Installation Instructions

Models SH15, SH20 and SH24

NOTE: THIS MANUAL INCLUDES INSTALLATION INSTRUCTIONS FOR BOTH WINDOW MOUNT AND THROUGH- THE WALL INSTALLATIONS

⚠WARNING

Explosion Hazard

Electrical Shock Hazard

Electrically connect unit in accordance with NEC Code Article 501. Failure to do so can result in death, explosion, fire or electrical shock

Electrical Requirements

ALL FIELD WIRING MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) ARTICLE 501.

THE FIELD-PROVIDED CIRCUIT PROTECTION DEVICE (HACR CIRCUIT BREAKER OR TIME DELAY FUSE) MUST NOT EXCEED THE AMPACITY INDICATED ON THE PRODUCT NAMEPLATE.

IMPORTANT: Before you begin the actual installation of your air conditioner, check local electrical codes and the information below.

Your power supply must be the same A.C. voltage and frequency (hertz) as marked on the name plate located on the chassis. Only alternating current (A.C.), no direct current (D.C.), can be used.

An overloaded circuit will invariably cause malfunction or failure of the air conditioner; therefore, it is extremely important that the electrical power is adequate. Consult your dealer or power company if in doubt.

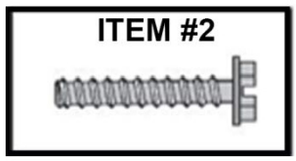
The following instructions are for HAZARDGARD models and cabinet sizes listed below.

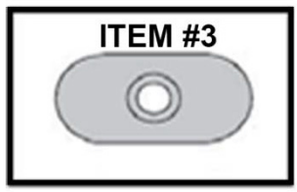
GROUPS	CABINET SIZE (H x W X D)
SMALL CHASSIS SH15	15 15/16" x 25 15/16" x 27 3/8" (405 mm x 660 mm x 695 mm)
MEDIUM CHASSIS SH20, SH 24	17 15/16" x 25 15/16" x 27 3/8" (455 mm x 660 mm x 695 mm)

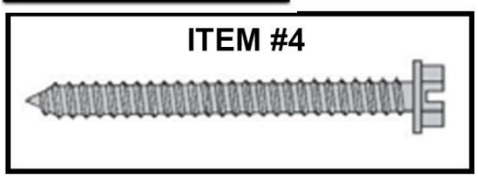
Model Number	Plug Type	Circuit Rating Time Delay Fuse
SH15	Junction Box	250V-15 Amp
SH20, SH24	Junction Box	250V-15 Amp, 250V-20 Amp

Window Mount Installation Hardware

ITEM No.	DESCRIPTION	QTY.
	SHELL MOUNTING PARTS	
1	SUPPORT BRACKET	2
2	SCREW, 10 - 24 x 1" HEX HEAD	4
3	10 - 24 FLAT WELDNUT	4
4	SCREW, SHEET METAL #12A x 2"	7
	WINGBOARD ANGLE MOUNTING	
5	WINGBOARD ANGLE, TOP	1
6	WINGBOARD ANGLE, SIDE	2
7	SCREW, SHEET METAL #8A x 3/8"	2
	WINGBOARD MOUNTING PARTS	
8	WINGBOARD (MASONITE)	1
9	J TYPE SPEED NUT	4
10	WINGBOARD CLIP (SPRING STEEL)	4
11	SCREW. #8A x 1/2" PHILLIPS TRUSS HD.	4
	WINDOW SEALING	
12	WINDOW SEAL GASKET (DARK FOAM)	1

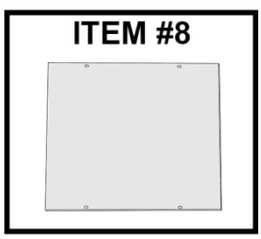


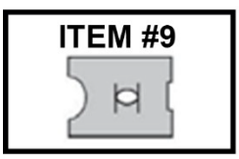


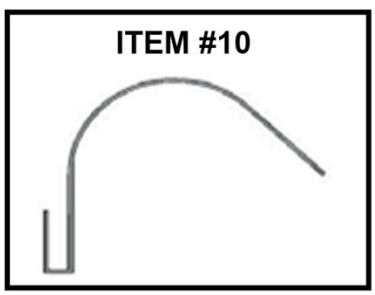


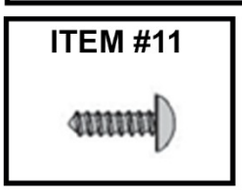
ITEM #5 SEE ACCESSORY DETAIL IMAGE

ITEM #6 SEE ACCESSORY DETAIL IMAGE

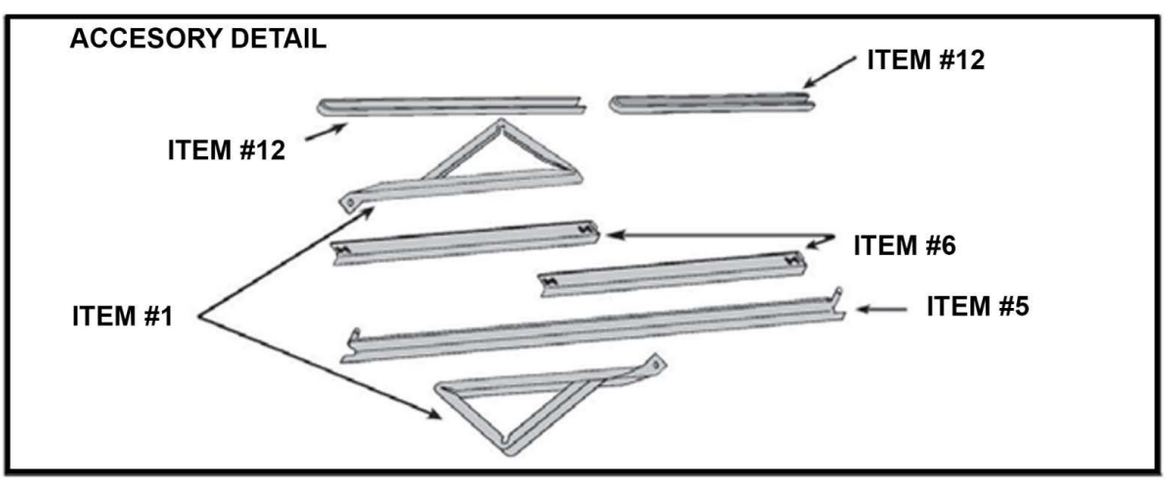








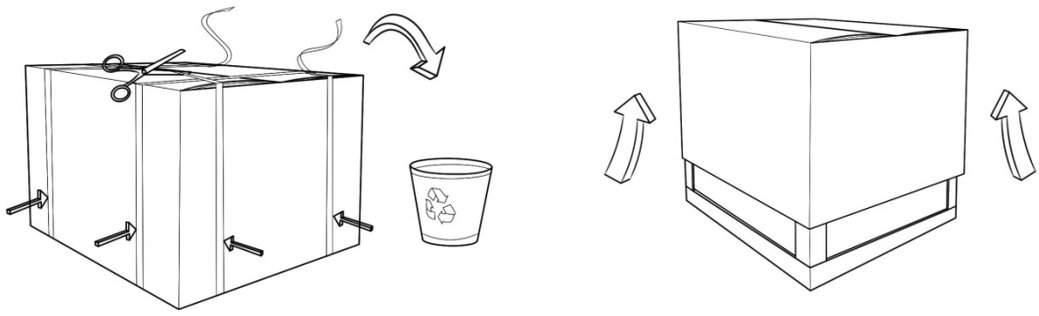
ITEM #12 SEE ACCESSORY DETAIL IMAGE



Unpacking The Unit

STEP 1 Cut the packing straps and remove box pulling it up, remove corner-post and protective packing, conserve the fiberboard wing board in a safe place, it will be used later.

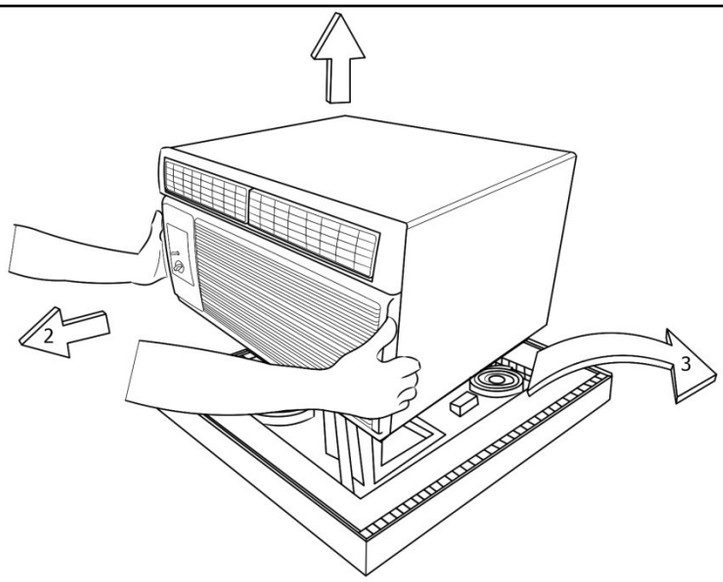
Figure 2



STEP 2 Remove decorative plastic return air grille to a safe area away from the unit.

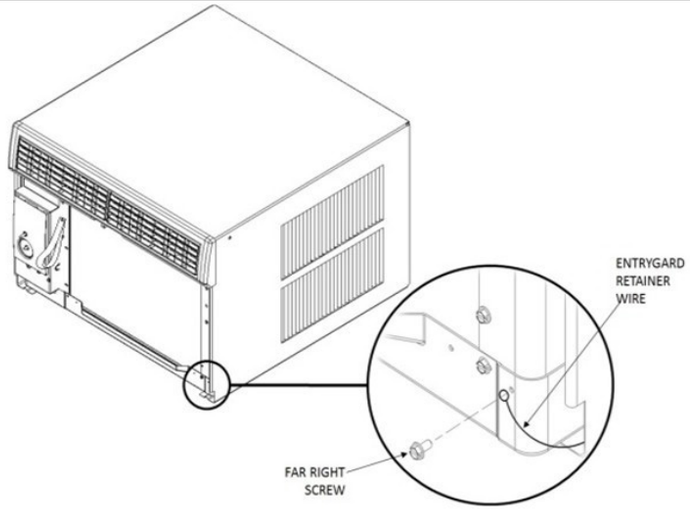
STEP 3 Remove the installation hardware, two gaskets from beneath the unit, and place them in a safe area away from the unit.

Figure 3



STEP 4 Remove the chassis retainer by removing the far right screw in the basepan (see Figure 4); save this screw to reattach the chassis retainer after installation.

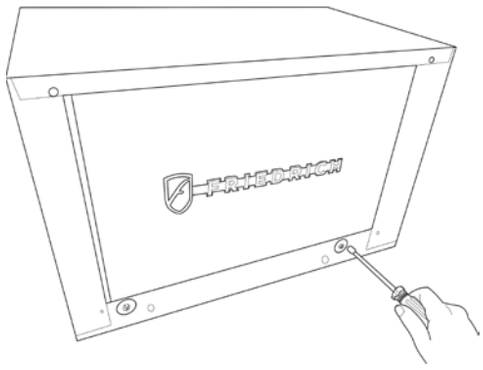
Figure 4



Unpacking The Unit

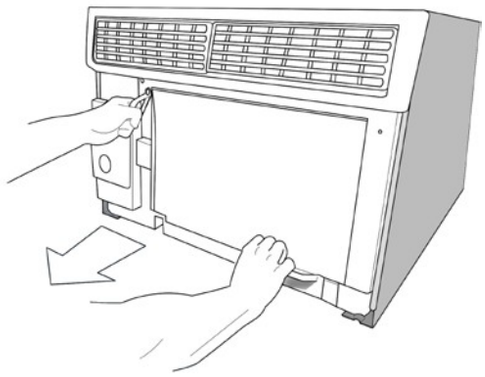
STEP 5 Remove and discard the two retainer screws and plastic bushings located at the rear of the unit. (Figure 5)

Figure 5



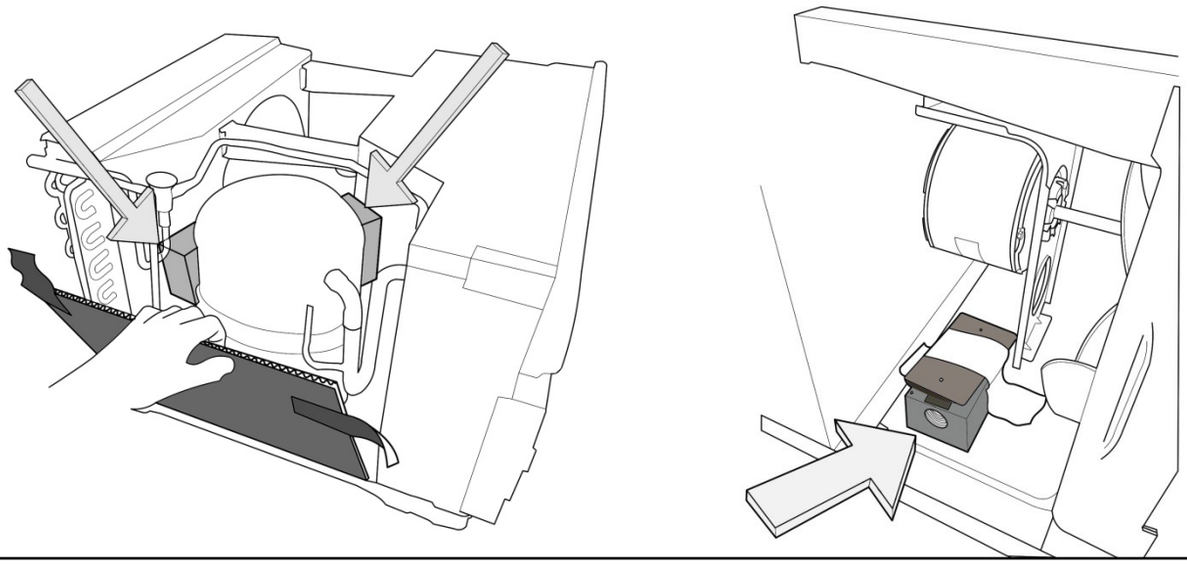
STEP 6 While an assistant holds the cabinet stationary, use the hand pull at the front of the base pan (see Figure 6) to pull the chassis out of the cabinet.

Figure 6



STEP 7 Remove white foam blocks used to restrain the compressor during shipment. Also remove junction box from under fan motor.

Figure 7



Installation: Outdoor/Indoor Clearances

Figure 8

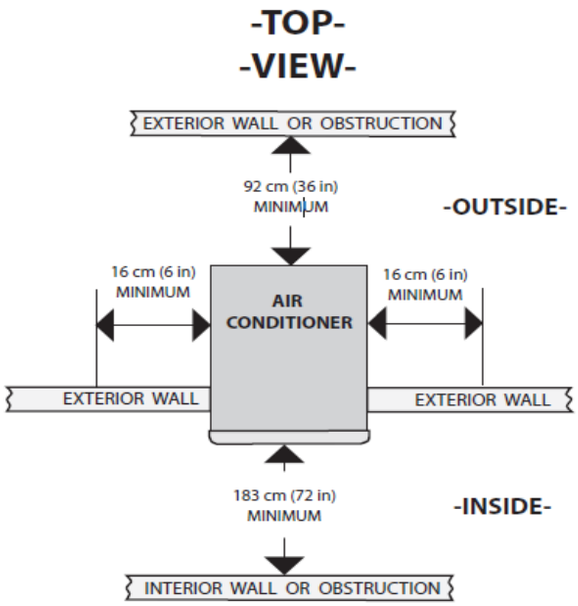
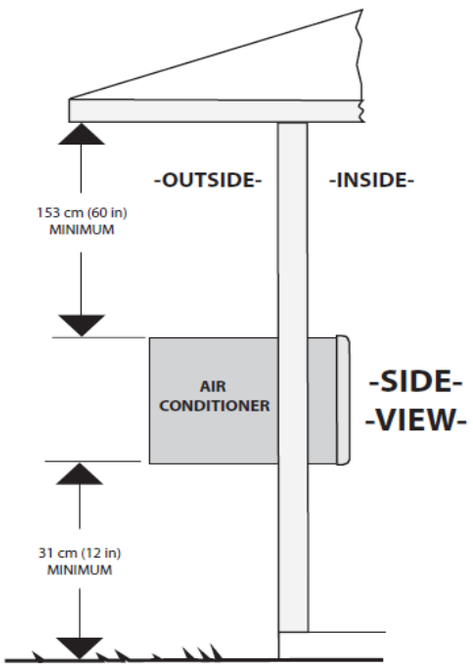


Figure 9



Shell Installation: Through-the-wall Installations (as unit is shipped)

⚠ WARNING

Falling Object Hazard

Not following Installation Instructions for mounting your air conditioner can result in property damage, injury, or death.

Wall Preparation

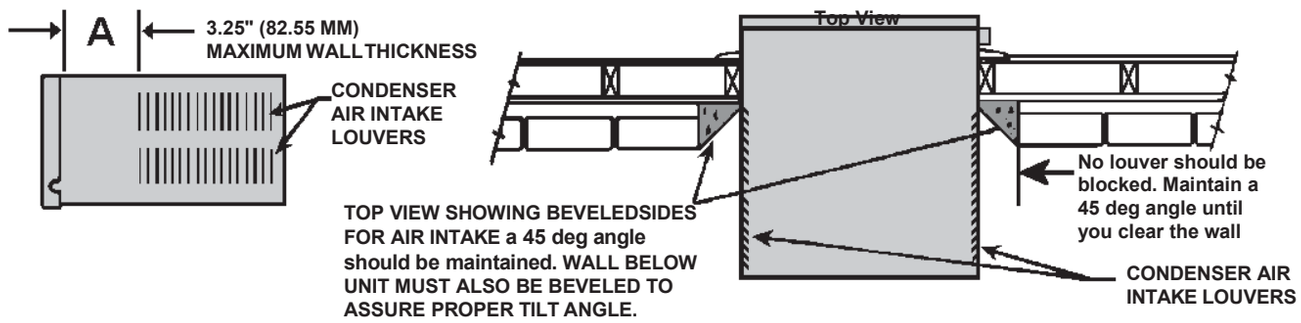
The maximum wall thickness permissible without special construction is determined by the model size to be installed. THE OUT- SIDE CABINET CONDENSER AIR INTAKE LOUVERS MUST NOT BE BLOCKED BY EXTENDING INSIDE THE WALL AREA. Observe the maximum wall thickness shown as dimension "A"in (Figure 10).

Special Instructions For Extra Thick Walls

For installation in walls exceeding the maximum thickness shown as dimension A, the following suggested construction may apply. (See Figure 10).

Figure 10

EXTRA THICKWALL CONSTRUCTION

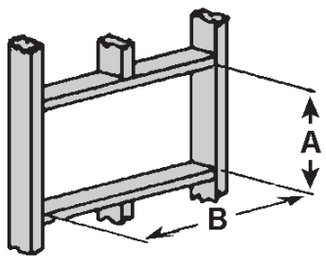


STEP 1 CHECKING WIRING AND PLUMBING: Check all wiring and plumbing inside and outside the wall to be sure none will be broken where the hole is to be cut.

STEP 2 HOLE CONSTRUCTION: Depending on the size of the unit to be installed, layout the hole dimensions in accordance with the chart below (See Figure 11). Cut and frame in the hole to the finished dimensions. Use 2" x 4" material for framing and follow the suggested typical installations in (Figure 12, 13 or 14 on Page 13.

NOTE: IF THE WALL CONSTRUCTION IS TYPICAL FRAME OR 2 X 4 STUDDING WITH BRICK OR STONE VENEERS, LOCATE THE HOLE NEXT TO ONE OF THE STUDS. FOR MASONRY, CONCRETE OR CINDER BLOCK WALLS, LOCATE THE HOLE FOR CONVENIENCE.

Figure 11



HOLE SIZE REQUIREMENTS

FINISHED DIMENSION	SH15 CHASSIS	SH20, SH24 CHASSIS
A	16-3/16"	18-3/16"
B	26-3/16"	26-3/16"

NOTE: THESE DIMENSIONS ARE FOR FINISHED HOLE SIZE

Figure 12 FRAME WALL CONSTRUCTION

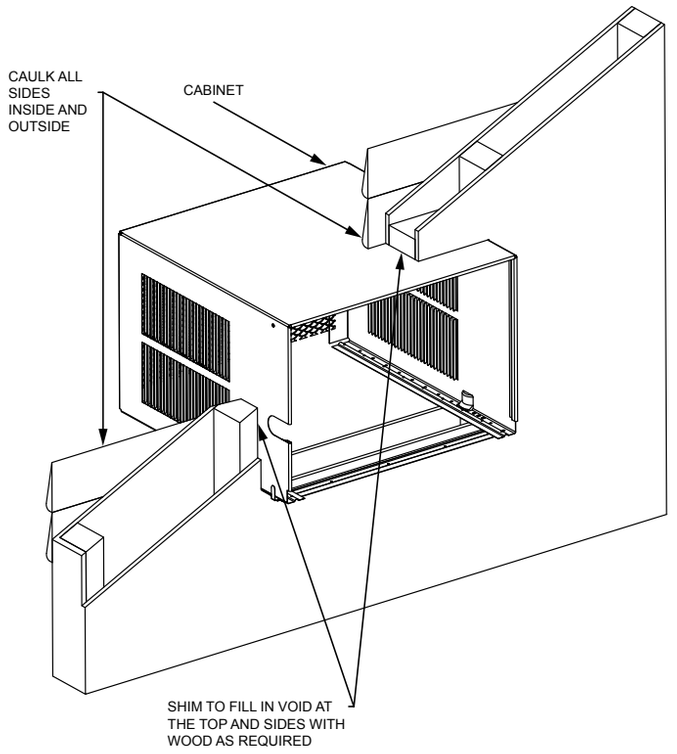


Figure 13 BRICK VENEER CONSTRUCTION

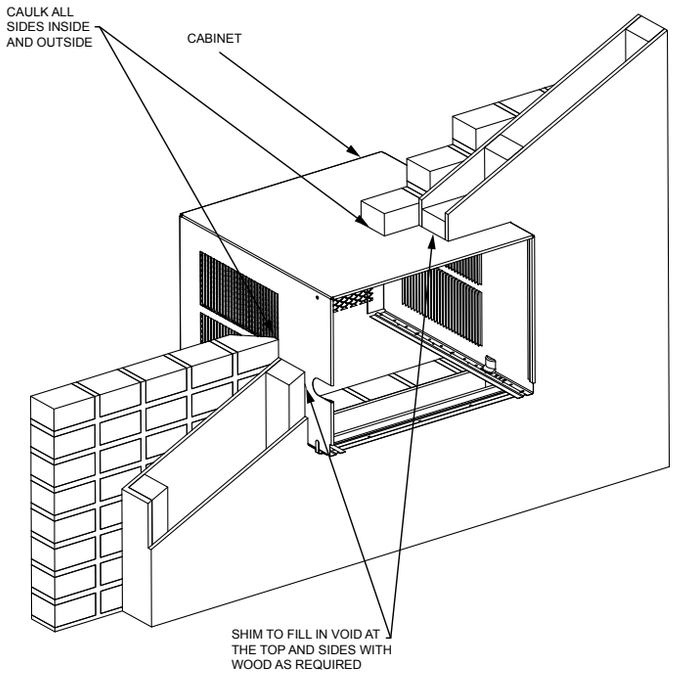
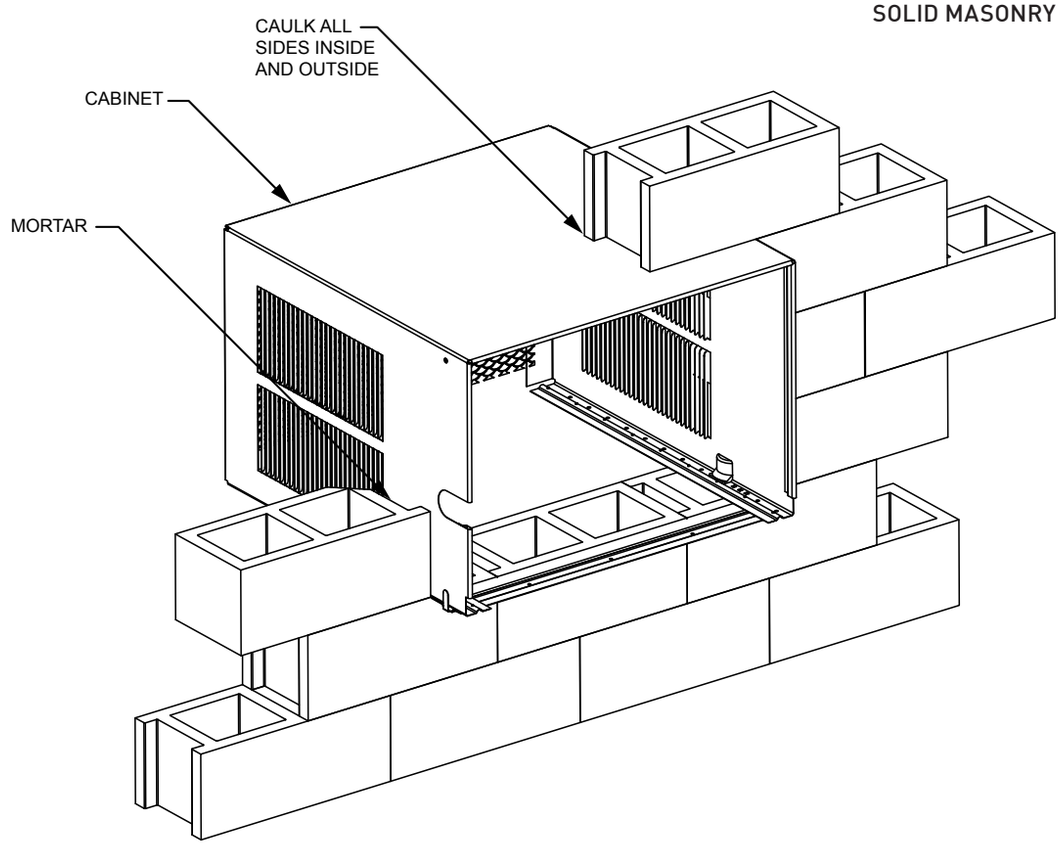


Figure 14 SOLID MASONRY CONSTRUCTION



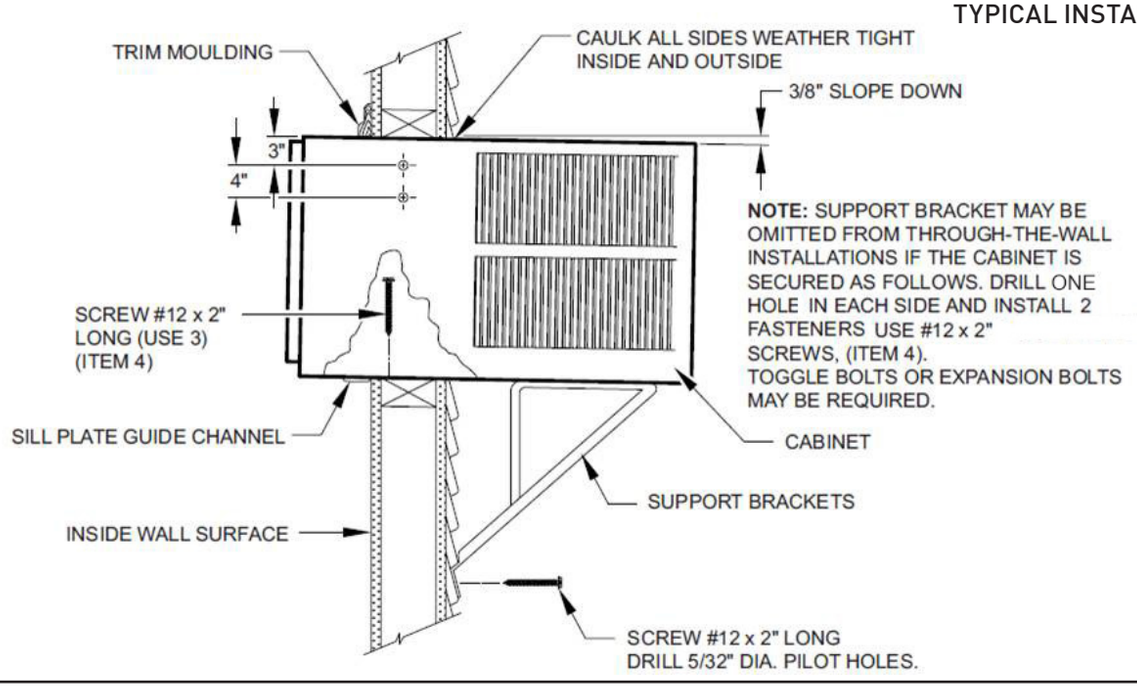
STEP 3 Slide the cabinet into the hole far enough to allow the guide-channel of the sill plate to contact the inside wall surface (See Figure 15).

STEP 4 Drill three (3) 5/32" diameter pilot holes through holes in sill-plate into the framing and install three (3) #12 x 2" long screws (Item #4) (See Figure15).

NOTICE

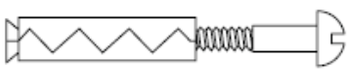
Instructions for mounting sleeve with slope must be observed to prevent entry of water into room. Potential property damage can occur if instructions are not followed.

Figure 15 TYPICAL INSTALLATION



NOTE: ALTERNATE FASTENERS WHICH MAY BE USED FOR SECURING THE SILL PLATE IN THE WALL, AND THE SUPPORT BRACKETS TO THE OUTSIDE WALL ARE NOT FURNISHED, BUT ARE AVAILABLE AT A LOCAL HARDWARE STORE.

MOLLY OR TOGGLE BOLT



EXPANSION ANCHOR BOLT

STEP 5 Drill two (2) 5/32" (4 mm) dia. pilot holes in each side at the locations shown (Figure 15) and install four (4) #12 x 2" screws (Item #4). If the hole construction in Step 2 provides a sturdy mount with solid vertical studs, no support brackets are required. The installation must support the weight of the unit plus an additional weight of 400 pounds (185 kg) on the rear of the cabinet. The support brackets may be used for through-the-wall installations as shown in (Figure 15), for additional support.

STEP 6 If desired, trim around the cabinet on the room side with a suitable frame molding furnished by the installer (See Figure 15).

STEP 7 Skip to chassis wiring and preparation on page 21 for Non ATEX or page 23 for ATEX and IECEx.

Shell (Cabinet) Preparation for Installation

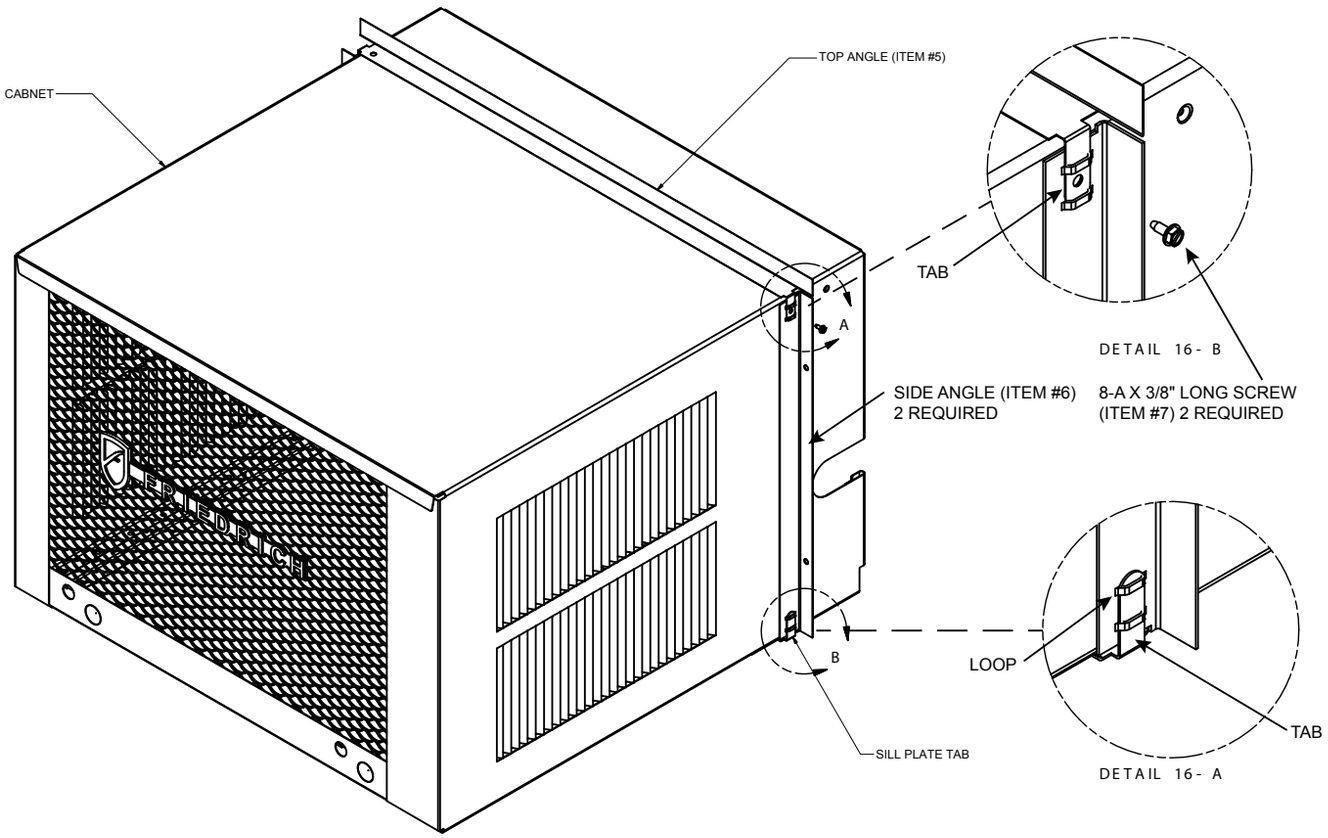
STEP 1 Remove still plate and bend the taps up and reinstall. See (DETAIL 16-A).

STEP 2 Take the side angles (item #6) and engage its loops in the tabs (both sides) of the sill plate. (DETAIL 16-A).

STEP 3 Take the top Flange (item #5) and engage its tabs in the top loops of the side flanges (DETAIL 16-B).

STEP 4 Install two (2) screws (Item #7) to secure the top angle tabs and the side angle in the side of the cabinet (Detail 16-B).

Figure 16



Shell Installation: Sash Window Installations

⚠WARNING

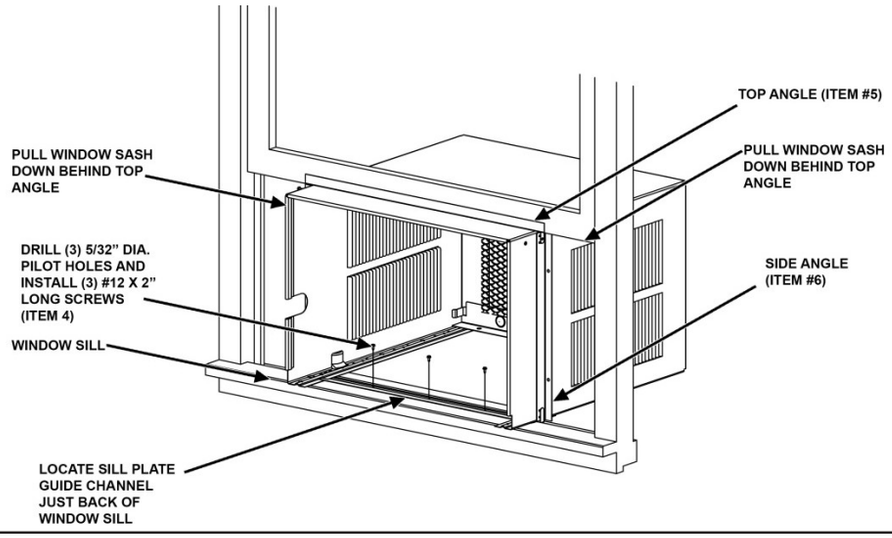
Falling Object Hazard

Not following Installation Instructions for mounting your air conditioner can result in property damage, injury, or death.

STEP 1 Check the window sill and frame to be sure they are in good condition and firmly anchored to the wall. Repair if necessary.

STEP 2 CABINET MOUNTING: Raise the lower window sash 1/4" more than the height of the cabinet. Carefully slide the cabinet through the open window until the sill plate channel rests behind the window sill and the top support angle (Item #5) rests against the window (See Figure 17). Center the cabinet side to side and drill three (3) 5/32" diameter pilot holes into the window sill using the holes in the cabinet sill plate as a guide. Install three (3) #12A x 2" long screws (Item #4) (See Figure 17).

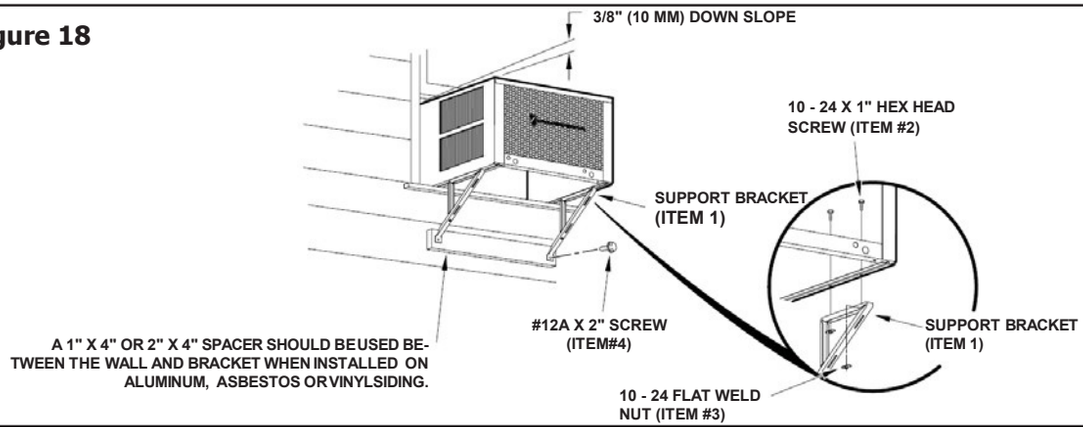
Figure 17



STEP 3 OUTSIDE SUPPORT MOUNTING: Assemble the support brackets (Item #1) to the bottom rails of the cabinet with four (4) 10-24 1" long screws (Item #2) and four (4) 10–24 flat nuts (Item #3). Adjust the support brackets to bring the bottom pads in contact with the wall surface. (See Figure 18.)

A 1" x 4" or 2" x 4" SPACER SHOULD BE USED BETWEEN THE WALL AND THE SUPPORT BRACKETS WHEN INSTALLED ON ALUMINUM OR VINYL SIDING). Drill 5/32" (4 mm) diameter pilot holes, and secure the brackets to the wall with two (2) #12A x 2" long screws (Item #4). Adjust the support brackets to provide an approximate 3/8" (10 mm) down slope towards the outside for drainage. Tighten all screws. (See Figure 18).

Figure 18



Typical Installation: Sill Plate

The illustrations below show a standard frame construction installation as well as some suggested ways of adapting the support bracket to thick walls and large brick ledges.

NOTICE

Instructions for mounting sleeve with slope must be observed to prevent entry of water into room.

Failure to follow instructions can result in property damage.

Figure 19

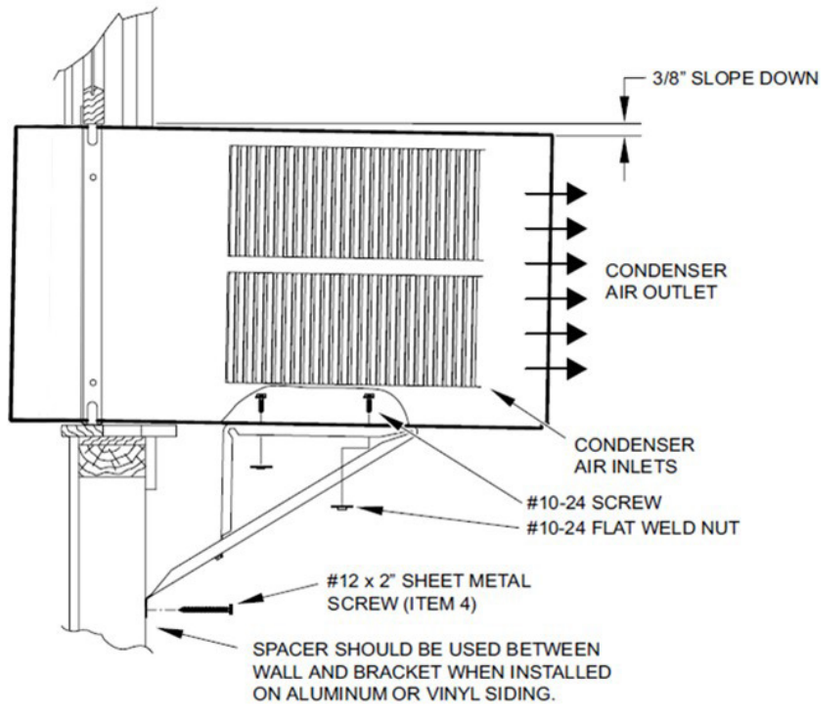
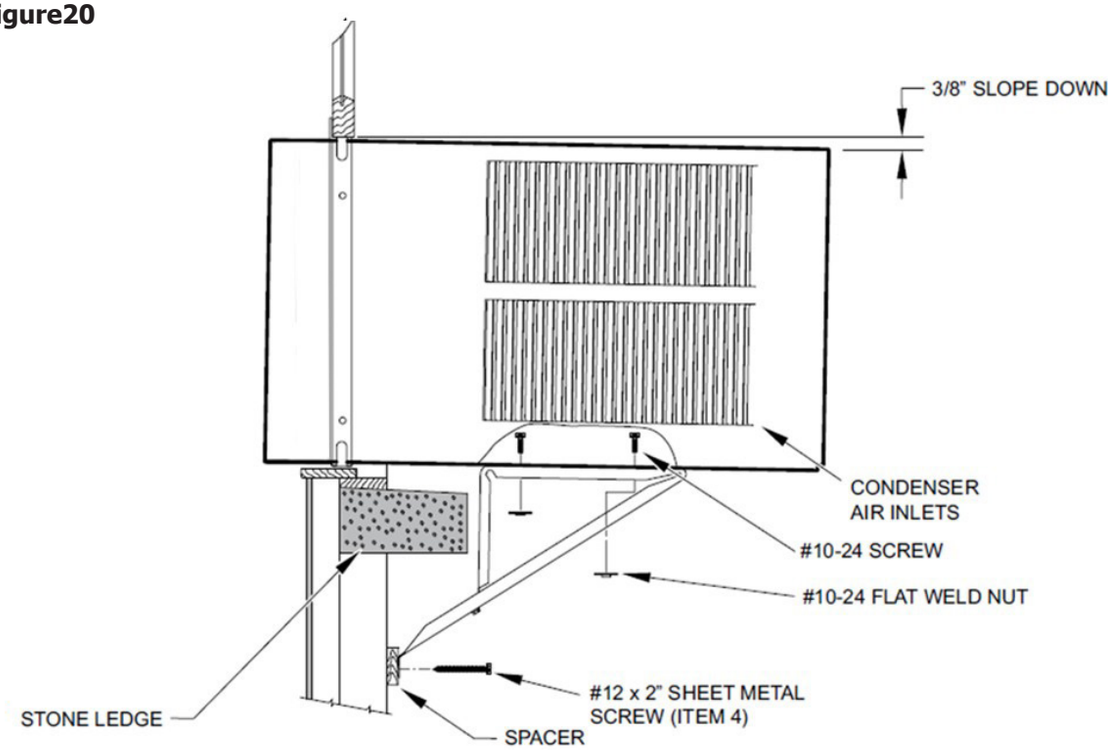


Figure20



Typical Installation: Sill Plate (cont.)

Figure 21

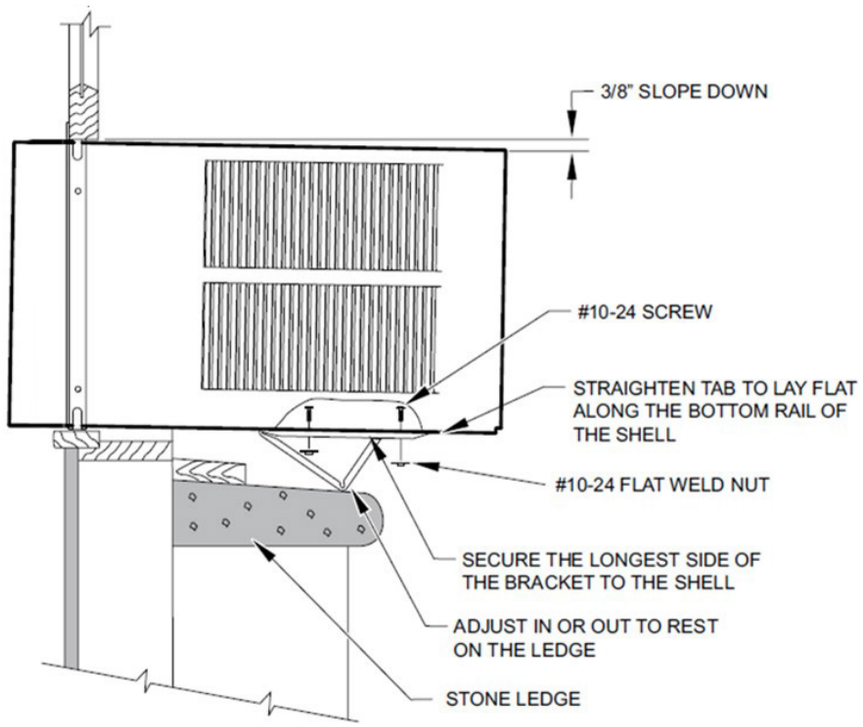


Figure 22

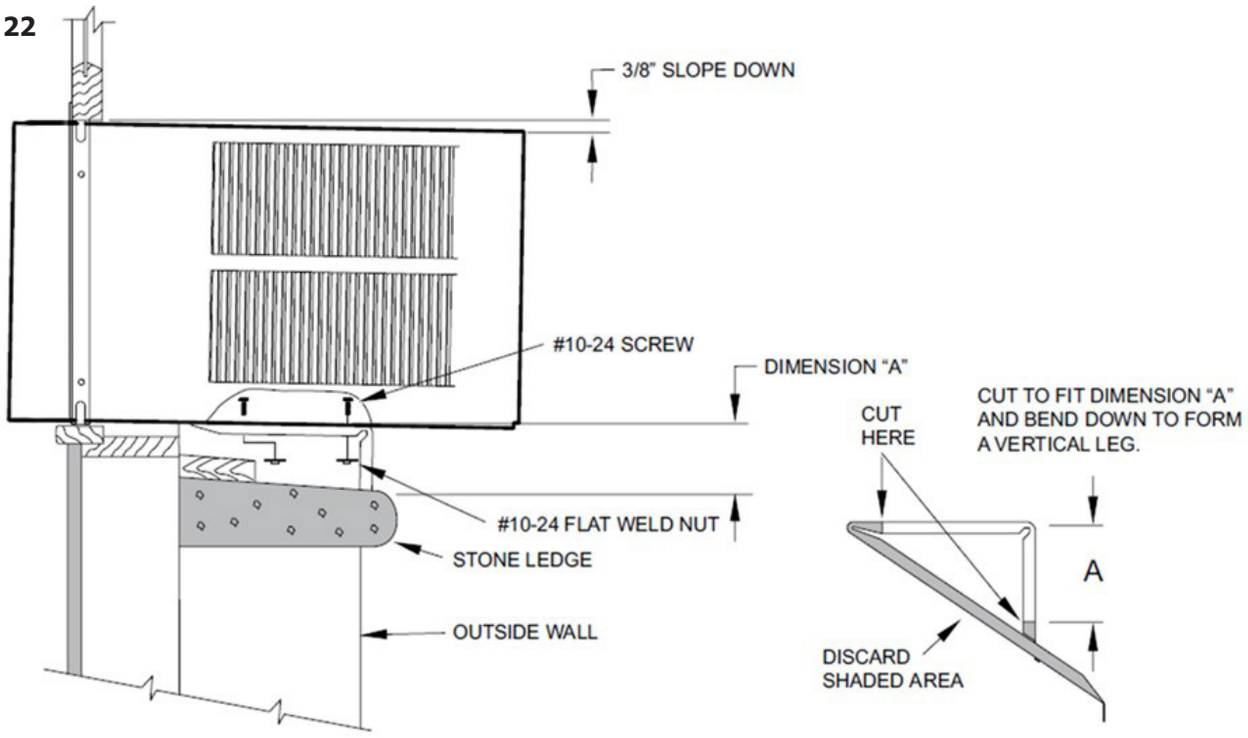
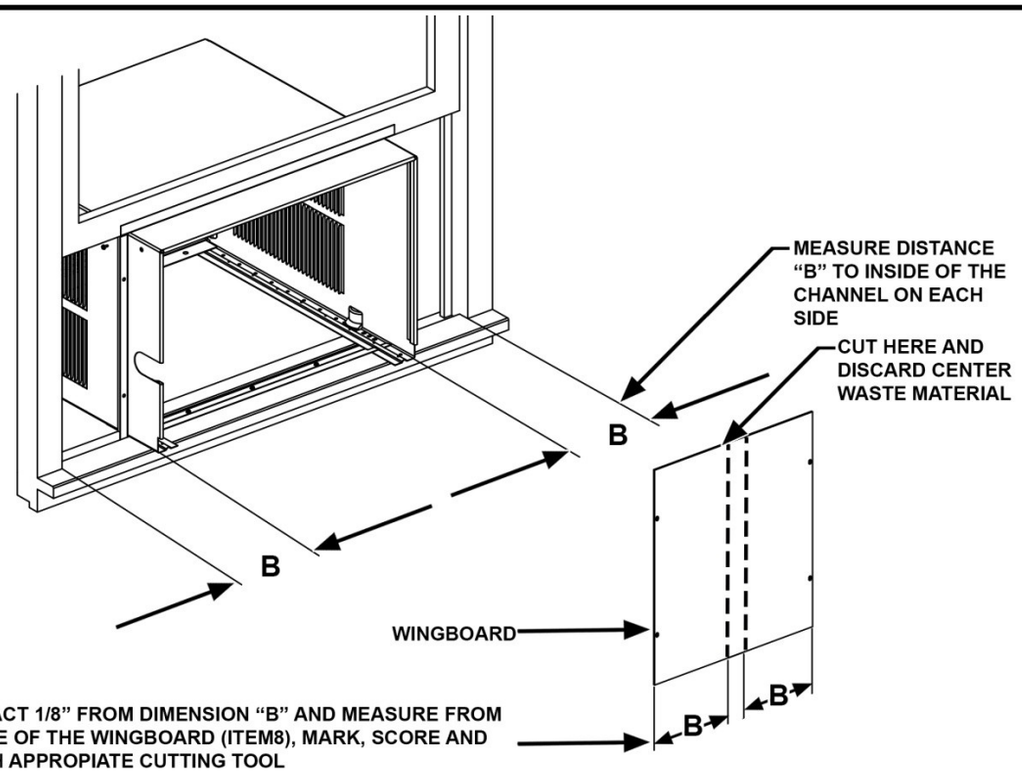


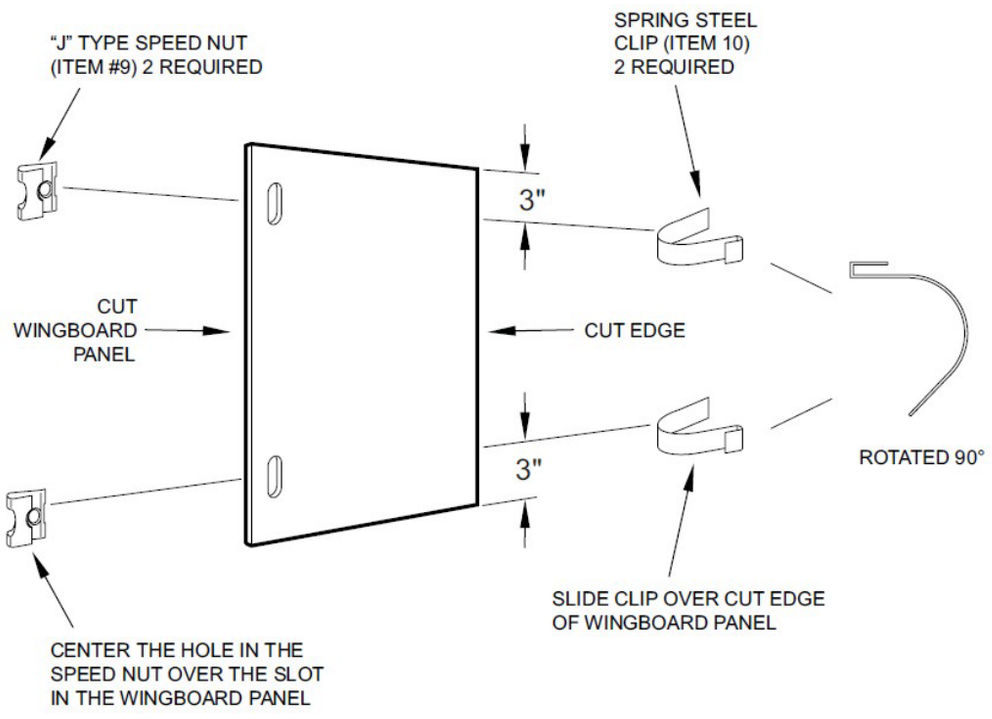
Figure 23



STEP 4 CUT WINGBOARD PANELS: Measure and cut the wingboard panels from the supplied masonite (Item #8) to fit the spaces between the side window channels and the sides of the cabinet (See Figure 23).

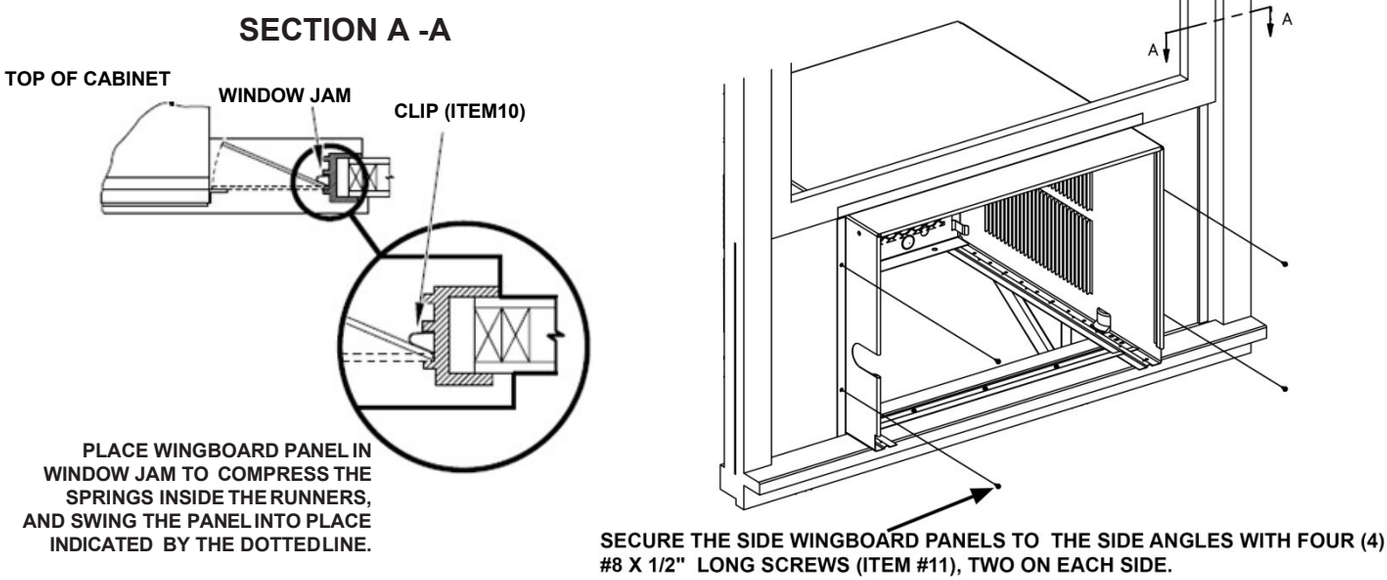
NOTE: AFTER CUTTING PANELS, MAKE A TRIAL TEST TO SEE IF THEY FIT THE SPACE WITH ABOUT 1/8" CLEARANCE BEFORE GOING TO STEP 5.

Figure 24



STEP 5 ASSEMBLE CLIPS TO WINGBOARD PANELS: Assemble "J" type speed nuts (Item #9) and spring steel clips (Item #10) to the edges of the cut wingboard panels (See Figure 24).

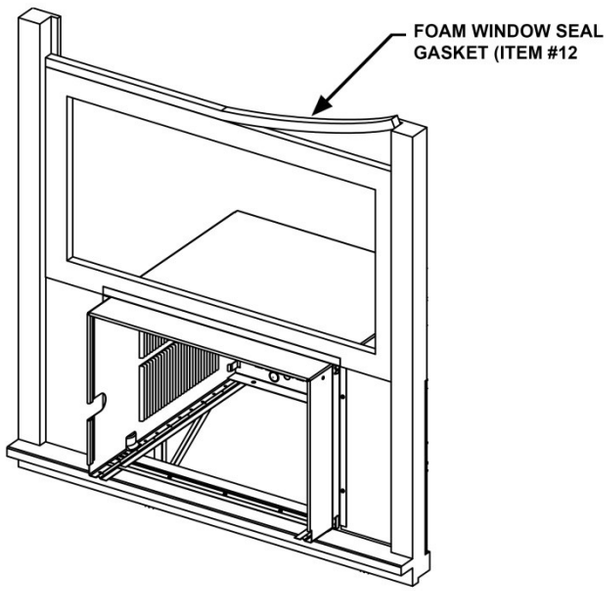
Figure 25



STEP 6 INSTALL SIDE WINGBOARD PANELS: Be sure that the cabinet has been secured to the window sill and the outside support brackets have been installed as shown in (Figures 19 and 20) on Page 17. Raise the window sash and install the right and left side wingboard panels (See Figure 25).

STEP 7 INSTALL WINDOW SEALING GASKETS: Measure and cut the dark foam window seal gasket (Item#12) and install it between the upper glass panel and the top part of the lower sash (Figure 26).

Figure 26



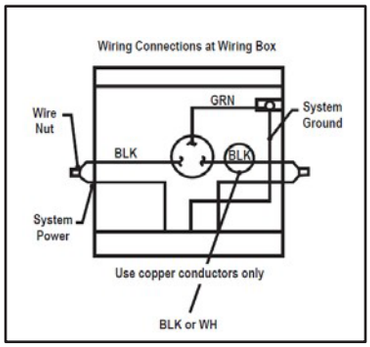
NOTE FOR REASONS OF SECURITY , THE CUSTOMER MUST PROVIDE A MEANS OF PREVENTING THE WINDOW FROM OPENING.

STEP 8 When possible, caulk the outside of the installation with industrial type caulking to prevent air and water leaks.

STEP 9 Skip to chassis wiring and preparation on page 21 for Non ATEX or page 23 for ATEX and IECEx.

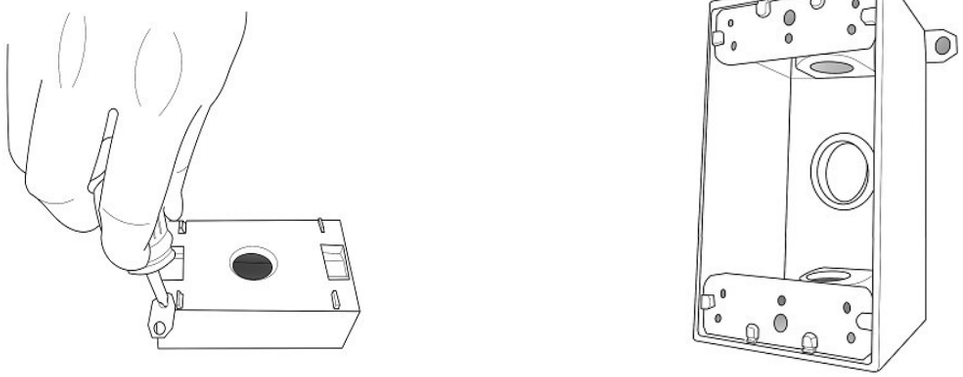
Chassis Wiring and Preparation (Non ATEX)

PROVIDED HARDWARE
1 JUNCTION BOX
2 MOUNTING LEGS
2 LEG SCREWS
2 HOLE COVERS
1 STAINLESS STEEL GROUND SCREW
2 SCREWS
1 SHEET METAL SCREW



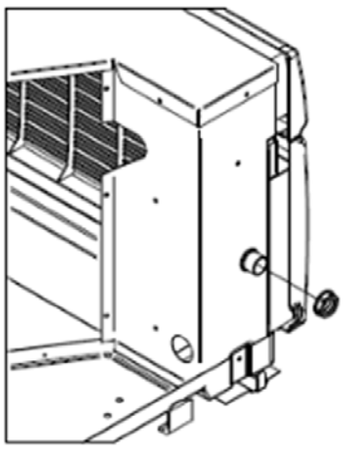
STEP1 Remove the junction box, cover and screws from the shipping position underneath the fan motor (See Figure 7). Install one junction box mounting leg in the upper left position facing the rear of the junction box. (Figure 27)

Figure 27



STEP2 Remove and discard the threaded bushing wire protector from the conduit connector on the side panel of the control compartment. Install field supplied cable gland as required. Strip the wires approximately 1/2 inch (13 mm).

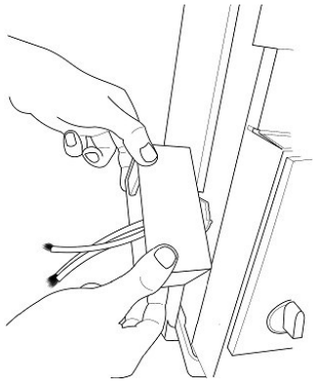
Figure 28



Chassis Wiring and Preparation

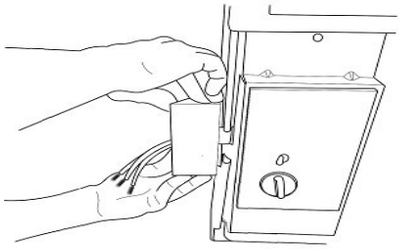
STEP 3 Insert all wires into the rear of the junction box and thread the box onto the threaded bushing until tight.

Figure 29



STEP 4 Back off clockwise until the junction box is vertical with the mounting leg at the upper–right position facing the box opening. Be sure that the shell can slide between this box and the chassis.

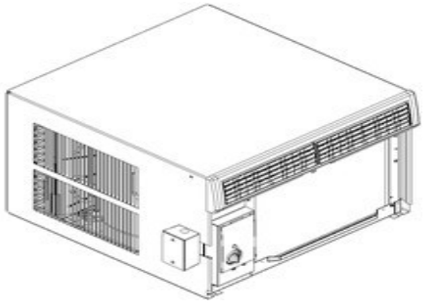
Figure 30

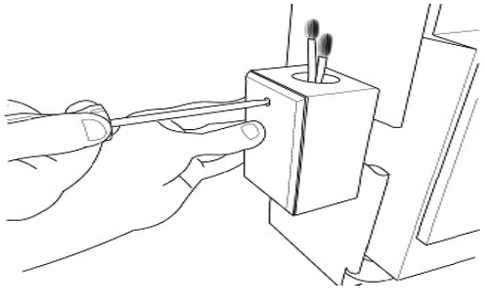


STEP 5 Insert the unit in the shell see Page 25 for help, be sure that the shell can slide between junction box and the chassis.

NOTE: Field wiring conductors to be copper and a minimum of 12 AWG. Complete junction box wiring and cover to prevent ingress from dust and moisture. All wiring connections to the junction box are to be made with cable glands.

Figure 31

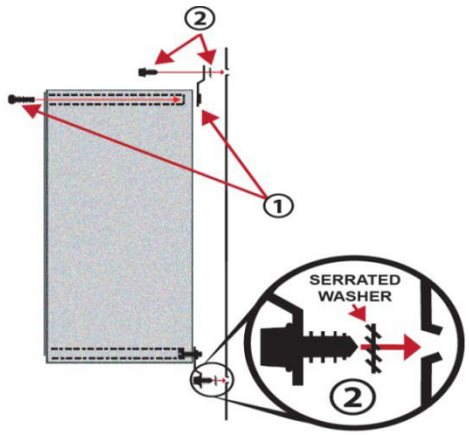




Chassis Wiring and Preparation (ATEX & IECEx Models)

STEP1 Remove the junction box from the shipping position underneath the fan motor (Figure 7). Install junction box mounting legs to back of the junction box using 4 provided machine screws (Figure 32-1). Mount junction box to provided holes on side of air conditioner sleeve using 4 provided sheet metal screws and 4 serrated washers. Ensure serrated washers are between legs of junction box and painted metal sleeve (figure 32-2).

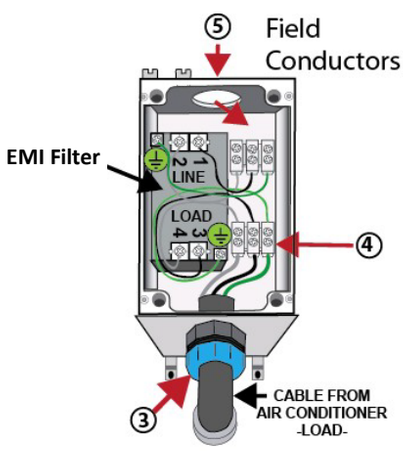
Figure 32

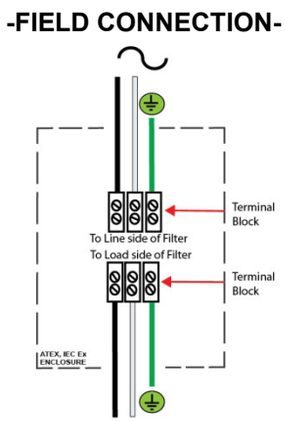


STEP 2 Proceed to make the STEP 1 of the Chassis Installation (see page 25) then come back to STEP 3

STEP 3 Insert air conditioner's electric cable through provided cable gland on bottom of electrical junction box and tighten cable gland nut (see Item 3) torque to 15 N-m, 106 in-lbs. Strip the three electrical conductors approximately 6.35 mm (1/4 inch) install under provided terminal block LINE terminals and tighten (Item 4). Fixed field wiring must include a field provided disconnect (all poles). Provide fixed field wiring conductors and cable gland with a minimum IP44 rating. Connect wiring conductors under provided terminal block LOAD terminals and tighten (Item 5). Field conductors to be copper and a minimum 1.29 to 2.06 mm (16 to 12 AWG). Ensure both LINE, LOAD and GROUNDs are adequately secured to provided termination points.

Figure 33





NOTE: Terminal block screw tightening torque .56N-m (5 in lbs) max. Wire size should be 1.29 to 2.06 mm (12 to 16AWG)

NOTE: Notice: this air conditioner must be installed in accordance with national wiring regulations of country where installed. Electrical connections to equipment must be carried out by qualified personnel per EN/IEC 6079-14. Fixed wiring must include a field provided disconnect (all poles.) Repairs affecting hazard location protection must be carried out by a qualified electrician in accordance with NEC/CEC 501.10 (B) and EN/IEC 60079-19.

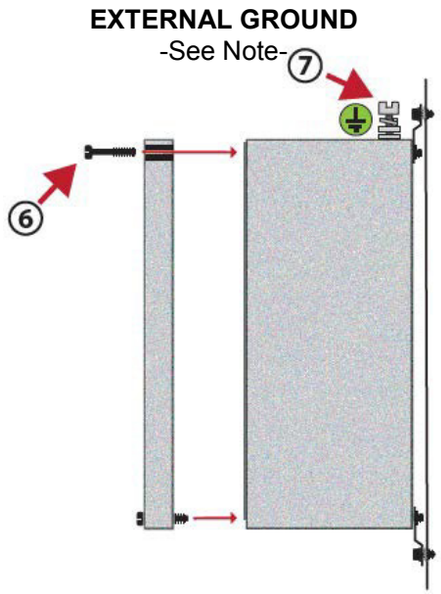
NOTE: To maintain IP44 protection and electrical safety, the Hazardgard unit must be installed in accordance to the installation instructions provided with this product.

Chassis Wiring and Preparation (ATEX & IECEx Models)

STEP 4 Complete junction box wiring, cover and tighten cover screws (Figure 34-6) to prevent ingress from dust and moisture. NOTE: Per EN/IEC 60079-0, external grounding or earthing may be necessary.

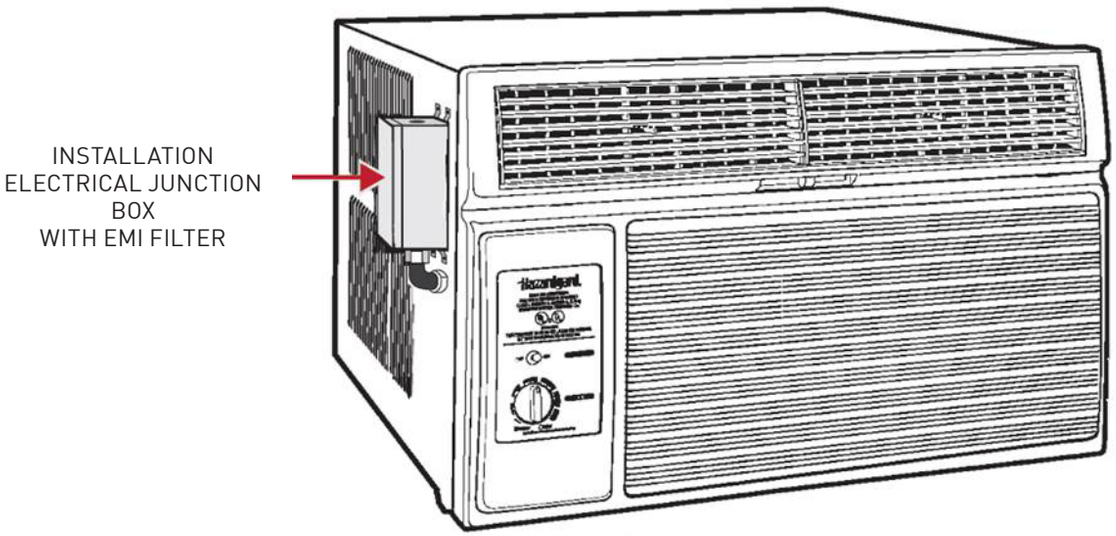
If required, use provided external ground clamp which can accept two cables of up to 6mm (Figure34-7).

Figure 34



NOTE: This air conditioner shall be installed in accordance with national wiring regulations of the country where installed. Electrical connections to equipment must only be carried out by qualified personnel per NEC/CEC 501.10 (B) EN/IEC 60079-14. Repairs affecting hazard location protection must be carried out by a qualified electrician in accordance with NEC/CEC 501.10 (B) EN/IEC 60079-19.

Figure 35



Chassis Installation

STEP1 Slide the chassis into the cabinet stopping approximately 3" from full insertion. Stuff the chassis seal gasket (Item #12) one inch deep between the chassis and the cabinet (Figure 36). Begin at either bottom corner and go up the side, across the top, and down the opposite side. Make sure that the gasket is behind the conduit connector (furthest from you). Push the chassis into the shell the remaining distance so that the plastic front shrouds the front edge of the shell. Fasten the junction box mounting foot to the shell with the sheet metal screw.

If chassis seal gasket is not installed, the operation of the unit will be negatively affected. Also, the operation noise and outside noise will be amplified.

⚠CAUTION

Excessive Weight Hazard

Usetwo or more people when installing your air conditioner.

Failure to do socan result in backor other injury.

⚠CAUTION

Cut/Sever

Although great care has been taken to minimize sharp edges in the construction of your unit, use gloves or other hand protection when handling unit.

Failure to do socan result in minor to moderate personal injury.

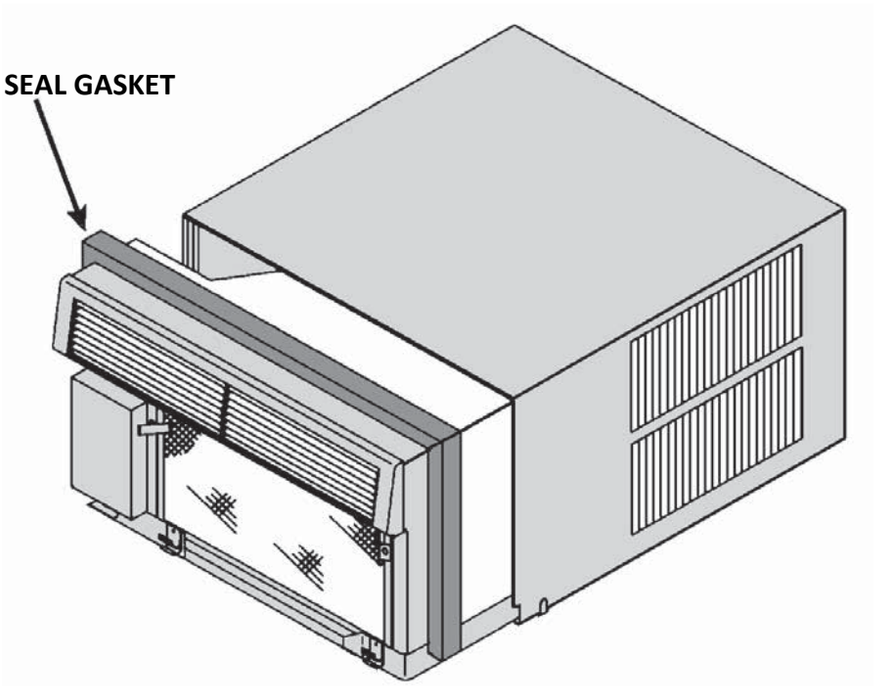
⚠WARNING

Explosion Hazard **Electrical Shock Hazard**

Electrically connect unit in accordance with NEC Code Article 501. Failure to do so can result in death, explosion, fire, or electrical shock.

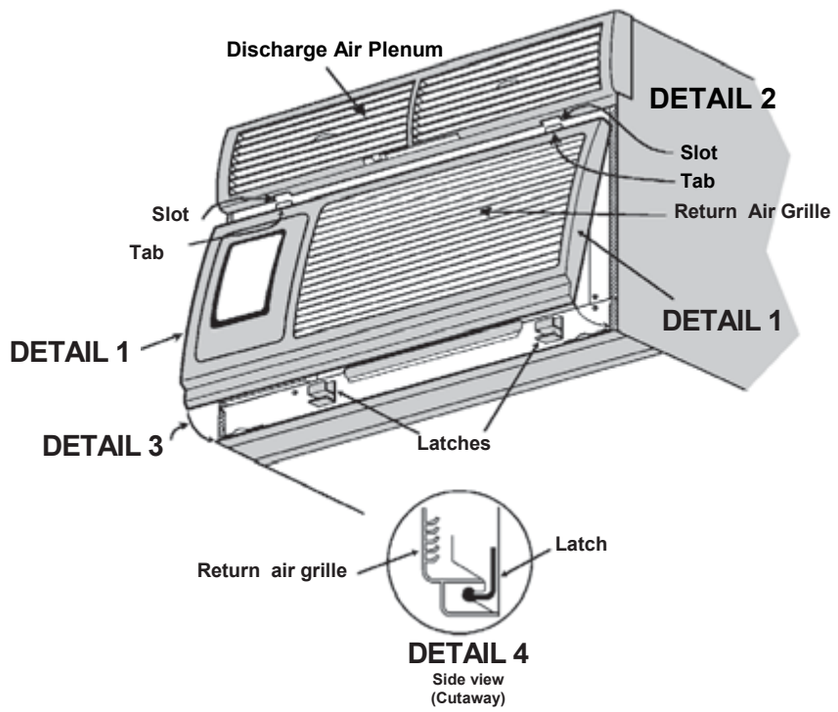
NOTE: Field wiring must be provided to this junction box in accordance with NATIONAL ELECTRIC CODE (NFPA 70, 2008 or current edition) ARTICLE 501. Field and equipment grounds are to be terminated at the post in the junction box with the green screw provided. Equipment power leads are to be connected with the field supply by means of wire nuts (not provided). Install the gasket and cover plate onto the junction box.

Figure 36



STEP 2 Be sure that the filter is in place then install the return air grille (Figure 37). The top of the return air grille can be butted against the bottom of the discharge plenum. Snap the grille into place by pushing the grille up and onto the unit's latches at the bottom. (See Detail 37-4).

Figure 37



STEP 3 You have completed your installation. Conduct a review of your installation to insure that the unit is safely and securely installed.

End of Life

Customers are advised to ensure that the unit is disposed of in accordance with federal, state and local guidelines of their country. Contact your municipal department of public works to inquire about the procedures for collecting and disposing of refrigerated appliances / air conditioners in your neighborhood.