

McQuay Type EA Incremental[®] Air Conditioner and Heat Pump

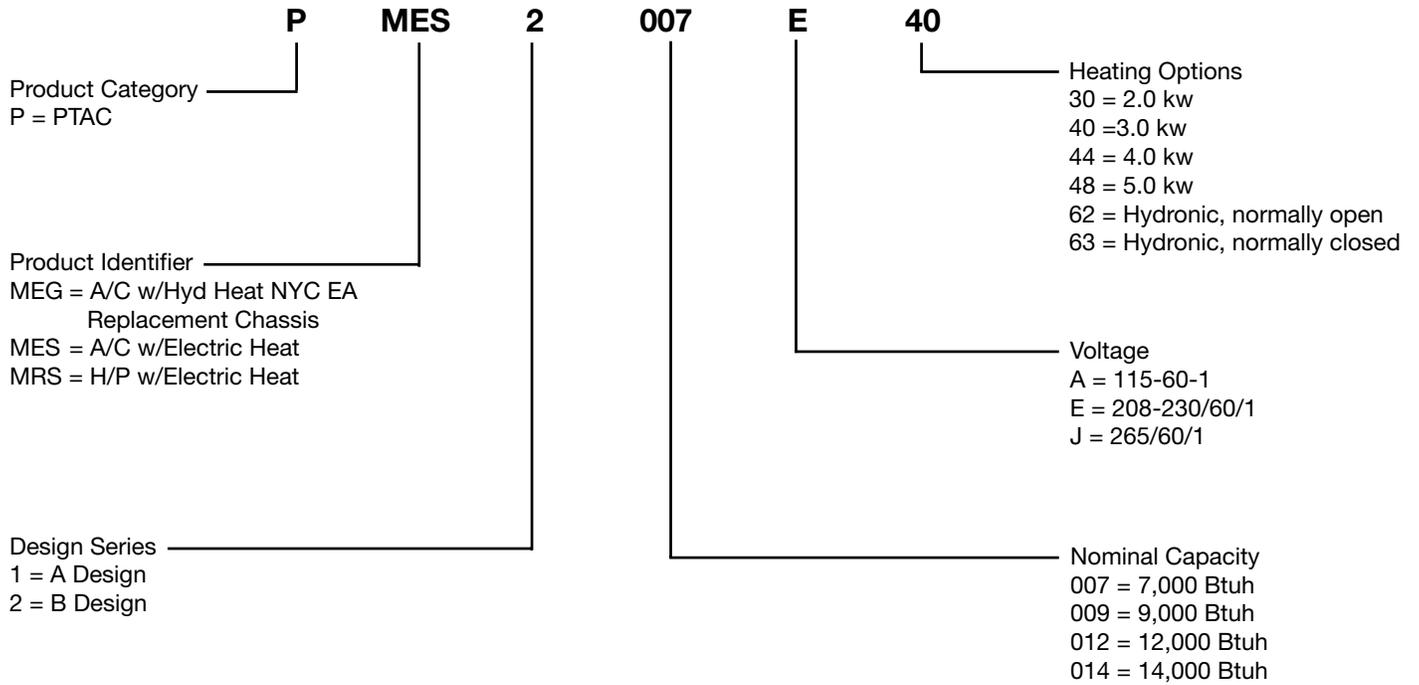
Model PMEG, PMES, PMRS



Table of Contents

MNN Product Description	2	Performance and Electrical Data	7
Product Nomenclature	2	PMES Air Conditioner W/Electric Heat - 60 Hz.....	7
Introduction	3	PMRS Heat Pump W/Electric Heat - 60 Hz	7
Type EA Applications	3	PMEG (Replacement) A/C W/Hydronic Heat - 60 Hz ..	7
Features & Benefits	4	Wiring Diagrams	8-11
Type EA Components	5	PMES (Air Conditioner)	8
Dimensional Data	6	PMRS (Heat Pump)	9
Application Considerations	6	PMEG (Air Conditioner)	10
		Engineering Guide Specifications	11

MNN Product Description



"McQuay" and "Incremental" are registered trademarks of McQuay International.

©2002 McQuay International

"Bulletin illustrations cover the general appearance of McQuay products at the time of publications and we reserve the right to make changes in design and construction at any time without notice."

Introduction

Some thirty years ago a man named Herb Laube had the notion that a multi-space building could be heated and cooled much more efficiently with a small air conditioning plant in each space than it could with a large central unit, air handlers and lots of ductwork. His idea was a number of small conditioners that were quiet, dependable, and unobtrusive. When thought of as a system, the incremental units could handle a building of unlimited size. He called his product "Incremental," and established a company named "Remington." This was the original packaged terminal unit.

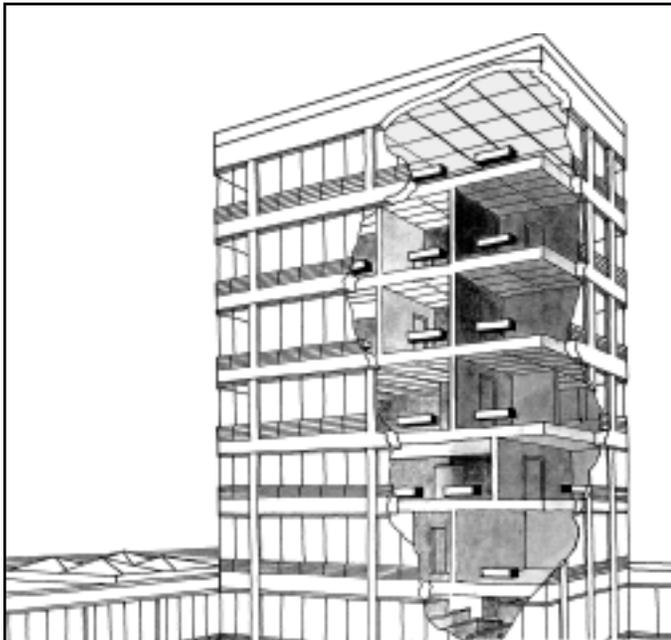
Herb's idea was no doubt ahead of its time, and the years have in fact proven its value. The McQuay and Incremental names have come to be synonymous with quality.

McQuay Incremental equipment is designed for four-season comfort conditioning. It uses electricity for cooling and electricity, steam or hot water for heating. The system permits a high degree of design freedom for new structures, as well as an easily installed means of converting existing buildings to year-round heating and cooling, with individual room-by-room control of comfort levels.

McQuay Type EA Incremental conditioners have been designed to reduce installing costs, while simultaneously providing superior performance, and service. With a through-the-wall dimension of only $16\frac{3}{8}$ " high and $44\frac{7}{8}$ " wide (416mm x 1140mm), Type EA conditioners represent a high degree of compactness for in-the-wall heating-cooling equipment.

Modularity of components and ease of assembly are also among the outstanding features of the Type EA Incremental conditioner. And its simplicity of operation comes almost naturally to any user.

Typical office building application



McQuay Type EA Incremental® Applications

Commercial Office Buildings

Throughout the United States, Canada, and many other countries, Incremental conditioners provide individual, office-by-office temperature control. Not only are older buildings rapidly rented to capacity after air conditioning with Incremental conditioners, but new buildings cost less to build when planning begins with Incremental conditioners. Building owners report as much as an entire extra floor becomes rentable when there's no need for central machinery rooms or costly ductwork.

Motels and Hotels

Motels and hotels have become one of the largest users of Incremental conditioners because every guest has a different comfort level. With Incremental conditioners every guest has personal, individual control of his own comfort. Air is not recirculated between rooms, and the controls are easy to operate. Owners and operators, on the other hand, discover amazingly low first costs, inexpensive maintenance, and no need for an operating engineer. Maintenance and operating costs are less than any comparable H.V.A.C. System, and first cost is less than any other complete, four-season air conditioning system.

Apartment Buildings

These types of installations, whether planned from the beginning or modernized with Incremental conditioners, can provide absolute control of comfort and temperature for every tenant at all times, particularly during the spring and fall seasons. Individual metering of each apartment properly allocates costs for benefits received, and no valuable floor space is occupied by central machinery. Equipment is designed for quiet operation, low maintenance, and a 20-year life expectancy.

Nursing Home and Hospital

Time after time, health care management has found Incremental conditioners superior to other systems. Superior comfort, cleanliness, and convenience are frequently cited as major benefits, along with the elimination of pipes, ducts, central mechanical rooms and cooling towers. Individual room control permits selection of the temperature best suited to the needs of patients — for example, high temperature for a diabetic in one room, and simultaneous cooling for a cardiac patient in the adjoining room.

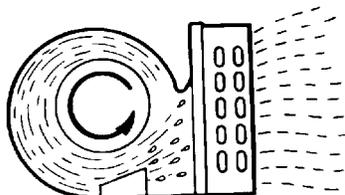
16³/₈" x 44⁷/₈" combination room cabinet and wall sleeve



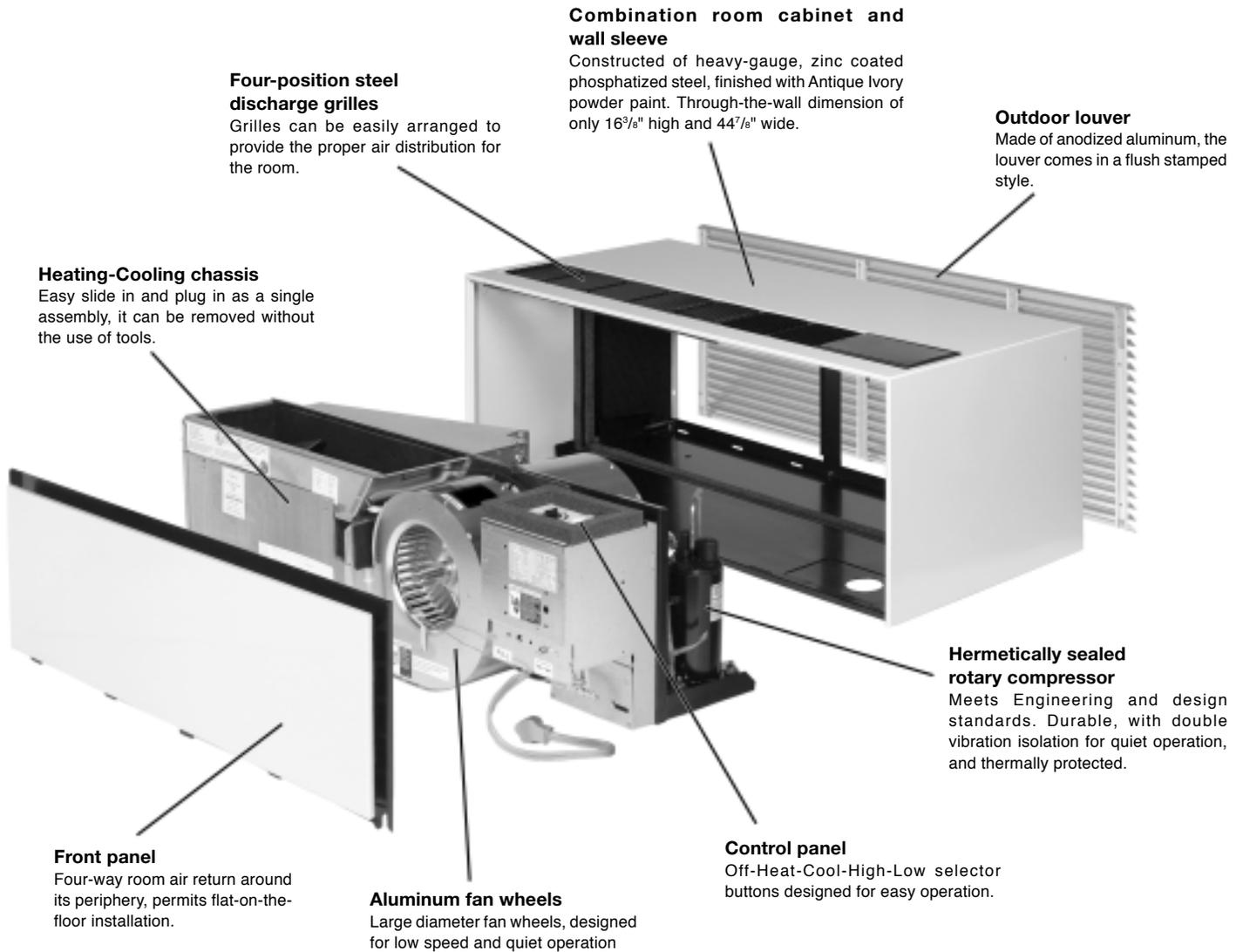
Features and Benefits

McQuay Type EA Incremental® Conditioner	What it Does For You
<p>Heating-Cooling chassis – Designed and engineered to slide in and plug in as a single assembly, it can be removed without the use of tools.</p>	<p>On-site service is simple, and replacement with a spare is rapid if remote service is required.</p>
<p>Hurricane-proof construction – Type EA conditioners utilize a one-piece, steel bulkhead and base pan. The wall sleeve includes a permanently bonded double sealing rubber gasket which mates with the bulkhead perimeter, creating a tight weather seal.</p>	<p>Prevents water from penetrating the unit under hurricane conditions. Type EA conditioners meet the same hurricane test conditions required of today's metal curtain walls used in high-rise construction.</p>
<p>Control flexibility – Manual changeover is standard on all models. Two speeds for both heating and cooling, and a separate toggle switch allows for selection of cycle or constant fan operation. Optional controls include night setback and guest room control.</p>	<p>Easy to operate. Two speeds allow for rapid room conditioning in any season. Optional night setback and guest room control provide operating economy in motels and hotels.</p>
<p>Hermetically sealed rotary compressor – Double vibration isolated, and all compressors are thermally protected.</p>	<p>Quiet operation, and built to meet engineering specifications and design standards. The compressor has an endurance measurable in decades.</p>
<p>Outdoor louver – Made of anodized aluminum, the louver comes in a flush stamped style. Extruded architectural, and flanged stamped types are also available.</p>	<p>Provides a clean architecturally pleasing look.</p>
<p>Centrifugal aluminum fans – Large diameter fan wheels are provided for both the evaporator and condenser sides and are dynamically and statically balanced. Both evaporator and condenser fans are driven by a single, quiet and efficient PSG motor nested in the evaporator fan.</p>	<p>Trouble-free, quiet operation. A separate condenser fan motor, vulnerable to weather and corrosion, has been completely eliminated.</p>
<p>Combination room cabinet and wall sleeve – Constructed of heavy-gauge, zinc coated phosphatized steel and finished with Antique Ivory powder paint for maximum corrosion protection.</p>	<p>Reduces installation time (and cost), this combination cabinet/wall sleeve successfully eliminates the need for a separate wall box.</p>
<p>Front Panel – Modern styling and ingenious design have resulted in the exclusive, multi-purpose front panel. Four-way room air return around its periphery.</p>	<p>Return air design eliminates unsightly, dust-catching grilles, and permits flat-on-the-floor installation. Allows easy access to the permanent, cleanable aluminum mesh filter mounted on its reverse side. Hinging device permits full access to the heating-cooling chassis.</p>
<p>Four-position steel discharge grilles – Constructed of decorative, extruded aluminum, available as an option.</p>	<p>Grilles can be easily arranged to provide the proper air distribution for the room.</p>
<p>Positive condensate removal – A unique centrifugal fan powered system distributes condensate uniformly over the condenser coil for complete evaporation.</p>	<p>Eliminates the spatter, noise, and freeze-up of the propeller fan and slinger ring devices often used in low cost equipment. Condensate never comes in contact with the fan or condenser motor.</p>

Positive condensate removal



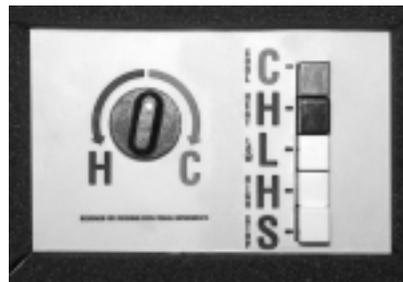
McQuay Type EA Incremental® Conditioner



Front Panel - 4-way Return Air design around its periphery

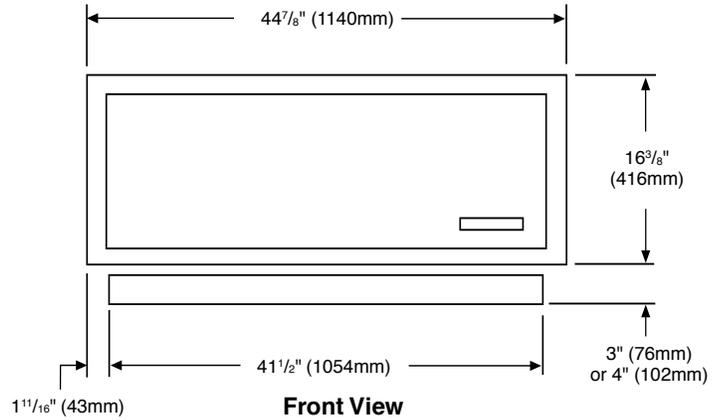
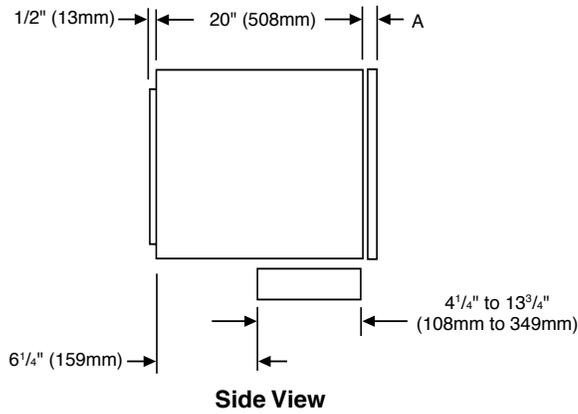


Control Panel



Dimensional Data

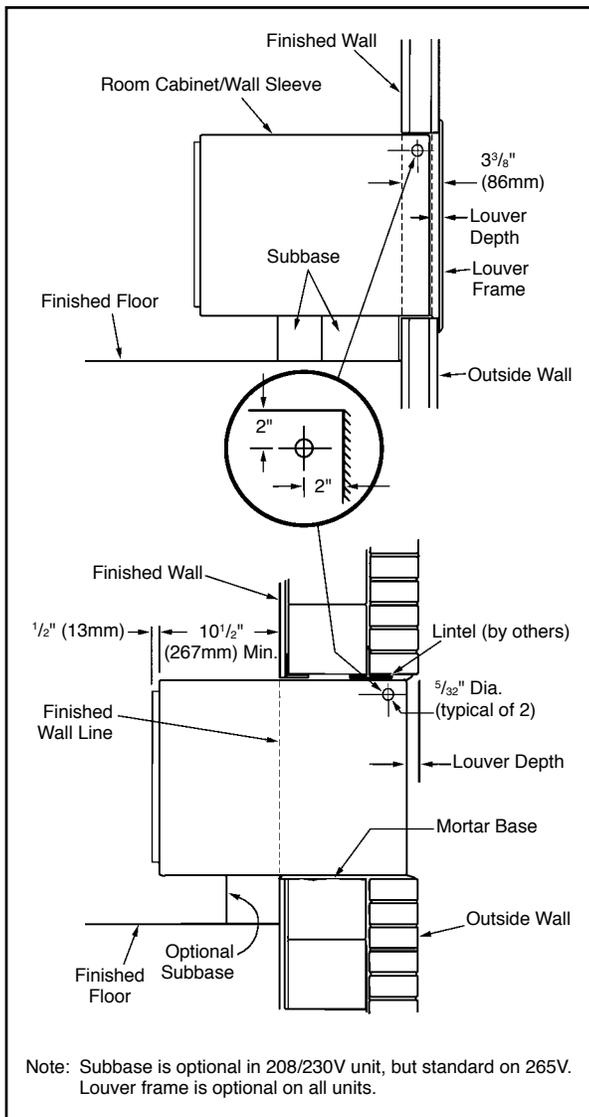
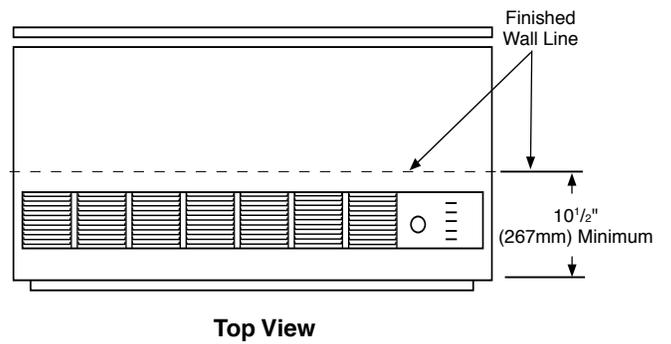
PMES – Air Conditioner With Electric Heat / PMRS – Heat Pump With Electric Heat



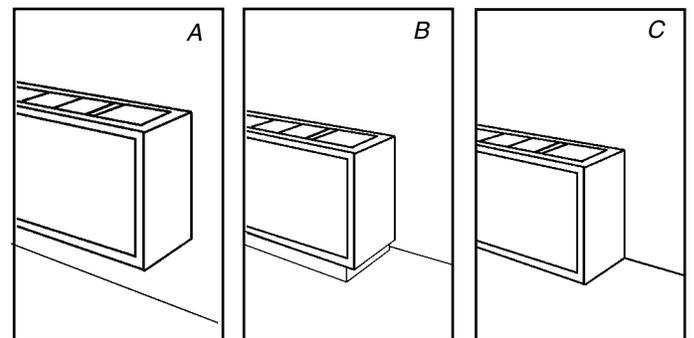
A = Louver thickness: 3/8" (10mm) stamped
1 1/8" (29mm) extruded architectural

Application Considerations

Typical room cabinet and wall sleeve installations



Type EA conditioners can be mounted flat on the floor for the lowest possible silhouette, off the floor at any convenient height, or on an optional universal telescopic subbase which adjusts to any wall thickness.



A = Above-the-floor installation
B = Installation on telescopic subbase
C = Flat-on-the-floor installation

Performance and Electrical Data

PMES – Air Conditioner With Electric Heat – 60 Hz

PMRS – Heat Pump With Electric Heat – 60 Hz

PMEG – (Replacement) Air Conditioner With Hydronic Heat – 60 Hz

UNIT SIZE			007 ②			009 ②				012 ②			014			
VOLTAGE ①			208V	230V	265V	115V	208V	230V	265V	208V	230V	265V	208V	230V	265V	
PMES/PMEG COOLING	Capacity ③	Btuh	7000	6900	6900	8500	8500	8500	8500	10600	10500	10500	14100	14200	14200	
		Watts	2050	2021	2021	2489	2489	2489	2489	3104	3104	3104	4130	4130	4130	
	Efficiency	EER	10.1	9.4	9.4	9.7	10.1	9.7	9.7	9.2	8.9	8.9	9.3	9.2	9.2	
	Full Load Amps		4.2	4.1	3.6	10.4	4.1	3.9	3.4	5.6	5.3	4.6	7.4	6.9	6.0	
	Full Load Watts		693	734	734	876	842	876	876	1152	1180	1180	1516	1543	1543	
Power Factor %		0.99	0.98	0.98	0.97	0.98	0.97	0.97	0.99	0.97	0.97	0.99	0.98	0.98		
ELECTRIC HEAT	Nom. 2.0 kW	Amps ④	10.6	11.6	11.4	—	10.6	11.6	11.4	10.9	11.9	11.4	—	—	—	
		Watts	1922	2350	2700	—	1922	2350	2700	1922	2350	2700	—	—	—	
		Btuh	6558	8018	9212	—	6558	8018	9212	6558	8018	9212	—	—	—	
	Nom. 3.0 kW	Amps ④	13.6	14.9	12.9	—	13.6	14.9	12.9	13.9	15.2	12.9	13.9	15.2	12.9	
		Watts	2535	3100	3100	—	2535	3100	3100	2535	3100	3100	2535	3100	3100	
		Btuh	8649	10577	10577	—	8649	10577	10577	8649	10577	10577	8649	10577	10577	
	Nom. 4.0 kW	Amps ④	16.7	18.3	16.7	—	16.7	18.3	16.7	17.0	18.6	16.8	17.0	18.6	16.8	
		Watts	3173	3880	4125	—	3173	3800	4125	3173	3880	4125	3173	3880	4125	
		Btuh	10826	13239	14075	—	10826	13239	14075	10826	13239	14075	10826	13239	14075	
	Nom. 5.0 kW	Amps ④	—	—	—	—	—	—	—	21.4	23.5	20.6	21.4	23.5	20.6	
		Watts	—	—	—	—	—	—	—	4101	5015	5150	4101	5015	5150	
		Btuh	—	—	—	—	—	—	—	13993	17111	17572	13993	17111	17572	
PMRS – Heat Pump With Electric Heat – 60 Hz																
PMRS Only COOLING	Capacity ③	Btuh	6600	6800	6800	—	8600	8600	8600	10700	10700	10700	13000	13000	13000	
		Watts	1934	1992	1992	—	2518	2518	2518	3133	3133	3133	3807	3807	3807	
	Efficiency	EER	9.5	9.5	9.5	—	9.2	9.2	9.2	8.5	8.5	8.5	8.2	8.2	8.2	
	Full Load Amps		4.6	4.2	3.6	—	5.5	5.0	4.4	6.6	6.0	5.2	8.4	7.6	6.4	
	Watts		703	764	764	—	835	863	835	1105	1137	1105	1421	1432	1421	
Power Factor %		0.98	0.98	0.97	—	0.96	0.96	0.94	0.99	0.98	0.98	0.99	0.98	0.98		
Reverse Cycle Heat	Btuh		6800	6800	6800	—	8400	8400	8400	9800	9800	9800	12700	12700	12700	
	COP		2.8	2.7	2.7	—	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	
	Full Load Amps		4.0	3.9	3.4	—	5.5	5.0	4.4	6.6	6.0	5.2	8.4	7.6	6.4	
	Watts		688	725	725	—	890	922	890	1016	1035	1016	1302	1302	1302	
PMEG (Replacement) Air Conditioner With Hydronic Heat – 60 Hz																
PMEG Only HYDRONIC HEAT ④	Hot Water	High/Low	Btuh	10700/9900			10700/9900			15000/13950			15000/13950			
			kW	3.13/2.90			3.13/2.90			4.39/4.08			4.39/4.08			
	Steam	High/Low	Btuh	15400/13100			15400/13100			19900/18500			19900/18500			
			kW	4.51/3.84			4.51/3.84			5.83/5.42			5.83/5.42			
AIRFLOW (TOTAL/VENT) ⑤	Cooling	High Fan	cfm	260/45	285/50	285/50	270/50	240/45	270/50	270/50	290/60	315/65	315/65	290/60	315/65	315/65
			L/s	123/21	134/24	134/24	127/24	113/21	127/24	127/24	137/28	149/31	149/31	137/28	149/31	149/31
		Low Fan	cfm	230/40	260/45	260/45	250/45	220/40	250/45	250/45	235/40	250/45	250/45	235/40	250/45	250/45
			L/s	108/19	123/21	123/21	118/21	104/19	118/21	118/21	111/19	118/21	118/21	111/19	118/21	118/21
	Heating	High Fan	cfm	290/45	315/50	315/50	300/50	270/45	300/50	300/50	340/60	350/65	350/65	340/60	350/65	350/65
			L/s	137/21	149/24	149/24	142/24	127/21	142/24	142/24	160/28	165/31	165/31	160/28	165/31	165/31
		Low Fan	cfm	255/40	280/45	280/45	270/45	235/40	270/45	270/45	280/40	310/45	310/45	280/40	310/45	310/45
			L/s	120/21	132/21	132/21	127/21	111/19	127/21	127/21	132/19	146/21	146/21	132/19	146/21	146/21
MINIMUM CIRCUIT AMPACITY	Nom. 2.0 kW Heater		13.3	14.5	14.2	—	13.3	14.5	14.2	13.7	14.9	14.2	—	—	—	
	Nom. 3.0 kW Heater		17.0	18.6	16.1	—	17.0	18.6	16.1	17.4	19.0	16.1	17.4	19.0	16.1	
	Nom. 4.0 kW Heater		20.8	22.8	20.9	—	20.8	22.8	20.9	21.2	23.2	21.0	21.2	23.2	21.0	
	Nom. 5.0 kW Heater		—	—	—	—	—	—	—	26.8	29.4	25.8	26.8	29.4	25.8	
	Hydronic		4.9	4.9	4.2	12.3	6.1	6.1	4.9	7.5	7.5	6.3	10.4	10.4	8.0	
DELAY FUSE MAXIMUM AMPACITY	Nom. 2.0 kW Heater		15	15	15	—	15	15	15	15	15	15	—	—	—	
	Nom. 3.0 kW Heater		20	20	15	—	20	20	15	20	20	15	20	20	15	
	Nom. 4.0 kW Heater		20	25	20	—	20	25	20	20	25	20	20	25	20	
	Nom. 5.0 kW Heater		—	—	—	—	—	—	—	25	30	25	25	30	25	
	Hydronic		15	15	15	15	15	15	15	15	15	15	15	15	15	
RECEPTACLE NEMA NO.	Nom. 2.0 kW Heater		6-15R	6-15R	—	—	615R	615R	—	6-15R	6-15R	—	—	—	—	
	Nom. 3.0 kW Heater		6-20R	6-20R	—	—	6-20R	6-20R	—	6-20R	6-20R	—	6-20R	6-20R	—	
	Nom. 4.0 kW Heater		6-30R	6-30R	—	—	6-30R	6-30R	—	6-30R	6-30R	—	6-30R	6-30R	—	
	Nom. 5.0 kW Heater		—	—	—	—	—	—	—	6-30R	6-30R	—	6-30R	6-30R	—	
	Hydronic		6-15R	6-15R	—	5-20R	6-15R	6-15R	—	6-15R	6-15R	—	6-15R	6-15R	—	
NET SHIPPING WT. (LB/KG)	Chassis Only		124/56.2			131/59.4			142/64.4			149/67.6				
	Chassis & Wall Sleeve		187/84.8			194/88.0			205/93.0			212/96.2				

① 60 Hz, 1 phase

② Rated at low fan speed

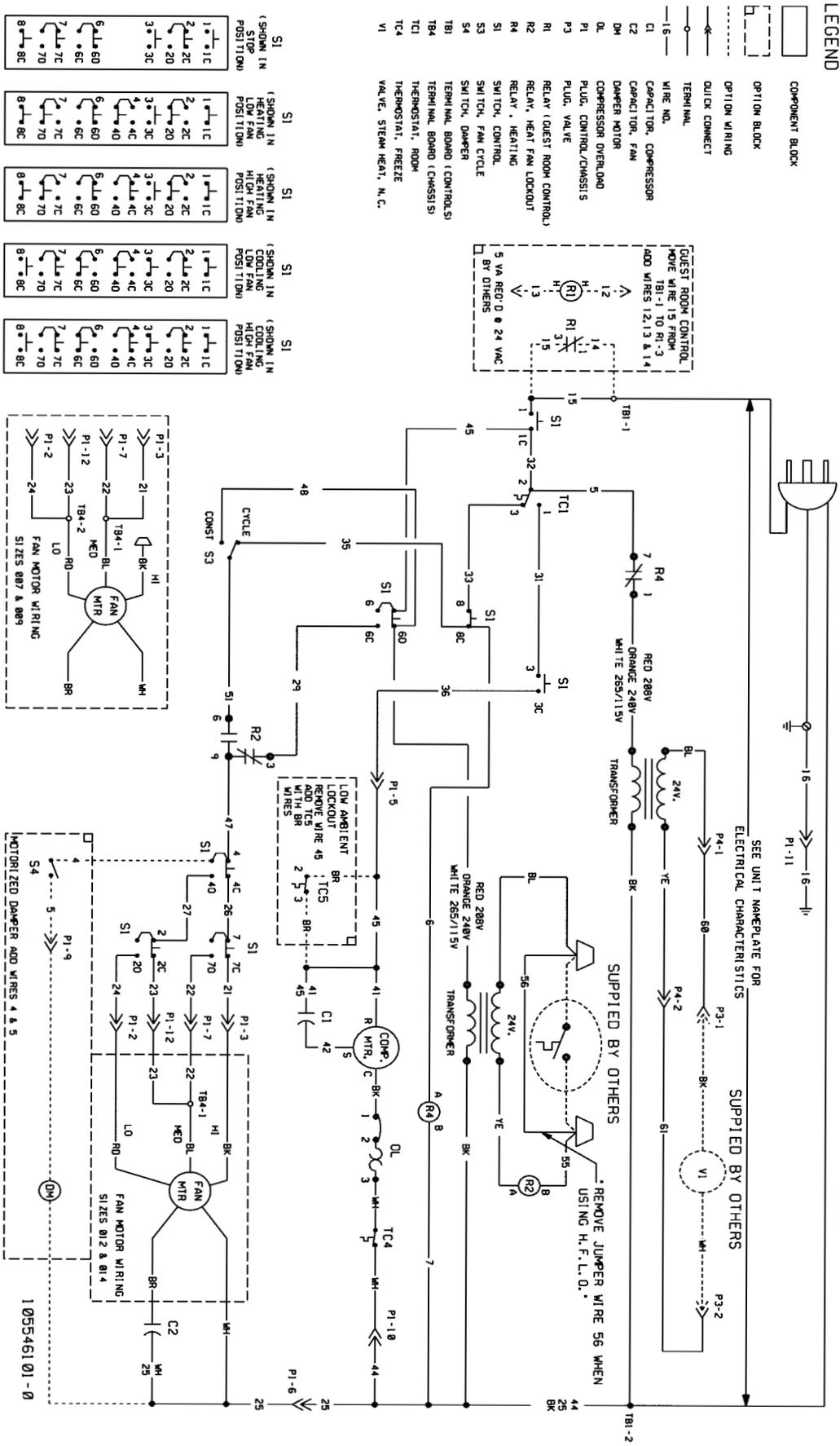
③ Based on ASHRAE and ARI test conditions of 95°F (35.0°C) DB/75°F (23.9°C) WB outdoor air; 80°F (26.7°C) DB/67°F (19.4°C) WB indoor air.

④ Includes heater and fan motor

⑤ With positive pressure option

Typical Wiring Diagram – PMEG (Air Conditioner)

Manual changeover with hot water heat (all voltages)



Guide Specifications

Louver — Shall be [stamped anodized aluminum] [architectural extruded aluminum] in natural finish. Louver shall be easily installed from inside of building after room cabinet/wall sleeve is set in place. (Louvers furnished by others must be approved as to free area and design by air conditioner manufacturer.)

Room Cabinet/Wall Sleeve — Shall be entirely constructed of zinc coated phosphatized steel. Top and sides shall be 18-gauge. Base pan shall be 16-gauge. The entire wall sleeve shall be coated with an electrostatically applied, baked-on, Antique Ivory, appliance quality, powder paint for maximum corrosion protection.

Installed height of the room cabinet/wall sleeve shall not exceed 16³/₈" (416mm). Installed height of room cabinet/wall sleeve with subbase shall not exceed 20³/₈" (518mm) for electric heat or 22³/₈" (568mm) for hydronic heat.

Discharge grilles shall be four four-position, [stamped] [extruded] aluminum to adjust conditioner air delivery pattern without use of tools.) Front panel shall be capable of being opened and/or removed without the use of tools.

Heating/Cooling Chassis — Shall be a slide-in, plug-in chassis with self-contained refrigerant circuit consisting of compressor, condenser fan and coil, evaporator fan and coil, refrigerant tubing and controls, electrical and operating controls, pressurized ventilation system and condensate removal system.

Chassis shall be readily installable in and removable from the wall sleeve without the use of tools. Compressor shall be welded hermetic, internally and externally vibration isolated with permanent split capacitor motor and overload protection. Refrigerant metering device shall consist of capillary restrictor.

Chassis shall be constructed of zinc coated, phosphatized steel parts for corrosion protection with the exception of the hermetically sealed compressor. All electrical components and controls shall be located in the indoor portion of the unit, away from weather and corrosion.

Evaporator and condenser fans shall be forward curved, aluminum centrifugal, statically and dynamically balanced. Fan assembly shall be driven by a three-speed, permanent split capacitor, permanently lubricated fan motor located in the conditioned airstream. Motor shall be provided with oilers for life extension relubrication. Condensate shall be removed by re-evaporation on the condenser coil surface without drip, splash or spray. Condensate shall not come in contact with fan or fan motor. Slinger rings and propeller fans are not acceptable.

Forced, filtered ventilation air shall be available year-round. Conditioner shall be equipped with concealed [manual] [motorized] ventilation damper operator. Electric heating elements shall be the quick response, low mass type with a high limit cut-out. First stage is automatic reset; second stage is non-resetting. [Hot water heating element shall be one-row serpentine coil. Coil shall be controlled by motorized, normally open valve.] [Steam heating element shall be one-row serpentine coil. Coil shall be controlled by motorized, normally closed valve.]

Controls — Shall be provided in a separable, plug-in module as part of the heating-cooling chassis. Control module shall consist of self-contained adjustable thermostat with Off-Heat-Cool-High-Low selector switches. A three-speed fan motor is supplied; two higher fan speeds are used on cooling mode, two lower on heating mode. A toggle switch selects constant or cycling fan.

The electric heater capacity is controlled by the high-low push buttons in conjunction with the fan speed. Low heat capacity is approximately 50% of high heat.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to www.mcquay.com.

