Installation Instructions

CONTENTS

GENERAL

This installation instruction contains basic unit installation information, including installation of thermostats and remote temperature sensors which are required on all units.

For additional information, refer to the separate Controls and Troubleshooting literature also enclosed in this literature packet.

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes, including ANSI (American National Standards Institute) Z223.1. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations..

⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

⚠ WARNING

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

⚠ WARNING

Improper installation, adjustment, alteration, service, or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information, consult a qualified installer, service agency, or the gas supplier.

INSTALLATION

Jobsite Survey — Complete the following checks before installation.

1. Consult local building codes and the NEC (National Electrical Code [U.S.A. Standard]) (ANSI/NFPA [National Fire Protection Association, U.S.A. Standard] 70) for special installation requirements.
2. Determine unit location (from project plans) or select unit location.
3. Check for possible overhead obstructions which may interfere with unit lifting or rigging.

⚠ CAUTION

Do not lift unit with forklift truck. Move unit with overhead rigging only. Damage to unit may result.

Unit Placement — Inspect unit for transportation damage. File claim with transportation agency.

Provide clearance around and above unit for airflow, safety, and service access. Do not restrict top (area above condenser fans) in any way. Allow at least 1.8 m (6 ft) on all sides for rated performance, code compliance, and service.

On units equipped with power exhaust option, high velocity air is exhausted out the hood. Unit should be positioned with at least 3 m (10 ft) clearance between the exhaust hood and any obstruction. (See unit clearance table below.) Although unit is weatherproof, guard against water from higher level runoff and overhangs.

UNIT CLEARANCES	m	ft
Top	Do not restrict condenser fans	
Control Box	1.8	6
Sides and Condenser Coil	1.8	6
Economizer End	1.8	6
Power Exhaust	3.0	10

Check unit dimensional drawings for unit arrangement and minimum performance and service clearances.

Do not install unit in an indoor location. Do not locate air inlets near exhaust vents or other sources of contaminated air.

Level by using unit frame as a reference. Physical data is shown in Tables 1A-4B.

Roof Mount — Check building codes for weight distribution requirements. Unit weight is shown in Tables 1A-2B. Unit may be mounted on class A, B, or C roofing material.

ROOF CURB — Assemble and install as described in instructions shipped with the accessory. Accessory roof curb and information required to field fabricate a roof curb is shown in Fig. 1-3. Install insulation, cant strips, roofing and counter flashing as required. For unit condensate drain to function properly, curb must be level or within tolerances shown in Fig. 1-3.

STEEL BEAMS — If roof curb is not used, support unit with steel beams along its entire length and then support steel as required. As a minimum, unit must be supported across its width at each lifting lug location.

Slab Mount — Provide a level concrete slab that extends beyond unit cabinet at least 152 mm (6 inches). Make a slab 203 mm (8 in.) thick with 102 mm (4 in.) above grade. Use gravel apron in front of condenser coil air inlet to prevent grass and foliage from obstructing airflow. Ensure that slab is of sufficient height to allow for condensate trap of 102 mm (4-in.).

Curb Gasketing

SIZE 030,040 UNITS — After ductwork has been connected to the roof curb, attach adhesive-backed gasketing on all end rails, cross rails, and duct rails. Be sure all joints and corners of gasket are square and flush to prevent possible water leaks. Follow all applicable building codes.

SIZE 055,060 UNITS — After ductwork has been connected to the roof curb, apply gasket material (13 mm thick x 13 mm wide [$^1/_2$-in. thick x 1$^1/_2$ in. wide] neoprene) where indicated.

<u>Single-Thickness Gasketing (See Fig. 4 for Item Numbers)</u> — Apply gasketing in the following places:

1. Along both side rails (1) — 2 places, full length
2. Along return air end rail (2) — 1 place
3. Around return-air internal duct flange (3) — 1 or 2 places
4. Around supply-air internal duct flanges (4) — 3 places

<u>Double-Thickness Gasketing (See Fig. 4 and Detail A-A)</u> — Locate a line 248 mm (9$^3/_4$-in.) from the supply air end of the accessory curb. Apply a double-thickness of gasket material along with line per detail A-A.

NOTE: Do not apply gasket material along the outside edge of the curb (area “X”). This pan area of the curb extends out beneath the end of the unit’s air handler section; applying gasket here develops a potential water trap area on top of the curb.

<u>Condenser Section Roof Curb (See Fig. 5)</u> — Apply single-thickness gasket along both side rails (5).

Table 1A — Physical Data (50ZG,ZN,Z2,Z3030,040) (SI)

BASE UNIT	50ZG,ZN,Z2,Z3030		50ZG,ZN,Z2,Z3040	
NOMINAL CAPACITY (kW)	105		145	
OPERATING WEIGHT (kg)				
Base Unit	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis
Horizontal Discharge and Vertical Discharge with Discharge Plenum	2765	2991	3020	3247
Vertical Discharge	2506	2732	2762	2989
With Economizer				
Horizontal Discharge and Vertical Discharge with Discharge Plenum	2900	3127	3156	3383
Vertical Discharge	2642	2868	2898	3125
COMPRESSORS	Semi-Hermetic			
Quantity...Type	1...06DA537, 1...06EA250		1...06EA265, 1...06EA250	
Oil Charge (L)	3.8		6.6	
Capacity Steps (%)				
50ZG,Z2	57,100		60,100	
50ZN,Z3	29,43,57,71,85,100		19, 37,41,59,62,80,89,100	
Number of Refrigerant Circuits	2		2	
REFRIGERANT	R-22			
Operating Charge (kg) Ckt A/Ckt B				
Standard Evaporator Coil	12.7/14.7		18.8/17.7	
Standard Evaporator with HGBP	13.6/14.7		19.7/17.7	
CONDENSER COILS	9.5 mm Tube Diameter			
Quantity	2		2	
Rows...Fins/m				
Aluminum	3...590		3...590	
Copper (Optional)	3...540		3...540	
Total Face Area (sq m)	3.49		4.64	
EVAPORATOR COILS				
Quantity	1		2	
Total Face Area (sq m)	2.98		4.22	
Refrigerant Feed Device...No. per Circuit	TXV...1		TXV...2	
Standard Evaporator Coils	12.7 mm Tube Diameter		12.7 mm Tube Diameter	
Rows...Fins/m	3...590		3...590	
Fin Type	Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched	
CONDENSER FANS	Propeller Type			
Quantity...Diameter (mm)	2...762		3...762	
Nominal L/s	8780		12,270	
Motor kW...r/s	.75...15.8		.75...15.8	
SUPPLY FAN	Centrifugal 635 x 635 mm			
Nominal L/s	4960		6610	
Maximum Allowable L/s	7080		9440	
Maximum Allowable r/s	15.0		15.0	
Shaft Diameter at Pulley (mm)	43		43	

SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)					
Motor kW	5.6	7.5	11.2	14.9	18.6	22.3*
Motor Frame Size	213T	215T	254T	256T	284T	286T
Efficiency at Full Load (%)	88.5	89.5	91.0	91.0	91.7	91.7
Fan Pulley Pitch Diameter (mm)	348	348	348	348	348	348
Motor Pulley Pitch Diameter (mm)	109	124	140	150	190	190
Resulting Fan r/s	7.63	8.69	9.76	10.47	13.3	14.6
Belts Quantity...Type						
Horizontal Discharge and Discharge Plenum Units	2...BX60	2...5VX630	2...5VX630	2...5VX630	2...5VX650	2...5VX650
Vertical Discharge	2...BX60	2...5VX630	2...5VX630	2...5VX630	2...5VX650	2...5VX650
Center Distance Range (mm)						
Horizontal Discharge and Discharge Plenum Units	504...403	504...403	483...381	483...381	422...327	228...378
Vertical Discharge	450...363	450...363	448...356	448...356	228...378	228...378

OPTIONAL POWER EXHAUST	Centrifugal, 457 x 381 in. (Any motor available on any unit)			
Quantity...Motor kW	2...2.2	2...3.7	2...5.6	2...7.5
Motor Frame Size	56HZ	184T	213T	215T
Efficiency at Full Load (%)	81	87.5	88.5	89.5
Fan Pulley Pitch Diameter (mm)	201	239	290	218
Motor Pulley Pitch Diameter Range (mm)	94-68	134-109	178-147	140-109
Blower Shaft Diameter at Pulley (mm)	36.5	36.5	36.5	36.5
Fan r/s Range	11.4-8.3	13.7-11.1	14.9-12.4	15.5-12.2
Maximum Allowable r/s	15.4	15.4	15.4	15.4
Belts Quantity...Type	1...BX66	1...BX71	1...BX77	1...BX70
Center Distance Range (mm)	600...673	600...673	600...673	600...673

	50ZG,ZN,Z2,Z3030	50ZG,ZN,Z2,Z3040
FILTERS		
Standard Efficiency Throwaway (Standard)	8...508 x 635 x 51	8...508 x 635 x 51
Quantity...Size (mm)	8...508 x 508 x 51	8...508 x 508 x 51
Medium Efficiency (30%) Pleated (Optional)	8...508 x 635 x 51	8...508 x 635 x 51
Quantity...Size (mm)	8...508 x 508 x 51	8...508 x 508 x 51
High Efficiency (90%) Bag Filters with High Velocity Prefilters (Optional)		
Quantity...Size (mm)		
Bag Filter	6...508 x 610 x 559 6...508 x 508 x 559	6...508 x 610 x 559 6...508x 508 x 559
Prefilter	12...406 x 508 x 51 3...508 x 610 x 51	12...406 x 508 x 51 3...508 x 610 x 51
OUTSIDE AIR SCREENS		
Standard Hood (25%) Quantity...Size (mm)	None	None
OPTIONAL ECONOMIZER FILTER	Aluminum Frame, Permanent	
Quantity...Size (mm)	5...508 x 508 x 51 2...508 x 635 x 25	5...508 x 508 x 25 2...508 x 635 x 25
HYDRONIC HEATING COIL		
Coil Construction	12.7 mm OD copper tubes, aluminum plate fins, galvanized steel frame	
Total Face Area (sq m)	2.10	
Rows...Fins/m	2...203	
Circuit Arrangement	Half	
Connections — (Qty) Dimensions	Male Pipe Thread	
Supply	(1) 2$^1/_2$ NPT (63.5 mm ref)	
Return	(1) 2$^1/_2$ NPT (63.5 mm ref)	
Header Material	Steel	
Weight, Dry (kg)	105	
Internal Volume (l)	1.80	

LEGEND

HGBP — Hot Gas Bypass
TXV — Thermostatic Expansion Valve

*Available on size 040 units only.

Table 1B — Physical Data (50ZG,ZN,Z2,Z3050,060) (SI)

BASE UNIT	50ZG,ZN,Z2,Z3055		50ZG,ZN,Z2,Z3060	
NOMINAL CAPACITY (kW)	150		185	
OPERATING WEIGHT (kg)				
Base Unit	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis
Horizontal Discharge and Vertical Discharge with Discharge Plenum	3789	4039	3923	4172
Vertical Discharge	3540	3789	3673	3923
With Economizer				
Horizontal Discharge and Vertical Discharge with Discharge Plenum	4030	4280	4165	4367
Vertical Discharge	3780	4030	3915	4165

	50ZG,ZN,Z2,Z3055	50ZG,ZN,Z2,Z3060
COMPRESSORS	Semi-Hermetic	
Quantity...Type	1...06EF299, 1...06EF275	2...06EF299
Oil Charge (L)	9	9
Capacity Steps (%)		
50ZG,Z2	60,100	50,100
50ZN,Z3	19,37,48,51,62,66,71,80,86,100	17,33,50,67,83,100
Number of Refrigerant Circuits	2	2
REFRIGERANT	R-22	
Operating Charge (kg) Ckt A/Ckt B		
Standard Evaporator Coil	22.7/18.1	24.5/24.5
Standard Evaporator with HGBP	23.6/18.1	25.4/24.5
CONDENSER COILS	9.5 mm Tube Diameter	
Quantity	4	4
Rows...Fins/m		
Aluminum	2...670, 3...670	3...670
Copper (Optional)	2...618, 3...618	3...618
Total Face Area (sq m)	6.72	6.72
EVAPORATOR COILS		
Quantity	1	2
Total Face Area (sq m)	5.71	
Refrigerant Feed Device...No. per Circuit	TXV...2	
Standard Evaporator Coils	12.7 mm Tube Diameter	12.7 mm Tube Diameter
Rows...Fins/m	3...670	4...670
Fin Type	Double Wavy	Double Wavy
Tube Type	Smooth	Smooth
CONDENSER FANS	Propeller Type	
Quantity...Diameter (mm)	4...762	4...762
Nominal L/s	18,880	18,880
Motor kW...r/s	.75...15.8	.75...15.8
SUPPLY FAN	Centrifugal 762 x 685 in.	
Nominal L/s	8260	9912
Maximum Allowable L/s	11,800	14,160
Maximum Allowable r/s	12.5	12.5
Shaft Diameter at Pulley (mm)	42.8	42.8

SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)				
Motor kW	11.2	14.9	18.6	22.3	29.7
Motor Frame Size	254T	256T	284T	286T	S324T
Efficiency at Full Load (%)	91.0	91.0	91.7	92.4	93
Fan Pulley Pitch Diameter (mm)	348	348	348	394	394
Motor Pulley Pitch Diameter (mm)	140	150	157	191	190
Resulting Fan r/s	9.76	10.47	11.00	11.76	11.8
Belts Quantity...Type					
Horizontal Discharge and Discharge Plenum Units	2...5VX1230	2...5VX1230	2...5VX1230	2...5VX1230	2...5VX1250
Vertical Discharge	2...5VX1120	2...5VX1150	2...5VX1150	2...5VX1180	2...5XV1180
Center Distance Range (mm)					
Horizontal Discharge and Discharge Plenum Units	1226...1118	1226...1118	1232...1124	1232...1124	1232...1124
Vertical Discharge	1124...1010	1124...1010	1118...1016	1118...1016	1118...1016

OPTIONAL POWER EXHAUST	Centrifugal, 457 x 381 mm (Any motor available on any unit)		
Quantity...Motor kW	2...3.7	2...5.6	2...7.5
Motor Frame Size	184T	213T	215T
Efficiency at Full Load (%)	87.5	88.5	89.5
Fan Pulley Pitch Diameter mm)	268	268	268
Motor Pulley Pitch Diameter (mm)	133	151	164
Shaft Diameter at Pulley (mm)	36.5	36.5	36.5
Resulting Fan r/s	11.9	13.5	14.1
Maximum Allowable r/s	15.4	15.4	15.4
Belts Quantity...Type	2...3VX800	2...3VX800	2...3VX800
Center Distance Range (mm)			
Horizontal Discharge	277...338	274...336	274...336
Vertical Discharge	681...724	681...724	681...724

	50ZG,ZN,Z2,Z3055	50ZG,ZN,Z2,Z3060
FILTERS		
Standard Efficiency Throwaway (Standard) Quantity...Size (mm)	8...508 x 635 x 51 8...508 x 508 x 51	8...508 x 635 x 51 8...508 x 508 x 51
Medium Efficiency (30%) Pleated (Optional) Quantity...Size (mm)	8...508 x 635 x 51 8...508 x 508 x 51	8...508 x 635 x 51 8...508 x 508 x 51
High Efficiency (90%) Bag Filters with High Velocity Prefilters (Optional) Quantity...Size (mm)		
Bag Filter	6...610 x 610 x 559 6...610 x 508 x 559	6...610 x 610 x 559 6...610 x 508 x 559
Prefilter	6...610 x 610 x 51 6...508 x 610 x 51	6...610 x 610 x 51 6...508 x 610 x 51
OUTSIDE AIR SCREENS		
Standard Hood (25%) Quantity...Size (mm)	4...635 x 406 x 25 2...508 x 406 x 25	4...635 x 406 x 25 2...508 x 406 x 25
OPTIONAL ECONOMIZER FILTER	Aluminum Frame, Permanent	
Quantity...Size (mm)	12...406 x 635 x 25 2...406 x 508 x 25	12...406 x 635 x 25 2...406 x 508 x 25
HYDRONIC HEATING COIL		
Coil Construction	12.7 mm OD copper tubes, aluminum plate fins, galvanized steel frame	
Total Face Area (sq m)	(2) sections; total 2.52	
Rows...Fins/m	2...279	
Circuit Arrangement	Half	
Connections — (Qty) Dimensions	Male Pipe Thread	
Supply	(1) 1$^1/_2$ NPT (38.1 mm ref)	
Return	(1) 1$^1/_2$ NPT (38.1 mm ref)	
Header Material	Steel	
Weight, Dry (kg)	118	
Internal Volume (l)	1.77	

LEGEND

HGBP — Hot Gas Bypass
TXV — Thermostatic Expansion Valve

Table 1C — Physical Data (50ZG,ZN,Z2,Z3030,040) (English)

BASE UNIT	50ZG,ZN,Z2,Z3030		50ZG,ZN,Z2,Z3040	
NOMINAL CAPACITY (tons)	30		40	
OPERATING WEIGHT (lb)				
Base Unit	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis
Horizontal Discharge and Vertical Discharge with Discharge Plenum	6095	6595	6660	7160
Vertical Discharge	5525	6025	6090	6590
With Economizer				
Horizontal Discharge and Vertical Discharge with Discharge Plenum	6395	6895	6960	7460
Vertical Discharge	5825	6325	6390	6890
COMPRESSORS	Semi-Hermetic			
Quantity...Type	1...06DA537, 1...06EA250		1...06DE265, 1...06EA250	
Oil Charge (Pints)	8		14	
Capacity Steps (%)				
50ZG,Z2	57,100		60,100	
50ZN,Z3	29,43,57,71,85,100		19, 37,41,59,62,80,89,100	
Number of Refrigerant Circuits	2		2	
REFRIGERANT	R-22			
Operating Charge (lb) Ckt A/Ckt B				
Standard Evaporator Coil	28.0/32.5		41.5/39.0	
Standard Evaporator with HGBP	30.0/32.5		43.5/39.0	
CONDENSER COILS	$^3/_8$-in. Tube Diameter			
Quantity	2		2	
Rows...Fins/in.				
Aluminum	3...15.0		3...15.0	
Copper (Optional)	3...13.7		3...13.7	
Total Face Area (sq ft)	37.5		50.0	
EVAPORATOR COILS				
Quantity	1		2	
Total Face Area (sq ft)	32.1		45.5	
Refrigerant Feed Device...No. per Circuit	TXV...1		TXV...2	
Standard Evaporator Coils	$^1/_2$-in. Tube Diameter		$^1/_2$-in. Tube Diameter	
Rows...Fins/in.	3...15.0		3...15.0	
Fin Type	Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched	
CONDENSER FANS	Propeller Type			
Quantity...Diameter (in.)	2...30		3...30	
Nominal Cfm	18,600		26,000	
Motor Hp...Rpm	1.0...950		1.0...950	
SUPPLY FAN	Centrifugal 25 x 25 in.			
Nominal Cfm	10,500		14,000	
Maximum Allowable Cfm	15,000		20,000	
Maximum Allowable Rpm	900		900	
Shaft Diameter at Pulley (in.)	$1^{11}/_{16}$		$1^{11}/_{16}$	

SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)					
Motor Hp	$7^1/_2$	10	15	20	25	30*
Motor Frame Size	213T	215T	254T	256T	284T	286T
Efficiency at Full Load (%)	88.5	89.5	91.0	91.0	91.7	92.4
Fan Pulley Pitch Diameter (in.)	13.7	13.7	13.7	13.7	13.7	112.5
Motor Pulley Pitch Diameter (in.)	4.3	4.9	5.5	5.9	7.5	7.5
Resulting Fan Rpm	458	522	585	628	798	875
Belts Quantity...Type						
Horizontal Discharge and Discharge Plenum Units	2...BX60	2...5VX630	2...5VX630	2...5VX630	2...5VX650	2...5VX650
Vertical Discharge	2...BX60	2...5VX630	2...5VX630	2...5VX630	2...5XV650	2...5VX650
Center Distance Range (in.)						
Horizontal Discharge and Discharge Plenum Units	19.86...15.87	19.86...15.87	19.04...15.00	19.04...15.00	19.0...14.87	19.0...14.87
Vertical Discharge	17.74...14.30	17.74...14.30	17.63...14.01	17.63...14.01	16.63...12.87	16.63...12.87

OPTIONAL POWER EXHAUST	Centrifugal, 18 x 15 in. (Any motor available on any unit)			
Quantity...Motor Hp	2...3.0	2...5.0	2...7.5	2...10
Motor Frame Size	56HZ	184T	213T	215T
Efficiency at Full Load (%)	81.0	87.5	88.5	89.5
Fan Pulley Pitch Diameter (in.)	7.9	9.4	11.4	8.6
Motor Pulley Pitch Diameter Range (in.)	3.7-2.7	5.3-4.3	7.0-5.8	5.5-4.3
Blower Shaft Diameter at Pulley (in.)	$1^7/_{16}$	$1^7/_{16}$	$1^7/_{16}$	$1^7/_{16}$
Fan Rpm Range	682-498	822-667	895-742	932-729
Maximum Allowable Rpm	925	925	925	925
Belts Quantity...Type	1...BX66	1...BX71	1...BX77	1...BX70
Center Distance Range (in.)	23.62...26.50	23.62...26.50	23.62...26.50	23.62...26.50

FILTERS	50ZG,ZN,Z2,Z3030	50ZG,ZN,Z2,Z3040
Standard Efficiency Throwaway (Standard) Quantity...Size (in.)	8...20 x 25 x 2 8...20 x 20 x 2	8...20 x 25 x 2 8...20 x 20 x 2
Medium Efficiency (30%) Pleated (Optional) Quantity...Size (in.)	8...20 x 25 x 2 8...20 x 20 x 2	8...20 x 25 x 2 8...20 x 20 x 2
High Efficiency (90%) Bag Filters with High Velocity Prefilters (Optional) Quantity...Size (in.)		
Bag Filter	6...20 x 24 x 22 6...20 x 20 x 22	6...20 x 24 x 22 6...20 x 20 x 22
Prefilter	12...16 x 20 x 2 3...20 x 24 x 2	12...16 x 20 x 2 3...20 x 24 x 2
OUTSIDE AIR SCREENS		
Standard Hood (25%) Quantity...Size (in.)	None	None
OPTIONAL ECONOMIZER FILTER	Aluminum Frame, Permanent	
Quantity...Size (in.)	5...20 x 20 x 2 2...20 x 25 x 1	5...20 x 20 x 1 2...20 x 25 x 1

HYDRONIC HEATING COIL	
Coil Construction	$^1/_2$-in. OD copper tubes, aluminum plate fins, galvanized steel frame
Total Face Area (sq ft)	22.6
Rows...Fins/in.	2...8
Circuit Arrangement	Half
Connections — (Qty) Dimensions	Male Pipe Thread
Supply	(1) $2^1/_2$ NPT
Return	(1) $2^1/_2$ NPT
Header Material	Steel
Weight, Dry (lb)	232
Internal Volume (gal)	6.8

LEGEND

HGBP — Hot Gas Bypass
TXV — Thermostatic Expansion Valve

*Available on size 040 units only.

Table 1D — Physical Data (50ZG,ZN,Z2,Z3050,060) (English)

BASE UNIT	50ZG,ZN,Z2,Z3055		50ZG,ZN,Z2,Z3060	
NOMINAL CAPACITY (tons)	55		60	
OPERATING WEIGHT (lb)				
Base Unit	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis
Horizontal Discharge or Vertical Discharge With Discharge Plenum	8355	8905	8650	9200
Vertical Discharge	7805	8355	8100	8650
With Economizer				
Horizontal Discharge or Vertical Discharge With Discharge Plenum	8885	9435	9180	9730
Vertical Discharge	8335	8885	8630	9180

	50ZG,ZN,Z2,Z3055	50ZG,ZN,Z2,Z3060
COMPRESSORS	Semi-Hermetic	
Quantity...Type	1...06EF299, 1...06EA275	2...06EF299
Oil Charge (Pints)	19, 14	19
Capacity Steps (%)		
50ZG,Z2	50,100	50,100
50ZN,Z3	19,37,48,51,62,66,71,80,86,100	17,33,50,69,83,100
Number of Refrigerant Circuits	2	2
REFRIGERANT	R-22	
Operating Charge (lb) Ckt A/Ckt B		
Standard Evaporator Coil	50.0/40.0	54.0/54.0
Standard Evaporator With HGBP	52.0/40.0	56.0/54.0
CONDENSER COILS	$^{3}/_{8}$-in. Tube Diameter	
Quantity	4	4
Rows...Fins/in.		
Aluminum	2...17.0, 3...17.0	3...17.0
Copper (Optional)	2...15.7, 3...15.7	3...15.7
Total Face Area (sq ft)	72.4	72.4
EVAPORATOR COILS		
Quantity	2	
Total Face Area (sq ft)	61.5	
Refrigerant Feed Device...No. per Circuit	TXV...2	
Standard Evaporator Coils	$^{1}/_{2}$-in. Tube Diameter	$^{1}/_{2}$-in. Tube Diameter
Rows...Fins/in.	3...17.0	4...17.0
Fin Type	Double Wavy	Double Wavy
Tube Type	Smooth	Smooth
CONDENSER FANS	Propeller Type	
Quantity...Diameter (in.)	4...30	4...30
Nominal Cfm	40,000	40,000
Motor Hp...Rpm	1.0...950	1.0...950
SUPPLY FAN	Centrifugal 30 x 27 in.	
Nominal Cfm	17,500	21,000
Maximum Allowable Cfm	25,000	30,000
Maximum Allowable Rpm	750	750
Shaft Diameter at Pulley (in.)	$1^{11}/_{16}$	$1^{11}/_{16}$

SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)				
Motor Hp	15	20	25	30	40
Motor Frame Size	254T	256T	284T	286T	S324T
Efficiency at Full Load (%)	91.0	91.0	91.7	92.4	93
Fan Pulley Pitch Diameter (in.)	13.7	13.7	13.7	15.5	15.5
Motor Pulley Pitch Diameter (in.)	5.5	5.9	6.2	7.5	7.5
Resulting Fan Rpm	585	628	660	706	706
Belts Quantity...Type					
Horizontal Discharge and Discharge Plenum Units	2...5VX1230	2...5VX1230	2...5VX1230	2...5VX1250	3...5VX1250
Vertical Discharge Units	2...5VX1120	2...5VX1150	2...5VX1150	2...5VX1180	3...5XV1180
Center Distance Range (in.)					
Horizontal Discharge and Discharge Plenum Units	48.25...44.0	48.25...44.0	48.50...44.25	48.50...44.25	48.25...44.0
Vertical Discharge Units	44.25...39.75	44.25...39.75	44.0...40.0	44.0...40.0	43.75...39.75

OPTIONAL POWER EXHAUST	Centrifugal, 18 x 15 in. (Any motor available on any unit)		
Quantity...Motor Hp	2...5.0	2...7.5	2...10
Motor Frame Size	184T	213T	215T
Efficiency at Full Load (%)	87.5	88.5	89.5
Fan Pulley Pitch Diameter (in.)	10.55	10.55	10.55
Motor Pulley Pitch Diameter (in.)	5.25	5.95	6.45
Shaft Diameter at Pulley (in.)	$1^{7}/_{16}$	$1^{7}/_{16}$	$1^{7}/_{16}$
Resulting Fan Rpm	713	811	879
Maximum Allowable Rpm	925	925	925
Belts Quantity...Type	2...3VX800	2...3VX800	2...3VX800
Center Distance Range (mm)			
Horizontal Discharge	10.91...13.30	10.78...13.21	10.78...13.21
Vertical Discharge	26.80...28.50	26.80...28.50	26.80...28.50

	50ZG,ZN,Z2,Z3055	50ZG,ZN,Z2,Z3060
FILTERS		
Standard Efficiency Throwaway (Standard) Quantity...Size (in.)	8...20 x 25 x 2 8...20 x 20 x 2	8...20 x 25 x 2 8...20 x 20 x 2
Medium Efficiency (30%) Pleated (Optional) Quantity...Size (in.)	8...20 x 25 x 2 8...20 x 20 x 2	8...20 x 25 x 2 8...20 x 20 x 2
High Efficiency (90%) Bag Filters with High Velocity Prefilters (Optional) Quantity...Size (in.)		
Bag Filter	6...24 x 24 x 22 6...24 x 20 x 22	6...24 x 24 x 22 6...24 x 20 x 22
Prefilter	6...24 x 24 x 2 6...20 x 24 x 2	6...24 x 24 x 2 6...20 x 24 x 2
OUTSIDE AIR SCREENS		
Standard Hood (25%) Quantity...Size (in.)	4...25 x 16 x 1 2...20 x 16 x 1	4...25 x 16 x 1 2...20 x 16 x 1
OPTIONAL ECONOMIZER FILTER	Aluminum Frame, Permanent	
Quantity...Size (in.)	12...16 x 25 x 1 2...16 x 20 x 1	12...16 x 25 x 1 2...16 x 20 x 1

HYDRONIC HEATING COIL	
Coil Construction	$^{1}/_{2}$-in. OD copper tubes, aluminum plate fins, galvanized steel frame
Total Face Area (sq ft)	(2) sections; total 27.1
Rows...Fins/in.	2...11
Circuit Arrangement	Half
Connections — (Qty) Dimensions	Male Pipe Thread
Supply	(2) $1^{1}/_{2}$ NPT
Return	(2) $1^{1}/_{2}$ NPT
Header Material	Steel
Weight, Dry (lb)	260
Internal Volume (gal)	6.7

LEGEND

HGBP — Hot Gas Bypass
TXV — Thermostatic Expansion Valve

Table 2A — Operating Weights of Options and Accessories (SI)

OPTION OR ACCESSORY	UNIT SIZE 50ZG,ZN,Z2,Z3			
	030	040	055	060
	kg	kg	kg	kg
Electric Heat*	68	68	68	68
Condenser Section Roof Curb	—	—	244.9	244.9
Economizer†	136.1	136.1	240.4	240.4
Power Exhaust†	272.2	272.2	322.1	322.1
Barometric Relief	90.7	90.7	90.7	90.7
Roof Curb				
Horizontal Units	204.1	217.7	254.0	254.0
Vertical Units	172.4	210.9	233.6	233.6
High-Efficiency Filters	9.1	9.1	9.1	9.1
Bag Filters	15.9	15.9	18.1	18.1
Hail Guard	54.4	68.0	65.8	65.8
Copper Condenser Coil Fins	81.6	106.6	106.6	106.6
Inlet Guide Vanes	43.1	43.1	52.2	52.2
Variable Frequency Drive				
5.6 kW	21	21	—	—
7.5 kW	21	21	—	—
11.2 kW	32	32	32	32
14.9 kW	32	32	32	32
18.6 kW	33	33	33	33
22.3 kW	—	56	56	56
29.8 kW	—	—	57	57

*Vertical discharge units only.
†Includes hood.

Table 2B — Operating Weights of Options and Accessories (English)

OPTION OR ACCESSORY	UNIT SIZE 50ZG,ZN,Z2,Z3			
	030	040	055	060
	lb	lb	lb	lb
Electric Heat*	150	150	150	150
Condenser Section Roof Curb	—	—	540	540
Economizer†	300	300	530	530
Power Exhaust†	600	600	710	710
Barometric Relief	200	200	200	200
Roof Curb				
Horizontal Units	450	480	560	560
Vertical Units	380	465	515	515
High-Efficiency Filters	20	20	20	20
Bag Filters	35	35	40	40
Hail Guard	120	150	145	145
Copper Condenser Coil Fins	180	235	235	235
Inlet Guide Vanes	95	95	115	115
Variable Frequency Drive				
7.5 hp	47	47	—	—
10 hp	47	47	—	—
15 hp	70	70	70	70
20 hp	70	70	70	70
25 hp	73	73	73	73
30 hp	—	123	123	123
40 hp	—	—	126	126

*Vertical discharge units only.
†Includes hood.

Table 3A — Supply Fan Drive Data (SI)

kW	SHAFT DIA (mm)	SPEED (r/s)	MOTOR SHEAVE	MOTOR PITCH DIA. (mm)	WHEEL SHEAVE	WHEEL PITCH DIA. (mm)	QUANTITY ...BELT
Sizes 030,040							
5.6	34.9	7.63	2B5V42	109	2B5V136	348	2...BX630
7.5	34.9	8.69	2B5V48	124	2B5V136	348	2...BX630
11.2	41.3	9.76	2B5V54	140	2B5V136	348	2...BX630
14.9	41.3	10.47	2B5V58	150	2B5V136	348	2...BX630
18.6	47.6	13.3	2B5V74	190	2B5V136	348	2...5VX650
22.3*	47.6	14.6	3B5V74	190	3B5V124	348	2...5VX650
Sizes 055,060							
11.2	41.3	9.7	2B5V54	140	2B5V136	348	2...5VX1230† 2...5VX1120**
14.9	41.3	10.5	2B5V58	150	2B5V136	348	2...5VX1230† 2...5XV1150**
18.6	47.6	11.0	2B5V62	157	2B5V136	348	2...5VX1230† 2...5VX1150**
22.3	47.6	11.8	2B5V74	190	2B5V154	394	2...5VX1230† 2...5VX1180**
29.8	54	11.8	3B5V74	190	3B5V154	394	3...5VX1250† 3...5VX1180**

*Size 040 only.
†Horizontal discharge units.
**Vertical discharge and discharge plenum units.

NOTE: Part numbers are Browning Manufacturing Corp. reference.

Table 3B — Supply Fan Drive Data (English)

HP	SHAFT DIA (in.)	SPEED (rpm)	MOTOR SHEAVE	MOTOR PITCH DIA. (in.)	WHEEL SHEAVE	WHEEL PITCH DIA. (in.)	QUANTITY ...BELT
Sizes 030,040							
7.5	$1^3/_8$	458	2B5V42	4.3	2B5V136	13.7	2...BX630
10	$1^3/_8$	522	2B5V48	4.9	2B5V136	13.7	2...BX630
15	$1^5/_8$	585	2B5V54	5.5	2B5V136	13.7	2...BX630
20	$1^5/_8$	628	2B5V58	5.9	2B5V136	13.7	2...BX630
25	$1^7/_8$	798	2B5V74	7.5	2B5V136	13.7	2...5VX650
30*	$1^7/_8$	875	3B5V74	7.5	3B5V124	13.7	2...5VX650
Sizes 055,060							
15	$1^5/_8$	585	2B5V54	5.5	2B5V136	13.7	2...5VX1230† 2...5VX1120**
20	$1^5/_8$	628	2B5V58	5.9	2B5V136	13.7	2...5VX1230† 2...5XV1150**
25	$1^7/_8$	660	2B5V62	6.2	2B5V136	13.7	2...5VX1230† 2...5VX1150**
30	$1^7/_8$	706	2B5V74	7.5	2B5V154	15.5	2...5VX1230† 2...5VX1180**
40	$2^1/_8$	706	3B5V74	7.5	3B5V154	15.5	3...5VX1250† 3...5VX1180**

*Size 040 only.
†Horizontal discharge units.
**Vertical discharge and discharge plenum units.

NOTE: Part numbers are Browning Manufacturing Corp. reference.

Table 4A — Power Exhaust Fan Drive Data (SI)

TOTAL kW	MOTOR QTY...kW	MOTOR SHAFT DIA (mm)	FAN SPEED r/s (min - max)	MOTOR SHEAVE P/N	MOTOR SHEAVE PITCH DIA (mm) (min - max)	FAN SHEAVE P/N	PITCH DIA (mm)	BELTS QTY...P/N	CENTER DIST RANGE (mm)
Sizes 030,040									
4.5	2...2.2	22.2	8.2 - 11.2	1VL40	69 - 94	BK85	201	1...BX66	599 to 673
7.5	2...3.8	28.6	11.0 - 13.5	1VP56	109 - 135	BK100	239	1...BX71	599 to 673
11.2	2...5.6	34.9	12.2 - 14.7	1VP75	147 - 178	BK120	290	1...BX77	599 to 673
14.9	2...7.5	34.9	12.0 - 15.3	2VP60	109 - 140	2BK90	218	2...BX70	599 to 673
Sizes 055,060									
7.5	2...3.8	28.6	12.0	2P3V53	135	2Q3V106	269	2...3VX800	681 to 724
11.2	2...5.6	34.9	13.6	2P3V60	152	2Q3V106	269	2...3VX800	681 to 724
14.9	2...7.5	34.9	14.7	2Q3V65	165	2Q3V106	269	2...3VX800	681 to 724

NOTE: Part numbers are Browning Manufacturing Corp. reference.

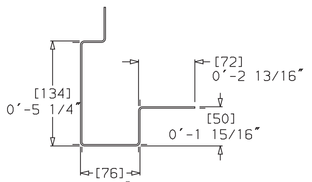
Table 4B — Power Exhaust Fan Drive Data (English)

TOTAL HP	MOTOR QTY...HP	MOTOR SHAFT DIA (in.)	FAN SPEED RPM (min - max)	MOTOR SHEAVE P/N	MOTOR SHEAVE PITCH DIA (in.) (min - max)	FAN SHEAVE P/N	PITCH DIA (in.)	BELTS QTY...P/N	CENTER DIST RANGE (in.)
Sizes 030,040									
6	2...3	$^{7}/_{8}$	492 - 674	1VL40	2.7 - 3.7	BK85	7.9	1...BX66	23.6 to 26.5
10	2...5	$1^{1}/_{8}$	659 - 812	1VP56	4.3 - 5.3	BK100	9.4	1...BX71	23.6 to 26.5
15	2...7.5	$1^{3}/_{8}$	732 - 884	1VP75	5.8 - 7.0	BK120	11.4	1...BX77	23.6 to 26.5
20	2...10	$1^{3}/_{8}$	720 - 921	2VP60	4.3 - 5.5	2BK90	8.6	2...BX70	23.6 to 26.5
Sizes 055,060									
10	2...5	$1^{1}/_{8}$	720	2P3V53	5.3	2Q3V106	10.6	2...3VX800	26.8 to 28.5
15	2...7.5	$1^{3}/_{8}$	815	2P3V60	6.0	2Q3V106	10.6	2...3VX800	26.8 to 28.5
20	2...10	$1^{3}/_{8}$	883	2Q3V65	6.5	2Q3V106	10.6	2...3VX800	26.8 to 28.5

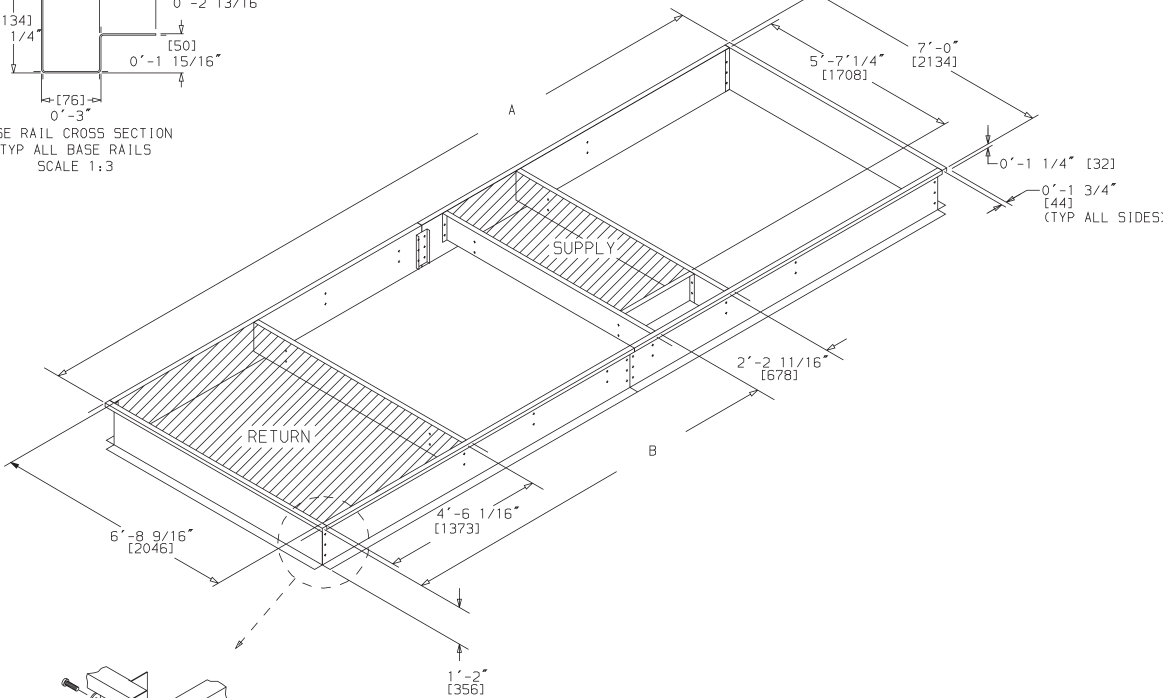
NOTE: Part numbers are Browning Manufacturing Corp. reference.

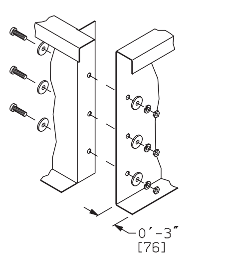
NOTES:

1. ROOF CURB IS SHIPPED DISASSEMBLED.
2. ROOFCURB: 14 GA.[VA03-56] STL.
3. DIMENSIONS IN [ ] ARE MILLIMETERS.

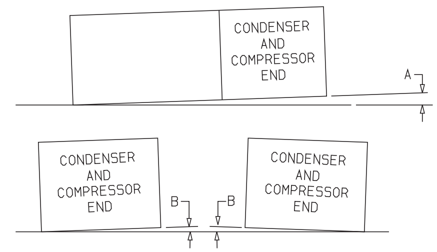


BASE RAIL CROSS SECTION
TYP ALL BASE RAILS
SCALE 1:3





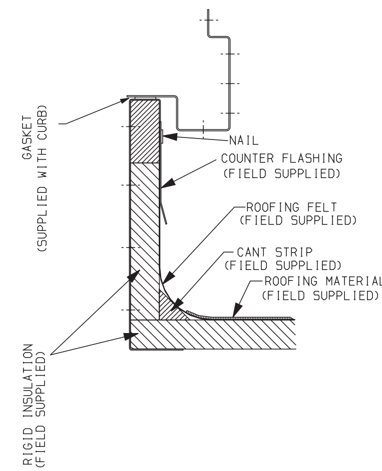
VIEW B
(CORNER CONNECTIONS AND
SPLICE PLATE CONNECTIONS)



DIMENSIONS*
(degrees and inches)

A		B	
DEG.	IN.	DEG.	IN.
1.0	2.0	.50	.75

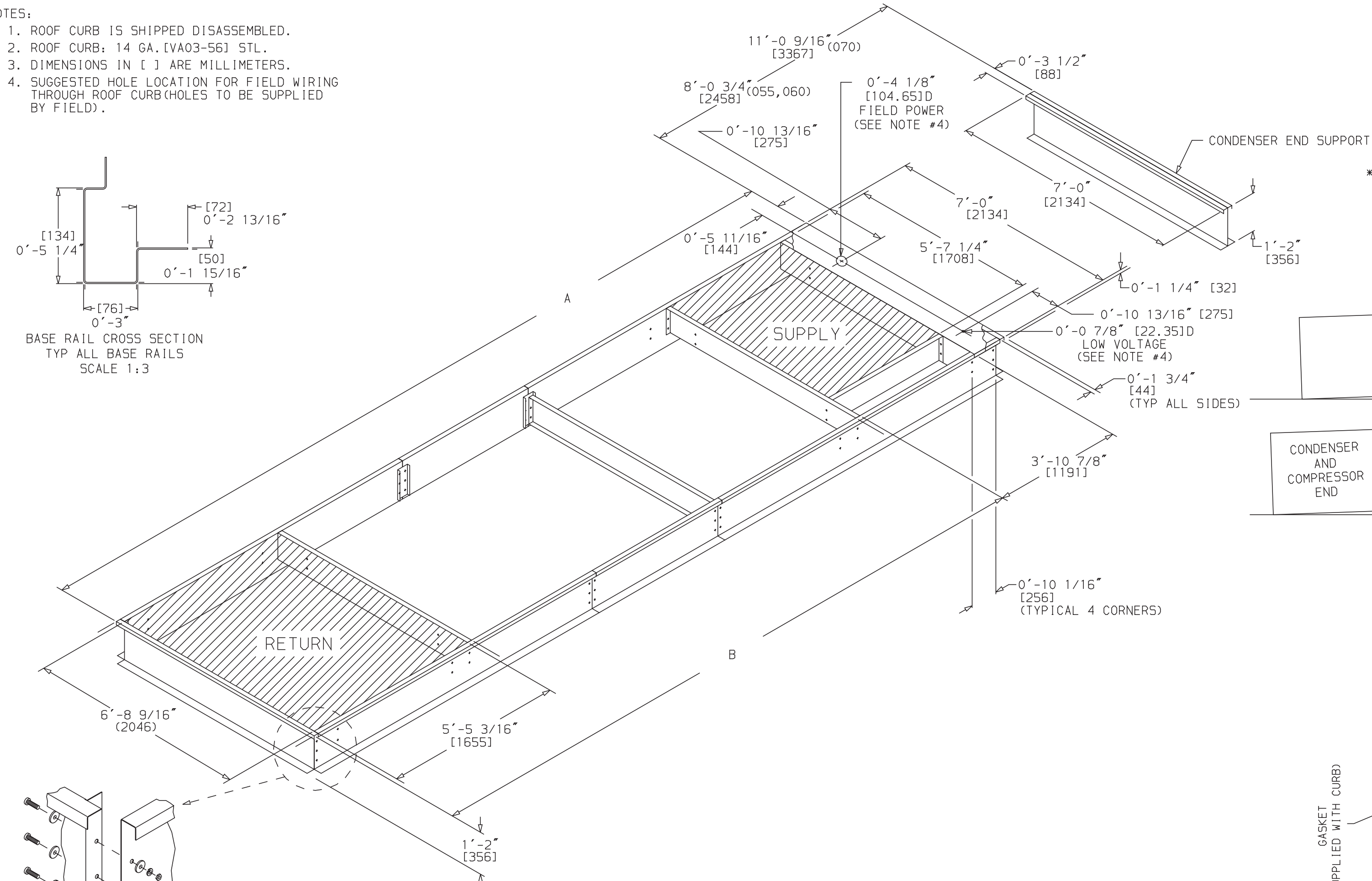
UNIT LEVELING TOLERANCES
*From edge of unit to horizontal.



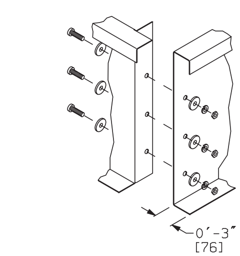
UNIT TYPE	DIMENSION	UNIT SIZE 030		UNIT SIZE 040	
		mm	ft - in.	mm	ft - in.
VERTICAL SUPPLY AND RETURN	A B	6131 3312	20′-1 3/8″ 10′-10 3/8″	7333 4142	24′-1 1/8″ 13′-7 1/16″
HORIZONTAL SUPPLY AND RETURN VERTICAL SUPPLY AND RETURN WITH DISCHARGE PLENUM	A B	6606 4055	21′-8 1/16″ 13′-3 11/16″	7840 4893	25′-8 11/16″ 16′-0 5/8″
VERTICAL SUPPLY AND RETURN WITH EXTENDED CHASSIS	A B	6771 3951	22′-2 9/16″ 12′-11 9/16″	7984 4781	26′-2 5/16″ 15′-8 7/32″
HORIZONTAL SUPPLY AND RETURN WITH EXTENDED CHASSIS	A B	7245 4696	23′-9 1/4″ 15′-4 7/8″	8467 5533	27′-9 5/16″ 18′-1 7/8″

Fig. 1 — Roof Curb; Sizes 030,040

NOTES:
1. ROOF CURB IS SHIPPED DISASSEMBLED.
2. ROOF CURB: 14 GA.[VA03-56] STL.
3. DIMENSIONS IN [ ] ARE MILLIMETERS.
4. SUGGESTED HOLE LOCATION FOR FIELD WIRING THROUGH ROOF CURB(HOLES TO BE SUPPLIED BY FIELD).



BASE RAIL CROSS SECTION
TYP ALL BASE RAILS
SCALE 1:3

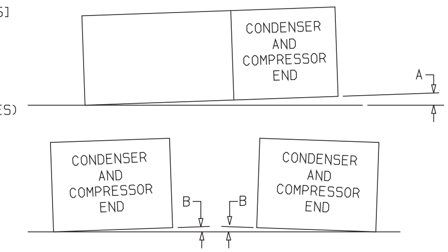


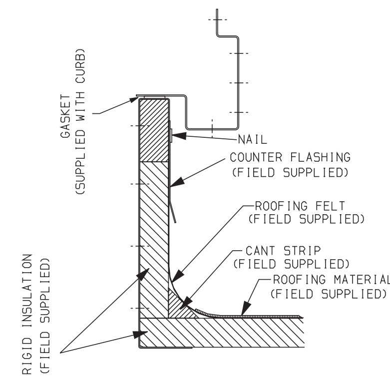
VIEW B
(CORNER CONNECTIONS AND SPLICE PLATE CONNECTIONS)

DIMENSIONS*
(degrees and inches)

A		B	
DEG.	IN.	DEG.	IN.
1.0	2.0	.50	.75

UNIT LEVELING TOLERANCES
*From edge of unit to horizontal.

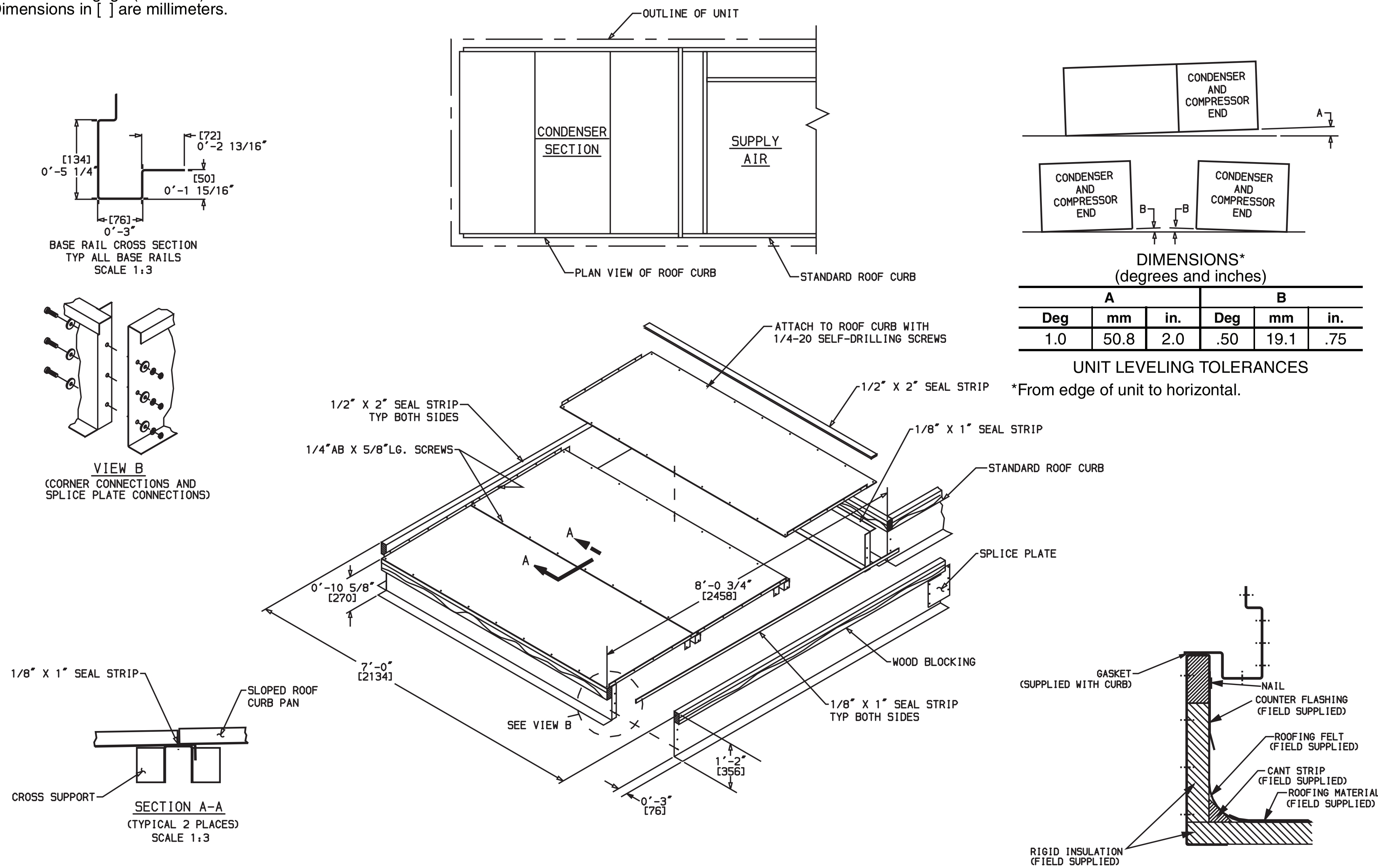




UNIT TYPE	DIMENSION	UNIT SIZE 055,060	
		mm	ft-in.
VERTICAL SUPPLY AND RETURN	A B	7444 5932	24′-5 1/16″ 19′-5 9/16″
VERTICAL SUPPLY AND RETURN WITH DISCHARGE PLENUM	A B	8476 6965	27′-9 11/16″ 22′-10 3/16″
VERTICAL SUPPLY AND RETURN WITH EXTENDED CHASSIS	A B	8083 6572	26′-6 1/4″ 21′-6 3/4″
HORIZONTAL SUPPLY AND RETURN WITH EXTENDED CHASSIS VERTICAL SUPPLY AND RETURN WITH DISCHARGE PLENUM AND EXTENDED CHASSIS	A B	9115 7604	29′-10 7/8″ 24′-11 3/8″

Fig. 2 — Roof Curb; Sizes 055,060

NOTES:
1. Roof curb is shipped disassembled.
2. Roof curb: 14 gage (VA03-56) steel.
3. Dimensions in [ ] are millimeters.



DIMENSIONS*
(degrees and inches)

A			B		
Deg	mm	in.	Deg	mm	in.
1.0	50.8	2.0	.50	19.1	.75

UNIT LEVELING TOLERANCES

*From edge of unit to horizontal.

Fig. 3 — Condenser Section Roof Curb — All Units, Sizes 055 and 060

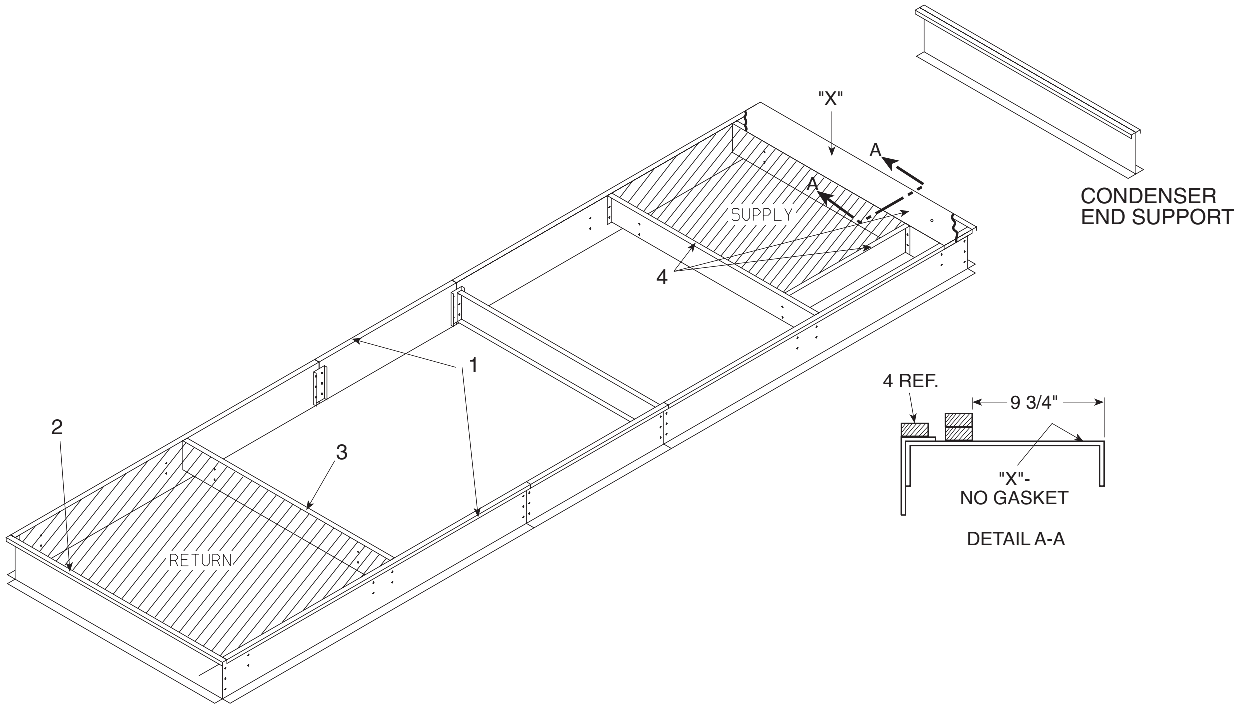


Fig. 4 — Gasket Location on Roof Curb (Size 055,060 Units)

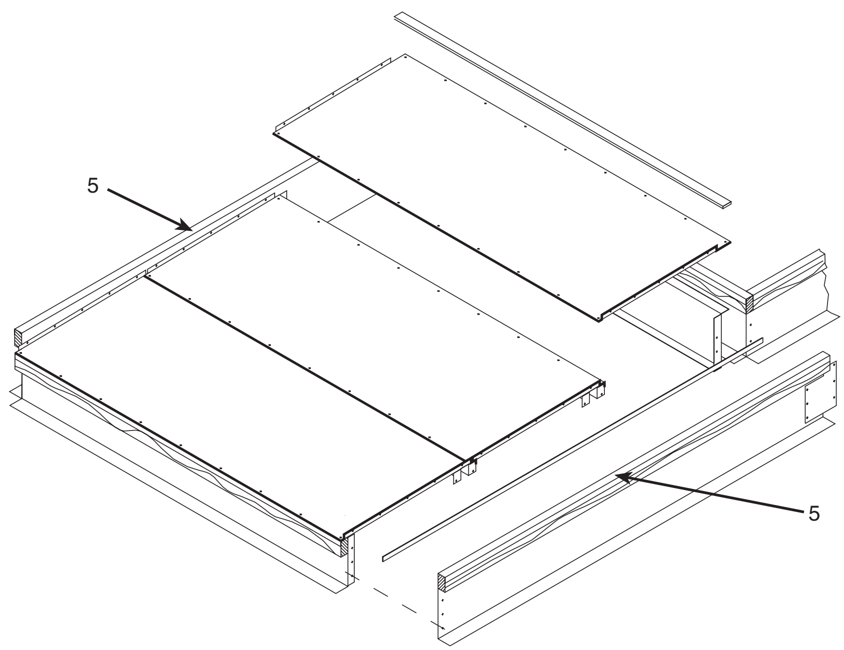


Fig. 5 — Gasket Location — Condenser Section Roof Curb (Size 055,060 Units)

Field-Fabricated Ductwork

> ⚠ **WARNING**
>
> For vertical supply and return units, tools or parts could drop into ductwork and cause an injury. Install a 90-degree turn in the return ductwork between the unit and the conditioned space. If a 90-degree elbow cannot be installed, then a grille of sufficient strength and density should be installed to prevent objects from falling into the conditioned space. Due to electric heater, supply duct will require 90-degree elbow. Failure to follow these instructions could result in personal injury or property damage due to fire or falling objects.

NOTE: A 90-degree elbow must be provided in the supply ductwork to comply with UL (Underwriters Laboratories, U.S.A. Standard) codes for use with electric heat.

VERTICAL SUPPLY/RETURN — The 50ZG,ZN units are designed for vertical supply/return only. Field-fabricated ductwork must be attached to the roof curb, or to the support steel, prior to the final rigging and installation of the unit. Supply and return duct dimensions are shown in Fig. 1 and 2.

To attach ductwork to roof curb, insert duct approximately 254 to 279 mm (10 to 11 in.) up into roof curb. Connect ductwork to 14-gage (1.9 mm) roof curb material with sheet metal screws driven from inside the duct.

Secure all ducts to the building structure, using flexible duct connectors between roof curbs and ducts as required. Ducts passing through an unconditioned space must be insulated and covered with a vapor barrier. Outlet grilles must not lie directly below unit discharge. The return duct must have a 90-degree elbow before opening into the building space if the unit is equipped with power exhaust.

Design supply duct strong enough to handle expected static pressures.

HORIZONTAL SUPPLY/RETURN — The 50Z2,Z33 units are designed for horizontal return (end of unit) and horizontal supply (left hand side of unit). Units are shipped with sheet metal duct opening covers. If the 50Z2,Z3 unit is also equipped with optional power exhaust, the exhaust fan discharge hoods are shipped attached to the end of the unit, over the end return opening covers. Remove these hoods and install on unit sides. Refer to Install Outdoor Hoods section on page 38.

Units are provided with duct flanges on each opening. Ductwork should be connected directly to the unit duct flanges after the unit has been rigged, positioned, and installed. Remove and discard duct covers prior to connecting ductwork. Supply and return duct dimensions are shown in Base Unit Dimensional Drawings on pages 18-35.

To attach ductwork to unit flanges, insert duct approximately 76 mm (3-in.) over the flanges. Connect ductwork to 14-gage (1.9 mm) flanges with sheet metal screws driven from outside of the duct. Add sealant or caps to sharp points on screws where appropriate for technician safety.

Secure all ducts to the building structure, using flexible duct connectors between roof curbs and ducts as required. Ducts passing through an unconditioned space must be insulated and covered with a vapor barrier.

Design supply duct strong enough to handle expected static pressures.

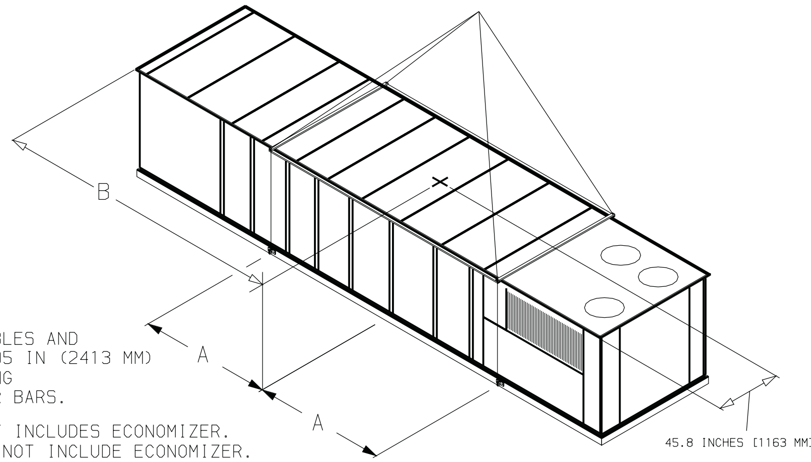
Rigging — Do not drop unit; keep upright. Use spreader bars over unit to prevent sling or cable damage. Sheets of plywood placed along the condenser coils will provide additional protection. All lifting lugs MUST be used when lifting unit. Level by using unit frame as a reference. See Fig. 6-9 for information. Unit and accessory weights are shown in Tables 1A-2B. Weight distribution and center of gravity can be found in Fig. 10A-28.

⚠ CAUTION

NOTICE TO RIGGERS
1. ALL PANELS MUST BE IN PLACE WHEN RIGGING.
2. DO NOT ATTEMPT TO FORK THESE UNITS.

UNIT	WEIGHT		A		B		ECONOMIZER	
	lb	kg	in.	mm	in.	mm	lb	kg
50ZG,ZN030*	5400	2455	74.06	1881	165.28	4198	300	136
50ZG,ZN040*	6050	2750	84.76	2153	194.80	4948	300	136
50Z2,Z3,ZGH,ZGJ,ZNH,ZNJ030	5970	2714	83.23	2114	159.21	4044	300	136
50Z2,Z3,ZGH,ZGJ,ZNH,ZNJ040	6620	3009	92.64	2353	189.88	4823	300	136

*Without discharge plenum.



NOTE:
RIG WITH FOUR CABLES AND SPREAD WITH TWO 95 IN (2413 MM) AND TWO "A+A" LONG SUITABLE SPREADER BARS.

CENTER OF GRAVITY INCLUDES ECONOMIZER.
UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.

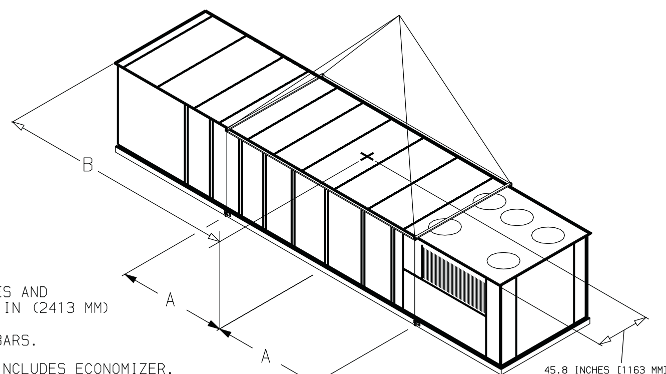
Fig. 6 — Rigging Label — Size 030,040 Units (Standard Chassis)

⚠ CAUTION

NOTICE TO RIGGERS
1. ALL PANELS MUST BE IN PLACE WHEN RIGGING.
2. DO NOT ATTEMPT TO FORK THESE UNITS.

UNIT	WEIGHT		A		B		ECONOMIZER	
	lb	kg	in.	mm	in.	mm	lb	kg
50ZG,ZN055*	7700	3500	105.25	2673	218	5537	530	240.9
50ZG,ZN060*	8000	3636	105.25	2673	218	5537	530	240.9
50Z2,Z3,ZGH,ZGJ,ZNH,ZNJ055	8250	3750	126.50	3213	238	6045	530	240.9
50Z2,Z3,ZGH,ZGJ,ZNH,ZNJ060	8550	3886	126.50	3213	238	6045	530	240.9

*Without discharge plenum.



NOTE:
RIG WITH FOUR CABLES AND SPREAD WITH TWO 95 IN (2413 MM) AND TWO "A+A" LONG SUITABLE SPREADER BARS.

CENTER OF GRAVITY INCLUDES ECONOMIZER.
UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.

Fig. 7 — Rigging Label — Size 055,060 Units (Standard Chassis)

⚠ CAUTION

NOTICE TO RIGGERS
1. ALL PANELS MUST BE IN PLACE WHEN RIGGING.
2. DO NOT ATTEMPT TO FORK THESE UNITS.

UNIT	WEIGHT		A		B		ECONOMIZER	
	lb	kg	in.	mm	in.	mm	lb	kg
50ZG,ZN030*	5900	2657	86.65	2201	181.69	4615	300	136
50ZG,ZN040*	6350	2880	97.36	2473	211.54	5373	300	136
50Z2,Z3,ZGP,ZGQ,ZNP,ZNQ030	6470	2934	95.83	2434	173.94	4418	300	136
50Z2,Z3,ZGP,ZGQ,ZNP,ZNQ040	7120	3229	105.24	2673	205.16	5211	300	136

*Without discharge plenum.

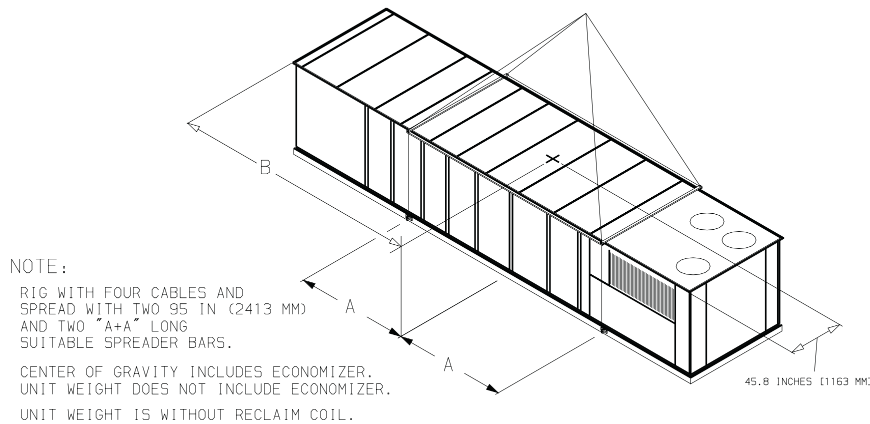


Fig. 8 — Rigging Label — Size 030,040 Units (Extended Chassis)

⚠ CAUTION

NOTICE TO RIGGERS
1. ALL PANELS MUST BE IN PLACE WHEN RIGGING.
2. DO NOT ATTEMPT TO FORK THESE UNITS.

UNIT	WEIGHT		A		B		ECONOMIZER	
	lb	kg	in.	mm	in.	mm	lb	kg
50ZG,ZN055*	8248	3740	107.50	2734	231.81	5888	530	240.9
50ZG,ZN060*	8548	3877	107.50	2734	231.81	5888	530	240.9
50Z2,Z3,ZGP,ZGQ,ZNP,ZNQ055	8800	3990	136.61	3470	251.70	6393	530	240.9
50Z2,Z3,ZGP,ZGQ,ZNP,ZNQ060	9100	4127	136.61	3470	251.70	6393	530	240.9

*Without discharge plenum.

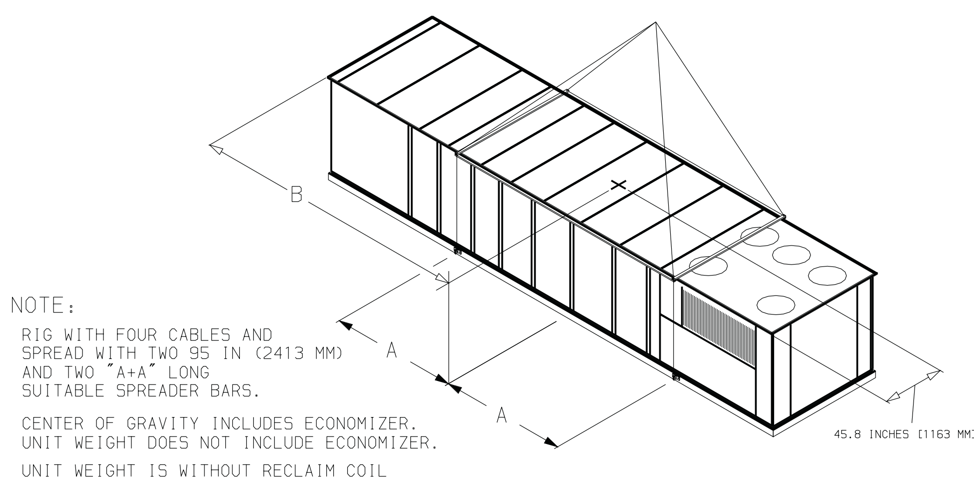
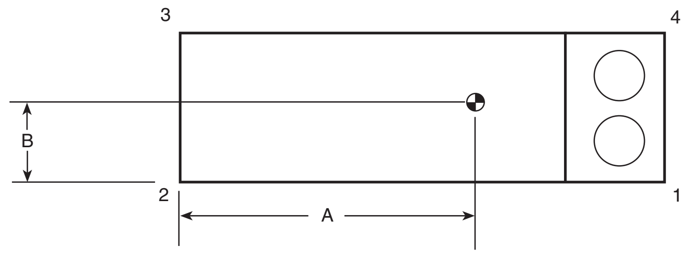
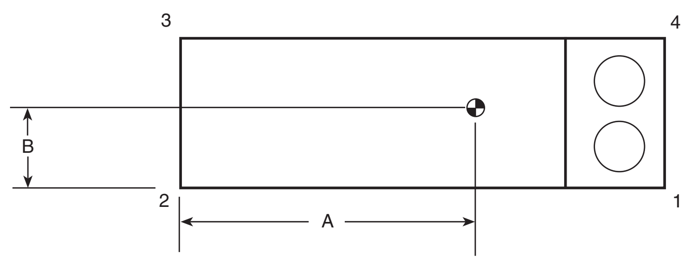


Fig. 9 — Rigging Label — Size 055,060 Units (Extended Chassis)



UNITS	SIZE	CORNER WEIGHTS (kg)				TOTAL (kg)	A mm	B mm
		1	2	3	4			
STANDARD CHASSIS: 50ZG,ZN	030	868	468	467	839	2642	4086	1149
	040	936	519	519	925	2898	4836	1158
	055	1136	758	757	1129	3780	6046	1160
	060	1174	784	785	1170	3914	6045	1161
STANDARD CHASSIS: 50Z2,Z3 AND 50ZG,ZN WITH DISCHARGE PLENUM	030	919	546	545	890	2900	4241	1150
	040	983	601	600	972	3156	4964	1158
	055	1069	950	946	1064	4029	5898	1160
	060	1102	980	979	1101	4163	5896	1161
EXTENDED CHASSIS: 50ZG,ZN	030	933	516	515	905	2868	4461	1150
	040	1004	564	564	993	3125	5225	1158
	055	1202	817	816	1195	4029	6382	1160
	060	1240	843	844	1236	4163	6382	1161
EXTENDED CHASSIS: 50Z2,Z3 AND 50ZG,ZN WITH DISCHARGE PLENUM	030	994	585	584	964	3127	4657	1151
	040	1059	639	638	1048	3383	5389	1158
	055	1114	1029	1027	1108	4279	6118	1160
	060	1147	1060	1060	1145	4413	6119	1161

Fig. 10A — Weight Distribution and Center of Gravity (SI)



UNITS	SIZE	CORNER WEIGHTS (lb)				TOTAL (lb)	A ft-in.	B ft-in.
		1	2	3	4			
STANDARD CHASSIS: 50ZG,ZN	030	1914	1031	1029	1851	5825	13- 5	3- 9
	040	2063	1144	1144	2039	6390	15-10	3-10
	055	2504	1672	1670	2489	8335	19-10	3-10
	060	2589	1729	1732	2580	8630	19-10	3-10
STANDARD CHASSIS: 50Z2,Z3 AND 50ZG,ZN WITH DISCHARGE PLENUM	030	2027	1203	1202	1963	6395	13-11	3- 9
	040	2167	1325	1324	2143	6959	16- 3	3-10
	055	2357	2094	2087	2347	8885	19- 4	3-10
	060	2431	2162	2159	2428	9180	19- 4	3-10
EXTENDED CHASSIS: 50ZG,ZN	030	2058	1137	1135	1995	6325	14- 8	3- 9
	040	2214	1243	1243	2190	6890	17- 2	3-10
	055	2650	1801	1800	2634	8885	20-11	3-10
	060	2734	1859	1862	2725	9180	20-11	3-10
EXTENDED CHASSIS: 50Z2,Z3 AND 50ZG,ZN WITH DISCHARGE PLENUM	030	2191	1289	1288	2126	6894	15- 3	3- 9
	040	2334	1408	1407	2310	7459	17- 8	3-10
	055	2456	2270	2265	2444	9435	20- 1	3-10
	060	2530	2338	2338	2524	9730	20- 1	3-10

Fig. 10B — Weight Distribution and Center of Gravity (English)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0″ [1829]
   SIDES - 6′-0″ [1829]
   ECONOMIZER END - 6′-0″ [1829] (EXCEPT POWER EXHAUST UNITS 10′-0″ [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT LB	WEIGHT KG
030	5525	2506

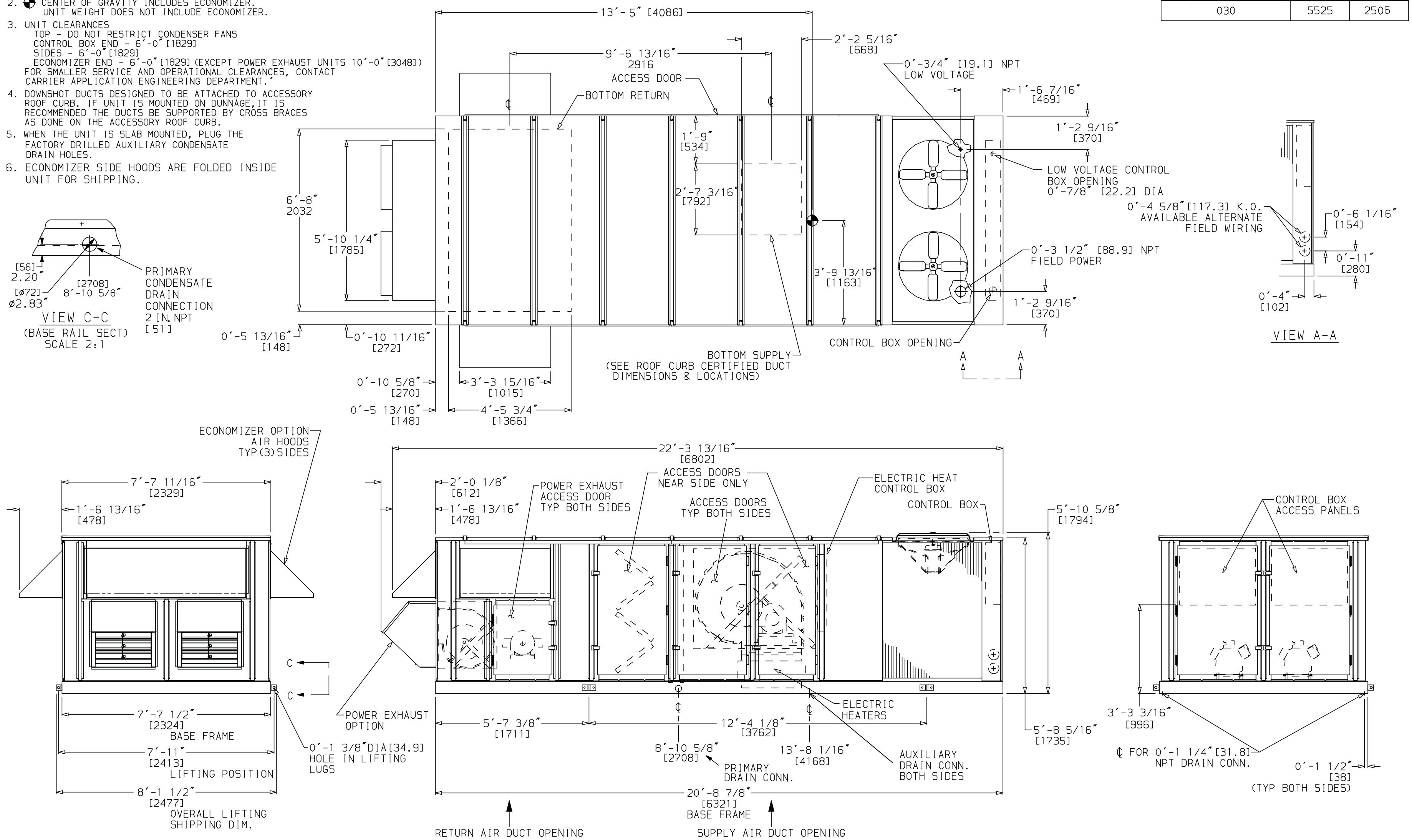


Fig. 11 — Base Unit Dimensional Drawing — 50ZG,ZN030 (Standard Chassis)

UNIT SIZE	WEIGHT LB	WEIGHT KG
040	6090	2762

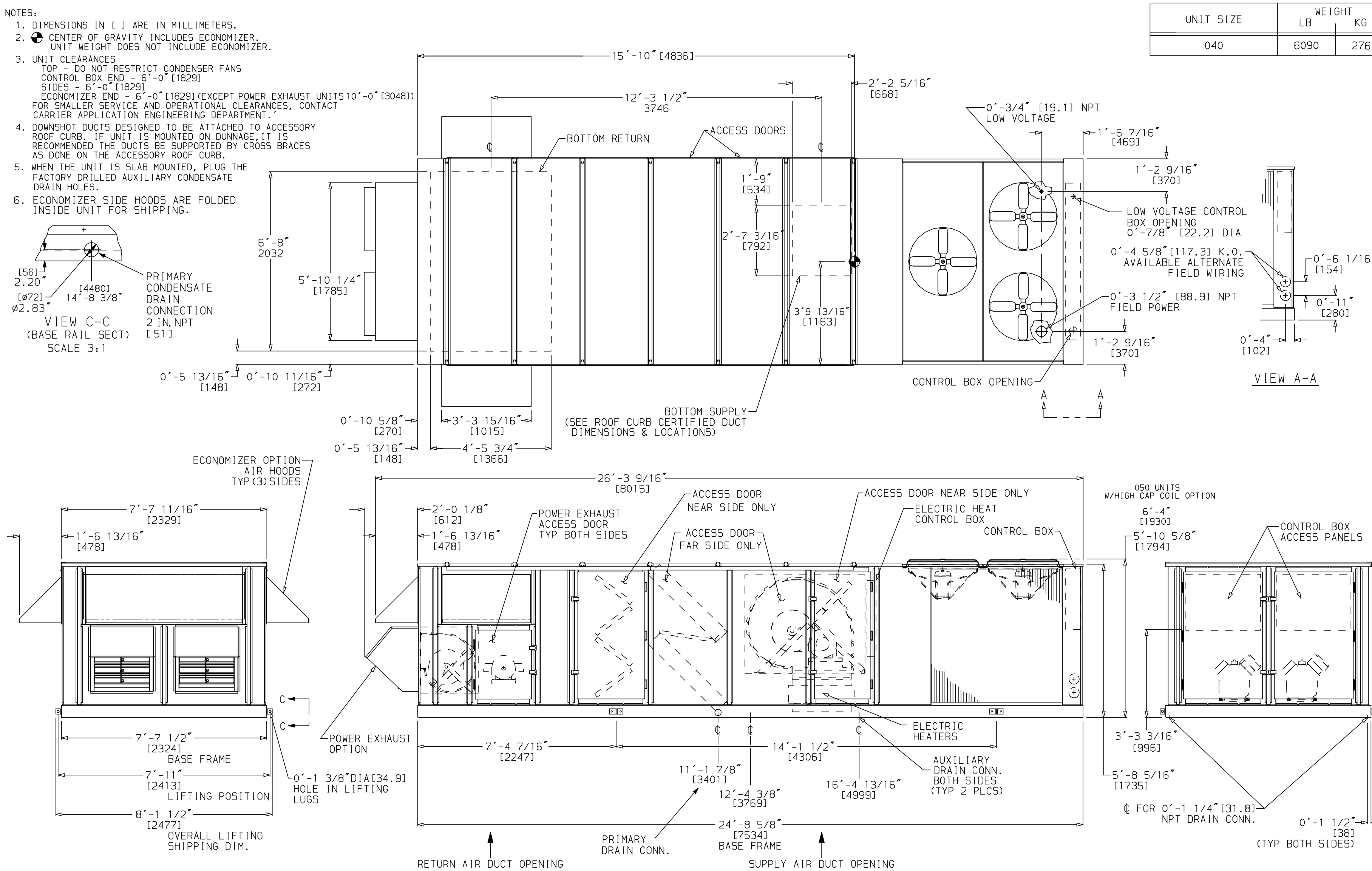


Fig. 12 — Base Unit Dimensional Drawing — 50ZG,ZN040 (Standard Chassis)

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT IN.	B MM	B FT IN.	C MM	C FT IN.	D MM	D FT IN.	E MM	E FT IN.	F MM	F FT IN.
055	7700	3500	2864	9′-4 3/4"	5347	17′-6 1/2"	5537	18′-2"	1163	3′-9 13/16"	10092	33′-1 5/16"	10476	34′-4 7/16"
060	8000	3636	2864	9′-4 3/4"	5347	17′-6 1/2"	5537	18′-2"	1163	3′-9 13/16"	10092	33′-1 5/16"	10476	34′-4 7/16"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"[1829]
   SIDES - 6′-0"[1829]
   ECONOMIZER END - 6′-0"[1829] (EXCEPT POWER EXHAUST UNITS 10′-0"[3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE,IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING

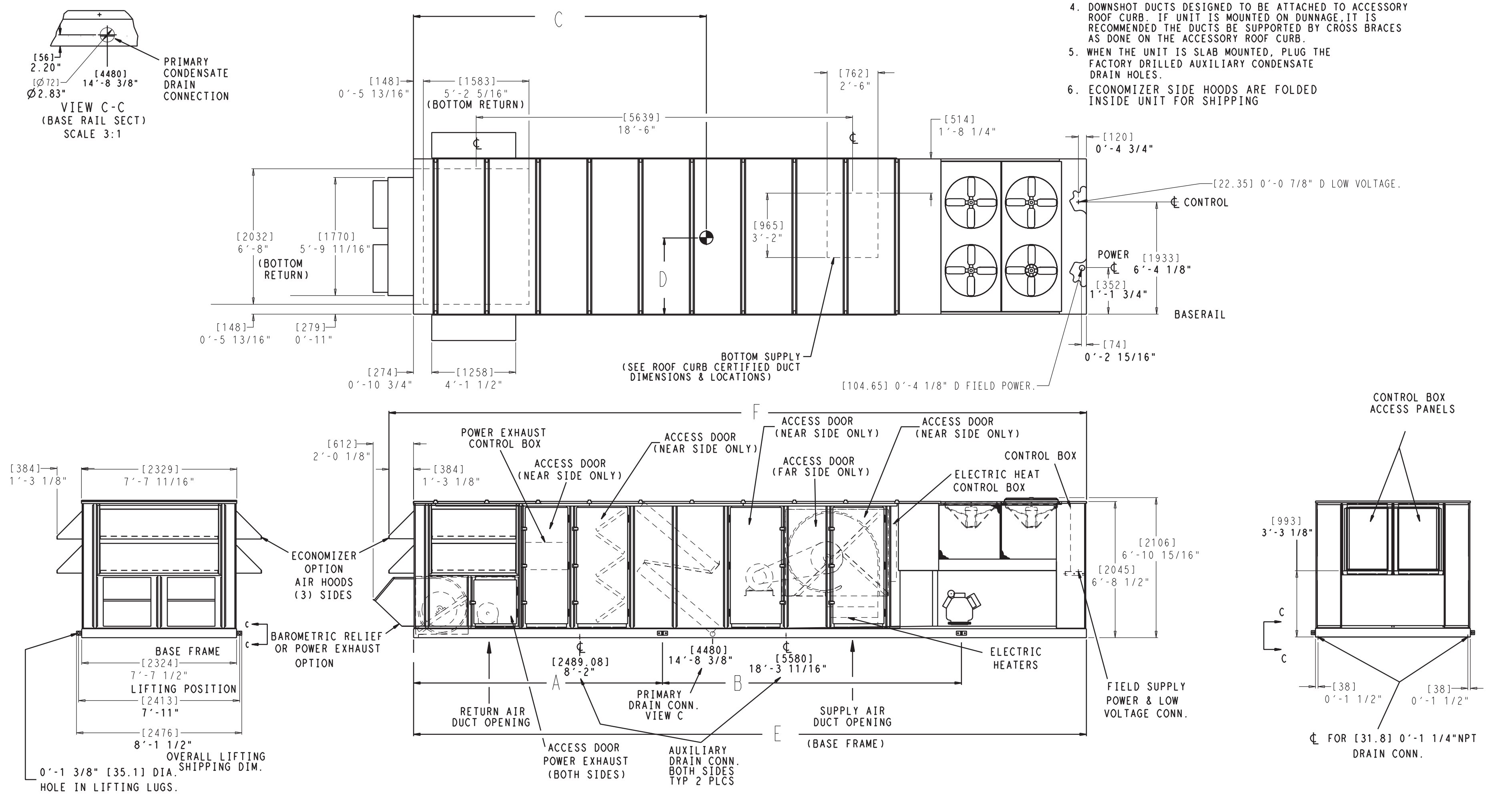


Fig. 13 — Base Unit Dimensional Drawing — 50ZG,ZN055,060 (Standard Chassis)

NOTES:

1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0″[1829]
   SIDES - 6′-0″[1829]
   ECONOMIZER END - 6′-0″ [1829] (EXCEPT POWER EXHAUST UNITS 10′-0″[3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT		A	
	LB	KG	MM	FT - IN.
030	6095	2764	4241	13′-11″

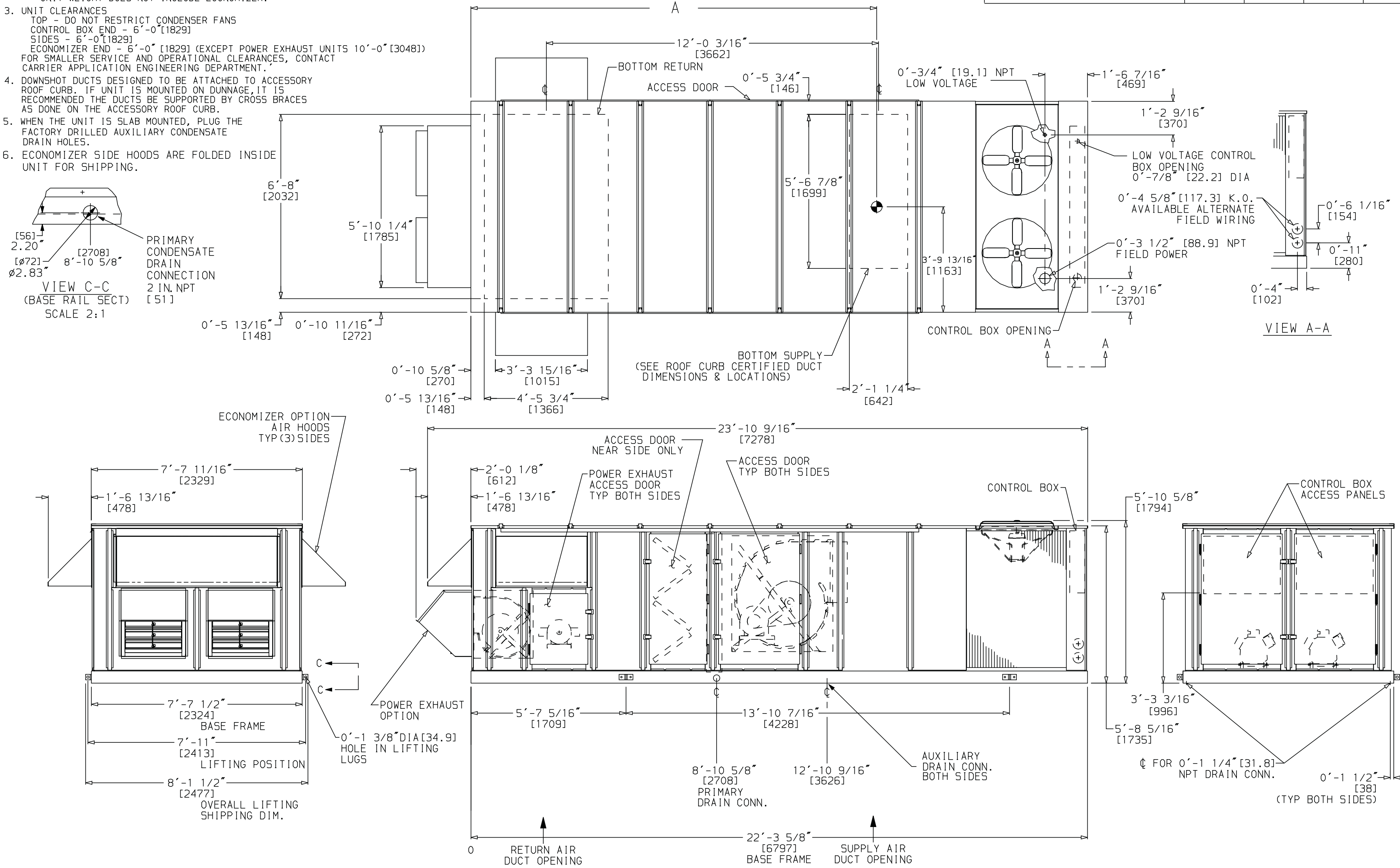


Fig. 14 — Base Unit Dimensional Drawing — 50ZG,ZN030 (Standard Chassis with Discharge Plenum)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0" [1829]
   SIDES - 6'-0" [1829]
   ECONOMIZER END - 6'-0" [1829] (EXCEPT POWER EXHAUST UNITS 10'-0" [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT		A	
	LB	KG	MM	FT - IN.
040	6660	3020	4964	16'- 3"

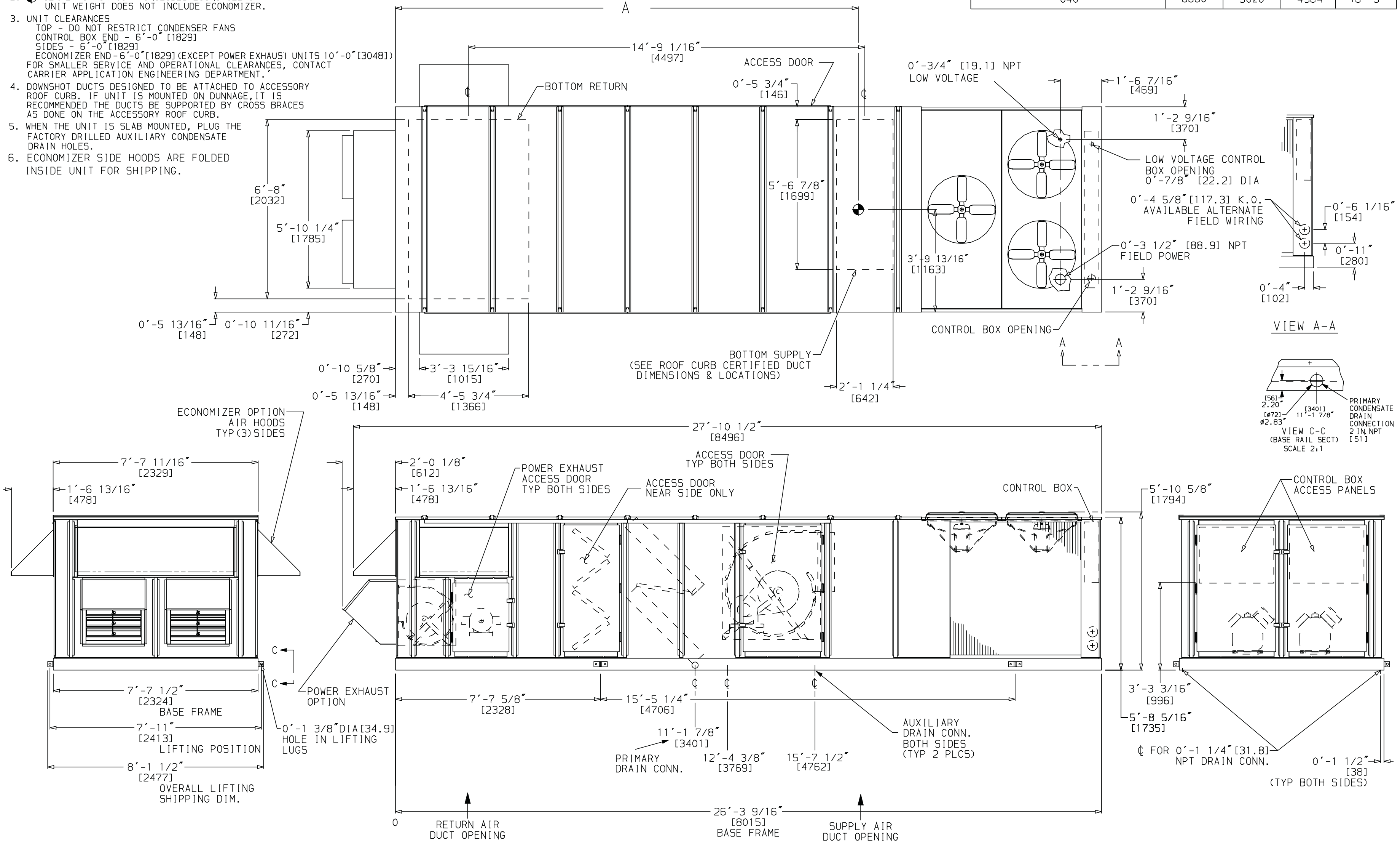


Fig. 15 — Base Unit Dimensional Drawing — 50ZG,ZN040 (Standard Chassis with Discharge Plenum)

UNIT SIZE	WEIGHT		A		B		C		D		E		F	
	LBS.	KGS.	MM	FT. IN.	MM	FT. IN.	MM	FT. IN.	MM	FT. IN.	MM	FT. IN.	MM	FT. IN.
055	8250	3750	2830	9′-3 3/4″	6427	21′ 1″	6045	19′- 10″	1163	3′-9 13/16″	11140	36′-6 9/16″	11524	37′-9 11/16″
060	8550	3886	2830	9′-3 3/4″	6427	21′ 1″	6045	19′- 10″	1163	3′-9 13/16″	11140	36′-6 9/16″	11524	37′-9 11/16″

NOTES:

1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0″[1829]
   SIDES - 6′-0″[1829]
   ECONOMIZER END - 6′-0″[1829] (EXCEPT POWER EXHAUST UNITS 10′-0″[3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING

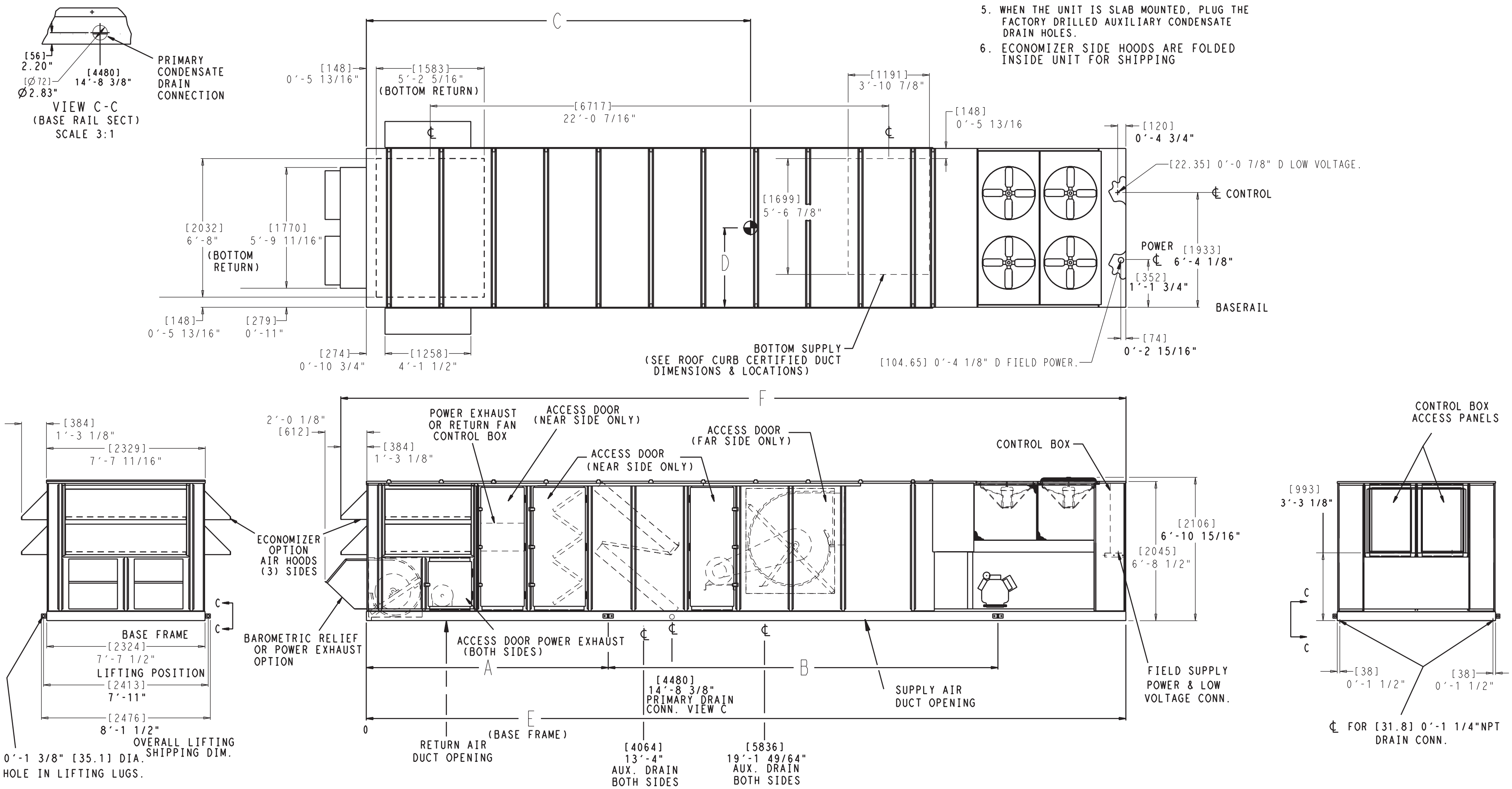


Fig. 16 — Base Unit Dimensional Drawing — 50ZG,ZN055,060 (Standard Chassis with Discharge Plenum)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0" [1829]
   SIDES - 6'-0" [1829]
   ECONOMIZER END - 6'-0" [1829] (EXCEPT POWER EXHAUST UNITS 10'-0" [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.
7. COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED): 7'-0 1/4" [2140]
   -WIDTH : 0' -9 5/8" [245]
   -HEIGHT: 4' 5 15/16" [1370]
8. HEAT RECLAIM COIL FIELD SUPPLIED AND INSTALLED.
9. PIPE CHASE LOCATIONS ARE RECOMMENDATIONS ONLY. OPENINGS ARE NOT FACTORY PROVIDED.

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT - IN.
030	6025	2732	4461	14' - 8"

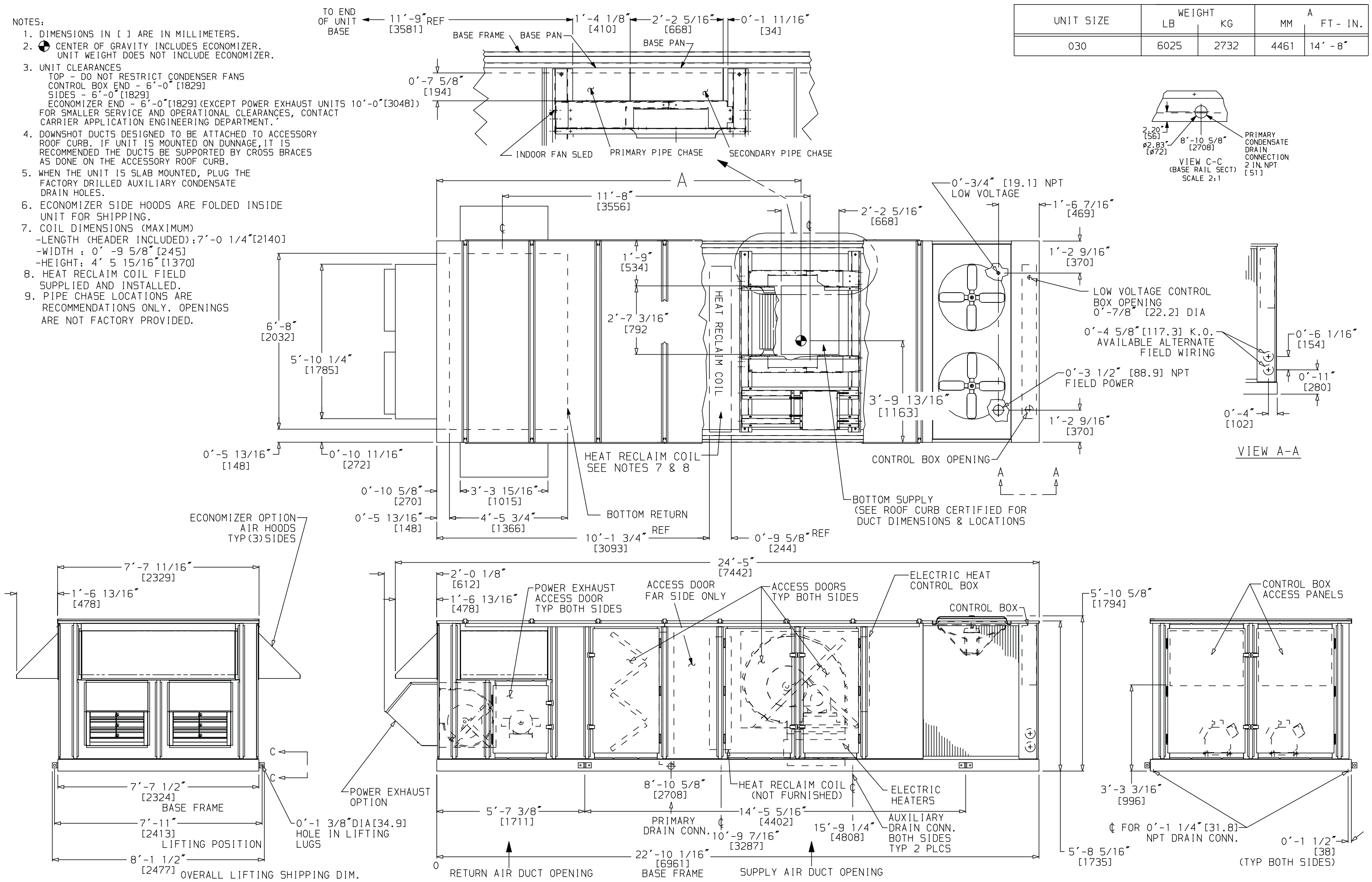


Fig. 17 — Base Unit Dimensional Drawing — 50ZG,ZN030 (Extended Chassis)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0" [1829]
   SIDES - 6'-0" [1829]
   ECONOMIZER END - 6'-0" [1829] (EXCEPT POWER EXHAUST UNITS 10'-0" [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.
7. COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED): 7'-0 1/4" [2140]
   -WIDTH : 0' -9 5/8" [245]
   -HEIGHT: 4' 5 15/16" [1370]
8. HEAT RECLAIM COIL FIELD SUPPLIED AND INSTALLED.
9. PIPE CHASE LOCATIONS ARE RECOMMENDATIONS ONLY. OPENINGS ARE NOT FACTORY PROVIDED.

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT - IN.
040	6590	2989	5225	17' - 2"

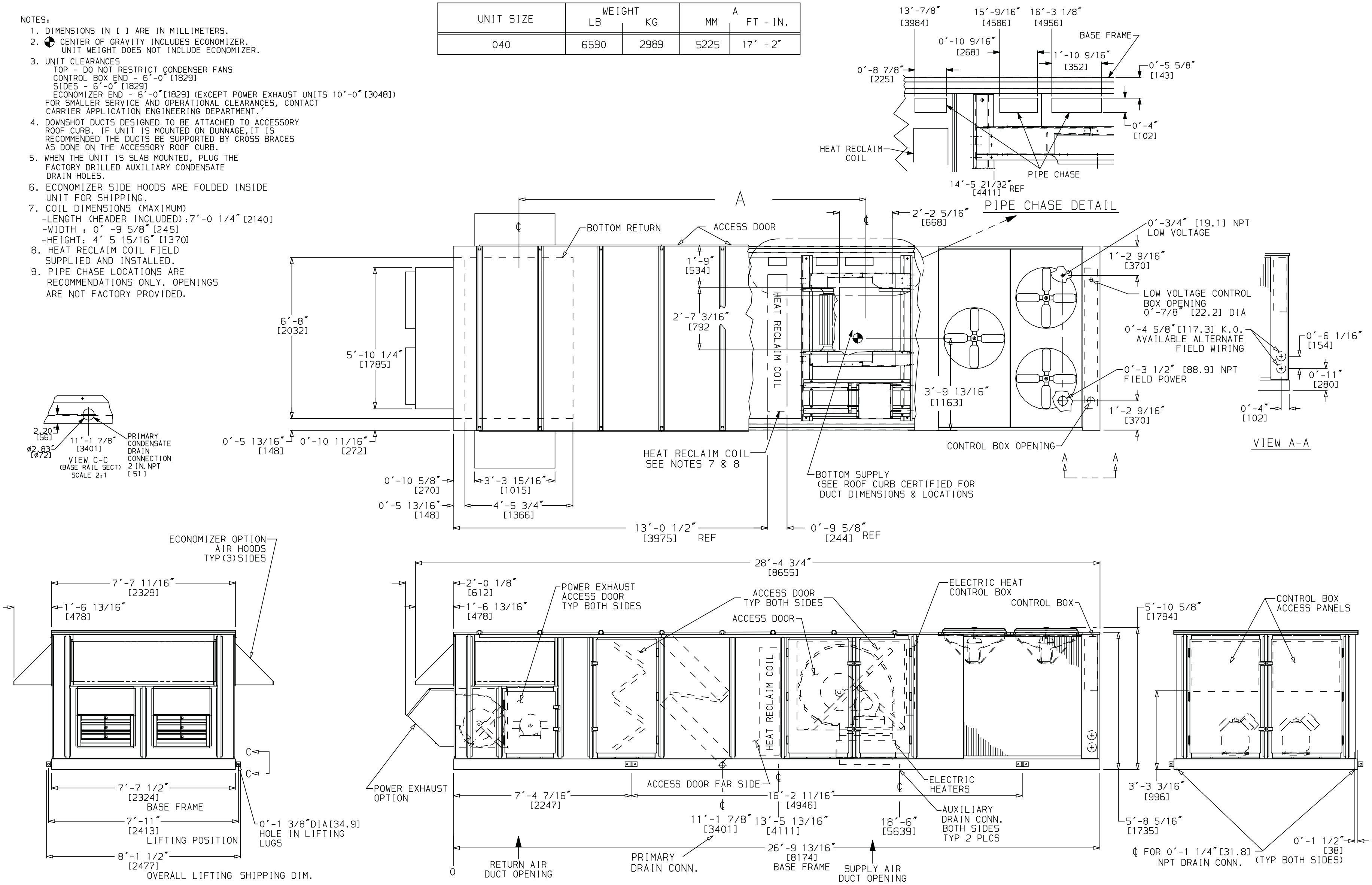


Fig. 18 — Base Unit Dimensional Drawing — 50ZG,ZN040 (Extended Chassis)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
055	8248	3740	3383	11′-1 3/16"	5468	17′-11 1/4"	5888	19′ -3 13/16"	1163	3′-9 25/32"	10732	35′-2 1/2"	11116	36′-5 5/8"
060	8548	3877	3383	11′-1 3/16"	5468	17′-11 1/4"	5888	19′ -3 13/16"	1163	3′-9 25/32"	10732	35′-2 1/2"	11116	36′-5 5/8"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"[1829]
   SIDES - 6′-0"[1829]
   ECONOMIZER END - 6′-0"[1829](EXCEPT POWER EXHAUST UNITS 10′-0"[3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED IN FOR SHIPPING.
7. HEAT RECLAIM COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED):7′-0 1/4"[2140]
   -WIDTH : 0′ -9 5/8"[245]
   -HEIGHT: 5′ -6 "[1370]
8. HEAT RECLAIM COIL FIELD SUPPLIED AND INSTALLED.
9. PIPE CHASE LOCATIONS ARE RECOMMENDATIONS ONLY. OPENINGS ARE NOT FACTORY PROVIDED.
10. OPTIONAL FACTORY SUPPLIED HOT WATER COIL, ON UNITS WITHOUT ELECTRIC HEAT.
   DIMENSIONS:
   -LENGTH: 5′-5"[1650] - WIDTH: 0′-6"[152]-HEIGHT: 5′-4 1/2"[1640]
   -TUBE O.D.: 0′-0 1/2"[13]-ROWS: 2
   -HEADER O.D. (2 TUBES): 0′-1 1/2"[38]

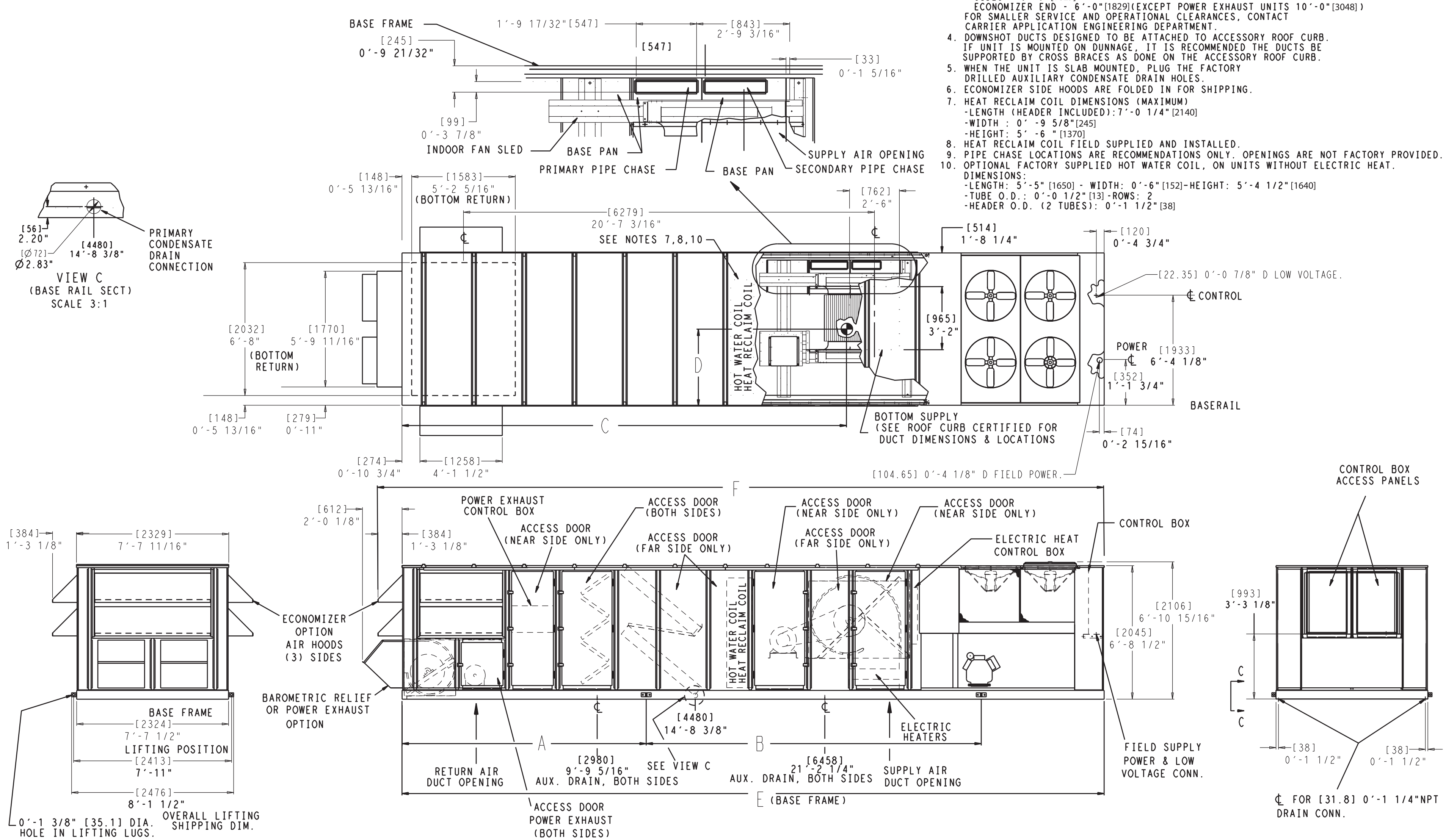


Fig. 19 — Base Unit Dimensional Drawing — 50ZG,ZN055,060 (Extended Chassis)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0" [1829]
   SIDES - 6'-0" [1829]
   ECONOMIZER END - 6'-0" [1829] (EXCEPT POWER EXHAUST UNITS 10'-0" [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.
7. COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED): 7'-0 1/4" [2140]
   -WIDTH : 0' -9 5/8" [245]
   -HEIGHT: 4' 5 15/16" [1370]
8. HEAT RECLAIM COIL FIELD SUPPLIED AND INSTALLED.

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT - IN.
030	6595	2991	4657	15'- 3"

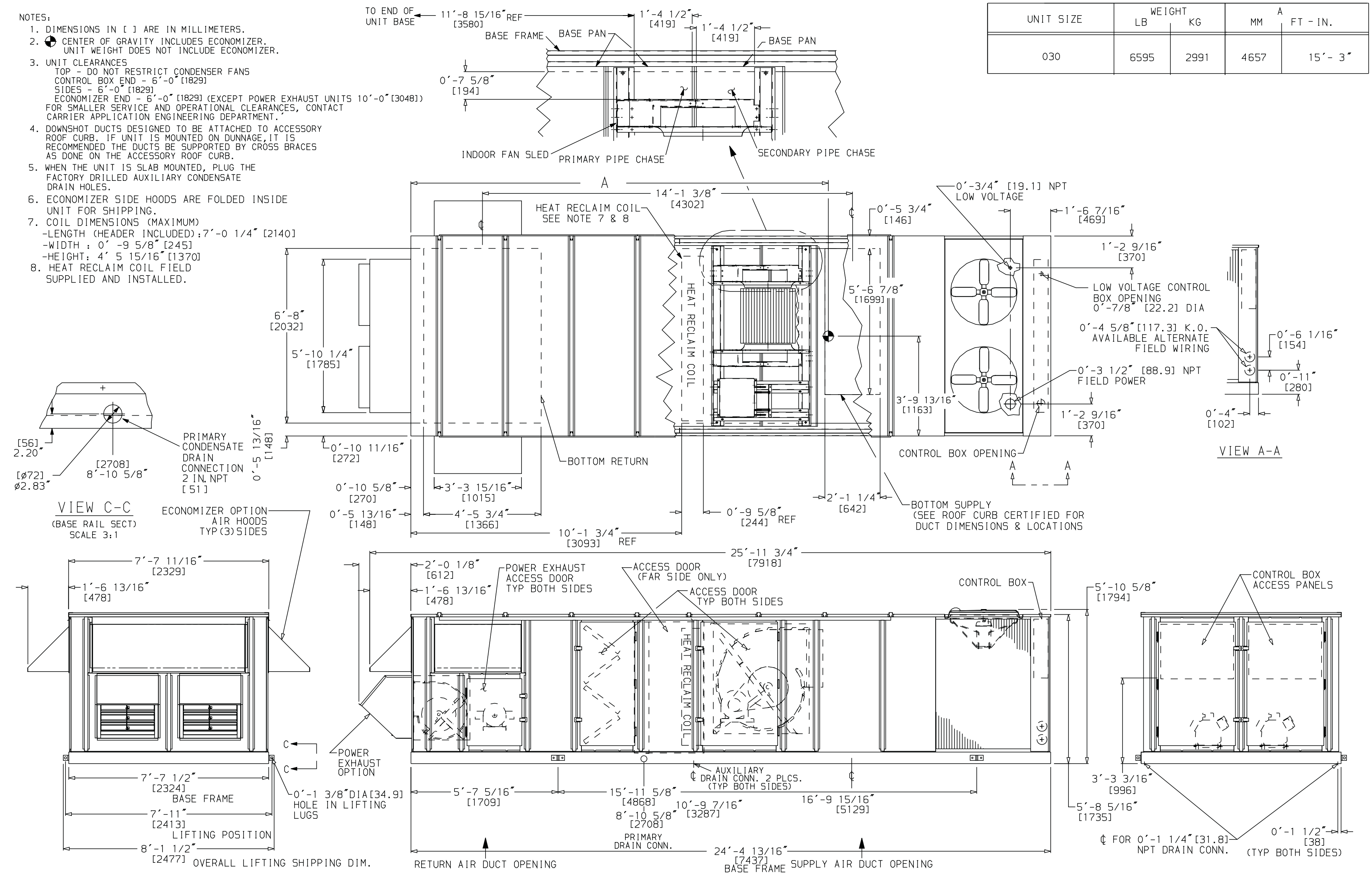


Fig. 20 — Base Unit Dimensional Drawing — 50ZG,ZN030 (Extended Chassis with Discharge Plenum)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0" [1829]
   SIDES - 6'-0" [1829]
   ECONOMIZER END - 6'-0" [1829] (EXCEPT POWER EXHAUST UNITS 10'-0" [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.
7. COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED): 7'-0 1/4" [2140]
   -WIDTH : 0' -9 5/8" [245]
   -HEIGHT: 4' 5 15/16" [1370]
8. HEAT RECLAIM COIL FIELD SUPPLIED AND INSTALLED.

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT - IN.
040	7160	3247	5389	17'-8"

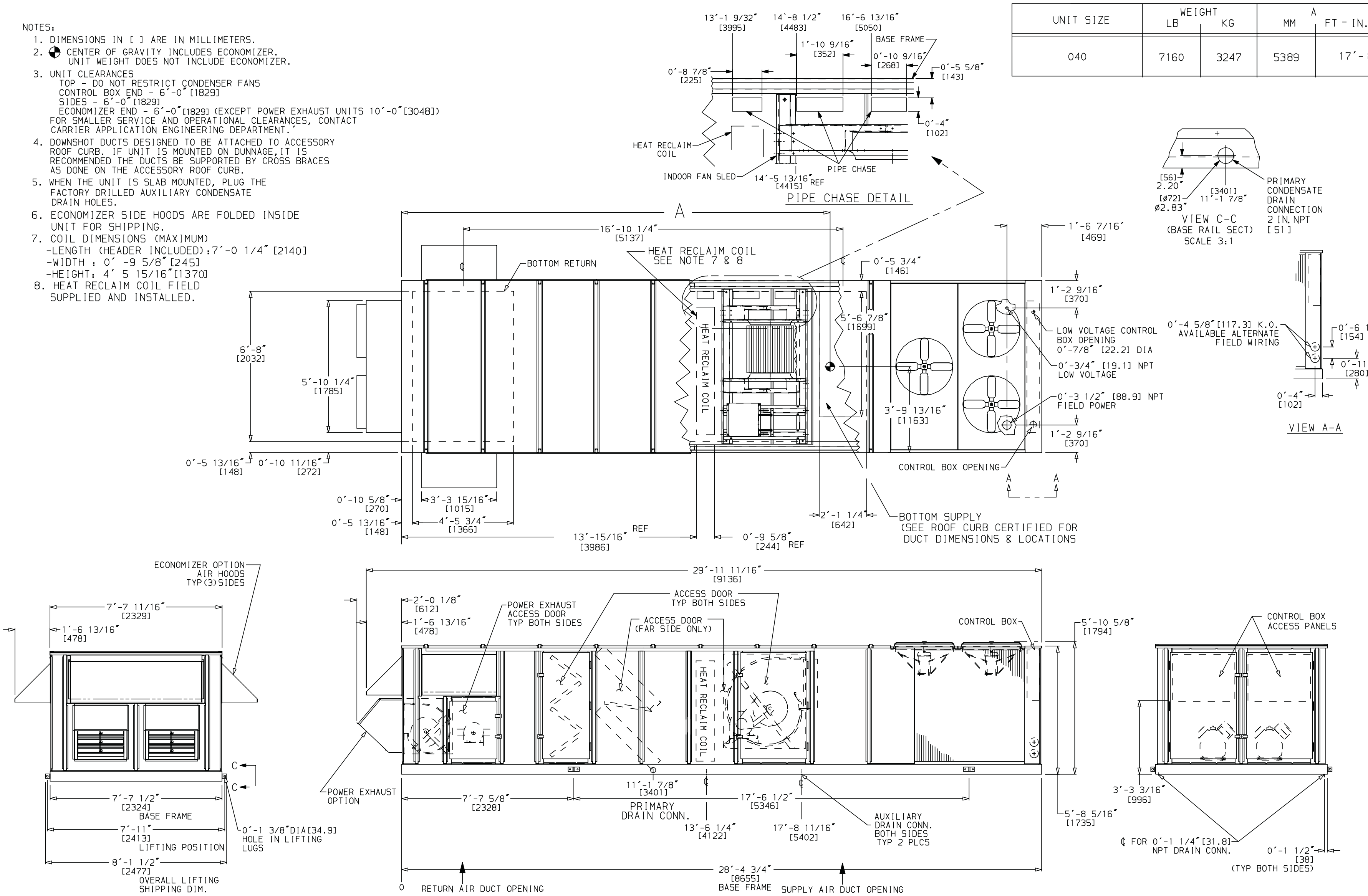


Fig. 21 — Base Unit Dimensional Drawing — 50ZG,ZN040 (Extended Chassis with Discharge Plenum)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
055	8800	3990	2959	9′-8 1/2"	6940	22′-9 3/4"	6393	20′-11 11/16"	1163	3′-9 25/32"	11780	38′-7 13/16"	12164	39′-10 7/8"
060	9100	4127	2959	9′-8 1/2"	6940	22′-9 3/4"	6393	20′-11 11/16"	1163	3′-9 25/32"	11780	38′-7 13/16"	12164	39′-10 7/8"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"[1829]
   SIDES - 6′-0"[1829]
   ECONOMIZER END - 6′-0"[1829](EXCEPT POWER EXHAUST UNITS 10′-0"[3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED IN FOR SHIPPING.
7. HEAT RECLAIM COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED):7′-0 1/4"[2140]
   -WIDTH : 0′ -9 5/8"[245]
   -HEIGHT: 5′ -6 "[1370]
8. HEAT RECLAIM COIL FIELD SUPPLIED AND INSTALLED.
9. PIPE CHASE LOCATIONS ARE RECOMMENDATIONS ONLY. OPENINGS ARE NOT FACTORY PROVIDED.
10. OPTIONAL FACTORY SUPPLIED HOT WATER COIL, ON UNITS WITHOUT ELECTRIC HEAT.
   DIMENSIONS:
   -LENGTH: 5′-5" [1650] - WIDTH: 0′-6"[152]-HEIGHT: 5′-4 1/2"[1640]
   -TUBE O.D.: 0′-0 1/2"[13]-ROWS: 2
   -HEADER O.D. (2 TUBES): 0′-1 1/2"[38]

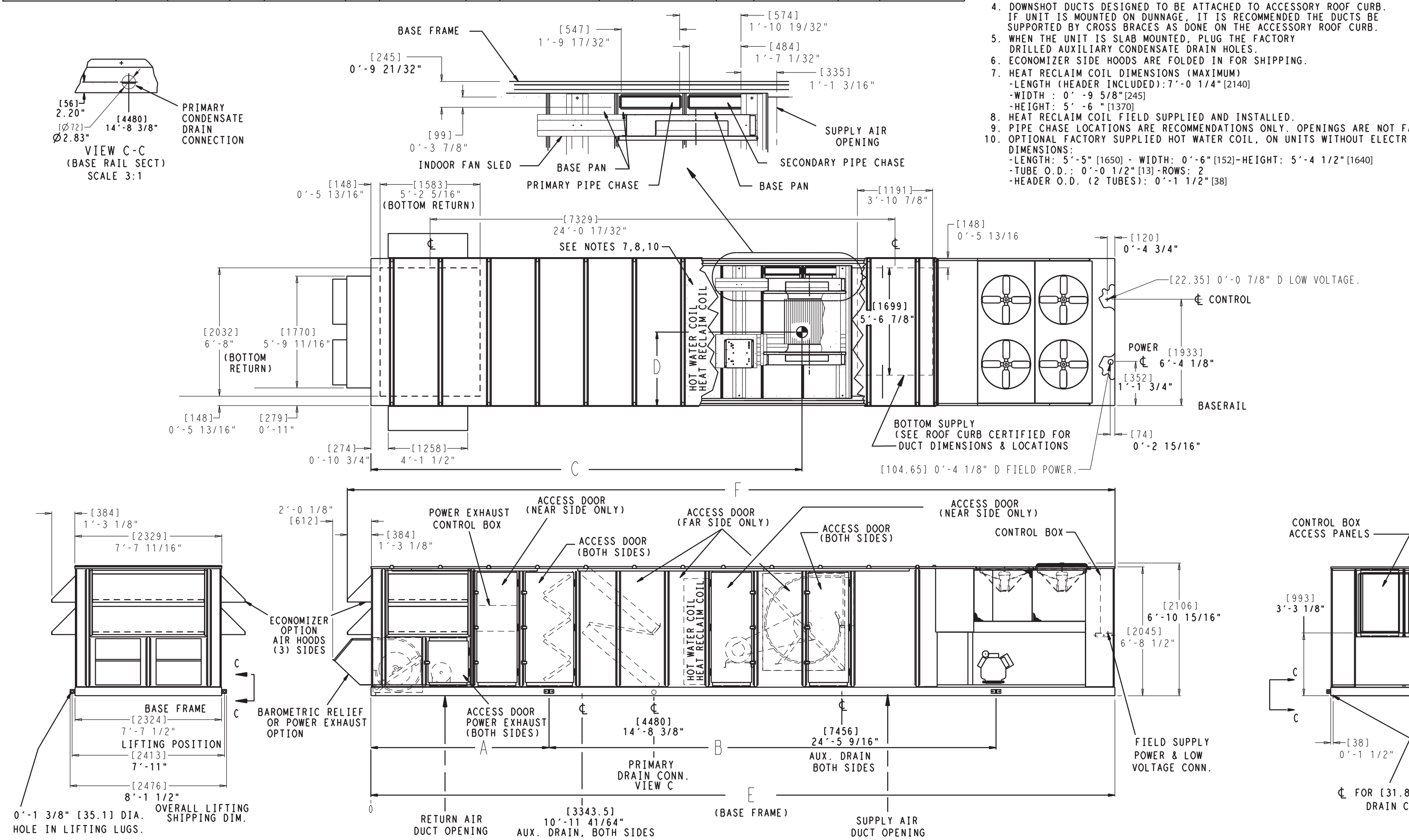


Fig. 22 — Base Unit Dimensional Drawing — 50ZG,ZN055,060 (Extended Chassis with Discharge Plenum)

NOTES:

1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0" [1829]
   SIDES - 6'-0" [1829]
   ECONOMIZER END - 6'-0" [1829] (EXCEPT POWER EXHAUST UNITS 10'-0" [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT - IN.
030	6095	2764	4241	13'-11"

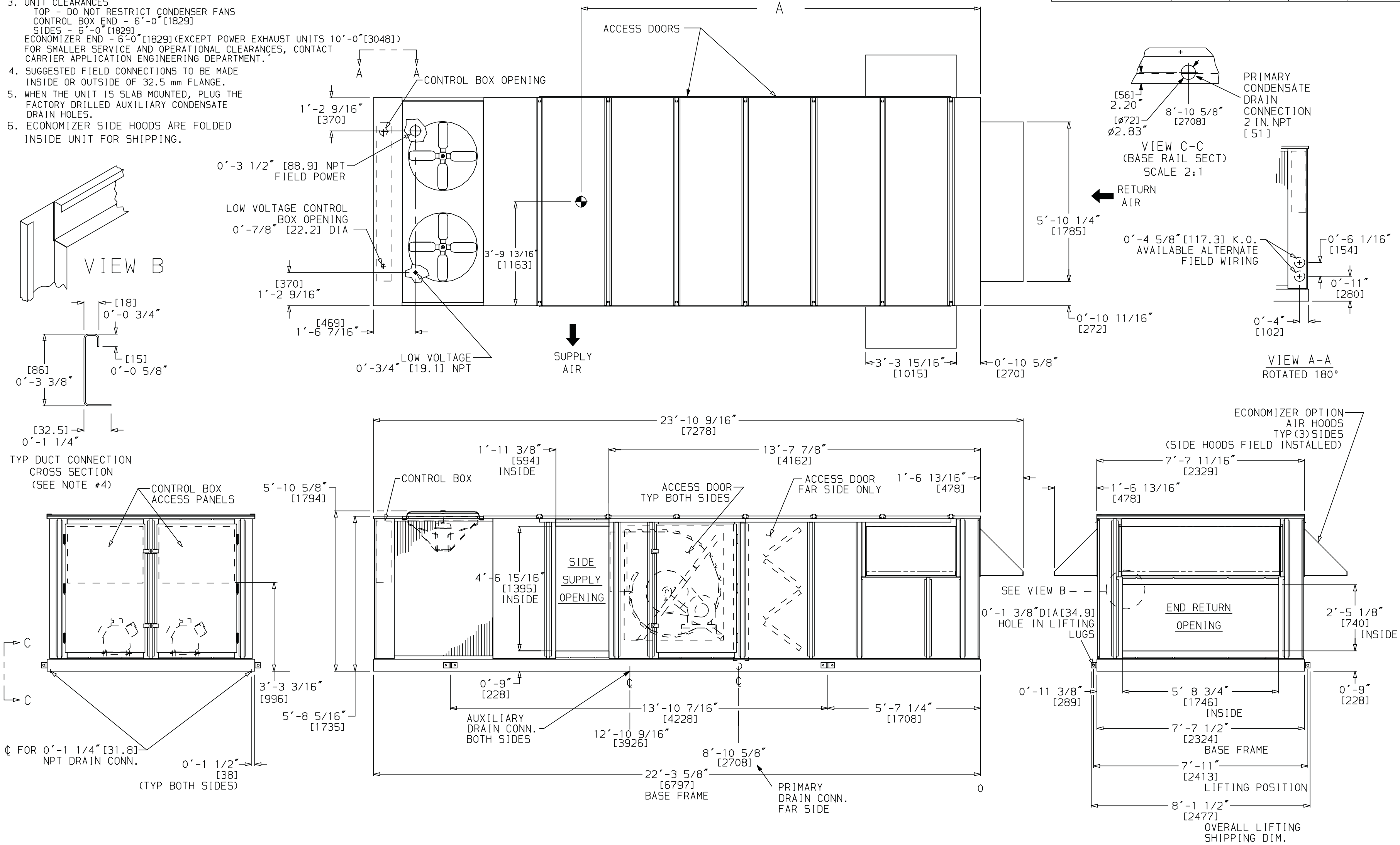


Fig. 23 — Base Unit Dimensional Drawing — 50Z2,Z3030 (Standard Chassis)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
TOP - DO NOT RESTRICT CONDENSER FANS
CONTROL BOX END - 6'-0" [1829]
SIDES - 6'-0" [1829]
ECONOMIZER END - 6'-0" [1829] (EXCEPT POWER EXHAUST UNITS 10'-0" [3048])
FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT - IN.
040	6660	3020	4964	16'-3"

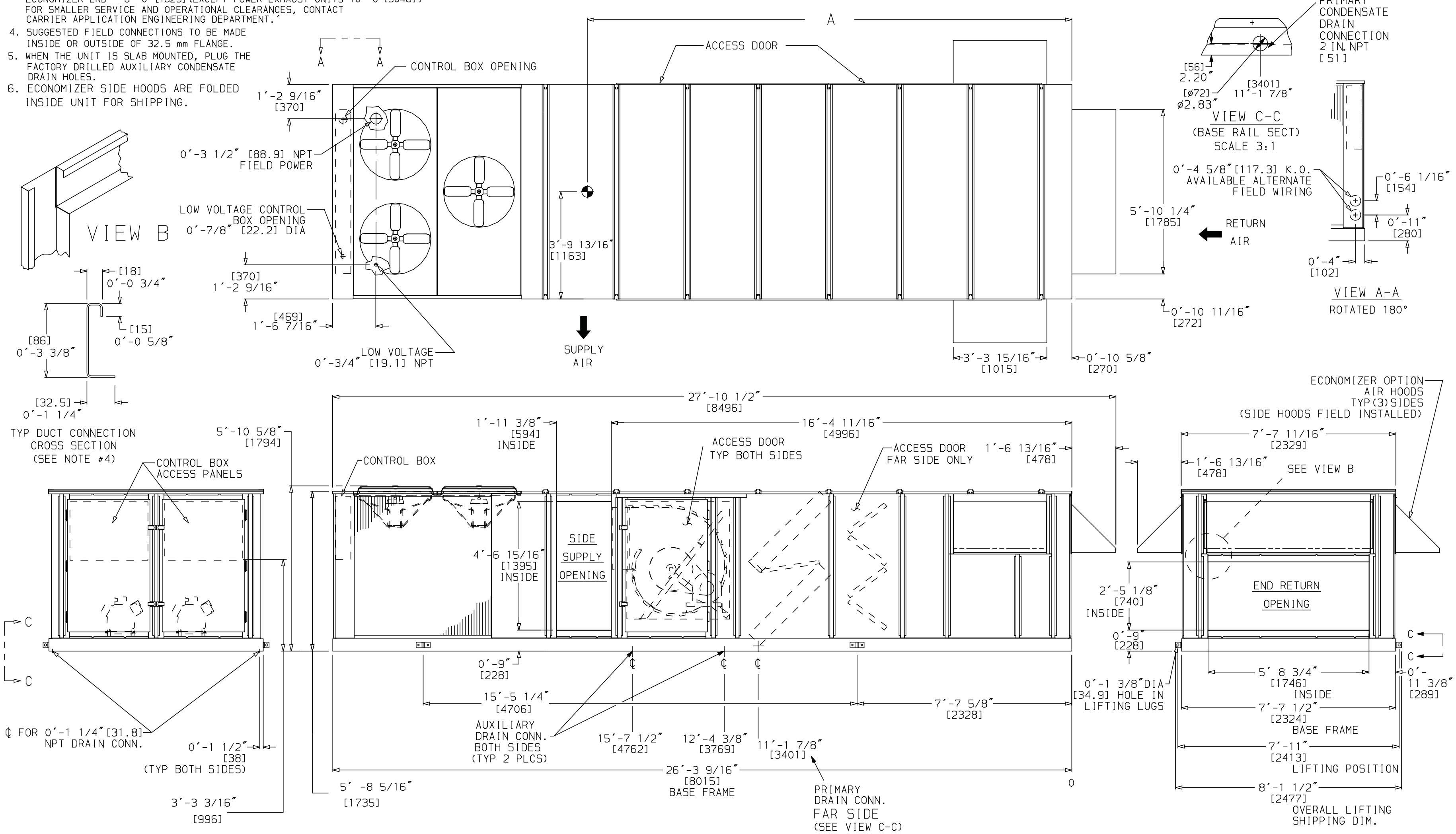


Fig. 24 — Base Unit Dimensional Drawing — 50Z2,Z3040 (Standard Chassis)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
055	8250	3750	2830	9'-3 3/4"	6427	21'-1"	6045	19'-10"	1163	3'-9 13/16"	11140	36'-6 9/16"	11524	37'-9 11/16"
060	8550	3886	2830	9'-3 3/4"	6427	21'-1"	6045	19'-10"	1163	3'-9 13/16"	11140	36'-6 9/16"	11524	37'-9 11/16"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0"[1829]
   SIDES - 6'-0"[1829]
   ECONOMIZER END - 6'-0"[1829] (EXCEPT POWER EXHAUST UNITS 10'-0"[3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING

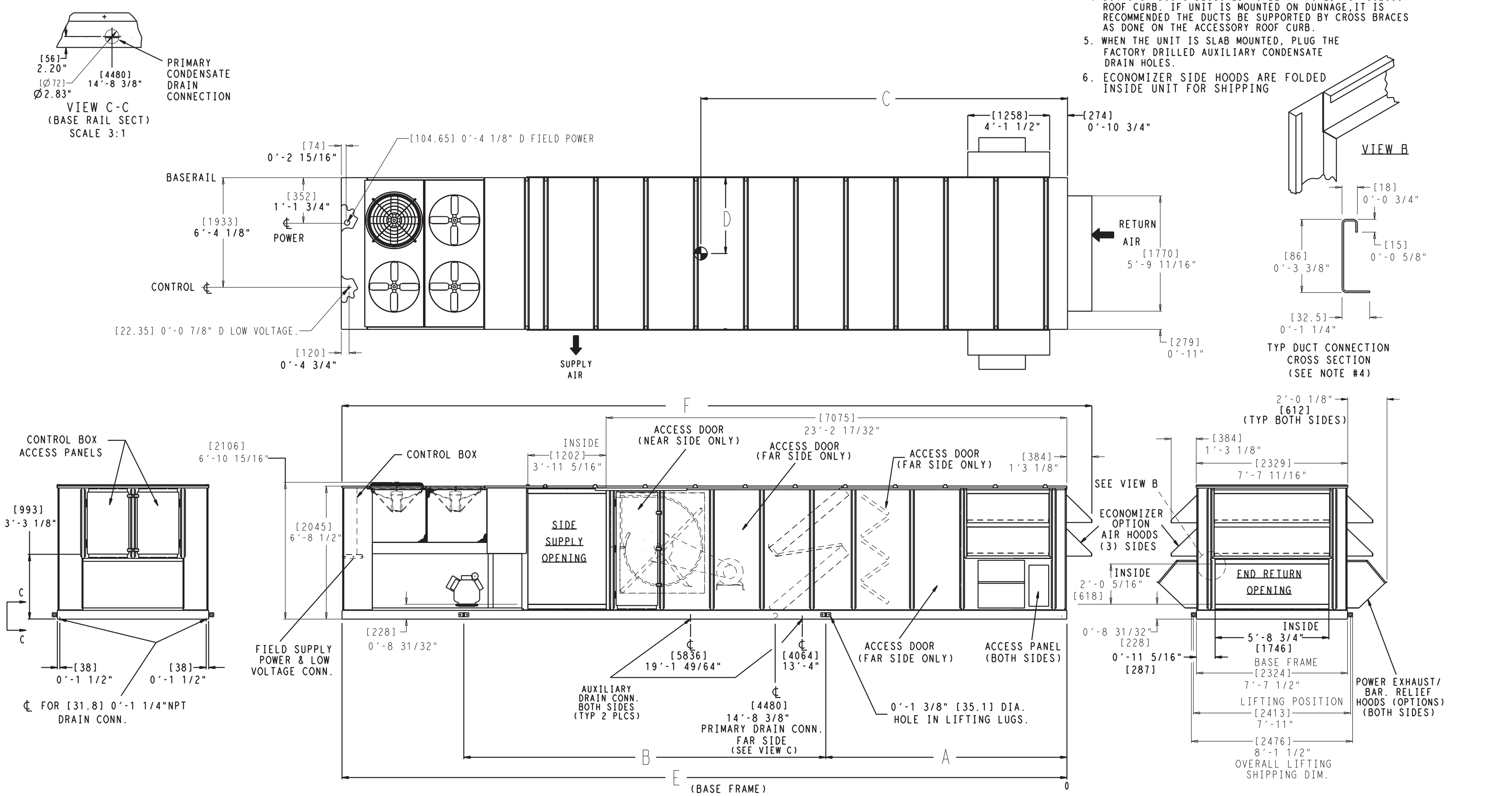


Fig. 25 — Base Unit Dimensional Drawing — 50Z2,Z3055,060 (Standard Chassis)

NOTES:

1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. (CG symbol) CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0″ [1829]
   SIDES - 6′-0″ [1829]
   ECONOMIZER END - 6′-0″ [1829] (EXCEPT POWER EXHAUST UNITS 10′-0″ [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.
7. HEAT RECLAIM COIL IS SUPPLIED AND INSTALLED.
8. COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED): 7′ -0 1/4″ [2140]
   -WIDTH: 0′ 9 5/8 [245]
   -HEIGHT: 4′ -5 15/16″ [1370]
9. PIPE CHASE LOCATIONS ARE RECOMMENDATIONS ONLY. OPENINGS ARE NOT FACTORY PROVIDED.

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT - IN.
030	6595	2991	4657	15′ - 3″

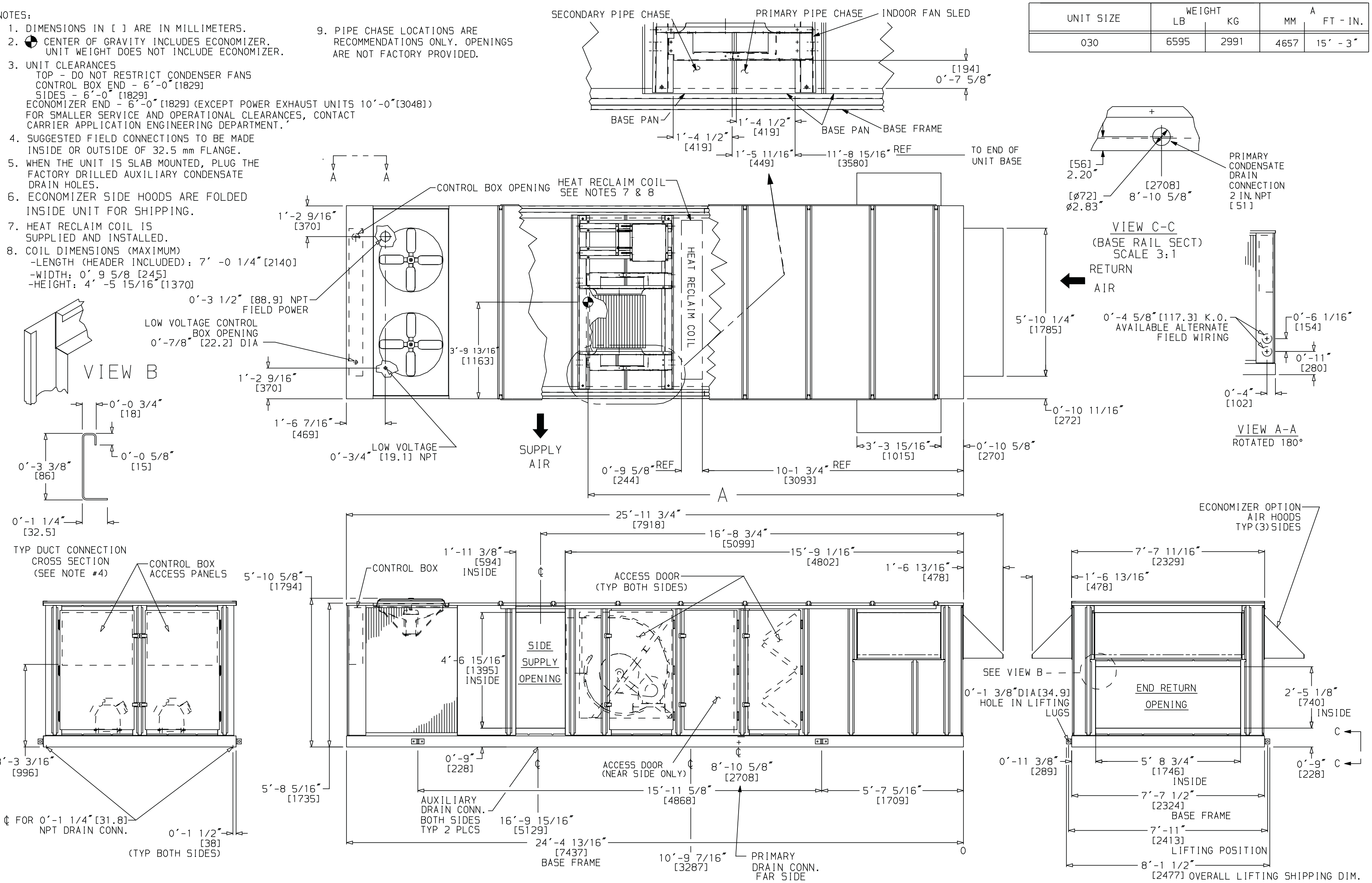


Fig. 26 — Base Unit Dimensional Drawing — 50Z2,Z3030 (Extended Chassis)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0″ [1829]
   SIDES - 6′-0″ [1829]
   ECONOMIZER END - 6′-0″ [1829] (EXCEPT POWER EXHAUST UNITS 10′-0″ [3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.
7. HEAT RECLAIM COIL IS SUPPLIED AND INSTALLED.
8. COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED): 7′-0 1/4″ [2140]
   -WIDTH: 0′ 9 5/8 [245]
   -HEIGHT: 4′ -5 15/16″ [1370]
9. PIPE CHASE LOCATIONS ARE RECOMMENDATIONS ONLY. OPENINGS ARE NOT FACTORY PROVIDED.

UNIT SIZE	WEIGHT LB	WEIGHT KG	A MM	A FT - IN.
040	7160	3247	5389	17′-8″

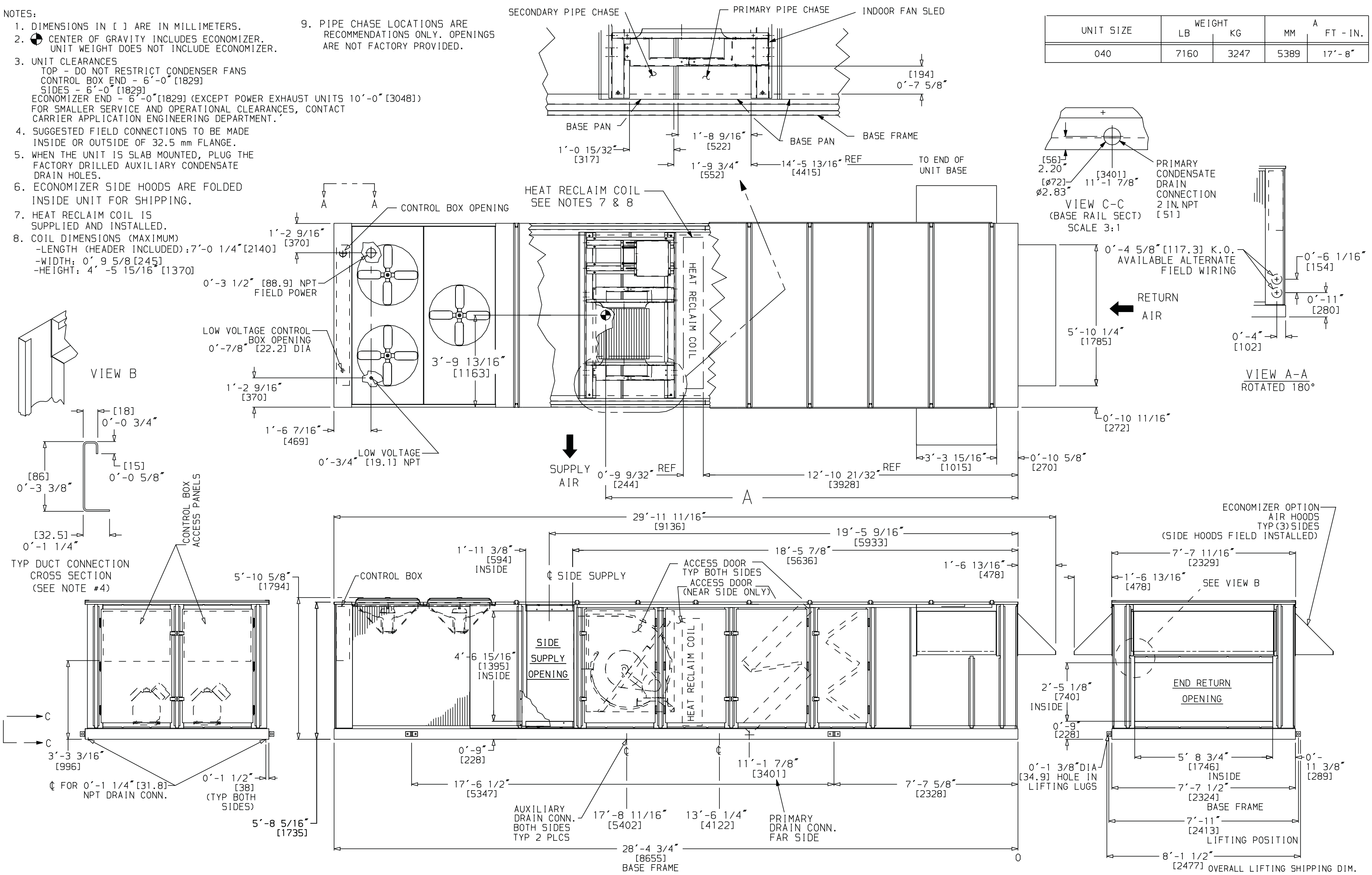


Fig. 27 — Base Unit Dimensional Drawing — 50Z2,Z3040 (Extended Chassis)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
055	8800	3990	2959	9′-8 1/2"	6940	22′-9 3/4"	6393	20′-11 11/16"	1163	3′-9 13/16"	11780	38′-7 13/16"	12164	39"-10 7/8"
060	9100	4127	2959	9′-8 1/2"	6940	22′-9 3/4"	6393	20′-11 11/16"	1163	3′-9 13/16"	11780	38′-7 13/16"	12164	39′-10 7/8"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY INCLUDES ECONOMIZER. UNIT WEIGHT DOES NOT INCLUDE ECONOMIZER.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"[1829]
   SIDES - 6′-0"[1829]
   ECONOMIZER END - 6′-0"[1829](EXCEPT POWER EXHAUST UNITS 10′-0"[3048])
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE, IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED IN FOR SHIPPING.
7. HEAT RECLAIM COIL DIMENSIONS (MAXIMUM)
   -LENGTH (HEADER INCLUDED):7′-0 1/4"[2140]
   -WIDTH : 0′ -9 5/8"[245]
   -HEIGHT: 5′ -6 "[1370]
8. HEAT RECLAIM COIL FIELD SUPPLIED AND INSTALLED.
9. PIPE CHASE LOCATIONS ARE RECOMMENDATIONS ONLY. OPENINGS ARE NOT FACTORY PROVIDED.
10. OPTIONAL FACTORY SUPPLIED HOT WATER COIL, ON UNITS WITHOUT ELECTRIC HEAT. DIMENSIONS:
   -LENGTH: 5′-5" [1650] - WIDTH: 0′-6"[152]-HEIGHT: 5′-4 1/2"[1640]
   -TUBE O.D.: 0′-0 1/2"[13]-ROWS: 2
   -HEADER O.D. (2 TUBES): 0′-1 1/2"[38]

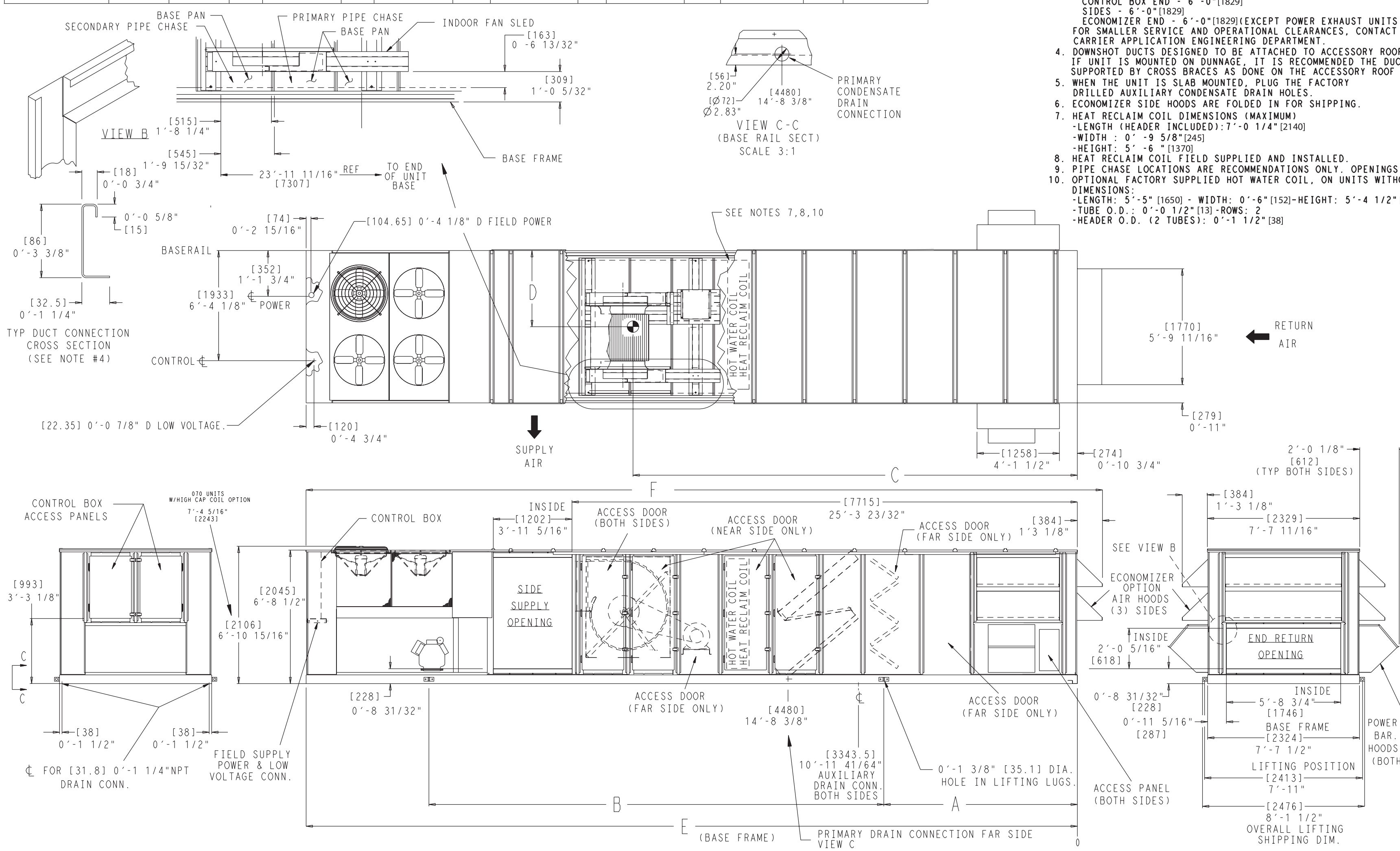


Fig. 28 — Base Unit Dimensional Drawing — 50Z2,Z3055,060 (Extended Chassis)

Condensate Drains — There is a total of five drain connections required on each unit: one primary drain (on right-hand side of the unit) and four secondary drains (two on each side of unit).

PRIMARY DRAIN — The primary drain is a 51 mm (2-in.) NPT pipe connection located on the right-hand side of the unit looking at the unit from the return air end. See Fig. 11-28.

With field supplied fittings and pipe sections, plumb the primary condensate drain to the 51 mm (2-in.) FPT connector on the base rail. See Fig. 29. Use a trap height of at least 102 mm (4 in.). Install with a height dimension, from the top of the exit pipe from the trap section to the bottom of the connector, of at least 51 mm (2 in.). Apply a bead of RTV or similar sealant around the pipe joint at the connector in the base rail. See Fig. 30.

SECONDARY DRAINS (Units Installed on Curb) — There are two secondary drain connections on each side of the unit: one on each side of the unit in the filter section and one on each side of the unit in the supply fan section. There are labels marking each location on the unit base rail. See Fig. 31 and 32 for location.

Locate the four 32 mm ($1^1/_4$-in.), NPT drain coupling assemblies and mounting screws (shipped in a bag taped to the basepan in the supply fan section, located behind the access panel marked FAN SECTION). The drain couplings are a 10-gage (3.5 mm) plate with a 32 mm ($1^1/_4$-in.) half coupling welded to the plate.

At each secondary drain hole location, there is a 35 mm ($1^3/_8$-in.) hole pre-drilled in the bottom of the base rail, surrounded by four 5 mm (0.20-in.) engagement holes. Install a drain coupling assembly using screws provided at each secondary drain hole location. See Fig. 33. Do not attach any drain coupling assemblies in the condenser section base rail. Seal plates are 16-gage (1.6 mm), used to cover the drain holes which are not being used (see Fig. 34).

Using field-supplied fittings and pipe sections, assemble U-traps at each secondary drain fitting. See Fig. 35. Provide a minimum size of 12 mm ($^1/_2$-in.) pipe for secondary drains. Use a trap at least 102 mm (4-in.) deep. Apply a bead of RTV or similar sealant around the drain assemblies.

Consult local plumbing codes for direction on joining multiple drain lines. Total size of any combined line does not need to exceed nominal 51 mm (2-in.) size of primary drain connection.

Fill the U-traps at the secondary drain locations prior to unit start-up. Also check the U-traps before each cooling season to ensure the traps are filled and functioning properly.

SECONDARY DRAINS (Units Installed on Steel Beam or Slab) — There are two secondary drain connections required on each side of the unit: one on each side of the unit in the filter section and one on each side of the unit in the supply fan section. There are labels marking each location on the unit base rail. Prior to final positioning of the unit, apply a bead of RTV or similar sealant around each secondary drain hole in the bottom of the unit base rail. Then position the unit into final location.

Locate the four 32 mm ($1^1/_4$-in.) drain coupling assemblies and mounting screws (shipped in a bag taped to the basepan in the supply fan section, located behind the access panel marked FAN SECTION). The drain couplings are a 10-gage (3.5 mm) plate with a 32 mm ($1^1/_4$-in.) half coupling welded to the plate.

After final positioning of the unit, perform the following procedure:

1. At each of the four secondary drain location (marked with labels on the unit base rail), position the drain coupling assembly in the side of the base rail. Mark the screw holes and the drain hole locations on the base rail.
2. Drill holes for drain outlet (use 35 mm [$1^3/_8$-in.] hole saw) and for the mounting screws (use 5 mm [$^3/_{16}$-in.] drill bit).
3. Install a drain coupling assembly using screws provided at each secondary drain hole location.
4. Using field-supplied fittings and pipe sections, assemble U-traps at each secondary drain fitting. See Fig. 30. Provide minimum size of 12 mm ($^1/_2$-in.) pipe for secondary drains. Use a trap at least 102 mm (4-in.) deep.
5. Apply a bead of RTV or similar sealant around the drain assemblies.

Consult local plumbing codes for direction on joining multiple drain lines. Total size of any combined line does not need to exceed nominal 51 mm (2-in.) size of primary drain connection.

Fill the U-traps at the secondary drain locations prior to unit start-up. Also check the U-traps before each cooling season to ensure the traps are filled and functioning properly.

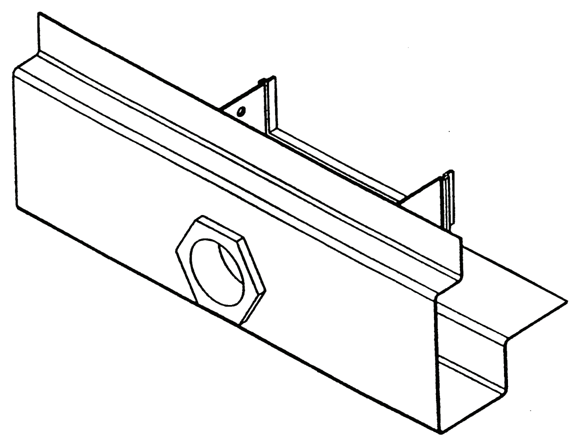


Fig. 29 — Primary Drain Connection

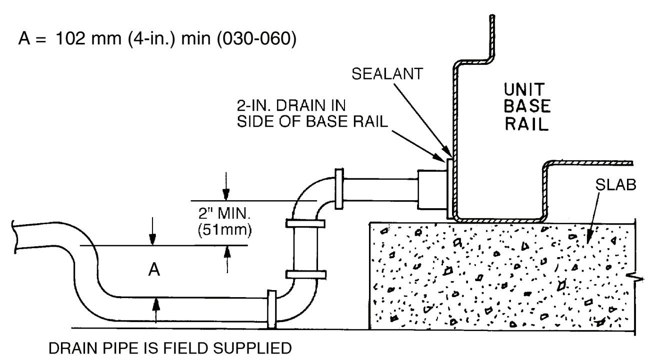


Fig. 30 — Slab-Mounted Condensate Drain Piping Details

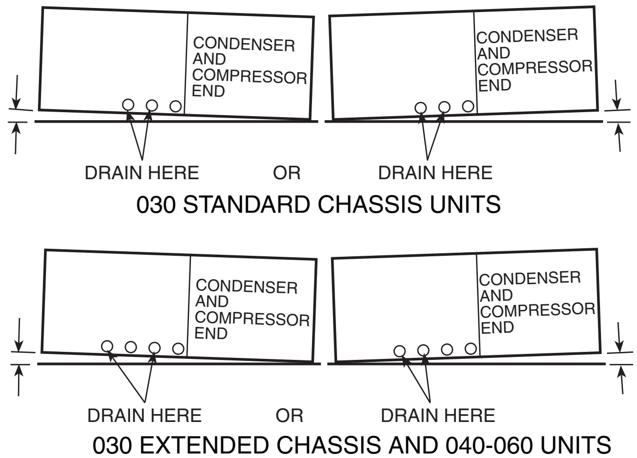
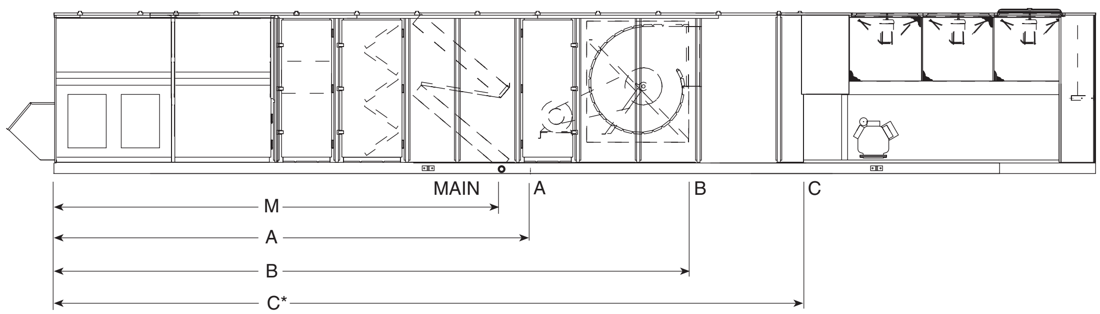


Fig. 31 — Typical Drain Location Selection



50ZG,ZN,Z2,Z3030-060

UNIT SIZE STANDARD CHASSIS	PITCH		INCHES				MM			
			(M)	(A)	(B)	(C)	(M)	(A)	(B)	(C)
030		Dimension	105.67	154.57	N/A	190.47	2684	3926	N/A	4838
	Return Air End High	Action	Pipe	Pipe	N/A	Open	Pipe	Pipe	N/A	Open
	Control Box End High	Action	Pipe	Pipe	N/A	Open	Pipe	Pipe	N/A	Open
040		Dimension	133.90	148.39	187.48	226.89	3401	3769	4762	5763
	Return Air End High	Action	Pipe	Seal	Pipe	Open	Pipe	Seal	Pipe	Open
	Control Box End High	Action	Pipe	Pipe	Seal	Open	Pipe	Pipe	Seal	Open
055,060		Dimension	176.34	190.83	268.35	330.83	4479	4847	6816	8403
	Return Air End High	Action	Pipe	Seal	Pipe	Open	Pipe	Seal	Pipe	Open
	Control Box End High	Action	Pipe	Pipe	Seal	Open	Pipe	Pipe	Seal	Open
UNIT SIZE EXTENDED CHASSIS	**PITCH**		**INCHES**				**MM**			
			(M)	**(A)**	**(B)**	**(C)**	**(M)**	**(A)**	**(B)**	**(C)**
030		Dimension	105.67	129.41	201.93	219.21	2684	3287	5129	5568
	Return Air End High	Action	Pipe	Seal	Pipe	Open	Pipe	Seal	Pipe	Open
	Control Box End High	Action	Pipe	Pipe	Seal	Open	Pipe	Pipe	Seal	Open
040		Dimension	133.90	162.28	212.68	252.09	3401	4122	5402	6403
	Return Air End High	Action	Pipe	Seal	Pipe	Open	Pipe	Seal	Pipe	Open
	Control Box End High	Action	Pipe	Pipe	Seal	Open	Pipe	Pipe	Seal	Open
055,060		Dimension	176.34	206.06	293.54	356.02	4479	5234	7456	9043
	Return Air End High	Action	Pipe	Seal	Pipe	Open	Pipe	Seal	Pipe	Open
	Control Box End High	Action	Pipe	Pipe	Seal	Open	Pipe	Pipe	Seal	Open

N/A — Not Available
*Drain location C: These drain locations (on both sides of the unit) permit drainage from the base rail sections of water that has entered the rail from under the condenser section. Do not seal or install traps at these locations.

Fig. 32 — Condensate Drain Locations

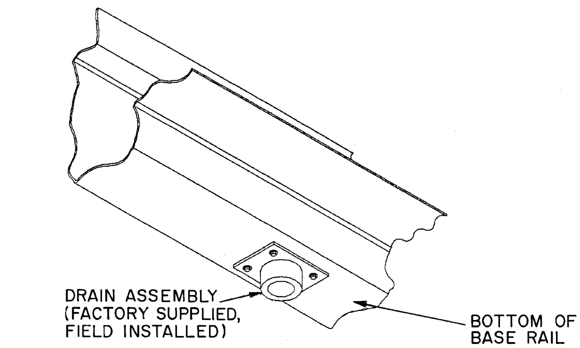


Fig. 33 — Secondary Condensate Drain Location

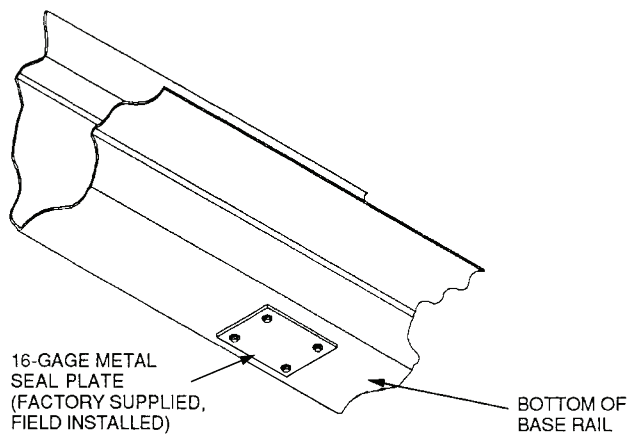


Fig. 34 — Secondary Drain Seal Plate Location

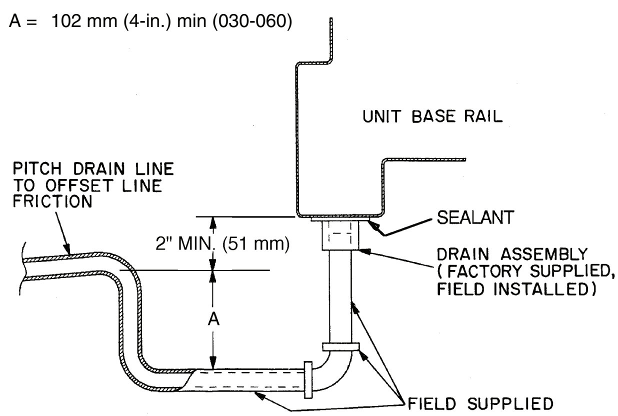


Fig. 35 — Curb Mounted Condensate Drain Piping Details

Install Outdoor Hoods (50ZG,ZN,Z2,Z3)

UNIT SIZES 030,040

<u>25% Outdoor-Air Hoods (Units without Economizer Option) (Fig. 36)</u>

1. Outdoor-air hoods are shipped bolted to the unit in a shipping position. Remove the 6 screws holding each 25% outdoor-air hood shipping cover in place.
2. Remove the holddown screw from each upper corner of each hood.
3. Pivot hoods outward (2 hoods).
4. Install 17 screws around outside of each hood. (Screws are in the fastener package taped to the basepan inside the fan section.)
5. Apply a bead of RTV or similar sealant to corner of each hood at pivot point to prevent water leaks. See Fig. 37.

<u>Economizer Hoods (Units with Economizer Option) (Fig. 38 and 39)</u>

1. Remove the 4 screws holding each of the 2 economizer side hoods in place.
2. Pivot hoods outward (2 hoods).
3. Apply seal strip to vertical flange of hood sides.
4. Install hood sides to hood top using 19 screws (7 each side, 5 on top). Screws are in fastener package located with the hood sides and seal strip which is taped inside the unit.
5. Apply a bead of RTV or similar sealant to corners of economizer hoods to prevent water leaks.

UNIT SIZES 055,060

<u>25% Outdoor-Air Hoods (Fig. 40)</u> — The outdoor-air hoods are factory installed on the size 055,060 units.

<u>Economizer Hoods (Units with Economizer Option) (Fig. 41 and 42)</u>

1. Remove the 6 screws holding each of the 4 economizer shipping covers in place.
2. Remove the holddown screw from each upper corner of each economizer hood.
3. Pivot hoods outward (4 hoods).
4. Apply seal strip to vertical flange of hood sides.
5. Install 18 screws (5 each side, 6 on top, and 2 on bottom) around the outside of each hood. (Screws are in the fastener package taped to the basepan inside the fan section.)
6. Apply a bead of RTV or similar sealant to corner of economizer hood at pivot point to prevent water leaks. See Fig. 37.

<u>50Z2,Z3 with Power Exhaust or Barometric Relief Hoods</u> — When 50Z2,Z3 models are equipped with these factory options, the exhaust hoods are attached to the unit ends for shipping. The hoods must be detached from shipping location and reattached over the side openings before ductwork can be attached to these units.

1. Remove the sheet metal shipping covers over the side openings for power exhaust or relief outlets (both sides). Save screws. Discard covers.
2. Support the exhaust hood assemblies and remove from shipping locations. See Fig. 43.
3. Locate hood assemblies over side openings and reattach using screws from Step 1. See Fig. 44.

Check for free operation of the backdraft damper in each hood assembly.

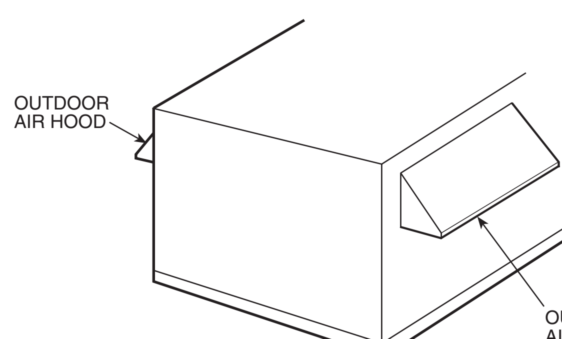


Fig. 36 — Outdoor Air Hood Installation (50ZG,ZN,Z2,Z3030,040)

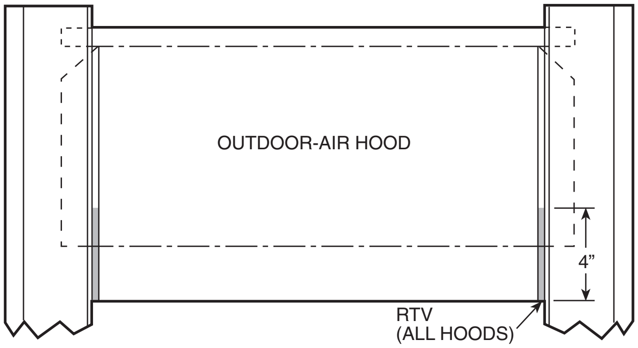


Fig. 37 — Outdoor-Air and Economizer Hood

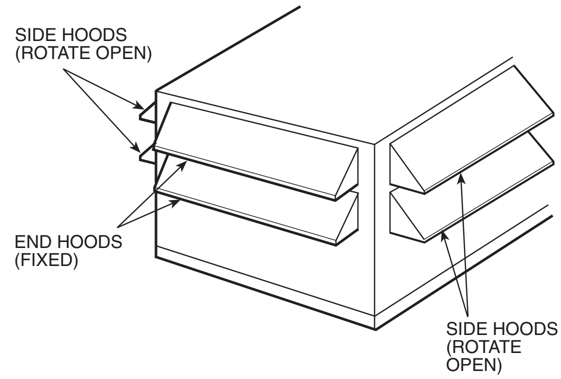


Fig. 41 — Economizer Outdoor-Air Hood Installation (50ZG,ZN,Z2,Z3055,060)

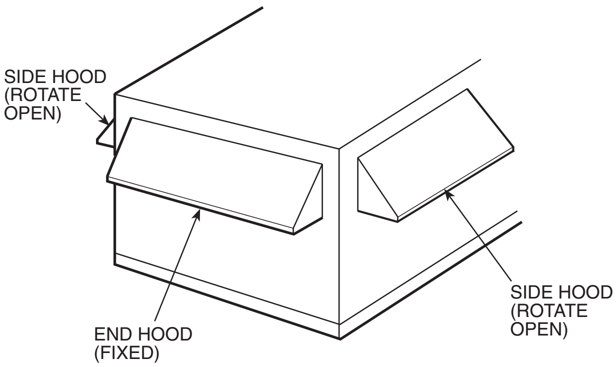


Fig. 38 — Economizer Outdoor-Air Hood Installation (50ZG,ZN,Z2,Z3030,040)

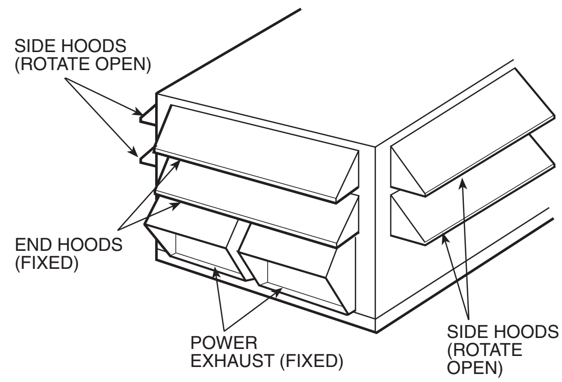


Fig. 42 — Economizer with Power Exhaust Outdoor-Air Hood Installation (50ZG,ZN055,060)

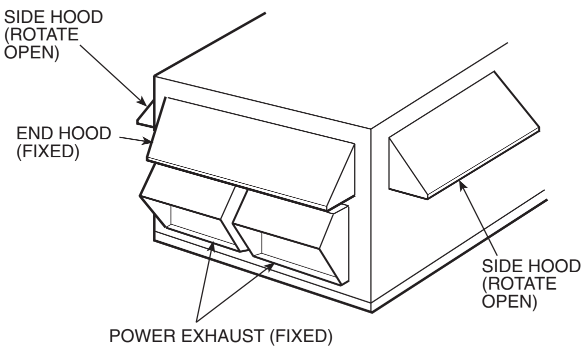


Fig. 39 — Economizer with Power Exhaust Outdoor-Air Hood Installation (50ZG,ZN,Z2,Z3030,040)

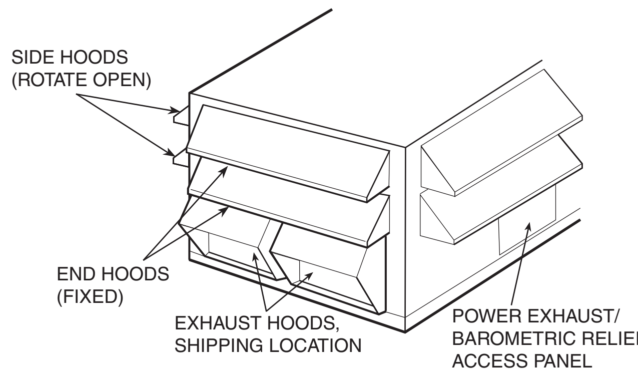


Fig. 43 — Economizer with Power Exhaust Outdoor-Air Hood Shipping Location (50Z2,Z3055,060)

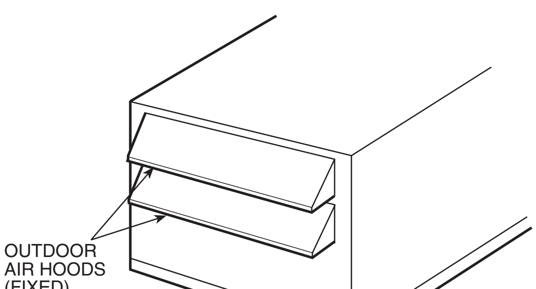


Fig. 40 — 25% Outdoor-Air Hood Location (50ZG,ZN,Z2,Z3055,060)

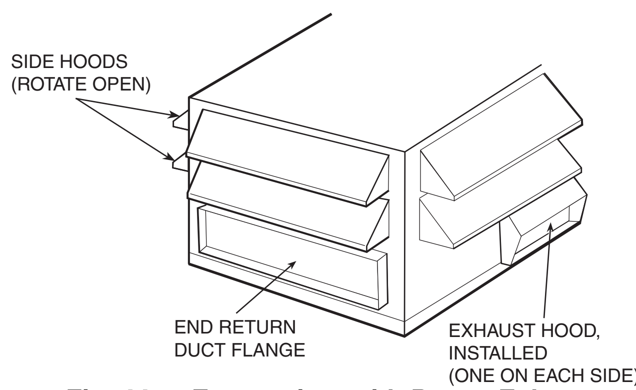


Fig. 44 — Economizer with Power Exhaust Outdoor-Air Hood Installation (50Z2,Z3055,060)

Field Wire Routing

UNIT SIZES 030,040 — Field wiring can be brought into the unit through the basepan and roof curb or through the corner post in the side of the unit next to the control box.

A 90 mm ($3^1/_2$-in.) NPT coupling for field power and a 19 mm ($^3/_4$-in.) NPT coupling for 24-v control wiring are provided in the basepan. There are two 118 mm ($4^5/_8$-in.) knockouts in the corner post for field power wiring.

If field power wiring is brought through the roof curb, route wiring out through one of the 118 mm ($4^5/_8$-in.) knockouts to the field-supplied disconnect and then back into the unit through the other knockout. See Fig. 45 for recommended disconnect location.

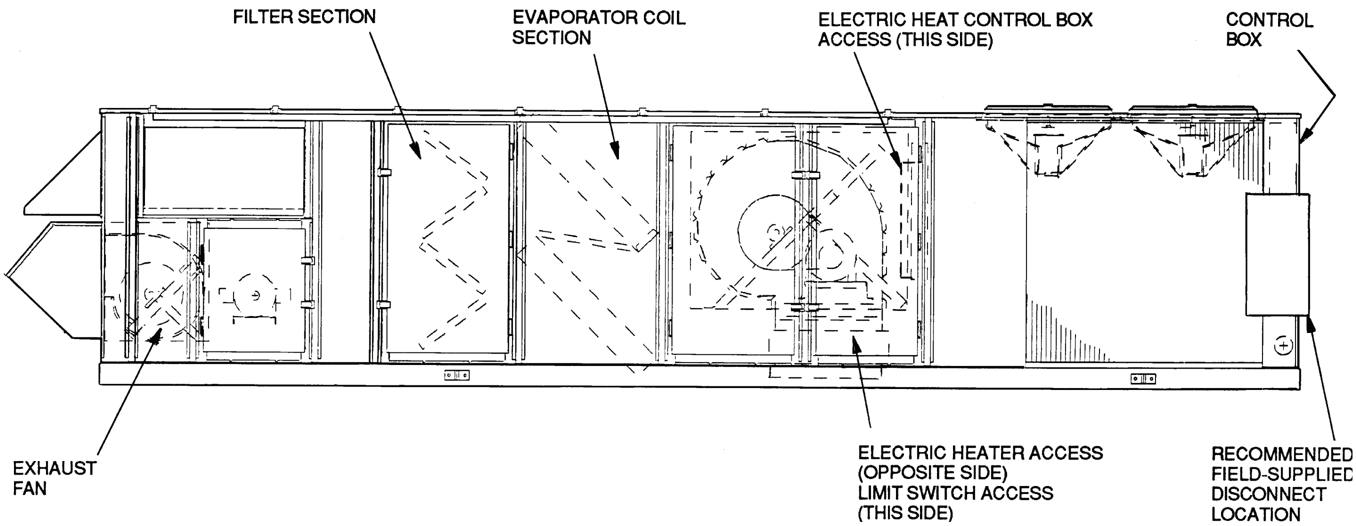
If power wiring is brought through the side of the unit, route wiring from field-supplied disconnect through top 118 mm ($4^5/_8$-in.) knockouts into unit.

If control wiring is to be brought in through the side of the unit, a 22 mm ($^7/_8$-in.) diameter hole must be drilled in the corner post next to the control box.

UNIT SIZES 055,060 — Field wiring is brought into the unit through the bottom of the control box. Wiring can be brought through the roof curb through field-supplied watertight connections. See Fig. 46.

A 106 mm ($4^5/_{32}$-in.) hole for field power wiring and a 22 mm ($^7/_8$-in.) hole for 24-v control wiring are provided in the bottom of the control box. Field-supplied couplings must be used when routing wiring into the control box.

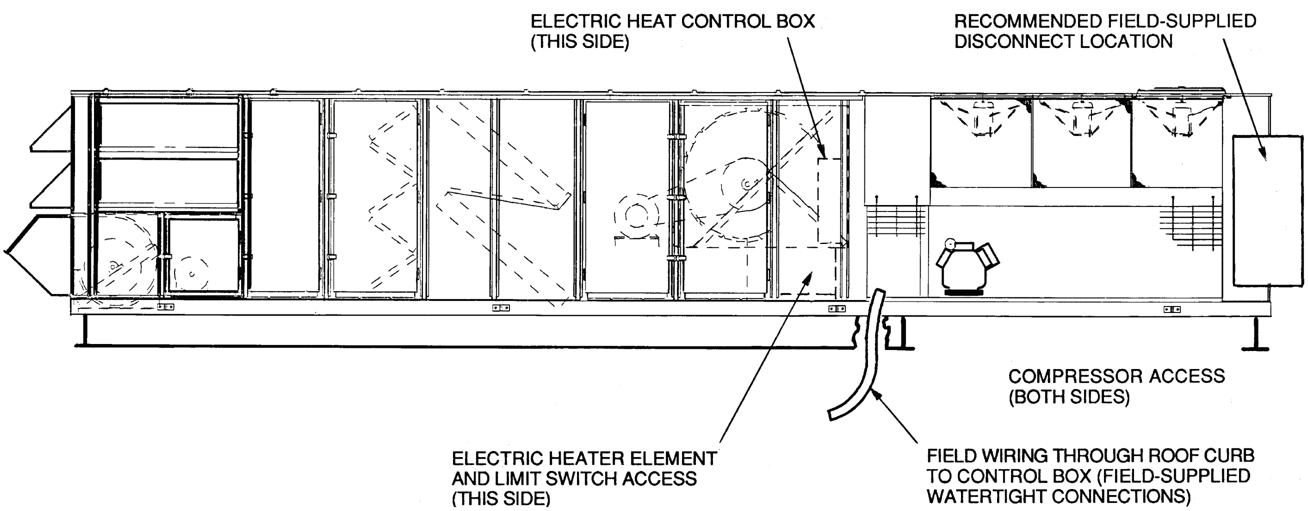
See Fig. 46 for recommended disconnect location.



⚠ CAUTION

Use care when drilling into corner post to avoid damage to condenser coil.

Fig. 45 — Disconnect Location, Size 030 and 040 Units (Vertical Discharge Unit Shown)



⚠ CAUTION

Use care when drilling into corner post to avoid damage to condenser coil.

Fig. 46 — Disconnect Location, Size 055 and 060 Units (Vertical Discharge Unit Shown)

Field Electrical Connections

> IMPORTANT: Units generate, use, and can radiate radio frequency energy. If units are not installed and used in accordance with these instructions, they may cause radio interference. They have been tested and found to comply with limits of a Class A computing device as defined by FCC (Federal Communications Commission, U.S.A. Standard) regulations, Subpart J of Part 15, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

POWER WIRING — Units are factory wired for the voltage shown on the unit nameplate. The main terminal block is suitable for use with aluminum or copper wires.

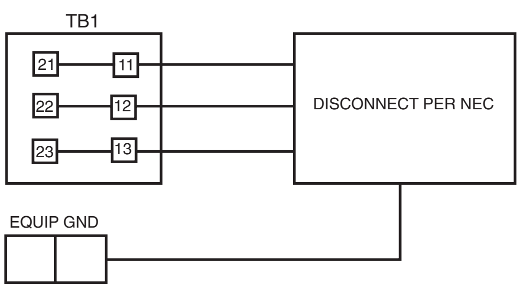
Units without Factory-Installed Disconnect — When installing units, provide a disconnect per NEC of adequate size (MOCP [Maximum Overcurrent Protection] of unit is on the informative plate). All field wiring must comply with NEC and all local codes. Size wire based on MCA (Minimum Circuit Amps) on the unit informative plate. See Fig. 47 for power wiring connections to the unit power terminal block and equipment ground. Maximum wire size is two 500 MCM conductors per pole.

Units with Factory-Installed Disconnect — The factory-installed disconnect is an interlocking, door-type. The disconnect handle locks the door when it is in the ON position. The disconnect handle must be in the OFF position to open the control box door. The disconnect is located inside the main control box. See Fig. 48.

All field wiring must comply with NEC and all local codes. Wire must be sized based on MCA (Minimum Circuit Amps) on the unit informative plate. See Fig. 49 for power wiring connections to the unit disconnect and equipment ground.

DISCONNECT SIZE	MAXIMUM WIRE SIZE (MCM)
200 Amps	300
400 Amps	600
600 Amps	600*

*Two conductors per pole.



LEGEND

EQUIP — Equipment
GND — Ground
NEC — National Electrical Code (U.S.A. Standard)
TB — Terminal Block

Fig. 47 — Field Power Wiring Connections

Operating Voltage — Operating voltage to the compressor must be within the voltage range indicated on the unit nameplate. Voltages between phases must be balanced within 2%, and the current must be balanced within 10%. See Tables 5-8 for unit electrical data.

(Text continued on page 50.)

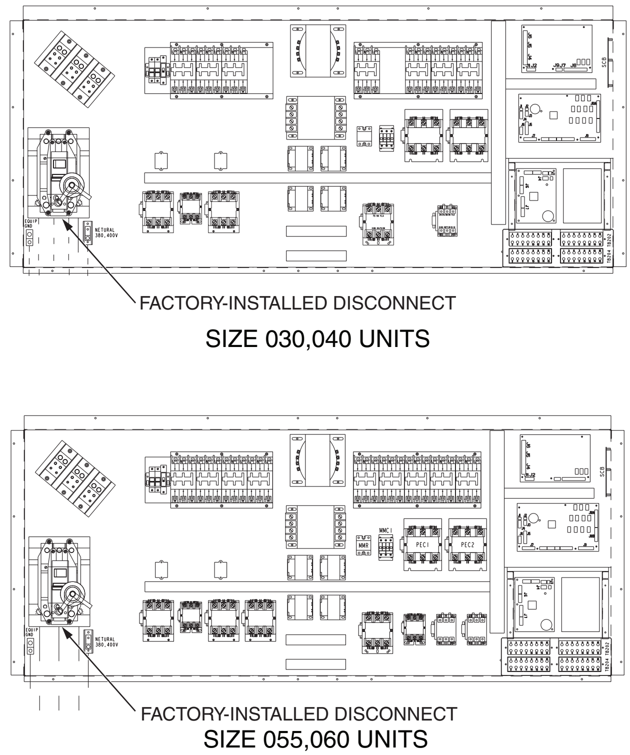
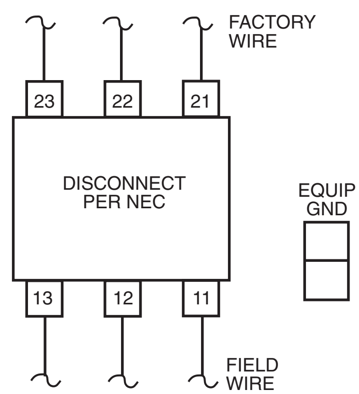


Fig. 48 — Factory-Installed Disconnect Location



LEGEND

EQUIP — Equipment
GND — Ground
NEC — National Electrical Code (U.S.A. Standard)

Fig. 49 — Field Power Wiring Connections for Factory-Installed Disconnect

Table 5 — Electrical Data — 50ZG,ZN,Z2,Z3030 Units

400-3-50 (V-Ph-Hz)

VOLTAGE RANGE		COMPRESSOR				CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST		OPTIONAL ELECTRIC HEAT*		POWER SUPPLY	
		No. 1		No. 2											
Min	Max	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	Hp	FLA (total)	FLA	kW	MCA	MOCP†
360	440	34.6	173	28.8	115	2	3.4 (ea)	$7^1/_2$	11.0	—	—	—	—	89.9	110
												40.3	28	89.9	110
												80.8	56	94.6	125
												120.8	84	134.6	175
										6	9.6	—	—	99.5	125
												40.3	28	99.5	125
												80.8	56	106.6	125
												120.8	84	146.6	175
										10	15.2	—	—	105.1	125
												40.3	28	105.1	125
												80.8	56	113.6	150
												120.8	84	153.6	175
										15	22.0	—	—	111.9	125
												40.3	28	111.9	125
												80.8	56	122.1	150
												120.8	84	162.1	175
										20	28.0	—	—	117.9	150
												40.3	28	117.9	150
												80.8	56	129.6	150
												120.8	84	169.6	200
								10	14.0	—	—	—	—	92.9	125
												40.3	28	92.9	125
												80.8	56	98.3	125
												120.8	84	138.3	175
										6	9.6	—	—	102.5	125
												40.3	28	102.5	125
												80.8	56	110.3	125
												120.8	84	150.3	175
										10	15.2	—	—	108.1	125
												40.3	28	108.1	125
												80.8	56	117.3	150
												120.8	84	157.3	175
										15	22.0	—	—	114.9	125
												40.3	28	114.9	125
												80.8	56	125.8	150
												120.8	84	165.8	200
										20	28.0	—	—	120.9	150
												40.3	28	120.9	150
												80.8	56	133.3	150
												120.8	84	173.3	200
								15	21.0	—	—	—	—	99.9	125
												40.3	28	99.9	125
												80.8	56	107.1	125
												120.8	84	147.1	175
										6	9.6	—	—	109.5	125
												40.3	28	109.5	125
												80.8	56	119.1	150
												120.8	84	159.1	175
										10	15.2	—	—	115.1	125
												40.3	28	115.1	125
												80.8	56	126.1	150
												120.8	84	166.1	200
										15	22.0	—	—	121.9	150
												40.3	28	121.9	150
												80.8	56	134.6	150
												120.8	84	174.6	200
										20	28.0	—	—	127.9	150
												40.3	28	127.9	150
												80.8	56	142.1	150
												120.8	84	182.1	200

Table 5 — Electrical Data — 50ZG,ZN,Z2,Z3030 Units (cont)

400-3-50 (V-Ph-Hz) (cont)

VOLTAGE RANGE		COMPRESSOR No. 1		COMPRESSOR No. 2		CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST		OPTIONAL ELECTRIC HEAT*		POWER SUPPLY	
Min	Max	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	Hp	FLA (total)	FLA	kW	MCA	MOCP†
360	440	34.6	173	28.8	115	2	3.4 (ea)	20	27.0	—	—	— 40.3 80.8 120.8	— 28 56 84	105.9 105.9 114.6 154.6	125 125 150 175
										6	9.6	— 40.3 80.8 120.8	— 28 56 84	115.5 115.5 126.6 166.6	150 150 150 200
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	121.1 121.1 133.6 173.6	150 150 150 200
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	127.9 127.9 142.1 182.1	150 150 150 200
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	133.9 133.9 149.6 189.6	150 150 175 200
								25	34.0	—	—	— 40.3 80.8 120.8	— 28 56 84	112.9 112.9 123.3 163.3	125 125 150 175
										6	9.6	— 40.3 80.8 120.8	— 28 56 84	122.5 122.5 135.3 175.3	150 150 150 200
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	128.1 128.1 142.3 182.3	150 150 150 200
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	134.9 134.9 150.8 190.8	150 150 175 200
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	140.9 140.9 158.3 198.3	175 175 175 225

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

C US INTERTEK ETL LISTED

*Electric heat available on vertical discharge units.
†Fuse or HACR breaker.

NOTE: Electric resistance heaters are rated at 400 v. To determine heater capacity (kW) at other unit operating voltage, multiply heater nominal capacity by appropriate multiplier at right.

MULTIPLICATION FACTORS

HEATER kW RATING (VOLTS)	VOLTAGE DISTRIBUTION V-3-50	MULTIPLICATION FACTOR
400	380 400 415	0.902 1.000 1.076

Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.

Table 6 — Electrical Data — 50ZG,ZN,Z2,Z3040 Units

400-3-50 (V-Ph-Hz)

VOLTAGE RANGE		COMPRESSOR				CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST		OPTIONAL ELECTRIC HEAT*		POWER SUPPLY	
		No. 1		No. 2											
Min	Max	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	Hp	FLA (total)	FLA	kW	MCA	MOCP†
360	440	43.6	223	34.6	173	3	3.4 (ea)	7 1/2	11.0	—	—	— 40.3 80.8 120.8	— 28 56 84	110.3 110.3 110.3 134.6	150 150 150 175
										6	9.6	— 40.3 80.8 120.8	— 28 56 84	119.9 119.9 119.9 146.6	150 150 150 175
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	125.5 125.5 125.5 153.6	150 150 150 200
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	132.3 132.3 132.3 162.1	175 175 175 200
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	138.3 138.3 138.3 169.6	175 175 175 200
								10	14.0	—	—	— 40.3 80.8 120.8	— 28 56 84	113.3 113.3 113.3 138.3	150 150 150 175
										6	9.6	— 40.3 80.8 120.8	— 28 56 84	122.9 122.9 122.9 150.3	150 150 150 175
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	128.5 128.5 128.5 157.3	150 150 150 200
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	135.3 135.3 135.3 165.8	175 175 175 200
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	141.3 141.3 141.3 173.3	175 175 175 200
								15	21.0	—	—	— 40.3 80.8 120.8	— 28 56 84	120.3 120.3 120.3 147.1	150 150 150 175
										6	9.6	— 40.3 80.8 120.8	— 28 56 84	129.9 129.9 129.9 159.1	150 150 150 200
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	135.5 135.5 135.5 166.1	175 175 175 200
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	142.3 142.3 142.3 174.6	175 175 175 200
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	148.3 148.3 148.3 182.1	175 175 175 200
								20	27.0	—	—	— 40.3 80.8 120.8	— 28 56 84	126.3 126.3 126.3 154.6	150 150 150 200
										6	9.6	— 40.3 80.8 120.8	— 28 56 84	135.9 135.9 135.9 166.6	175 175 175 200
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	141.5 141.5 141.5 173.6	175 175 175 200
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	148.3 148.3 148.3 182.1	175 175 175 200
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	154.3 154.3 154.3 189.6	175 175 175 225

Table 6 — Electrical Data — 50ZG,ZN,Z2,Z3040 Units (cont)

400-3-50 (V-Ph-Hz) (cont)

VOLTAGE RANGE		COMPRESSOR				CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST		OPTIONAL ELECTRIC HEAT*		POWER SUPPLY	
		No. 1		No. 2											
Min	Max	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	Hp	FLA (total)	FLA	kW	MCA	MOCP†
360	440	43.6	223	34.6	173	3	3.4 (ea)	25	34.0	—	—	—	—	133.3	175
												40.3	28	133.3	175
												80.8	56	133.3	175
												120.8	84	163.3	200
										6	9.6	—	—	142.9	175
												40.3	28	142.9	175
												80.8	56	142.9	175
												120.8	84	175.3	200
										10	15.2	—	—	148.5	175
												40.3	28	148.5	175
												80.8	56	148.5	175
												120.8	84	182.3	200
										15	22.0	—	—	155.3	175
												40.3	28	155.3	175
												80.8	56	155.3	175
												120.8	84	190.8	225
										20	28.0	—	—	161.3	200
												40.3	28	161.3	200
												80.8	56	161.3	200
												120.8	84	198.3	225
								30	40.0	—	—	—	—	139.3	175
												40.3	28	139.3	175
												80.8	56	139.3	175
												120.8	84	170.8	200
										6	9.6	—	—	148.9	175
												40.3	28	148.9	175
												80.8	56	148.9	175
												120.8	84	182.8	200
										10	15.2	—	—	154.5	175
												40.3	28	154.5	175
												80.8	56	154.5	175
												120.8	84	189.8	225
										15	22.0	—	—	161.3	200
												40.3	28	161.3	200
												80.8	56	161.3	200
												120.8	84	198.3	225
										20	28.0	—	—	167.3	200
												40.3	28	167.3	200
												80.8	56	167.3	200
												120.8	84	205.8	225

LEGEND

CV — Constant Volume
FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

C US LISTED INTERTEK

*Electric heat available on vertical discharge units.
†Fuse or HACR breaker.

NOTE: Electric resistance heaters are rated at 400 v. To determine heater capacity (kW) at other unit operating voltage, multiply heater nominal capacity by appropriate multiplier at right.

MULTIPLICATION FACTORS

HEATER kW RATING (VOLTS)	VOLTAGE DISTRIBUTION V-3-50	MULTIPLICATION FACTOR
400	380	0.902
	400	1.000
	415	1.076

Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.

Table 7 — Electrical Data — 50ZG,ZN,Z2,Z3055 Units

400-3-50 (V-Ph-Hz)

VOLTAGE RANGE		COMPRESSOR				CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST		OPTIONAL ELECTRIC HEAT*		POWER SUPPLY	
		No. 1		No. 2											
Min	Max	RLA	LRA	RLA	LRA	Qty	FLA	Hp	FLA	Hp	FLA (total)	FLA	kW	MCA	MOCP†
360	**440**	65.4	345	50.6	253	4	3.4 (ea)	15	21.0	—	—	—	—	167.0	225
												40.3	28	167.0	225
												80.8	56	167.0	225
												120.8	84	167.0	225
										10	15.2	—	—	182.2	225
												40.3	28	182.2	225
												80.8	56	182.2	225
												120.8	84	182.2	225
										15	22.0	—	—	189.0	250
												40.3	28	189.0	250
												80.8	56	189.0	250
												120.8	84	189.0	250
										20	28.0	—	—	195.0	250
												40.3	28	195.0	250
												80.8	56	195.0	250
												120.8	84	195.0	250
								20	27.0	—	—	—	—	173.0	225
												40.3	28	173.0	225
												80.8	56	173.0	225
												120.8	84	173.0	225
										10	15.2	—	—	188.2	250
												40.3	28	188.2	250
												80.8	56	188.2	250
												120.8	84	188.2	250
										15	22.0	—	—	195.0	250
												40.3	28	195.0	250
												80.8	56	195.0	250
												120.8	84	195.0	250
										20	28.0	—	—	201.0	250
												40.3	28	201.0	250
												80.8	56	201.0	250
												120.8	84	201.0	250
								25	34.0	—	—	—	—	180.0	225
												40.3	28	180.0	225
												80.8	56	180.0	225
												120.8	84	180.0	225
										10	15.2	—	—	195.2	250
												40.3	28	195.2	250
												80.8	56	195.2	250
												120.8	84	195.2	250
										15	22.0	—	—	202.0	250
												40.3	28	202.0	250
												80.8	56	202.0	250
												120.8	84	202.0	250
										20	28.0	—	—	208.0	250
												40.3	28	208.0	250
												80.8	56	208.0	250
												120.8	84	208.0	250

Table 7 — Electrical Data — 50ZG,ZN,Z2,Z3055 Units (cont)

400-3-50 (V-Ph-Hz) (cont)

VOLTAGE RANGE		COMPRESSOR No. 1		COMPRESSOR No. 2		CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST		OPTIONAL ELECTRIC HEAT*		POWER SUPPLY	
Min	**Max**	**RLA**	**LRA**	**RLA**	**LRA**	**Qty**	**FLA**	**Hp**	**FLA**	**Hp**	**FLA (total)**	**FLA**	**kW**	**MCA**	**MOCP†**
360	**440**	65.4	345	50.6	253	4	3.4 (ea)	30	40.0	—	—	—	—	186.0	250
												40.3	28	186.0	250
												80.8	56	186.0	250
												120.8	84	186.0	250
										10	15.2	—	—	201.2	250
												40.3	28	201.2	250
												80.8	56	201.2	250
												120.8	84	201.2	250
										15	22.0	—	—	208.0	250
												40.3	28	208.0	250
												80.8	56	208.0	250
												120.8	84	208.0	250
										20	28.0	—	—	214.0	250
												40.3	28	214.0	250
												80.8	56	214.0	250
												120.8	84	214.0	250
								40	52.0	—	—	—	—	198.0	250
												40.3	28	198.0	250
												80.8	56	198.0	250
												120.8	84	198.0	250
										10	15.2	—	—	213.2	250
												40.3	28	213.2	250
												80.8	56	213.2	250
												120.8	84	213.2	250
										15	22.0	—	—	220.0	250
												40.3	28	220.0	250
												80.8	56	220.0	250
												120.8	84	220.0	250
										20	28.0	—	—	226.0	250
												40.3	28	226.0	250
												80.8	56	226.0	250
												120.8	84	226.0	250

LEGEND

CV — Constant Volume
FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

*Electric heat available on vertical discharge units.
†Fuse or HACR breaker.

NOTE: Electric resistance heaters are rated at 400 v. To determine heater capacity (kW) at other unit operating voltage, multiply heater nominal capacity by appropriate multiplier at right.

MULTIPLICATION FACTORS

HEATER kW RATING (VOLTS)	VOLTAGE DISTRIBUTION V-3-50	MULTIPLICATION FACTOR
400	380	0.902
	400	1.000
	415	1.076

Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.

Table 8 — Electrical Data — 50ZG,ZN,Z2,Z3060 Units

400-3-50 (V-Ph-Hz)

VOLTAGE RANGE		COMPRESSOR No. 1		COMPRESSOR No. 2		CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST		OPTIONAL ELECTRIC HEAT*		POWER SUPPLY	
Min	**Max**	**RLA**	**LRA**	**RLA**	**LRA**	**Qty**	**FLA**	**Hp**	**FLA**	**Hp**	**FLA (total)**	**FLA**	**kW**	**MCA**	**MOCP†**
360	**440**	65.4	345	65.4	345	4	3.4 (ea)	15	21.0	—	—	— 40.3 80.8 120.8	— 28 56 84	181.8 181.8 181.8 181.8	225 225 225 225
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	197.0 197.0 197.0 197.0	250 250 250 250
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	203.8 203.8 203.8 203.8	250 250 250 250
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	209.8 209.8 209.8 209.8	250 250 250 250
								20	27.0	—	—	— 40.3 80.8 120.8	— 28 56 84	187.8 187.8 187.8 187.8	250 250 250 250
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	203.0 203.0 203.0 203.0	250 250 250 250
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	209.8 209.8 209.8 209.8	250 250 250 250
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	215.8 215.8 215.8 215.8	250 250 250 250
								25	34.0	—	—	— 40.3 80.8 120.8	— 28 56 84	194.8 194.8 194.8 194.8	250 250 250 250
										10	15.2	— 40.3 80.8 120.8	— 28 56 84	210.0 210.0 210.0 210.0	250 250 250 250
										15	22.0	— 40.3 80.8 120.8	— 28 56 84	216.8 216.8 216.8 216.8	250 250 250 250
										20	28.0	— 40.3 80.8 120.8	— 28 56 84	222.8 222.8 222.8 222.8	250 250 250 250

Table 8 — Electrical Data — 50ZG,ZN,Z2,Z3060 Units (cont)

400-3-50 (V-Ph-Hz) (cont)

VOLTAGE RANGE		COMPRESSOR				CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST		OPTIONAL ELECTRIC HEAT*		POWER SUPPLY	
		No. 1		No. 2											
Min	**Max**	**RLA**	**LRA**	**RLA**	**LRA**	**Qty**	**FLA**	**Hp**	**FLA**	**Hp**	**FLA (total)**	**FLA**	**kW**	**MCA**	**MOCP†**
360	**440**	65.4	345	65.4	345	4	3.4 (ea)	30	40.0	—	—	—	—	200.8	250
												40.3	28	200.8	250
												80.8	56	200.8	250
												120.8	84	200.8	250
										10	15.2	—	—	216.0	250
												40.3	28	216.0	250
												80.8	56	216.0	250
												120.8	84	216.0	250
										15	22.0	—	—	222.8	250
												40.3	28	222.8	250
												80.8	56	222.8	250
												120.8	84	222.8	250
										20	28.0	—	—	228.8	250
												40.3	28	228.8	250
												80.8	56	228.8	250
												120.8	84	228.8	250
								40	52.0	—	—	—	—	212.8	250
												40.3	28	212.8	250
												80.8	56	212.8	250
												120.8	84	212.8	250
										10	15.2	—	—	228.0	250
												40.3	28	228.0	250
												80.8	56	228.0	250
												120.8	84	228.0	250
										15	22.0	—	—	234.8	300
												40.3	28	234.8	300
												80.8	56	234.8	300
												120.8	84	234.8	300
										20	28.0	—	—	240.8	300
												40.3	28	240.8	300
												80.8	56	240.8	300
												120.8	84	240.8	300

LEGEND

CV — Constant Volume
FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

*Electric heat available on vertical discharge units.
†Fuse or HACR breaker.

NOTE: Electric resistance heaters are rated at 400 v. To determine heater capacity (kW) at other unit operating voltage, multiply heater nominal capacity by appropriate multiplier at right.

MULTIPLICATION FACTORS

HEATER kW RATING (VOLTS)	VOLTAGE DISTRIBUTION V-3-50	MULTIPLICATION FACTOR
400	380	0.902
	400	1.000
	415	1.076

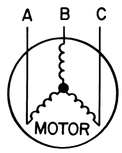
Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.

Use the following formula to determine the percent voltage imbalance.

% Voltage Imbalance

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

Example: Supply voltage is 400-3-50.



AB = 393 v
BC = 403 v
AC = 396 v

$$\text{Average Voltage} = \frac{393 + 403 + 396}{3} = \frac{1192}{3} = 397$$

Determine maximum deviation from average voltage:

(AB) 397 – 393 = 4 v
(BC) 403 – 397 = 6 v
(AC) 397 – 396 = 1 v

Maximum deviation is 6 v.

Determine percent voltage imbalance:

$$\text{\% Voltage Imbalance} = 100 \times \frac{6}{397} = 1.5\%$$

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

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

Unit failure as a result of operation on improper line voltage or excessive phase imbalance constitutes abuse and may cause damage to electrical components.

Hydronic Heating Coil Piping — The factory-installed optional hydronic heating coil is located in support tracks between the evaporator coil section and the supply fan sled assembly. Coil connections can be accessed by entering the unit through the left-hand service access panel to the fan section. Size 030,040 coil option consists of a single coil segment with one set of supply and return piping connections. Size 055,060 coil option consists of two coil segments, stacked vertically. Each coil segment has individual supply and return connections, requiring a field-installed manifold. See Fig. 50.

LEN VALVE ACTUATOR — The 50Z Series units with *Comfort*Link™ controls require a special valve actuator, equipped with a custom “LEN” communication capability. This actuator is available from Carrier (use the RTU Builder unit configuration program to select valves and custom actuator).

Remove one of the actuator’s serial number labels (located on the side of the actuator housing) and paste it onto the actuator serial number records label (Fig. 51) located inside the left-hand access panel at the unit's control panel. Enter this serial number into the unit’s Configuration menu under submode ACT.C, sub-submode Heat.

Connect factory wiring harness, plug PL27, to the actuator terminals to complete control wiring installation.

WATER PIPING — The factory-installed optional hydronic heating coils have a working pressure of 2000 kPa at 93 C (300 psig at 200 F). Select piping material, fittings, valves and joint solder materials accordingly.

Supply and return lines can be routed through the unit's basepan (inside the curb perimeter) in locations indicated on the unit dimensional drawings (see Fig. 11-28). Openings indicated on these drawings must be field-cut, these are not provided by the factory. Alternatively, water piping may enter the unit through side panels in the fan section. Select entry locations that will not interfere with supply fan support sled, fan motor or fan drive.

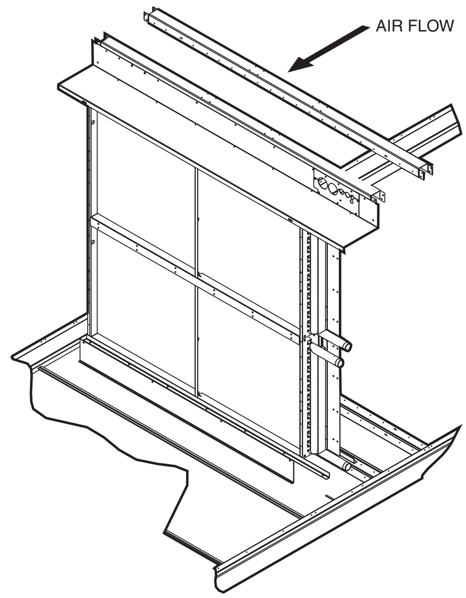


Fig. 50 — Hydronic Heating Coil Arrangement (Size 055,060 Units)

UNIT ACTUATOR	POINT DESCRIPTION	MFG SERIAL NO LABEL
IGV	IGV SERIAL NUMBER	
HUMIDIFIER	HUMID SERIAL NUMBER	
ECONOMIZER	ECON SERIAL NUMBER	
EXHAUST DAMPER #1	BP 1 SERIAL NUMBER	
EXHAUST DAMPER #2	BP 2 SERIAL NUMBER	
HOT WATER COIL	HEATCOIL SERIAL NUMBER	

AFFIX SERIAL NUMBER LABEL HERE

Fig. 51 — Actuator Serial Number Records Label

Provide suitable space for the effects of pipe expansion and contraction due to changes in fluid and pipe temperatures.

All piping should be supported with hangers that can withstand the combined weight of piping, pipe fittings and valves, fluid in the pipe and insulation.

For sizes 055 and 060 with dual coil connections, Carrier recommends use of a reverse return manifold system with both returns routed to the top of the coil section, above the height of the highest tube, into a common return connection.

PIPE SIZING — Refer to industry design references for guidance in selecting proper pipe sizes for each installation, including the Carrier System Design Manual (Part 3: Piping Design; Chapter 2, Water Piping).

FREEZE PROTECTION — When outdoor temperatures will fall below freezing, it is recommended that some form of antifreeze (glycol) fluid be used to provide static protection against freezing inside the piping and coils at low outdoor temperatures.

WATER CONDITIONING — Normally all water piping systems must have adequate treatment to protect the various components against corrosion, scale, slime and algae. Water treatment should always be under the supervision of a water conditioning specialist. Consult a local specialist and implement a suitable plan for water conditioning.

Air Pressure Tubing — Before options such as inlet guide vanes (IGV), variable frequency drive (VFD), and/or modulating power exhaust can operate properly, the pneumatic tubing for pressure sensing must be installed. Use fire-retardant plenum tubing (field-supplied). All control devices use 6 mm ($^1/_4$-in.) tubing. Tubing must be run from the appropriate sensing location (in the duct or in the building space) to the control device location in the unit.

INLET GUIDE VANES — The tubing for the duct pressure (DP) control option should sample supply duct pressure about $^2/_3$ of the way out from the unit in the main trunk duct, at a location where a constant duct pressure is desired.

The duct pressure is sensed by a pressure transducer. The output of the pressure transducer is directed to the unit control module. On all sizes, the DP transducer is located in the unit auxiliary control box. See Fig. 52 and 53 for auxiliary control box location. See Fig. 54 and 55 for auxiliary control box details. Use a nominal 6 mm ($^1/_4$-in.) plastic tubing.

VARIABLE FREQUENCY DRIVE — The tubing for the duct pressure (DP) control option should sample supply duct pressure about $^2/_3$ of the way out from the unit in the main trunk duct, at a location where a constant duct pressure is desired.

The duct pressure is sensed by a pressure transducer. The pressure transducer output is directed to the unit control module. On all sizes, the DP transducer is located in the unit auxiliary control box. See Fig. 52 and 53 for auxiliary control box location. See Fig. 54 and 55 for auxiliary control box details. Use a nominal 6 mm ($^1/_4$-in.) plastic tubing.

Refer to appropriate base unit Controls and Troubleshooting book for instructions on adjusting set points for duct pressure controls.

MODULATING POWER EXHAUST — The tubing for the building pressure (BP) control (achieved via the modulating power exhaust option) should sample building pressure in the area near the entrance lobby (or other appropriate and sensitive location) so that location is controlled as closely to design pressures as possible.

These units use a pressure transducer for sensing building pressure. The BP transducer is located in the unit auxiliary control box. See Fig. 52 and 53 for auxiliary control box location. See Fig. 54 and 55 for auxiliary control box details. Use a nominal 6 mm ($^1/_4$-in.) plastic tubing.

For instructions on adjusting BP control set points, refer to the Controls and Troubleshooting book.

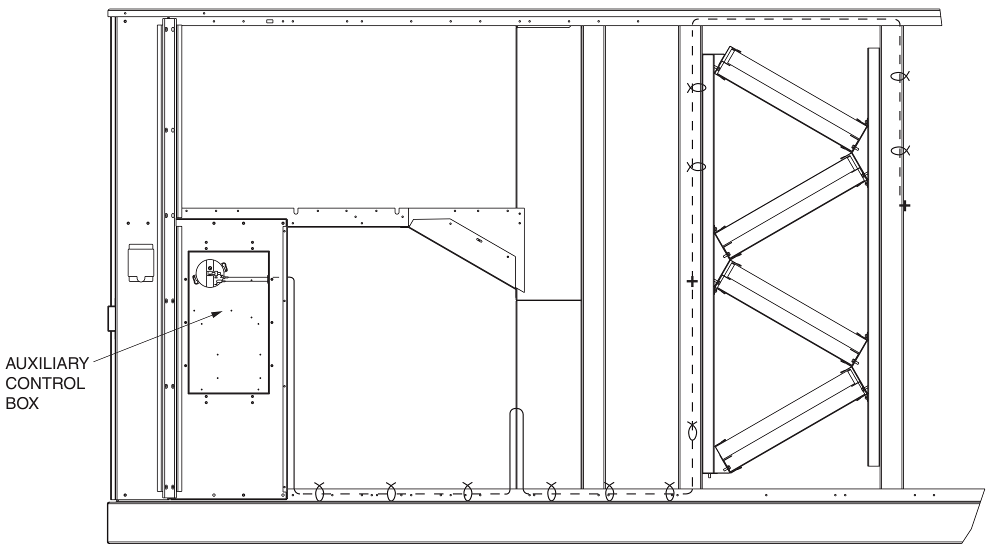


Fig. 52 — Auxiliary Control Box Location (Sizes 030,040)

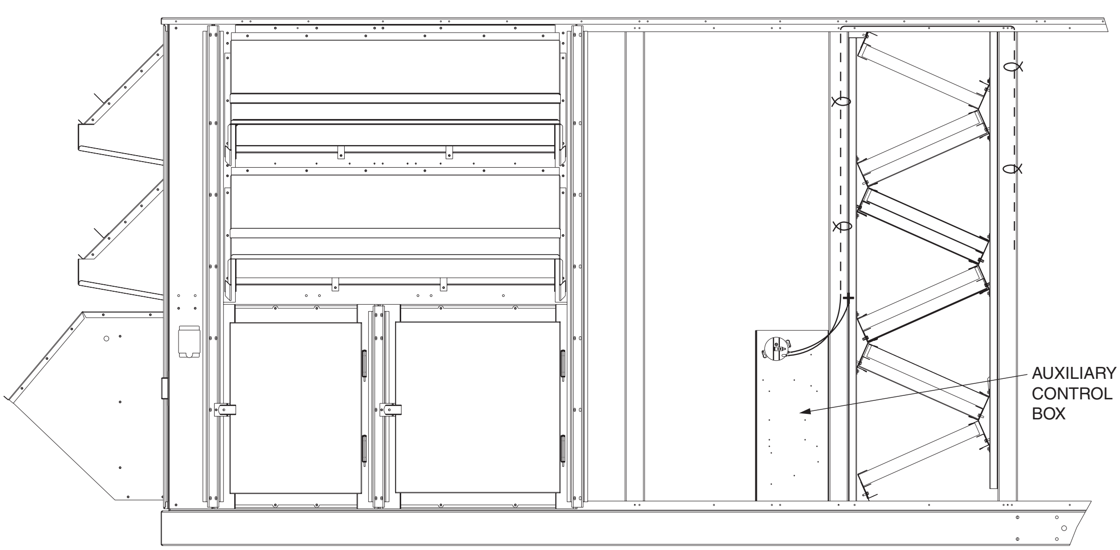
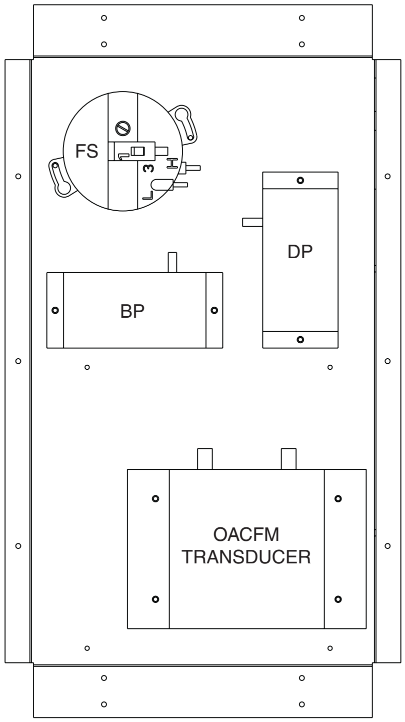


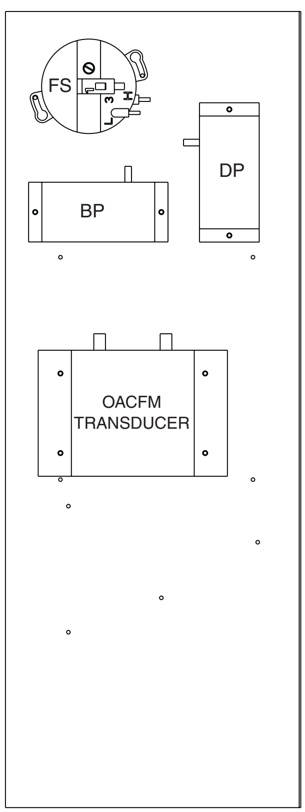
Fig. 53 — Auxiliary Control Box Location (Sizes 055,060)



LEGEND

BP — Building Pressure Transducer
DP — Duct Pressure Transducer
FS — Filter Switch
OACFM — Outdoor Air Cfm Sensor Transducer

Fig. 54 — Auxiliary Control Box Details (Sizes 030,040)



LEGEND

BP — Building Pressure Transducer
DP — Duct Pressure Transducer
FS — Filter Switch
OACFM — Outdoor Air Cfm Sensor Transducer

Fig. 55 — Auxiliary Control Box Details (Sizes 055,060 without Return Fan)

Supply-Fan Shipping Brackets — Supply-fan shipping brackets (4 per unit) must be removed from each corner of the fan sled before starting unit.

UNIT SIZES 030,040

1. To remove brackets, raise fan sled by turning adjusting bolt counterclockwise until spring is compressed slightly.
2. Remove screws holding shipping bracket to unit cross rail.
3. Remove shipping bracket (top of bracket is slotted so that it will slide out).
4. After removing all shipping brackets, level fan sled using the adjusting screws. On all 4 corners, dimension from cross rail to fan sled should be as shown in Fig. 56.

UNIT SIZES 055,060 — To remove shipping brackets, remove the 6 screws holding each bracket to the cross rail. There are 8 brackets per unit. See Fig. 56 or 57.

After removing all shipping brackets, level fan sled using the adjusting screws. On all 4 corners dimension from cross rail to fan sled should be as shown in Fig. 56 or 57.

Compressor Mounting — Each compressor is supported on 4 springs. The springs are compressed for shipment. After the unit is installed, the holddown nuts need to be loosened for normal operation. See Fig. 58 for compressor mounting details. Loosen each bolt using nut indicated until the flatwasher (10 mm [3/8-in.]) can be moved with finger pressure. Do not remove the locknuts. Check each compressor mounting to ensure all 4 springs have been loosened properly.

Converting Standard Filter Tracks to 102 mm (4-in.)

1. Shut off power to unit before opening filter access panel.
2. Remove and discard existing 51-mm (2-inch) filters.
3. Remove the adapter brackets (Fig. 59) in each filter track segment by removing the two screws located 229 mm and 546 mm (9 in. and 21 in.) in from the access door end of each track. Unit sizes 030,040 have 8 adapter brackets and unit sizes 055,060 have 12 adapter brackets. Discard factory brackets.
4. Install new filters, see table below. Insert two of each size into each track segment. (Be sure that a 508 x 635 mm [20 x 25 in.] filter is nearest the access door.)

FILTER SIZES	SIZE 030,040	SIZE 055,060
20 x 25 x 4 in. (508 x 635 x 102 mm)	8	12
20 x 20 x 4 in. (508 x 508 x 102 mm)	8	12
Total Face Area, sq ft (sq m)	50.0 (4.65)	75.0 (6.97)

Install Unit Accessories — For applications requiring accessories, the following packages are available:

All units:
- barometric relief
- space temperature sensor
- CO_2 sensor
- space temperature sensor with CO_2
- relative humidity sensor
- airflow switch
- filter switch
- smoke detector

All vertical return/supply units (without discharge plenum):
- electric heat

All 50ZG and Z2 units:
- thermostat
- pressure operated unloaders

Refer to the individual accessory installation instructions in each accessory package for information on installing accessories.

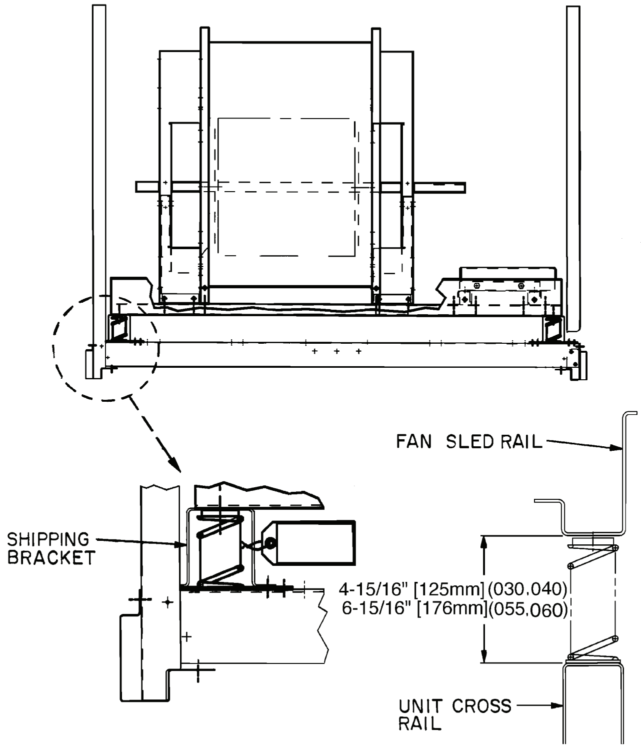


Fig. 56 — Shipping Brackets; Size 030,040 Units and Vertical Discharge Size 055,060 Units

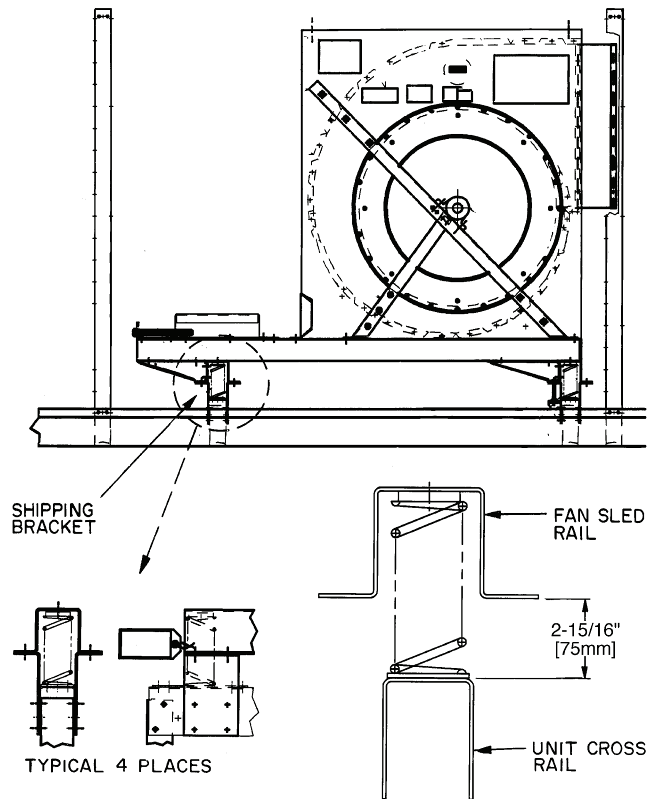
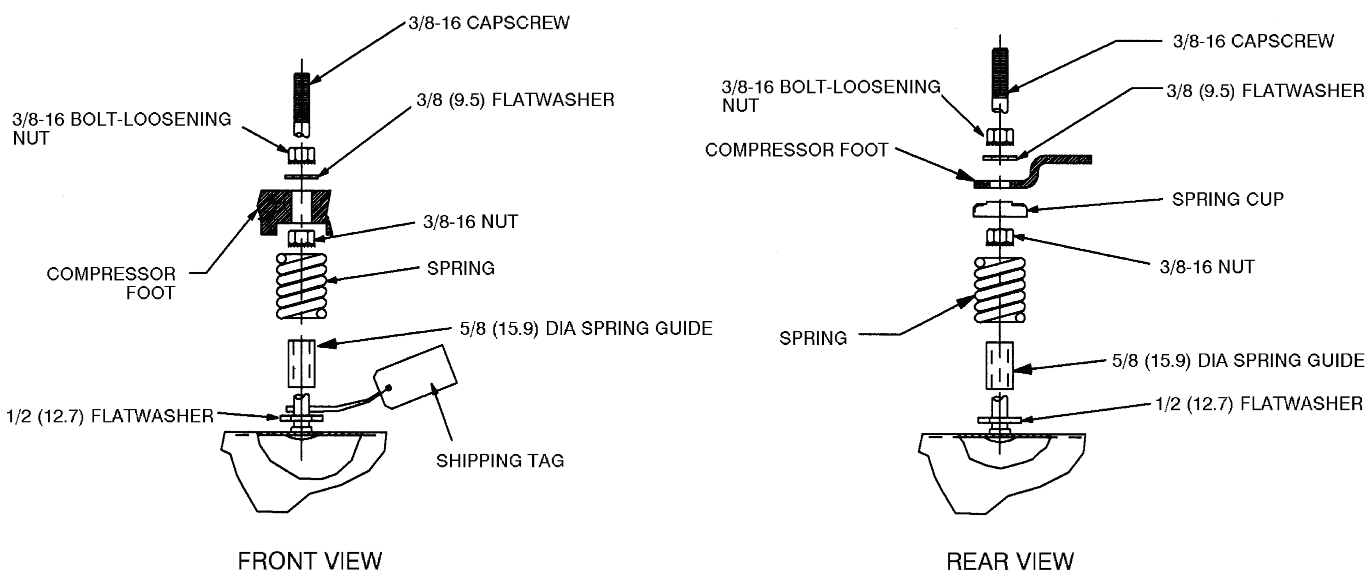


Fig. 57 — Shipping Brackets; Horizontal Discharge Size 055,060 Units



NOTE: All dimensions are in inches (mm).

Fig. 58 — Compressor Mounting (Sizes 030-060)

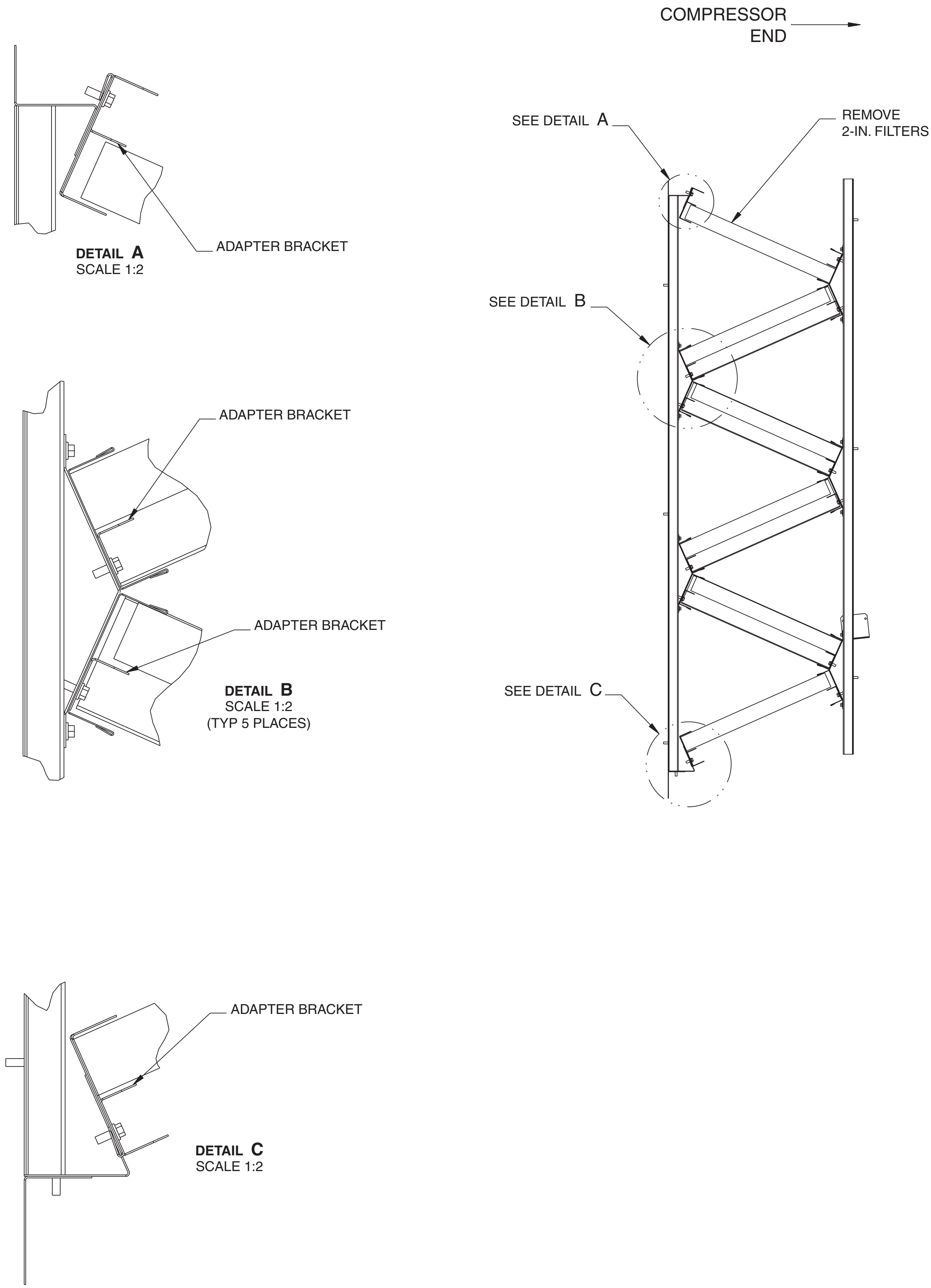


Fig. 59 — Filter Adapter Brackets

CONTROLS INSTALLATION

Constant Volume (CV) Units — The 50ZG,Z2 units are limited to constant volume applications. The 50ZN,Z3 units may also be used on constant volume applications (by changing the Control Type to value of 3, 4, 5 or 6). On constant volume applications, additional control features and accessories may be applied. For a listing of the available functions (including thermostats), switches and sensors, refer to Table 9.

THERMOSTATS — Constant volume application units may be installed with a Carrier-approved accessory electromechanical or electronic thermostat that has two stages of cooling, an output for fan control and two stages of heating (when required by unit-mounted heat option). The thermostat may also include time-of-day scheduling (use in lieu of scheduling routines provided by the *Comfort*Link ™ controls).

Install the thermostat according to the installation instructions shipped with the accessory thermostat. Locate thermostat assembly on a solid interior wall to sense average temperature.

Route thermostat cable or equivalent leads of colored wire from subbase terminals through conduit into the low voltage connections in the main control box at TB203. For thermostat TB203 connections, see Fig. 60.

NOTE: For wire runs up to 30-m (100 ft), use no. 18 AWG (American Wire Gage), 35 C rated insulated wire (or equivalent wire size). Wire sizes larger than no. 18 AWG cannot be directly connected at the thermostat and will require a junction box and splice at the thermostat.

Variable Air Volume Units — The 50ZN,Z3 units may be used on VAV applications with additional control features, switches and sensors. For a listing of the available functions (including thermostats), switches and sensors, refer to Table 9.

NOTE: For all non-thermostat control units (control types 3, 4, 5, or 6) with heat, connect jumpers at TB202 R to W1 and W1 to W2. See Fig. 61.

SPACE SENSOR INSTALLATIONS — All units may be installed with space sensors: T-55 for space temperature sensing only, T-56 (CV applications) for set point offset adjustment, and T-58 (CV applications through CCN communication bus).

The recommended types of control wiring to space sensors are shown below:

MANUFACTURER	PART NO.	
	Regular Wiring	Plenum Wiring
Alpha	1895	—
American	A21451	A48301
Belden	8205	884421
Columbia	D6451	—
Manhattan	M13402	M64430
Quabik	6130	—

SENSOR WIRING — The T-55 and T-58 sensors should be wired using single twisted pairs of no. 20 AWG conductor cable rated for the application. The T-56 sensor requires a three-conductor cable.

HUMIDITY CONTROL AND HOT WATER AND STEAM VALVES — These devices require 20 AWG twisted pair conductor cables rated for the application for the 4 to 20 mA signal. Humidity sensors must be powered from isolated 24-v power supplies.

SPACE TEMPERATURE SENSOR (T-55) — The T-55 space temperature sensor (P/N 33ZCT55SPT) should be located in the space according to the accessory installation instructions. Wire the T-55 sensor to terminals in the unit main control box, at TB202. See Fig. 62.

IMPORTANT: Jumper **MUST** be in place between pins 1 and 3, 3 and 4 or inaccurate readings could result.

Table 9 — Available Control Options and Accessories

CONTROL OPTION/ACCESSORY	CONSTANT VOLUME		VARIABLE AIR VOLUME
	50ZG,Z2	50ZN,Z3	50ZN,Z3
Thermostat	X	X	
Space Sensor			
T-55	X	X	X
T-56	X	X	
T-58	X	X	
Heat Interlock Relay			X
Differential Enthalpy Sensor	X	X	X
Remote Occupied Switch	X	X	X
CO_2 Sensor, Space/Return	X	X	X
Smoke Detector	X	X	X
Filter Status Switch	X	X	X
Fan Status Switch	X	X	X
Fire Shutdown	X	X	X
Remote Alarm Output	X	X	X
CEM (required for sensors shown with *)	X	X	X
Smoke Control Modes*			
Pressurization	X	X	X
Evacuation	X	X	X
Purge	X	X	X
CO_2 Sensor, OSA*	X	X	X
SASP Reset / External Signal*			X
Demand Limit (proportional)*	X	X	X
RH Sensor*	X	X	X
Humidistat*		X	
IAQ Override Switch	X	X	X
Demand Limit (discrete)	X	X	X
Hydronic Heat Control Valve	X	X	X
Humidifier Control	X	X	X
CCN Connections	X	X	X
CCN Linkage / EDT Relocation			X
Navigator™ Device	X	X	X

LEGEND

CCN — Carrier Comfort Network®
CEM — Controls Expansion Module
EDT — Evaporator Discharge Temperature
IAQ — Indoor Air Quality
OSA — Outside Air
SASP — Supply Air Set Point

Connect the T-55 sensor's RJ14 connector to the CCN communication bus or, if no CCN bus is being used, connect the RJ14 connector directly to the unit's CCN terminals (on COMM BOARD in unit main control panel — see Fig. 63).

SPACE TEMPERATURE SENSOR (T-56) — The T-56 space temperature sensor (P/N 33ZCT56SPT) is used on CV applications only. The sensor should be located in the space according to the accessory installation instructions. Wire the T-56 sensor to terminals in the unit main control box, at TB202. See Fig. 62.

IMPORTANT: Jumper **MUST** be in place between pins 1 and 3, 3 and 4 or inaccurate readings could result.

Connect the T-56 sensor's RJ14 connector to the CCN communication bus or, if no CCN bus is being used, connect the RJ14 connector directly to the unit's CCN terminals (on COMM BOARD in unit main control panel — see Fig. 63).

COMMUNICATING SPACE TEMPERATURE SENSOR (T-58) — The communicating space temperature sensor (P/N 33ZCT58SPT) is used on CV applications only. The sensor should be located in the space according to the accessory installation instructions. The T-58 sensor may be connected to the CCN communication bus or it may be connected directly to the unit's CCN connections on TB202. See Fig. 63.

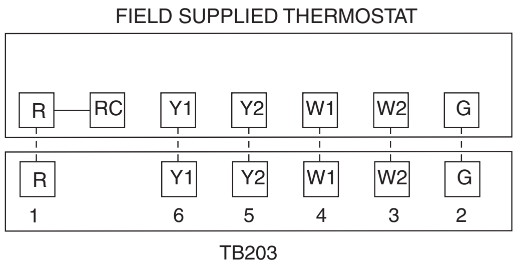


Fig. 60 — Field Control Thermostat Wiring

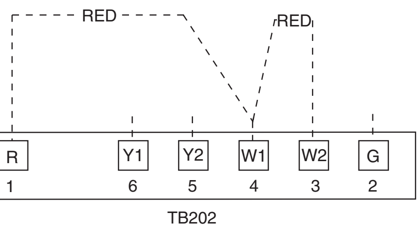


Fig. 61 — Jumper Wires, Units with Electric Heat (Control Types 3, 4, 5, or 6)

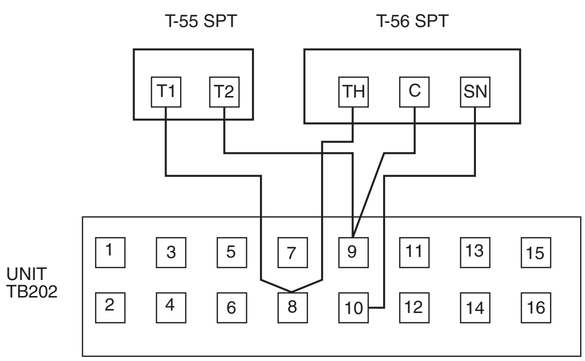


Fig. 62 — T-55 or T-56 Wiring

SPACE TEMPERATURE AVERAGING — Applications that require averaging using multiple space temperature sensors can be satisfied using either 4 or 9 T-55 sensors as shown in Fig. 64.

NOTE: Only Carrier T-55 sensors may be used for averaging. Total sensor wiring must not exceed 305 m (1000 ft). When applied in an averaging grid, the Unoccupied Mode Override function (via pushbutton located on the face of the sensor) no longer works.

NOTE: Do not use T-56 sensors for space temperature averaging. The set point offset function will not work in a multiple sensor application without special attention to its connections within the grid.

Additional Control Wiring Information

HEAT INTERLOCK RELAY (VAV Units Only — Not Necessary For Digital Air Volume Applications) — Variable air volume (VAV) units using optional/accessory electric heat require that controls open room terminals to Minimum Heating Airflow position when the unit goes into Heating mode. The HIR (heat interlock relay) function is provided for this control when Carrier Comfort Network® system is not installed. When the unit goes into Heating mode, the HIR is energized to provide a switch closure to open the room terminals. The field connections for the HIR are at TB201, terminals 7 and 8. See Fig. 65.

The HIR contacts are limited to pilot duty loads. At 24-vac, limit circuit load to 75 va. At 230-vac, limit circuit load to 1.0-amps.

CONTROLS EXPANSION MODULE (CEM) — The CEM is available as a factory-installed option or as a field-installed accessory when additional sensor inputs are required. The CEM will be factory-installed when the optional outside air cfm control package has been installed. The CEM must also be installed when any of the following sensors are to be used:

- smoke control mode switches (except fire shutdown)
- CO_2 sensor for outside air
- humidity (RH) sensors
- humidistat
- IAQ override switch
- SASP reset via external signal (VAV applications only)
- demand limit via proportional signals
- demand limit via discrete switches

Install the CEM according to the accessory installation instructions. Connect all appropriate communication cables and sensor inputs (see Fig. 60-82 for sensor connection).

NOTE: Humidity and CO_2 sensors must be powered from isolated 24-v power supplies.

NOTE: Hydronic/steam control valve actuator must be special LEN-signal type. This actuator is controlled via a direct digital signal communicated through the unit's internal LEN harness. No field wiring should be required. However, the LEN actuator's serial number must be entered properly.

EXPANDED FUNCTION AND OPTION/ACCESSORY CONTROL WIRING — The 50Z Series units with *Comfort*Link™ controls may be used in applications with additional control features, options, or accessories. Refer to the Controls and Troubleshooting manual for more information concerning installation and configuration of these expanded functions. For wiring information on available options and accessories see Table 9 and Fig. 60-82.

Carrier Comfort Network (CCN) Interface —

The 50Z Series units with *Comfort*Link ™ controls can be connected to the CCN if desired, or the units can be connected in a local CCN-type network with only these units and their communicating sensors connected. The communication bus wiring is supplied and installed in the field. It consists of a shielded, 3-conductor cable with shield/drain wire.

The system elements are connected to the communication bus in a daisy chain arrangement. The positive pin of each system element communication connector must be wired to the positive pins of the system element on either side of it, the negative pins must be wired to the negative pins, and the signal

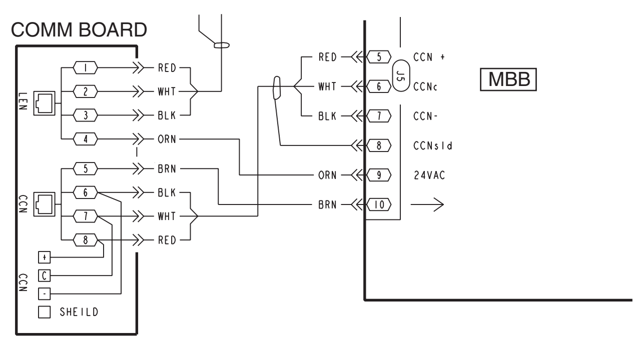


Fig. 63 — CCN Connections

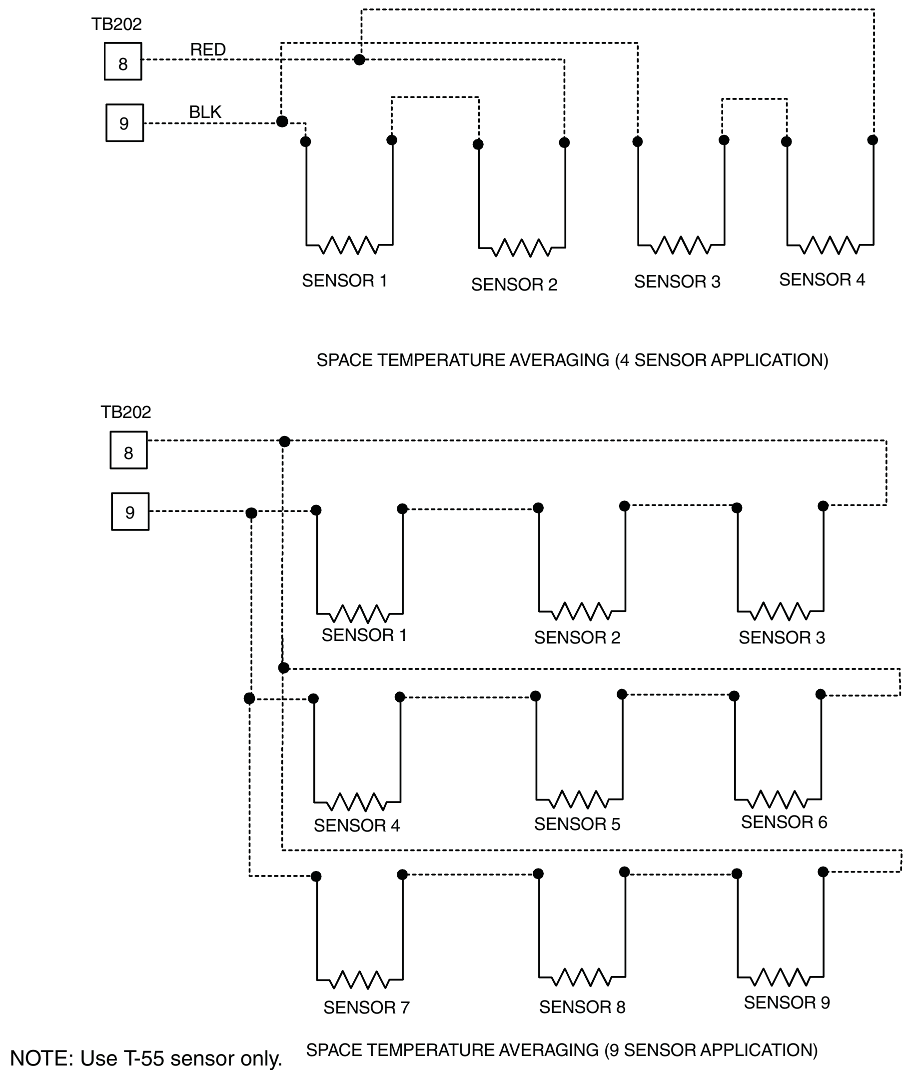


Fig. 64 — Space Temperature Averaging Wiring

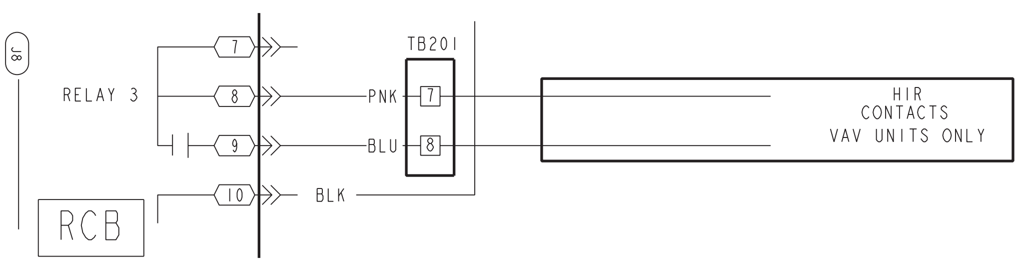


Fig. 65 — Heat Interlock Relay Wiring

pins must be wired to signal ground pins. Wiring connection for the CCN communication bus should be made on the unit's COMM BOARD terminal block (see Fig. 63), at screw terminals marked CCN. Consult the CCN Contractors Manual for further information on CCN wiring.

The COMM BOARD also contains two RJ14 communication plugs. The plug marked CCN is used when connecting the Network Service Tool (from a laptop PC). The plug marked LEN is used when connecting the portable Navigator display module or when downloading new software.

NOTE: Conductors and drain wire must be 20 AWG minimum stranded, tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon, or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of –4 to 140 F (–20 C to 60 C) is required. See Table 10 for cables that meet the requirements.

Table 10 — CCN Connection Approved Shielded Cables

MANUFACTURER	CABLE PART NO.
Alpha	2413 or 5463
American	A22503
Belden	8772
Columbia	02525

IMPORTANT: When connecting the CCN communication bus to a system element, use a color coding system for the entire network to simplify installation and checkout.

The following color code is recommended:

SIGNAL TYPE	CCN BUS CONDUCTOR INSULATION COLOR
+	RED
GROUND	WHITE
–	BLACK

NOTE: If a cable with a different color scheme is selected, a similar color code should be adopted for the entire network.

At each system element, the shields of its communication bus cables must be tied together. If the communication bus is entirely within one building, the resulting continuous field must be connected to a ground at one point only. If the communication bus cable exits from one building and enters another, the shields must be connected to grounds at the lightning suppressor in each building where the cable enters or exits the building (one point per building only).

To connect the unit to the network (Fig. 63):

1. Turn off power to the control box.
2. Cut the CCN wire and strip the ends of the red (+), white (ground) and black (–) conductors. (If a different network color scheme is used, substitute appropriate colors.)
3. Wire the CCN to the screw terminals on the COMM board as follows (Fig. 63):
   a. Secure the red (+) wire to CCN screw terminal + on the COMM board.
   b. Secure the white (ground) wire to CCN screw terminal C on the COMM board.
   c. Secure the black (–) wire to CCN screw terminal — on the COMM board.
   d. Secure shield wire to CCN screw terminal SHIELD on the COMM board.

IMPORTANT: A shorted CCN bus cable will prevent some routines from running and may prevent unit from starting. If abnormal conditions occur, unplug the connector. If conditions return to normal, check CCN connector, and run new cable if necessary. A short in one section of the bus can cause problems with all system elements on the bus.

RJ14 PLUG WIRING — Units on the CCN can be monitored from the space at the sensor through the RJ14 connector, if desired. To wire the RJ14 connector into the CCN (Fig. 63):

IMPORTANT: The cable selected for the RJ14 connector wiring MUST be identical to the CCN communication bus wire used for the entire network.

1. Cut the CCN wire and strip ends of the red (+), white (ground), and black (–) conductors. (If another wire color scheme is used, strip ends of appropriate wires.)
2. Secure the red (+) wire to CCN screw terminal + on the COMM board.
3. Secure the white (ground) wire to CCN screw terminal C on the COMM board.
4. Secure the black (–) wire to CCN screw terminal — on the COMM board.
5. Secure shield wire to CCN screw terminal SHIELD on the COMM board.
6. Connect the other end of the communication bus cable to the CCN communication bus.

Smoke Control Modes — Rooftop units can be used to aid in building smoke control in the event of a building fire. The available functions include: Fire Shutdown, Pressurization, Evacuation, and Smoke Purge. These functions are enhanced when multiple rooftop units are used to zone a building. See Table 11 and Fig. 66 and 67.

FIRE SHUTDOWN — Fire Shutdown mode terminates all unit operation (cooling, heating, supply fan, and power exhaust). This mode prevents recirculation of contaminated air back into the space. The mode will not allow admission into the space of unsuitable outside air. See Fig. 66 for wiring.

PRESSURIZATION — Pressurization mode is intended to keep smoke out of a zone. The factory-installed optional economizer is required for this function. Pressurization is accomplished by the following:

- opening the economizer (option)
- running the supply fan (optional inlet guide vanes open or optional VFD at normal duct static pressure set point)
- closing the power exhaust dampers (if installed as an option)
- shutting off the power exhaust fans (if installed as an option)

This allows the space to be overpressurized relative to adjacent zones and prevents or slows entry of smoke into this space from adjacent zones. See Fig. 67 for wiring.

EVACUATION — Evacuation mode removes smoke or undesirable air from interior spaces without reintroducing unsuitable air. The factory-installed optional economizer with option or accessory power exhaust is required for this function. Evacuation is accomplished by the following (see Fig. 67 for wiring):

- turning the supply fan off
- opening the economizer (option required)
- running the exhaust fans (option required)
- opening the exhaust dampers.

SMOKE PURGE — Smoke Purge mode removes smoke from the interior spaces and replaces it with fresh outside air. The factory-installed optional economizer with option or accessory power exhaust are required for this function. Smoke purge is accomplished by the following:

- turning supply fan on
- opening the economizer (option required)
- running the exhaust fans (option or accessory required)
- opening the exhaust dampers

See Fig. 67 for wiring.

SMOKE CONTROL INSTALLATION — Implementation of the Fire Shutdown function requires a field-supplied switch or relay. See Fig. 66. The unit control can be reconfigured to match the field switch's "normal position" contacts arrangement.

Implementation of Pressurization, Evacuation and Smoke Purge functions requires the installation of the factory-installed option or field-installed accessory Controls Expansion Module. Each function requires a discrete field switch or relay contact, Normally Open (close to initiate function). See Fig. 67.

Table 11 — Smoke Control Modes

FUNCTION	MODE			
	Fire Shutdown	**Pressurization**	**Evacuation***	**Smoke Purge***
Supply Fan	Off	On	Off	On
IGV/VFD†	—	Open/On	—	Open/On
Economizer	Closed	Open	Open	Open
Return Air Damper	Open	Closed	Closed	Closed
Exhaust Fans	Off	Off	On	On
Exhaust Damper	Closed	Closed	Open	Open

LEGEND

IGV — Inlet Guide Vane
VAV — Variable Air Volume
VFD — Variable Frequency Drive

*Power exhaust option required for this mode.
†Applicable to VAV units with appropriate options.

Navigator™ Display — The Navigator display is a portable display module that is used to configure and perform service diagnostics on units equipped with *Comfort*Link™ controls. This portable module is suitable for outdoor use in temperatures from –30 to 70 C (–22 to 158 F).

Connect the Navigator display to a LEN port using the RJ14 connector. See Fig. 63. Do NOT connect the Navigator display to the CCN connector, damage to the device may occur.

NOTE: The Navigator display module should be removed after use. It is intended to be a mobile device so there are no holes in the device for permanent mounting. The module has a magnetic mount that is strong enough to hold the device in place on any clean, dry metal surface.

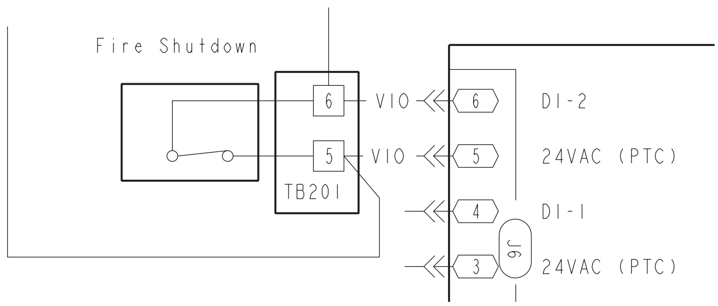


Fig. 66 — Fire Shutdown Wiring

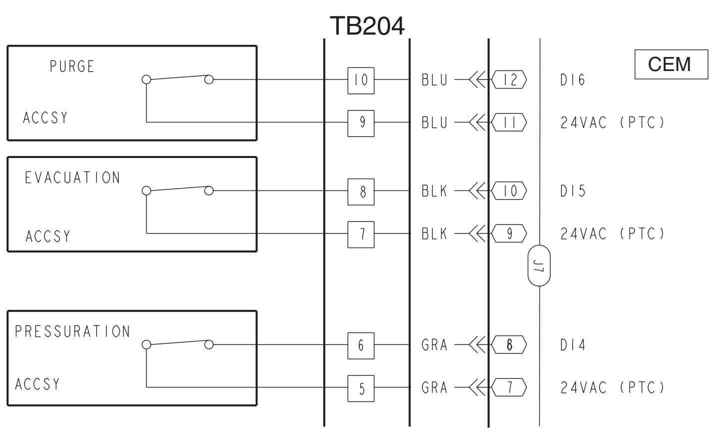


Fig. 67 — Purge, Evacuation, and Pressurization Wiring

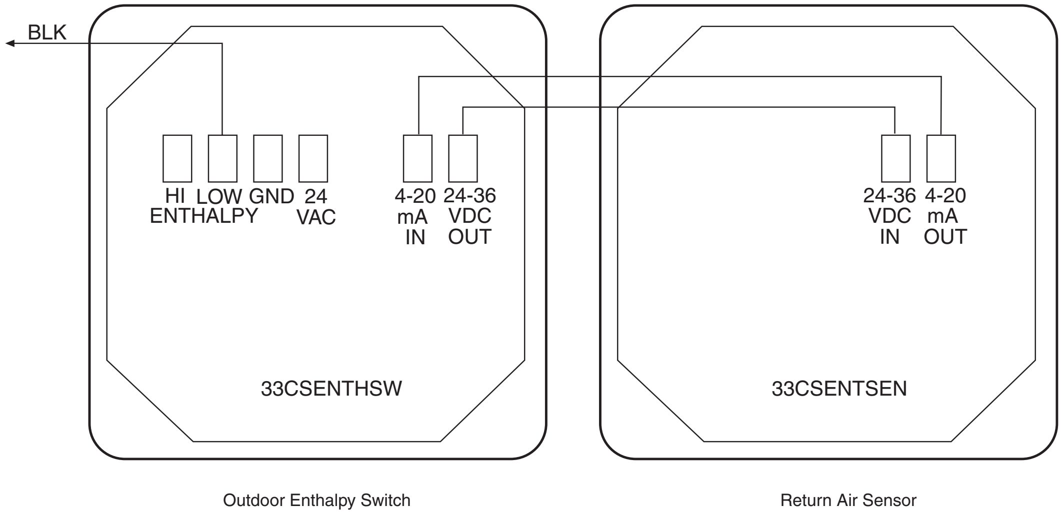


Fig. 68 — Differential Enthalpy Control Wiring

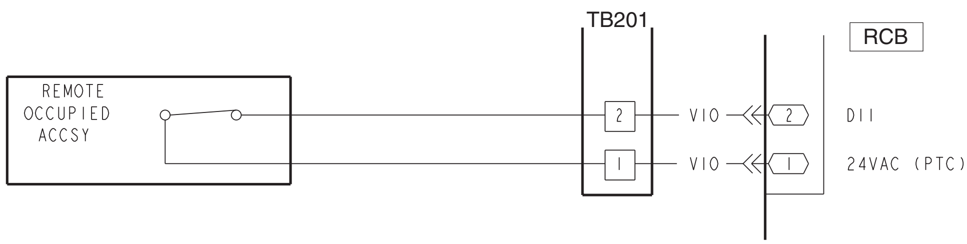


Fig. 69 — Remote Occupied Switch

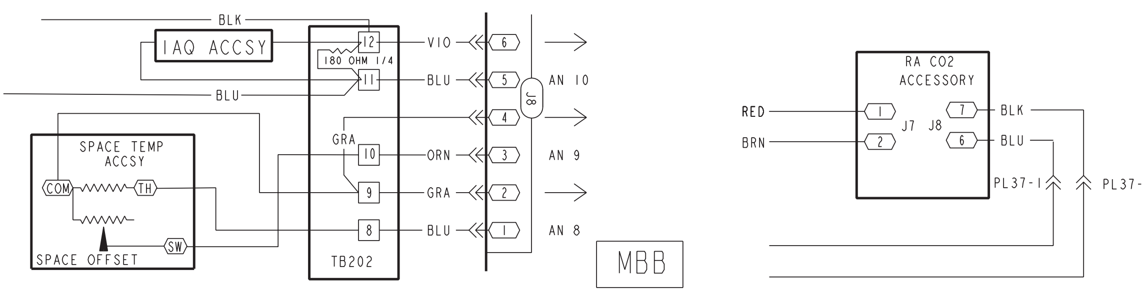


Fig. 70 — CO_2 Space/Return Sensor Wiring

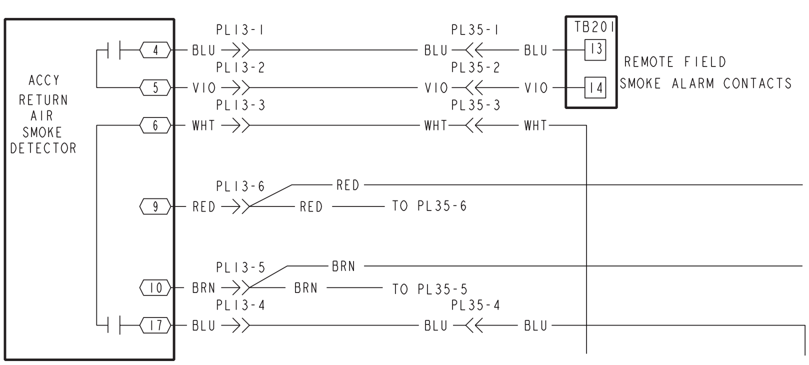


Fig. 71 — Return Air Smoke Detector Wiring

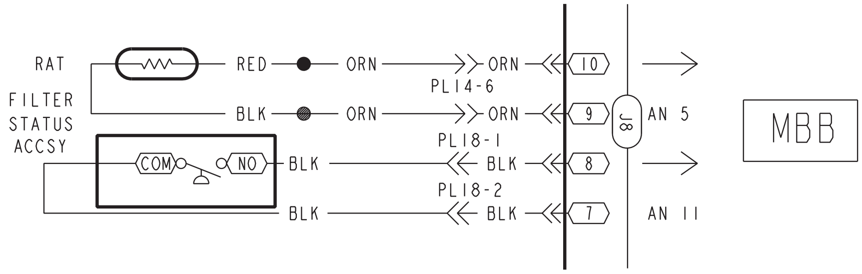


Fig. 72 — Filter Status Switch Wiring

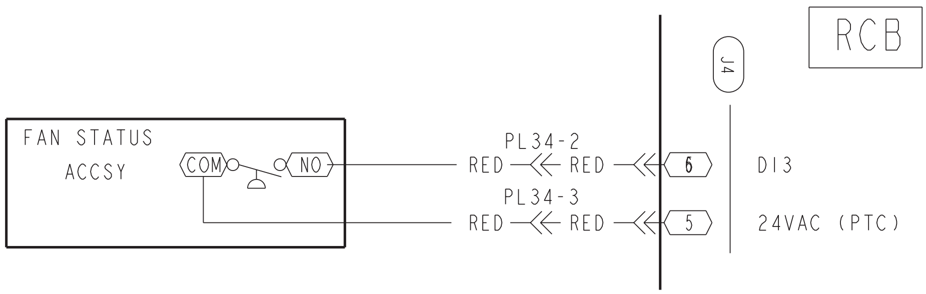


Fig. 73 — Fan Status Switch Wiring

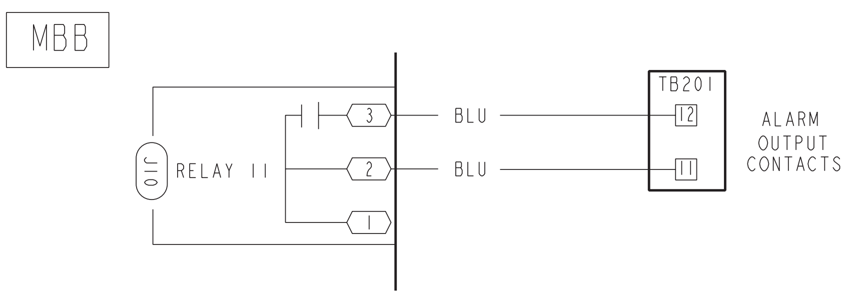


Fig. 74 — Remote Alarm Output

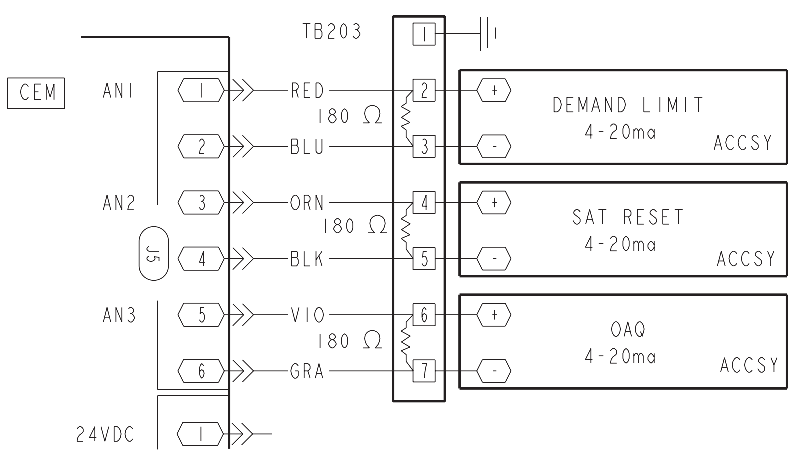


Fig. 75 — CO_2 Sensor (Outdoor Air), SAT Reset and Demand Limit (Proportional) Wiring

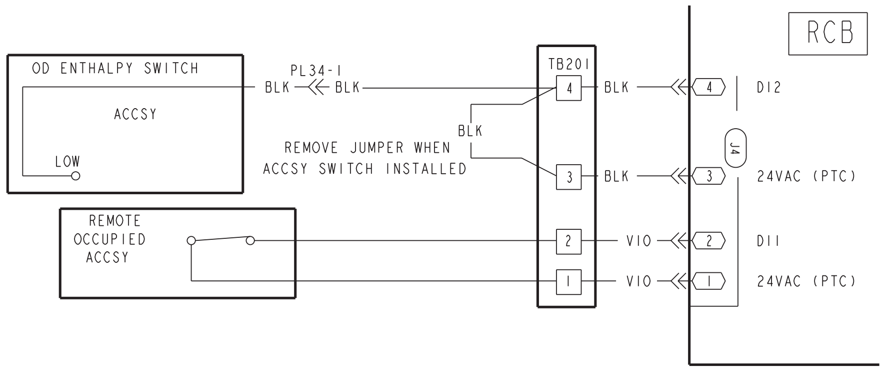


Fig. 76 — Outdoor Air Enthalpy Switch Wiring

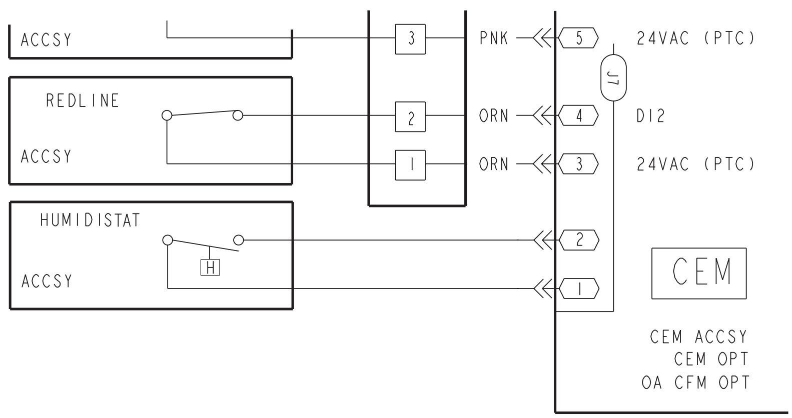


Fig. 77 — Humidistat Wiring

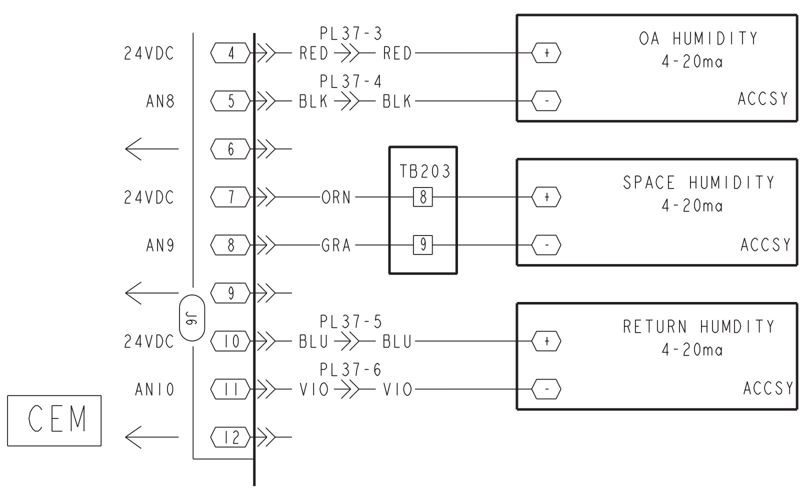


Fig. 78 — Outside Air, Space and Return Air Humidity Sensor Wiring

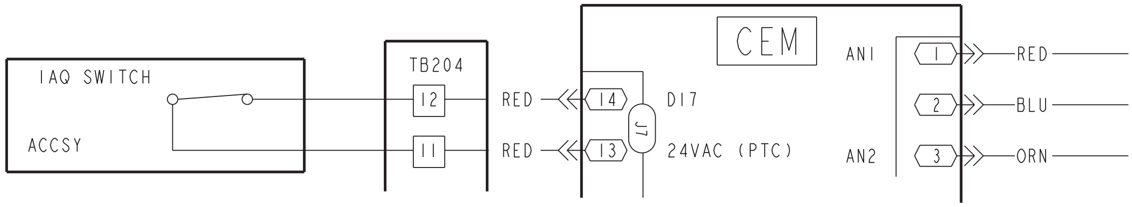


Fig. 79 — Indoor Air Quality (IAQ) Override Switch

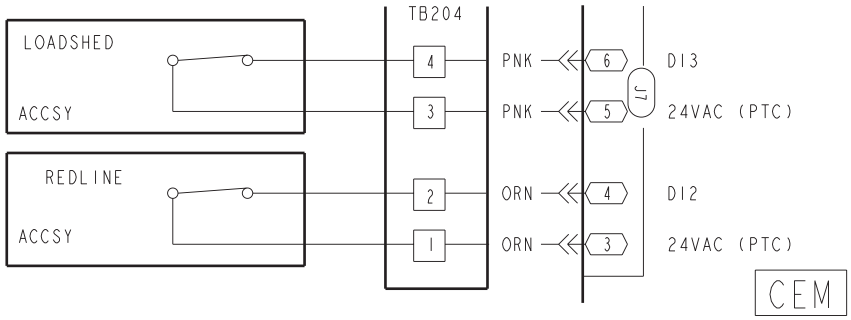


Fig. 80 — Demand Limit (Discrete) Switches

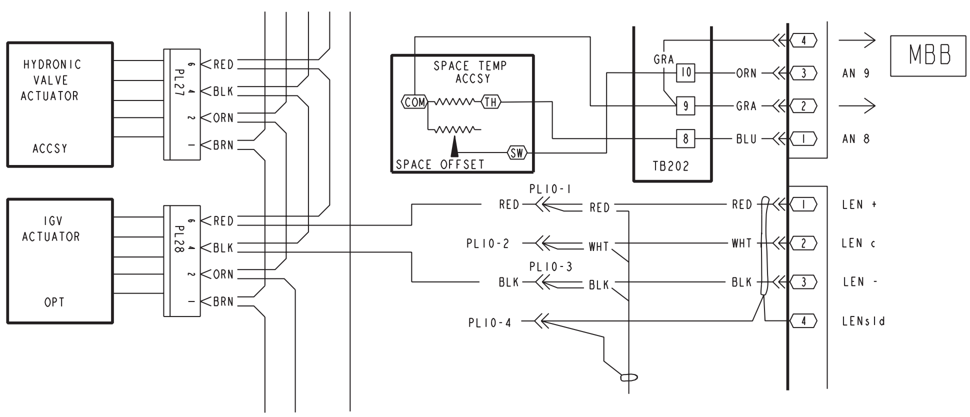


Fig. 81 — Hydronic Heat Control Valve

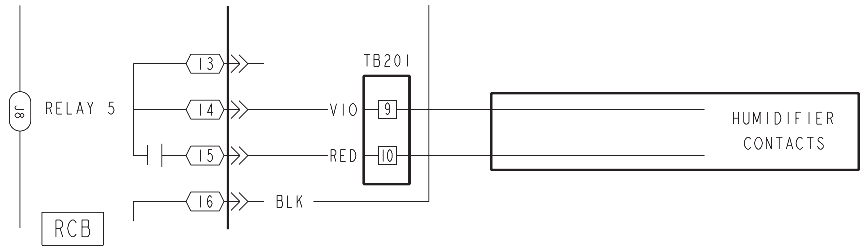


Fig. 82 — Humidifier Control

Legend for Fig. 62-82

ACCSY	—	Accessory
ACCY	—	Accessory
AN	—	Analog
CCN	—	Carrier Comfort Network
CEM	—	Controls Expansion Module
COM	—	Common
DI	—	Digital Input
GND	—	Ground
HIR	—	Heat Interlock Relay
IAQ	—	Indoor Air Quality
IGV	—	Inlet Guide Vanes
LEN	—	Local Equipment Network
MBB	—	Main Base Board
NO	—	Normally Open
OA	—	Outdoor Air
OAQ	—	Outdoor Air Quality
OAT	—	Outdoor-Air Thermostat
OD	—	Outdoor
PL	—	Plug Assembly
PTC	—	Positive Temperature Coefficient Power Reference
RA	—	Return Air
RAT	—	Return Air Thermistor
RCB	—	Rooftop Control Board
SAT	—	Supply Air Thermistor
TB	—	Terminal Block

x	Terminal Block
○	Terminal (Unmarked)
x	Terminal (Marked)
●	Splice
———	Factory Wiring
– – – –	Field Wiring