

*First Co.*

**eco**series  
AQUA-PAK<sup>™</sup>

Space Constrained Vertical Unit

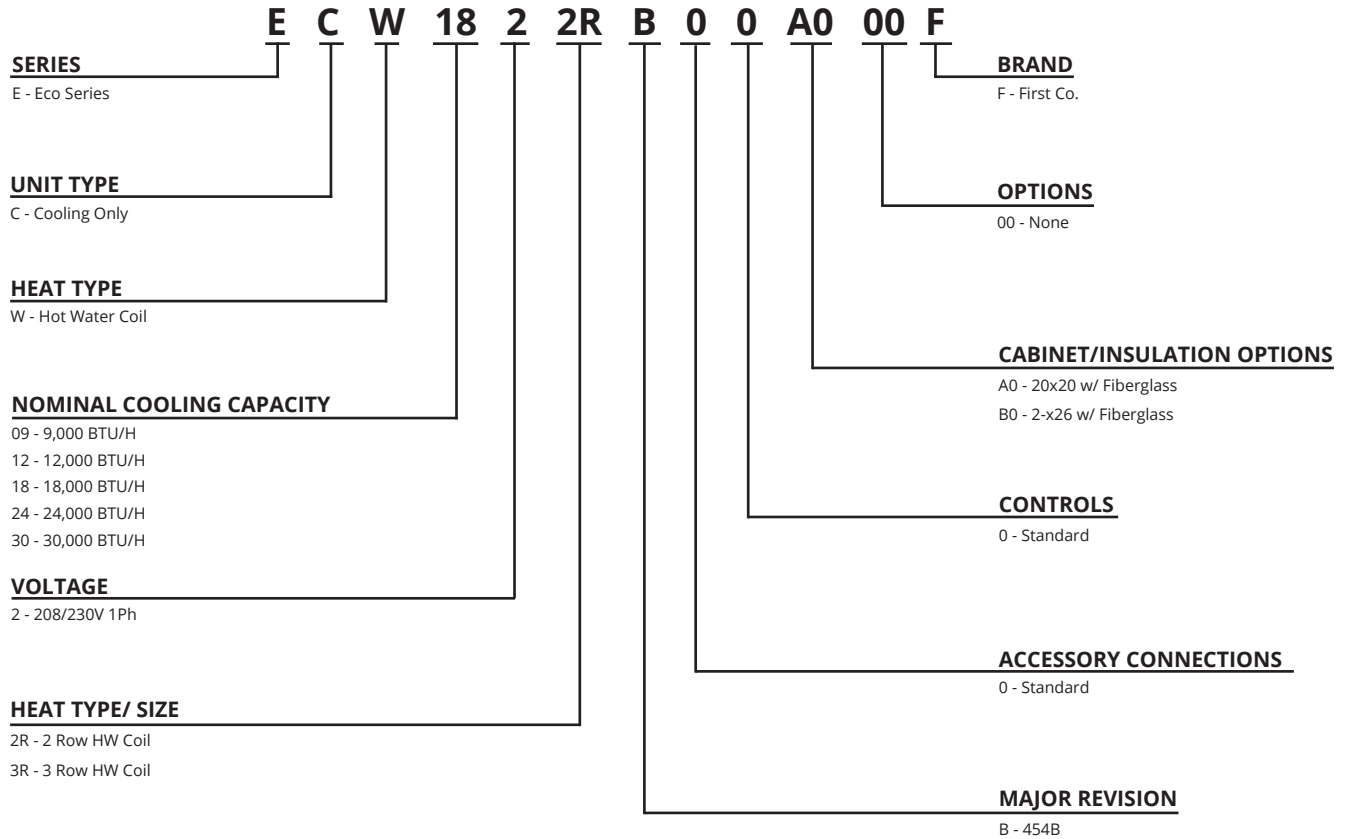
*Cooling with Hot Water Heat*

3/4 - 2.5 tons

Up to 47,800 BTUH Heating



# Nomenclature



# PRELIMINARY

## PRODUCT DESCRIPTION

- Space constrained electric cooling and electric heating
- Pre-wired and pre-charged with 454B refrigerant, capable of delivering conditioned air to multiple rooms
- Easily installs into a closet or mechanical room on an exterior wall, utilizing a minimal amount of floor space
- Controlled by a standard low voltage thermostat with high and low temperature limits

## APPLICATIONS

Hospitality, Apartments/Condominiums, Assisted Living/Memory Care, Student Housing, Senior Living and Modular/Prefabricated Buildings

## STANDARD FEATURES

- Completely pre-charged with environmentally friendly 454B refrigerant
- Easy access for in-place service of most components
- Multi-function micro-processor board that includes the following functions:
  - Evaporator coil low temperature protection
  - Low ambient lockout
  - ECM motor utilized on all models
  - Random restart
  - Compressor restart delay
  - Fan-off delay in the cooling mode
  - Low voltage fuse protection
- Service disconnect
- Completely insulated cabinet for sound attenuation and weather infiltration
- Adjustable fresh air damper
- No tool needed to replace the filter
- Weight-supporting, single piece wall sleeves (except side access sleeves) for various wall thicknesses from 5" to 20"
- Sleeves have primary condensate drain connection with secondary overflow to building exterior
- All sleeves are shipped with a weather guard
- All units charged over 4 lbs (64 oz) come with factory installed leak mitigation systems

## SERVICEABILITY FEATURES

- Easy access for in-place service of most components
- All electrical components and control boards are serviceable from front of the unit

## WARRANTY

Five (5) year limited warranty on compressor and parts

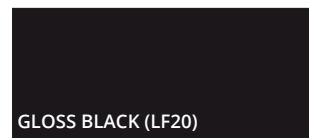
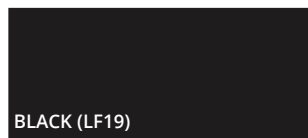
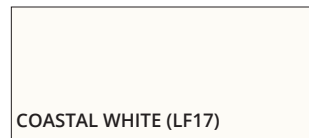
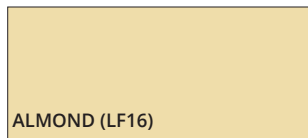
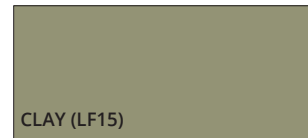
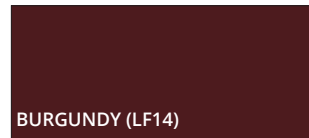
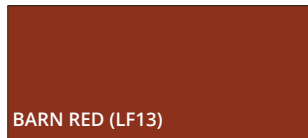
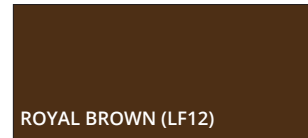
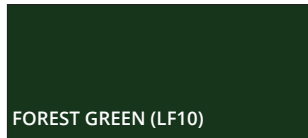
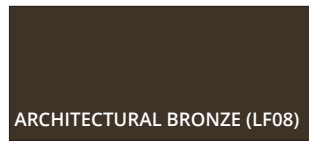
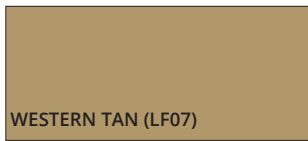
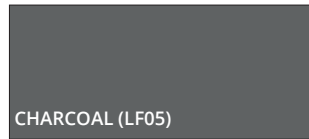
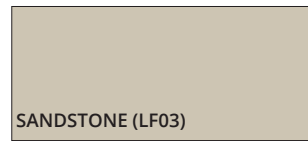
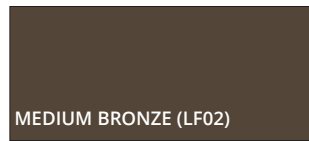
## REQUIRED ACCESSORIES

- Weight bearing wall sleeves for various wall thicknesses from 5" to 20" shipped with weather and debris guard
- Wall sleeves have primary condensate drain connection with secondary overflow to building exterior
- Flush type aluminum louver with finish and paint options
- Standard low voltage heat pump thermostat with high and low temperature limits

# OPTIONAL ACCESSORIES

- Interior Access Panels - Louvered or Solid – **\*\*Bone White only\*\*\*** no custom color
- Wall sleeves with side access

## STANDARD PAINT COLORS:



# STANDARD UNIT FEATURES

## FILTER RACK

- Filter Brackets and a disposable filter ship with each unit to be field installed over the evaporator coil.
- NOTE: Do not use filters which will cause the total external static pressure, including ducts, louvers, registers, and filters to exceed 0.5 in. H<sub>2</sub>O

## MULTI-FUNCTION MICROPROCESSOR CONTROL BOARD

**Evaporator coil low temperature protection** – During the cooling mode, should the evaporator coil experience either a low temperature condition that could result in ice buildup on the coil or a reduced air flow situation, a temperature sensor attached to the coil will de-energize the unit. The sensor will re-energize the unit when the coil warms back up.

**Random restart** – When power is turned on after a power outage, a built-in random restart of 3-4 minutes, which prevents all compressors from restarting simultaneously.

**Compressor restart delay** – This delay ensures that system pressures are allowed to equalize before a compressor restart, which extends compressor life.

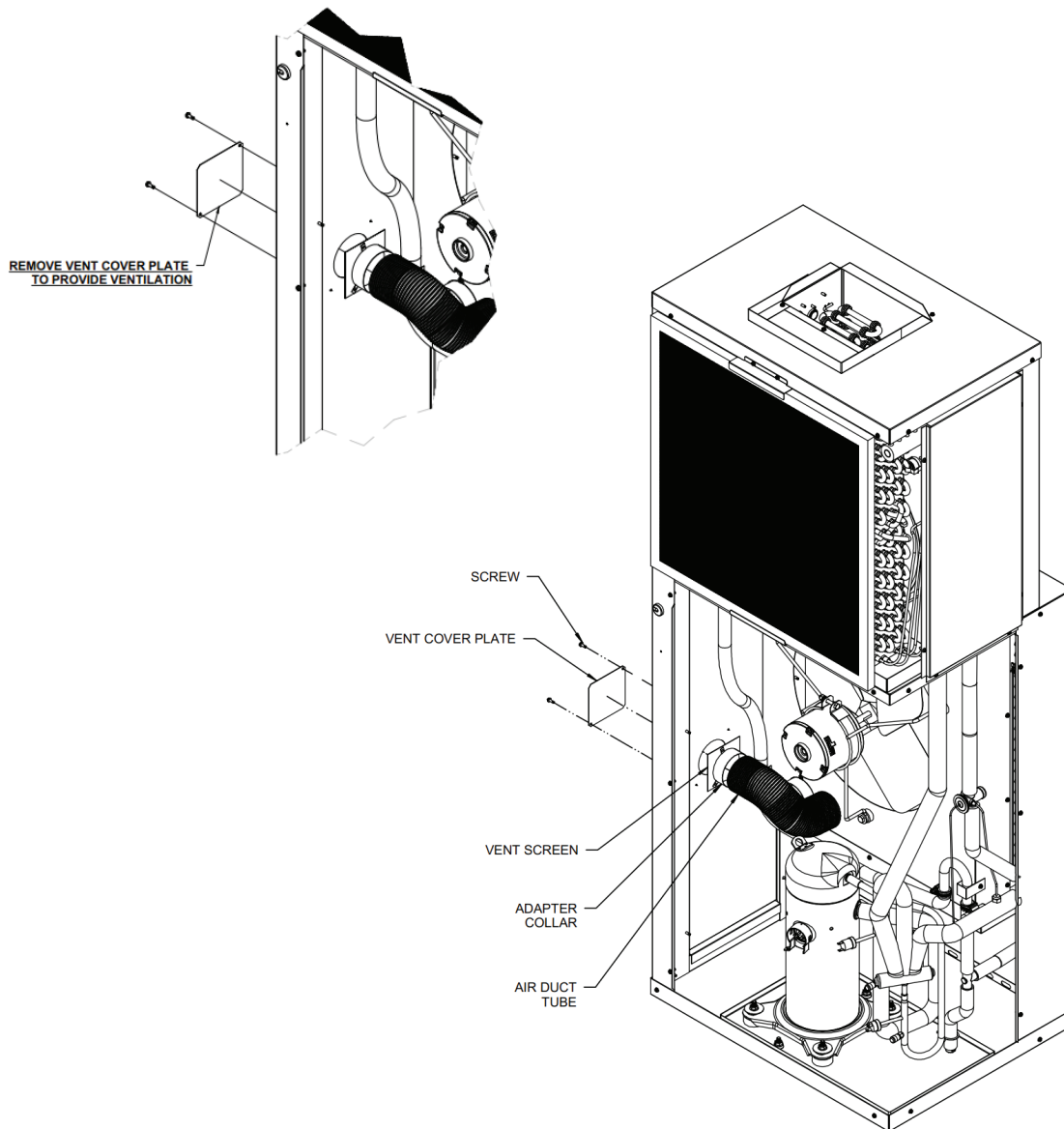
**Fan delay** – A fan delay allows the evaporator blower to continue running for up to 45 seconds after the thermostat is satisfied, which maximizes cooling performance.

**Low voltage fuse protection** - Disconnects the live circuit when the current exceeds a predetermined value.

# VENTILATION AIR

One end of a 3" aluminum vent pipe is connected to the condenser venturi and the other end is connected to the side of the cabinet. A mesh screen and a metal plate on the side of the cabinet covers the opening of the vent pipe.

Up to 50 CFM of ventilation air is introduced into the equipment closet by removing the metal cover plate. The ventilation air mixes with the return air and is then pulled through the evaporator coil and into the supply duct. The cover plate can be reinstalled to partially close the ventilation air opening if less than 50 CFM is desired. An external source of negative pressure (i.e. a bathroom fan) could be used to introduce more than 50 CFM of ventilation air. Consult with factory for further details.



# CONDENSATE SYSTEM

## *Primary Condensate*

Factory installed drain line connects the evaporator drain pan to a vertical pipe connection in the unit base pan. Evaporator condensate is delivered from the unit to a catch tray in the wall sleeve and exits the sleeve through the 3/4" male NPT fitting. This design allows the plumber to completely pipe the drain to a condensate riser during the rough-in stage, thus eliminating condensate connection problems usually encountered when trying to connect the HVAC drain to the riser after the HVAC unit is installed in the closet. This features also allows the unit to be removed for service without disconnecting the condensate piping. This configuration does not require any additional closet space to make the drain connection, as do some competitive products.

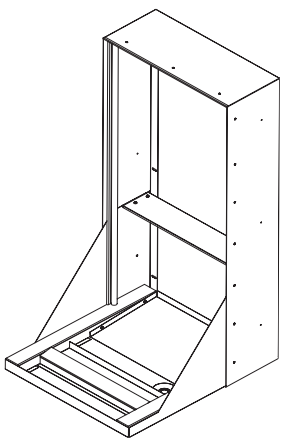
## *Secondary Condensate Overflow*

If for any reason, the primary condensate riser becomes clogged, water will fill the catch tray and then be diverted through the sleeve to the exterior of the building, rather than be allowed to overflow into the closet or living area. Rain water entering the sleeve is automatically diverted to the 3/4" condensate drain.

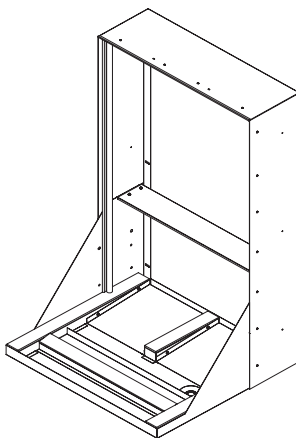
# REQUIRED ACCESSORIES

## WALL SLEEVES

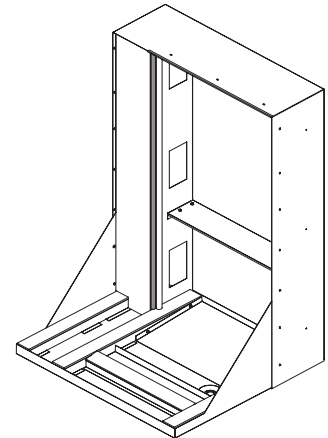
- Provided for installation during rough-in and when ready the unit is simply slid into the wall sleeve and connected to the ductwork and electrical.
- Weight bearing sleeve that supports the entire weight of the unit and provides a weather tight seal against wind and water infiltration.
- Four wall sleeve depths are available to accommodate wall thickness from 5" to 20".
- Includes a weather guard to cover the sleeve opening and a debris guard to cover wall sleeve base and drain during construction.



**Standard Sleeve for 3/4 - 1.5 tons**



**Standard Sleeve for 2.0 - 2.5 tons**







**Oversized Sleeve for 3/4 - 1.5 tons to provide uniform exterior appearance**

# ACCESSORIES

SLEEVE AND LOUVER ACCESSORIES						
ACCESSORY	DESCRIPTION	DIMENSIONS (H x W x D)	STANDARD SLEEVES		SHIP WT. (EA) Lbs.	
			REAR INSTALL <sup>1</sup>	SIDE INSTALL <sup>2</sup>	REAR <sup>5</sup>	SIDE <sup>5</sup>
<b>SMALL CABINET "A" WALL SLEEVES</b>	For 5" - 8" thick walls	43-3/4 x 21-3/8 x 26	936-1B	936-11B	59	64
	For 8" - 12" thick walls	43-3/4 x 21-3/8 x 30	936-2B	936-12B	63	73
	For 12" - 15" thick walls	43-3/4 x 21-3/8 x 33	936-3B	936-13B	68	73
	For 15" - 20" thick walls	43-3/4 x 21-3/8 x 38	936-4B	936-14B	75	80
<b>LARGE CABINET "B" WALL SLEEVES</b>	For 5" - 8" thick walls	43-3/4 x 27-3/8 x 26	985-1B	985-11B	63	68
	For 8" - 12" thick walls	43-3/4 x 27-3/8 x 30	985-2B	985-12B	68	73
	For 12" - 15" thick walls	43-3/4 x 27-3/8 x 33	985-3B	985-13B	75	80
	For 15" - 20" thick walls	43-3/4 x 27-3/8 x 38	985-4B	985-14B	79	84
<b>SMALL CABINET "A" LARGE WALL SLEEVES WITH BLOCKOFF</b>	For 5" - 8" thick walls	43-3/4 x 27-3/8 x 26	986-1B	986-11B	63	68
	For 8" - 12" thick walls	43-3/4 x 27-3/8 x 30	986-2B	986-12B	68	73
	For 12" - 15" thick walls	43-3/4 x 27-3/8 x 33	986-3B	986-13B	75	80
	For 15" - 20" thick walls	43-3/4 x 27-3/8 x 38	986-4B	986-14B	79	84
<b>STANDARD LOUVERS CABINET "A" WALL SLEEVES</b>	Custom Painting	44x22	G205S		12	
	For Field Painting	44x22	G205PPA		12	
	Anodized Aluminum	44x22	G205A		12	
<b>STANDARD LOUVERS CABINET "B" LARGE WALL SLEEVES</b>	Custom Painting	44x28	G216S		18	
	For Field Painting	44x28	G216PPA		18	
	Anodized Aluminum	44x28	G216A		18	

**NOTES:**

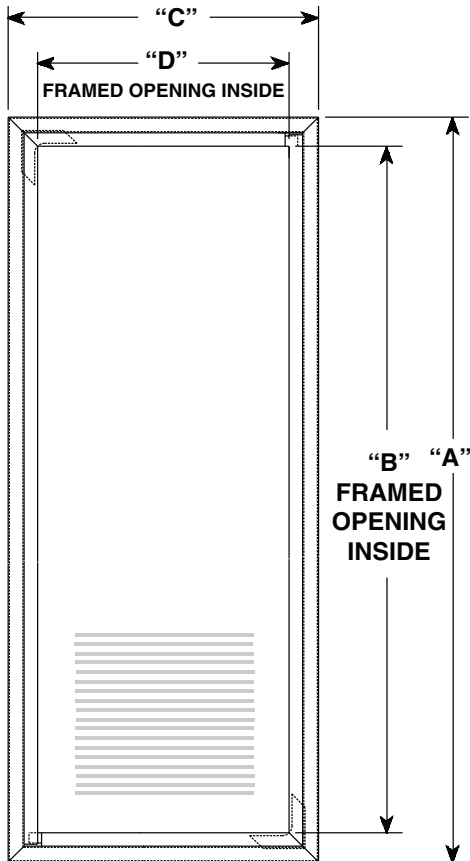
1. Rear install application provides better access to the unit and is recommended over side install wherever possible
2. Side install application requires different closet size and configuration. Contact factory for further information
3. Wind resistant sleeves require the usage of a wind resistant louver
4. S indicates custom color, to be provided by customer. Minimum order quantity is 15 per color, if less than 15 set up fees will be applied
5. All wall sleeves are shipped two (2) per carton, fully assembled.

THERMOSTATS			
<b>Straight Cool</b> (24V) Digital cool - off - heat, auto - on w/limits-(6-wire)	T1020NC	4 x 5 (Horizontal)	
<b>Heat Pump</b> (24V) Digital w/emergency heat cool - off - heat, auto - on w/limits-(6-wire)	T1220NC	4 x 5 (Horizontal)	
<b>Programmable</b> (5-2) St. Cool/Ht. Pump (24V) cool-off-heat, auto-on w/em. Ht. & limits (6-wire)	T2220NC	4 x 5 (Horizontal)	
<b>Straight Cool or Heat Pump</b> (24V) Digital Occupancy Sensor	T8532	4.3 x 5.7 (Horizontal)	



# ACCESSORIES (CONTINUED)

OPTIONAL ACCESSORIES (Field Installed)						
COMPONENT	DESCRIPTION	DIMENSIONS (H X W)		PART NUMBER	SHIP WT.	COMES W/ FILTER
ACCESS / RETURN AIR PANEL (3)(4)	LOUVERED (1)	FRAME	OPENING	931-11	55	20 x 24 x 1
		87 X 31	84 X 28			
	NON-LOUVERED (2)	87 X 31	84 X 28	931-12		NO
		LOUVERED (1)	82 X 31	79 X 28		931-13
ACCESS / RETURN AIR PANEL (3)(4)	LOUVERED (1)	FRAME	OPENING	931-15	55	20 x 24 x 1
		87 X 37	84 X 34			
	NON-LOUVERED (2)	87 X 37	84 X 34	931-16		NO
		LOUVERED (1)	82 X 37	79 X 34		931-17
NON-LOUVERED (2)	82 X 37	79 X 34	931-18	NO		
	9-18 INSULATION KIT	5/8" DUCT-BOARD	N/A		91K01	---
24 INSULATION KIT	91K02				---	---



	PART NO.	"A"	"B"	"C"	"D"
	931-11(12)	87.00	84.00	31.00	28.00
	931-13(14)	82.00	79.00	31.00	28.00
*	931-15(16)	87.00	84.00	37.00	34.00
*	931-17(18)	82.00	79.00	37.00	34.00

\* For rear installation use with size 24 or 30

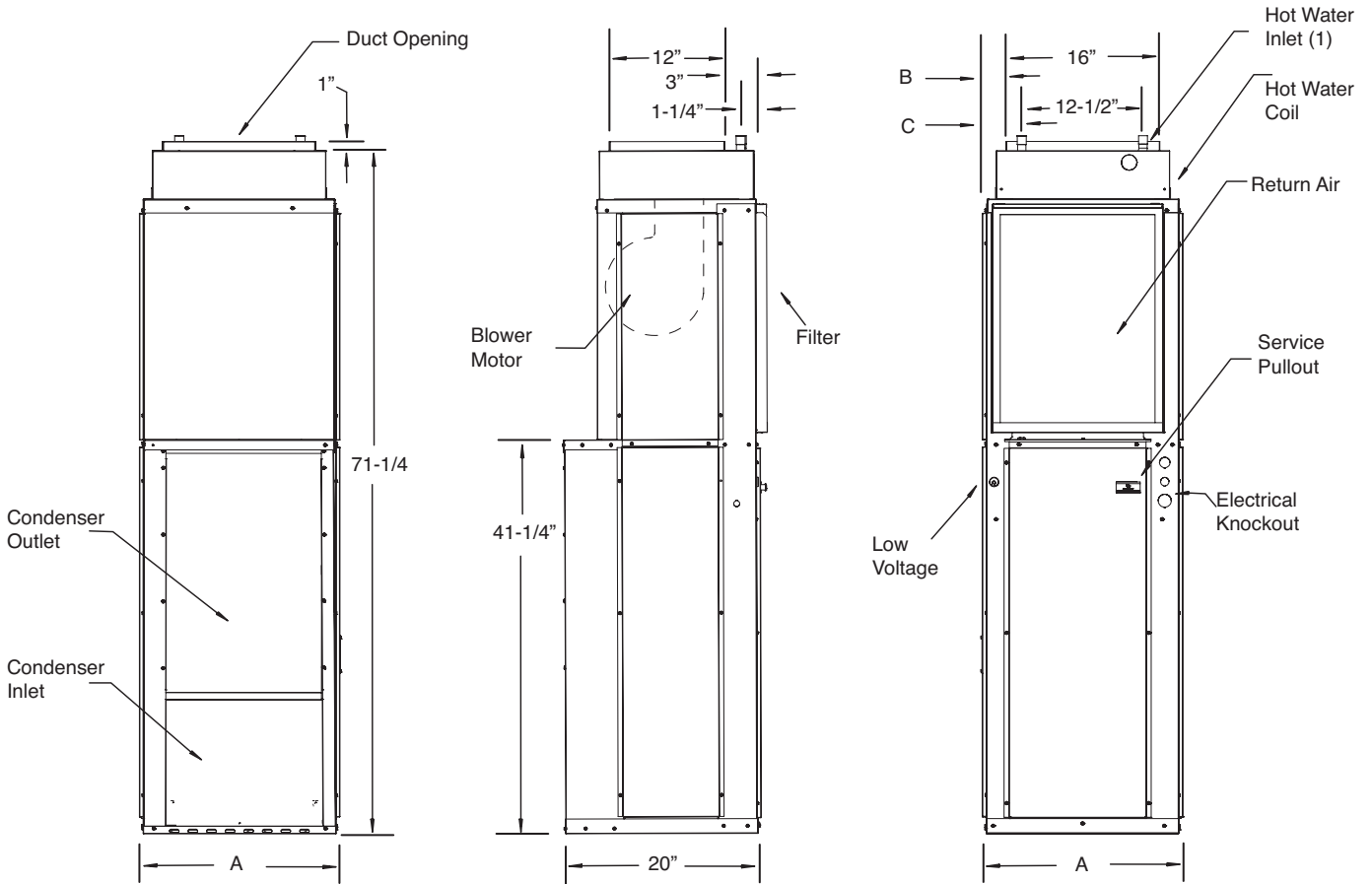
**NOTE:** A solid door or panel with a side wall return air louver will result in lower sound levels.

**NOTES:**

- (1) Includes 18 x 24 x 1 or 20 x 24 x 1 filter.
- (2) Requires external return air louver and unit mount filter.
- (3) Both panels are insulated for sound reduction and have tamperproof screws.
- (4) Panels are shipped ten per carton.

# PHYSICAL DATA

## Unit Dimensions



(1) Hot water coil connections are 7/8" O.D., Sweat

UNIT	A	B	C	FILTER
9,12,18	20	2	3-3/4	18 x 24 x 1
24,30	26	5	6-3/4	24 x 24 x 1

# BLOWER PERFORMANCE

MODEL NUMBER	Motor Tap	Motor Speed	IWC STATIC PRESSURE									
			0.1		0.2		0.3		0.4		0.5	
			SCFM	W	SCFM	W	SCFM	W	SCFM	W	SCFM	W
ECW0922R	1	T1 <sup>H</sup>	453	95	435	97	417	98	399	98	380	98
	2	T2 <sup>C</sup>	352	58	334	60	316	60	298	60	279	60
ECW122R	1	T1 <sup>H</sup>	510	128	493	127	474	127	456	126	437	125
	2	T2 <sup>C</sup>	308	45	290	47	272	48	254	48	235	47
ECW1822R	1	T1 <sup>H</sup>	723	155	696	155	673	155	641	151	598	143
	2	T2 <sup>C</sup>	723	155	696	155	673	155	641	151	598	143
ECW1823R	1	T1 <sup>H</sup>	723	155	696	155	673	155	641	151	598	143
	2	T2 <sup>C</sup>	723	155	696	155	673	155	641	151	598	143
ECW2422R	1	T1 <sup>H</sup>	883	222	853	222	822	220	789	218	751	213
	2	T2 <sup>C</sup>	883	222	853	222	822	220	789	218	751	213
ECW2423R	1	T1 <sup>H</sup>	883	222	853	222	822	220	789	218	751	213
	2	T2 <sup>C</sup>	883	222	853	222	822	220	789	218	751	213
ECW3022R	1	T1 <sup>H</sup>	883	222	853	222	822	220	789	218	751	213
	2	T2 <sup>C</sup>	883	222	853	222	822	220	789	218	751	213
ECW3023R	1	T1 <sup>H</sup>	883	222	853	222	822	220	789	218	751	213
	2	T2 <sup>C</sup>	883	222	853	222	822	220	789	218	751	213

<sup>C</sup> Factory Default Cooling

<sup>H</sup> Factory Default Heating

Blower performance data based on a dry coil at 70°F DB EAT with a standard 1" clean air filter

# RATED COOLING PERFORMANCE

MODEL NUMBER	Rated Airflow SCFM	Cooling Capacity 95°F, BTU/H	EER2 95°F	SEER2
ECW09*	350	9,000	10.5	11.7
ECW12*	400	11,500	10.5	11.7
ECW18*	600	17,500	10.5	11.7
ECW24*	800	23,500	10.5	11.7
ECW30*	900	27,000	10.5	11.7

(1) Tested at 95°F DB/75°F WB outdoor and 80°F DB/67°F WB indoor

All units tested in accordance with AHRI 210/240 2020

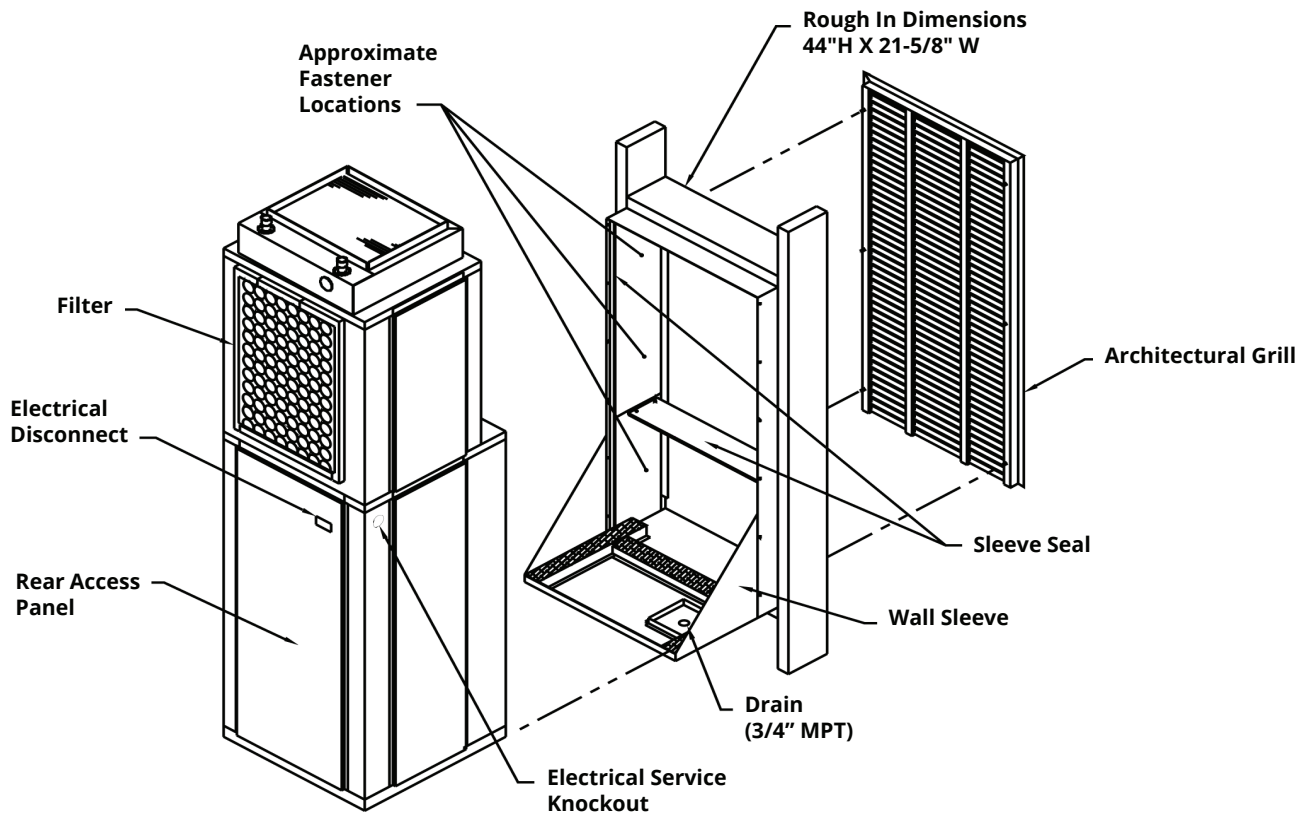
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# ELECTRICAL DATA

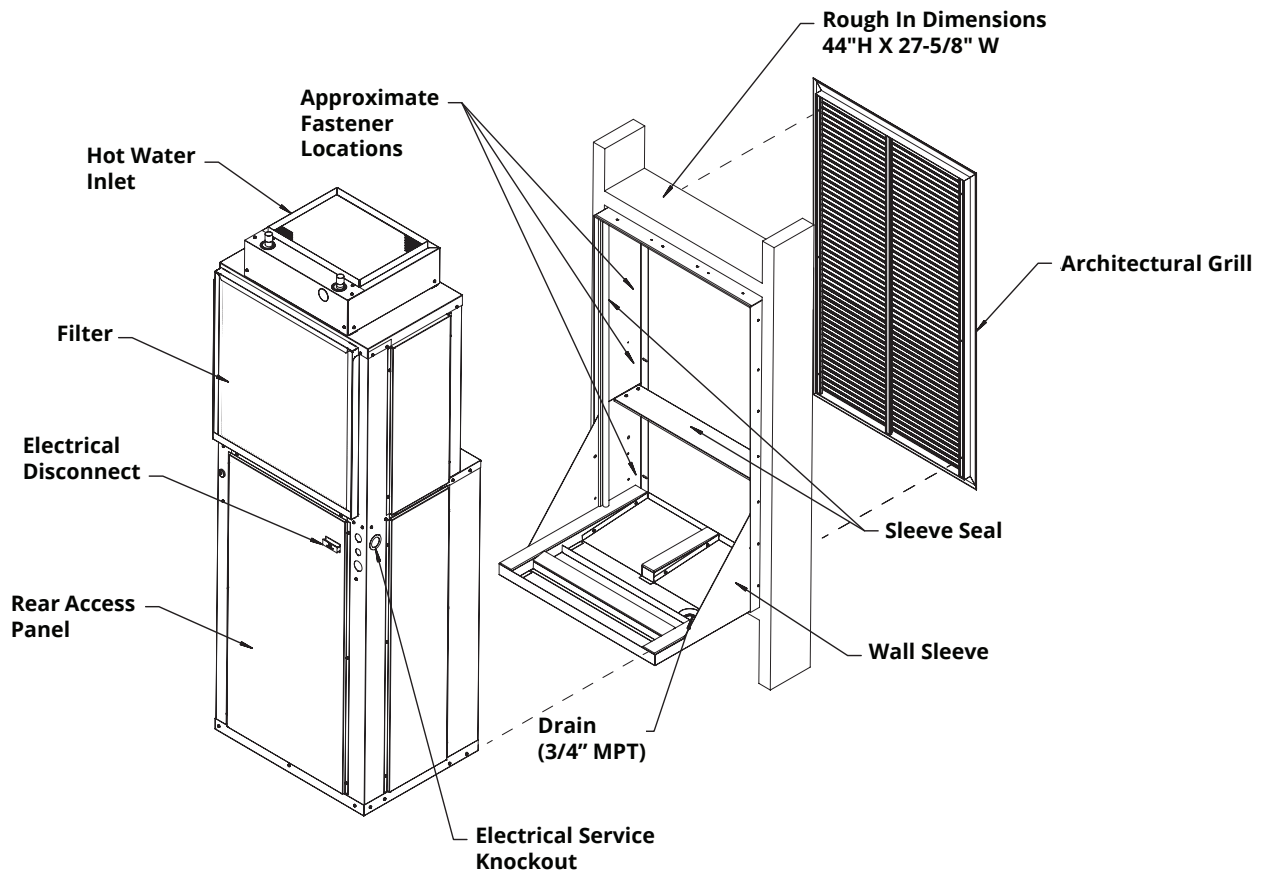
Model	COMPRESSOR		CONDENSER MOTOR		EVAPORATOR MOTOR		MINIMUM CIRCUIT AMPACITY (MCA)		MAXIMUM CIRCUIT PROTECTION (MOCP)	
	RLA	LRA	FLA	HP	AMPS	HP	240V	208V	240v	208V
<b>ECW09*</b>	3.9	-	2.3	1/4	2.3	1/4	11.0	11.0	15	15
<b>ECW12*</b>	4.8	-	2.3	1/4	2.3	1/4	12.0	12.0	15	15
<b>ECW18*</b>	7.5	-	2.3	1/4	2.8	1/3	16.0	16.0	20	20
<b>ECW24*</b>	11.4	51	2.3	1/4	2.8	1/3	21.0	21.0	30	30
<b>ECW30*</b>	11.7	71	2.8	1/3	4.1	1/2	24.0	24.0	30	30

\* Includes Evap Fan Amps

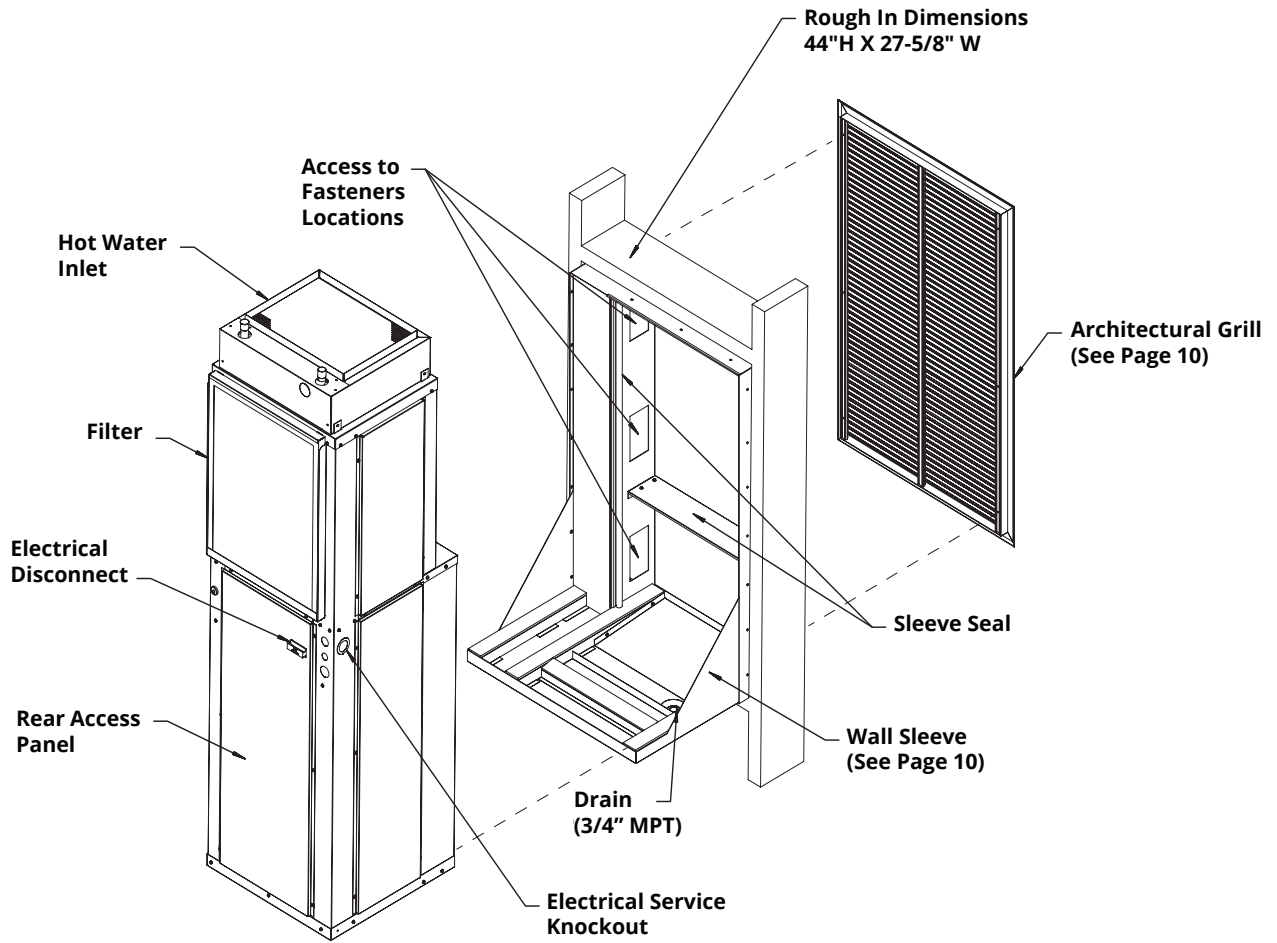
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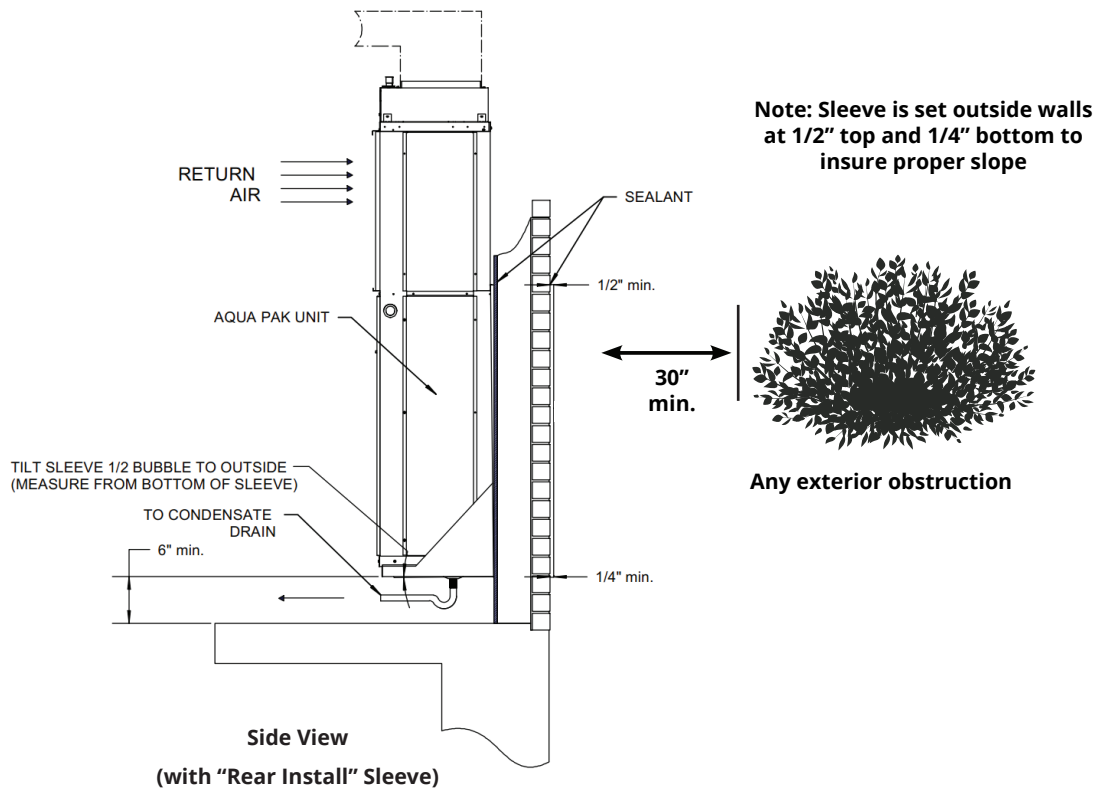
**General Assembly for Standard Sleeve and Grill**



**General Assembly for Large Sleeve and Grill size 24**

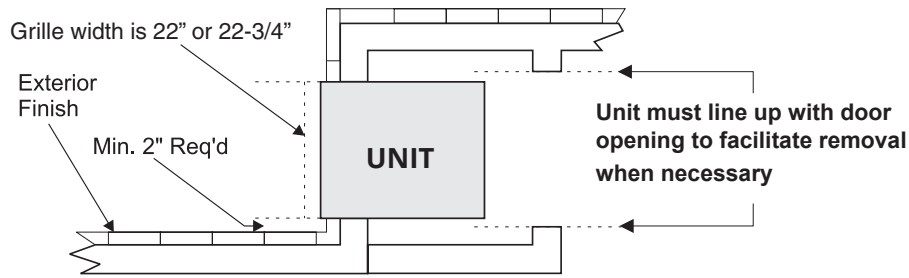


**General Assembly for Large Sleeve and Grill for 09-18 sizes with block off**



# CLOSET DIMENSIONS

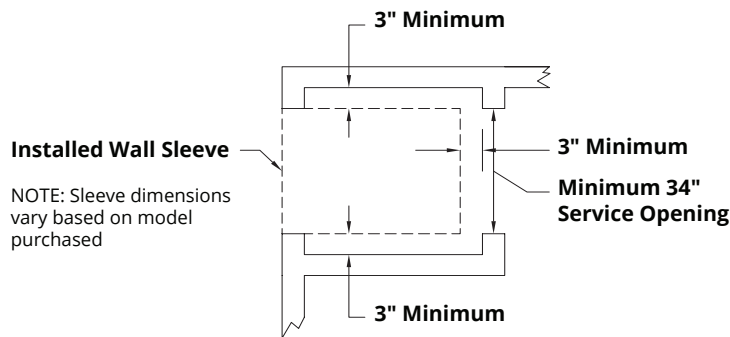
## Rear Installation Detail for Small Sleeve 21" Wide (9-18 Size only)



**NOTES:**

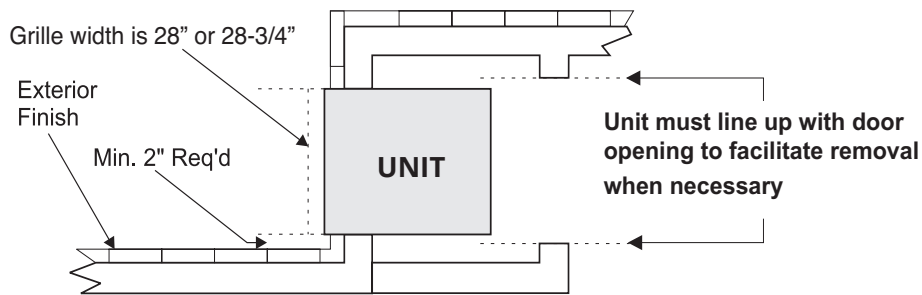
1. Sleeve rough-in opening is 44"(H) X 21-5/8"(W).
2. Bottom of opening should be approx. 6" above floor level.
3. Minimum 3" of clearance is required on all sides of the unit.

## Rear Installation Detail for Small Sleeve 21" Wide (9-18 Size only)



NOTE: Provide minimum clearances as shown for interior closet dimensions.

## Rear Installation Detail for Large Sleeve 27" Wide (24,30 Size or 9-18 with Blockoff)



**NOTES:**

1. Sleeve rough-in opening is 44"(H) X 27-5/8"(W).
2. Bottom of opening should be approx. 6" above floor level.
3. Minimum 3" of clearance is required on all sides of the unit.



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