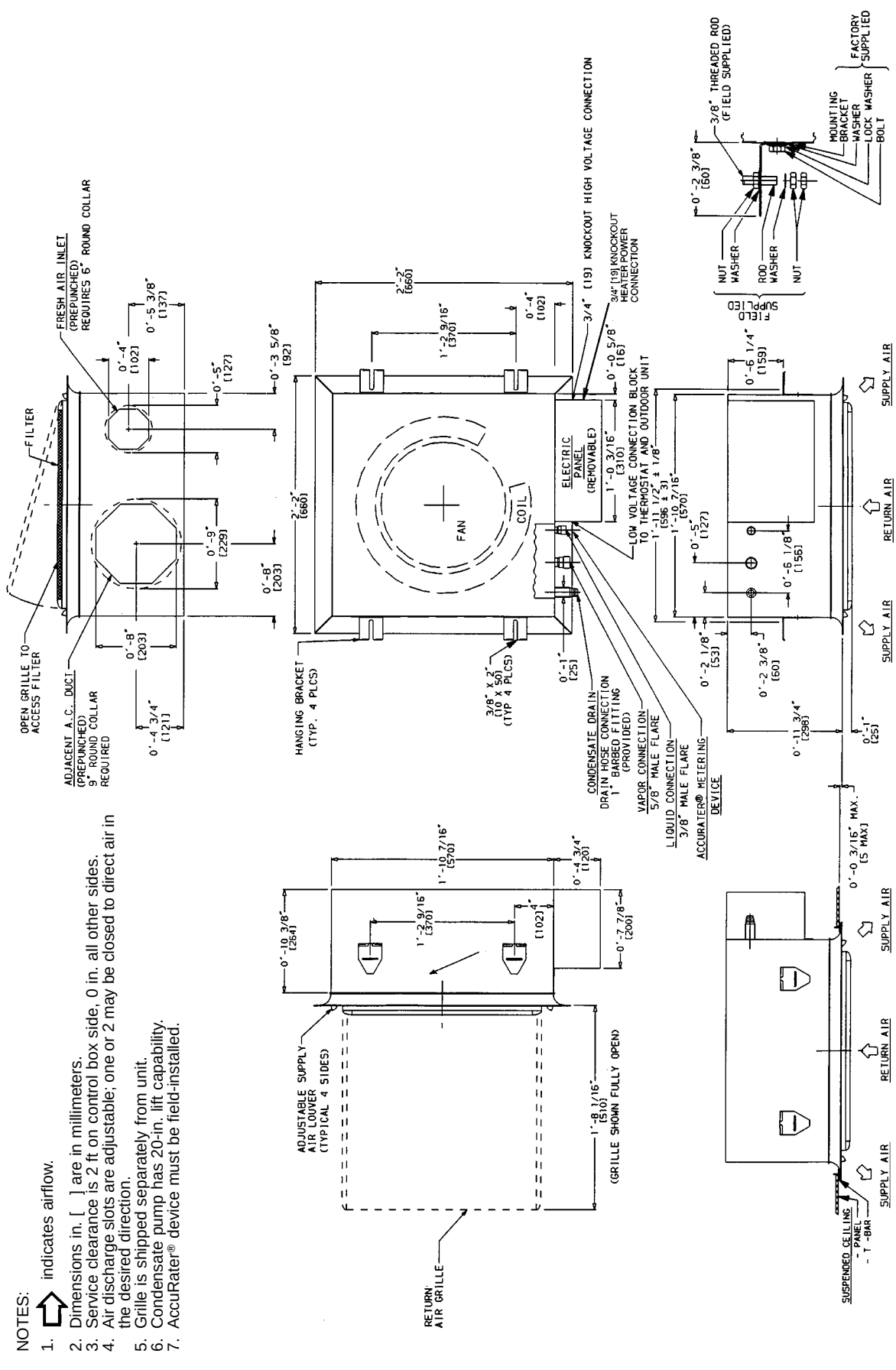
UNIT 40QAE	WEIGHT (lb)	A		B		E		F		G	
		ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm	ft-in.	mm
018,024	110	4- 2 15/16	1294	3-10	1169	4- 1 5/8	1260	—	—	1- 9 5/8	549
036	119	4-10 13/16	1493	4- 5 7/8	1368	4- 9 1/2	1459	—	—	2- 1 1/2	648
048	151	5-11 9/16	1817	5- 6 5/8	1692	5-10 1/4	1783	1- 9 7/8	555	3- 3 1/16	992
060	181	7- 8	2336	7- 3	2211	7- 6 5/8	2302	1-11 5/8	601	4-11 9/16	1512

NOTES:
1. Dimensions in [ ] are millimeters.
2. ⇧ Direction of airflow.
3. Facing unit discharge, unit clearances are as follows:
   - 0 in. on top and rear
   - 3 in. on left side
   - 12 in. on right side
   - 36 in. on bottom

Base unit dimensions — 40QKE in-ceiling cassette fan coil units

UNIT 40QKE	OPERATING WEIGHT	
	Lb	Kg
024	66.1	30

NOTES:
1. ⇧ indicates airflow.
2. Dimensions in. [ ] are in millimeters.
3. Service clearance is 2 ft on control box side, 0 in. all other sides.
4. Air discharge slots are adjustable; one or 2 may be closed to direct air in the desired direction.
5. Grille is shipped separately from unit.
6. Condensate pump has 20-in. lift capability.
7. AccuRater® device must be field-installed.

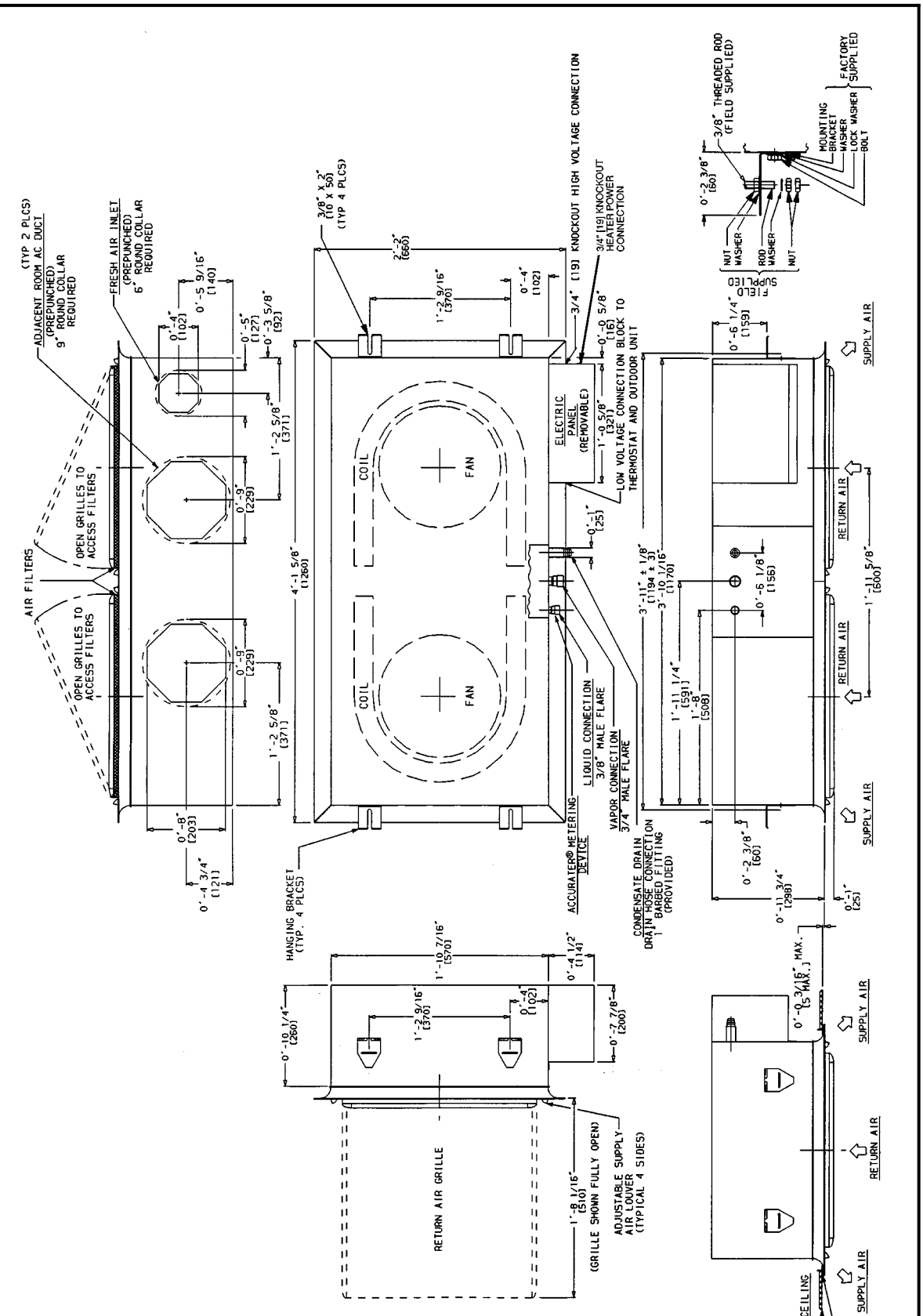


Base unit dimensions — 40QKE in-ceiling cassette fan coil units (cont)

UNIT 40QKE	OPERATING WEIGHT	
	Lb	Kg
036	105.8	48
048	118.0	53

NOTES:

1. ⇧ indicates airflow.
2. Dimensions in. [ ] are in millimeters.
3. Service clearance is 2 ft on control box side, 0 in. all other sides.
4. Air discharge slots are adjustable; one or 2 may be closed to direct air in the desired direction.
5. Grille is shipped separately from unit.
6. Condensate pump has 20-in. lift capability.
7. AccuRater® device must be field-installed.



Selection procedure (with example)

I Determine the type of fan coil which best suits the application (refer to Systems Index table on page 26).

Duct-free split systems have 3 types of fan coils with overlapping capacities to choose from. Select the system type which best meets the job conditions. This example uses a 2-ton ceiling-suspended fan coil (assume wall space is not available for a wall-mounted unit).

II Determine cooling and heating load requirements at design conditions.

Required Load Conditions:

Required Cooling Capacity (TCG) .... 24,500 Btuh
Sensible Heat Capacity (SHC) ..... 16,800 Btuh
Temperature Air Entering
Condensing Unit ..... 95 F
Temperature Air Entering
Indoor Unit (EAT) ..... 82 F db/68 F wb
Required Heating Capacity ..... 8,500 Btuh
Indoor Heating Design Conditions ..... 68 F
Outdoor Heating Design Conditions ..... 0° F

db — dry bulb
wb — wet bulb

III Select system that satisfies load requirements.

Enter the Systems Index table on page 26 at ceiling-suspended system for 24,000 Btuh, and select the system that best approximates cooling and heating requirements. System no. 6, with a nominal net capacity of 24,000 Btuh cooling and 12,500 Btuh heating (at 17 F), is the system selected. The system consists of a 38QR-C024 outdoor unit matched with one 40QAE024 indoor unit.

IV Determine if system selected satisfies cooling requirements.

Enter Cooling Capacities table on page 32 at high speed and 95 F outdoor entering air temperature (air entering condenser). By interpolation, at 68 F EAT, the system gross capacity is 24,900 Btuh cooling [(26,500 – 24,500) x (1/5) + 24,500], and 15,740 Btuh SHG (gross sensible capacity). Adjust the SHG in accordance with Note 2 of the Combinations Ratings table, using the correction factor for an 82 F edb (air entering dry bulb), and an 0.03 BF (bypass factor). The result is an adjusted SHG of 16,877 Btuh. The total gross cooling capacity of 24,900 Btuh and the sensible heat capacity of 16,877 Btuh satisfy stipulated cooling load requirements.

V Determine if system selected satisfies heating requirements.

Enter Instantaneous and Integrated Heating Ratings table for System 6 on page 48 at 0° F outdoor db. By interpolation, the system capacity is between 65 and 70 F for integrated heating [−(7320 − 7710) x (2/5) + 7320 = 7476]. This is the value which reflects the net room effects after defrost energy. This value is short of the required heating capacity, however, the 40QAE units have a standard electric heater which will work in conjunction with heat pump heating (booster heat mode).

The 40QAE units have a 2 kW heater which will add a total of 6824 kW to the room (2 x 3412) or 6284 Btuh for a total heating capability of 13,760 Btuh at design heating conditions. This will satisfy the required heating load.

VI Determine net cooling capacity and system energy efficiency ratio.

Determine net cooling capacity (refer to Cooling Capacity table for System 6 on page 32). Net total cooling capacity must be interpolated as follows:

(26,000 - 24,000) x (1/5) + 26,000 = 26,400 Btuh

To determine the energy efficiency ratio (EER), system kW must be interpolated from the Cooling Capacity table for System 6 in the same manner:

(2.47 - 2.40) x (1/5) + 2.40 = 2.41 kW

Then calculate EER:

$$\text{EER} = \frac{\text{Net Cooling Capacity}}{\text{kW x 1000}}$$

$$\frac{26{,}400}{2.41 \text{ x } 1000} = 10.95 \text{ EER}$$

NOTE: The SEER (Seasonal Energy Efficiency Ratio) CANNOT be calculated for this system. SEERs can only be found as a direct result of testing at specified ARI conditions. See ARI Capacities table on page 6.

VII Determine COP (coefficient of performance) at the design point.

To calculate the COP at the design point, interpolate capacity as in Step V to arrive at a capacity of 7476. Interpolate the kW between 1.63 and 1.62 to be 1.625.

$$\text{COP} = \frac{7476}{1.625 \times 3.412} \div 1000 = 1.48$$

NOTE: The HSPF (heating seasonal performance factor) CANNOT be calculated for this system. HSPFs can only be found as a direct result of testing at specified ARI conditions. See ARI Capacities table on page 6.

VIII Determine the recommended liquid and vapor line sizes.

Refer to Refrigerant Lines section on page 65.

NOTE: With long-lines applications, it may be necessary to adjust cooling capacity. See Refrigerant Lines section on page 65 for more details.

Performance data

SYSTEMS INDEX TABLE

SYSTEM MODEL NO.	FAN COIL TYPE	INDOOR SECTION	OUTDOOR SECTION	STANDARD CFM	NET COOLING (BTUH)*	HIGH HEAT CAP (BTUH)	HEAT LOW CAP (BTUH)	INDEX NO.
53QNE009	High Wall	40QNE009	38BK009	252	8,700	9,000	5,120	1
53QNE012	High Wall	40QNE012	38BK012	302	12,500	12,500	7,190	2
53QNE018	High Wall	40QNE018	38BK018	455	17,300	16,900	10,100	3
53QNE024	High Wall	40QNE024	38BK024	525	23,200	21,400	12,700	4
53QAE018	Ceiling Suspended	40QAE024	38QR-C018	480	19,000	17,000	9,800	5
53QAE024	Ceiling Suspended	40QAE024	38QR-C024	550	24,000	22,600	12,500	6
53QAE030	Ceiling Suspended	40QAE036	38QR-C030	870	30,000	28,000	15,600	7
53QAE036	Ceiling Suspended	40QAE036	38QR-C036 Single-Phase Unit	870	34,600	33,000	19,000	8
53QAE036	Ceiling Suspended	40QAE036	38QR-C036 3-Phase Unit	870	36,000	34,400	19,800	9
53QAE048	Ceiling Suspended	40QAE048	38QR-C048	1100	48,000	45,500	28,200	10
53QAE060	Ceiling Suspended	40QAE060	38QR-C060	1600	58,000	57,500	32,000	11
53QKE018	In-Ceiling Cassette	40QKE024	30QR-C018	525	18,000	17,600	11,000	12
53QKE024	In-Ceiling Cassette	40QKE036	38QR-C024	915	25,000	23,800	13,400	13
53QKE030	In-Ceiling Cassette	40QKE036	38QR-C030	915	29,000	27,000	15,900	14
53QKE036	In-Ceiling Cassette	40QKE048	38QR-C036 Single-Phase Unit	1100	33,000	33,000	20,000	15
53QKE036	In-Ceiling Cassette	40QKE048	38QR-C036 3-Phase Unit	1100	34,400	34,000	21,000	16

*Rating conditions are 80/67 F dry bulb/wet bulb indoor air, 95 F outdoor air, and high speed.

COOLING CAPACITIES

SYSTEM 1* — 53QNE009 HIGH WALL SYSTEM (38BK009 WITH 40QNE009)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		214/0.10				233/0.11				252/0.12			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	8.57	8.95	9.57	9.71	8.79	9.04	9.60	10.0	8.97	9.07	9.61	9.94
	SHG	8.49	7.17	6.05	4.74	8.79	7.36	6.13	4.91	8.97	7.48	6.20	4.91
	TC	8.52	8.89	9.52	9.65	8.72	8.97	9.53	9.95	8.90	9.00	9.54	9.87
	kW	0.61	0.62	0.63	0.64	0.62	0.62	0.63	0.65	0.62	0.62	0.64	0.65
	CMP	0.51	0.52	0.54	0.54	0.52	0.52	0.54	0.55	0.52	0.52	0.54	0.55
	LDB	43.0	48.8	53.7	59.5	44.9	50.6	55.6	60.5	46.8	52.4	57.2	62.0
	LWB	40.0	46.1	51.8	58.4	41.2	47.4	53.2	59.3	42.2	48.7	54.4	60.5
65	TCG	8.42	8.85	9.59	10.0	8.65	8.97	9.67	10.1	8.83	9.07	9.73	10.0
	SHG	8.42	7.21	6.13	4.90	8.65	7.44	6.27	4.95	8.83	7.67	6.39	4.96
	TC	8.36	8.79	9.53	9.97	8.58	8.90	9.61	10.0	8.76	9.00	9.66	9.93
	kW	0.68	0.69	0.71	0.72	0.69	0.70	0.72	0.73	0.69	0.70	0.72	0.73
	CMP	0.58	0.59	0.62	0.63	0.59	0.60	0.62	0.63	0.59	0.60	0.62	0.63
	LDB	43.3	48.7	53.4	58.8	45.4	50.3	55.0	60.3	47.4	51.7	56.5	61.8
	LWB	40.4	46.3	51.8	57.9	41.5	47.6	53.1	59.2	42.5	48.7	54.2	60.4
75	TCG	8.25	8.64	9.42	9.92	8.45	8.78	9.54	9.94	8.65	8.89	9.65	9.94
	SHG	8.25	7.16	6.09	4.86	8.45	7.44	6.27	4.91	8.65	7.69	6.45	4.96
	TC	8.19	8.58	9.36	9.86	8.38	8.71	9.48	9.87	8.58	8.82	9.58	9.87
	kW	0.76	0.77	0.80	0.81	0.77	0.78	0.80	0.81	0.78	0.78	0.81	0.81
	CMP	0.67	0.68	0.70	0.71	0.67	0.68	0.70	0.71	0.68	0.68	0.71	0.71
	LDB	44.1	48.8	53.6	58.9	46.2	50.3	55.0	60.5	48.1	51.6	56.2	61.8
	LWB	40.8	46.8	52.1	58.1	41.9	47.9	53.3	59.4	42.8	49.0	54.3	60.5
85	TCG	8.05	8.43	9.15	9.68	8.26	8.54	9.29	9.77	8.44	8.66	9.40	9.78
	SHG	8.05	7.13	6.00	4.77	8.26	7.39	6.21	4.87	8.44	7.68	6.40	4.93
	TC	7.99	8.37	9.09	9.62	8.19	8.47	9.22	9.70	8.37	8.59	9.33	9.71
	kW	0.85	0.86	0.89	0.90	0.86	0.87	0.89	0.91	0.87	0.87	0.90	0.91
	CMP	0.76	0.77	0.79	0.81	0.76	0.77	0.80	0.81	0.77	0.77	0.80	0.81
	LDB	44.9	49.0	53.9	59.3	47.0	50.5	55.3	60.6	48.8	51.7	56.4	61.9
	LWB	41.2	47.2	52.6	58.5	42.3	48.4	53.7	59.6	43.2	49.3	54.7	60.7
95	TCG	7.68	8.12	8.83	9.40	7.95	8.26	8.96	9.47	8.18	8.38	9.07	9.54
	SHG	7.68	7.02	5.88	4.67	7.95	7.32	6.09	4.77	8.18	7.62	6.29	4.86
	TC	7.62	8.06	8.77	9.34	7.89	8.19	8.89	9.41	8.11	8.31	9.00	9.47
	kW	0.95	0.96	0.99	1.01	0.96	0.97	0.99	1.01	0.97	0.97	1.00	1.01
	CMP	0.85	0.87	0.89	0.91	0.86	0.87	0.90	0.91	0.87	0.88	0.90	0.92
	LDB	46.6	49.5	54.5	59.8	48.2	50.8	55.7	61.1	49.8	51.9	56.8	62.2
	LWB	42.1	47.8	53.2	59.0	42.9	48.9	54.3	60.1	43.7	49.8	55.2	61.0
105	TCG	7.21	7.53	8.48	9.11	7.47	7.68	8.58	9.21	7.70	7.82	8.69	9.30
	SHG	7.21	6.75	5.75	4.57	7.47	7.07	5.96	4.69	7.70	7.37	6.16	4.81
	TC	7.15	7.47	8.42	9.05	7.41	7.62	8.52	9.15	7.63	7.74	8.62	9.23
	kW	1.05	1.06	1.10	1.12	1.06	1.07	1.11	1.13	1.07	1.08	1.11	1.13
	CMP	0.96	0.97	1.00	1.03	0.97	0.97	1.01	1.03	0.98	0.98	1.01	1.04
	LDB	48.6	50.7	55.0	60.2	50.2	51.8	56.3	61.4	51.6	52.8	57.3	62.4
	LWB	43.1	49.0	53.8	59.4	43.9	49.9	54.9	60.4	44.6	50.7	55.7	61.3
115	TCG	6.72	6.88	7.79	8.76	6.96	7.01	7.94	8.88	7.17	7.15	8.04	8.97
	SHG	6.72	6.45	5.47	4.45	6.96	6.75	5.70	4.59	7.17	7.04	5.91	4.71
	TC	6.66	6.82	7.73	8.70	6.89	6.95	7.87	8.81	7.10	7.08	7.97	8.90
	kW	1.17	1.17	1.21	1.25	1.18	1.18	1.22	1.26	1.19	1.19	1.23	1.27
	CMP	1.07	1.08	1.12	1.16	1.08	1.09	1.12	1.16	1.09	1.09	1.13	1.17
	LDB	50.8	52.0	56.3	60.7	52.2	53.1	57.3	61.8	53.6	54.1	58.2	62.7
	LWB	44.2	50.2	55.0	60.0	44.9	51.1	55.9	60.9	45.5	51.8	56.7	61.7
125	TCG	6.18	6.23	7.02	8.03	6.41	6.37	7.14	8.15	6.61	6.52	7.23	8.26
	SHG	6.18	6.14	5.15	4.19	6.41	6.37	5.38	4.33	6.61	6.52	5.60	4.47
	TC	6.13	6.17	6.96	7.97	6.34	6.31	7.07	8.09	6.54	6.45	7.16	8.19
	kW	1.30	1.30	1.34	1.39	1.31	1.31	1.34	1.39	1.32	1.32	1.35	1.40
	CMP	1.20	1.20	1.24	1.29	1.21	1.21	1.25	1.30	1.22	1.22	1.25	1.30
	LDB	53.1	53.3	57.7	61.9	54.4	54.6	58.6	62.8	55.6	56.0	59.4	63.6
	LWB	45.3	51.5	56.3	61.1	46.0	52.2	57.1	61.9	46.5	52.8	57.8	62.6

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

Performance data (cont)

COOLING CAPACITIES (cont)

SYSTEM 2* — 53QNE012 HIGH WALL SYSTEM (38BK012 WITH 40QNE012)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		245/0.12				280/0.14				302/0.15			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	11.1	11.7	12.4	12.8	11.5	12.0	12.6	12.8	11.8	12.1	12.7	12.7
	SHG	10.5	8.95	7.61	6.21	11.2	9.36	7.79	6.23	11.6	9.57	7.92	6.24
	TC	11.1	11.6	12.3	12.7	11.5	11.9	12.5	12.7	11.7	12.0	12.6	12.6
	kW	0.76	0.77	0.78	0.78	0.77	0.77	0.78	0.78	0.78	0.78	0.79	0.79
	CMP	0.66	0.67	0.68	0.69	0.67	0.67	0.68	0.68	0.67	0.67	0.68	0.68
	LDB	39.8	45.7	50.9	56.3	42.5	48.6	54.0	59.2	44.1	50.3	55.5	60.7
	LWB	37.1	43.2	49.2	55.8	39.3	45.5	51.6	58.2	40.4	46.7	52.8	59.4
65	TCG	10.9	11.6	12.4	13.1	11.3	11.9	12.7	13.2	11.5	12.0	12.8	13.2
	SHG	10.4	8.99	7.65	6.31	11.1	9.38	7.92	6.43	11.4	9.65	8.08	6.46
	TC	10.8	11.5	12.3	13.0	11.2	11.8	12.6	13.2	11.4	11.9	12.7	13.1
	kW	0.84	0.85	0.86	0.87	0.85	0.86	0.87	0.88	0.86	0.86	0.88	0.88
	CMP	0.75	0.75	0.77	0.78	0.75	0.76	0.77	0.78	0.76	0.76	0.77	0.78
	LDB	40.1	45.6	50.7	55.9	42.9	48.6	53.5	58.6	44.4	50.0	55.0	60.1
	LWB	37.6	43.4	49.2	55.4	39.8	45.7	51.5	57.6	40.8	46.9	52.6	58.9
75	TCG	10.6	11.4	12.2	13.1	11.0	11.7	12.6	13.3	11.3	11.9	12.7	13.4
	SHG	10.2	8.92	7.59	6.30	10.9	9.39	7.93	6.46	11.3	9.69	8.11	6.55
	TC	10.5	11.3	12.2	13.0	10.9	11.6	12.5	13.2	11.2	11.8	12.6	13.3
	kW	0.94	0.95	0.96	0.98	0.95	0.95	0.97	0.99	0.95	0.96	0.97	0.99
	CMP	0.84	0.85	0.86	0.88	0.85	0.85	0.87	0.89	0.85	0.86	0.87	0.89
	LDB	40.7	45.8	51.0	55.9	43.3	48.5	53.5	58.4	44.9	49.9	54.9	59.8
	LWB	38.3	43.8	49.5	55.4	40.2	46.0	51.6	57.5	41.2	47.1	52.8	58.6
85	TCG	9.83	11.1	12.0	12.8	10.6	11.4	12.3	13.1	11.0	11.6	12.4	13.2
	SHG	9.78	8.83	7.48	6.17	10.6	9.31	7.85	6.36	11.0	9.62	8.06	6.46
	TC	9.74	11.0	11.9	12.7	10.5	11.3	12.2	13.0	10.9	11.5	12.3	13.1
	kW	1.04	1.05	1.07	1.08	1.05	1.06	1.08	1.09	1.06	1.07	1.08	1.10
	CMP	0.94	0.96	0.97	0.99	0.95	0.96	0.98	0.99	0.95	0.96	0.98	1.00
	LDB	42.5	46.2	51.4	56.5	44.6	48.8	53.8	58.8	45.9	50.1	55.0	60.0
	LWB	39.9	44.4	50.0	55.8	41.0	46.5	52.0	57.9	41.7	47.5	53.1	58.9
95	TCG	9.43	10.5	11.7	12.5	10.0	10.9	11.9	12.7	10.4	11.2	12.1	12.9
	SHG	9.43	8.52	7.36	6.02	10.0	9.12	7.72	6.23	10.4	9.49	7.95	6.34
	TC	9.35	10.4	11.6	12.4	9.91	10.8	11.8	12.6	10.3	11.1	12.0	12.8
	kW	1.15	1.16	1.19	1.20	1.16	1.18	1.19	1.21	1.17	1.18	1.20	1.21
	CMP	1.05	1.07	1.09	1.10	1.06	1.08	1.09	1.11	1.07	1.08	1.10	1.11
	LDB	43.9	47.4	51.8	57.1	46.5	49.4	54.2	59.2	47.6	50.6	55.4	60.4
	LWB	40.7	45.5	50.5	56.3	42.0	47.2	52.5	58.3	42.6	48.1	53.5	59.3
105	TCG	8.97	9.81	11.2	12.1	9.45	10.2	11.5	12.3	9.83	10.4	11.7	12.5
	SHG	8.97	8.17	7.18	5.85	9.45	8.78	7.56	6.07	9.83	9.15	7.79	6.19
	TC	8.89	9.73	11.1	12.0	9.35	10.1	11.4	12.2	9.73	10.3	11.6	12.4
	kW	1.27	1.29	1.31	1.33	1.29	1.30	1.32	1.34	1.30	1.31	1.33	1.35
	CMP	1.18	1.19	1.22	1.23	1.19	1.20	1.22	1.24	1.19	1.20	1.23	1.24
	LDB	45.6	48.7	52.6	57.7	48.4	50.6	54.7	59.8	49.5	51.6	55.9	60.9
	LWB	41.6	46.8	51.2	56.9	43.0	48.3	53.1	58.8	43.5	49.1	54.1	59.7
115	TCG	8.70	9.09	10.4	11.7	9.06	9.47	10.9	11.9	9.23	9.68	11.1	12.0
	SHG	8.70	7.82	6.83	5.69	9.06	8.44	7.29	5.90	9.23	8.80	7.56	6.03
	TC	8.62	9.01	10.4	11.6	8.96	9.38	10.8	11.8	9.13	9.58	11.0	11.9
	kW	1.41	1.42	1.45	1.48	1.42	1.43	1.46	1.48	1.43	1.44	1.47	1.49
	CMP	1.31	1.32	1.35	1.38	1.32	1.33	1.36	1.38	1.33	1.34	1.37	1.39
	LDB	46.7	50.1	53.9	58.3	49.7	51.8	55.6	60.4	51.4	52.7	56.6	61.4
	LWB	42.1	48.1	52.5	57.5	43.6	49.4	54.0	59.3	44.5	50.2	54.8	60.3
125	TCG	8.18	8.32	9.73	11.2	8.50	8.69	10.1	11.4	8.64	8.88	10.3	11.6
	SHG	8.18	7.48	6.52	5.50	8.50	8.08	6.98	5.73	8.64	8.43	7.25	5.87
	TC	8.09	8.24	9.65	11.1	8.41	8.60	10.0	11.3	8.54	8.78	10.2	11.5
	kW	1.56	1.57	1.60	1.63	1.57	1.58	1.61	1.64	1.58	1.59	1.62	1.65
	CMP	1.46	1.47	1.50	1.54	1.47	1.48	1.51	1.54	1.48	1.48	1.52	1.55
	LDB	48.7	51.4	55.1	59.0	51.5	53.0	56.7	60.9	53.2	53.9	57.6	61.9
	LWB	43.2	49.4	53.7	58.2	44.6	50.6	55.0	59.9	45.4	51.3	55.7	60.8

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

COOLING CAPACITIES (cont)

SYSTEM 3* — 53QNE018 HIGH WALL SYSTEM (38BK018 WITH 40QNE018)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		376/0.14				404/0.14				455/0.16			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	16.7	18.0	19.2	20.2	17.0	18.4	19.5	20.2	17.6	18.9	19.8	20.3
	SHG	15.8	13.9	11.8	9.73	16.4	14.3	12.1	9.81	17.3	15.0	12.5	9.94
	TC	16.5	17.9	19.1	20.0	16.9	18.2	19.3	20.1	17.4	18.7	19.7	20.2
	kW	1.21	1.23	1.25	1.27	1.22	1.24	1.26	1.27	1.24	1.26	1.27	1.28
	CMP	1.05	1.07	1.09	1.11	1.05	1.07	1.09	1.11	1.07	1.09	1.10	1.11
	LDB	40.8	45.6	50.8	56.0	42.3	47.1	52.3	57.5	44.7	49.3	54.6	59.8
	LWB	37.9	43.3	49.2	55.5	39.0	44.5	50.4	56.8	40.7	46.3	52.3	58.7
65	TCG	15.9	17.5	18.9	20.1	16.3	17.8	19.2	20.3	17.0	18.3	19.7	20.6
	SHG	15.4	13.7	11.7	9.66	15.9	14.1	12.0	9.80	16.9	14.9	12.5	10.0
	TC	15.8	17.4	18.8	19.9	16.1	17.7	19.1	20.1	16.8	18.2	19.6	20.4
	kW	1.31	1.34	1.37	1.39	1.33	1.35	1.38	1.40	1.34	1.37	1.40	1.41
	CMP	1.15	1.18	1.21	1.23	1.16	1.19	1.21	1.24	1.17	1.20	1.23	1.24
	LDB	41.9	46.1	51.0	56.2	43.3	47.5	52.4	57.6	45.5	49.6	54.4	59.6
	LWB	38.9	44.0	49.5	55.6	39.9	45.1	50.7	56.8	41.4	46.8	52.4	58.5
75	TCG	15.2	16.8	18.4	19.7	15.5	17.1	18.7	20.0	16.2	17.6	19.2	20.4
	SHG	14.9	13.3	11.5	9.50	15.4	13.8	11.8	9.67	16.2	14.6	12.4	9.97
	TC	15.0	16.6	18.2	19.6	15.4	16.9	18.6	19.8	16.0	17.5	19.0	20.2
	kW	1.41	1.45	1.49	1.52	1.42	1.46	1.50	1.53	1.45	1.48	1.52	1.55
	CMP	1.25	1.29	1.33	1.36	1.26	1.30	1.33	1.36	1.28	1.31	1.35	1.37
	LDB	43.1	47.0	51.7	56.6	44.5	48.2	52.9	57.8	46.9	50.1	54.8	59.8
	LWB	39.9	44.9	50.2	55.9	40.9	45.9	51.2	57.0	42.3	47.5	52.8	58.7
85	TCG	14.4	15.9	17.7	19.1	14.8	16.2	18.0	19.4	15.5	16.7	18.5	19.9
	SHG	14.4	12.9	11.2	9.23	14.8	13.3	11.5	9.43	15.5	14.2	12.1	9.76
	TC	14.3	15.7	17.5	19.0	14.6	16.0	17.8	19.3	15.3	16.5	18.3	19.7
	kW	1.50	1.55	1.61	1.64	1.52	1.57	1.62	1.66	1.55	1.59	1.64	1.67
	CMP	1.34	1.39	1.44	1.48	1.35	1.40	1.45	1.49	1.38	1.42	1.47	1.50
	LDB	44.5	48.2	52.4	57.3	45.9	49.3	53.6	58.4	48.4	51.1	55.4	60.2
	LWB	40.9	46.0	50.9	56.5	41.8	46.9	51.9	57.5	43.0	48.4	53.5	59.1
95	TCG	13.7	15.0	16.7	18.4	14.1	15.2	17.0	18.7	14.7	15.7	17.5	19.1
	SHG	13.7	12.4	10.7	8.91	14.1	12.9	11.1	9.11	14.7	13.7	11.7	9.47
	TC	13.6	14.8	16.5	18.2	13.9	15.1	16.8	18.5	14.6	15.5	17.3	18.9
	kW	1.60	1.65	1.71	1.77	1.62	1.66	1.73	1.78	1.65	1.69	1.75	1.80
	CMP	1.43	1.49	1.55	1.60	1.45	1.50	1.56	1.61	1.48	1.51	1.58	1.63
	LDB	46.1	49.3	53.5	58.1	47.6	50.3	54.6	59.2	49.9	52.0	56.2	60.8
	LWB	41.8	47.0	52.0	57.2	42.6	47.9	52.9	58.2	43.7	49.3	54.3	59.7
105	TCG	13.0	14.0	15.7	17.5	13.4	14.3	15.9	17.8	14.0	14.7	16.4	18.2
	SHG	13.0	12.0	10.3	8.55	13.4	12.4	10.6	8.76	14.0	13.2	11.2	9.14
	TC	12.9	13.9	15.5	17.4	13.2	14.1	15.8	17.6	13.8	14.5	16.2	18.0
	kW	1.69	1.74	1.81	1.88	1.71	1.75	1.83	1.90	1.75	1.78	1.85	1.92
	CMP	1.53	1.58	1.65	1.72	1.55	1.59	1.66	1.73	1.58	1.61	1.68	1.75
	LDB	47.8	50.4	54.6	59.0	49.2	51.4	55.6	60.0	51.4	53.0	57.2	61.5
	LWB	42.7	48.1	53.0	58.1	43.4	48.9	53.9	59.0	44.5	50.2	55.2	60.3
115	TCG	12.3	13.1	14.6	16.3	12.6	13.3	14.9	16.6	13.2	13.7	15.2	17.0
	SHG	12.3	11.5	9.83	8.10	12.6	12.0	10.2	8.32	13.2	12.7	10.8	8.71
	TC	12.2	12.9	14.5	16.2	12.5	13.2	14.7	16.5	13.1	13.5	15.1	16.9
	kW	1.78	1.82	1.91	1.99	1.81	1.84	1.92	2.01	1.84	1.87	1.95	2.03
	CMP	1.62	1.66	1.75	1.83	1.64	1.67	1.76	1.84	1.67	1.69	1.78	1.86
	LDB	49.6	51.6	55.8	60.1	50.9	52.5	56.7	61.0	53.1	54.1	58.1	62.4
	LWB	43.6	49.2	54.1	59.1	44.3	50.0	54.9	59.9	45.3	51.2	56.1	61.2
125	TCG	11.5	12.1	13.5	15.2	11.9	12.3	13.8	15.4	12.4	12.6	14.1	15.8
	SHG	11.5	11.0	9.38	7.65	11.9	11.5	9.71	7.87	12.4	12.2	10.3	8.25
	TC	11.4	11.9	13.4	15.0	11.7	12.1	13.6	15.3	12.2	12.5	13.9	15.6
	kW	1.87	1.90	2.00	2.09	1.90	1.92	2.01	2.11	1.93	1.95	2.04	2.13
	CMP	1.71	1.74	1.83	1.93	1.73	1.75	1.84	1.94	1.76	1.78	1.86	1.96
	LDB	51.5	52.8	56.9	61.2	52.7	53.7	57.8	62.0	54.7	55.2	59.1	63.3
	LWB	44.5	50.3	55.2	60.2	45.1	51.0	55.9	60.9	46.1	52.1	57.0	62.1

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

Performance data (cont)

COOLING CAPACITIES (cont)

SYSTEM 4* — 53QNE024 HIGH WALL SYSTEM (38BK024 WITH 40QNE024)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		446/0.04				480/0.05				525/0.05			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	22.6	24.5	26.2	27.7	23.1	24.9	26.5	27.7	23.8	25.5	26.9	27.8
	SHG	21.2	18.7	16.0	13.2	22.1	19.4	16.4	13.3	23.1	20.2	16.8	13.5
	TC	22.4	24.3	26.0	27.5	22.9	24.7	26.3	27.5	23.6	25.3	26.7	27.6
	kW	1.63	1.66	1.70	1.73	1.65	1.68	1.71	1.73	1.67	1.69	1.72	1.74
	CMP	1.45	1.49	1.52	1.55	1.47	1.50	1.53	1.55	1.48	1.51	1.54	1.56
	LDB	35.8	41.0	46.8	52.6	37.3	42.6	48.4	54.4	39.1	44.4	50.4	56.4
	LWB	34.7	40.1	46.1	52.4	36.0	41.5	47.5	54.0	37.5	43.1	49.3	55.8
65	TCG	21.5	23.7	25.7	27.6	22.1	24.2	26.2	27.9	22.8	24.7	26.7	28.2
	SHG	20.6	18.4	15.8	13.2	21.5	19.0	16.3	13.4	22.5	19.9	16.9	13.6
	TC	21.3	23.5	25.6	27.4	21.9	24.0	26.0	27.7	22.6	24.5	26.5	28.0
	kW	1.75	1.80	1.84	1.89	1.77	1.81	1.86	1.90	1.79	1.83	1.88	1.91
	CMP	1.58	1.62	1.67	1.71	1.59	1.63	1.68	1.72	1.60	1.64	1.69	1.73
	LDB	37.1	41.8	47.1	52.8	38.5	43.2	48.6	54.3	40.2	45.0	50.3	56.1
	LWB	36.0	41.0	46.5	52.5	37.2	42.3	47.8	53.9	38.4	43.8	49.4	55.6
75	TCG	20.5	22.6	24.9	26.9	21.0	23.1	25.4	27.4	21.7	23.7	25.9	27.8
	SHG	20.0	17.8	15.5	12.9	20.8	18.5	15.9	13.1	21.7	19.4	16.6	13.5
	TC	20.3	22.4	24.7	26.8	20.8	22.9	25.2	27.2	21.5	23.5	25.7	27.6
	kW	1.86	1.93	1.98	2.04	1.88	1.94	2.00	2.05	1.91	1.96	2.02	2.07
	CMP	1.69	1.75	1.81	1.86	1.71	1.76	1.82	1.88	1.73	1.78	1.84	1.89
	LDB	38.4	42.9	47.9	53.3	39.8	44.2	49.3	54.7	41.6	45.7	50.8	56.3
	LWB	37.2	42.2	47.3	53.0	38.3	43.3	48.6	54.3	39.5	44.7	50.0	55.8
85	TCG	19.4	21.4	23.8	26.0	20.0	21.8	24.2	26.5	20.8	22.4	24.8	27.0
	SHG	19.3	17.2	15.0	12.5	20.0	17.9	15.5	12.8	20.8	18.8	16.1	13.2
	TC	19.3	21.2	23.6	25.8	19.8	21.6	24.0	26.3	20.5	22.2	24.6	26.7
	kW	1.98	2.05	2.12	2.19	2.00	2.07	2.14	2.21	2.03	2.09	2.17	2.23
	CMP	1.80	1.87	1.95	2.01	1.82	1.89	1.96	2.03	1.85	1.91	1.98	2.04
	LDB	39.9	44.2	49.0	54.2	41.3	45.4	50.2	55.4	43.3	46.8	51.7	56.9
	LWB	38.4	43.4	48.4	53.8	39.3	44.6	49.6	55.0	40.4	45.8	50.9	56.4
95	TCG	18.5	20.1	22.5	24.8	19.1	20.6	22.9	25.3	19.8	21.1	23.4	25.8
	SHG	18.5	16.6	14.4	12.0	19.1	17.3	14.9	12.3	19.8	18.2	15.5	12.7
	TC	18.3	19.9	22.3	24.7	18.9	20.4	22.7	25.1	19.6	20.9	23.2	25.6
	kW	2.09	2.16	2.25	2.33	2.12	2.18	2.27	2.36	2.16	2.21	2.30	2.38
	CMP	1.91	1.99	2.08	2.16	1.94	2.00	2.10	2.18	1.97	2.03	2.12	2.19
	LDB	41.6	45.5	50.2	55.2	43.2	46.7	51.4	56.4	45.1	48.0	52.7	57.7
	LWB	39.5	44.7	49.6	54.8	40.3	45.8	50.7	55.9	41.3	46.9	52.0	57.2
105	TCG	17.5	18.9	21.1	23.6	18.1	19.3	21.5	24.0	18.8	19.7	22.0	24.5
	SHG	17.5	16.0	13.7	11.5	18.1	16.7	14.3	11.8	18.8	17.5	14.9	12.2
	TC	17.3	18.7	20.9	23.4	17.9	19.1	21.3	23.8	18.6	19.5	21.7	24.2
	kW	2.21	2.27	2.38	2.48	2.24	2.30	2.40	2.50	2.28	2.32	2.43	2.53
	CMP	2.03	2.10	2.20	2.30	2.06	2.12	2.22	2.32	2.09	2.14	2.24	2.34
	LDB	43.6	46.8	51.5	56.3	45.1	47.9	52.6	57.4	46.9	49.1	53.8	58.6
	LWB	40.5	45.9	50.9	55.9	41.3	46.9	51.9	56.9	42.2	48.0	53.0	58.1
115	TCG	16.6	17.6	19.7	22.1	17.1	18.0	20.1	22.4	17.8	18.4	20.5	22.9
	SHG	16.6	15.4	13.1	10.9	17.1	16.0	13.6	11.2	17.8	16.9	14.3	11.6
	TC	16.4	17.4	19.5	21.9	16.9	17.8	19.9	22.2	17.5	18.2	20.3	22.7
	kW	2.33	2.38	2.50	2.61	2.36	2.41	2.52	2.63	2.40	2.43	2.55	2.66
	CMP	2.15	2.21	2.32	2.43	2.18	2.23	2.34	2.45	2.21	2.25	2.36	2.48
	LDB	45.6	48.1	52.8	57.5	47.0	49.1	53.8	58.5	48.7	50.3	54.9	59.7
	LWB	41.6	47.2	52.1	57.1	42.3	48.1	53.1	58.1	43.1	49.1	54.1	59.1
125	TCG	15.6	16.3	18.3	20.5	16.1	16.6	18.6	20.9	16.7	17.1	19.0	21.3
	SHG	15.6	14.7	12.5	10.3	16.1	15.4	13.0	10.6	16.7	16.2	13.7	11.0
	TC	15.4	16.1	18.1	20.3	15.9	16.4	18.4	20.7	16.5	16.8	18.8	21.1
	kW	2.45	2.49	2.61	2.74	2.48	2.51	2.63	2.76	2.52	2.54	2.66	2.79
	CMP	2.27	2.32	2.43	2.56	2.30	2.34	2.45	2.58	2.34	2.36	2.48	2.60
	LDB	47.7	49.4	54.0	58.8	49.0	50.4	54.9	59.7	50.6	51.5	56.0	60.7
	LWB	42.6	48.5	53.4	58.3	43.3	49.3	54.2	59.2	44.1	50.2	55.2	60.2

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

COOLING CAPACITIES (cont)

SYSTEM 5* — 53QAE018 CEILING-SUSPENDED SYSTEM (38QR-C018 WITH 40QAE024)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		320/0.01				400/0.02				480/0.02			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	36.5	40.6	44.6	47.2	38.9	42.7	46.4	49.2	41.3	44.9	48.2	51.1
	SHG	33.6	30.1	26.6	22.2	37.4	33.3	28.6	23.4	41.2	36.5	30.7	24.7
	TC	35.9	40.1	44.1	46.7	38.2	42.1	45.7	48.5	40.5	44.1	47.4	50.3
	kW	2.67	2.74	2.79	2.82	2.75	2.81	2.86	2.90	2.83	2.88	2.93	2.98
	CMP	2.17	2.25	2.29	2.33	2.22	2.28	2.32	2.36	2.26	2.31	2.35	2.40
	LDB	33.1	38.1	43.4	49.8	36.7	41.5	47.0	53.2	40.3	44.9	50.7	56.5
	LWB	32.9	37.7	43.0	49.5	35.8	40.9	46.4	52.6	38.7	44.0	49.7	55.8
65	TCG	30.3	34.0	37.5	40.3	32.5	35.8	39.1	42.0	34.7	37.6	40.8	43.7
	SHG	28.8	25.5	22.5	18.9	31.7	28.3	24.4	20.1	34.7	31.1	26.3	21.3
	TC	29.8	33.5	37.0	39.9	31.9	35.2	38.5	41.4	34.0	36.9	40.1	43.0
	kW	2.47	2.55	2.61	2.66	2.55	2.62	2.68	2.73	2.63	2.69	2.74	2.80
	CMP	2.04	2.12	2.18	2.23	2.09	2.15	2.21	2.27	2.13	2.19	2.24	2.30
	LDB	34.2	39.5	44.6	50.5	38.0	42.7	47.9	53.7	41.9	45.8	51.3	56.9
	LWB	34.4	39.1	44.2	50.1	37.0	42.0	47.3	53.1	39.6	45.0	50.4	56.2
75	TCG	24.1	27.3	30.4	33.5	26.2	28.8	31.9	34.9	28.2	30.3	33.3	36.3
	SHG	23.9	20.8	18.3	15.7	26.1	23.2	20.1	16.7	28.2	25.7	21.9	17.8
	TC	23.7	26.9	30.0	33.1	25.7	28.3	31.4	34.4	27.6	29.7	32.7	35.7
	kW	2.27	2.35	2.44	2.50	2.35	2.42	2.50	2.56	2.44	2.49	2.56	2.63
	CMP	1.91	1.99	2.07	2.13	1.96	2.03	2.10	2.17	2.01	2.07	2.13	2.20
	LDB	35.3	41.0	45.8	51.2	39.4	43.9	48.8	54.2	43.5	46.8	51.8	57.2
	LWB	35.9	40.4	45.4	50.7	38.2	43.2	48.3	53.7	40.5	46.0	51.1	56.6
85	TCG	19.0	21.4	23.8	26.4	20.6	22.5	24.9	27.6	22.2	23.6	26.1	28.7
	SHG	19.0	16.5	14.5	12.4	20.6	18.5	16.0	13.3	22.2	20.5	17.5	14.2
	TC	18.6	21.1	23.4	26.1	20.2	22.1	24.5	27.1	21.7	23.1	25.6	28.2
	kW	1.99	2.07	2.15	2.23	2.07	2.13	2.21	2.28	2.15	2.19	2.27	2.33
	CMP	1.69	1.77	1.85	1.93	1.75	1.81	1.88	1.95	1.80	1.84	1.92	1.98
	LDB	37.1	42.4	47.3	52.4	41.2	45.1	50.1	55.2	45.2	47.8	52.8	58.0
	LWB	37.1	41.8	46.8	51.9	39.2	44.4	49.4	54.6	41.3	47.0	52.1	57.4
95	TCG	14.3	15.9	17.7	19.7	15.5	16.7	18.6	20.6	16.7	17.5	19.4	21.5
	SHG	14.3	12.6	11.0	9.29	15.5	14.1	12.1	10.0	16.7	15.7	13.3	10.8
	TC	14.0	15.6	17.5	19.4	15.2	16.4	18.2	20.3	16.3	17.1	19.0	21.1
	kW	1.67	1.73	1.80	1.87	1.74	1.78	1.85	1.92	1.80	1.83	1.90	1.97
	CMP	1.43	1.50	1.56	1.63	1.48	1.53	1.59	1.66	1.53	1.56	1.62	1.69
	LDB	39.1	43.8	48.7	53.8	43.0	46.3	51.3	56.3	46.8	48.9	53.8	58.9
	LWB	38.2	43.3	48.1	53.2	40.2	45.7	50.6	55.8	42.2	48.0	53.1	58.3
105	TCG	9.95	10.9	12.2	13.6	10.8	11.5	12.8	14.2	11.6	12.0	13.3	14.8
	SHG	9.95	8.86	7.68	6.47	10.8	9.98	8.51	7.01	11.6	11.1	9.35	7.54
	TC	9.75	10.7	12.0	13.4	10.5	11.2	12.5	14.0	11.3	11.7	13.0	14.5
	kW	1.29	1.34	1.39	1.45	1.34	1.37	1.43	1.49	1.39	1.41	1.47	1.53
	CMP	1.12	1.16	1.22	1.28	1.16	1.19	1.24	1.30	1.19	1.21	1.27	1.32
	LDB	41.3	45.2	50.1	55.1	44.9	47.6	52.5	57.5	48.6	50.0	54.9	59.9
	LWB	39.3	44.6	49.5	54.6	41.2	46.9	51.8	56.9	43.1	49.1	54.2	59.2
115	TCG	5.98	6.47	7.28	8.12	6.47	6.79	7.58	8.44	6.97	7.11	7.88	8.76
	SHG	5.98	5.41	4.66	3.90	6.47	6.10	5.18	4.23	6.97	6.78	5.71	4.56
	TC	5.85	6.35	7.16	7.99	6.32	6.63	7.43	8.28	6.78	6.92	7.70	8.58
	kW	0.860	0.886	0.925	0.966	0.894	0.911	0.950	0.991	0.929	0.936	0.974	1.02
	CMP	0.750	0.776	0.815	0.856	0.775	0.792	0.831	0.872	0.801	0.808	0.846	0.888
	LDB	43.4	46.5	51.4	56.4	46.9	48.9	53.7	58.7	50.4	51.2	55.9	60.9
	LWB	40.5	46.0	50.8	55.9	42.2	48.1	53.0	58.1	44.0	50.1	55.2	60.2
125	TCG	2.37	2.53	2.88	3.22	2.58	2.66	2.99	3.34	2.78	2.80	3.10	3.46
	SHG	2.37	2.21	1.89	1.57	2.58	2.49	2.11	1.71	2.78	2.77	2.33	1.85
	TC	2.32	2.47	2.83	3.17	2.51	2.60	2.93	3.28	2.70	2.72	3.03	3.38
	kW	0.378	0.386	0.405	0.424	0.393	0.397	0.415	0.434	0.408	0.408	0.426	0.445
	CMP	0.332	0.340	0.359	0.378	0.343	0.347	0.365	0.384	0.354	0.355	0.372	0.391
	LDB	46.0	48.0	52.8	57.7	49.1	50.2	54.9	59.8	52.3	52.4	56.9	61.9
	LWB	41.8	47.6	52.2	57.2	43.4	49.3	54.2	59.2	44.9	51.1	56.2	61.2

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

Performance data (cont)

COOLING CAPACITIES (cont)

SYSTEM 6* — 53QAE024 CEILING-SUSPENDED SYSTEM (38QR-C024 WITH 40QAE024)

TEMP (F) AIR ENTERNG OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		400/0.02				480/0.02				550/0.03			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	23.7	25.4	26.4	27.2	24.9	26.3	27.1	27.6	25.5	26.6	27.6	28.1
	SHG	21.8	19.1	16.0	13.1	23.8	20.5	16.8	13.4	25.0	21.2	17.4	13.7
	TC	23.3	25.0	26.1	26.9	24.5	25.9	26.7	27.2	25.0	26.1	27.1	27.6
	kW	1.70	1.73	1.75	1.77	1.74	1.77	1.79	1.80	1.77	1.80	1.82	1.83
	CMP	1.43	1.46	1.49	1.51	1.45	1.49	1.50	1.52	1.47	1.49	1.52	1.53
	LDB	33.6	39.3	46.0	52.4	37.8	43.8	50.5	56.6	41.3	47.3	53.3	59.1
	LWB	32.6	38.4	45.1	52.1	36.3	42.3	49.0	55.9	38.9	45.1	51.4	58.0
65	TCG	22.5	24.7	26.4	27.5	23.9	25.7	27.0	28.2	24.8	26.4	27.7	28.7
	SHG	21.0	18.8	16.0	13.1	23.2	20.2	16.8	13.6	24.7	21.5	17.7	14.0
	TC	22.1	24.4	26.0	27.1	23.5	25.2	26.6	27.7	24.3	25.9	27.2	28.2
	kW	1.82	1.87	1.90	1.93	1.87	1.90	1.94	1.97	1.90	1.94	1.98	2.00
	CMP	1.56	1.60	1.64	1.67	1.58	1.62	1.65	1.69	1.60	1.64	1.67	1.70
	LDB	34.4	39.3	45.4	51.8	38.1	43.6	49.8	55.8	41.1	46.3	52.4	58.3
	LWB	33.6	38.6	44.7	51.5	36.9	42.5	48.7	55.1	39.1	44.9	51.0	57.3
75	TCG	21.1	23.2	25.3	26.9	22.4	24.3	26.2	27.7	23.5	25.2	26.9	28.3
	SHG	20.0	17.9	15.5	12.8	22.1	19.5	16.5	13.3	23.5	20.9	17.4	13.8
	TC	20.7	22.9	24.9	26.5	22.0	23.9	25.7	27.2	23.0	24.7	26.4	27.8
	kW	1.92	1.98	2.04	2.08	1.97	2.03	2.08	2.13	2.03	2.07	2.12	2.17
	CMP	1.65	1.72	1.78	1.82	1.69	1.75	1.80	1.84	1.72	1.77	1.82	1.87
	LDB	35.8	40.5	46.0	52.0	39.4	44.2	50.0	55.8	42.4	46.7	52.4	58.2
	LWB	35.0	39.9	45.4	51.6	37.9	43.3	49.0	55.1	39.9	45.5	51.2	57.3
85	TCG	19.7	21.8	24.1	26.3	21.0	23.0	25.3	27.1	22.2	23.9	26.1	27.9
	SHG	19.1	17.1	14.9	12.5	21.0	18.8	16.1	13.1	22.2	20.3	17.1	13.7
	TC	19.3	21.4	23.8	26.0	20.6	22.6	24.9	26.7	21.8	23.4	25.6	27.4
	kW	2.01	2.09	2.18	2.24	2.08	2.16	2.23	2.28	2.15	2.21	2.27	2.33
	CMP	1.75	1.83	1.91	1.98	1.80	1.88	1.94	2.00	1.85	1.91	1.97	2.03
	LDB	37.2	41.8	46.7	52.2	40.7	44.9	50.1	55.8	43.8	47.0	52.3	58.0
	LWB	36.3	41.1	46.1	51.7	39.0	44.1	49.3	55.2	40.6	46.1	51.4	57.2
95	TCG	18.3	20.2	22.5	24.9	19.7	21.3	23.7	25.9	20.8	22.1	24.5	26.5
	SHG	18.1	16.1	14.1	11.9	19.7	17.8	15.3	12.6	20.8	19.3	16.4	13.1
	TC	17.9	19.9	22.1	24.5	19.3	20.9	23.3	25.5	20.4	21.7	24.0	26.0
	kW	2.11	2.19	2.29	2.38	2.19	2.26	2.36	2.43	2.25	2.31	2.40	2.47
	CMP	1.85	1.93	2.03	2.11	1.91	1.98	2.07	2.15	1.96	2.01	2.10	2.17
	LDB	38.7	43.2	48.0	53.1	42.6	46.1	51.0	56.3	45.5	48.1	53.0	58.5
	LWB	37.6	42.5	47.4	52.6	40.0	45.3	50.3	55.7	41.5	47.2	52.2	57.8
105	TCG	16.9	18.7	20.8	23.2	18.4	19.7	21.9	24.2	19.4	20.4	22.6	24.9
	SHG	16.9	15.2	13.2	11.1	18.4	16.9	14.5	11.9	19.4	18.3	15.5	12.5
	TC	16.6	18.3	20.5	22.8	18.0	19.3	21.5	23.8	19.0	19.9	22.2	24.5
	kW	2.20	2.29	2.39	2.50	2.29	2.36	2.46	2.57	2.36	2.41	2.52	2.61
	CMP	1.94	2.03	2.13	2.24	2.01	2.08	2.18	2.29	2.07	2.11	2.22	2.31
	LDB	40.6	44.6	49.4	54.4	44.4	47.3	52.2	57.2	47.2	49.2	54.0	59.2
	LWB	38.9	43.9	48.8	53.8	41.0	46.5	51.5	56.6	42.4	48.2	53.2	58.5
115	TCG	15.8	17.2	19.2	21.4	17.1	18.0	20.1	22.4	18.1	18.7	20.8	23.1
	SHG	15.8	14.4	12.4	10.4	17.1	16.0	13.6	11.2	18.1	17.3	14.6	11.8
	TC	15.4	16.8	18.8	21.0	16.7	17.6	19.7	22.0	17.6	18.2	20.3	22.6
	kW	2.30	2.38	2.49	2.61	2.40	2.45	2.56	2.69	2.47	2.50	2.62	2.74
	CMP	2.04	2.12	2.24	2.35	2.12	2.17	2.29	2.41	2.17	2.21	2.32	2.44
	LDB	42.6	46.0	50.8	55.7	46.3	48.6	53.3	58.3	49.0	50.3	55.1	60.0
	LWB	40.0	45.3	50.1	55.1	41.9	47.7	52.6	57.7	43.3	49.3	54.3	59.4
125	TCG	14.6	15.7	17.6	19.6	15.8	16.5	18.4	20.5	16.7	17.0	18.9	21.1
	SHG	14.6	13.5	11.6	9.63	15.8	15.1	12.8	10.4	16.7	16.3	13.7	11.0
	TC	14.3	15.3	17.2	19.3	15.5	16.1	18.0	20.1	16.3	16.6	18.5	20.7
	kW	2.40	2.47	2.59	2.72	2.50	2.54	2.66	2.79	2.57	2.60	2.71	2.85
	CMP	2.15	2.21	2.33	2.46	2.22	2.26	2.38	2.52	2.28	2.30	2.42	2.56
	LDB	44.7	47.4	52.1	57.0	48.2	49.7	54.5	59.4	50.8	51.5	56.1	61.0
	LWB	41.1	46.6	51.5	56.4	42.9	48.8	53.7	58.8	44.2	50.3	55.3	60.3

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

COOLING CAPACITIES (cont)

SYSTEM 7* — 53QAE030 CEILING-SUSPENDED SYSTEM (38QR-C030 WITH 40QAE036)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		630/0.02				750/0.03				870/0.04			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	31.0	33.8	35.8	37.0	33.0	35.0	36.4	37.8	34.5	35.3	36.2	37.7
	SHG	31.0	27.2	22.6	17.9	33.0	29.6	23.9	18.6	34.5	31.2	24.5	19.0
	TC	30.5	33.3	35.3	36.4	32.3	34.4	35.8	37.1	33.7	34.6	35.5	36.9
	kW	2.74	2.78	2.79	2.82	2.79	2.83	2.84	2.87	2.86	2.86	2.88	2.92
	CMP	2.28	2.31	2.33	2.35	2.29	2.32	2.34	2.37	2.31	2.32	2.33	2.37
	LDB	38.8	44.0	50.2	56.6	43.4	47.2	53.7	59.6	47.0	50.3	56.8	62.2
	LWB	38.0	43.2	49.3	55.9	40.4	46.1	52.3	58.5	42.3	48.5	54.8	60.7
65	TCG	29.4	31.9	34.2	36.0	31.3	33.1	35.1	36.6	32.8	33.7	35.4	36.8
	SHG	29.3	26.0	21.8	17.5	31.3	28.4	23.3	18.2	32.8	30.2	24.4	18.7
	TC	28.9	31.4	33.7	35.5	30.7	32.5	34.5	36.0	32.1	33.0	34.7	36.1
	kW	2.70	2.74	2.77	2.80	2.77	2.79	2.82	2.85	2.82	2.83	2.86	2.90
	CMP	2.28	2.32	2.35	2.38	2.30	2.33	2.36	2.39	2.33	2.33	2.37	2.40
	LDB	40.0	44.6	50.4	56.5	44.2	47.6	53.6	59.5	47.8	50.4	56.2	61.9
	LWB	38.6	43.9	49.6	55.8	40.9	46.6	52.5	58.6	42.7	48.8	54.7	60.7
75	TCG	27.7	30.0	32.6	35.1	29.6	31.2	33.8	35.4	31.1	32.0	34.6	35.9
	SHG	27.7	24.8	21.0	17.1	29.6	27.2	22.7	17.7	31.1	29.3	24.2	18.4
	TC	27.2	29.5	32.2	34.6	29.1	30.6	33.2	34.8	30.4	31.3	33.9	35.3
	kW	2.66	2.71	2.75	2.79	2.74	2.76	2.80	2.83	2.79	2.80	2.85	2.87
	CMP	2.28	2.33	2.37	2.41	2.32	2.35	2.39	2.41	2.34	2.35	2.40	2.43
	LDB	41.2	45.3	50.7	56.3	45.1	48.1	53.5	59.5	48.5	50.4	55.6	61.6
	LWB	39.2	44.6	50.0	55.7	41.3	47.2	52.6	58.7	43.1	49.1	54.6	60.6
85	TCG	26.0	28.0	30.7	33.1	27.9	29.2	31.9	33.8	29.4	30.1	32.8	34.4
	SHG	26.0	23.5	20.0	16.2	27.9	25.9	21.7	17.0	29.4	28.1	23.4	17.8
	TC	25.6	27.6	30.3	32.7	27.3	28.7	31.3	33.2	28.7	29.5	32.1	33.7
	kW	2.60	2.64	2.69	2.73	2.67	2.70	2.74	2.77	2.73	2.74	2.79	2.81
	CMP	2.26	2.30	2.35	2.39	2.30	2.33	2.38	2.40	2.33	2.34	2.39	2.41
	LDB	42.3	46.0	51.2	56.8	46.2	48.6	53.8	59.6	49.4	50.8	55.8	61.7
	LWB	39.9	45.3	50.6	56.3	41.9	47.7	53.0	58.9	43.5	49.6	54.9	60.7
95	TCG	24.4	26.1	28.7	31.3	26.1	27.2	29.8	32.1	27.5	28.1	30.6	32.9
	SHG	24.4	22.3	19.0	15.4	26.1	24.6	20.6	16.3	27.5	26.7	22.2	17.3
	TC	24.0	25.7	28.3	30.8	25.6	26.7	29.3	31.6	26.9	27.4	30.0	32.3
	kW	2.50	2.53	2.59	2.63	2.56	2.58	2.64	2.67	2.62	2.63	2.68	2.72
	CMP	2.20	2.24	2.30	2.34	2.24	2.26	2.32	2.35	2.27	2.28	2.33	2.37
	LDB	43.5	46.8	51.9	57.3	47.3	49.3	54.3	59.8	50.4	51.3	56.2	61.7
	LWB	40.5	46.1	51.3	56.8	42.5	48.4	53.6	59.2	44.0	50.1	55.4	60.9
105	TCG	22.9	24.3	26.7	29.3	24.5	25.2	27.7	30.2	25.7	26.1	28.5	30.9
	SHG	22.9	21.1	17.9	14.5	24.5	23.2	19.5	15.5	25.7	25.2	21.1	16.4
	TC	22.4	23.8	26.3	28.8	23.9	24.7	27.2	29.6	25.1	25.5	27.8	30.3
	kW	2.35	2.38	2.44	2.49	2.41	2.43	2.48	2.53	2.46	2.47	2.52	2.56
	CMP	2.10	2.13	2.19	2.23	2.14	2.15	2.21	2.25	2.17	2.17	2.23	2.27
	LDB	44.7	47.6	52.6	57.9	48.4	50.0	55.0	60.3	51.5	52.0	56.7	62.0
	LWB	41.1	46.9	52.0	57.3	43.0	49.0	54.2	59.6	44.5	50.7	55.9	61.3
115	TCG	21.4	22.5	24.8	27.2	22.8	23.3	25.6	28.1	24.0	24.1	26.3	28.8
	SHG	21.4	19.9	16.8	13.6	22.8	22.0	18.4	14.6	24.0	23.8	19.9	15.5
	TC	21.0	22.0	24.3	26.8	22.3	22.8	25.1	27.6	23.4	23.5	25.7	28.2
	kW	2.16	2.18	2.23	2.28	2.21	2.22	2.27	2.32	2.25	2.25	2.30	2.35
	CMP	1.95	1.98	2.02	2.07	1.98	1.99	2.04	2.09	2.01	2.01	2.06	2.11
	LDB	45.9	48.4	53.4	58.5	49.6	50.7	55.6	60.8	52.5	52.7	57.3	62.4
	LWB	41.7	47.6	52.7	58.0	43.6	49.7	54.9	60.1	45.0	51.2	56.5	61.7
125	TCG	19.9	20.7	22.8	25.1	21.2	21.5	23.6	26.1	22.3	22.3	24.1	26.6
	SHG	19.9	18.7	15.8	12.7	21.2	20.7	17.3	13.7	22.3	22.3	18.7	14.6
	TC	19.5	20.3	22.4	24.7	20.7	21.0	23.1	25.6	21.7	21.7	23.6	26.1
	kW	1.92	1.94	1.98	2.03	1.96	1.97	2.01	2.06	2.00	2.00	2.03	2.09
	CMP	1.76	1.77	1.81	1.86	1.78	1.79	1.83	1.88	1.80	1.80	1.84	1.89
	LDB	47.2	49.1	54.1	59.3	50.7	51.4	56.3	61.3	53.5	53.5	57.9	62.9
	LWB	42.4	48.3	53.5	58.7	44.1	50.3	55.5	60.7	45.5	51.7	57.0	62.2

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

Performance data (cont)

COOLING CAPACITIES (cont)

SYSTEM 8* — 53QAE036 CEILING-SUSPENDED SYSTEM (38QR-C036 SINGLE-PHASE UNIT WITH 40QAE036)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		630/0.02				750/0.03				870/0.04			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	36.4	39.2	42.2	43.7	38.1	40.6	43.3	44.4	40.0	41.6	43.7	44.8
	SHG	34.7	30.4	26.0	20.9	37.8	32.8	27.5	21.6	40.0	35.0	28.6	22.1
	TC	35.8	38.7	41.6	43.1	37.5	39.9	42.7	43.8	39.2	40.8	42.9	44.0
	kW	2.27	2.29	2.34	2.36	2.31	2.34	2.39	2.41	2.37	2.39	2.42	2.44
	CMP	1.94	1.97	2.01	2.04	1.95	1.99	2.03	2.05	1.98	2.00	2.04	2.06
	LDB	36.2	41.7	47.3	53.9	40.0	45.3	51.0	57.4	43.6	48.2	54.1	60.1
	LWB	35.3	40.9	46.6	53.4	38.4	44.2	50.0	56.6	40.5	46.6	52.6	59.0
65	TCG	34.2	37.2	39.9	42.2	36.0	38.7	41.2	43.2	37.8	39.7	42.0	43.8
	SHG	33.0	29.1	24.8	20.2	36.0	31.6	26.4	21.0	37.8	33.9	27.8	21.8
	TC	33.7	36.7	39.4	41.6	35.4	38.1	40.6	42.5	37.1	39.0	41.3	43.1
	kW	2.47	2.51	2.54	2.58	2.52	2.55	2.60	2.63	2.57	2.60	2.64	2.67
	CMP	2.15	2.19	2.22	2.26	2.17	2.20	2.25	2.28	2.20	2.22	2.26	2.30
	LDB	37.0	42.1	47.8	53.9	40.6	45.5	51.3	57.3	44.4	48.2	54.0	59.8
	LWB	36.1	41.4	47.1	53.4	38.9	44.5	50.3	56.5	40.9	46.9	52.7	58.8
75	TCG	32.0	34.9	37.7	40.2	33.9	36.3	39.0	41.2	35.7	37.4	39.8	42.0
	SHG	31.2	27.6	23.6	19.3	33.8	30.1	25.3	20.2	35.7	32.4	26.7	21.0
	TC	31.4	34.4	37.2	39.7	33.3	35.7	38.4	40.6	35.0	36.7	39.1	41.3
	kW	2.68	2.74	2.79	2.83	2.75	2.79	2.84	2.88	2.81	2.84	2.88	2.93
	CMP	2.37	2.42	2.47	2.52	2.41	2.45	2.49	2.54	2.44	2.47	2.51	2.56
	LDB	37.9	42.8	48.4	54.2	41.7	46.0	51.6	57.5	45.3	48.5	54.2	59.8
	LWB	36.9	42.1	47.7	53.7	39.5	45.1	50.7	56.8	41.4	47.3	53.0	58.9
85	TCG	29.7	32.5	35.5	38.3	31.7	34.0	36.8	39.2	33.5	35.1	37.7	40.1
	SHG	29.4	26.1	22.4	18.4	31.7	28.6	24.1	19.3	33.5	31.0	25.6	20.2
	TC	29.2	32.0	35.0	37.8	31.1	33.4	36.2	38.6	32.8	34.4	37.0	39.4
	kW	2.90	2.97	3.03	3.08	2.97	3.03	3.08	3.13	3.05	3.08	3.12	3.18
	CMP	2.59	2.66	2.72	2.77	2.64	2.70	2.74	2.79	2.69	2.72	2.76	2.82
	LDB	38.9	43.6	48.9	54.6	42.9	46.5	51.9	57.7	46.2	48.8	54.3	59.9
	LWB	37.8	42.9	48.3	54.0	40.1	45.7	51.2	57.0	41.9	47.8	53.3	59.1
95	TCG	27.6	30.1	33.1	35.9	29.5	31.4	34.4	37.0	31.2	32.5	35.3	37.7
	SHG	27.6	24.5	21.0	17.3	29.5	27.0	22.8	18.3	31.2	29.3	24.4	19.2
	TC	27.1	29.6	32.6	35.4	29.0	30.9	33.8	36.5	30.5	31.9	34.6	37.0
	kW	3.14	3.21	3.29	3.36	3.22	3.28	3.35	3.41	3.30	3.34	3.39	3.45
	CMP	2.84	2.91	2.99	3.06	2.89	2.95	3.02	3.08	2.94	2.98	3.04	3.10
	LDB	40.0	44.5	49.6	55.1	44.1	47.3	52.5	58.0	47.4	49.4	54.7	60.2
	LWB	38.6	43.8	49.1	54.6	40.8	46.5	51.8	57.4	42.5	48.4	53.8	59.5
105	TCG	25.6	27.7	30.5	33.3	27.4	28.9	31.8	34.4	28.9	29.9	32.6	35.0
	SHG	25.6	23.0	19.7	16.2	27.4	25.3	21.4	17.1	28.9	27.5	23.0	18.0
	TC	25.1	27.2	30.0	32.8	26.8	28.3	31.2	33.8	28.3	29.3	32.0	34.4
	kW	3.39	3.47	3.56	3.63	3.48	3.53	3.63	3.69	3.56	3.59	3.68	3.73
	CMP	3.10	3.17	3.27	3.34	3.16	3.21	3.31	3.37	3.21	3.24	3.33	3.39
	LDB	41.5	45.5	50.6	55.9	45.5	48.2	53.2	58.6	48.6	50.2	55.2	60.7
	LWB	39.4	44.8	50.0	55.4	41.5	47.3	52.5	58.0	43.1	49.1	54.4	60.0
115	TCG	23.6	25.3	27.9	30.7	25.3	26.4	29.1	31.7	26.6	27.2	29.9	32.3
	SHG	23.6	21.5	18.3	15.1	25.3	23.6	19.9	16.0	26.6	25.7	21.5	16.8
	TC	23.2	24.9	27.5	30.3	24.8	25.9	28.5	31.2	26.0	26.6	29.3	31.7
	kW	3.66	3.73	3.83	3.95	3.75	3.80	3.90	3.99	3.83	3.86	3.96	4.03
	CMP	3.37	3.44	3.54	3.66	3.44	3.48	3.59	3.68	3.49	3.52	3.62	3.69
	LDB	43.0	46.5	51.5	56.7	46.8	49.0	54.0	59.2	49.9	51.0	55.9	61.2
	LWB	40.2	45.8	50.9	56.2	42.2	48.1	53.3	58.6	43.8	49.9	55.1	60.5
125	TCG	21.7	23.0	25.4	28.0	23.1	24.0	26.3	29.1	24.4	24.7	27.1	29.8
	SHG	21.7	20.0	16.9	13.9	23.1	22.1	18.5	14.9	24.4	23.9	20.0	15.8
	TC	21.3	22.6	24.9	27.6	22.6	23.5	25.8	28.6	23.9	24.1	26.5	29.2
	kW	3.93	3.99	4.11	4.23	4.03	4.06	4.18	4.32	4.11	4.13	4.24	4.36
	CMP	3.65	3.71	3.83	3.95	3.72	3.76	3.87	4.01	3.78	3.80	3.91	4.02
	LDB	44.6	47.5	52.5	57.6	48.3	49.9	54.9	59.9	51.2	51.9	56.6	61.7
	LWB	41.1	46.8	51.9	57.1	43.0	48.9	54.2	59.3	44.4	50.6	55.8	61.0

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

COOLING CAPACITIES (cont)

SYSTEM 9* — 53QAE036 CEILING-SUSPENDED SYSTEM (38QR-C036 3-PHASE UNIT WITH 40QAE036)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		630/0.03				750/0.04				870/0.05			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	40.4	43.0	43.2	43.8	41.9	43.7	44.7	41.3	43.2	43.1	43.9	39.3
	SHG	37.7	32.6	26.4	21.1	40.9	34.2	27.8	20.2	43.2	34.8	27.8	19.4
	TC	39.9	42.4	42.7	43.3	41.2	43.0	44.0	40.7	42.4	42.3	43.1	38.5
	kW	2.05	1.97	1.93	1.96	2.01	2.00	2.03	1.89	2.04	1.99	2.01	1.85
	CMP	1.70	1.63	1.59	1.61	1.64	1.63	1.66	1.52	1.65	1.60	1.62	1.45
	LDB	34.4	40.8	48.6	55.1	38.6	45.7	52.3	60.3	42.4	50.2	56.4	64.0
	LWB	33.6	39.6	47.3	54.6	37.2	43.6	50.4	59.0	39.9	46.9	53.4	61.7
65	TCG	37.3	40.0	41.3	42.5	38.9	41.0	42.5	41.2	40.4	41.0	42.3	39.9
	SHG	35.2	30.7	25.4	20.4	38.2	32.6	26.7	20.1	40.4	33.7	27.2	19.8
	TC	36.7	39.5	40.7	41.9	38.2	40.3	41.9	40.5	39.6	40.2	41.5	39.2
	kW	2.34	2.33	2.34	2.37	2.35	2.37	2.41	2.35	2.40	2.38	2.42	2.33
	CMP	1.98	1.97	1.97	2.01	1.96	1.98	2.02	1.96	1.99	1.97	2.01	1.92
	LDB	35.8	41.5	48.4	54.7	39.7	45.8	52.1	59.3	43.4	49.7	55.7	62.6
	LWB	34.8	40.4	47.3	54.2	38.1	44.1	50.5	58.2	40.4	47.0	53.3	60.8
75	TCG	34.1	37.0	39.3	41.2	35.9	38.3	40.4	41.0	37.6	38.9	40.7	40.6
	SHG	32.7	28.8	24.3	19.8	35.5	31.0	25.7	20.0	37.6	32.6	26.6	20.1
	TC	33.5	36.5	38.8	40.6	35.2	37.7	39.8	40.4	36.9	38.1	40.0	39.8
	kW	2.63	2.69	2.74	2.79	2.68	2.74	2.79	2.81	2.76	2.77	2.83	2.82
	CMP	2.25	2.30	2.36	2.41	2.28	2.33	2.39	2.40	2.33	2.34	2.39	2.39
	LDB	37.1	42.2	48.3	54.3	40.9	46.0	51.9	58.3	44.4	49.2	55.0	61.3
	LWB	36.0	41.3	47.4	53.8	38.9	44.6	50.6	57.3	40.9	47.1	53.1	59.8
85	TCG	30.9	34.1	37.4	39.8	32.8	35.6	38.3	40.9	34.8	36.8	39.2	41.2
	SHG	30.1	26.9	23.2	19.1	32.8	29.3	24.6	19.9	34.8	31.6	26.0	20.5
	TC	30.4	33.6	36.9	39.3	32.2	35.0	37.7	40.3	34.1	36.1	38.5	40.5
	kW	2.92	3.05	3.15	3.21	3.02	3.11	3.18	3.27	3.12	3.17	3.23	3.30
	CMP	2.52	2.64	2.74	2.81	2.59	2.68	2.75	2.85	2.67	2.71	2.78	2.85
	LDB	38.5	43.0	48.1	54.0	42.0	46.2	51.7	57.2	45.3	48.6	54.3	59.9
	LWB	37.2	42.2	47.4	53.5	39.7	45.1	50.7	56.5	41.4	47.2	52.9	58.9
95	TCG	27.8	30.7	34.0	37.1	29.8	32.2	35.5	38.4	31.6	33.4	36.7	39.3
	SHG	27.6	24.7	21.4	17.8	29.8	27.2	23.1	18.8	31.6	29.4	24.8	19.7
	TC	27.4	30.2	33.6	36.6	29.3	31.6	34.9	37.8	31.0	32.7	36.0	38.6
	kW	3.23	3.36	3.52	3.63	3.35	3.46	3.60	3.71	3.46	3.55	3.67	3.77
	CMP	2.81	2.94	3.10	3.21	2.90	3.02	3.15	3.26	2.99	3.07	3.20	3.29
	LDB	39.9	44.2	49.0	54.4	43.7	47.0	52.0	57.4	46.9	49.2	54.2	59.7
	LWB	38.4	43.4	48.4	53.9	40.6	46.0	51.1	56.7	42.2	48.0	53.2	58.8
105	TCG	25.0	27.4	30.5	33.8	26.9	28.8	31.9	35.1	28.6	29.8	33.0	36.0
	SHG	25.0	22.6	19.5	16.3	26.9	24.9	21.2	17.3	28.6	27.0	22.8	18.2
	TC	24.5	27.0	30.1	33.4	26.4	28.2	31.4	34.6	27.9	29.2	32.4	35.4
	kW	3.56	3.70	3.88	4.07	3.70	3.81	3.99	4.15	3.82	3.89	4.08	4.22
	CMP	3.12	3.26	3.44	3.63	3.23	3.34	3.52	3.68	3.33	3.40	3.58	3.72
	LDB	41.7	45.5	50.3	55.2	45.4	48.1	52.9	58.0	48.4	50.2	54.9	60.1
	LWB	39.5	44.6	49.6	54.7	41.5	47.0	52.1	57.3	43.0	48.9	54.0	59.3
115	TCG	22.4	24.3	27.1	30.1	24.1	25.4	28.3	31.4	25.6	26.4	29.2	32.4
	SHG	22.4	20.5	17.6	14.7	24.1	22.6	19.2	15.7	25.6	24.6	20.7	16.7
	TC	22.0	23.9	26.7	29.7	23.6	24.9	27.8	30.9	25.0	25.8	28.6	31.8
	kW	3.93	4.06	4.25	4.46	4.08	4.17	4.36	4.58	4.20	4.26	4.46	4.68
	CMP	3.47	3.60	3.79	4.00	3.59	3.68	3.88	4.09	3.69	3.74	3.94	4.16
	LDB	43.7	46.8	51.5	56.4	47.2	49.3	54.0	58.9	50.1	51.3	55.9	60.8
	LWB	40.6	45.9	50.8	55.9	42.4	48.1	53.1	58.2	43.8	49.8	54.9	60.0
125	TCG	19.9	21.2	23.8	26.5	21.4	22.3	24.8	27.6	22.7	23.0	25.5	28.4
	SHG	19.9	18.5	15.9	13.1	21.4	20.5	17.3	14.0	22.7	22.2	18.7	14.9
	TC	19.5	20.8	23.4	26.1	20.9	21.8	24.3	27.1	22.1	22.5	25.0	27.8
	kW	4.31	4.42	4.64	4.87	4.46	4.54	4.75	4.99	4.60	4.64	4.85	5.09
	CMP	3.83	3.95	4.16	4.39	3.96	4.03	4.25	4.48	4.06	4.10	4.31	4.55
	LDB	45.7	48.1	52.8	57.7	49.0	50.4	55.1	59.9	51.8	52.4	56.8	61.7
	LWB	41.6	47.2	52.0	57.1	43.3	49.2	54.2	59.2	44.7	50.8	55.8	60.9

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

Performance data (cont)

COOLING CAPACITIES (cont)

SYSTEM 10* — 53QAE048 CEILING-SUSPENDED SYSTEM (38QR-C048 WITH 40QAE048)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		820/0.03				975/0.04				1100/0.05			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	49.1	51.7	52.8	53.7	50.2	52.8	53.4	54.5	51.3	53.2	53.9	53.8
	SHG	45.1	39.0	32.2	26.1	47.7	41.0	33.2	26.7	50.1	42.4	34.1	26.6
	TC	48.1	50.7	51.8	52.7	49.0	51.6	52.2	53.3	50.0	51.8	52.6	52.4
	kW	3.21	3.27	3.29	3.31	3.27	3.34	3.35	3.38	3.35	3.39	3.41	3.40
	CMP	2.73	2.79	2.81	2.83	2.75	2.81	2.82	2.85	2.77	2.82	2.83	2.83
	LDB	36.3	42.3	49.1	55.2	41.3	46.8	53.4	58.8	45.0	50.5	56.5	61.9
	LWB	34.4	40.5	47.6	54.6	38.2	44.2	51.1	57.7	40.8	47.0	53.5	60.1
65	TCG	47.4	50.4	53.2	55.1	49.4	52.3	53.3	55.5	50.8	53.4	54.3	54.8
	SHG	44.2	38.4	32.5	26.5	47.6	41.1	33.3	27.0	50.3	43.4	34.6	27.0
	TC	46.4	49.4	52.2	54.1	48.2	51.1	52.2	54.4	49.5	52.1	53.0	53.5
	kW	3.53	3.60	3.67	3.72	3.62	3.70	3.71	3.78	3.71	3.77	3.79	3.80
	CMP	3.05	3.11	3.19	3.24	3.09	3.17	3.18	3.25	3.13	3.20	3.21	3.22
	LDB	35.9	41.8	47.8	54.0	40.1	45.7	52.4	57.8	43.7	48.9	55.3	61.0
	LWB	34.5	40.4	46.7	53.4	37.8	43.8	50.5	56.8	40.4	46.3	52.9	59.4
75	TCG	44.6	48.6	51.9	54.1	47.0	50.1	53.1	54.9	48.6	51.6	53.4	55.0
	SHG	42.2	37.4	31.8	25.9	46.1	40.0	33.4	26.6	48.6	42.6	34.4	27.1
	TC	43.7	47.7	51.0	53.2	45.9	49.0	52.0	53.8	47.4	50.3	52.1	53.8
	kW	3.86	3.97	4.05	4.11	3.97	4.04	4.13	4.19	4.05	4.14	4.18	4.24
	CMP	3.37	3.48	3.56	3.63	3.44	3.50	3.60	3.65	3.47	3.55	3.60	3.65
	LDB	36.5	41.6	47.4	53.7	40.1	45.6	51.4	57.4	43.8	48.4	54.7	60.3
	LWB	35.3	40.5	46.5	53.1	38.2	44.0	49.9	56.4	40.6	46.4	52.6	58.9
85	TCG	41.2	45.4	49.2	52.1	43.7	47.4	51.0	53.5	46.2	48.9	52.0	54.2
	SHG	39.7	35.4	30.4	24.9	43.5	38.5	32.4	25.9	46.2	41.3	34.0	26.7
	TC	40.3	44.5	48.3	51.2	42.7	46.3	50.0	52.4	44.9	47.7	50.8	52.9
	kW	4.13	4.30	4.41	4.51	4.28	4.40	4.53	4.61	4.43	4.50	4.60	4.68
	CMP	3.64	3.81	3.92	4.01	3.74	3.86	3.98	4.06	3.84	3.91	4.01	4.09
	LDB	37.8	42.4	47.9	53.9	41.2	45.8	51.3	57.3	44.5	48.4	54.1	59.9
	LWB	36.5	41.5	47.0	53.2	39.1	44.5	50.1	56.3	41.0	46.7	52.5	58.6
95	TCG	37.9	41.8	46.3	49.8	40.4	43.9	47.9	51.0	42.8	45.5	49.2	52.1
	SHG	37.1	33.2	28.8	23.8	40.4	36.4	30.8	24.8	42.8	39.4	32.8	25.9
	TC	37.1	40.9	45.4	48.9	39.3	42.8	46.8	50.0	41.6	44.3	48.0	50.9
	kW	4.41	4.60	4.81	4.93	4.58	4.75	4.90	5.02	4.74	4.87	5.00	5.12
	CMP	3.92	4.10	4.31	4.43	4.03	4.20	4.35	4.47	4.15	4.27	4.40	4.52
	LDB	39.2	43.6	48.5	54.2	42.8	46.5	51.8	57.5	46.0	48.8	54.2	59.8
	LWB	37.7	42.7	47.7	53.5	40.1	45.4	50.7	56.6	41.8	47.4	52.9	58.7
105	TCG	34.7	38.2	42.4	46.6	37.2	40.1	44.4	48.2	39.5	41.6	45.8	49.1
	SHG	34.6	31.0	26.8	22.4	37.2	34.0	29.1	23.6	39.5	36.9	31.1	24.6
	TC	33.9	37.4	41.6	45.8	36.2	39.1	43.4	47.2	38.4	40.4	44.6	47.9
	kW	4.70	4.89	5.13	5.33	4.89	5.05	5.28	5.45	5.06	5.18	5.40	5.54
	CMP	4.20	4.39	4.62	4.83	4.34	4.49	4.73	4.90	4.46	4.58	4.80	4.94
	LDB	40.7	44.9	49.7	54.9	44.5	47.6	52.5	57.8	47.6	49.8	54.6	60.2
	LWB	38.9	43.9	48.9	54.2	41.0	46.4	51.5	57.0	42.6	48.3	53.5	59.1
115	TCG	31.8	34.8	38.7	42.9	34.2	36.4	40.4	44.6	36.3	37.7	41.7	45.7
	SHG	31.8	28.8	24.8	20.7	34.2	31.7	27.0	22.1	36.3	34.4	29.0	23.2
	TC	31.0	33.9	37.9	42.1	33.3	35.4	39.4	43.6	35.1	36.6	40.6	44.6
	kW	5.00	5.19	5.44	5.72	5.21	5.35	5.60	5.86	5.39	5.48	5.74	5.97
	CMP	4.49	4.68	4.94	5.21	4.65	4.79	5.05	5.31	4.78	4.88	5.13	5.36
	LDB	42.5	46.2	51.0	55.9	46.2	48.8	53.5	58.6	49.2	50.8	55.5	60.6
	LWB	40.0	45.2	50.1	55.2	41.9	47.5	52.5	57.7	43.4	49.3	54.4	59.6
125	TCG	29.1	31.3	34.9	38.8	31.2	32.9	36.4	40.6	33.1	34.0	37.6	41.8
	SHG	29.1	26.7	22.9	19.0	31.2	29.4	24.9	20.4	33.1	31.9	26.9	21.6
	TC	28.3	30.5	34.2	38.1	30.3	31.9	35.4	39.7	32.0	32.9	36.5	40.7
	kW	5.31	5.49	5.76	6.05	3.53	5.64	5.92	6.25	5.72	5.79	6.06	6.38
	CMP	4.80	4.98	5.25	5.54	4.97	5.08	5.36	5.69	5.10	5.17	5.45	5.77
	LDB	44.5	47.5	52.2	57.2	48.0	49.9	54.6	59.4	50.8	51.9	56.5	61.3
	LWB	41.0	46.4	51.3	56.4	42.8	48.6	53.6	58.6	44.2	50.2	55.3	60.3

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

COOLING CAPACITIES (cont)

SYSTEM 11* — 53QAE060 CEILING-SUSPENDED SYSTEM (38QR-C060 WITH 40QAE060)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		1040/0.04				1220/0.05				1600/0.06			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	68.0	72.4	74.2	76.2	70.4	73.2	75.4	76.8	73.8	74.2	76.4	77.8
	SHG	63.8	55.4	45.5	36.8	68.1	57.7	47.2	37.5	73.8	61.9	49.8	38.8
	TC	66.7	71.1	72.9	74.9	68.9	71.6	73.9	75.3	71.8	72.2	74.4	75.8
	kW	4.17	4.23	4.25	4.29	4.25	4.29	4.32	4.35	4.42	4.42	4.46	4.48
	CMP	3.59	3.66	3.68	3.71	3.63	3.66	3.70	3.72	3.68	3.68	3.72	3.74
	LDB	36.7	42.5	49.4	55.4	40.7	46.8	53.0	58.8	47.7	53.1	58.5	63.4
	LWB	35.2	41.1	48.0	54.8	38.2	44.5	51.0	57.7	42.6	49.1	55.2	61.4
65	TCG	62.7	67.9	72.5	74.5	65.6	70.0	74.3	75.7	69.9	72.5	75.0	77.5
	SHG	59.7	52.5	44.6	35.8	64.4	56.0	46.8	36.8	69.9	62.1	49.7	38.7
	TC	61.5	66.7	71.3	73.3	64.2	68.6	72.8	74.3	68.0	70.7	73.2	75.6
	kW	4.47	4.55	4.63	4.67	4.57	4.64	4.72	4.75	4.75	4.79	4.84	4.89
	CMP	3.91	3.99	4.07	4.11	3.95	4.02	4.11	4.13	4.02	4.07	4.12	4.17
	LDB	37.1	42.3	48.2	54.6	40.6	45.8	51.6	57.9	47.5	51.2	57.2	62.4
	LWB	35.8	41.2	47.1	54.0	38.5	44.2	50.1	56.9	42.6	48.6	54.6	60.7
75	TCG	56.6	61.7	66.8	70.0	59.5	64.0	68.8	71.6	64.5	67.0	70.6	73.3
	SHG	54.6	48.4	41.4	33.6	58.9	52.1	43.8	34.8	64.5	58.6	47.6	36.9
	TC	55.5	60.6	65.6	68.9	58.2	62.7	67.5	70.2	62.8	65.2	68.8	71.6
	kW	4.70	4.83	4.95	5.02	4.82	4.94	5.05	5.11	5.06	5.11	5.20	5.27
	CMP	4.15	4.28	4.40	4.47	4.22	4.34	4.45	4.51	4.35	4.40	4.49	4.55
	LDB	38.3	43.1	48.6	54.6	41.7	46.2	51.7	57.7	48.1	51.1	56.7	62.1
	LWB	36.8	42.1	47.6	54.0	39.3	44.8	50.4	56.8	42.9	48.8	54.6	60.6
85	TCG	50.5	55.6	61.0	65.6	53.4	58.1	63.3	67.4	59.2	61.4	66.1	69.2
	SHG	49.6	44.3	38.2	31.4	53.4	48.2	40.8	32.8	59.2	55.1	45.5	35.1
	TC	49.4	54.5	60.0	64.5	52.2	56.9	62.1	66.2	57.6	59.8	64.5	67.6
	kW	4.93	5.10	5.26	5.38	5.08	5.24	5.38	5.48	5.38	5.43	5.56	5.64
	CMP	4.39	4.56	4.72	4.84	4.49	4.65	4.79	4.89	4.68	4.73	4.86	4.94
	LDB	39.5	43.9	49.0	54.7	42.8	46.6	51.8	57.5	48.8	51.0	56.2	61.8
	LWB	37.9	42.9	48.1	54.0	40.1	45.4	50.7	56.6	43.2	49.1	54.6	60.5
95	TCG	44.9	49.3	54.6	59.4	47.8	51.4	56.6	61.0	52.9	54.7	59.5	63.3
	SHG	44.7	40.0	34.6	28.6	47.8	43.6	37.1	29.9	52.9	50.4	41.9	32.5
	TC	43.9	48.3	53.6	58.4	46.6	50.2	55.5	59.8	51.4	53.2	58.0	61.8
	kW	5.13	5.32	5.54	5.70	5.31	5.46	5.66	5.79	5.63	5.70	5.86	5.98
	CMP	4.60	4.79	5.01	5.17	4.73	4.88	5.08	5.21	4.94	5.01	5.17	5.30
	LDB	40.8	45.0	49.9	55.3	44.4	47.6	52.5	58.0	50.0	51.5	56.5	61.9
	LWB	39.0	44.0	49.1	54.6	40.9	46.4	51.5	57.2	43.8	49.8	55.1	60.7
105	TCG	39.7	43.2	48.0	52.7	42.3	45.1	49.9	54.3	46.8	48.0	52.6	56.7
	SHG	39.7	35.8	30.8	25.5	42.3	39.1	33.3	26.9	46.8	45.3	38.0	29.5
	TC	38.7	42.3	47.1	51.8	41.3	44.0	48.8	53.2	45.4	46.6	51.2	55.3
	kW	5.32	5.51	5.76	5.97	5.52	5.66	5.90	6.08	5.85	5.91	6.12	6.28
	CMP	4.80	5.00	5.24	5.45	4.95	5.09	5.33	5.51	5.18	5.24	5.45	5.61
	LDB	42.5	46.2	51.0	56.2	45.9	48.6	53.4	58.7	51.4	52.4	57.0	62.3
	LWB	39.9	45.2	50.2	55.4	41.7	47.3	52.4	57.8	44.5	50.5	55.7	61.2
115	TCG	34.8	37.6	41.8	46.1	37.2	39.1	43.4	47.7	41.1	41.7	45.7	49.8
	SHG	34.8	31.9	27.3	22.5	37.2	34.8	29.5	23.9	41.1	40.3	33.9	26.4
	TC	34.0	36.7	40.9	45.2	36.2	38.1	42.4	46.7	39.8	40.4	44.4	48.5
	kW	5.50	5.68	5.95	6.19	5.70	5.83	6.09	6.33	6.06	6.09	6.34	6.55
	CMP	4.99	5.17	5.44	5.68	5.15	5.27	5.54	5.77	5.40	5.43	5.68	5.89
	LDB	44.2	47.3	52.1	57.2	47.5	49.7	54.4	59.4	52.8	53.3	57.7	62.8
	LWB	40.9	46.3	51.2	56.4	42.5	48.3	53.4	58.6	45.2	51.2	56.4	61.7
125	TCG	30.1	32.2	35.9	39.8	32.2	33.5	37.2	41.2	35.6	35.7	39.1	43.1
	SHG	30.1	28.1	24.0	19.7	32.2	30.7	26.0	21.0	35.6	35.4	29.9	23.4
	TC	29.3	31.4	35.1	39.1	31.3	32.6	36.3	40.3	34.4	34.5	38.0	41.9
	kW	5.66	5.81	6.11	6.40	5.87	5.97	6.26	6.55	6.23	6.25	6.50	6.77
	CMP	5.16	5.32	5.61	5.91	5.32	5.43	5.71	6.00	5.59	5.60	5.86	6.13
	LDB	46.2	48.5	53.2	58.2	49.2	50.7	55.4	60.3	54.2	54.3	58.5	63.4
	LWB	41.9	47.4	52.3	57.4	43.4	49.3	54.3	59.4	45.8	52.0	57.2	62.3

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

Performance data (cont)

COOLING CAPACITIES (cont)

SYSTEM 12* — 53QKE018 IN-CEILING CASSETTE SYSTEM (38QR-C018 WITH 40QKE024)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		400/0.03				430/0.04				525/0.05			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	21.5	23.0	23.6	24.9	21.9	23.2	24.0	25.0	22.8	23.3	24.4	25.4
	SHG	20.8	18.0	14.6	12.0	21.4	18.4	15.0	12.1	22.8	19.1	15.6	12.5
	TC	21.2	22.6	23.2	24.5	21.5	22.8	23.5	24.6	22.3	22.8	23.8	24.9
	kW	1.44	1.48	1.49	1.52	1.46	1.49	1.51	1.54	1.50	1.51	1.54	1.57
	CMP	1.17	1.21	1.22	1.26	1.18	1.21	1.23	1.26	1.20	1.21	1.24	1.27
	LDB	38.7	44.3	51.2	56.4	40.4	46.1	52.6	57.9	45.5	51.2	56.6	61.5
	LWB	37.0	42.8	49.5	55.7	38.3	44.2	50.7	56.9	41.5	47.9	53.9	59.9
65	TCG	19.9	21.5	23.1	23.6	20.4	21.8	23.3	23.9	21.5	22.5	23.3	24.3
	SHG	19.6	17.0	14.4	11.4	20.3	17.6	14.7	11.6	21.5	19.0	15.2	12.0
	TC	19.6	21.1	22.7	23.2	20.0	21.4	22.9	23.5	21.0	22.0	22.8	23.9
	kW	1.55	1.58	1.62	1.64	1.57	1.59	1.64	1.66	1.61	1.64	1.66	1.69
	CMP	1.28	1.31	1.36	1.37	1.29	1.32	1.37	1.38	1.31	1.34	1.36	1.40
	LDB	39.0	44.4	50.0	56.5	40.5	45.9	51.5	57.7	45.9	49.8	56.0	61.2
	LWB	37.7	43.2	48.9	55.7	38.8	44.5	50.2	56.8	41.7	47.6	53.7	59.7
75	TCG	18.1	19.6	21.3	22.3	18.6	19.9	21.5	22.5	19.8	20.7	21.9	23.0
	SHG	18.0	15.8	13.5	10.8	18.6	16.4	13.8	11.0	19.8	18.0	14.6	11.5
	TC	17.8	19.2	20.9	21.9	18.2	19.5	21.2	22.1	19.4	20.2	21.4	22.6
	kW	1.64	1.68	1.73	1.76	1.66	1.70	1.75	1.78	1.72	1.74	1.78	1.82
	CMP	1.38	1.42	1.47	1.50	1.39	1.43	1.48	1.51	1.42	1.45	1.49	1.53
	LDB	40.4	45.1	50.5	56.5	41.9	46.4	51.8	57.8	46.8	49.9	55.7	61.1
	LWB	38.6	44.0	49.5	55.8	39.6	45.2	50.7	57.0	42.2	48.1	53.9	59.8
85	TCG	16.3	17.7	19.5	21.0	16.8	18.1	19.8	21.0	18.2	18.9	20.4	21.7
	SHG	16.3	14.7	12.5	10.2	16.8	15.2	12.9	10.3	18.2	17.0	14.0	10.9
	TC	16.0	17.4	19.1	20.7	16.5	17.7	19.4	20.6	17.7	18.5	20.0	21.3
	kW	1.73	1.78	1.84	1.89	1.75	1.80	1.86	1.90	1.82	1.85	1.90	1.95
	CMP	1.47	1.52	1.58	1.63	1.49	1.53	1.59	1.63	1.53	1.56	1.61	1.66
	LDB	41.8	45.8	50.9	56.5	43.4	46.9	52.1	57.9	47.7	49.9	55.4	60.9
	LWB	39.6	44.9	50.1	55.8	40.4	45.9	51.2	57.1	42.7	48.6	54.0	59.8
95	TCG	14.7	15.7	17.4	19.0	15.1	16.0	17.7	19.2	16.3	16.8	18.4	19.7
	SHG	14.7	13.3	11.4	9.28	15.1	13.9	11.8	9.51	16.3	15.5	12.9	10.1
	TC	14.4	15.4	17.1	18.7	14.8	15.7	17.4	18.9	15.9	16.4	18.0	19.3
	kW	1.80	1.86	1.94	1.99	1.83	1.88	1.95	2.01	1.92	1.94	2.00	2.06
	CMP	1.55	1.60	1.68	1.74	1.57	1.62	1.69	1.75	1.63	1.65	1.71	1.77
	LDB	43.5	46.9	51.8	57.2	45.1	48.0	52.9	58.3	49.2	50.8	55.8	61.2
	LWB	40.5	46.0	51.1	56.6	41.3	47.0	52.1	57.6	43.4	49.4	54.7	60.2
105	TCG	13.1	13.9	15.4	17.0	13.5	14.1	15.6	17.2	14.5	14.8	16.3	17.8
	SHG	13.1	12.1	10.3	8.40	13.5	12.6	10.6	8.63	14.5	14.1	11.8	9.26
	TC	12.8	13.6	15.1	16.7	13.1	13.8	15.3	16.9	14.1	14.4	15.9	17.4
	kW	1.88	1.92	2.01	2.10	1.91	1.95	2.04	2.12	1.99	2.01	2.09	2.16
	CMP	1.63	1.67	1.76	1.85	1.65	1.69	1.78	1.86	1.71	1.73	1.81	1.88
	LDB	45.3	48.1	52.9	58.0	46.9	49.1	53.9	59.0	50.8	51.7	56.5	61.7
	LWB	41.4	47.2	52.2	57.4	42.2	48.1	53.1	58.3	44.2	50.3	55.4	60.8
115	TCG	11.5	12.1	13.4	14.9	11.9	12.3	13.6	15.1	12.8	12.9	14.2	15.7
	SHG	11.5	10.8	9.18	7.48	11.9	11.3	9.53	7.70	12.8	12.6	10.6	8.35
	TC	11.3	11.8	13.1	14.6	11.6	12.0	13.3	14.8	12.4	12.5	13.8	15.3
	kW	1.95	1.99	2.08	2.18	1.98	2.01	2.10	2.20	2.07	2.07	2.16	2.26
	CMP	1.70	1.74	1.83	1.93	1.72	1.75	1.85	1.95	1.79	1.79	1.88	1.98
	LDB	47.3	49.3	54.1	59.1	48.7	50.2	55.0	60.0	52.5	52.8	57.4	62.3
	LWB	42.4	48.3	53.3	58.4	43.1	49.1	54.2	59.3	45.0	51.2	56.3	61.5
125	TCG	10.0	10.4	11.5	12.8	10.3	10.5	11.7	13.0	11.1	11.1	12.1	13.5
	SHG	10.0	9.67	8.14	6.57	10.3	10.1	8.46	6.77	11.1	11.1	9.41	7.40
	TC	9.80	10.1	11.3	12.6	10.1	10.3	11.4	12.8	10.8	10.8	11.8	13.2
	kW	2.01	2.04	2.14	2.25	2.05	2.06	2.16	2.27	2.13	2.13	2.22	2.34
	CMP	1.77	1.79	1.89	2.00	1.79	1.81	1.91	2.02	1.86	1.85	1.94	2.06
	LDB	49.2	50.5	55.3	60.1	50.6	51.4	56.1	61.0	54.2	53.9	58.3	63.1
	LWB	43.4	49.4	54.4	59.5	44.1	50.2	55.2	60.3	45.8	52.0	57.2	62.3

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

COOLING CAPACITIES (cont)

SYSTEM 13* — 53QKE024 IN-CEILING CASSETTE SYSTEM (38QR-C024 WITH 40QKE036)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		635/0.07				745/0.09				915/0.11			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	32.1	34.2	35.6	37.3	33.5	34.9	36.4	37.8	35.1	35.3	37.0	38.3
	SHG	32.1	28.2	22.8	18.3	33.5	30.0	24.0	18.7	35.1	31.7	25.2	19.4
	TC	31.7	33.8	35.2	36.9	33.0	34.4	36.0	37.3	34.5	34.7	36.4	37.7
	kW	2.13	2.17	2.20	2.24	2.17	2.20	2.24	2.27	2.24	2.24	2.28	2.31
	CMP	1.82	1.86	1.89	1.93	1.84	1.87	1.91	1.94	1.88	1.88	1.92	1.95
	LDB	44.2	48.5	54.6	59.8	48.1	51.6	57.3	62.4	52.9	55.5	60.6	65.2
	LWB	40.8	46.5	52.6	58.7	42.9	48.8	54.7	60.8	45.2	51.4	57.1	62.9
65	TCG	29.4	31.2	33.9	35.3	31.0	32.2	34.6	36.0	32.5	33.3	34.9	36.6
	SHG	29.4	26.4	22.1	17.3	31.0	28.5	23.4	18.0	32.5	31.2	24.7	18.8
	TC	29.0	30.8	33.5	34.9	30.5	31.7	34.1	35.6	32.0	32.7	34.4	36.0
	kW	2.19	2.22	2.29	2.32	2.24	2.26	2.32	2.36	2.30	2.32	2.36	2.40
	CMP	1.89	1.93	1.99	2.02	1.93	1.95	2.01	2.05	1.96	1.98	2.02	2.06
	LDB	45.1	48.7	53.8	59.6	48.7	51.2	56.5	62.0	53.3	54.4	59.9	64.8
	LWB	41.3	47.0	52.4	58.6	43.1	49.1	54.6	60.6	45.4	51.4	57.1	62.8
75	TCG	26.4	27.9	30.6	32.5	27.9	28.9	31.3	33.1	29.6	30.0	32.0	33.8
	SHG	26.4	24.2	20.4	16.1	27.9	26.3	21.7	16.8	29.6	28.9	23.3	17.8
	TC	26.1	27.5	30.2	32.1	27.5	28.4	30.9	32.7	29.1	29.5	31.5	33.3
	kW	2.21	2.25	2.32	2.37	2.27	2.29	2.35	2.40	2.34	2.35	2.40	2.45
	CMP	1.93	1.97	2.04	2.09	1.97	2.00	2.06	2.11	2.02	2.03	2.08	2.13
	LDB	46.6	49.4	54.3	59.8	50.0	51.7	56.7	62.0	54.1	54.7	59.6	64.6
	LWB	42.1	47.8	53.1	58.9	43.8	49.7	55.1	60.8	45.8	51.8	57.3	62.9
85	TCG	23.5	24.6	27.3	29.6	24.9	25.5	28.1	30.2	26.7	26.7	29.0	31.1
	SHG	23.5	22.0	18.6	14.9	24.9	24.0	20.0	15.6	26.7	26.6	22.0	16.7
	TC	23.1	24.3	27.0	29.3	24.5	25.1	27.7	29.8	26.2	26.2	28.5	30.6
	kW	2.24	2.27	2.35	2.42	2.30	2.32	2.39	2.45	2.38	2.38	2.44	2.50
	CMP	1.97	2.01	2.09	2.15	2.02	2.04	2.11	2.17	2.07	2.08	2.14	2.20
	LDB	48.1	50.1	54.8	60.0	51.3	52.2	57.0	62.1	55.0	55.0	59.4	64.5
	LWB	42.8	48.7	53.7	59.2	44.4	50.4	55.6	61.1	46.2	52.3	57.6	63.1
95	TCG	20.7	21.4	23.8	26.3	21.9	22.2	24.6	26.9	23.4	23.4	25.4	27.6
	SHG	20.7	19.7	16.7	13.4	21.9	21.5	18.1	14.2	23.4	23.4	20.0	15.2
	TC	20.4	21.1	23.5	26.0	21.6	21.8	24.3	26.6	23.0	23.0	25.0	27.2
	kW	2.23	2.26	2.35	2.43	2.29	2.30	2.39	2.46	2.38	2.37	2.44	2.51
	CMP	1.98	2.01	2.10	2.18	2.03	2.04	2.13	2.20	2.09	2.09	2.16	2.22
	LDB	49.7	51.1	55.7	60.5	52.7	53.2	57.6	62.5	56.3	56.3	59.8	64.8
	LWB	43.6	49.6	54.6	59.8	45.1	51.2	56.3	61.6	46.8	52.9	58.2	63.5
105	TCG	18.1	18.4	20.5	22.9	19.1	19.2	21.1	23.5	20.4	20.4	21.8	24.1
	SHG	18.1	17.6	14.8	11.9	19.1	19.1	16.0	12.7	20.4	20.4	17.9	13.7
	TC	17.8	18.2	20.2	22.6	18.8	18.8	20.8	23.2	20.0	20.0	21.4	23.7
	kW	2.20	2.22	2.31	2.41	2.26	2.27	2.35	2.45	2.35	2.35	2.41	2.49
	CMP	1.97	1.99	2.08	2.18	2.02	2.02	2.11	2.21	2.08	2.08	2.14	2.23
	LDB	51.3	52.1	56.6	61.3	54.2	54.2	58.4	63.1	57.6	57.6	60.5	65.1
	LWB	44.4	50.5	55.5	60.6	45.8	52.0	57.1	62.2	47.5	53.5	58.8	64.0
115	TCG	15.6	15.7	17.4	19.4	16.5	16.5	17.9	20.0	17.6	17.6	18.5	20.6
	SHG	15.6	15.5	13.0	10.3	16.5	16.5	14.1	11.0	17.6	17.6	15.8	12.1
	TC	15.3	15.4	17.2	19.2	16.2	16.2	17.6	19.7	17.2	17.2	18.1	20.2
	kW	2.16	2.16	2.26	2.36	2.22	2.22	2.30	2.40	2.30	2.30	2.35	2.45
	CMP	1.94	1.95	2.04	2.15	1.99	1.99	2.07	2.18	2.05	2.05	2.10	2.21
	LDB	53.0	53.2	57.6	62.3	55.7	55.7	59.2	63.9	59.0	59.0	61.1	65.7
	LWB	45.3	51.4	56.5	61.5	46.6	52.7	57.9	63.0	48.1	54.0	59.5	64.6
125	TCG	13.2	13.1	14.5	16.3	14.0	14.0	14.9	16.7	14.8	14.8	15.4	17.1
	SHG	13.2	13.1	11.3	8.88	14.0	14.0	12.3	9.53	14.8	14.8	13.8	10.5
	TC	13.0	12.9	14.3	16.0	13.7	13.7	14.7	16.4	14.5	14.5	15.1	16.8
	kW	2.11	2.10	2.19	2.29	2.16	2.16	2.22	2.33	2.24	2.24	2.27	2.38
	CMP	1.91	190	1.99	2.09	1.95	1.95	2.01	2.12	2.01	2.01	2.04	2.15
	LDB	54.7	54.5	58.5	63.2	57.2	57.2	60.0	64.6	60.4	60.4	61.8	66.3
	LWB	46.1	52.3	57.4	62.4	47.3	53.3	58.7	63.7	48.7	54.6	60.1	65.2

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

Performance data (cont)

COOLING CAPACITIES (cont)

SYSTEM 14* — 53QKE030 IN-CEILING CASSETTE SYSTEM (38QR-C030 WITH 40QKE036)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		635/0.06				745/0.07				915/0.09			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	28.0	30.4	32.7	33.8	29.7	31.3	33.5	34.6	31.5	32.3	34.1	35.1
	SHG	28.0	24.8	20.8	16.4	29.7	26.6	22.0	17.0	31.5	29.0	23.3	17.7
	TC	27.7	30.1	32.4	33.5	29.3	31.0	33.1	34.2	31.1	31.8	33.6	34.6
	kW	1.70	1.71	1.73	1.74	1.72	1.73	1.76	1.77	1.77	1.76	1.78	1.80
	CMP	1.44	1.45	1.47	1.48	1.44	1.46	1.48	1.49	1.46	1.46	1.48	1.50
	LDB	41.3	45.9	51.4	57.6	45.1	48.8	54.3	60.2	49.9	52.4	57.9	63.3
	LWB	39.4	44.7	50.3	56.8	41.3	47.1	52.8	59.0	43.7	49.9	55.6	61.6
65	TCG	26.9	29.1	31.5	33.0	28.5	30.0	32.3	33.8	30.4	31.0	33.0	34.4
	SHG	26.9	24.0	20.2	16.1	28.5	25.9	21.5	16.8	30.4	28.5	23.1	17.6
	TC	26.6	28.7	31.1	32.7	28.1	29.6	31.9	33.4	29.9	30.5	32.6	34.0
	kW	1.89	1.91	1.93	1.94	1.92	1.93	1.95	1.97	1.96	1.96	1.99	2.00
	CMP	1.63	1.65	1.67	1.68	1.64	1.65	1.68	1.70	1.66	1.66	1.69	1.70
	LDB	42.5	46.6	51.9	57.8	46.2	49.3	54.6	60.3	50.7	52.6	57.8	63.2
	LWB	40.0	45.4	50.9	57.0	41.9	47.7	53.2	59.2	44.1	50.3	55.8	61.7
75	TCG	25.8	27.7	30.2	32.2	27.3	28.6	31.1	32.9	29.3	29.7	32.0	33.8
	SHG	25.8	23.3	19.7	15.8	27.3	25.2	21.0	16.5	29.3	27.9	22.8	17.5
	TC	25.5	27.4	29.9	31.9	27.0	28.3	30.7	32.6	28.8	29.3	31.5	33.3
	kW	2.08	2.10	2.12	2.15	2.11	2.13	2.15	2.17	2.16	2.16	2.19	2.21
	CMP	1.82	1.84	1.87	1.89	1.84	1.85	1.88	1.90	1.86	1.87	1.89	1.91
	LDB	43.7	47.2	52.4	57.9	47.2	49.8	54.9	60.4	51.5	52.8	57.8	63.1
	LWB	40.6	46.1	51.4	57.3	42.4	48.3	53.6	59.5	44.5	50.7	56.1	61.8
85	TCG	24.7	26.3	29.0	31.4	26.2	27.3	29.9	32.1	28.1	28.5	30.9	33.1
	SHG	24.7	22.5	19.1	15.5	26.2	24.6	20.6	16.2	28.1	27.4	22.6	17.4
	TC	24.4	26.0	28.7	31.1	25.8	26.9	29.6	31.7	27.7	28.0	30.5	32.6
	kW	2.27	2.29	2.32	2.35	2.31	2.32	2.35	2.38	2.35	2.36	2.39	2.42
	CMP	2.01	2.04	2.07	2.10	2.04	2.05	2.08	2.10	2.06	2.07	2.09	2.12
	LDB	44.8	47.9	52.8	58.1	48.2	50.2	55.1	60.5	52.3	53.0	57.8	63.0
	LWB	41.2	46.8	51.9	57.5	42.9	48.8	54.0	59.7	44.9	51.0	56.3	61.9
95	TCG	23.6	24.9	27.6	30.1	25.0	25.8	28.5	30.9	26.7	26.9	29.4	31.7
	SHG	23.6	21.7	18.5	15.0	25.0	23.7	19.9	15.8	26.7	26.4	22.0	16.9
	TC	23.3	24.6	27.3	29.8	24.6	25.4	28.1	30.6	26.3	26.5	29.0	31.3
	kW	2.49	2.51	2.55	2.59	2.53	2.54	2.58	2.61	2.59	2.59	2.62	2.65
	CMP	2.23	2.26	2.30	2.33	2.26	2.27	2.31	2.34	2.29	2.30	2.33	2.36
	LDB	46.0	48.7	53.5	58.6	49.4	50.9	55.7	60.8	53.4	53.7	58.2	63.3
	LWB	41.8	47.5	52.6	58.0	43.5	49.5	54.6	60.0	45.4	51.6	56.8	62.2
105	TCG	22.5	23.5	26.0	28.6	23.8	24.4	26.8	29.4	25.4	25.4	27.7	30.2
	SHG	22.5	21.0	17.7	14.3	23.8	22.9	19.2	15.2	25.4	25.4	21.2	16.4
	TC	22.2	23.2	25.7	28.3	23.4	24.0	26.5	29.0	25.0	25.0	27.3	29.8
	kW	2.73	2.75	2.80	2.84	2.77	2.79	2.83	2.87	2.83	2.83	2.87	2.91
	CMP	2.48	2.50	2.55	2.59	2.51	2.52	2.57	2.60	2.54	2.54	2.58	2.62
	LDB	47.2	49.4	54.3	59.2	50.5	51.6	56.3	61.3	54.4	54.4	58.7	63.6
	LWB	42.4	48.3	53.4	58.6	44.0	50.1	55.3	60.5	45.9	52.1	57.3	62.6
115	TCG	21.4	22.2	24.4	27.1	22.6	22.9	25.2	27.8	24.1	24.1	26.0	28.6
	SHG	21.4	20.2	17.0	13.7	22.6	22.1	18.4	14.6	24.1	24.1	20.5	15.8
	TC	21.1	21.9	24.1	26.8	22.3	22.6	24.8	27.5	23.6	23.7	25.6	28.2
	kW	3.01	3.03	3.08	3.12	3.05	3.06	3.11	3.15	3.11	3.11	3.16	3.19
	CMP	2.76	2.77	2.83	2.87	2.78	2.79	2.85	2.88	2.82	2.82	2.87	2.90
	LDB	48.5	50.2	55.0	59.9	51.6	52.3	57.0	61.8	55.4	55.4	59.2	64.0
	LWB	43.0	49.0	54.1	59.3	44.6	50.7	55.9	61.1	46.4	52.5	57.9	63.1
125	TCG	20.2	20.8	23.0	25.5	21.4	21.5	23.7	26.2	22.8	22.8	24.4	26.9
	SHG	20.2	19.4	16.3	13.1	21.4	21.2	17.7	14.0	22.8	22.8	19.7	15.2
	TC	19.9	20.5	22.7	25.2	21.1	21.2	23.4	25.8	22.4	22.4	23.9	26.5
	kW	3.31	3.32	3.38	3.42	3.35	3.35	3.41	3.46	3.41	3.41	3.45	3.50
	CMP	3.06	3.07	3.13	3.17	3.09	3.09	3.15	3.19	3.12	3.12	3.17	3.21
	LDB	49.8	51.0	55.8	60.6	52.8	53.1	57.6	62.4	56.5	56.4	59.8	64.5
	LWB	43.7	49.7	54.8	60.0	45.2	51.3	56.5	61.7	46.9	53.0	58.4	63.5

Rating condition.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

COOLING CAPACITIES (cont)

SYSTEM 15* — 53QKE036 IN-CEILING CASSETTE SYSTEM (38QR-C036 SINGLE-PHASE UNIT WITH 40QKE048)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		680/0.09				880/0.12				1100/0.15			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	32.3	34.6	36.4	38.0	34.3	36.1	37.0	38.5	35.7	36.9	38.0	39.5
	SHG	31.5	27.4	22.8	18.4	34.3	30.3	24.1	19.1	35.7	32.8	25.8	20.0
	TC	31.9	34.2	36.0	37.6	33.8	35.5	36.5	38.0	35.1	36.3	37.3	38.8
	kW	2.15	2.18	2.22	2.25	2.21	2.25	2.26	2.29	2.27	2.30	2.32	2.35
	CMP	1.87	1.90	1.94	1.97	1.90	1.93	1.94	1.98	1.92	1.95	1.97	2.00
	LDB	41.3	46.5	52.1	57.6	47.5	51.4	57.3	62.2	53.0	55.3	60.7	65.1
	LWB	38.8	44.4	50.5	56.8	42.6	48.4	54.6	60.6	45.3	51.1	57.1	62.9
65	TCG	31.1	33.6	35.6	37.8	33.3	34.9	36.8	38.1	35.2	36.0	38.0	39.0
	SHG	30.6	26.9	22.4	18.3	33.3	29.7	24.3	19.0	35.2	32.6	26.4	20.0
	TC	30.7	33.1	35.2	37.4	32.8	34.3	36.2	37.6	34.5	35.3	37.3	38.4
	kW	2.39	2.43	2.46	2.51	2.45	2.48	2.51	2.54	2.52	2.54	2.58	2.61
	CMP	2.11	2.15	2.18	2.23	2.14	2.17	2.20	2.23	2.17	2.19	2.23	2.26
	LDB	41.5	46.3	51.9	57.2	47.8	51.3	56.6	61.9	52.8	54.8	59.7	64.8
	LWB	39.1	44.6	50.5	56.5	42.7	48.5	54.3	60.4	45.2	51.2	56.8	62.7
75	TCG	29.4	31.9	34.2	36.5	31.9	33.4	35.6	37.3	33.8	34.5	36.8	38.0
	SHG	29.2	25.8	21.8	17.7	31.9	29.0	23.8	18.7	33.8	32.0	26.0	19.7
	TC	29.0	31.5	33.8	36.1	31.4	32.9	35.1	36.8	33.2	33.9	36.1	37.4
	kW	2.64	2.69	2.74	2.79	2.72	2.76	2.80	2.84	2.80	2.82	2.87	2.90
	CMP	2.36	2.42	2.46	2.51	2.41	2.45	2.49	2.53	2.46	2.47	2.52	2.55
	LDB	42.4	46.8	52.1	57.4	48.4	51.3	56.5	61.7	53.3	54.7	59.5	64.6
	LWB	39.8	45.1	50.8	56.7	43.0	48.8	54.5	60.4	45.4	51.4	56.9	62.8
85	TCG	27.8	30.2	32.9	35.2	30.5	31.9	34.4	36.5	32.5	33.1	35.5	37.0
	SHG	27.8	24.8	21.1	17.1	30.5	28.2	23.4	18.4	32.5	31.4	25.6	19.4
	TC	27.4	29.8	32.5	34.8	30.0	31.4	33.9	36.0	31.8	32.5	34.9	36.3
	kW	2.89	2.96	3.02	3.07	3.00	3.04	3.09	3.14	3.08	3.10	3.16	3.19
	CMP	2.61	2.68	2.75	2.80	2.69	2.73	2.78	2.83	2.74	2.76	2.82	2.84
	LDB	43.4	47.3	52.3	57.6	49.1	51.4	56.4	61.5	53.7	54.6	59.3	64.5
	LWB	40.4	45.7	51.1	56.8	43.3	49.1	54.6	60.3	45.6	51.6	57.0	62.8
95	TCG	26.2	28.2	31.1	33.7	28.7	29.8	32.6	35.0	30.8	31.2	33.6	35.8
	SHG	26.2	23.6	20.2	16.5	28.7	26.9	22.5	17.8	30.8	30.1	24.8	19.0
	TC	25.8	27.9	30.7	33.3	28.2	29.3	32.1	34.5	30.2	30.6	33.0	35.2
	kW	3.17	3.24	3.34	3.41	3.29	3.33	3.41	3.47	3.40	3.41	3.47	3.54
	CMP	2.90	2.97	3.07	3.14	2.98	3.02	3.11	3.17	3.06	3.07	3.13	3.20
	LDB	44.6	48.1	52.8	57.9	50.1	52.0	56.7	61.7	54.4	55.0	59.5	64.4
	LWB	41.0	46.5	51.6	57.2	43.8	49.7	55.0	60.6	46.0	52.0	57.3	62.9
105	TCG	24.6	26.3	29.0	31.9	26.9	27.8	30.5	33.1	28.8	29.0	31.6	34.0
	SHG	24.6	22.4	19.1	15.7	26.9	25.6	21.5	17.0	28.8	28.6	23.8	18.3
	TC	24.3	25.9	28.6	31.5	26.5	27.3	30.1	32.6	28.3	28.4	31.0	33.4
	kW	3.48	3.54	3.65	3.78	3.60	3.63	3.75	3.83	3.71	3.72	3.82	3.90
	CMP	3.21	3.27	3.38	3.51	3.30	3.33	3.44	3.53	3.37	3.38	3.49	3.56
	LDB	45.8	48.9	53.6	58.5	51.2	52.7	57.2	62.0	55.4	55.7	59.8	64.6
	LWB	41.7	47.3	52.4	57.7	44.4	50.3	55.5	60.9	46.4	52.5	57.7	63.1
115	TCG	23.1	24.4	26.9	29.6	25.2	25.7	28.3	31.0	26.9	27.0	29.2	31.9
	SHG	23.1	21.3	18.0	14.7	25.2	24.3	20.3	16.1	26.9	26.9	22.6	17.5
	TC	22.7	24.0	26.5	29.3	24.7	25.3	27.8	30.5	26.4	26.4	28.7	31.3
	kW	3.81	3.87	3.98	4.11	3.93	3.96	4.08	4.21	4.05	4.05	4.16	4.28
	CMP	3.54	3.60	3.71	3.85	3.63	3.66	3.78	3.91	3.72	3.72	3.83	3.95
	LDB	47.2	49.8	54.5	59.3	52.4	53.4	57.8	62.5	56.5	56.5	60.3	64.9
	LWB	42.4	48.1	53.2	58.4	45.0	51.0	56.2	61.4	46.9	53.0	58.2	63.5
125	TCG	21.5	22.5	24.8	27.3	23.5	23.7	26.0	28.6	25.0	25.0	26.8	29.6
	SHG	21.5	20.1	17.0	13.7	23.5	23.0	19.2	15.2	25.0	25.0	21.4	16.6
	TC	21.1	22.1	24.5	27.0	23.0	23.2	25.6	28.2	24.5	24.4	26.3	29.0
	kW	4.15	4.20	4.33	4.47	4.28	4.30	4.42	4.60	4.40	4.40	4.51	4.68
	CMP	3.88	3.94	4.06	4.21	3.99	4.00	4.13	4.30	4.07	4.07	4.18	4.35
	LDB	48.6	50.6	55.3	60.1	53.6	54.1	58.5	63.1	57.5	57.5	60.9	65.3
	LWB	43.1	48.9	54.1	59.3	45.6	51.6	56.8	62.0	47.4	53.4	58.8	63.9

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

Performance data (cont)

COOLING CAPACITIES (cont)

SYSTEM 16* — 53QKE036 IN-CEILING CASSETTE SYSTEM (38QR-C036 3-PHASE UNIT WITH 40QKE048)

TEMP (F) AIR ENTERING OUTDOOR UNIT (Edb)		AIR ENTERING INDOOR UNIT — CFM/BF											
		680/0.08				880/0.11				1100/0.14			
		Air Entering Indoor Unit — Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
55	TCG	35.4	35.7	38.9	35.7	35.9	36.6	38.2	35.6	38.1	35.6	35.0	34.8
	SHG	33.9	27.1	23.8	17.5	35.9	28.6	23.7	17.4	38.1	28.1	21.3	16.9
	TC	35.0	35.3	38.4	35.3	35.4	36.0	37.6	35.0	37.4	34.9	34.3	34.1
	kW	2.15	2.04	2.19	2.06	2.12	2.14	2.17	2.05	2.26	2.13	2.06	2.03
	CMP	1.80	1.69	1.84	1.70	1.74	1.76	1.79	1.67	1.84	1.71	1.65	1.62
	LDB	39.4	47.9	51.8	59.6	47.0	54.0	58.6	64.5	52.0	59.9	65.0	68.2
	LWB	37.3	44.3	49.8	58.5	42.3	48.6	54.6	62.1	44.8	52.0	58.4	64.5
65	TCG	33.2	34.3	37.3	35.9	34.5	35.4	37.5	36.4	36.6	35.1	35.7	36.3
	SHG	32.2	26.6	23.1	17.5	34.5	28.6	23.8	17.9	36.6	29.2	22.9	18.0
	TC	32.8	33.9	36.9	35.5	33.9	34.9	36.9	35.9	35.9	34.4	35.0	35.6
	kW	2.43	2.39	2.53	2.46	2.45	2.48	2.55	2.50	2.57	2.50	2.50	2.52
	CMP	2.07	2.03	2.16	2.10	2.06	2.09	2.15	2.10	2.15	2.07	2.07	2.09
	LDB	40.5	47.5	51.8	58.8	47.4	53.1	57.7	63.4	52.4	58.2	63.1	66.8
	LWB	38.2	44.6	50.0	57.8	42.5	48.7	54.4	61.3	45.0	51.8	57.8	63.8
75	TCG	31.0	32.9	35.8	36.2	33.0	34.2	36.8	37.3	35.0	34.6	36.4	37.8
	SHG	30.5	26.1	22.4	17.6	33.0	28.6	23.9	18.5	35.0	30.3	24.5	19.1
	TC	30.6	32.5	35.4	35.7	32.5	33.7	36.2	36.8	34.3	34.0	35.8	37.2
	kW	2.71	2.75	2.86	2.87	2.79	2.83	2.92	2.94	2.89	2.87	2.94	3.00
	CMP	2.34	2.38	2.49	2.49	2.39	2.42	2.52	2.54	2.46	2.43	2.50	2.56
	LDB	41.5	47.0	51.8	58.0	47.8	52.2	56.8	62.2	52.8	56.5	61.1	65.4
	LWB	39.1	44.8	50.3	57.1	42.7	48.7	54.3	60.6	45.2	51.6	57.2	63.0
85	TCG	28.8	31.5	34.3	36.4	31.6	33.1	36.0	38.1	33.4	34.1	37.1	39.4
	SHG	28.7	25.6	21.8	17.6	31.6	28.6	24.1	19.0	33.4	31.4	26.1	20.2
	TC	28.4	31.1	33.9	36.0	31.1	32.5	35.5	37.6	32.8	33.5	36.5	38.7
	kW	2.99	3.11	3.19	3.27	3.13	3.17	3.30	3.38	3.21	3.24	3.38	3.48
	CMP	2.60	2.72	2.81	2.89	2.71	2.75	2.88	2.97	2.76	2.79	2.93	3.03
	LDB	42.5	46.6	51.7	57.2	48.2	51.3	55.9	61.1	53.2	54.8	59.2	64.0
	LWB	39.9	45.1	50.5	56.5	42.9	48.8	54.1	59.9	45.4	51.3	56.6	62.3
95	TCG	26.6	28.9	32.1	34.8	29.4	30.7	33.7	36.5	31.6	32.2	35.0	37.9
	SHG	26.6	24.0	20.7	16.9	29.4	27.5	23.0	18.4	31.6	30.8	25.4	19.8
	TC	26.2	28.5	31.7	34.5	28.9	30.2	33.2	36.0	31.0	31.6	34.4	37.2
	kW	3.25	3.38	3.55	3.65	3.43	3.51	3.64	3.77	3.59	3.62	3.74	3.88
	CMP	2.86	2.98	3.15	3.26	3.00	3.08	3.21	3.34	3.12	3.15	3.28	3.42
	LDB	44.1	47.7	52.3	57.4	49.5	51.5	56.2	61.1	53.8	54.5	59.1	63.8
	LWB	40.8	46.1	51.2	56.7	43.6	49.4	54.6	60.0	45.7	51.7	56.9	62.3
105	TCG	24.6	26.4	29.3	32.4	27.1	28.0	30.9	34.2	29.1	29.3	32.2	35.3
	SHG	24.6	22.5	19.2	15.9	27.1	25.8	21.7	17.5	29.1	28.8	24.1	18.9
	TC	24.2	26.0	28.9	32.1	26.6	27.5	30.5	33.8	28.5	28.7	31.6	34.7
	kW	3.53	3.65	3.83	4.04	3.72	3.78	3.97	4.18	3.89	3.91	4.09	4.26
	CMP	3.13	3.24	3.43	3.63	3.28	3.34	3.54	3.75	3.42	3.43	3.61	3.78
	LDB	45.8	48.7	53.3	58.1	51.0	52.4	56.8	61.4	55.1	55.4	59.4	64.0
	LWB	41.7	47.2	52.2	57.3	44.3	50.2	55.3	60.4	46.3	52.3	57.5	62.7
115	TCG	22.5	23.9	26.6	29.5	24.8	25.3	28.0	31.1	26.7	26.7	29.1	32.2
	SHG	22.5	21.0	17.8	14.6	24.8	24.0	20.2	16.1	26.7	26.7	22.5	17.6
	TC	22.2	23.5	26.2	29.1	24.3	24.9	27.6	30.6	26.1	26.1	28.5	31.6
	kW	3.83	3.93	4.13	4.35	4.03	4.07	4.27	4.50	4.20	4.20	4.39	4.62
	CMP	3.41	3.51	3.71	3.93	3.58	3.62	3.82	4.05	3.72	3.72	3.90	4.13
	LDB	47.5	49.9	54.4	59.1	52.5	53.3	57.7	62.3	56.4	56.4	60.1	64.6
	LWB	42.6	48.2	53.2	58.3	45.0	51.0	56.1	61.2	46.9	52.9	58.2	63.3
125	TCG	20.6	21.4	23.9	26.6	22.6	22.8	25.2	28.0	24.3	24.2	26.1	29.0
	SHG	20.6	19.4	16.5	13.4	22.6	22.3	18.7	14.8	24.3	24.2	21.0	16.3
	TC	20.2	21.1	23.6	26.3	22.1	22.3	24.7	27.5	23.7	23.7	25.5	28.4
	kW	4.13	4.21	4.43	4.66	4.34	4.36	4.57	4.82	4.52	4.52	4.69	4.94
	CMP	3.70	3.79	4.00	4.24	3.88	3.90	4.11	4.36	4.02	4.02	4.19	4.44
	LDB	49.3	51.0	55.5	60.1	54.0	54.3	58.6	63.1	57.7	57.7	60.8	65.3
	LWB	43.4	49.3	54.3	59.3	45.8	51.9	56.9	62.0	47.5	53.5	58.8	63.9

Rating condition.

Not recommended for long-term operation.

LEGEND

BF — Bypass Factor
CMP — Compressor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Total Power
LDB — Leaving Dry Bulb
LWB — Leaving Wet Bulb
SHG — Gross Sensible Capacity (1000 Btuh)
TC — Total Net Cooling Capacity (1000 Btuh)
TCG — Gross Cooling Capacity (1000 Btuh)

*Refer to Systems Index Table on page 26.

NOTES:
1. Direct interpolation is permissible. Do not extrapolate.
2. The SHG is based on 80 F edb temperature of air entering indoor coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHG.
   Above 80 F edb, add (corr factor x cfm) to SHG.
   Correction Factor = 1.10 x (1 – BF) x (edb – 80).

INSTANTANEOUS AND INTEGRATED HEATING RATINGS

SYSTEM 1* — 53QNE009 HIGH WALL SYSTEM (38BK009 WITH 40QNE009)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			−3		7		17		27		37		47		57	
55	230	Cap	3.58	3.29	4.31	3.96	5.37	4.89	6.63	5.89	8.11	7.38	8.77	8.77	9.81	9.81
		kW	0.55		0.58		0.61		0.65		0.71		0.73		0.77	
	250	Cap	3.60	3.31	4.32	3.97	5.38	4.91	6.65	5.91	8.14	7.41	8.83	8.83	9.60	9.60
		kW	0.55		0.57		0.60		0.64		0.69		0.72		0.74	
	270	Cap	3.61	3.32	4.33	3.98	5.40	4.92	6.68	5.93	8.18	7.45	8.87	8.87	9.65	9.65
		kW	0.54		0.57		0.60		0.64		0.68		0.71		0.73	
60	230	Cap	4.11	3.78	4.82	4.43	5.23	4.76	6.45	5.73	7.98	7.27	8.80	8.80	9.77	9.77
		kW	0.58		0.60		0.64		0.69		0.74		0.77		0.82	
	250	Cap	4.15	3.82	4.85	4.46	5.27	4.80	6.51	5.78	8.06	7.33	8.85	8.85	9.58	9.58
		kW	0.58		0.60		0.63		0.68		0.73		0.76		0.79	
	270	Cap	4.17	3.84	4.88	4.48	5.30	4.83	6.56	5.82	8.09	7.36	8.89	8.89	9.63	9.63
		kW	0.57		0.60		0.63		0.67		0.72		0.75		0.77	
65	230	Cap	4.03	3.71	4.80	4.41	5.73	5.22	6.27	5.57	7.79	7.09	8.88	8.88	10.2	10.2
		kW	0.61		0.64		0.67		0.72		0.78		0.82		0.88	
	250	Cap	4.06	3.74	4.83	4.44	5.76	5.26	6.33	5.62	7.89	7.18	8.87	8.87	10.0	10.0
		kW	0.60		0.63		0.66		0.71		0.77		0.80		0.85	
	270	Cap	4.09	3.76	4.86	4.46	5.80	5.29	6.38	5.66	7.96	7.24	8.79	8.79	9.84	9.84
		kW	0.60		0.63		0.66		0.70		0.76		0.78		0.83	
70	230	Cap	3.86	3.55	4.72	4.34	5.05	4.60	6.23	5.53	7.44	6.77	8.91	8.91	9.94	9.94
		kW	0.64		0.67		0.71		0.76		0.81		0.87		0.92	
	250	Cap	3.90	3.59	4.75	4.37	5.09	4.64	6.28	5.57	7.65	6.97	8.96	8.96	10.0	10.0
		kW	0.63		0.67		0.70		0.75		0.80		0.86		0.90	
	270	Cap	3.93	3.61	4.78	4.39	5.12	4.67†	6.32	5.61	7.85	7.15	9.00	9.00†	10.1	10.1
		kW	0.63		0.66		0.70		0.74		0.79		0.84		0.88	
75	230	Cap	3.61	3.32	4.65	4.27	5.07	4.62	6.11	5.43	7.45	6.78	8.67	8.67	10.1	10.1
		kW	0.66		0.70		0.75		0.80		0.86		0.92		0.98	
	250	Cap	3.67	3.38	4.69	4.31	5.13	4.68	6.19	5.50	7.55	6.87	8.87	8.87	10.0	10.0
		kW	0.66		0.70		0.74		0.79		0.84		0.90		0.95	
	270	Cap	3.72	3.42	4.73	4.35	5.19	4.73	6.27	5.56	7.64	6.95	8.91	8.91	10.1	10.1
		kW	0.66		0.69		0.74		0.78		0.83		0.88		0.94	
80	230	Cap	3.27	3.01	4.60	4.23	4.91	4.48	5.92	5.26	7.21	6.56	8.51	8.51	10.2	10.2
		kW	0.69		0.74		0.79		0.84		0.90		0.96		1.1	
	250	Cap	3.34	3.08	4.59	4.22	5.00	4.56	6.03	5.35	7.34	6.68	8.66	8.66	10.2	10.2
		kW	0.68		0.73		0.78		0.83		0.88		0.94		1.0	
	270	Cap	3.41	3.13	4.66	4.28	5.09	4.64	6.13	5.44	7.47	6.80	8.80	8.80	10.0	10.0
		kW	0.68		0.73		0.77		0.82		0.87		0.93		0.98	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 2* — 53QNE012 HIGH WALL SYSTEM (38BK012 WITH 40QNE012)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			−3		7		17		27		37		47		57	
55	255	Cap	4.09	3.77	5.87	5.40	7.63	6.96	9.21	8.18	11.3	10.3	12.5	12.5	14.1	14.1
		kW	0.75		0.81		0.87		0.94		1.02		1.07		1.15	
	292	Cap	4.29	3.95	6.03	5.54	7.86	7.17	9.49	8.43	11.4	10.4	12.4	12.4	14.0	14.0
		kW	0.74		0.80		0.86		0.91		0.98		1.02		1.08	
	315	Cap	4.39	4.04	6.12	5.62	7.99	7.28	9.65	8.57	11.4	10.4	12.2	12.2	13.8	13.8
		kW	0.74		0.79		0.85		0.90		0.96		0.99		1.05	
60	255	Cap	4.59	4.22	6.72	6.17	7.38	6.73	8.96	7.96	11.0	10.0	12.4	12.4	14.0	14.0
		kW	0.77		0.84		0.91		0.98		1.07		1.13		1.21	
	292	Cap	4.77	4.39	6.83	6.27	7.60	6.93	9.25	8.21	11.3	10.3	12.4	12.4	14.0	14.0
		kW	0.77		0.83		0.90		0.96		1.03		1.08		1.14	
	315	Cap	4.87	4.48	6.82	6.27	7.73	7.05	9.40	8.35	11.3	10.3	12.5	12.5	14.1	14.1
		kW	0.76		0.82		0.89		0.94		1.01		1.06		1.12	
65	255	Cap	4.21	3.88	6.30	5.79	7.25	6.61	8.82	7.83	10.7	9.75	12.4	12.4	13.9	13.9
		kW	0.79		0.87		0.96		1.03		1.11		1.19		1.27	
	292	Cap	4.32	3.98	6.48	5.96	7.44	6.78	9.03	8.02	11.0	9.99	12.5	12.5	13.8	13.8
		kW	0.79		0.86		0.94		1.00		1.08		1.14		1.20	
	315	Cap	4.40	4.05	6.57	6.03	7.54	6.87	9.15	8.13	11.1	10.1	12.4	12.4	14.0	14.0
		kW	0.79		0.86		0.93		0.99		0.07		1.11		1.18	
70	255	Cap	3.89	3.58	5.84	5.36	6.89	6.28	8.69	7.72	10.5	9.57	12.1	12.1	14.0	14.0
		kW	0.82		0.89		0.99		1.08		1.17		1.25		1.35	
	292	Cap	3.98	3.66	6.08	5.59	7.08	6.46	8.91	7.91	10.8	9.81	12.4	12.4	14.0	14.0
		kW	0.82		0.89		0.97		1.05		1.13		1.20		1.27	
	315	Cap	4.03	3.71	6.17	5.67	7.19	6.55†	9.03	8.02	10.9	9.94	12.5	12.5†	14.1	14.1
		kW	0.82		0.89		0.97		1.04		1.11		1.18		1.25	
75	255	Cap	3.54	3.26	5.39	4.95	6.44	5.87	8.31	7.38	10.2	9.32	12.0	12.0	14.0	14.0
		kW	0.86		0.93		1.03		1.12		1.22		1.31		1.43	
	292	Cap	3.61	3.32	5.55	5.10	6.77	6.17	8.61	7.65	10.4	9.64	12.3	12.3	14.0	14.0
		kW	0.85		0.92		1.01		1.10		1.18		1.26		1.34	
	315	Cap	3.65	3.36	5.64	5.18	6.91	6.30	8.77	7.79	10.8	9.81	12.4	12.4	14.0	14.0
		kW	0.85		0.92		1.01		1.08		1.17		1.24		1.32	
80	255	Cap	3.20	2.95	4.90	4.51	7.01	6.39	8.06	7.16	10.1	9.16	11.7	11.7	13.9	13.9
		kW	0.89		0.96		1.06		1.17		1.28		1.37		1.50	
	292	Cap	3.27	3.01	5.08	4.67	7.29	6.65	8.37	7.43	10.3	9.41	12.1	12.1	14.1	14.1
		kW	0.89		0.95		1.04		1.14		1.24		1.32		1.43	
	315	Cap	3.31	3.03	5.14	4.73	7.37	6.72	8.46	7.51	10.5	9.54	12.2	12.2	14.0	14.0
		kW	0.89		0.95		1.04		1.13		1.22		1.30		1.39	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 3* — 53QNE018 HIGH WALL SYSTEM (38BK018 WITH 40QNE018)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			−3		7		17		27		37		47		57	
55	420	Cap	6.62	6.09	8.84	8.12	10.9	9.95	12.9	11.5	15.4	14.0	17.7	17.7	20.5	20.5
		kW	1.02		1.12		1.23		1.35		1.50		1.63		1.80	
	450	Cap	6.70	6.16	8.93	8.21	11.0	10.0	13.0	11.6	15.5	14.1	17.9	17.9	20.6	20.6
		kW	1.02		1.12		1.23		1.35		1.49		1.62		1.77	
	510	Cap	6.84	6.30	9.11	8.37	11.2	10.2	13.3	11.8	15.8	14.4	18.2	18.2	20.7	20.7
		kW	1.02		1.12		1.23		1.34		1.47		1.59		1.73	
60	420	Cap	6.19	5.69	8.29	7.62	10.6	9.65	12.6	11.1	15.0	13.6	17.3	17.3	19.9	19.9
		kW	1.03		1.14		1.25		1.37		1.52		1.67		1.83	
	420	Cap	6.27	5.77	8.40	7.72	10.7	9.74	12.7	11.3	15.1	13.8	17.5	17.5	20.1	20.1
		kW	1.03		1.14		1.25		1.37		1.52		1.65		1.81	
	510	Cap	6.41	5.90	8.65	7.95	10.9	9.91	12.9	11.5	15.4	14.0	17.8	17.8	20.6	20.6
		kW	1.03		1.14		1.25		1.36		1.50		1.63		1.79	
65	420	Cap	5.75	5.29	7.84	7.20	10.2	9.30	12.2	10.8	14.6	13.2	16.8	16.8	19.7	19.7
		kW	1.04		1.15		1.27		1.40		1.55		1.70		1.88	
	450	Cap	5.83	5.36	7.94	7.30	10.3	9.40	12.3	10.9	14.7	13.4	17.0	17.0	19.8	19.8
		kW	1.04		1.15		1.27		1.39		1.54		1.69		1.86	
	510	Cap	5.96	5.49	8.12	7.46	10.5	9.58	12.5	11.1	15.0	13.6	17.4	17.4	20.1	20.1
		kW	1.05		1.15		1.27		1.39		1.53		1.67		1.83	
70	420	Cap	5.30	4.88	7.37	6.77	9.63	8.78	11.8	10.5	14.1	12.9	16.4	16.4	19.2	19.2
		kW	1.05		1.17		1.29		1.42		1.58		1.73		1.92	
	450	Cap	5.38	4.95	7.46	6.85	9.80	8.94	12.0	10.6	14.3	13.0	16.6	16.6	19.3	19.3
		kW	1.05		1.17		1.29		1.41		1.57		1.72		1.90	
	510	Cap	5.52	5.08	7.66	7.04	10.1	9.17†	12.2	10.8	14.6	13.3	16.9	16.9†	19.8	19.8
		kW	1.06		1.17		1.28		1.41		1.56		1.70		1.87	
75	420	Cap	4.86	4.47	6.89	6.33	9.09	8.29	11.4	10.2	13.7	12.5	16.0	16.0	18.7	18.7
		kW	1.06		1.18		1.30		1.44		1.60		1.76		1.96	
	450	Cap	4.93	4.53	6.98	6.42	9.22	8.41	11.6	10.3	13.9	12.6	16.2	16.2	19.0	19.0
		kW	1.06		1.18		1.30		1.43		1.59		1.75		1.94	
	510	Cap	5.06	4.65	7.16	6.58	9.50	8.66	11.8	10.5	14.2	12.9	16.5	16.5	19.3	19.3
		kW	1.07		1.18		1.30		1.43		1.59		1.74		1.91	
80	420	Cap	5.31	4.89	6.42	5.90	8.58	7.82	11.0	9.79	13.3	12.1	15.6	15.6	18.2	18.2
		kW	1.07		1.19		1.32		1.46		1.62		1.79		1.99	
	450	Cap	5.38	4.95	6.50	5.97	8.71	7.94	11.2	9.93	13.3	12.3	15.8	15.8	18.5	18.5
		kW	1.07		1.19		1.32		1.45		1.61		1.78		1.98	
	510	Cap	5.50	5.06	6.67	6.13	8.94	8.15	11.4	10.1	13.7	12.5	16.1	16.1	18.9	18.9
		kW	1.08		1.19		1.32		1.45		1.61		1.77		1.96	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 4* — 53QNE024 HIGH WALL SYSTEM (38BK024 WITH 40QNE024)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			−3		7		17		27		37		47		57	
55	465	Cap	8.43	7.75	11.1	10.2	13.8	12.6	16.4	14.6	19.6	17.8	22.5	22.5	26.2	26.2
		kW	1.28		1.41		1.55		1.69		1.88		2.06		2.28	
	500	Cap	8.56	7.87	11.3	10.4	14.0	12.8	16.6	14.8	19.8	18.0	22.8	22.8	26.3	26.3
		kW	1.28		1.41		1.55		1.69		1.87		2.04		2.24	
	545	Cap	8.67	7.98	11.4	10.5	14.2	12.9	16.8	15.0	20.1	18.3	23.1	23.1	26.4	26.4
		kW	1.28		1.41		1.54		1.68		1.86		2.03		2.19	
60	465	Cap	7.89	7.25	10.6	9.70	13.3	12.1	16.0	14.2	19.1	17.3	21.9	21.9	25.6	25.6
		kW	1.29		1.43		1.57		1.72		1.91		2.10		2.32	
	500	Cap	8.00	7.36	10.7	9.86	13.5	12.3	16.2	14.4	19.3	17.6	22.2	22.2	25.9	25.9
		kW	1.29		1.42		1.57		1.72		1.90		2.08		2.30	
	545	Cap	8.14	7.49	10.9	10.0	13.7	12.4	16.4	14.5	19.6	17.8	22.5	22.5	26.3	26.3
		kW	1.30		1.42		1.57		1.71		1.89		2.06		2.28	
65	465	Cap	7.36	6.77	9.99	9.18	12.8	11.7	15.5	13.8	18.5	16.9	21.4	21.4	25.1	25.1
		kW	1.31		1.44		1.59		1.75		1.94		2.13		2.38	
	500	Cap	7.46	6.86	10.1	9.32	13.0	11.9	15.7	14.0	18.8	17.1	21.6	21.6	25.4	25.4
		kW	1.31		1.44		1.59		1.74		1.93		2.12		2.35	
	545	Cap	7.60	6.99	10.3	9.48	13.2	12.0	15.9	14.1	19.0	17.3	22.0	22.0	25.7	25.7
		kW	1.31		1.44		1.59		1.74		1.92		2.10		2.32	
70	465	Cap	6.80	6.26	9.41	8.65	12.3	11.2	15.0	13.3	18.0	16.4	20.8	20.8	24.5	24.5
		kW	1.32		1.46		1.61		1.77		1.97		2.17		2.43	
	500	Cap	6.92	6.37	9.56	8.79	12.5	11.4	15.2	13.5	18.3	16.6	21.1	21.1	24.9	24.9
		kW	1.32		1.46		1.61		1.77		1.96		2.15		2.41	
	545	Cap	7.03	6.47	9.74	8.95	12.7	11.5†	15.5	13.7	18.5	16.9	21.4	21.4†	25.3	25.3
		kW	1.32		1.46		1.61		1.76		1.96		2.14		2.39	
75	465	Cap	6.22	5.72	8.85	8.13	11.7	10.6	14.5	12.9	17.6	16.0	20.3	20.3	23.8	23.8
		kW	1.33		1.48		1.63		1.80		2.00		2.20		2.47	
	500	Cap	6.33	5.82	8.99	8.26	11.8	10.8	14.7	13.1	17.8	16.2	20.6	20.6	24.3	24.3
		kW	1.33		1.48		1.63		1.79		1.99		2.19		2.45	
	545	Cap	6.45	5.94	9.17	8.42	12.1	11.0	15.0	13.3	18.0	16.4	20.9	20.9	24.6	24.6
		kW	1.34		1.48		1.63		1.79		1.99		2.18		2.43	
80	465	Cap	5.60	5.15	8.28	7.61	11.1	10.1	13.9	12.3	17.1	15.5	19.8	19.8	23.2	23.2
		kW	1.35		1.49		1.65		1.82		2.03		2.24		2.50	
	500	Cap	5.70	5.25	8.40	7.72	11.2	10.2	14.1	12.5	17.3	15.7	20.1	20.1	23.5	23.5
		kW	1.35		1.49		1.65		1.82		2.02		2.23		2.49	
	545	Cap	5.82	5.36	8.57	7.87	11.4	10.4	14.4	12.8	17.5	15.9	20.3	20.3	23.9	23.9
		kW	1.35		1.49		1.65		1.81		2.01		2.21		2.47	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 5* — 53QAE018 CEILING-SUSPENDED SYSTEM (38QR-C018 WITH 40QAE024)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	320	Cap	6.84	6.30	8.86	8.10	10.30	9.36	10.90	9.84	13.00	11.40	15.30	15.30	16.90	16.90	22.50	22.50
		kW	1.18		1.25		1.30		1.32		1.38		1.46		1.51		1.69	
	400	Cap	7.23	6.65	9.34	8.54	10.80	9.86	11.50	10.30	13.60	12.00	15.90	15.90	17.70	17.70	24.20	24.20
		kW	1.20		1.26		1.30		1.32		1.37		1.43		1.48		1.58	
	480	Cap	7.52	6.92	9.69	8.86	11.20	10.20	11.90	10.70	14.00	12.30	16.40	16.40	18.40	18.40	23.90	23.90
		kW	1.22		1.27		1.31		1.32		1.37		1.42		1.45		1.54	
60	320	Cap	6.38	5.87	8.39	7.67	9.80	8.93	10.40	9.41	12.60	11.00	14.90	14.90	16.50	16.50	22.10	22.10
		kW	1.19		1.26		1.31		1.33		1.40		1.48		1.54		1.73	
	400	Cap	6.76	6.22	8.87	8.11	10.30	9.43	11.00	9.92	13.20	11.60	15.50	15.50	17.30	17.30	23.50	23.50
		kW	1.21		1.27		1.32		1.34		1.40		1.46		1.51		1.64	
	480	Cap	7.04	6.48	9.22	8.43	10.70	9.79	11.40	10.30	13.60	11.90	16.00	16.00	17.90	17.90	23.60	23.60
		kW	1.23		1.29		1.33		1.34		1.40		1.45		1.49		1.59	
65	320	Cap	5.91	5.44	7.92	7.24	9.32	8.50	9.97	8.99	12.10	10.60	14.40	14.40	16.10	16.10	21.60	21.60
		kW	1.20		1.28		1.33		1.35		1.43		1.51		1.57		1.76	
	400	Cap	6.28	5.78	8.39	7.67	9.87	9.00	10.50	9.51	12.80	11.20	15.10	15.10	16.80	16.80	22.90	22.90
		kW	1.22		1.29		1.34		1.36		1.42		1.49		1.54		1.69	
	480	Cap	6.56	6.04	8.74	7.99	10.30	9.36	11.00	9.88	13.20	11.60	15.60	15.60	17.50	17.50	23.30	23.30
		kW	1.24		1.30		1.35		1.36		1.42		1.48		1.52		1.64	
70	320	Cap	5.45	5.01	7.45	6.81	8.85	8.07	9.50	8.57	11.70	10.20	14.00	14.00	15.70	15.70	21.20	21.20
		kW	1.21		1.29		1.34		1.37		1.45		1.53		1.59		1.80	
	400	Cap	5.81	5.34	7.92	7.24	9.40	8.57	10.10	9.09	12.30	10.80	14.70	14.70	16.40	16.40	22.20	22.20
		kW	1.23		1.30		1.35		1.38		1.44		1.52		1.57		1.74	
	480	Cap	6.08	5.60	8.27	7.56	9.80	8.93†	10.50	9.46	12.80	11.20	15.20	15.20	17.00	17.00†	23.00	23.00
		kW	1.26		1.32		1.37		1.39		1.45		1.51		1.56		1.69	
75	320	Cap	4.96	4.56	6.96	6.36	8.36	7.62	9.01	8.12	11.20	9.79	13.50	13.50	15.20	15.20	20.80	20.80
		kW	1.22		1.30		1.36		1.38		1.47		1.55		1.62		1.83	
	400	Cap	5.30	4.88	7.41	6.78	8.89	8.11	9.58	8.63	11.90	10.40	14.30	14.30	16.00	16.00	21.60	21.60
		kW	1.25		1.32		1.37		1.39		1.47		1.54		1.60		1.79	
	480	Cap	5.56	5.12	7.76	7.09	9.29	8.47	10.00	9.02	12.30	10.80	14.80	14.80	16.50	16.50	22.60	22.60
		kW	1.27		1.34		1.38		1.40		1.47		1.54		1.59		1.75	
80	320	Cap	4.46	4.11	6.46	5.91	7.86	7.17	8.51	7.67	10.70	9.36	13.00	13.00	14.70	14.70	20.40	20.40
		kW	1.23		1.32		1.37		1.40		1.49		1.58		1.64		1.86	
	400	Cap	4.79	4.41	6.91	6.31	8.39	7.65	9.08	8.18	11.40	9.96	13.80	13.80	15.60	15.60	21.00	21.00
		kW	1.26		1.33		1.39		1.41		1.49		1.57		1.63		1.84	
	480	Cap	5.05	4.64	7.25	6.63	8.79	8.01	9.50	8.57	11.90	10.40	14.40	14.40	16.10	16.10	22.20	22.20
		kW	1.28		1.35		1.40		1.42		1.49		1.57		1.62		1.81	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 6* — 53QAE024 CEILING-SUSPENDED SYSTEM (38QR-C024 WITH 40QAE024)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)															
			0		10		17		20		30		40		47		60	
55	400	Cap	8.71	8.01	11.20	10.30	13.00	11.90	13.90	12.50	16.70	14.70	20.10	20.10	22.80	22.80	27.50	27.50
		kW	1.56		1.67		1.75		1.79		1.90		2.03		2.14		2.31	
	480	Cap	9.01	8.29	11.60	10.60	13.40	12.20	14.30	12.90	17.30	15.20	20.80	20.80	23.90	23.90	28.30	28.30
		kW	1.57		1.68		1.75		1.79		1.89		2.01		2.11		2.22	
	550	Cap	9.23	8.49	11.90	10.80	13.70	12.50	14.60	13.20	17.70	15.50	21.30	21.30	24.40	24.40	28.70	28.70
		kW	1.59		1.69		1.76		1.79		1.89		2.00		2.08		2.19	
60	400	Cap	8.29	7.63	10.80	9.91	12.60	11.50	13.50	12.20	16.30	14.30	19.70	19.70	22.30	22.30	27.00	27.00
		kW	1.57		1.69		1.77		1.81		1.93		2.06		2.17		2.36	
	480	Cap	8.59	7.90	11.20	10.20	13.00	11.90	13.90	12.50	16.80	14.80	20.30	20.30	23.20	23.20	27.80	27.80
		kW	1.59		1.70		1.78		1.81		1.92		2.05		2.14		2.28	
	550	Cap	8.80	8.10	11.40	10.50	13.30	12.10	14.20	12.80	17.20	15.10	20.80	20.80	23.80	23.80	28.30	28.30
		kW	1.60		1.71		1.78		1.81		1.92		2.04		2.12		2.25	
65	400	Cap	7.87	7.25	10.40	9.54	12.20	11.20	13.10	11.80	15.90	13.90	19.20	19.20	21.70	21.70	26.50	26.50
		kW	1.59		1.71		1.79		1.83		1.96		2.10		2.21		2.40	
	480	Cap	8.17	7.52	10.80	9.87	12.60	11.50	13.50	12.20	16.40	14.40	19.80	19.80	22.60	22.60	27.40	27.40
		kW	1.60		1.72		1.80		1.83		1.95		2.08		2.18		2.34	
	550	Cap	8.38	7.71	11.00	10.10	12.90	11.80	13.80	12.40	16.80	14.70	20.30	20.30	23.20	23.20	27.90	27.90
		kW	1.62		1.73		1.81		1.84		1.95		2.07		2.17		2.30	
70	400	Cap	7.46	6.86	10.00	9.17	11.80	10.80	12.70	11.40	15.40	13.50	18.70	18.70	21.20	21.20	26.00	26.00
		kW	1.60		1.73		1.82		1.85		1.98		2.13		2.24		2.45	
	480	Cap	7.75	7.13	10.40	9.50	12.20	11.20	13.10	11.80	15.90	14.00	19.30	19.30	21.90	21.90	26.90	26.90
		kW	1.62		1.74		1.82		1.86		1.98		2.11		2.22		2.41	
	550	Cap	7.96	7.32	10.60	9.72	12.50	11.40†	13.40	12.10	16.30	14.30	19.80	19.80	22.60	22.60†	27.60	27.60
		kW	1.63		1.75		1.83		1.87		1.98		2.11		2.21		2.36	
75	400	Cap	7.02	6.46	9.60	8.77	11.40	10.40	12.20	11.00	15.00	13.20	18.20	18.20	20.60	20.60	25.40	25.40
		kW	1.62		1.74		1.83		1.88		2.01		2.16		2.27		2.49	
	480	Cap	7.31	6.73	9.96	9.11	11.80	10.80	12.70	11.40	15.50	13.60	18.80	18.80	21.40	21.40	26.40	26.40
		kW	1.63		1.76		1.84		1.88		2.01		2.15		2.25		2.45	
	550	Cap	7.52	6.92	10.20	9.34	12.10	11.00	13.00	11.70	15.90	13.90	19.30	19.30	22.00	22.00	27.20	27.20
		kW	1.65		1.77		1.85		1.89		2.01		2.14		2.24		2.42	
80	400	Cap	6.59	6.06	9.16	8.38	11.00	10.00	11.80	10.60	14.60	12.80	17.70	17.70	20.10	20.10	24.80	24.80
		kW	1.63		1.76		1.85		1.90		2.01		2.19		2.31		2.53	
	480	Cap	6.87	6.32	9.53	8.71	11.40	10.40	12.20	11.00	15.10	13.20	18.30	18.30	20.80	20.80	25.80	25.80
		kW	1.65		1.77		1.86		1.90		2.04		2.18		2.29		2.50	
	550	Cap	7.08	6.51	9.79	8.95	11.70	10.70	12.50	11.30	15.40	13.50	18.80	18.80	21.40	21.40	26.80	26.80
		kW	1.67		1.79		1.87		1.91		2.04		2.18		2.28		2.48	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 7* — 53QAE030 CEILING-SUSPENDED SYSTEM (38QR-C030 WITH 40QAE036)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	630	Cap	10.60	9.73	13.50	12.40	15.70	14.30	16.70	15.10	20.20	17.70	24.90	23.80	28.30	28.20	34.10	34.10
		kW	1.69		1.79		1.87		1.90		2.02		2.18		2.29		2.48	
	750	Cap	10.70	9.89	13.70	12.60	15.90	14.50	16.80	15.30	20.50	17.90	25.20	24.20	28.60	28.60	34.60	34.60
		kW	1.68		1.78		1.84		1.87		1.98		2.12		2.21		2.38	
	870	Cap	10.90	10.00	13.80	12.70	16.00	14.60	17.00	15.40	20.70	18.10	25.50	24.50	29.00	29.00	35.00	35.00
		kW	1.68		1.77		1.83		1.86		1.95		2.08		2.16		2.31	
60	630	Cap	10.40	9.54	13.30	12.20	15.50	14.20	16.50	15.00	20.00	17.60	24.70	23.60	27.90	27.90	33.70	33.70
		kW	1.77		1.88		1.96		2.00		2.13		2.29		2.41		2.61	
	750	Cap	10.50	9.70	13.50	12.40	15.70	14.30	16.70	15.20	20.30	17.80	25.00	24.00	28.30	28.30	34.20	34.20
		kW	1.76		1.86		1.93		1.97		2.08		2.22		2.32		2.50	
	870	Cap	10.70	9.82	13.60	12.50	15.90	14.50	16.90	15.30	20.50	17.90	25.30	24.30	28.60	28.60	34.60	34.60
		kW	1.76		1.85		1.92		1.95		2.05		2.18		2.27		2.43	
65	630	Cap	10.20	9.36	13.10	12.10	15.40	14.00	16.40	14.90	19.90	17.40	24.40	23.40	27.60	27.60	33.40	33.40
		kW	1.85		1.97		2.06		2.10		2.23		2.40		2.52		2.74	
	750	Cap	10.30	9.51	13.30	12.20	15.60	14.20	16.60	15.00	20.10	17.60	24.80	23.70	28.00	28.00	33.90	33.90
		kW	1.84		1.94		2.02		2.06		2.18		2.33		2.43		2.62	
	870	Cap	10.50	9.64	13.50	12.40	15.70	14.30	16.70	15.20	20.30	17.80	25.00	24.00	28.30	28.30	34.20	34.20
		kW	1.84		1.93		2.01		2.04		2.15		2.28		2.38		2.55	
70	630	Cap	9.97	9.17	12.90	11.90	15.30	13.90	16.30	14.70	19.70	17.30	24.20	23.20	27.30	27.30	33.00	33.00
		kW	1.93		2.05		2.15		2.19		2.34		2.52		2.64		2.87	
	750	Cap	10.10	9.32	13.10	12.10	15.50	14.10	16.40	14.90	19.90	17.50	24.50	23.50	27.70	27.70	33.50	33.50
		kW	1.92		2.03		2.12		2.15		2.28		2.44		2.55		2.74	
	870	Cap	10.30	9.45	13.30	12.20	15.60	14.20†	16.60	15.00	20.10	17.60	24.80	23.70	28.00	28.00†	33.90	33.90
		kW	1.91		2.02		2.10		2.13		2.24		2.39		2.49		2.67	
75	630	Cap	9.74	8.96	12.70	11.70	15.10	13.70	16.10	14.60	19.60	17.20	24.00	23.00	27.10	27.10	32.70	32.70
		kW	2.01		2.15		2.25		2.29		2.45		2.64		2.77		3.01	
	750	Cap	9.91	9.12	12.90	11.90	15.30	13.90	16.30	14.80	19.80	17.40	24.30	23.30	27.40	27.40	33.20	33.20
		kW	2.00		2.12		2.21		2.25		2.39		2.55		2.67		2.88	
	870	Cap	10.10	9.26	13.10	12.00	15.40	14.10	16.40	14.90	20.00	17.50	24.50	23.50	27.70	27.70	33.60	33.60
		kW	2.00		2.11		2.19		2.23		2.35		2.50		2.61		2.79	
80	630	Cap	9.50	8.74	12.50	11.50	14.90	13.60	15.90	14.40	19.50	17.10	23.90	22.90	26.90	26.90	32.40	32.40
		kW	2.10		2.24		2.35		2.40		2.56		2.76		2.90		3.15	
	750	Cap	9.69	8.91	12.70	11.70	15.10	13.70	16.10	14.60	19.70	17.20	24.10	23.10	27.20	27.20	32.90	32.90
		kW	2.09		2.21		2.31		2.35		2.50		2.67		2.79		3.01	
	870	Cap	9.84	9.06	12.90	11.80	15.30	13.90	16.30	14.80	19.80	17.40	24.30	23.30	27.40	27.40	33.20	33.20
		kW	2.08		2.20		2.29		2.33		2.46		2.61		2.72		2.92	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 8* — 53QAE036 CEILING-SUSPENDED SYSTEM (38QR-C036 SINGLE-PHASE UNIT WITH 40QAE036)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	630	Cap	13.40	12.40	16.80	15.30	19.10	17.40	20.30	18.30	24.30	21.30	29.10	29.10	33.30	33.30	39.50	39.50
		kW	2.10		2.21		2.29		2.33		2.46		2.62		2.76		2.92	
	750	Cap	13.60	12.50	16.90	15.50	19.30	17.60	20.50	18.50	24.60	21.50	29.50	29.50	33.40	33.40	38.60	38.60
		kW	2.07		2.16		2.23		2.26		2.37		2.51		2.60		2.68	
	870	Cap	13.80	12.70	17.10	15.60	19.40	17.70	20.60	18.60	24.80	21.70	29.60	29.60	33.20	33.20	39.60	39.60
		kW	2.05		2.13		2.19		2.22		2.32		2.42		2.49		2.62	
60	630	Cap	13.20	12.10	16.60	15.20	18.90	17.30	20.10	18.20	24.10	21.10	28.90	28.90	33.00	33.00	39.20	39.20
		kW	2.19		2.32		2.41		2.45		2.59		2.76		2.91		3.09	
	750	Cap	13.40	12.30	16.80	15.30	19.10	17.40	20.30	18.30	24.40	21.40	29.20	29.20	33.20	33.20	38.70	38.70
		kW	2.16		2.27		2.34		2.38		2.50		2.64		2.75		2.86	
	870	Cap	13.50	12.50	16.90	15.50	19.30	17.60	20.50	18.50	24.60	21.50	29.40	29.40	33.10	33.10	39.50	39.50
		kW	2.15		2.24		2.31		2.34		2.44		2.55		2.64		2.78	
65	630	Cap	12.90	11.90	16.40	15.00	18.80	17.10	20.00	18.00	23.90	21.00	28.60	28.60	32.70	32.70	38.90	38.90
		kW	2.28		2.42		2.52		2.57		2.72		2.89		3.05		3.27	
	750	Cap	13.20	12.10	16.60	15.20	19.00	17.30	20.20	18.20	24.20	21.20	29.00	29.00	33.00	33.00	38.90	38.90
		kW	2.25		2.37		2.46		2.50		2.62		2.77		2.90		3.04	
	870	Cap	13.30	12.30	16.70	15.30	19.10	17.40	20.30	18.40	24.40	21.40	29.20	29.20	33.10	33.10	39.40	39.40
		kW	2.24		2.34		2.42		2.45		2.56		2.69		2.78		2.93	
70	630	Cap	12.70	11.70	16.20	14.80	18.60	17.00	19.80	17.90	23.70	20.80	28.40	28.40	32.40	32.40	38.70	38.70
		kW	2.37		2.53		2.63		2.68		2.84		3.03		3.20		3.44	
	750	Cap	12.90	11.90	16.40	15.00	18.80	17.20	20.00	18.10	24.00	21.00	28.70	28.70	32.80	32.80	39.10	39.10
		kW	2.35		2.48		2.57		2.61		2.75		2.91		3.05		3.22	
	870	Cap	13.10	12.10	16.60	15.20	19.00	17.30†	20.20	18.20	24.20	21.20	29.00	29.00	33.00	33.00†	39.30	39.30
		kW	2.33		2.45		2.53		2.57		2.69		2.82		2.93		3.09	
75	630	Cap	12.40	11.40	15.90	14.50	18.40	16.80	19.60	17.70	23.60	20.60	28.20	28.20	32.10	32.10	38.40	38.40
		kW	2.46		2.63		2.74		2.80		2.98		3.18		3.35		3.60	
	750	Cap	12.60	11.60	16.20	14.80	18.60	17.00	19.80	17.90	23.80	20.90	28.50	28.50	32.50	32.50	38.90	38.90
		kW	2.44		2.58		2.69		2.73		2.88		3.05		3.19		3.41	
	870	Cap	12.80	11.80	16.40	15.00	18.80	17.20	20.00	18.10	24.00	21.10	28.80	28.80	32.80	32.80	39.00	39.00
		kW	2.43		2.56		2.65		2.69		2.81		2.96		3.08		3.25	
80	630	Cap	12.10	11.10	15.60	14.30	18.10	16.50	19.30	17.40	23.40	20.50	27.90	27.90	31.80	31.80	38.10	38.10
		kW	2.55		2.73		2.85		2.91		3.11		3.32		3.50		3.77	
	750	Cap	12.30	11.40	15.90	14.60	18.50	16.80	19.70	17.70	23.60	20.70	28.20	28.20	32.20	32.20	38.70	38.70
		kW	2.53		2.69		2.80		2.85		3.01		3.18		3.34		3.59	
	870	Cap	12.50	11.50	16.20	14.80	18.70	17.00	19.90	17.90	23.90	20.90	28.50	28.50	32.70	32.70	38.80	38.80
		kW	2.52		2.66		2.76		2.80		2.94		3.10		3.24		3.41	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 9* — 53QAE036 CEILING-SUSPENDED SYSTEM (38QR-C036 3-PHASE UNIT WITH 40QAE036)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	630	Cap	14.40	13.20	18.00	16.50	20.60	18.80	21.90	19.70	26.20	23.00	31.00	31.00	34.70	34.70	41.80	41.80
		kW	2.51		2.67		2.79		2.84		3.00		3.17		3.29		3.52	
	750	Cap	14.90	13.70	18.60	17.00	21.30	19.40	22.60	20.40	27.10	23.80	32.30	32.30	36.00	36.00	42.10	42.10
		kW	2.52		2.67		2.77		2.82		2.96		3.11		3.21		3.28	
	870	Cap	15.20	14.00	19.10	17.50	21.80	19.90	23.20	20.90	27.90	24.40	33.10	33.10	36.40	36.40	42.50	42.50
		kW	2.54		2.67		2.77		2.81		2.94		3.07		3.11		3.18	
60	630	Cap	13.70	12.60	17.40	15.90	20.00	18.20	21.20	19.20	25.50	22.30	30.20	30.20	33.80	33.80	40.80	40.80
		kW	2.53		2.70		2.82		2.88		3.05		3.22		3.35		3.58	
	750	Cap	14.20	13.00	18.00	16.40	20.60	18.80	21.90	19.80	26.40	23.10	31.40	31.40	35.20	35.20	41.60	41.60
		kW	2.54		2.70		2.81		2.86		3.02		3.17		3.27		3.39	
	870	Cap	14.50	13.40	18.40	16.80	21.10	19.30	22.50	20.30	27.10	23.80	32.30	32.30	35.80	35.80	42.20	42.20
		kW	2.56		2.71		2.81		2.86		2.99		3.13		3.19		3.30	
65	630	Cap	13.00	11.90	16.70	15.30	19.30	17.60	20.60	18.60	24.80	21.70	29.40	29.40	33.00	33.00	39.80	39.80
		kW	2.54		2.73		2.86		2.91		3.09		3.28		3.40		3.64	
	750	Cap	13.50	12.40	17.30	15.80	20.00	18.20	21.30	19.20	25.60	22.50	30.60	30.60	34.30	34.30	41.10	41.10
		kW	2.56		2.73		2.85		2.90		3.07		3.23		3.34		3.51	
	870	Cap	13.80	12.70	17.70	16.20	20.50	18.70	21.80	19.70	26.30	23.10	31.40	31.40	35.10	35.10	42.00	42.00
		kW	2.58		2.74		2.86		2.90		3.05		3.20		3.28		3.43	
70	630	Cap	12.30	11.30	16.10	14.70	18.70	17.00	19.90	18.00	24.00	21.10	28.60	28.60	32.10	32.10	38.80	38.80
		kW	2.56		2.76		2.89		2.95		3.14		3.33		3.46		3.70	
	750	Cap	12.80	11.70	16.60	15.20	19.30	17.60	20.60	18.60	24.90	21.80	29.70	29.70	33.40	33.40	40.50	40.50
		kW	2.59		2.77		2.89		2.95		3.12		3.29		3.41		3.63	
	870	Cap	13.10	12.10	17.10	15.60	19.80	18.10†	21.10	19.10	25.60	22.40	30.60	30.60	34.40	34.40†	41.70	41.70
		kw	2.61		2.78		2.90		2.95		3.10		3.26		3.36		3.55	
75	630	Cap	11.50	10.60	15.40	14.00	18.00	16.40	19.20	17.40	23.30	20.40	27.80	27.80	31.20	31.20	37.80	37.80
		kW	2.58		2.78		2.92		2.98		3.18		3.38		3.51		3.76	
	750	Cap	12.00	11.10	15.90	14.60	18.70	17.00	19.90	18.00	24.20	21.20	28.90	28.90	32.50	32.50	39.50	39.50
		kW	2.60		2.79		2.93		2.98		3.17		3.34		3.46		3.69	
	870	Cap	12.40	11.40	16.40	15.00	19.10	17.50	20.40	18.40	24.80	21.70	29.80	29.80	33.50	33.50	40.80	40.80
		kW	2.63		2.81		2.94		2.99		3.16		3.32		3.43		3.62	
80	630	Cap	10.80	9.94	14.70	13.40	17.40	15.80	18.60	16.70	22.60	19.80	27.00	27.00	30.40	30.40	36.90	36.90
		kW	2.59		2.80		2.95		3.01		3.22		3.43		3.57		3.82	
	750	Cap	11.30	10.40	15.20	13.90	18.00	16.40	19.20	17.40	23.40	20.50	28.10	28.10	31.60	31.60	38.40	38.40
		kW	2.62		2.82		2.96		3.02		3.21		3.40		3.52		3.75	
	870	Cap	11.60	10.70	15.70	14.30	18.50	16.80	19.80	17.80	24.10	21.10	28.90	28.90	32.60	32.60	39.80	39.80
		kW	2.64		2.84		2.97		3.03		3.21		3.37		3.50		3.69	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 10* — 53QAE048 CEILING-SUSPENDED SYSTEM (38QR-C048 WITH 40QAE048)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	820	Cap	20.60	19.00	25.70	23.50	29.30	26.70	30.80	27.80	35.80	31.40	41.70	41.70	46.40	46.40	53.50	53.50
		kW	3.26		3.44		3.56		3.60		3.75		3.92		4.05		4.14	
	975	Cap	21.30	19.60	26.40	24.20	30.00	27.40	31.60	28.50	36.70	32.20	42.90	42.90	47.30	47.30	54.30	53.40
		kW	3.29		3.45		3.56		3.60		3.72		3.86		3.93		3.93	
	1130	Cap	21.90	20.10	27.00	24.70	30.60	27.90	32.20	29.00	37.50	32.80	43.40	43.40	46.80	46.80	53.50	53.50
		kW	3.33		3.48		3.58		3.61		3.71		3.80		3.80		3.82	
60	820	Cap	19.70	18.10	24.80	22.70	28.40	25.90	29.90	27.00	35.00	30.70	40.90	40.90	45.40	45.40	53.00	53.00
		kW	3.29		3.48		3.61		3.66		3.82		4.00		4.13		4.27	
	975	Cap	20.40	18.70	25.50	23.40	29.20	26.60	30.70	27.70	36.00	31.50	42.10	42.10	46.50	46.50	53.30	53.30
		kW	3.33		3.50		3.62		3.66		3.80		3.95		4.03		4.08	
	1130	Cap	20.90	19.20	26.10	23.90	29.80	27.20	31.40	28.30	36.70	32.10	42.60	42.60	46.40	46.40	53.60	53.60
		kW	3.37		3.53		3.64		3.67		3.79		3.90		3.92		3.99	
65	820	Cap	18.70	17.20	23.90	21.80	27.50	25.10	29.00	26.20	34.20	30.00	40.00	40.00	44.50	44.50	52.40	52.40
		kW	3.33		3.53		3.66		3.72		3.89		4.07		4.21		4.41	
	975	Cap	19.40	17.90	24.70	22.60	28.30	25.80	29.90	27.00	35.20	30.80	41.20	41.20	45.70	45.70	53.10	53.10
		kW	3.37		3.55		3.68		3.72		3.87		4.03		4.13		4.24	
	1130	Cap	20.00	18.40	25.30	23.10	29.00	26.40	30.60	27.60	35.90	31.50	41.90	41.90	45.90	45.90	53.60	53.60
		kW	3.41		3.58		3.70		3.74		3.87		4.00		4.04		4.15	
70	820	Cap	17.80	16.40	23.00	21.00	26.60	24.30	28.20	25.40	33.50	29.30	39.20	39.20	43.50	43.50	51.80	51.80
		kW	3.36		3.57		3.72		3.77		3.96		4.15		4.29		4.54	
	975	Cap	18.50	17.00	23.80	21.80	27.50	25.10	29.10	26.30	34.40	30.20	40.30	40.30	44.80	44.80	53.00	53.00
		kW	3.41		3.60		3.73		3.78		3.95		4.12		4.24		4.40	
	1130	Cap	19.00	17.50	24.40	22.30	28.20	25.70†	29.80	26.90	35.10	30.80	41.20	41.20	45.50	45.50†	53.70	53.70
		kW	3.45		3.63		3.76		3.80		3.95		4.10		4.17		4.31	
75	820	Cap	16.80	15.40	22.00	20.10	25.60	23.30	27.20	24.50	32.60	28.50	38.30	38.30	42.60	42.60	50.80	50.80
		kW	3.39		3.61		3.76		3.82		4.02		4.23		4.37		4.62	
	975	Cap	17.40	16.00	22.80	20.80	26.50	24.20	28.20	25.40	33.60	29.40	39.50	39.50	43.90	43.90	52.20	52.20
		kW	3.44		3.64		3.78		3.84		4.01		4.19		4.32		4.53	
	1130	Cap	18.00	16.50	23.50	21.50	27.30	24.90	28.90	26.10	34.40	30.10	40.30	40.30	44.80	44.80	52.40	52.40
		kW	3.49		3.68		3.81		3.86		4.02		4.18		4.28		4.38	
80	820	Cap	15.70	14.50	20.90	19.20	24.60	22.40	26.20	23.70	31.70	27.80	37.50	37.50	41.70	41.70	49.70	49.70
		kW	3.42		3.65		3.81		3.97		4.08		4.30		4.45		4.71	
	975	Cap	16.40	15.10	21.80	19.90	25.50	23.30	27.20	24.50	32.80	28.70	38.60	38.60	43.00	43.00	51.50	51.50
		kW	3.47		3.69		3.84		3.89		4.08		4.27		4.41		4.66	
	1130	Cap	16.40	15.10	21.80	19.90	25.50	23.30	27.20	24.50	32.80	28.70	38.60	38.60	43.00	43.00	51.50	51.50
		kW	3.47		3.69		3.84		3.89		4.08		4.27		4.41		4.66	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 11* — 53QAE060 CEILING-SUSPENDED SYSTEM (38QR-C060 WITH 40QAE060)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	1040	Cap	21.70	19.90	28.00	25.60	32.50	29.60	34.70	31.30	42.00	36.80	50.70	50.70	57.70	57.70	69.80	69.80
		kW	3.34		3.70		3.96		4.07		4.45		4.88		5.20		5.72	
	1220	Cap	22.30	20.50	28.70	26.30	33.20	30.30	35.50	32.00	43.00	37.70	51.90	51.90	58.80	58.80	70.30	70.30
		kW	3.38		3.72		3.96		4.07		4.41		4.80		5.08		5.51	
	1600	Cap	23.20	21.30	29.70	27.20	34.30	31.30	36.70	33.10	44.50	39.00	53.00	53.00	58.40	58.40	69.90	69.90
		kW	3.46		3.77		3.99		4.08		4.40		4.68		4.85		5.20	
60	1040	Cap	20.80	19.10	27.20	24.90	31.70	28.90	33.90	30.60	41.10	36.10	49.70	49.70	56.80	56.80	69.80	69.80
		kW	3.36		3.75		4.02		4.13		4.53		4.98		5.34		5.95	
	1220	Cap	21.40	19.70	27.90	25.50	32.50	29.60	34.70	31.30	42.10	36.90	51.00	51.00	57.90	57.90	69.70	69.70
		kW	3.41		3.77		4.02		4.14		4.50		4.92		5.22		5.69	
	1600	Cap	22.40	20.60	29.00	26.50	33.60	30.60	35.90	32.40	43.60	38.20	52.10	52.10	58.50	58.50	69.30	69.30
		kW	3.50		3.83		4.07		4.16		4.50		4.81		5.04		5.38	
65	1040	Cap	19.80	18.20	26.30	24.00	30.80	28.10	33.00	29.80	40.20	35.30	48.70	48.70	55.70	55.70	68.60	68.60
		kW	3.38		3.78		4.06		4.18		4.60		5.07		5.45		6.08	
	1220	Cap	20.40	18.80	27.00	24.70	31.60	28.80	33.80	30.50	41.20	36.10	50.00	50.00	56.90	56.90	69.00	69.00
		kW	3.42		3.81		4.08		4.19		4.59		5.02		5.35		5.85	
	1600	Cap	21.40	19.70	28.10	25.70	32.80	29.90	35.10	31.60	42.70	37.40	51.40	51.40	58.00	58.00	68.80	68.80
		kW	3.52		3.88		4.13		4.23		4.59		4.94		5.19		5.55	
70	1040	Cap	18.80	17.30	25.40	23.20	30.00	27.30	32.10	29.00	39.40	34.50	47.80	47.80	54.50	54.50	67.50	67.50
		kW	3.39		3.91		4.10		4.23		4.68		5.17		5.55		6.22	
	1220	Cap	19.40	17.90	26.10	23.90	30.80	28.10	33.00	29.80	40.30	35.40	49.00	49.00	56.00	56.00	68.20	68.20
		kW	3.44		3.85		4.13		4.25		4.67		5.12		5.48		6.02	
	1600	Cap	20.50	18.80	27.20	24.90	32.00	29.20†	34.30	30.90	41.80	36.60	50.80	50.80	57.50	57.50†	68.30	68.30
		kW	3.54		3.92		4.19		4.30		4.68		5.08		5.35		5.73	
75	1040	Cap	17.70	16.30	24.30	22.20	28.90	26.40	31.10	28.10	38.40	33.70	46.70	46.70	53.30	53.30	66.20	66.20
		kW	3.40		3.83		4.13		4.27		4.73		5.24		5.64		6.35	
	1220	Cap	18.40	16.90	25.10	23.00	29.80	27.20	32.00	28.90	39.40	34.50	48.00	48.00	54.90	54.90	67.40	67.40
		kW	3.45		3.87		4.16		4.29		4.73		5.21		5.59		6.18	
	1600	Cap	19.40	17.80	26.30	24.10	31.20	28.40	33.40	30.10	40.90	35.80	49.80	49.80	56.70	56.70	68.60	68.60
		kW	3.56		3.96		4.24		4.36		4.76		5.19		5.49		5.96	
80	1040	Cap	16.60	15.30	23.20	21.20	27.80	25.30	30.00	27.10	37.40	32.80	45.70	45.70	52.10	52.10	65.10	65.10
		kW	3.41		3.85		4.16		4.30		4.78		5.31		5.72		6.49	
	1220	Cap	17.20	15.80	24.00	21.90	28.70	26.20	31.00	27.90	38.50	33.70	46.90	46.90	53.60	53.60	66.60	66.60
		kW	3.46		3.89		4.19		4.33		4.79		5.30		5.68		6.34	
	1600	Cap	18.20	16.80	25.20	23.10	30.20	27.50	32.40	29.20	40.00	35.00	48.80	48.80	55.60	55.60	66.90	66.90
		kW	3.57		3.98		4.27		4.40		4.83		5.28		5.60		6.06	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 12* — 53QKE018 IN-CEILING CASSETTE SYSTEM (38QR-C018 WITH 40QKE024)

TEMP (F) AIR ENTERING INDOOR AIR	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	400	Cap	8.28	7.62	10.30	9.43	11.70	10.70	12.30	11.10	14.30	12.50	16.50	16.50	18.10	18.10	21.10	21.10
		kW	1.46		1.50		1.53		1.54		1.58		1.61		1.63		1.65	
	430	Cap	8.39	7.72	10.40	9.54	11.90	10.80	12.40	11.20	14.40	12.60	16.60	16.60	18.30	18.30	21.70	21.70
		kW	1.46		1.51		1.54		1.54		1.57		1.60		1.61		1.63	
	525	Cap	8.70	8.00	10.70	9.83	12.20	11.10	12.80	11.60	14.90	13.00	17.10	17.10	19.00	19.00	21.70	21.70
		kW	1.48		1.52		1.54		1.55		1.57		1.58		1.59		1.58	
60	400	Cap	7.82	7.20	9.87	9.03	11.30	10.30	11.90	10.70	13.90	12.20	16.10	16.10	17.60	17.60	20.60	20.60
		kW	1.47		1.52		1.55		1.57		1.60		1.64		1.66		1.69	
	430	Cap	7.94	7.30	10.00	9.14	11.40	10.40	12.00	10.90	14.00	12.30	16.20	16.20	17.90	17.90	21.20	21.20
		kW	1.48		1.52		1.56		1.57		1.60		1.63		1.65		1.67	
	525	Cap	8.24	7.58	10.30	9.44	11.80	10.80	12.40	11.20	14.50	12.70	16.70	16.70	18.50	18.50	21.40	21.40
		kW	1.50		1.54		1.57		1.57		1.60		1.62		1.63		1.63	
65	400	Cap	7.37	6.78	9.43	8.62	10.90	9.92	11.50	10.40	13.50	11.80	15.70	15.70	17.20	17.20	20.20	20.20
		kW	1.48		1.54		1.57		1.59		1.63		1.67		1.69		1.73	
	430	Cap	7.48	6.88	9.56	8.75	11.00	10.10	11.60	10.50	13.70	12.00	15.80	15.80	17.40	17.40	20.70	20.70
		kW	1.49		1.54		1.58		1.59		1.63		1.66		1.68		1.71	
	525	Cap	7.78	7.15	9.91	9.06	11.40	10.40	12.00	10.80	14.10	12.30	16.30	16.30	18.10	18.10	21.10	21.10
		kW	1.51		1.56		1.59		1.60		1.63		1.65		1.66		1.68	
70	400	Cap	6.91	6.35	8.99	8.22	10.50	9.53	11.10	9.98	13.10	11.50	15.20	15.20	16.80	16.80	19.80	19.80
		kW	1.50		1.55		1.59		1.61		1.66		1.70		1.72		1.76	
	430	Cap	7.02	6.46	9.13	8.35	10.60	9.67	11.20	10.10	13.30	11.60	15.40	15.40	17.00	17.00	20.20	20.20
		kW	1.50		1.56		1.60		1.61		1.65		1.69		1.71		1.75	
	525	Cap	7.32	6.73	9.48	8.67	11.00	10.00†	11.60	10.50	13.70	12.00	15.90	15.90	17.60	17.60†	20.80	20.80
		kW	1.53		1.58		1.61		1.62		1.66		1.69		1.70		1.72	
75	400	Cap	6.43	5.91	8.51	7.78	9.97	9.09	10.60	9.57	12.70	11.20	14.80	14.80	16.40	16.40	19.20	19.20
		kW	1.51		1.57		1.61		1.63		1.68		1.72		1.75		1.80	
	430	Cap	6.53	6.01	8.65	7.91	10.10	9.24	10.80	9.71	12.90	11.30	15.00	15.00	16.60	16.60	19.50	19.50
		kW	1.52		1.58		1.62		1.63		1.68		1.72		1.74		1.79	
	525	Cap	6.82	6.28	9.01	8.24	10.50	9.61	11.20	10.10	13.30	11.70	15.50	15.50	17.10	17.10	20.30	20.30
		kW	1.54		1.60		1.63		1.64		1.68		1.72		1.73		1.76	
80	400	Cap	5.95	5.47	8.04	7.35	9.50	8.66	10.20	9.16	12.30	10.80	14.40	14.40	15.90	15.90	18.60	18.60
		kW	1.52		1.58		1.63		1.64		1.70		1.75		1.78		1.83	
	430	Cap	6.04	5.56	8.16	7.47	9.65	8.80	10.30	9.30	12.50	10.90	14.60	14.60	16.10	16.10	18.90	18.90
		kW	1.53		1.59		1.63		1.65		1.70		1.75		1.78		1.82	
	525	Cap	6.33	5.83	8.54	7.81	10.10	9.20	10.70	9.69	12.90	11.30	15.10	15.10	16.70	16.70	19.80	19.80
		kW	1.56		1.61		1.65		1.66		1.71		1.75		1.77		1.79	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Carrier®

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 13* — 53QKE024 IN-CEILING CASSETTE SYSTEM (38QR-C024 WITH 40QKE036)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)															
			0		10		17		20		30		40		47		60	
55	635	Cap	9.48	8.72	12.50	11.40	14.60	13.30	15.50	14.00	18.50	16.20	21.70	21.70	24.30	24.30	28.30	28.30
		kW	1.45		1.56		1.63		1.67		1.77		1.89		1.99		2.13	
	745	Cap	9.75	8.97	12.80	11.70	14.90	13.60	15.80	14.30	18.90	16.50	22.10	22.10	24.80	24.80	29.60	29.60
		kW	1.46		1.56		1.64		1.67		1.76		1.87		1.96		2.05	
	915	Cap	10.10	9.27	13.20	12.00	15.30	14.00	16.20	14.70	19.20	16.90	22.60	22.60	25.60	25.60	29.70	29.70
		kW	1.48		1.58		1.64		1.67		1.76		1.86		1.93		2.04	
60	635	Cap	8.78	8.08	11.80	10.80	13.90	12.70	14.80	13.40	17.90	15.70	21.20	21.20	23.80	23.80	27.70	27.70
		kW	1.47		1.58		1.66		1.69		1.81		1.93		2.03		2.18	
	745	Cap	9.04	8.32	12.10	11.10	14.30	13.00	15.20	13.70	18.30	16.00	21.60	21.60	24.30	24.30	28.80	28.80
		kW	1.48		1.59		1.66		1.69		1.80		1.92		2.01		2.12	
	915	Cap	9.36	8.61	12.50	11.40	14.70	13.40	15.60	14.10	18.70	16.40	22.10	22.10	25.00	25.00	29.20	29.20
		kW	1.50		1.60		1.67		1.70		1.80		1.90		1.98		2.10	
65	635	Cap	8.08	7.43	11.10	10.20	13.30	12.10	14.20	12.80	17.20	15.10	20.60	20.60	23.20	23.20	27.20	27.20
		kW	1.48		1.60		1.69		1.72		1.84		1.97		2.08		2.24	
	745	Cap	8.33	7.67	11.40	10.50	13.60	12.40	14.60	13.10	17.70	15.50	21.10	21.10	23.70	23.70	28.00	28.00
		kW	1.50		1.61		1.69		1.72		1.83		1.96		2.06		2.19	
	915	Cap	8.64	7.95	11.80	10.80	14.00	12.80	15.00	13.50	18.10	15.90	21.60	21.60	24.40	24.40	28.70	28.70
		kW	1.52		1.63		1.70		1.73		1.84		1.95		2.04		2.16	
70	635	Cap	7.37	6.78	10.40	9.55	12.60	11.50	13.50	12.20	16.60	14.60	20.10	20.10	22.60	22.60	26.60	26.60
		kW	1.50		1.62		1.71		1.75		1.87		2.01		2.12		2.29	
	745	Cap	7.62	7.01	10.80	9.85	13.00	11.80	13.90	12.60	17.10	15.00	20.60	20.60	23.10	23.10	27.20	27.20
		kW	1.51		1.63		1.72		1.75		1.87		2.00		2.10		2.26	
	915	Cap	7.92	7.29	11.10	10.20	13.40	12.20†	14.40	13.00	17.60	15.40	21.10	21.10	23.80	23.80†	28.10	28.10
		kW	1.53		1.65		1.73		1.76		1.87		1.99		2.09		2.22	
75	635	Cap	6.62	6.09	9.72	8.89	11.90	10.80	12.80	11.60	15.90	14.00	19.40	19.40	22.00	22.00	26.20	26.20
		kW	1.52		1.65		1.74		1.78		1.91		2.05		2.16		2.34	
	745	Cap	6.85	6.30	10.00	9.18	12.30	11.20	13.20	11.90	16.40	14.40	19.90	19.90	22.60	22.60	26.70	26.70
		kW	1.53		1.65		1.74		1.78		1.90		2.04		2.15		2.31	
	915	Cap	7.14	6.57	10.40	9.51	12.70	11.60	13.70	12.30	16.90	14.80	20.50	20.50	23.20	23.20	27.60	27.60
		kW	1.55		1.67		1.76		1.79		1.91		2.04		2.13		2.28	
80	635	Cap	5.87	5.40	9.00	8.22	11.20	10.20	12.10	10.90	15.30	13.40	18.80	18.80	21.40	21.40	25.70	25.70
		kW	1.53		1.67		1.76		1.80		1.94		2.09		2.21		2.40	
	745	Cap	6.08	5.60	9.30	8.50	11.60	10.50	12.50	11.30	15.70	13.80	19.30	19.30	22.00	22.00	26.10	26.10
		kW	1.54		1.68		1.77		1.81		1.94		2.08		2.19		2.36	
	915	Cap	6.36	5.85	9.66	8.83	12.00	10.90	13.00	11.70	16.30	14.30	20.00	20.00	22.50	22.50	27.00	27.00
		kW	1.57		1.70		1.78		1.82		1.94		2.08		2.18		2.34	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 14* — 53QKE030 IN-CEILING CASSETTE SYSTEM (38QR-C030 WITH 40QKE036)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	635	Cap	11.20	10.40	14.20	13.00	16.40	14.90	17.30	15.70	20.60	18.00	24.40	23.30	27.10	27.10	31.60	31.60
		kW	1.64		1.75		1.84		1.87		2.00		2.16		2.26		2.45	
	745	Cap	11.40	10.50	14.40	13.20	15.60	15.10	17.60	15.90	20.80	18.20	24.70	23.60	27.40	27.40	32.80	32.80
		kW	1.63		1.73		1.80		1.83		1.95		2.08		2.18		2.27	
	915	Cap	11.60	10.70	14.60	13.40	16.90	15.40	17.90	16.20	21.00	18.40	25.10	24.00	27.90	27.90	32.40	32.40
		kW	1.62		1.71		1.77		1.80		1.90		2.01		2.09		2.22	
60	635	Cap	10.90	10.00	13.80	12.70	16.00	14.60	17.00	15.40	20.30	17.70	24.10	23.10	26.80	26.80	31.30	31.30
		kW	1.72		1.84		1.92		1.96		2.10		2.27		2.38		2.58	
	745	Cap	11.10	10.20	14.00	12.90	16.30	14.80	17.20	15.60	20.50	18.00	24.40	23.40	27.10	27.10	32.20	32.20
		kW	1.70		1.81		1.89		1.92		2.05		2.19		2.29		2.42	
	915	Cap	11.30	10.40	14.30	13.10	16.50	15.10	17.50	15.90	20.80	18.20	24.80	23.70	27.60	27.60	32.20	32.20
		kW	1.69		1.79		1.86		1.89		1.99		2.11		2.20		2.34	
65	635	Cap	10.50	9.68	13.50	12.40	15.70	14.30	16.60	15.10	20.00	17.50	23.80	22.80	26.60	26.60	31.00	31.00
		kW	1.79		1.92		2.01		2.05		2.20		2.38		2.50		2.71	
	745	Cap	10.70	9.86	13.70	12.60	15.90	14.50	16.90	15.30	20.20	17.70	24.10	23.10	26.90	26.90	31.70	31.70
		kW	1.78		1.89		1.97		2.01		2.14		2.30		2.41		2.57	
	915	Cap	10.90	10.10	14.00	12.80	16.20	14.80	17.20	15.60	20.50	18.00	24.50	23.50	27.30	27.30	32.00	32.00
		kW	1.77		1.87		1.94		1.97		2.09		2.22		2.31		2.46	
70	635	Cap	10.20	9.34	13.10	12.10	15.40	14.00	16.30	14.80	19.70	17.20	23.60	22.60	26.30	26.30	30.80	30.80
		kW	1.87		2.00		2.10		2.14		2.30		2.49		2.62		2.85	
	745	Cap	10.30	9.52	13.40	12.30	15.60	14.20	16.60	15.00	19.90	17.50	23.80	22.80	26.60	26.60	31.10	31.10
		kW	1.85		1.97		2.06		2.10		2.24		2.40		2.52		2.71	
	915	Cap	10.60	9.73	13.60	12.50	15.90	14.50†	16.90	15.30	20.20	17.70	24.20	23.20	27.00	27.00†	31.80	31.80
		kW	1.84		1.95		2.03		2.06		2.18		2.32		2.42		2.58	
75	635	Cap	9.75	8.98	12.80	11.70	15.00	13.70	16.00	14.50	19.40	17.00	23.30	22.30	26.10	26.10	30.60	30.60
		kW	1.95		2.09		2.20		2.24		2.40		2.61		2.75		2.99	
	745	Cap	9.95	9.16	13.00	11.90	15.30	13.90	16.20	14.70	19.60	17.20	23.60	22.60	26.30	26.30	30.80	30.80
		kW	1.93		2.06		2.16		2.20		2.34		2.52		2.64		2.85	
	915	Cap	10.20	9.37	13.30	12.20	15.60	14.20	16.50	15.00	19.90	17.50	23.90	22.90	26.70	26.70	31.30	31.30
		kW	1.92		2.04		2.12		2.15		2.25		2.43		2.54		2.71	
80	635	Cap	9.35	8.61	12.40	11.40	14.70	13.40	15.60	14.20	19.00	16.70	23.00	22.10	25.80	25.80	30.30	30.30
		kW	2.03		2.18		2.29		2.34		2.51		2.73		2.88		3.13	
	745	Cap	9.55	8.79	12.60	11.60	14.90	13.60	15.90	14.40	19.30	16.90	23.30	22.30	26.10	26.10	30.50	30.50
		kW	2.01		2.15		2.25		2.29		2.45		2.63		2.77		2.99	
	915	Cap	9.79	9.01	12.90	11.80	15.20	13.90	16.20	14.70	19.60	17.20	23.60	22.60	26.40	26.40	30.80	30.80
		kW	2.00		2.12		2.21		2.25		2.38		2.54		2.66		2.84	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Carrier®

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 15* — 53QKE036 IN-CEILING CASSETTE SYSTEM (38QR-C036 SINGLE-PHASE UNIT WITH 40QKE048)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING CONDENSER INDOOR UNIT		AIR TEMPERATURE ENTERING OUTDOOR COIL (F)													
			0		10		17		20		30		40		47		60	
55	680	Cap	14.60	13.50	17.80	16.20	19.90	18.20	21.10	19.00	24.80	21.70	29.20	29.20	33.00	33.00	38.80	38.80
		kW	2.28		2.37		2.43		2.47		2.57		2.70		2.83		2.99	
	880	Cap	14.90	13.70	18.00	16.40	20.20	18.40	21.30	19.20	25.10	22.00	29.70	29.70	33.50	33.50	37.70	37.70
		kW	2.23		2.30		2.35		2.37		2.45		2.55		2.63		2.62	
	1100	Cap	15.00	13.80	18.20	16.60	20.40	18.60	21.50	19.40	25.40	22.30	30.00	30.00	33.20	33.20	36.50	36.50
		kW	2.22		2.27		2.30		2.32		2.38		2.45		2.49		2.47	
60	680	Cap	14.40	13.20	17.60	16.10	19.80	18.10	20.90	18.90	24.60	21.60	29.00	29.00	32.70	32.70	38.50	38.50
		kW	2.38		2.49		2.56		2.59		2.71		2.84		2.97		3.15	
	880	Cap	14.60	13.50	17.80	16.30	20.00	18.30	21.20	19.10	25.00	21.90	29.40	29.40	33.20	33.20	38.00	38.00
		kW	2.34		2.42		2.47		2.49		2.58		2.68		2.78		2.82	
	1100	Cap	14.80	13.60	18.00	16.50	20.20	18.50	21.40	19.30	25.20	22.10	29.80	29.80	33.20	33.20	37.10	37.10
		kW	2.32		2.38		2.42		2.44		2.51		2.59		2.64		2.65	
65	680	Cap	14.10	13.00	17.40	15.90	19.70	17.90	20.80	18.70	24.50	21.40	28.80	28.80	32.50	32.50	38.20	38.20
		kW	2.48		2.60		2.68		2.72		2.84		2.99		3.12		3.31	
	880	Cap	14.40	13.30	17.70	16.10	19.90	18.20	21.00	19.00	24.80	21.70	29.20	29.20	33.00	33.00	38.30	38.30
		kW	2.44		2.53		2.59		2.62		2.71		2.82		2.92		3.02	
	1100	Cap	14.60	13.50	17.90	16.30	20.10	18.30	21.30	19.20	25.10	22.00	29.60	29.60	33.10	33.10	37.80	37.80
		kW	2.43		2.50		2.54		2.56		2.63		2.72		2.78		2.83	
70	680	Cap	13.90	12.80	17.20	15.70	19.50	17.80	20.60	18.60	24.30	21.30	28.60	28.60	32.20	32.20	37.90	37.90
		kW	2.59		2.72		2.81		2.85		2.98		3.13		3.27		3.47	
	880	Cap	14.20	13.10	17.50	16.00	19.80	18.10	20.90	18.90	24.60	21.60	29.00	29.00	32.80	32.80	38.50	38.50
		kW	2.55		2.65		2.72		2.74		2.84		2.96		3.07		3.21	
	1100	Cap	14.40	13.30	17.70	16.20	20.00	18.20†	21.10	19.10	24.90	21.80	29.30	29.30	33.00	33.00†	38.40	38.40
		kW	2.53		2.61		2.66		2.69		2.76		2.86		2.93		3.01	
75	680	Cap	13.60	12.50	17.00	15.50	19.40	17.70	20.50	18.50	24.10	21.10	28.40	28.40	31.90	31.90	37.50	37.50
		kW	2.69		2.83		2.93		2.98		3.12		3.28		3.43		3.63	
	880	Cap	13.90	12.80	17.30	15.80	19.70	17.90	20.80	18.70	24.40	21.40	28.80	28.80	32.50	32.50	38.20	38.20
		kW	2.65		2.76		2.84		2.87		2.98		3.10		3.22		3.37	
	1100	Cap	14.20	13.00	17.50	16.00	19.80	18.10	21.00	18.90	24.70	21.70	29.10	29.10	32.80	32.80	38.20	38.20
		kW	2.64		2.73		2.79		2.82		2.90		3.00		3.08		3.16	
80	680	Cap	13.30	12.20	16.70	15.30	19.20	17.50	20.30	18.30	24.00	21.00	28.10	28.10	31.70	31.70	37.10	37.10
		kW	2.79		2.95		3.06		3.10		3.26		3.43		3.59		3.79	
	880	Cap	13.60	12.50	17.10	15.60	19.50	17.80	20.60	18.60	24.30	21.30	28.50	28.50	32.20	32.20	37.90	37.90
		kW	2.75		2.88		2.97		3.00		3.12		3.25		3.37		3.52	
	1100	Cap	13.90	12.80	17.30	15.90	19.70	18.70	20.80	18.80	24.50	21.50	28.90	28.90	32.60	32.60	38.00	38.00
		kW	2.74		2.84		2.92		2.94		3.03		3.14		3.24		3.32	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

INSTANTANEOUS AND INTEGRATED HEATING RATINGS (cont)

SYSTEM 16* — 53QKE036 IN-CEILING CASSETTE SYSTEM (38QR-C036 3-PHASE UNIT WITH 40QKE048)

TEMP (F) AIR ENTERING INDOOR UNIT	AIR ENTERING INDOOR UNIT (CFM)		AIR TEMPERATURE ENTERING COIL (F)															
			0		10		17		20		30		40		47		60	
55	660	Cap	15.30	14.10	19.20	17.60	21.90	20.00	23.10	20.80	26.90	23.60	31.00	29.70	33.90	33.90	39.50	39.50
		kW	2.71		2.84		2.93		2.96		3.08		3.18		3.25		3.38	
	880	Cap	16.00	14.70	20.00	18.30	22.90	20.80	24.00	21.70	27.90	24.40	32.20	30.80	35.30	35.30	39.10	39.10
		kW	2.73		2.83		2.91		2.94		3.02		3.08		3.13		3.05	
	1100	Cap	16.60	15.20	20.60	18.90	23.50	21.40	24.70	22.30	28.60	25.10	32.70	31.30	35.60	35.60	40.70	40.70
		kW	2.76		2.85		2.91		2.93		2.99		3.01		3.02		3.01	
60	660	Cap	14.40	13.20	18.30	16.70	21.10	19.20	22.20	20.10	26.20	22.90	30.30	28.90	33.20	33.20	38.70	38.70
		kW	2.74		2.88		2.97		3.01		3.14		3.25		3.33		3.46	
	880	Cap	15.10	13.90	19.10	17.50	22.00	20.00	23.20	20.90	27.20	23.80	31.50	30.10	34.50	34.50	39.10	39.10
		kW	2.76		2.88		2.96		2.99		3.09		3.16		3.21		3.20	
	1100	Cap	15.60	14.40	19.80	18.10	22.70	20.70	23.90	21.50	27.90	24.50	32.10	30.70	35.10	35.10	40.50	40.50
		kW	2.79		2.89		2.97		2.99		3.06		3.10		3.12		3.14	
65	660	Cap	13.40	12.40	17.40	15.90	20.20	18.40	21.40	19.30	25.40	22.30	29.50	28.20	32.40	32.40	37.90	37.90
		kW	2.77		2.92		3.02		3.06		3.20		3.32		3.40		3.54	
	880	Cap	14.10	13.00	18.20	16.70	21.10	19.30	22.40	20.20	26.50	23.20	30.80	29.40	33.80	33.80	39.00	39.00
		kW	2.80		2.92		3.01		3.05		3.16		3.24		3.30		3.35	
	1100	Cap	14.70	13.50	18.90	17.30	21.80	19.90	23.10	20.80	27.20	23.90	31.50	30.10	34.50	34.50	40.30	40.30
		kW	2.83		2.94		3.02		3.05		3.13		3.19		3.22		3.26	
70	660	Cap	12.50	11.50	16.50	15.10	19.30	17.60	20.50	18.50	24.70	21.60	28.80	27.50	31.60	31.60	37.10	37.10
		kW	2.80		2.96		3.07		3.11		3.26		3.38		3.47		3.62	
	880	Cap	13.20	12.10	17.30	15.90	20.30	18.50	21.50	19.40	25.80	22.60	30.00	28.70	33.00	33.00	38.90	38.90
		kW	2.83		2.97		3.07		3.10		3.22		3.32		3.39		3.49	
	1100	Cap	13.70	12.60	18.00	16.50	21.00	19.10†	22.30	20.10	26.50	23.20	30.90	29.60	34.00	34.00†	40.10	40.10
		kW	2.87		2.99		3.08		3.11		3.21		3.27		3.32		3.39	
75	660	Cap	11.50	10.60	15.50	14.20	18.40	16.70	19.60	17.70	23.80	20.90	28.00	26.70	30.90	30.90	36.20	36.20
		kW	2.82		2.99		3.11		3.16		3.31		3.45		3.54		3.69	
	880	Cap	12.10	11.20	16.40	15.00	19.30	17.60	20.60	18.60	25.00	21.90	29.20	27.90	32.20	32.20	37.90	37.90
		kW	2.86		3.01		3.11		3.15		3.28		3.39		3.46		3.57	
	1100	Cap	12.60	11.60	17.00	15.60	20.10	18.30	21.40	19.30	25.80	22.60	30.20	28.90	33.20	33.20	39.30	39.30
		kW	2.90		3.03		3.13		3.16		3.27		3.35		3.41		3.49	
80	660	Cap	10.50	9.66	14.60	13.30	17.40	15.90	18.70	16.90	23.00	20.10	27.20	26.00	30.10	30.10	35.40	35.40
		kW	2.85		3.03		3.15		3.20		3.36		3.51		3.61		3.77	
	880	Cap	11.10	10.20	15.40	14.10	18.40	16.70	19.70	17.80	24.10	21.10	28.40	27.20	31.40	31.40	36.90	36.90
		kW	2.88		3.05		3.16		3.20		3.34		3.46		3.54		3.65	
	1100	Cap	11.60	10.70	16.00	14.70	19.10	17.40	20.50	18.50	25.10	22.10	29.40	28.10	32.40	32.40	38.60	38.60
		kW	2.93		3.08		3.18		3.22		3.34		3.43		3.50		3.58	

Indicates rating condition.

Indicates integrated rating.

LEGEND

Cap — Heating Capacity (1000 Btuh) (includes indoor-fan motor heat)
kW — Total Power Input (includes compressor motor power input, outdoor-fan motor power input, and indoor-fan motor power input)

*Refer to Systems Index Table on page 26.
†Integrated Rating.

NOTE: Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Electrical data

38BK HEAT PUMPS

UNIT 38BK	V-PH-HZ	OPERATING VOLTAGE — MINIMUM*	OPERATING VOLTAGE — MAXIMUM*	COMP RLA	COMP LRA	FAN FLA	POWER		
							MCA	MOCP	FLA
009	115-1-60	104	127	9.0	45.0	0.76	11.2	15	9.76
012	208/230-1-60	187	253	5.8	30.0	0.35	8.9	15	6.15
018	208/230-1-60	187	253	9.8	49.0	0.70	13.0	20	10.5
024	208/230-1-60	187	253	11.7	61.0	0.70	15.3	25	12.4

38QR-C HEAT PUMPS

UNIT SIZE 38QR-C	V-PH-Hz	OPERATING VOLTAGE — MINIMUM*	OPERATING VOLTAGE — MAXIMUM*	COMP RLA	COMP LRA	FAN FLA	POWER		
							MCA	MOCP	FLA
018	208/230-1-60	187	253	9.8	49.0	0.70	13.0	20	10.5
024				11.7	61.0	0.70	15.3	25	12.4
030				13.5	76.0	0.70	17.6	30	14.2
036	208/230-1-60	187	253	17.9	90.5	0.70	23.1	40	18.6
	208/230-3-60	187	253	11.2	66.0	1.45	15.5	25	12.7
	460-3-60	414	506	5.2	35.0	0.80	7.3	15	6.0
048	208/230-1-60	187	253	23.2	110.0	1.45	30.5	50	24.7
	208/230-3-60	187	253	15.3	92.0	1.45	20.6	35	16.8
	460-3-60	414	506	7.3	46.0	0.80	9.9	15	8.1
060	208/230-1-60	187	253	31.7	135.0	1.45	42.0	60	33.2
	208/230-3-60	187	253	20.4	105.0	1.45	27.0	45	21.9
	460-3-60	414	506	10.8	55.0	0.80	15.0	25	11.6

FAN COIL UNITS

UNIT	V-PH-HZ	OPERATING VOLTAGE —MINIMUM*	OPERATING VOLTAGE —MAXIMUM*	FAN FLA	HEATER		POWER			MINIMUM WIRE SIZE
					kW	FLA	MCA	MOCP	FLA	
40QNE009	115-1-60	104	127	0.41	—	—	†	†	0.41	14
40QNE012	208/230-1-60	187	253	0.23	—	—	†	†	0.23	14
40QNE018	208/230-1-60	187	253	0.53	—	—	0.66	15	0.53	14
40QNE024	208/230-1-60	187	253	0.53	—	—	0.66	15	0.53	14
40QAE018,024	208/230-1-60	187	253	0.50	2.00	8.66	9.29	15	11.29	14
40QAE036	208/230-1-60	187	253	1.30	3.00	13.00	17.70	20	14.30	14
40QAE048	208/230-1-60	187	253	1.60**	4.00	17.40	23.80	25	19.00	12
40QAE060	208/230-1-60	187	253	2.60††	5.00	2.17	28.70	30	24.30	10
40QKE024	208/230-1-60	187	253	0.44	1.80‖	7.50	0.6/ 7.5	15/15	7.94	14/14
40QKE036	208/230-1-60	187	253	0.78	2.70‖	11.25	10.0/15.0	15/15	12.80	14/14
40QKE048	208/230-1-60	187	253	1.04	2.70‖	11.25	10.0/15.0	15/15	12.03	14/14

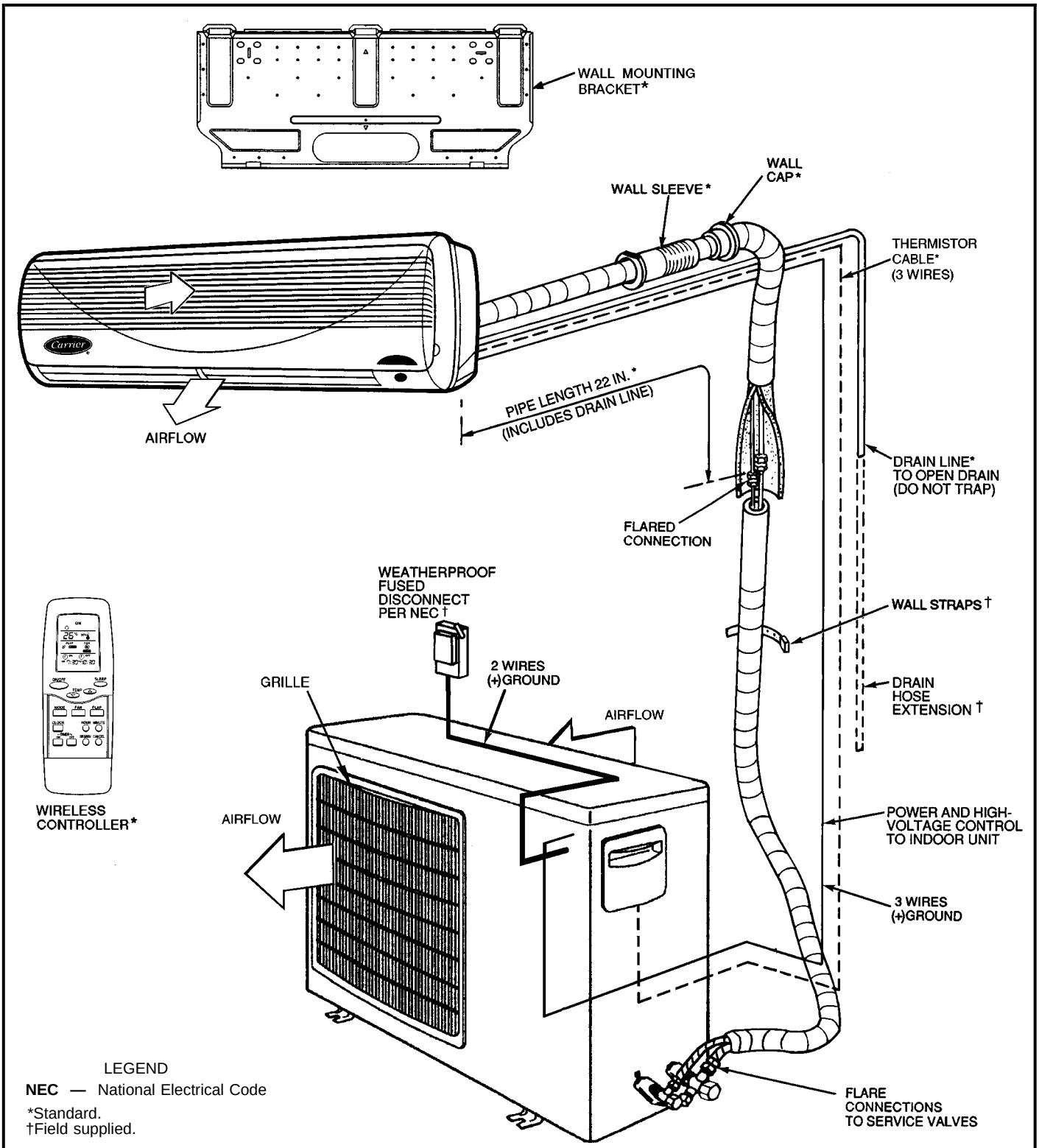
LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection Amps (Fuse or HACR Circuit Breaker)
RLA — Rated Load Amps

*Permissible limits of the voltage range at which units will operate satisfactorily.
†MCA and MOCP are for both indoor and outdoor units (system) and are listed in the outdoor unit tables.
**One fan is 1.1 amps, and the other is 0.5 amp.
††Two fans, each operating at 1.3 amps.
‖Separate heater and unit circuits required.

NOTE: Two MCA, MOCP, and minimum wire size values are shown for units with separate unit and heater circuits. The first value applies to the unit circuit; the second applies to the heater circuit.

Typical piping and wiring — high wall systems, 9,000 and 12,000 Btuh



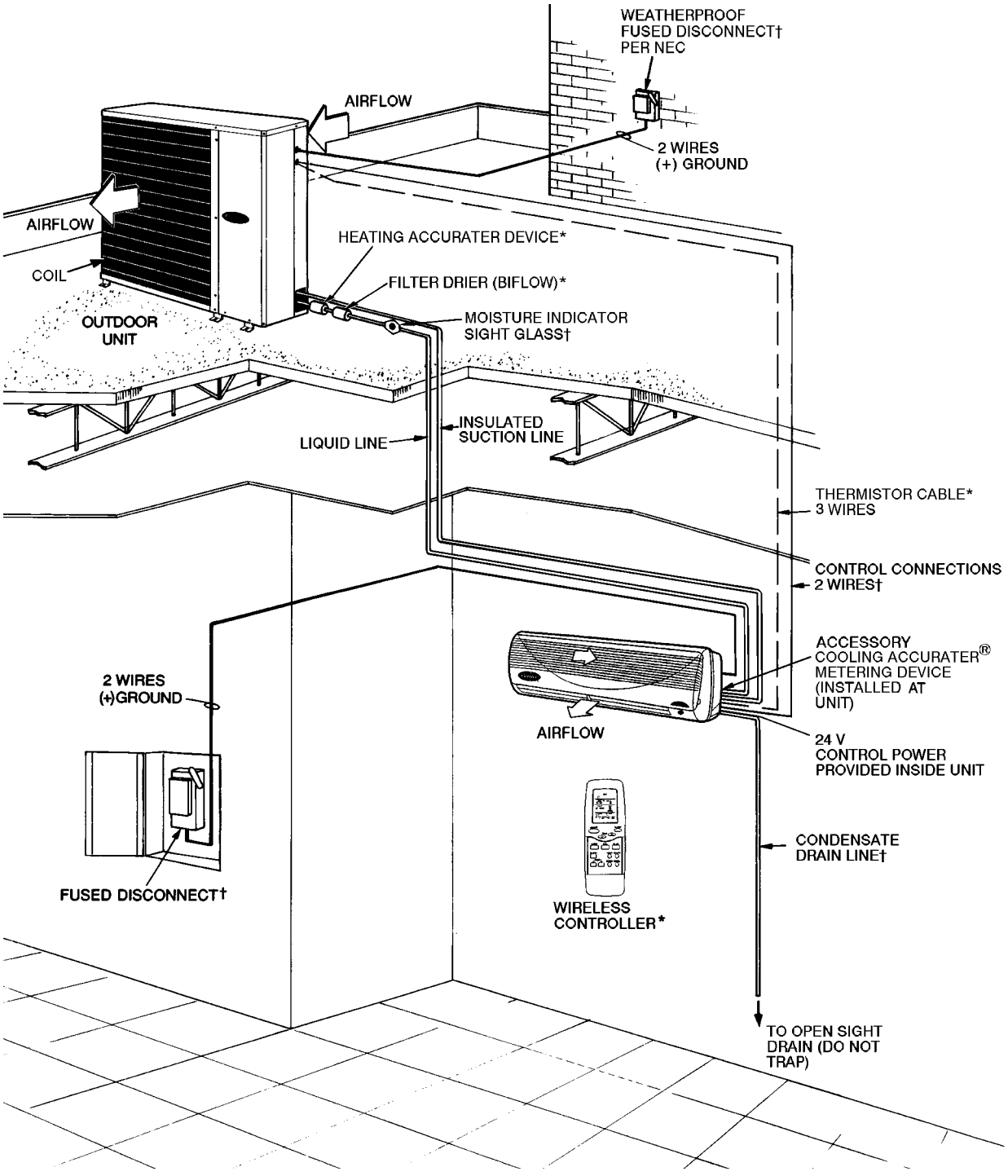
LEGEND

NEC — National Electrical Code

*Standard.
†Field supplied.

NOTES:
1. All piping must follow standard refrigerant techniques. Refer to Carrier System Design Manual for details.
2. Do not install a filter drier in mixed phase liquid line.
3. All wiring must comply with applicable local and national codes.
4. Capillary tube expansion device (cooling-only systems only) is located in the outdoor unit. Both refrigerant lines must be insulated.
5. Wiring and piping shown are general points-of-connection guides only and are not intended to include all details for a specific installation.
6. Insulate condensate line drain if installed in a conditioned space.

Typical piping and wiring — high wall systems, 18,000 and 24,000 Btuh



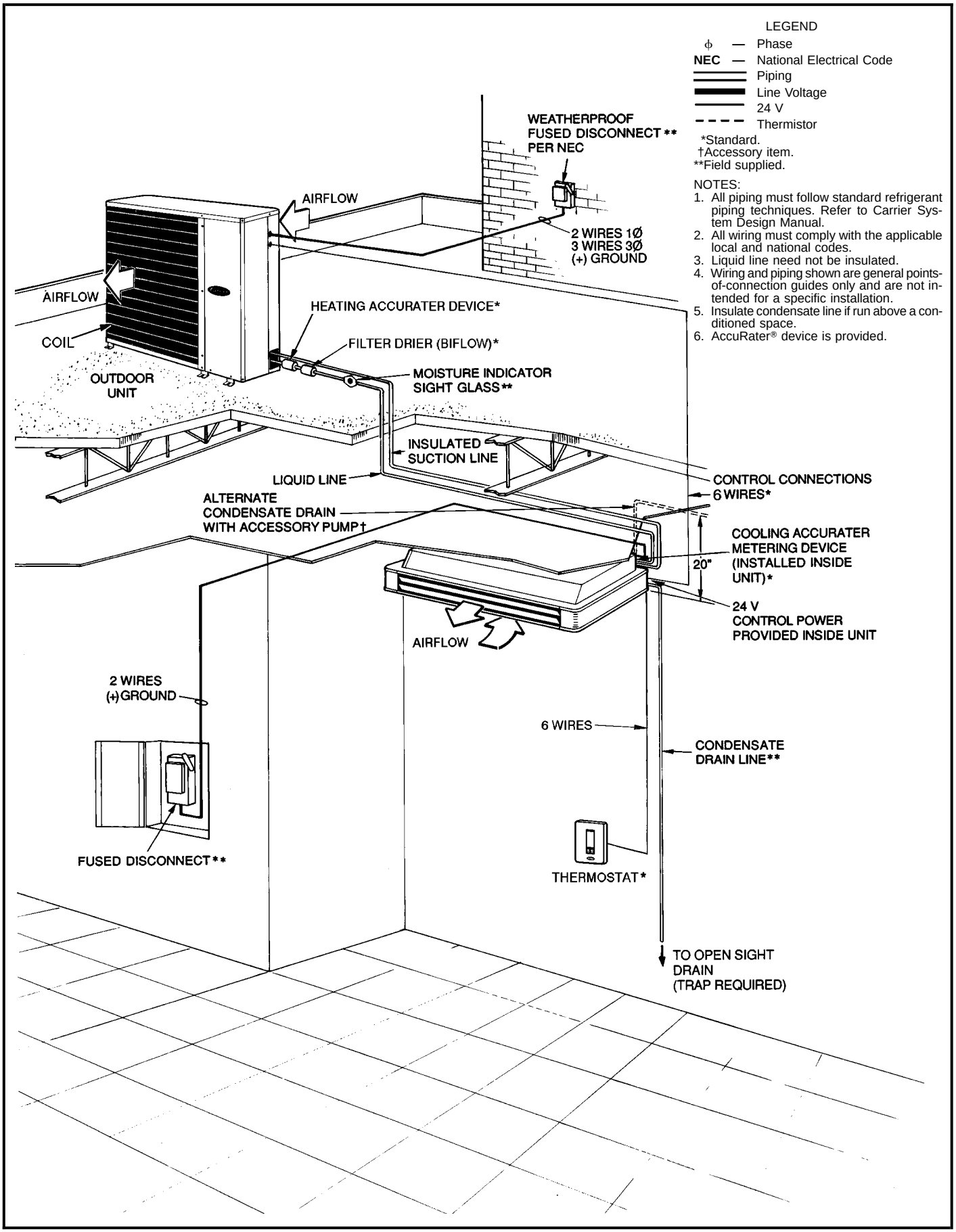
LEGEND

NEC — National Electrical Code
Piping
Line Voltage
24 V
Thermistor

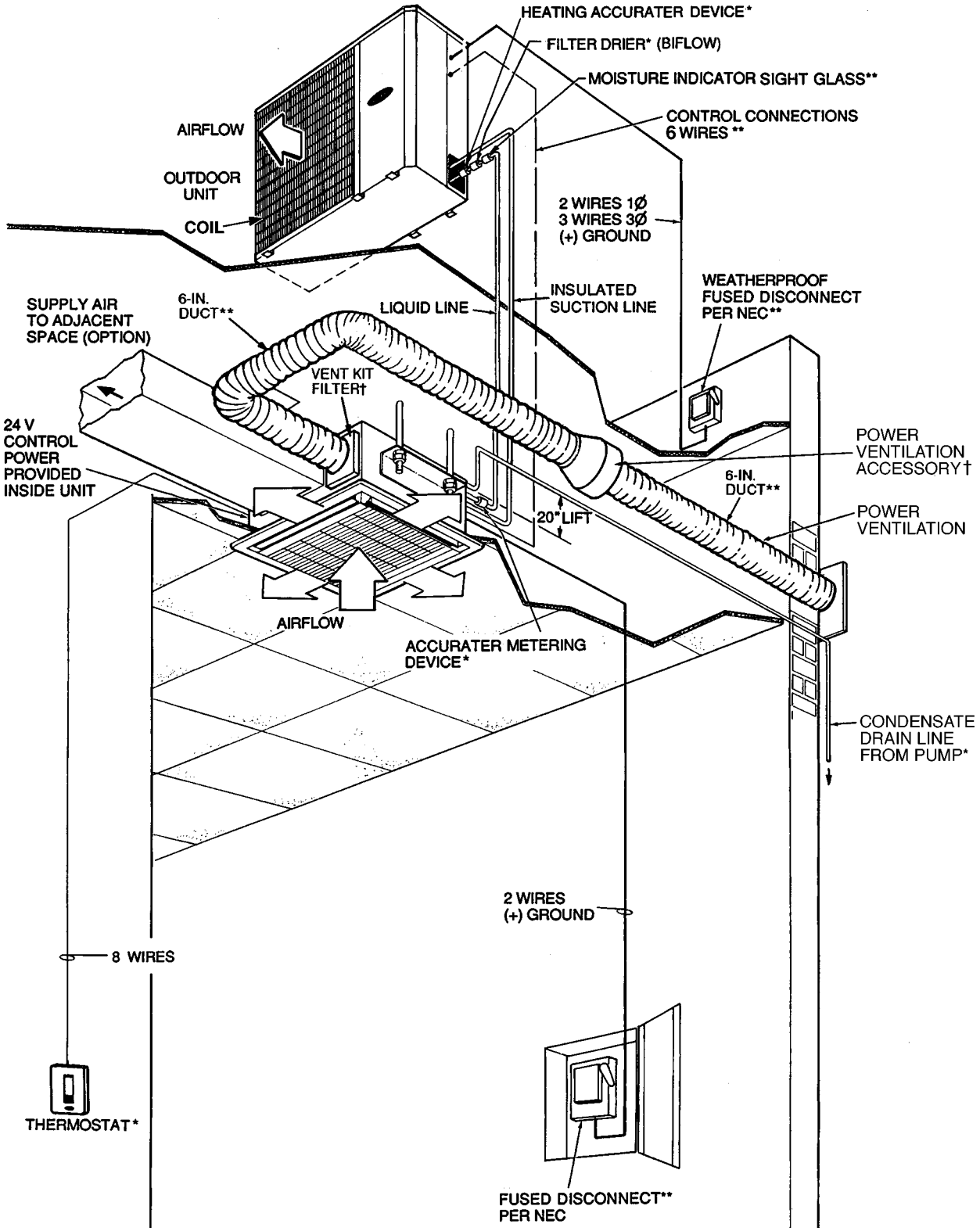
*Standard.
†Field supplied.

NOTES:
1. All piping must follow standard refrigerant piping techniques. Refer to Carrier System Design Manual.
2. All wiring must comply with the applicable local and national codes.
3. Liquid line need not be insulated.
4. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation.
5. Insulate condensate drain if installed in a conditioned space.

Typical piping and wiring — ceiling-suspended systems



Typical piping and wiring — in-ceiling cassette systems



LEGEND

- ϕ — Phase
- NEC — National Electrical Code
- Piping
- Line Voltage
- 24 V

*Standard.
†Accessory item.
**Field supplied.

NOTES:
1. All piping must follow standard refrigerant techniques. Refer to Carrier System Design Manual.
2. All wiring must comply with applicable local and national codes.
3. Liquid line need not be insulated.
4. Accessory cooling AccuRater® kit is required.
5. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation.
6. Insulate condensate line if installed in a conditioned space.

Application data

Unit selection

Select equipment to either match or be slightly less than anticipated peak cooling load. This provides better humidity control, fewer unit cycles, and less part-load operation.

Heating and cooling design loads must both be checked. To meet heating requirements, calculate heater in addition to heat pump capacity. Since indoor unit is off during defrost cycles, it is not necessary for electric heater to meet total heating requirement.

For units used in spaces with high sensible loads, base equipment selection on unit sensible load, not on total anticipated load. Adjust for anticipated room wet bulb temperature to avoid undersizing equipment.

Heating load using outdoor air must be checked in addition to cooling load. Heating load of outdoor air can greatly reduce heating capability.

When selecting equipment which has outdoor air introduced into the unit, determine the mix conditions of room air and outdoor air at design conditions. The cooling capacity tables in this literature are based on 80 F edb. Adjust for actual dry-bulb and wet-bulb conditions with the required outdoor air to select the proper equipment.

Unit combinations and coil mixed matches

The 38BK and 38QR-C units are the only units approved for use with the Carrier 40QNE, 40QAE, and 40QKE duct-free split systems. The 38QR-C units may also be used with other fan coil units (in approved combinations).

NOTE: The 40QAE and QKE fan coils may also be used with 38HDC condensing units to provide systems with cooling and electric heat. Refer to cooling system Product Data literature for more details.

Unit mounting (outdoor)

Unit leveling — For reliable operation, units should be level in all planes.

Clearance — Adequate clearance must be provided for airflow. See dimensional drawings for proper clearances. The heat pump units are designed for free-blow application. Air inlets and outlets should not be restricted. Outdoor fan external static pressure available is less than 0.1 in. wg.

Unit location — Heat pump units should not be stacked. Defrosted condensate from upper unit will refreeze on lower unit. Units may be wall mounted, pad mounted at ground level, roof mounted, or mounted on or under a deck. Be sure water drainage from roof will not drain directly onto the unit.

Units must be mounted so that snow will not obstruct airflow and so that defrosting coil ice can drain freely from the outdoor unit drain pan. Snow and ice stands can be field-fabricated to raise 38QR-C and 38BK (snow stand only) size 018 or larger units to meet these conditions if necessary. Contact Carrier representative for drawings.

NOTE: Accessory kits are available for wall mounting 38QR-C units.

If 38QR-C or 38BK018,024 outdoor heat pump units are being mounted near a wall, the air should discharge toward the wall. This will provide inherent coil protection and the best possible sound and airflow performance. The 38BK009,012 units should be mounted with fan discharge pointing away from the wall.

Unit mounting (indoor)

Unit leveling — For reliable operation, units should be level in all planes. The 40QAE ceiling-suspended fan coils may have a slight pitch, but only toward the drain connection.

Clearance — Provide adequate clearance for airflow. The unit return and discharge should not be obstructed by furniture, curtains, or anything which may cause unit short cycling or air recirculation. See base unit dimensional drawings on pages 18-24 for required clearances.

Unit location — When selecting unit location, select a location which will provide the best air circulation for the room.

40QNE HIGH WALL UNITS — These units should be positioned as high as possible on the wall for best air circulation. Allow adequate clearances above the unit for servicing (removing unit covers). Place the unit in the middle of the wall selected (if possible). Select an outside wall if available to make piping easier, and place the unit so it faces the normal location of room occupants.

40QAE CEILING-SUSPENDED UNITS — These units should be mounted near the ceiling and against a wall. The unit should be centered in the room for best performance. Locating the unit on an outside wall will make piping easier, but units may also be mounted away from a wall if desired. (If the unit is mounted away from a wall, the rear panel of the unit may need a field-supplied trim strip for improved appearance.) For quietest operation, locate the fan coil return over an area which is not normally occupied. Do not block air discharge for a minimum of 15 ft to prevent dumping of cold air and drafts.

40QKE IN-CEILING CASSETTE UNITS — These units should be mounted in the ceiling, preferably near the center of the room. If the unit must be mounted near a wall, close the air discharge on the blocked side(s). (Up to 2 sides may be blocked.) Locate the control box away from the blocked side(s).

Mounting template

The 40QAE fan coil units are furnished with a mounting template to mark the location of the mounting brackets, wiring, and refrigeration hole locations. In addition, the 40QAE units indicate the location of ventilation-air connections.

Support

Adequate support must be provided to support the weight of all fan coils. Refer to the Physical Data section on pages 11-17 for fan coil weights, and the base unit dimensional drawings on pages 18-24 for the location of mounting brackets.

System operating conditions

Operating limits:

OUTDOOR HEAT PUMP UNITS

CONDITION	38BK 009,012	38QR-C 38BK018,024
Maximum Cooling Ambient (F)	125	125
Minimum Cooling Ambient (F) (without accessory low-ambient kit)	55	55
Minimum Cooling Ambient (F) (with accessory low-ambient kit)	–20	–20
Minimum Cooling Return-Air Temperature (F)	55	55
Maximum Cooling Return-Air Temperature (F)	95	95
Maximum Heating Return-Air Temperature (F)	80/71*	80/71*
Minimum Heating Return-Air Temperature (F)	55	55
Minimum Heating Ambient Temperature (F)	0	–20
Maximum Heating Ambient Temperature (F)	80	80
Saturated Suction Temperature Range Minimum (F) Maximum (F)	 –15 55	 –15 55
Saturated Condensing Temperature Range Minimum (F) Maximum (F)	 85 150	 80 150
Maximum Compressor Discharge Temperature (F)	275	275
Minimum Discharge Superheat (F)	60	60

*Dry bulb/wet bulb.

FAN COIL UNITS

CONDITION	40QNE	40QAE	40QKE
Maximum Room Temperature (F)	84	84	95
Minimum Room Temperature (F)	64	64	55
Maximum Return Air (F) Dry-Bulb Wet-Bulb	 85 72	 85 72	 85 72
Minimum Return Air (F)	28	28	28
Maximum Saturated Suction Temperature (F)	55	55	55
Minimum Saturated Suction Temperature (F)	27	27	27

Low-ambient operation

Units can operate in cooling down to 55 F under all conditions without a low-ambient kit.

Units equipped with accessory low-ambient kits should also be equipped with accessory wind baffle, isolation relay, and crankcase heater (scroll units). Wind baffle must be field-fabricated.

Freezestat — Freeze-up protection is provided on all Carrier duct-free fan coil units.

Crankcase heater — Scroll compressor units with low-ambient control or scroll compressor units in long-line applications should be equipped with crankcase heaters to prevent refrigerant migration during compressor off cycle.

Metering devices

The 38BK and 38QR-C units use a piston-type metering device located in the indoor unit (for cooling) and in the outdoor liquid service valve (for heating). Pistons function as check valves in addition to being metering devices.

NOTE: All duct-free split systems (except 53QNE009,012) use Type ''B'' Chatleff style AccuRater® pistons. DO NOT mix Type ''A'' and Type ''B'' pistons. See Long-Lines Applications section on page 66 for changes in piston sizes due to long lines.

Drain connections

Install drains to meet local sanitation codes. If adequate gravity drainage cannot be provided, unit should be equipped with accessory condensate pump.

NOTE: The 40QKE units have a condensate pump installed as standard from the factory.

High wall fan coil units with accessory condensate pumps have a 1 to 10 ft lift (009 size) or 3-25 ft lift (012-024 sizes). All other fan coil units have a lift capability of 20 in. above the condensate pan level.

See base unit dimensional drawings on pages 18-24 for drain locations and sizes.

NOTE: High wall fan coil units have internal condensate traps. All other fan coil units require a field-supplied external condensate trap.

Drain connections may be routed through alternate locations on most fan coils. See base unit dimensional drawings on pages 18-24 for possible alternate locations.

Refrigerant lines

General refrigerant line sizing:

1. All charges, line sizing, and capacities are based on runs of 25 ft. For runs over 25 ft, consult long-lines section on page 66 for proper line sizing, charge, and AccuRater refrigerant metering device sizing.

   NOTE: For runs less than 25 ft, some of the charge may need to be removed to obtain the correct system superheat. The minimum line length should be 8 ft.

MAXIMUM LINE LENGTHS

UNIT	MAXIMUM EQUIVALENT FT	MAXIMUM LIFT — FAN COIL BELOW CONDENSING UNIT	MAXIMUM LIFT — FAN COIL ABOVE CONDENSING UNIT
38BK009,012	35	30	16
38QR-C, 38BK018,024	200	150	65

2. Refrigerant lines should not be buried in the ground. If it is necessary to bury the lines, not more than 36 in. should be buried. Provide a minimum 6-in. vertical rise to the service valves to prevent refrigerant migration.
3. The vapor line must be insulated. Use a minimum of ½-in. thick insulation. Closed-cell insulation is recommended in all long-line applications.
4. Special consideration should be given to isolating interconnecting tubing from the building structure. Isolate the tubing so that vibration or noise is not transmitted into the structure.

Application data (cont)

38BK009,012 UNITS

1. The 38BK009,012 units are shipped with a full charge of R-22 refrigerant. Check the charge using the superheat method. Since all refrigerant lines are on the low side of the system, it is not normally necessary to add or remove charge.
2. The 38BK009,012 units have mixed-phase refrigerant flow in the liquid line. **DO NOT install a filter drier in the liquid line. The liquid line must be insulated.**
3. No line size changes should be made on 38BK009,012 units.

38QR-C AND 38BK018,024 UNITS

1. The 38QR-C and 38BK018,024 units are shipped with a holding charge of R-22 refrigerant. Charge is based on fan coil with smallest charge and 25 ft of line. See Piston Guide tables below for system charges. Add additional charge by weight as necessary and check the charge with a superheat calculator.
2. For the 38QR-C and 38BK018,024 units, install the filter drier provided with the unit in the liquid line. A field-supplied moisture indicator may also be used.

Long-lines applications, 38QR-C and 38BK018,024 units:

1. Liquid lines on these units should be ⅜ in. only. DO NOT resize liquid lines for additional length.
2. When sizing vapor line, determine line length by finding equivalent ft of pipe. Equivalent line lengths equal the linear length (measured length) of the interconnecting vapor tubing plus losses due to elbows (see Fitting Loss in Equivalent Ft For Elbows table on page 67). If the number of elbows is not yet known, assume 50% additional length for equivalent length. In determining line size, be sure oil can be properly returned to the compressor. Consult the Carrier System Design Guide for proper oil return recommendations. For line lengths from 25 to 49 ft, no special piping requirements are normally required. Adjust charge to required amount by adding charge per Step 7 on page 68 and checking superheat.

For line lengths over 50 ft:

1. A crankcase heater should be added to scroll compressor units (all non-scroll compressor units have standard crankcase heaters). Crankcase heaters help prevent refrigerant migration to the compressor during the off cycle.

PISTON GUIDE — HIGH WALL SYSTEMS

UNIT		INDOOR PISTON SIZE	OUTDOOR PISTON SIZE	REQUIRED SYSTEM CHARGE (Lb)*
Indoor	Outdoor			
40QNE009	**38BK009**	32†	30†	1.50
40QNE012	**38BK012**	42†	42†	2.00
40QNE024	**38BK018**	51	47	4.95
40QNE024	**38BK024**	59	52	5.10

*Charge is based on 25 ft of interconnecting tubing. Charge may need to be added for longer tubing runs or when used with certain fan coils. Check unit nameplate for required charge.
†Non-serviceable Aeroquip piston.

NOTE: All pistons for 018 and larger units are Chatleff "B" type.

PISTON GUIDE — CEILING-SUSPENDED SYSTEMS

UNIT		INDOOR PISTON SIZE	OUTDOOR PISTON SIZE	REQUIRED SYSTEM CHARGE (Lb)*
Indoor	Outdoor			
40QAE024	**38QR-C018**	55	49	4.3
40QAE024	**38QR-C024**	55	49	6.3
40QAE036	**30QR-C030**	63	55	6.4
40QAE036	**30QR-C036**	63	61	7.5/8.7†
40QAE048	**38QR-C048**	84	78	10.0
40QAE060	**30QR-C060**	96	82	11.9

*Charge is based on 25 ft of interconnecting tubing. Charge may need to be added for longer tubing runs or when used with certain fan coils. Check unit nameplate for required charge.
†Single-Phase/3-Phase.

NOTES:
1. All pistons are Chatleff "B" type.
2. All 38QR-C heat pumps have a holding charge only as shipped from the factory.

PISTON GUIDE — IN-CEILING CASSETTE SYSTEMS

UNIT		INDOOR PISTON SIZE	OUTDOOR PISTON SIZE	REQUIRED SYSTEM CHARGE (Lb)*
Indoor	Outdoor			
40QKE024	**38QR-C018**	51	49	5.5
40QKE036	**38QR-C024**	61	49	5.9
40QKE036	**38QR-C030**	63	55	5.9/8.0†
40QKE048	**38QR-C036**	67	59	5.9/8.0†

*Charge is based on 25 ft of interconnecting tubing. Charge may need to be added for longer tubing runs or when used with certain fan coils. Check unit nameplate for required charge.
†Single-Phase/3-Phase.

NOTES:
1. All pistons are Chatleff "B" type.
2. All 38QR-C heat pumps have a holding charge only as shipped from the factory.

2. Any time the equivalent line length is over 100 ft, a liquid line solenoid must be used. A liquid line solenoid may also be required for vertical lift applications. See Step 6 on page 68, and locate solenoid at the outdoor unit if required.
3. A field fabricated wind baffle is recommended.
4. The Effective Capacity Loss table on this page provides the estimated percentage of nominal cooling capacity losses based on the standard required vapor line size versus what is selected for long-line applications. Heating capacity is not generally affected by long-line applications.
   a. Select the desired vapor line size from the Effective Capacity Loss table below based on equivalent ft and desired vapor line size.
   b. Subtract the nominal percentage loss from the unit cooling capacities for the given indoor and outdoor combination.

FITTING LOSS IN EQUIVALENT FT FOR ELBOWS

TUBE SIZE OD (in.)	90-DEGREE SHORT RADIUS	90-DEGREE LONG RADIUS	45-DEGREE SHORT RADIUS
5/8	1.6	1.0	0.8
3/4	1.8	1.2	0.9
7/8	2.0	1.4	1.0
1 1/8	2.6	1.7	1.3

5. Changes in piston size — The metering device for a long-line application must be adjusted to compensate for the frictional losses due to the long refrigerant lines, refrigerant lines accessories, and indoor coil above or below the outdoor unit. The AccuRater® refrigerant metering device pistons (heating and cooling) may need to be changed to provide this adjustment. The AccuRater piston should be changed for the indoor unit and at the outdoor unit service valve depending upon system configuration and line length. Use the Change in Indoor and Outdoor Unit Piston Size for Elevation tables on page 68 to determine correct AccuRater piston size. The standard piston size is shown in the Piston Guide tables on page 66.
   a. Horizontal configuration — If the total equivalent horizontal length is 100 ft or longer, the indoor and outdoor pistons must be increased one full piston size, in addition to the charge change in Step 7, page 68. If exact size is not available, use next smaller size per Chatleff Type B Common Piston Sizes table below.
   b. Elevated configuration — After finding the appropriate change in piston size, add or subtract the change from the original piston size number. If the piston size is decreased, round down to the next common piston size. If the piston size is increased, round the new piston size up to the next common piston size.

CHATLEFF TYPE B COMMON PISTON SIZES

PISTON SIZE	PISTON SIZE	PISTON SIZE
32	53	80
33	55	81
35	57	82
36	59	84
37	61	86
38	62	88
39	63	89
40	65	90
41	67	92
42	68	93
43	70	96
45	71	98
47	73	101
49	74	104
51	76	—
52	78	—

EFFECTIVE CAPACITY LOSS

NOMINAL UNIT SIZE* (Btuh)	STANDARD VAPOR LINE (in.)	LONG-LINE VAPOR LINE (in.)†	PERCENT COOLING CAPACITY LOSS						
			50 ft	75 ft	100 ft	125 ft	150 ft	175 ft	200 ft
18,000	5/8	5/8	2	4	6	7	9	10	12
	5/8	3/4	0	0	1	2	3	4	6
24,000	5/8	5/8	4	6	9	11	13	15	**
	5/8	3/4	0	1	2	3	4	5	6
30,000	3/4	3/4	2	3	4	5	7	8	10
	3/4	7/8	0	2	3	4	5	6	7
36,000	3/4	3/4	2	4	6	7	9	11	13
	3/4	7/8	0	2	3	4	5	6	7
48,000	3/4	3/4	4	6	9	11	13	15	**
	3/4	7/8	3	4	5	7	8	10	13
	3/4	1 1/8	1	2	3	4	5	6	7
60,000	7/8	7/8	4	7	9	11	13	15	**
	7/8	1 1/8	2	3	5	6	8	9	11

*Nominal cooling capacity of the unit being specified.
†The vapor line diameter that may be selected for long-line application. If smaller vapor lines than are specified in the table are selected, a larger capacity loss will occur. If larger vapor lines are selected, refrigerant oil return will be impaired due to velocity loss.
**Not recommended due to excessive loss of capacity.

Application data (cont)

CHANGE IN INDOOR UNIT PISTON SIZE FOR ELEVATION

OUTDOOR UNIT ABOVE INDOOR UNIT	
Ft	**Piston Change**
0-25	0
26-50	-3
51-75	-5
76-100	-7
101-125	-9
126-150	-10
INDOOR UNIT ABOVE OUTDOOR UNIT	
Ft	**Piston Change**
0-25	0
26-65	+4

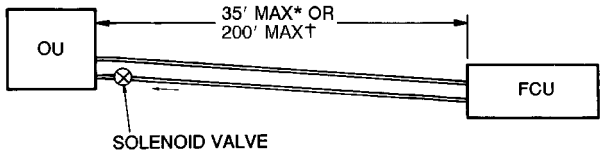
CHANGE IN OUTDOOR UNIT PISTON SIZE FOR ELEVATION

OUTDOOR UNIT ABOVE INDOOR UNIT	
Ft	**Piston Change**
0-50	0
51-75	+4
76-100	+6
101-125	+8
126-150	+10
OUTDOOR UNIT BELOW INDOOR UNIT	
Ft	**Piston Change**
0-65	0

6. Liquid line solenoid and tubing configuration — The solenoid has a flow arrow stamped on the valve body. When the valve is closed (not energized) and pressure is applied in the direction of the flow arrow, complete shut off will occur. If pressure is applied against the direction of the arrow, leakage through the valve will occur. When determining the proper location for a solenoid in a system liquid line, consider both flow direction in heating mode and location of the valve in the system. See the diagram at right for proper location, and install as follows:
   a. Horizontal configuration (see figure above right) —
      1) Install a biflow liquid line solenoid valve within 2 ft of the outdoor unit with the flow arrow pointing toward the heat pump unit if equivalent ft of piping is 100 ft or more.
      2) Slope the vapor line toward the indoor unit to provide for refrigerant migration protection during the off cycle due to temperature differences caused by slight elevation changes between indoor and outdoor units.

      NOTE: When installing a liquid line solenoid, a low-voltage transformer may be required.
   b. Elevated configuration — Indoor unit installed above the outdoor unit (see figure at right):
      1) A biflow solenoid valve is required in the liquid line within 2 ft of the heat pump unit with the arrow pointing toward the heat pump unit.
      2) The maximum elevation difference is 65 ft (16 ft for 53QNE009,012), and the maximum equivalent ft of piping is 200 ft (35 ft for 53QNE009,012).
      3) Install an inverted trap in the vapor line. The top of the trap must be above the top of the fan coil. This prevents the refrigerant from collecting in the vapor line.
      4) If there is over 25 ft of lift, a solenoid valve is required in the liquid line.
   c. Lowered configuration — Indoor unit installed below the outdoor unit (see figure on page 69):
      1) For lines with less than 25 ft of lift, no solenoid valve is required in the liquid line. For lines with over 25 ft of lift, install a biflow solenoid valve in the liquid line within 2 ft of the heat pump unit with the arrow pointing toward the heat pump unit.
      2) The maximum elevation difference is 150 ft (30 ft for 53QNE009,012), and the maximum equivalent ft is 200 ft (35 ft for 53QNE009,012).
7. Additional charge — The unit should be charged by weighing in the appropriate charge. Add charge based on the actual length of line which is over 25 ft of liquid line. Add 0.58 oz of refrigerant per 1 ft increase over the 25 ft line to the charge listed in Piston Guide tables on page 66.

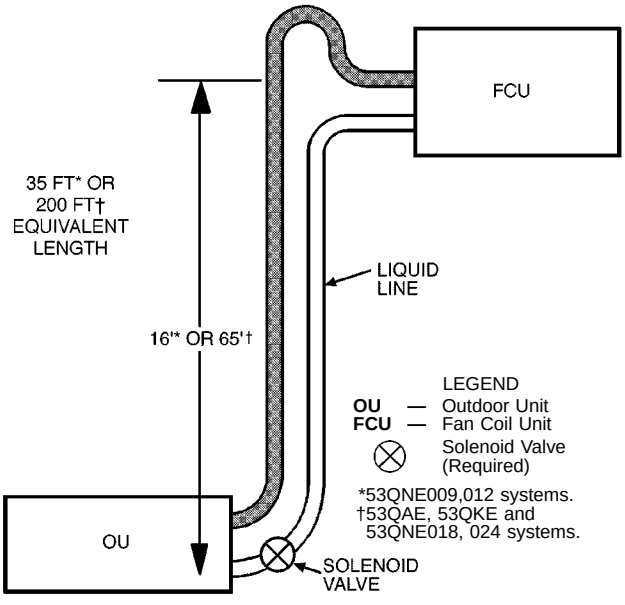
HORIZONTAL CONFIGURATION



LEGEND
FCU — Fan Coil Unit
OU — Outdoor Unit

*53QNE009,012 systems
†53QAE,53QKE and 53QNE018,024 systems

ELEVATED CONFIGURATION — INDOOR UNIT INSTALLED ABOVE THE OUTDOOR UNIT

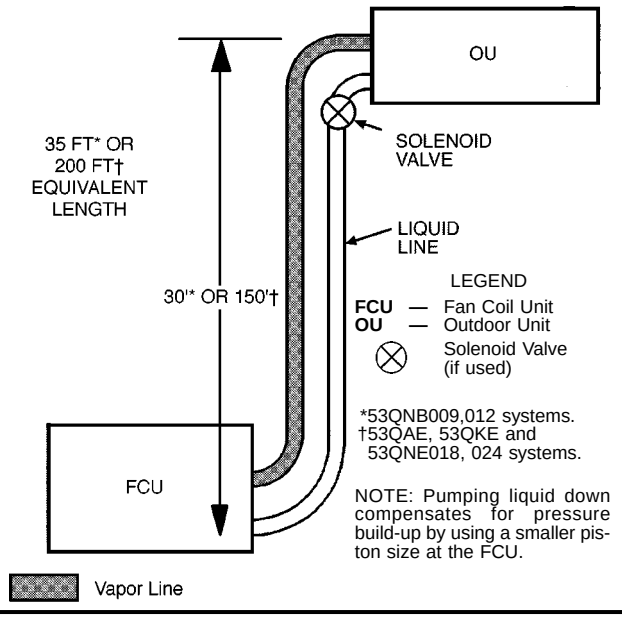


LEGEND
OU — Outdoor Unit
FCU — Fan Coil Unit
Solenoid Valve (Required)

*53QNE009,012 systems.
†53QAE, 53QKE and 53QNE018, 024 systems.

NOTE: Pumping liquid up compensates for pressure drop by using a larger piston size at FCU.

LOWERED CONFIGURATION — INDOOR UNIT INSTALLED BELOW THE OUTDOOR UNIT



Controls

An accessory wired or wireless remote controller is required for system operation on 40QAE,QNE, and 40QKE fan coil units.

Wired 24v controllers (40QAE, 40QKE)

1. A 24v thermostat is supplied for operation of all in-ceiling and cassette systems.
2. Controller can only operate one unit, and required controller is supplied for each unit.
3. The control or remote sensor must be located in the space being conditioned.

Wireless remote controllers (40QNE)

1. A wireless remote controller is supplied for system operation of all high wall units.
2. Each battery-operated wireless (infrared) remote controller may be used to control more than one unit.
3. The wireless remote controller has a maximum range of 20 ft.
4. The unit is equipped with an emergency switch which allows operation if the remote controller malfunctions or is misplaced.
5. Because the controller uses infrared communication, all of the following must be true for the controller to work properly:
   a. The power must be on to the fan coil unit.
   b. The batteries in the controller must be good.
   c. The controller must be within range of and pointed directly at the unit.
   d. The unit's 3-position switch must be set in the Remote position.

Thermistors

Thermistors are used on both fan coil and outdoor heat pump 50QNE systems to determine operating conditions. Proper thermistor location is critical to unit operation. All thermistors have identical resistance values. See Thermistor Equivalence charts on typical system wiring schematics (pages 72-76).

Thermistor cable assemblies are provided with fan coil units to run between indoor and outdoor units. High-voltage and thermistor cable assemblies should not touch each other, and cable runs may be extended up to 200 ft.

Wiring

Use only copper wires from the disconnect to the unit terminal block. Aluminum and copper-clad aluminum wires are not acceptable.

All duct-free heat pump systems provide 24-v power for the outdoor unit from the indoor unit, except the 53QNE009 and 012 systems, which provide line voltage control, and the 53QNE018 and 024, which have a transformer in the outdoor unit.

All other fan coil types should have a separate disconnect for indoor and outdoor units. In addition, cassette fan coil units require separate disconnects for both the fan and the heater.

Air throw

Refer to Air Throw Data table below for system air throw capabilities.

AIR THROW DATA

SYSTEM	SYSTEM TYPE	SIZE	HIGH SPEED CFM	APPROXIMATE AIR THROW (FT)
53QNE	High Wall	009	250	15
		012	360	22
		018	500	40
		024	500	40
53QAE	Ceiling Suspended	018	500	25
		024	525	27
		030,036	870	38
		048	1100	40
		060	1600	40
53QKE	In-Ceiling Cassette	018	525	22
		024,030	980	20
		036	1100	20

NOTE: Air throw data is for unit mounted application with typical clearances in a 10-ft high room.

Application data (cont)

Fresh air/ducting

1. The 40QAE ceiling-suspended fan coil units may bring in up to 30% fresh air. The percentage of air allowable is calculated based on the unit high speed cfm. Air quantities above this level may exceed compressor maximum saturated suction temperatures. A power ventilation kit is available to overcome ventilation duct static. See Power Ventilation Kit Available Static Pressure table below.
2. The 40QKE in-ceiling cassette fan coil units may bring in up to 10% fresh air. This 10% maximum should not be exceeded. A power ventilation kit is available to overcome ventilation duct static. See Power Ventilation Kit Available Static Pressure table below.
3. The 40QKE in-ceiling cassette fan coil units may have an extension duct installed. See Static Capability and Design Considerations figures on this page.

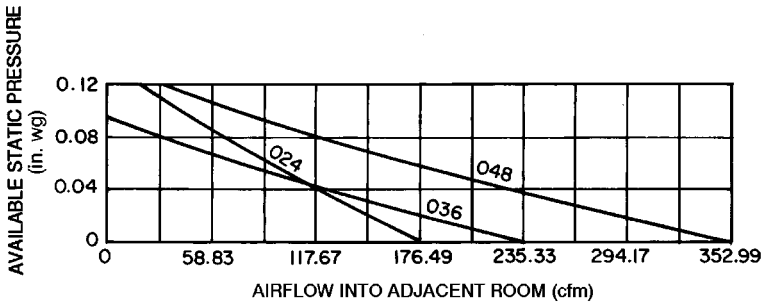
POWER VENTILATION KIT AVAILABLE STATIC PRESSURE

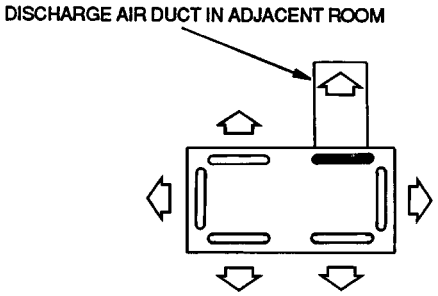
FAN HP	WATTS	RPM	VOLTAGE	CFM AT STATIC PRESSURE (in. wg)								DUCT DIA. (in.)	SONES
				0	⅛	¼	⅜	½	¾	1	1½		
1/15	150	2700	208/230	370	335	318	298	256	219	189	112	6	4.0

SONE — A subjective unit of loudness, equal to the loudness of a pure tone having a frequency of 1,000 Hz at 40 decibels above the listener's threshold of audibility. This is for comparative purposes only.

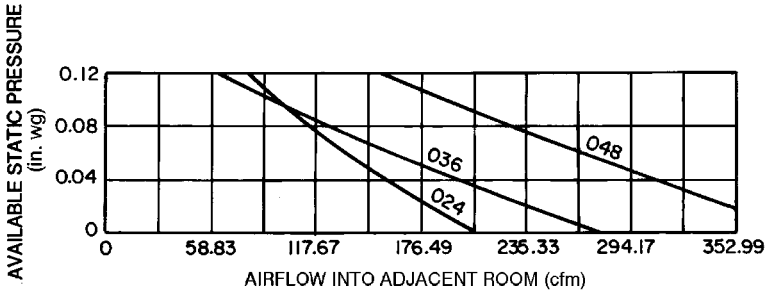
STATIC CAPABILITY AND DESIGN CONSIDERATIONS, 40QKE024-048 IN-CEILING CASSETTE UNITS

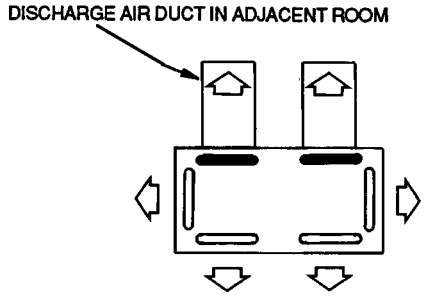
ONE DIFFUSER CLOSED

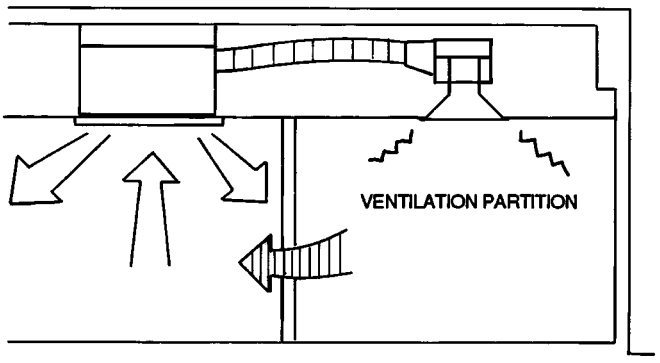




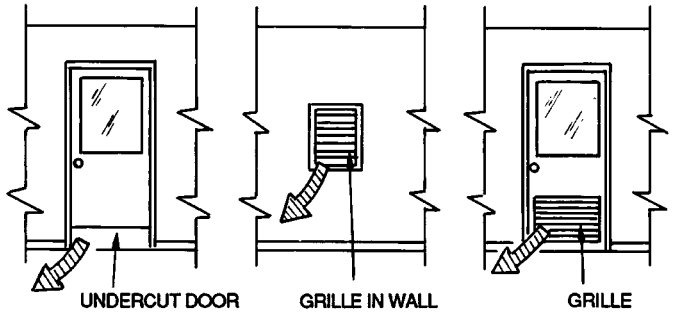
TWO DIFFUSERS CLOSED







PATH FOR RETURN AIR



Sound data

OUTDOOR UNIT SOUND RATINGS

UNIT	SOUND RATING (Decibels)	FREE FIELD dBA*
38BK009	65	55.7
38BK012	65	55.7
38BK018, 38QR-C018	68	57.7
38BK024, 38QR-C024	68	57.7
38QR-C030	68	57.7
38QR-C036	68/74†	57.7/61.7†
38QR-C048	76	65.7
38QR-C060	72	63.7

LEGEND

dBA — Decibels on the A Scale

*Free field is a rating with no reflective surfaces near the unit. Data sound pressure is measured at 1 m from the unit. See Sound Power Data Octave Bands table for more information.
†Single phase/3 phase.

NOTE: Units rated in accordance with ARI (Air Conditioning & Refrigeration Institute) Standard 270.

SOUND POWER DATA OCTAVE BANDS — A WEIGHTED

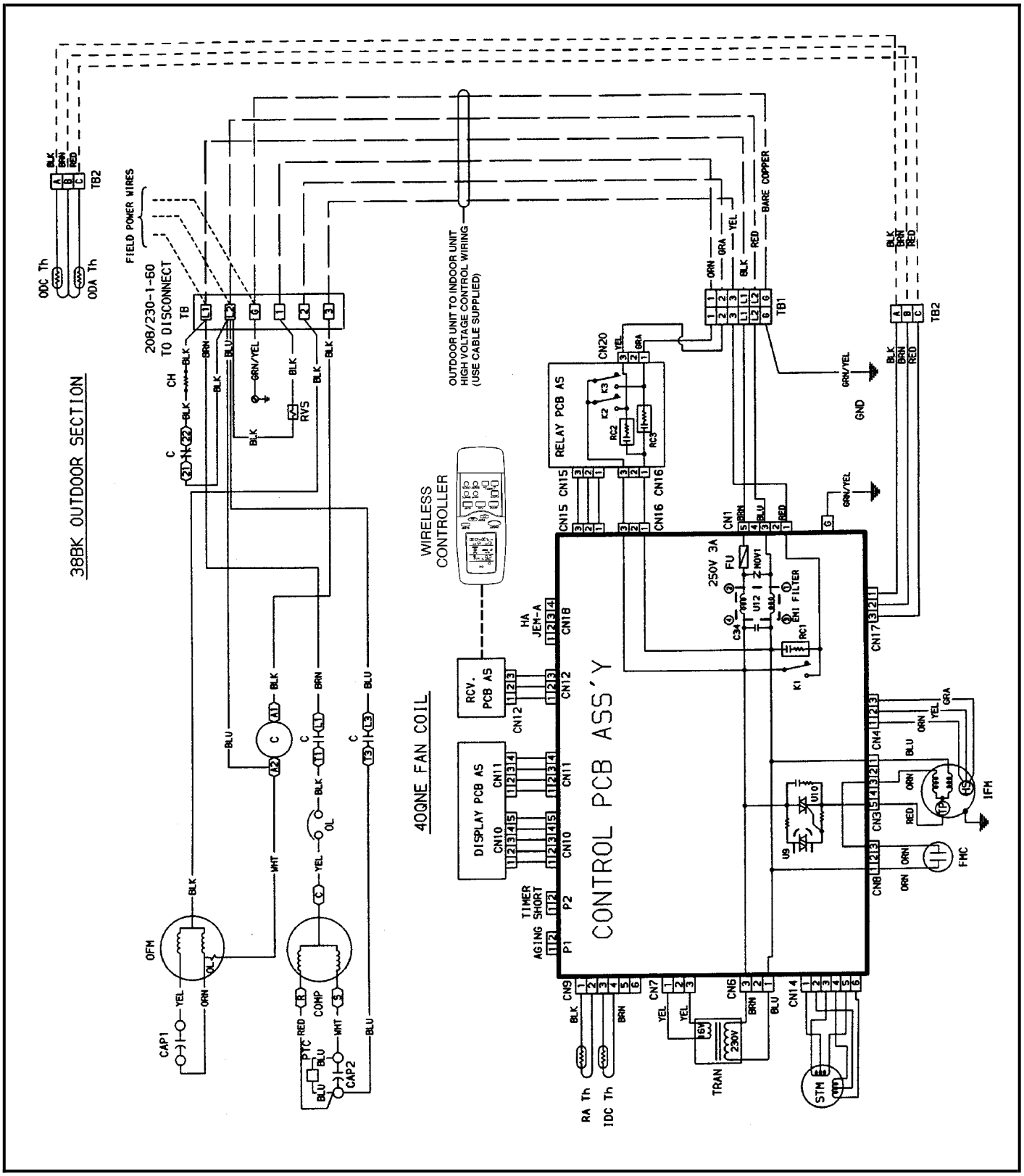
UNITS	FAN SPEED	OCTAVE BAND DATA (dBA)						
		125	250	500	1000	2000	4000	8000
38BK009	All	50.3	56.4	57.8	60.8	55.8	49.9	42.9
38BK012	All	50.8	56.2	60.7	58.7	54.9	50.1	43.2
38BK018, 38QR-C018	All	51.0	57.0	62.0	62.5	62.0	56.5	47.5
38BK024, 38QR-C024	All	54.5	59.0	61.5	62.0	60.5	54.5	49.5
38QR-C030	All	55.0	56.5	61.0	63.0	58.5	53.5	43.0
38QR-C036 (Single-Phase)	All	57.0	61.0	61.0	62.5	59.0	55.5	51.0
38QR-C036 (3-Phase)	All	67.0	66.0	67.0	67.0	64.5	62.5	52.0
38QR-C048	All	60.5	68.5	68.0	68.5	67.0	62.5	54.0
38QR-C060	All	62.5	67.5	71.0	68.0	67.0	63.5	54.5
40QNE009	High	38.2	41.1	46.2	47.9	43.0	33.6	31.2
	Medium	31.7	39.8	45.0	45.3	42.0	36.8	36.8
	Low	29.2	38.4	43.9	41.9	38.6	28.1	31.2
40QNE012	High	35.1	43.8	50.3	51.1	46.4	38.0	31.2
	Medium	31.7	43.3	46.3	48.6	42.9	34.2	31.2
	Low	29.1	42.2	42.9	45.6	39.1	30.3	31.2
40QNE018	High	37.0	44.4	49.3	50.4	43.4	35.6	31.9
	Medium	39.8	46.9	52.2	53.7	47.4	40.1	32.7
	Low	43.2	49.1	54.0	56.0	50.7	44.0	34.0
40QNE024	High	43.8	51.5	58.5	58.8	53.5	46.2	36.0
	Medium	41.4	49.5	56.5	56.2	50.4	42.5	36.0
	Low	38.9	47.3	54.4	53.7	47.4	39.0	36.0
40QAE018	High	38.1	50.0	52.6	54.7	49.0	41.5	31.8
	Medium	36.4	47.7	50.7	52.3	46.3	37.4	29.5
	Low	35.1	46.2	49.3	50.5	43.5	34.3	29.0
40QAE024	High	42.8	51.8	54.0	56.7	52.2	45.9	36.6
	Medium	41.3	50.8	53.3	55.6	51.3	45.3	35.2
	Low	40.9	50.3	52.6	54.7	50.7	45.1	35.8
40QAE036	High	50.2	61.0	60.5	65.0	61.7	58.9	51.5
	Medium	47.9	58.6	58.3	62.8	59.1	56.6	48.1
	Low	46.2	55.6	56.2	59.9	56.3	53.6	43.0
40QAE048	High	48.7	60.8	60.4	64.0	60.3	57.3	47.7
	Medium	47.8	59.2	59.4	63.1	59.2	56.2	46.6
	Low	—	—	—	—	—	—	—
40QAE060	High	52.5	63.6	63.7	67.0	63.3	59.0	50.0
	Medium	51.2	61.5	61.9	66.4	60.8	56.6	47.0
	Low	49.5	59.1	60.0	63.1	58.3	53.6	43.8
40QKE024	High	32.1	45.0	51.2	54.1	46.5	45.0	36.5
	Medium	—	—	—	—	—	—	—
	Low	—	—	—	—	—	—	—
40QKE036	High	45.0	45.8	50.9	51.8	47.4	38.8	32.9
	Medium	35.5	40.2	46.1	45.2	39.0	29.9	28.7
	Low	31.2	37.8	40.3	37.0	26.5	24.5	27.3
40QKE048	High	40.2	45.8	54.8	56.0	51.5	47.7	39.8
	Medium	45.0	47.1	51.0	50.5	45.2	40.3	39.8
	Low	—	—	—	—	—	—	—

LEGEND

ARI — Air Conditioning & Refrigeration Institute
dBA — Decibels on the A scale

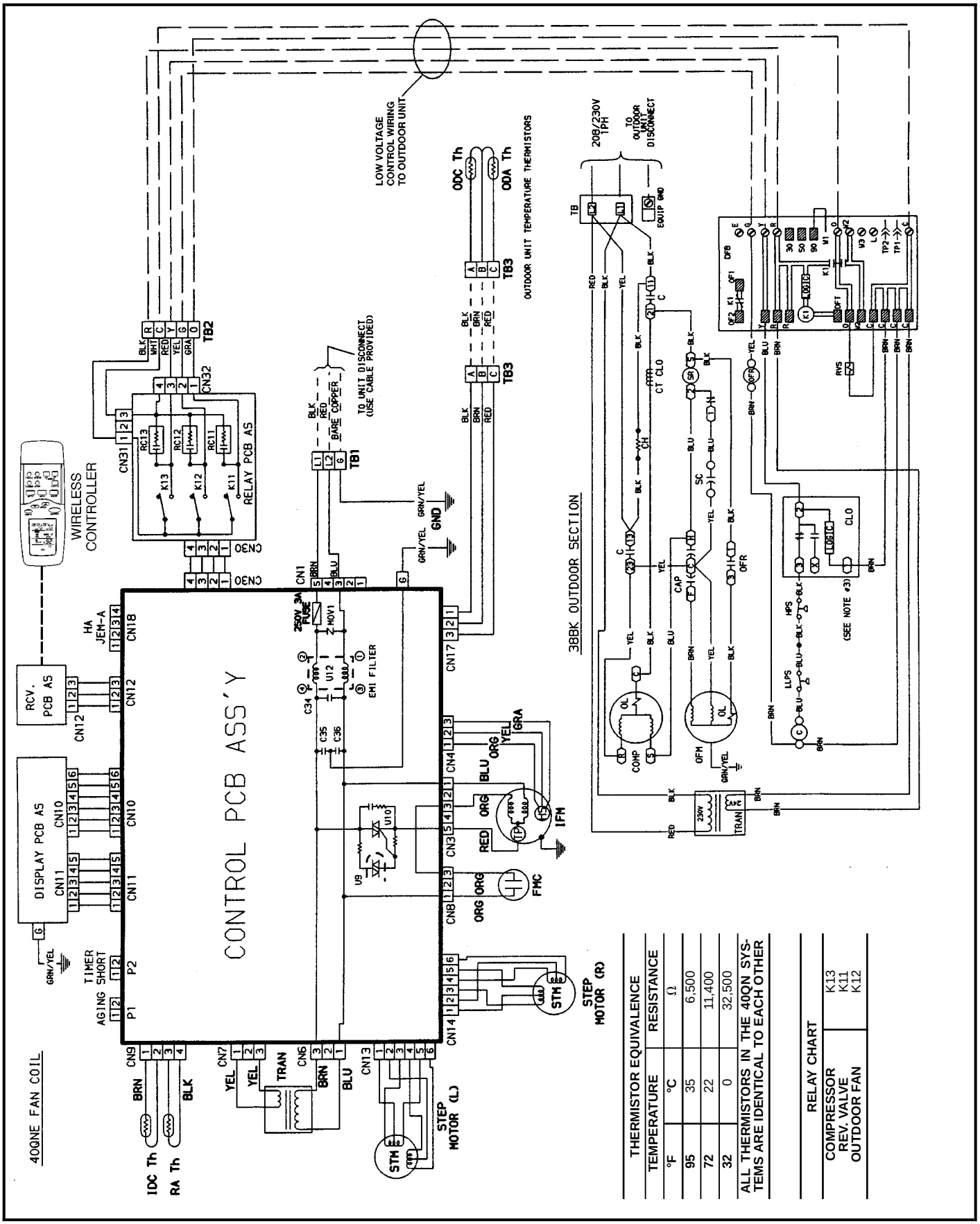
NOTES:
1. Outdoor sound levels are tone corrected values taken in accordance with ARI Sound Standard 270.
2. Indoor sound levels are tone corrected values taken in accordance with ARI Sound Standard 350.

Typical wiring schematic — 53QNE009,012 high wall system (012 shown)



(See Legend and Notes, page 74.)

Typical wiring schematic — 53QNE018,024 high wall system



THERMISTOR EQUIVALENCE	
TEMPERATURE	RESISTANCE
°F	°C	Ω
95	35	6,500
72	22	11,400
32	0	32,500

ALL THERMISTORS IN THE 40QN SYSTEMS ARE IDENTICAL TO EACH OTHER

RELAY CHART	
COMPRESSOR	K13
REV. VALVE	K11
OUTDOOR FAN	K12

(See Legend and Notes, page 74.)

Typical wiring schematics (cont)

LEGEND AND NOTES FOR TYPICAL WIRING SCHEMATICS, 53QNE

AGING	—	For Burn-In Test (short terminals)
AS	—	Assembly
C	—	Contactor
CAP	—	Capacitor
CH	—	Crankcase Heater
CLO	—	Compressor Lockout
CN	—	Connector
COMP	—	Compressor
CT CLO	—	Current Sensing Loop (Lockout)
DFB	—	Defrost Board
DFT	—	Defrost Thermostat
EMI	—	Electromagnetic Interference
FMC	—	Fan Motor Capacitor
FU	—	Fuse
GND	—	Ground
HA	—	Home Automation
HPS	—	High-Pressure Switch
IDC Th	—	Indoor-Coil Thermistor
IFM	—	Indoor-Fan Motor
JEM-A	—	Japan Electric Manufacturing Industry Association
K	—	Relay
LLPS	—	Liquid Low Pressure Switch
ODA Th	—	Outdoor-Air Thermistor
ODC Th	—	Outdoor-Coil Thermistor
OFM	—	Outdoor-Fan Motor
OFR	—	Outdoor-Fan Relay
OL	—	Overload
PCB	—	Printed Circuit Board
RA Th	—	Return-Air Thermistor
RC	—	Resistor Capacitor
RCV	—	Receiver
RVS	—	Reversing Valve Solenoid
SC	—	Start Capacitor
SR	—	Start Relay
STM	—	Step Motor
TB	—	Terminal Block
TP	—	Thermal Protector
TRAN	—	Transformer


Terminal (Marked)


Terminal (Unmarked)


Splice


Terminal Block

Factory Wiring

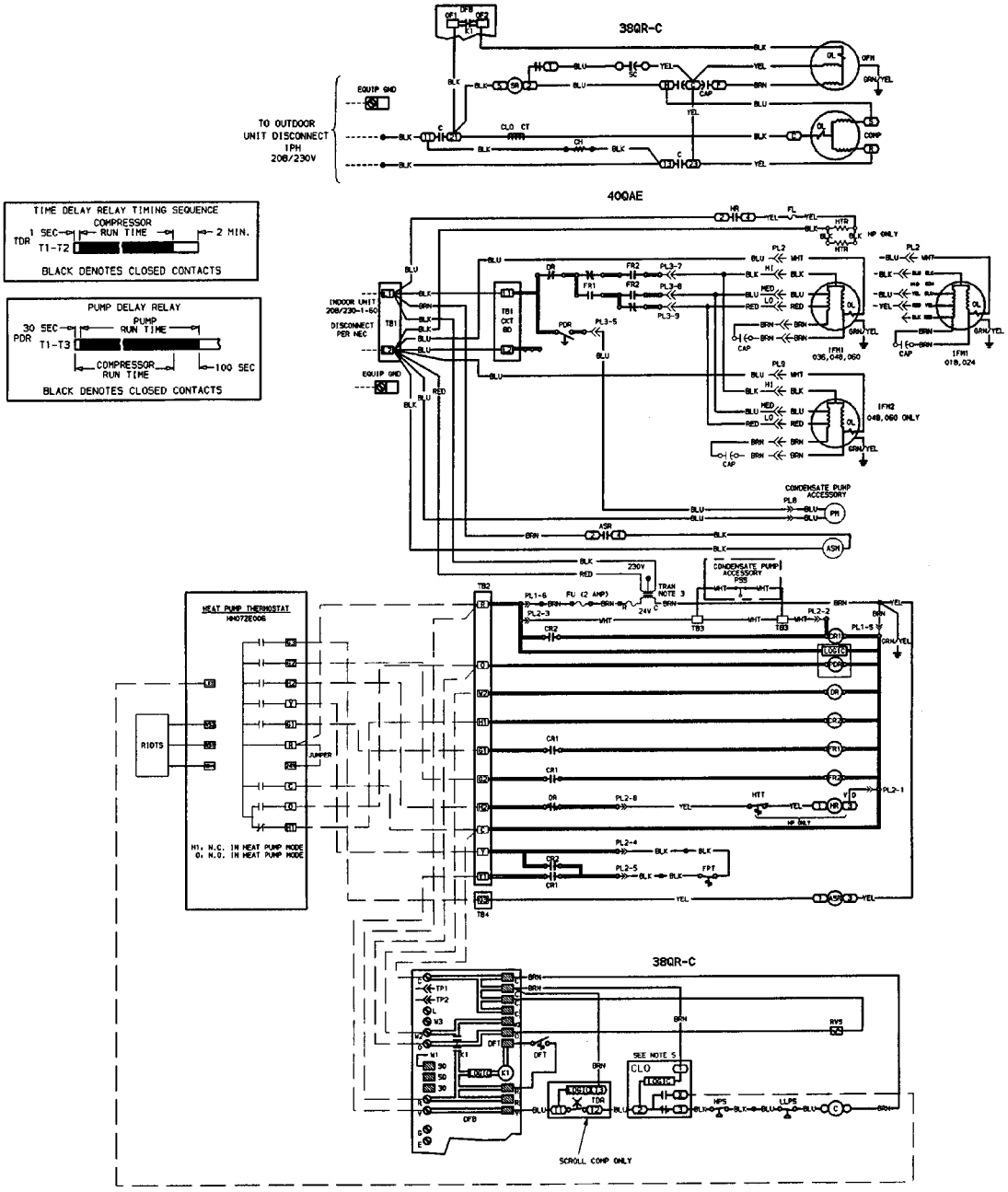
Field Control Wiring

Field Power Wiring

Accessory or Optional Wiring

NOTES:
1. If any of the original wire furnished must be replaced, it must be replaced with type 90 C wire or its equivalent.
2. Wire in accordance with National Electrical Code (NEC) and local codes.
3. The CLO locks out the compressor to prevent short cycling on compressor overloads and safety devices. Before replacing CLO, check these other devices. A minimum 1 amp turn is required to hold contacts closed.
4. A thermistor wiring cable is provided with the fan coil unit.
5. Compressor and fan motors are protected by internal thermal overloads.
6. Transformer has an internal 2 amp thermal fuse on the primary side.

Typical wiring schematic — 53QAE system



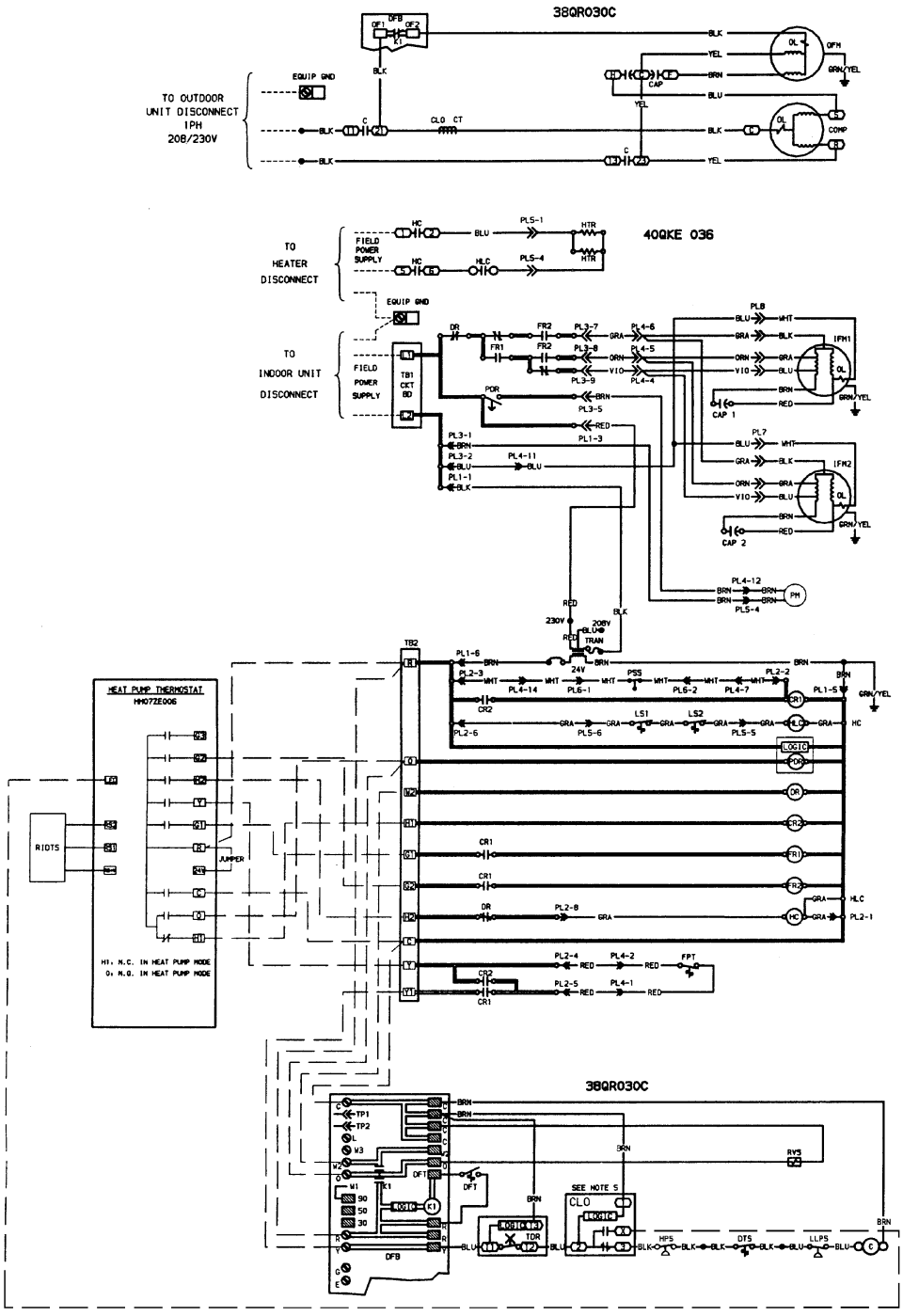
LEGEND

ASM	— Air Sweep Motor	**FL**	— Fuse Link	**OL**	— Overload			Terminal (Marked)
ASR	— Air Sweep Relay	**FPT**	— Freeze Protection Thermostat	**PDR**	— Pump Delay Relay			Terminal (Unmarked)
C	— Contactor	**FR**	— Fan Relay	**PL**	— Plug			Splice
CAP	— Capacitor	**FU**	— Fuse	**PM**	— Pump Motor			Terminal Block
CH	— Crankcase Heater	**HP**	— Heat Pump	**PSS**	— Pump Shut-Off Switch			Factory Wiring
CKT BD	— Circuit Board	**HPS**	— High-Pressure Switch	**RIDTS**	— Remote Indoor Temp. Sensor			Field Control Wiring
CLO	— Compressor Lockout	**HR**	— Heater Relay	**RS1**	— Indoor Remote Sensor			Field Power Wiring
COMP	— Compressor	**HTR**	— Heater	**RS2**	— Not Used			Printed Circuit Board
CR	— Control Relay	**HTT**	— Heater Temp. Thermostat	**RS+V**	— Remote Sensor Common			Accessory or Optional Wiring
CT	— Current Transformer	**IFM**	— Indoor-Fan Motor	**RVS**	— Reversing Valve Solenoid			
DFB	— Defrost Board (Outdoor Unit)	**LED**	— Light-Emitting Diode	**SC**	— Start Capacitor			
DFT	— Defrost Thermostat	**LLPS**	— Liquid Low-Pressure Switch	**SR**	— Start Relay			
DR	— Defrost Relay	**N.C.**	— Normally Closed	**TB**	— Terminal Block			
EQUIP GND	— Equipment Ground	**N.O.**	— Normally Open	**TDR**	— Time Delay Relay			
		OFM	— Outdoor-Fan Motor	**TP**	— Test Point			
				TRAN	— Transformer			

NOTES:
1. If any of the original wire furnished must be replaced, it must be replaced with type 90° C wire or its equivalent.
2. Wire in accordance with National Electrical Code (NEC) and all local codes.
3. Transformer is thermally protected and will reset automatically.
4. IFM(S), OFM, and COMP have internal thermal protection.
5. The CLO locks out the compressor to prevent short cycling on compressor overloads and safety devices. Before replacing CLO, check these devices. Minimum one amp turn required to hold contacts closed.

RELAY CHART		
INDOOR FAN	HIGH	FR2
INDOOR FAN	MED	FR1, FR2
INDOOR FAN	LOW	FR1

Typical wiring schematic — 53QKE system



LEGEND

C	—	Contactor
CAP	—	Capacitor
CKT BD	—	Circuit Board
CLO	—	Compressor Lockout
COMP	—	Compressor
CR	—	Control Relay
CT	—	Current Transformer
DFB	—	Defrost Board (Outdoor Unit)
DFT	—	Defrost Thermostat
DR	—	Defrost Relay
DTS	—	Discharge Temp. Sensor
EQUIP GND	—	Equipment Ground
FL	—	Fuse Link
FPT	—	Freeze Protection Thermostat
FR	—	Fan Relay
HLC	—	Heating Limit Contactor
HP	—	Heat Pump
HPS	—	High-Pressure Switch
HTR	—	Heater
IFM	—	Indoor-Fan Motor
LED	—	Light-Emitting Diode
LLPS	—	Liquid Low Pressure Switch
LS	—	Limit Switch
N.C.	—	Normally Closed
N.O.	—	Normally Open
OF	—	Outdoor Fan
OFM	—	Outdoor-Fan Motor
OL	—	Overload
PDR	—	Pump Delay Relay
PL	—	Plug
PM	—	Pump Motor
PSS	—	Pump Shutoff Switch
RIDTS	—	Remote Indoor Temp. Sensor
RVS	—	Reversing Valve Solenoid
TB	—	Terminal Block
TDR	—	Time Delay Relay
TP	—	Test Point
TRAN	—	Transformer

Terminal (Marked)

Terminal (Unmarked)

Splice

Terminal Block (X)

Factory Wiring

Field Control Wiring

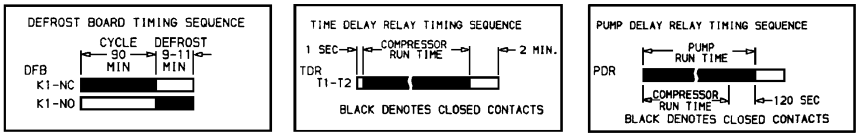
Field Power Wiring

Printed Circuit Board

Accessory or Optional Wiring

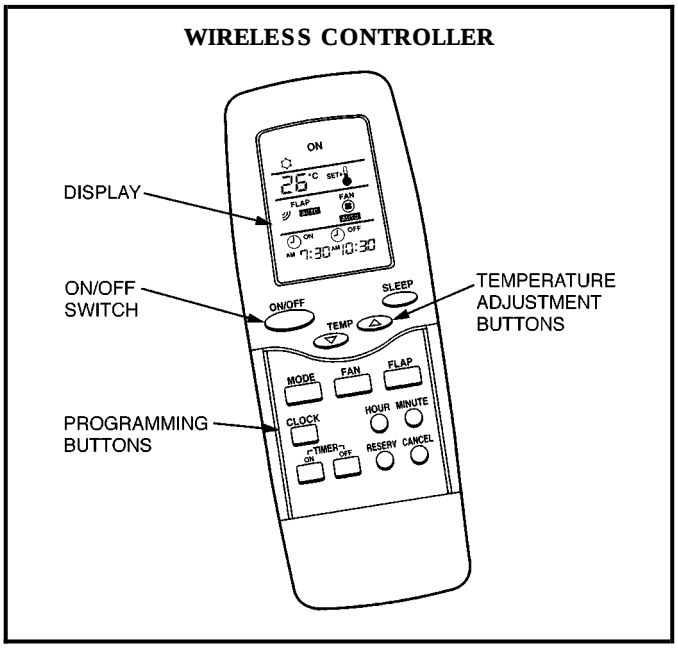
RELAY CHART

INDOOR FAN	HIGH	FR2
INDOOR FAN	MED	FR1, FR2
INDOOR FAN	LOW	FR1



NOTES:
1. If any of the original wire furnished must be replaced, it must be replaced with type 90° C wire or its equivalent.
2. Wire in accordance with National Electrical Code (NEC) and all local codes.
3. Transformer is thermally protected and will reset automatically.
4. IFM(S), OFM, and COMP have internal thermal protection.
5. The CLO locks out the compressor to prevent short cycling on compressor overloads and safety devices. Before replacing CLO, check these devices. Minimum one amp turn required to hold contacts closed.
6. Heating contactor energizes electric heater in fan coil. Heater requires separate power source for electrical power.

Controls — systems using high wall fan coils (53QNE)



40QNE control system

The 40QNE unit is equipped with a microprocessor control which operates the system. This control is located in the control box of the fan coil unit, with thermistors located in the fan coil inlet and on the indoor coil. The 40QNE heat pump fan coil units also have thermistors located on the outdoor coil and in the outdoor air inlet. These thermistors monitor system operation and control the operating mode. To change settings or modes of operation, use the factory-supplied infrared wireless remote controller (see above). This controller allows the fan coil unit to be operated from within the same room without any wire connections to the unit.

The remote controller includes a wall-mounted bracket. To install the bracket, attach bracket to the wall using factory-supplied, double-sided tape. Install factory-supplied batteries into the remote controller and place the controller into the bracket so that it is ready for use.

Operating mode memory

After the system is turned off or after a power failure, the system remains in the last operating mode selected. When the system is turned back on, or when power is automatically restored, operation continues in the same operating mode as when power shut down.

Automatic operation (Auto) mode

If auto mode is selected, the system automatically switches the operating mode from heating to cooling, or from cooling to heating depending on the preset temperature (adjustable ± 35° F).

NOTE: Between the cooling cycle and the heating cycle there is a neutral zone of approximately 2° F above and 2° F below the preset temperature when only the fan is operating.

Operating fault diagnosis

The system includes an automatic diagnosis feature which is activated under difficult or unacceptable operating conditions. If such conditions occur, the system stops automatically, the operating fault signal appears (green ''UNIT ON'' light on the front of the fan coil unit flashes), and an analysis of the system operating conditions is initiated. The system is restarted automatically as soon as normal conditions have been restored, or after 5 tries it will remain off. If the system does not start again, the green ''UNIT ON'' light flashes an error code.

Control operating modes

There are 11 operating modes (including the off mode) for the unit. Each mode operates as follows:

- Off Mode — When the unit is in the off mode, all functions (compressor, outdoor fan, indoor fan, and air sweep) are off, except the reversing valve, which will stay energized if the unit was last operated in the cooling mode.
- Air Circulation Mode (Fan Operation Only) — When air circulation mode is selected, the indoor fan operates continuously at the selected speed (high, medium, low, or auto). If the auto mode is selected, the indoor fan operates at low speed. The compressor and outdoor fan are off. The reversing valve will remain in the last operating mode.
- Cooling Mode — When the cooling mode is selected, the indoor fan operates continuously at the selected speed if the speed is high, medium, or low. If the indoor fan is in auto mode, the fan changes operating speeds depending on the difference between the room temperature and the set point. The reversing valve will be on for 40QNE018,024 units or off for 40QNE009,012 units. The compressor cannot run for 3 minutes from the time the system starts up or for 3 minutes from the time the compressor last operated. When the temperature of the room is equal to or greater than the selected temperature, the compressor and outdoor fan will operate until the room temperature is 2° F below the set point, and then shut off. When the room temperature is less than the selected temperature, the compressor and outdoor fan remain off.
- Maximum Dehumidification Mode — When the dehumidification mode is selected, the indoor fan will operate continuously at the selected speed if the speed is high, medium, or low. If the indoor fan is in auto mode, the fan changes operating speeds depending on the room temperature. If the room temperature is below the set point, the indoor fan runs at ultra-low speed, and the compressor could run for up to 4 minutes. (Ultra-low speed is a control-driven speed [not user configurable] used to sample the space when the fan would normally be off.) The reversing valve will be on for 40QNE018,024 units or off for 40QNE009,012 units. The compressor cannot run for 3 minutes from the time the system starts up or for 3 minutes from the time the compressor last operated.

Initial Operation — When the mode is first selected, one of the following occurs:

1. If the room temperature is above or equal to the selected temperature, the unit operates for 16 minutes and the compressor and outdoor fan operate. The indoor fan will operate as in the cooling mode. After 16 minutes of operation (or when the room reaches 2° F below set point), the unit switches to normal dehumidification operation.

Controls — systems using high wall fan coils (53QNE) (cont)

2. If the room temperature is below the selected temperature, the unit operates for 8 minutes as follows: The compressor and outdoor fan operate for 3 minutes. The indoor fan operates in low speed, and 30 seconds after the compressor stops, the indoor fan stops. The unit remains off for 1 minute, and then the indoor fan starts in ultra-low speed for 30 seconds. The unit then switches to normal dehumidification operation.

Normal Operation — One of the following will take place:

1. When the temperature of the room is equal to or greater than the selected temperature (by not more than 3° F), the unit operates for 8 minutes as follows: The compressor and outdoor fan operate for 3 minutes. The indoor fan operates in low speed, and 30 seconds after the compressor stops, the indoor fan stops. The unit remains off for 1 minute, and then the indoor fan runs at ultra-low speed for 30 seconds. The normal dehumidification operation is repeated for the newly sensed room temperature.
2. If the room temperature is equal to or greater than the selected temperature, but not by more than between 4° F and 6° F, the compressor and outdoor fan operate for 4 minutes. The indoor fan runs at ultra-low speed and will stop 30 seconds after the compressor stops. After 3 minutes, the indoor fan runs at ultra-low speed for 30 seconds. The normal dehumidification operation is repeated for the newly sensed room temperature.
3. When the room temperature is equal to or more than 4° F below the selected temperature, the system operates as follows: The compressor and outdoor fan operate for 3 minutes. The indoor fan operates at ultra-low speed and will stop 30 seconds after the compressor stops. After 4 or 5 minutes, the indoor fan starts at ultra-low speed for 30 seconds. The normal dehumidification operation is repeated for the newly sensed room temperature. If the room temperature is still 4° F below the selected temperature, the compressor, outdoor fan, and indoor fan remain off. After 7½ minutes, the indoor fan operates at ultra-low speed for 30 seconds. The normal dehumidification operation is repeated for the newly sensed room temperature.

- Heat Pump Heating Mode — When the heat pump mode is selected, the indoor fan operates at the selected speed if the speed is high, medium, or low, unless overridden by the coil temperature (to prevent cold drafts). If the indoor fan is in auto mode, the fan changes operating speeds depending on the difference between the room temperature, the set point, and the coil temperature. The reversing valve will be off for 40QNE018,024 units or on for 40QNE009,012 units. The compressor cannot run for 3 minutes from the time the system starts up or for 3 minutes from the time it last operated. When the temperature of the room is 8° F below the selected temperature, the unit will operate in heat pump mode until the temperature is 6° F above the selected temperature or the compressor runs for 40 minutes (whichever comes first). If the temperature of the room is less than 7° F below or equal to the selected temperature, the unit operates in heat pump mode until the selected set point temperature plus 2° F is reached.
- Demand Defrost Mode (Heat Pump Systems Only) — This unit uses a demand defrost system to remove frost from the outdoor coil during heating operation. The indoor and outdoor fans are shut off during defrost mode. See Electronic Control Defrost Regions Map on page 79 for defrost region details.
- Sleep Mode — The sleep mode timer turns the unit off when the timer reaches zero minutes. The durations that can be selected are 1,2,3, or 7 hours. After the initial 30 minutes, the user set point shifts approximately 1° F warmer. This sequence repeats itself every 40 minutes up to a total of 150 minutes.

  When is sleep mode, the display on the remote controller is dimmed.
- Awake Mode — The awake timer will turn the unit on when the timer reaches zero minutes. The unit will start in the same mode and at the same selected temperature as when the system shut off. If the room temperature is not within approximately 5° F of the set point 40 minutes before start-up, the unit runs before the awake timer reaches zero to achieve the set point temperature at start-up.
- Automatic Operation Mode for Cooling Only Systems — The unit samples the air in the room. Based on the room temperature, the unit selects one of the following modes:

1. Cooling Mode — If the room temperature is more than 82.4 F with a preset temperature of 78.8 F.
2. Dry Mode — If the room temperature is more than 75.2 F and less than 82.4 F with a preset temperature of 77 F.
3. Fan Only Mode — If the room temperature is less than 75.2 F.

   The preset temperature can be changed by ±4° F using the remote control.

- Automatic Operation Mode for Heat Pump Systems (38BK) — The operation mode will be determined after 20 seconds of room monitoring (to determine the room temperature and the outdoor air temperature).
- Test Mode — The test mode can be selected by setting the slide switch on the fan coil unit to TEST position. The slide switch is located on the front of the unit. The fan coil unit will start immediately (there is no compressor time delay when using test mode) in cooling mode with an infinitely low set point. The indoor fan speed will be at the high setting, and the swing louvers will be on (moving up and down).

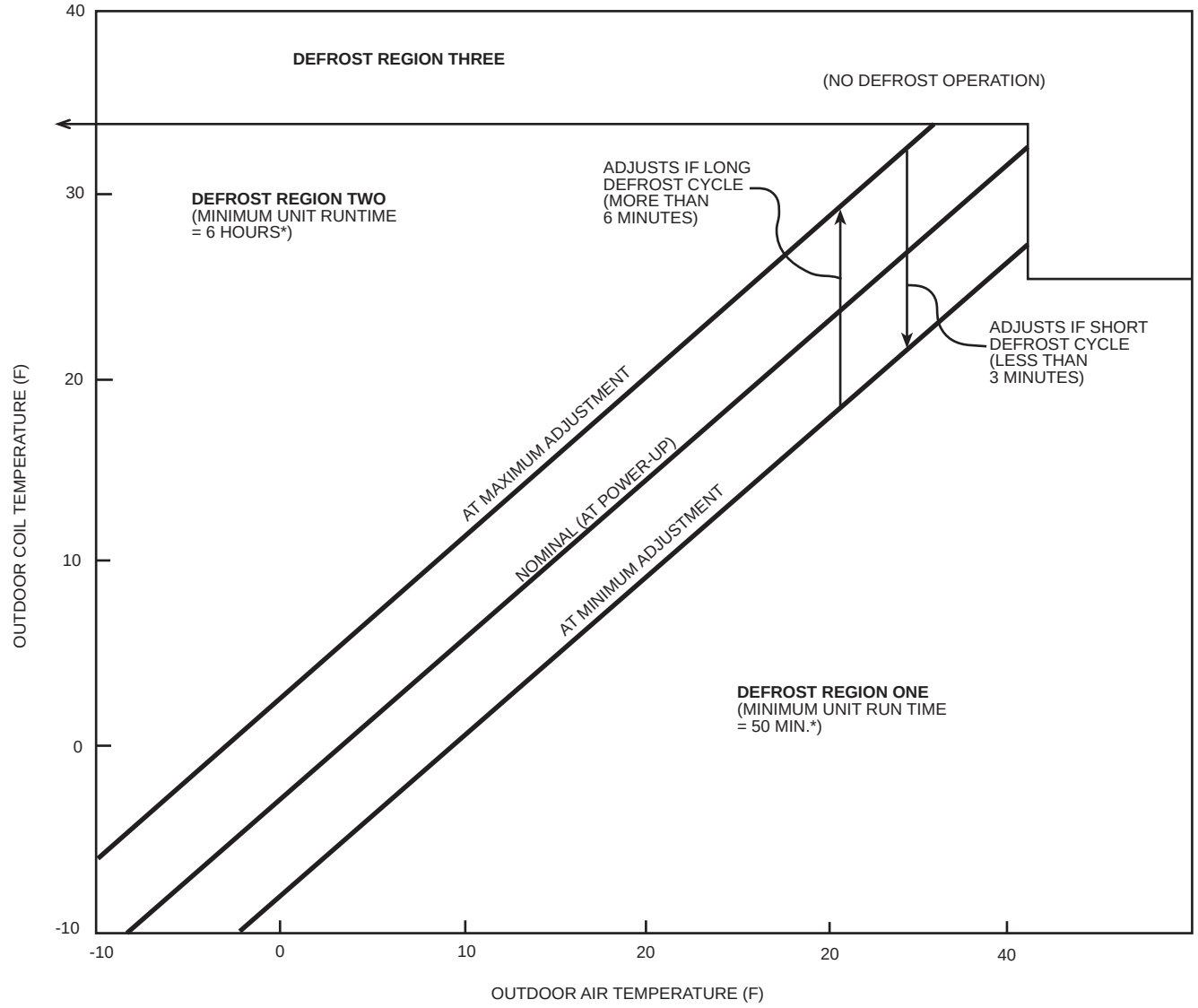
NOTE: The unit cannot be controlled by the remote controller until the slide switch is returned to the REMOTE position.

- Emergency Mode — This mode is only to be used if the remote controller is lost, damaged, or the batteries are discharged. To initiate emergency mode, manually move the slide switch on the fan coil unit to the EMER position. The unit is automatically operated in cooling or heating mode according to room temperature. Emergency operation settings are as follows:

1. Operation mode: AUTO
2. Fan Speed: AUTO
3. Cooling set point: 77 F
4. Timer Mode: Continuous

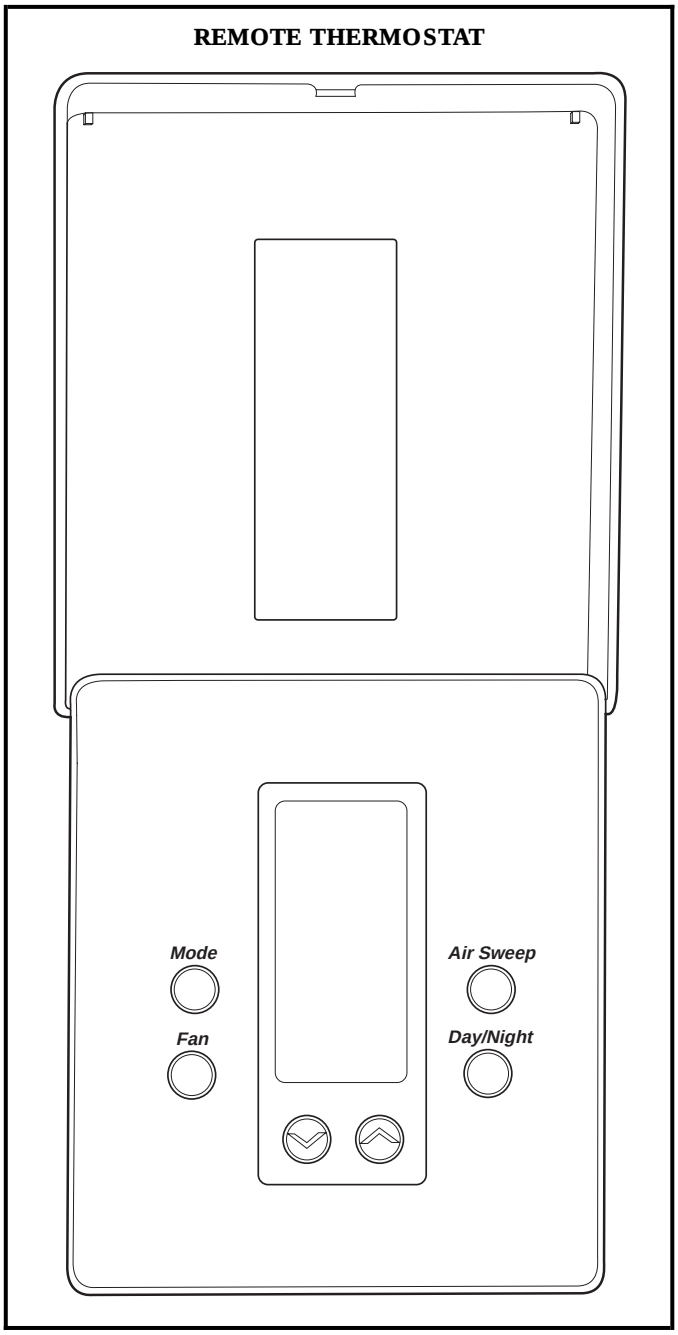
NOTE: The unit cannot be controlled by the remote controller until the slide switch is returned to the REMOTE position.

ELECTRONIC CONTROL DEFROST REGIONS MAP



*A defrost will be initiated after 30 minutes of compressor run time if the outdoor coil temperature is less than −4° F.

Controls — systems using ceiling-suspended (53QAE) or cassette (53QKE) fan coils



Automatic air sweep

All 40QAE units are equipped with an automatic air sweep feature which automatically directs the airflow louvers up and down to provide optimum room air circulation. If the auto sweep feature is not desired, temporarily start the auto sweep using the remote thermostat (press Air Sweep button). When the louvers are in the desired position, turn auto sweep off (press Air Sweep button again) to hold them in that position.

Operating mode memory

After the system is turned off or after a power failure, the system remains in the last operating mode selected. When the system is turned back on, or when power is automatically restored, operation continues in the same operating mode as when the system shut down.

Automatic operation (auto) mode

If auto mode is selected, the system automatically switches over the operating mode from heating to cooling, or from cooling to heating depending on the selected temperature. Auto mode also controls fan speed if not manually overridden.

NOTE: Between the cooling cycle and the heating cycle there is a neutral zone of approximately 2° F above and 2° F below the selected temperature when only the fan is operating.

Operating sequence

Ceiling-suspended fan coil units have a relay board which controls system operation in response to the room thermostat. The user may manually select any one of 3 fan speeds for unit operation. Ceiling-suspended systems may be equipped with an accessory power ventilation kit and/or condensate pump.

Fan operation — Fan speed can be selected by pressing the fan button (high, medium, or low speed choices). The fan(s) is capable of operation when unit mode is set on either cooling, heating, or auto mode. When the fan(s) is operating in medium or high speed and the unit is equipped with the power ventilation kit, the ventilation fan will operate to provide fresh air. If the mode is set to the AUTO position, then the fan will operate with the outdoor unit compressor.

Cooling mode operation — When the room thermostat senses a demand for cooling, the fan coil relay board is energized. The indoor fan(s) will start in the selected speed (if it is not already operating). The reversing valve will energize and switch to the cooling position.

The internal condensate pump (if so equipped) runs whenever the reversing valve is energized and/or the unit is in cooling. As long as the condensate float switch and freeze protection thermostat are closed, the cooling relays in the fan coil unit will close. This energizes the compressor and outdoor fan in the outdoor unit.

The compressor will continue to operate until the room thermostat is satisfied. When the cooling demand is satisfied, the compressor and outdoor fan will stop. If the system is in the AUTO mode, the indoor fan will stop with the compressor. If the unit has the accessory ventilation kit, the ventilation fan will operate whenever the indoor fan is set for medium or high speed.

Heat pump operation — When the room thermostat senses a demand for heating, the fan coil relay board is energized. The indoor fan will start in the selected speed (if not already operating), and the reversing valve will not be energized. The internal condensate pump (if supplied) and freeze protection thermostat are not operated during heating operation. The control relay (CR2) closes, and the compressor and outdoor fan are energized through the defrost board (DFB), which is located in the outdoor unit. The microprocessor logic in the DFB is energized when the compressor starts, and the defrost timer runs. Once every 90 minutes (factory default setting) of compressor run time, the DFB logic checks the defrost thermostat (DFT). If the DFT is open, the unit continues in heating operation. If the DFT is closed, the DFB switches the unit to defrost mode. The timing on the DFB may be set at either 30, 50, or 90 minutes.

Defrost — The DFB energizes the RVS (reversing valve solenoid), and the reversing valve switches to the cooling position. The K1 relay on the DFB opens and the outdoor fan stops. The W2 contact on the DFB is also energized, which in turn energizes the defrost relay on the fan coil relay board, turns off the electric heater and stops the indoor fan.

The DFB logic checks the 10-minute defrost timer and the DFT. If the DFT opens in less than 10 minutes, the DFB switches the unit back to normal heating operation. If the DFT remains closed, the DFB switches the unit back to heating operation after 10 minutes. When the DFB changes back to heating mode, the RVR (reversing valve relay) is deenergized and the reversing valve switches back to heating operation. Both the outdoor and indoor fans come back on, and if necessary, the electric heater also turns on.

System safeties — The system is equipped with the following safety devices to protect system components:

A. Indoor coil freeze protection thermostat (cooling cycle only) — If a coil temperature of 28 F or lower is sensed, the compressor and outdoor fan will be shut down until the coil temperature exceeds 28 F. The indoor fan will continue to run.

B. Condensate float switch (units equipped with accessory condensate pump, cooling cycle only) — If the level of condensate in the drain pan rises too high, the condensate float switch will turn off the compressor and outdoor fan until the condensate level returns to normal. The indoor fan will continue to run.

C. Outdoor Unit Safeties — These units are protected by the following devices:
   - high-pressure switch
   - loss of charge switch (condensing units only)
   - compressor internal overloads
   - outdoor-fan motor internal overload

   NOTE: Outdoor units with scroll compressors are also protected by a high discharge gas temperature sensor and a 2-minute timer to prevent possible reverse rotation of the compressor.

Should any of these devices trip after the compressor is energized, the Cycle LOC™ protection device will lock out the outdoor unit (turn if off) to prevent cycling on a safety device.

Special operation, heating — Outdoor cooling units can be matched with heat pump ceiling-suspended or cassette fan coil units to provide supplemental electric heat. All other operation is the same as a cooling-only system, except these units have heating capability as follows:

When the room thermostat initiates a call for heating, the electric heater is turned on. The indoor unit fan will start at the same time if it was not already running.

When the heating requirement is satisfied, the room thermostat will open, and the heater will turn off.

Use cooling-only thermostat --HH--07ZE-007 for these applications.

Heat pump thermostats — These thermostats are for heat pump applications when both cooling and heating set points are required. They can also be used for systems with a cooling-only outdoor unit and heat pump indoor unit. When set in AUTO mode the space conditions are maintained by calling for either cooling or heating and maintaining at least a 2 degree differential between them. Indoor fan will operate in all instances either in auto mode or in a pre-selected manual mode. Automatic mode operation is as follows:

Auto Cooling mode:	Y	contact closed
	O	contact closed
	H1	contact open
Auto Heating mode:	Y	contact closed
	O	contact open
	H1	contact closed

For heat pump systems, Y contact provides mechanical heating (H1 contact remains closed). If control logic calls for auxiliary heat, it is activated through contact H2 and the center (orange) LED is lit. When the system is in emergency heat mode, only H2 and the fan are activated.

Other thermostat operating features include the following:

- Center (orange) LED is for AUX heat.
- Right-hand (red) LED indicates a fault — compressor lockout when wired.
- Filter indicator on display screen becomes activated at 250 hrs of run time. To reset, hold fan button in for 5 seconds.
- Terminal block RS1, RS2, RS+V can be used for a remote indoor sensor so that the thermostat can be located elsewhere (secure room).

Guide specifications — outdoor units

Commercial Heat Pump Units

HVAC Guide Specifications

Size Range: **¾ to 5 Tons Cooling Capacity**
9000 to 57,500 Btuh
Heating Capacity
Carrier Model Number: **38BK, 38QR-C**

Part 1 — General

1.01 SYSTEM DESCRIPTION

A. Outdoor-mounted, air-cooled split system outdoor section suitable for on-the-ground, rooftop, wall hung, balcony, or under-deck installation. Unit shall consist of a hermetic reciprocating, scroll, or rotary compressor, an air-cooled coil, propeller-type blow-thru outdoor fans, reversing valve, accumulator, holding refrigerant charge (full charge for 38BK009,012), heating mode metering device, and control box. Unit shall discharge air horizontally as shown on the contract drawings. Units shall function as the outdoor component of an air-to-air cooling and heating system.

B. Units shall be used in a refrigeration circuit matched to a duct-free cooling fan coil unit or an approved ducted cooling fan coil unit.

1.02 QUALITY ASSURANCE

A. Unit construction shall comply with ANSI/ASHRAE 15, latest revision, and with the NEC.

B. Units shall be constructed in accordance with UL standards.

C. Units shall be listed in the CEC directory.

D. Unit cabinet shall be capable of withstanding Federal Test Standard No. 141 (method 6061) 500-hour salt spray test.

E. Air-cooled condenser coils shall be leak tested at 350 psig air pressure with the coil submerged in water.

1.03 DELIVERY, STORAGE, AND HANDLING

Units shall be shipped in one piece and shall be stored and handled per unit manufacturer's recommendations.

1.04 WARRANTY (For Inclusion By Specifying Engineer)

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, single piece, air-cooled outdoor unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, full (38BK009,012) or holding (38BK018,024 and 38QR-C) charge of R-22 refrigerant, and special features required prior to field start-up.

B. Unit Cabinet:

1. Unit cabinet shall be constructed of galvanized-steel, bonderized and coated with a baked-enamel finish.
2. Unit access panels shall be removable with minimal screws and shall provide full access to the compressor, fan, and control components.
3. Outdoor compartment shall be isolated and have an acoustic lining to assure quiet operation.

C. Fans:

1. Outdoor fans shall be direct-drive propeller type, and shall discharge air horizontally. Fans shall blow air through the outdoor coil (38BK018,024 and 38QR-C only).
2. Outdoor fan motors shall be totally-enclosed, single-phase motors with class B insulation and permanently-lubricated sleeve bearings. Motor shall be protected by internal thermal overload protection.
3. Shaft shall have inherent corrosion resistance.
4. Fan blades shall be corrosion resistant and shall be statically and dynamically balanced.
5. Outdoor fan openings shall be equipped with PVC coated protection grille over fan and coil.

D. Compressor:

1. Compressor shall be fully hermetic reciprocating or scroll type.
2. Compressor shall be equipped with oil system, operating oil charge, and motor. Internal overloads shall protect the compressor from overtemperature and overcurrent. Scroll compressors shall also have high discharge gas temperature protection if required.
3. Motor shall be NEMA rated class F, suitable for operation in a refrigerant atmosphere.
4. Reciprocating compressors shall be equipped with crankcase heaters to minimize liquid refrigerant accumulation in compressor during shutdown and to prevent refrigerant dilution of oil.
5. Compressor assembly shall be installed on rubber vibration isolators and shall have internal spring isolation.
6. Compressors shall be single phase or 3-phase as specified on the contract drawings.

E. Outdoor Coil:

Coil shall be constructed of aluminum fins mechanically bonded to internally enhanced, seamless copper tubes which are cleaned, dehydrated, and sealed.

F. Refrigeration Components:

Refrigerant circuit components shall include brass external liquid line service valve with service gage port connections, suction line service valve with service gage connection port, service gage port connections on compressor suction and discharge lines with Schrader-type fittings with brass caps, accumulator, bi-flow filter drier, pressure relief, reversing valve, and heating mode metering device.

G. Controls and Safeties:

Operating controls and safeties shall be factory selected, assembled, and tested. The minimum control functions shall include the following:

1. Controls:
   a. Time delay restart to prevent compressor reverse rotation on single-phase scroll compressors.
   b. Automatic restart on power failure.
   c. Safety lockout if any outdoor unit safety is open.
   d. A time delay control sequence is also provided standard through the fan coil board, thermostat, or controller.
   e. High-pressure and liquid line low-pressure switches.
   f. Automatic outdoor-fan motor protection.
   g. Start capacitor and relay (single-phase units without scroll compressors).
2. Safeties:
   a. System diagnostics.
   b. Compressor motor current and temperature overload protection.
   c. High pressure relief.
   d. Outdoor fan failure protection.

H. Electrical Requirements:

1. Unit shall operate on single-phase, 60 Hz power at 115 v (38BK009 only) or 208/230 v, or three-phase, 60 Hz power at 208/230 v or 460 v, as specified.
2. Unit electrical power shall be a single point connection.
3. Unit control voltage to the indoor-fan coil shall be 24 v, except 38BK009 and 012 units, which shall supply line voltage.
4. All power and control wiring must be installed per NEC and all local building codes.
5. Unit shall have high- and low-voltage terminal block connections.

I. Special Features (Field Installed):

1. Low-Ambient Kit:

   Control shall regulate fan-motor cycles in response to saturated condensing pressure of the unit. The control shall be capable of maintaining a condensing temperature of 100 F ± 10 F with outdoor temperatures to –20 F. Installation of kit shall not require changing the outdoor-fan motor.
2. Liquid Solenoid Valve:

   This electronically operated shutoff valve shall close and open in response to compressor operation. The valve should be used with all long-lines applications (over 100 ft).
3. Crankcase Heater (units with scroll compressors only):

   Unit shall be shipped with a clamp-on compressor oil sump heater.

Guide specifications — high wall units

Commercial High Wall Fan Coil Units

HVAC Guide Specifications

Size Range: **¾ to 2 Tons Cooling Capacity**
9000 to 21,400 Btuh Heating Capacity
Carrier Model Number: **40QNE**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, wall-mounted, direct-expansion fan coil to be matched with the commercial condensing or heat pump units.

1.02 QUALITY ASSURANCE

Unit shall be rated per ARI Standards 210/240 and listed in the ARI directory as a matched system.

1.03 DELIVERY, STORAGE, AND HANDLING

Units shall be stored and handled per unit manufacturer's recommendations.

1.04 WARRANTY (For Inclusion By Specifying Engineer)

Part 2 — Products

2.01 EQUIPMENT

A. General:

Indoor, direct-expansion, wall-mounted fan coil. Unit shall be complete with cooling/heating coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral temperature sensing. Unit shall be furnished with integral wall-mounting bracket, mounting hardware, and thermistor interconnection cable (53QNE009-024 systems).

B. Unit Cabinet:

Cabinet discharge and inlet grilles shall be attractively styled, high-impact polystyrene. Cabinet shall be fully insulated for improved thermal and acoustic performance.

C. Fans:

1. Fan shall be tangential direct-drive blower type with air intake at the upper front face of the unit and discharge at the bottom front. Automatic, motor-driven vertical air sweep shall be provided standard.
2. Air sweep operation shall be user selectable. Horizontal direction may be manually adjusted (using remote controller) and vertical air sweep may be manually set.

D. Coil:

Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins shall be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a drain connection for hose attachment to remove condensate. Condensate pan shall have internal trap and auxiliary drip pan under coil header.

NOTE: The units use the accessory AccuRater® piston refrigerant metering device in the indoor unit (for cooling) and at the outdoor unit liquid line service valve for heating.

E. Motors:

Motors shall be open drip-proof, permanently lubricated ball bearing with inherent overload protection. Fan motors shall be 3-speed.

F. Controls:

Controls shall consist of a microprocessor-based control system which shall control space temperature, determine optimum fan speed, and run self diagnostics. The temperature control range shall be from 64 F to 84 F. The unit shall have the following functions as a minimum:

1. An automatic restart after power failure at the same operating conditions as at failure.
2. A timer function to provide a minimum 24-hour timer cycle for system Auto Start/Stop.
3. Temperature-sensing controls shall sense return-air temperature. Indoor-air high discharge temperature shutdown shall be provided.
4. Indoor coil freeze protection.
5. Wireless infrared remote control to enter set points and operating conditions.
6. Auto Stop features shall have integral setback control.
7. Automatic airsweep control to provide on or off activation of airsweep louvers.
8. Dehumidification mode shall provide increased latent removal capability by modulating system operation and set point temperature.
9. Fan-only operation to provide room air circulation when no cooling is required.
10. Diagnostics shall provide continuous checks of unit operation and warn of possible malfunctions. Error messages shall be displayed at the unit and at the remote controller.
11. An indoor to outdoor thermistor connection cable shall be provided with the fan coil unit.
12. Fan speed control shall be user-selectable: high, medium, low, or microprocessor automatic operation during all operating modes.
13. A time delay shall prevent compressor restart in less than 3 minutes.
14. Automatic heating-to-cooling changeover to provide automatic heating and cooling operation. Control shall include deadband to prevent rapid mode cycling.
15. Demand defrost shall be provided and shall minimize defrost cycles by internally adjusting defrost timing based on frost accumulation.
16. Indoor coil high temperature protection shall be provided to detect excessive indoor discharge temperature when unit is in heat pump mode.

G. Filters:

Unit shall have filter track with factory-supplied cleanable filters.

H. Electrical Requirements:

Unit shall operate on 115 v (009), 208-v (012-024), or 230-v (012-024), 60 Hz power supply as specified on the equipment schedule. Power and control connections shall have terminal block connections.

I. Operating Characteristics:

1. The unit shall be matched with an outdoor unit. The combination of the outdoor unit and the indoor-fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ fan speed and entering-air temperature at the evaporator coil of _____ F dry bulb and _____ F wet bulb. Outdoor ambient temperature of air entering the condenser of _____ F.
2. The 40QNE system shall have a minimum listed SEER (seasonal energy efficiency ratio) of _____ at ARI conditions, and a minimum HSPF of _____.
3. Outdoor unit shall be rated at ____ bels or less at ARI conditions.
4. The 40QNE heating capacity shall be ____ Btuh or greater at conditions of ____ fan speed entering-air temperature at indoor coil of ____ F dry bulb and outdoor ambient of ____ F dry bulb and ____ F wet bulb.

J. Refrigerant Lines:

All units shall have rotatable refrigerant lines for penetration through the wall using flare connections. All units shall have flare connections.

K. Special Features (Field Installed):

1. Condensate Pump:

The condensate pump shall remove condensate from the drain pan when gravity drainage cannot be used. Pump shall be designed for quiet operation. Pump shall consist of two parts: an internal reservoir/sensor assembly, and a remote sound-shielded pump assembly. The lift capability of the condensate pump shall be 1 to 10 ft (009 size unit) or 3 to 25 ft (012-024 size units). A level sensor on the condensate pan shall stop cooling operation if the level in the condensate pan is unacceptable.

2. Charcoal Filter Kit:

Kit shall include active charcoal filter(s) and required collectors and/or frames. Filters shall aid in removing volatile organic compounds and microparticles from the air in the conditioned space.

Guide specifications — 40QAE ceiling-suspended units

Commercial Ceiling-Suspended Fan Coils

HVAC Guide Specifications

Size Range: **1½ to 5 Tons Cooling Capacity**
17,000 to 57,500 Btuh Heating Capacity
Carrier Model Number: **40QAE**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, under-ceiling mounted, direct-expansion fan coil to be matched with the 38QR-C commercial outdoor heat pump unit.

1.02 QUALITY ASSURANCE

Units shall be rated (when matched with appropriate outdoor unit) per ARI Standard 210/240. Units shall be certified by UL and CSA.

1.03 DELIVERY, STORAGE, AND HANDLING

Units shall be stored and handled per manufacturer's recommendations.

1.04 WARRANTY (For Inclusion By Specifying Engineer)

Part 2 — Products

2.01 EQUIPMENT

A. General:

Indoor, direct-expansion, ceiling-suspended fan coil. Fan coil shall be shipped complete with cooling coil, fan, fan motor, piping connectors, electrical controls, solid-state electromechanical control system, and ceiling mounting brackets.

B. Unit Cabinet:

Cabinet shall be zinc-coated bonderized steel finished with a baked enamel paint. Inlet grilles shall be attractively styled, high-impact polystyrene. Matching mounting brackets shall be provided.

C. Fans:

Fans shall be centrifugal blower type with air intake in the bottom rear of the unit and discharge in the front. Automatic motor-driven vertical air sweep shall be provided.

D. Coils:

Coils shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins will be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a drain connection for attachment of piping to remove condensate.

E. Motors:

Motors shall be permanently lubricated with inherent overload protection. Fan motor shall be 3-speed.

F. Controls:

Controls shall consist of a solid-state electromechanical control system which shall control space temperature and determine optimum fan speed. The temperature control range shall be from 64 F to 84 F. The unit shall have the following functions as a minimum:

1. An automatic restart after power failure at the same operating conditions as at failure.
2. Non-programmable thermostat to provide cooling and heating set points and day/night setback modes.
3. Evaporator coil freeze protection.
4. Wired control to enter set points and operating conditions.
5. Filter status indication after 250 hours of indoor fan operation.
6. Automatic airsweep control to provide on or off activation of airsweep louvers.

Guide specifications — 40QAE ceiling-suspended units (cont)

7. Cooling mode to provide modulating fan speed.
8. Fan only operation to provide room air circulation when no cooling is required.
9. A 50-ft indoor to outdoor control connection cable shall be provided with the fan coil unit.
10. Fan speed control shall be user-selectable: high, medium, low, or automatic operation during all operating modes.
11. A time delay shall prevent compressor restart in less than 2 or 4 minutes (adjustable).
12. Automatic heating-to-cooling changeover to provide automatic heating and cooling operation. Control shall include deadband to prevent rapid mode cycling.

G. Filters:

Unit shall have filter track with factory-supplied cleanable filters.

H. Electrical Requirements:

Unit shall operate on a 208-v or 230-v, 60 Hz power supply as specified on the equipment schedule.

I. Operating Characteristics:

1. The unit shall be matched with an outdoor unit. The combination of the outdoor unit and the indoor-fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ fan speed with entering-air temperature at the evaporator coil of _____ F dry bulb and _____ F wet bulb. Outdoor ambient temperature of air entering the condenser of _____ F.
2. The system shall have a minimum listed SEER (seasonal energy efficiency ratio) of _____ at ARI conditions.

J. Special Features (Field Installed):

1. Internal Condensate Pump:

   The condensate pump shall remove condensate from the pan when gravity cannot be used. The lift capability shall be 20 inches. Float control shall be in the condensate sump to shut unit down in case of pump malfunction.
2. Fresh Air Intake Kit:

   Kit shall include filter and duct connections to provide for outdoor ventilation air.
3. Indoor Guard Kit:

   Kit shall include a guard for the discharge grille to prevent objects from entering the air sweep mechanism.
4. Electronic Programmable Thermostat:

   Thermostat shall be commercial grade and shall provide 7-day, 4-event scheduling. Integral subbase shall be included. Thermostat shall also provide 3-speed fan switchover capability, air sweep auto changeover, and shall not require a battery to retain memory.
5. Power Ventilation Kit:

   Kit shall be used with the accessory fresh air kit when fresh air must be ducted over long distances. The kit will overcome duct static to provide a constant supply of ventilation air. Kit shall consist of a booster fan and adjustable speed control to properly balance fan to achieve required airflow rate.

Guide specifications — 40QKE in-ceiling cassette units

Commercial In-Ceiling Cassette Fan Coil

HVAC Guide Specifications

Size Range: **1½ to 3 Tons Cooling Capacity**
17,600 to 34,000 Btuh
Heating Capacity
Carrier Model Number: **40QKE**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor, in-the-ceiling-mounted, direct-expansion fan coil to be matched with the 38QR-C commercial heat pump unit. Units shall fit standard 2 ft x 4 ft ceiling grid.

1.02 QUALITY ASSURANCE

Unit shall be rated (when matched with appropriate outdoor unit) per ARI Standard 210/240. Units shall be certified by UL and CSA.

1.03 DELIVERY, STORAGE, AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations.

1.04 WARRANTY (For Inclusion By Specifying Engineer)

Part 2 — Products

2.01 EQUIPMENT

A. General:

Indoor, direct-expansion, low-profile (11¾-in. high) in-ceiling fan coil. Unit shall come complete with cooling/heating coil, electric heater, fan, fan motor, piping connectors, electrical controls, condensate pump, and hanging brackets.

B. Unit Cabinet:

Cabinet shall be constructed of zinc-coated steel. Fully insulated discharge and inlet grilles shall be attractively styled, high-impact polystyrene. Cabinet shall have filter tracks and cleanable filters which shall be accessible from below with a ¼-turn fastener. Adjacent room cooling to be provided by a simple knockout in the cabinet side panel, and cabinet shall have provisions to accommodate a limited amount of ductwork, if desired.

C. Fan:

Fan shall be a centrifugal, direct-drive blower type with air intake in center of the unit and discharge on the perimeter. Air louvers shall be adjustable for 2, 3, or 4-way discharge.

D. Coil:

Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins will be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a factory-installed condensate pump and drain connection for hose attachment to remove condensate.

E. Motors:

Motor shall be totally enclosed and permanently lubricated with inherent protection. Fan motor shall be 3-speed.

F. Electric Heater:

Units shall be equipped with factory-mounted electric heaters. Minimum protections shall include overcurrent and high temperature protection.

G. Controls:

Controls shall be 24 v, and shall be easily operated by the user from a wall-mounted control unit. Float control shall be in the condensate sump to shut unit down in case of pump malfunction. A wall-mounted electro-mechanical thermostat with 3 fan-speed selections and an auto/manual switch shall be supplied for field installation. Automatic changeover from cooling to heating modes and selectable 2 or 4 minute start-up delay shall be included. The R-22 refrigerant shall be controlled with a piston-type refrigerant metering device, and evaporator coil freeze protection shall be provided.

H. Filters:

Unit shall have filter track with factory-supplied cleanable filters.

I. Electrical Requirements:

Unit shall operate on a 208-v or 230-v, 60 Hz power supply as specified on the equipment schedule.

J. Operating Characteristics:

1. The unit shall be matched with an outdoor unit. The combination of the outdoor unit and the indoor-fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ fan speed with entering-air temperature at the evaporator coil of _____ F dry bulb and _____ F wet bulb. Outdoor ambient temperature of air entering the condenser of _____ F.
2. The system shall have a minimum listed SEER (seasonal energy efficiency ratio) of _____ at ARI conditions, and a minimum HSPF of ____.
3. Heating capacity shall be ____ Btuh or greater at conditions of ____ fan speed with entering-air temperature at indoor coil of ____ F dry bulb and outdoor ambient of ____ F dry bulb and ____ F wet bulb.

K. Special Features (Field Installed):

1. Power Ventilation Kit:

   Kit shall allow ventilation of the conditioned space with outdoor air. The kit shall include filter, booster fan, and controls.

2. Electronic Programmable Thermostat:

   Thermostat shall be commercial grade and shall provide 7-day, 4-event scheduling. Integral subbase shall be included. Thermostat shall also provide 3-speed fan switchover capability, air sweep auto changeover, and shall not require a battery to retain memory.

3. Fresh Air Intake Kit:

   Kit shall include filter and duct connections to provide for outdoor ventilation air.