



Modular Buildings

Installation Manual

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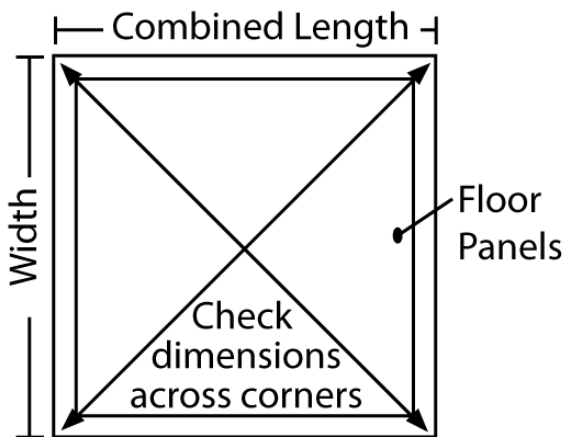
Bally Refrigerated Boxes, Inc.

1. Introduction

- A. When the building is delivered, make sure you have the right equipment and manpower on hand to unload the truck. A forklift or high jack can be helpful if the shipment includes heavy steel or refrigeration equipment. The carrier typically imposes time constraints on unloading your box, and in all situations one person is not enough.
- B. As you are unloading look for any freight damage; all products left our factory in perfect condition. Once the Bill of Landing was signed by the carrier, safe delivery became their responsibility and the equipment became your property. Check the packing list and make sure that all component parts are accounted for. Before signing the Bill of Landing, inspect all items. If any damage is noted or the number of pieces received does not agree with the invoice, do not accept shipment without notation by the carrier's agent on the Freight Bill. If damage or shortage is discovered when unpacking leave material and request an inspection by the carrier. Keep all documents and information so you can file you claim properly with the carrier. The Bill of Landing, Freight Bill, and the original invoice are need to file a claim, and must be filed within the first six months from the date of shipment.
- C. Use extreme caution when unpacking to prevent damage to panels and other equipment. Pay close attention to hardware affixed to the door and door-frame. Do not lift the door by its Hardware or the Light Base. Do not drop panels or slide over unfinished surfaces. Keep panels dry and out of direct sunlight. The protective plastic coating on the panels may be removed before or after the installation depending on the timing of construction schedules.
- D. The most important requirement for installation of this Walk-In is to have a level floor. If the floor is level the process will be very smooth. Otherwise, it's impossible to make sure that the panels will align correctly and be plumb and level. Use a laser level or transit to identify the high spots on the floor. Whenever Walk-Ins are to be installed where concrete is curing or tile is being set, it is important to provide adequate ventilation. Concrete and tile grout release hydrogen while curing, which can damage the finish.

2. Marking Installation Perimeter

The most important requirement is that the Modular Building is installed over a complete and level floor. This will ensure that the vertical panels will align correctly and be plumb. Locate and mark the outside perimeter on the surface where the Modular Building will be installed. Check marked area for squareness by measuring across the corners.



3. Speed-Lok Operation

Before attempting to erect panels, familiarize yourself with the operation of the locks *Figures 1, 2, and 3*. On Bally panels, locks will always be on the left turning in clockwise rotation. If for any reason you have to unlock a panel, refer to Section 19.

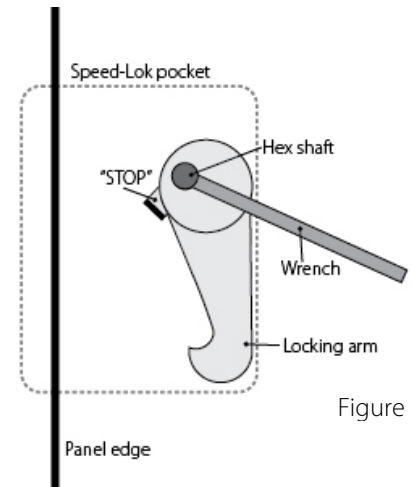


Figure 1

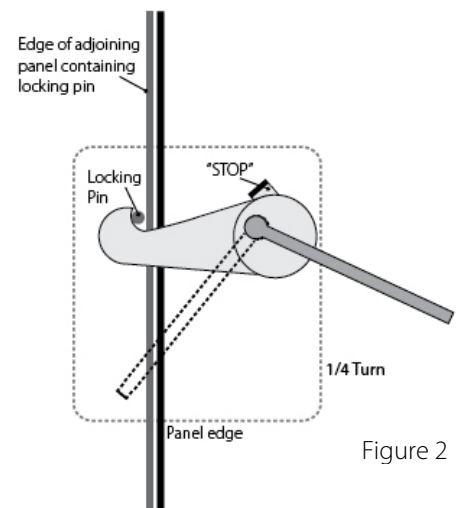


Figure 2

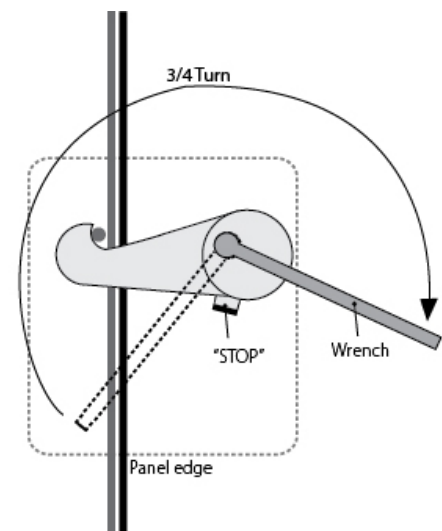
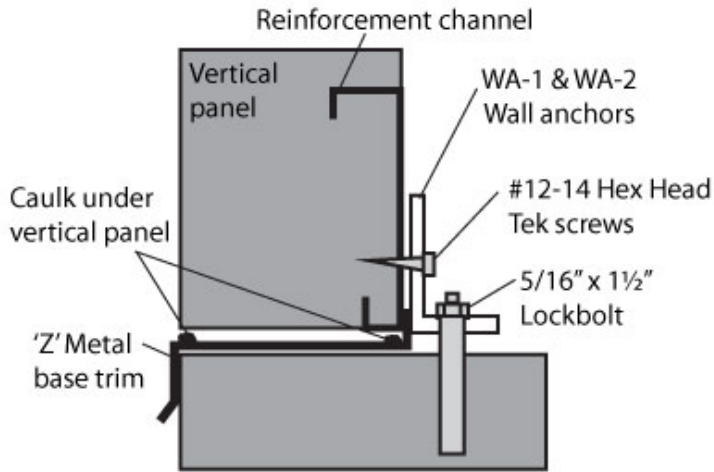


Figure 3

4. "Z" Base Trim (Optional)

'Z' Base trim is installed along bottom edges of Modular Building that are flush with concrete pad. 'Z' Base trim is outlined and installed on concrete pad before the placement of vertical panels. 'Z' Base trim should be secured to concrete pad by installer. Vertical panels will be secured with wall anchors after Modular Building erection. Apply caulk along exterior and interior seam along vertical panels and 'Z'



'Z' Base Trim and wall anchor detail

Figure 4

5. Installation of Less-Floor Walk-Ins

- A. After you have checked that the building floor is level, use a transient or builders level to find the highest point on the perimeter. Position the first 12 x 12 corner to be level with the high point. Begin at corner and align panels at the top. See Figure 5.
- B. Position a vertical panel to the right and left of the corner panel (as per Plan View) and flush with the perimeter line. See Figure 7. Once these panels have been aligned properly, fully engage all vertical-to-vertical locks.
- C. Level these panels to the perimeter high point and check for plumb with a 48" spirit level. (Panels over 10' in height should be checked for plumb with a plumb bob.)
- D. As each panel is installed, check to make sure it's plumb and level. If the panel is not plumb, shim to adjust for plumb. Making the same check down the panel's leading edge shows whether it's level along the top or not. If not adjust accordingly.
- E. Continue installing vertical panels in the same manner, periodically checking to make sure that panels remain plumb and level. See Figure 6. (staggered locking sequence).
- F. When enough vertical panels are set to accept the installation of the first ceiling and end panel, begin assembly of the ceiling panels. See Section 7 for method of installing remaining vertical and ceiling panels.
- G. With installation complete, caulk the bases of the vertical panels where they meet the concrete floor.

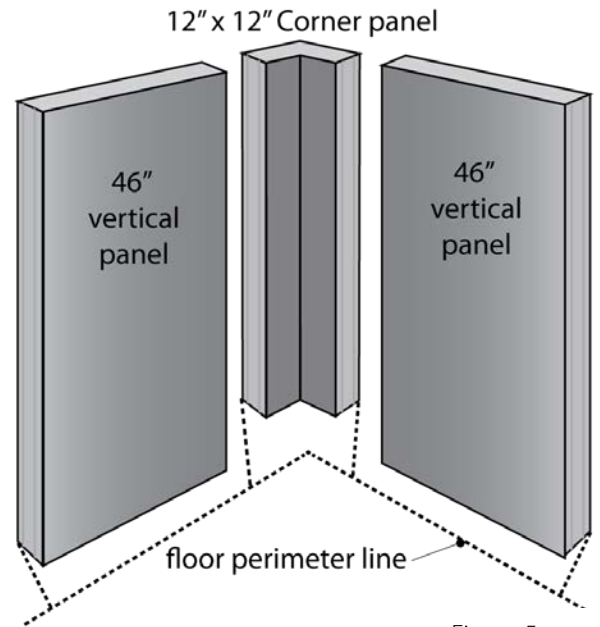
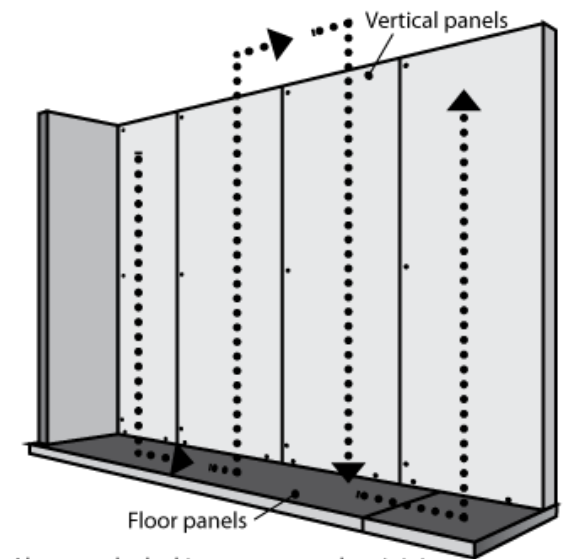
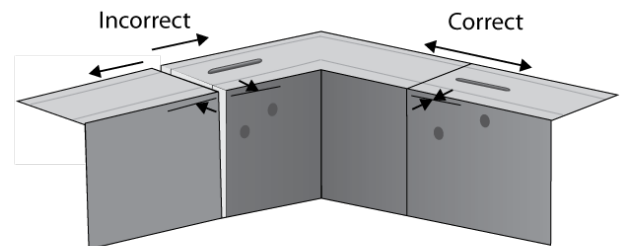


Figure 5



Alternate the locking sequence when joining panels. This helps keep panels plumb and square.

Figure 6

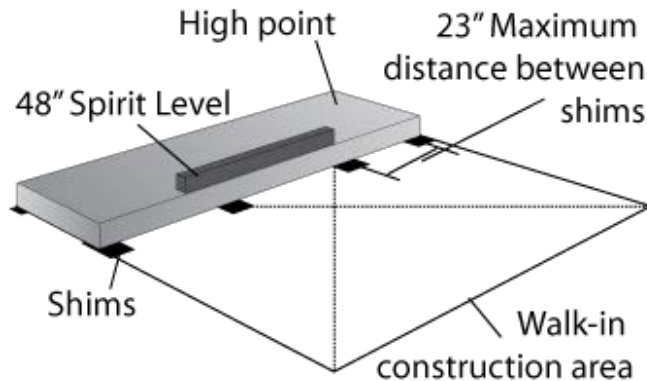


Prior to engaging vertical to full locking position check metal to metal alignment at points indicated. This will assure you of a neat installation, and maintain all panels on a true horizontal plane.

Figure 7

6. Floor Panel Installation

- A. Make sure the floor is level. The entire area beneath the Walk-In floor should be covered with a heavy polyethylene vapor barrier to prevent possible damage by moisture.
- B. Check drawings for any special panel configuration, then place a 23½" wide floor end panel along the most logical starting point (usually the furthest corner, if to a building wall if possible). Be sure the panel is a floor panel. All floor panels have extra-heavy gauge metal on the interior for extra strength. Again, make sure panel is level to high point of concrete slab.
- C. Set the first floor panel section in place, then install the next panel and align. Leveling occurs every time a new panel is installed. Remember to level to the high point of the concrete slab.
- D. Install shims (such as cedar shakes) under corners and cross panel joints as needed to ensure proper support and levelness of panels. Be sure the shims are not more than 23" apart at any given point under the panel. Place additional shims, equally spaced, along the door frame area. This is done in order to support the panels properly and eliminate any potential sagging.
- E. Continue to install floor panels as per Plan View, locking each panel to its adjoining panel. Make sure to keep ends or panels even with one another. Continue until all floor panels are assembled. Again check them for levelness and squareness. (Adjust if necessary.)
- F. Check bottom section of door to be used to insure the proper door is being in the proper location. Doors are specifically located by the floor plan drawing which is enclosed with the installation instructions. A freezer door may have a different stepplate condition than a cooler door. Follow the suffix 01 – 02 that corresponds to the drawing.
- G. If structural steel is required it should be located and installed before installing further.



8. Door Installation

- A. When erecting a door panel for an installation on a concrete floor and without Bally floor panels, it is necessary to provide a cutout in the concrete floor for all freezer applications so that the heater channel may be inserted to prevent icing. Doors intended for Coolers are simply set on top of the concrete.
 - If your door sticks out at the top your frame is not plumb; you'll need to move the bottom frame in or out to correct this problem.
 - If the gap at the top of the door is inconsistent your frame is not level and the door latch may not work properly. Shim the low side of the frame to level it with the high side.
- B. Caulk and seal any gaps under panels or door to floor. Apply base trim as per plan view. For outdoor installation it is recommended that all exterior panel joints be caulked during installation.
- C. Troubleshooting: Check if door panel is square and plumb with 48" spirit level. To adjust door panel, loosen side, top and bottom Speed-Loks and tap with wood block and hammer. Adjust either interior or exterior of door panel. If Modular Building door is installed properly, no shimming is required. Shimming should only be used in conditions where the existing floor is very uneven or in cases of poor installation. Check if door cap is toed out at top or bottom within door panel. Loosen the hinge base screws on door panel and install shims at diagonally opposite end of door cap that is toed out. Do not loosen hinge base screws of more than (1) hinge at a time and do not loosen hinge base screws while door is open.

7. With-Floor Installation

- A. Determine the critical areas to find a starting point. On smaller Walk-Ins the most critical area is the door location. This section of the Walk-In must be perfectly plumb and square to insure proper operation of the door.
- B. Begin by erecting the 12" x 12" vertical corner panel at a convenient corner, if the Walk-In is being installed near a building start at a corner nearest that. Note that the Speed-Lok holes must always be on the left-hand side when facing the interior of the panel.
- C. Next, erect the vertical panels called for by the panel view to the right and left of the corner panel. Make sure to align the tops of the panels. This will help to insure that the panels remain plumb and level. Lock these panels together and check to make sure the lock is engaged in the pin box properly. Be sure the proper metal finish is exposed where specified on the plan view.
- D. When enough vertical panels have been set to allow installation of the first ceiling panel, install the panel walls in an order that will allow a ceiling section to be installed before proceeding with more panel walls. The ceilings should be fastened to one another. When two or three ceiling panels are in place, lock the first ceiling end panel to the vertical panels to prevent shifting.
- F. When all walls and ceiling panels are in place, lock all vertical panels to floor panels. Door sections are held down through the threshold plate. Drill through thresholds' pre-drilled holes into floor. Secure to floor with screws provided. See Figure 8.

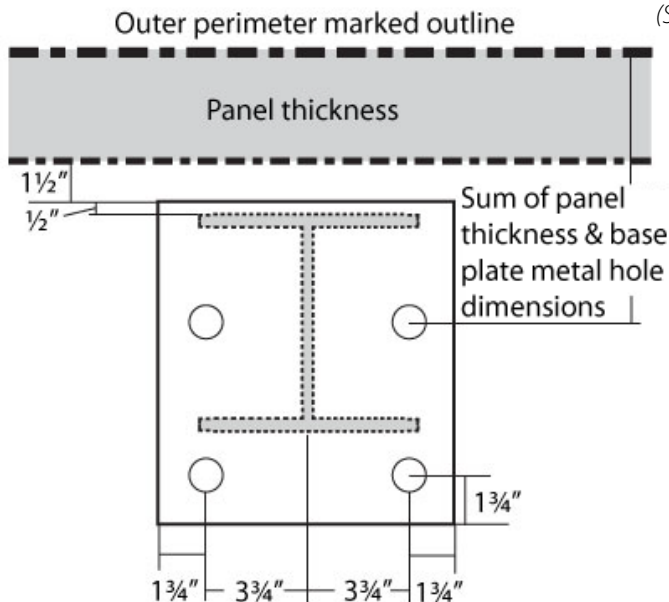
9. Multi-Compartment Walk-Ins

- The most common arrangement for a Walk-In is a two compartment Cooler/Freezer combination. Installation of panels in this situation is the same as described above. The use of a "Breaker" or "Tee" panel is used to separate the different compartments. These panels will be either 23" or 46"; typically the verticals are the opposite of the ceilings and floors.
- The Partition Wall will have at least two special panels referred to as P-1 and P-2. The panel widths are either 7.6" or 9.1" and are marked with a special blue sticker that corresponds to the drawing. The P-2 panels are double tongued (*hook pockets on both sides*) which allows for final locking of the partition wall.
- In large multi-compartment Walk-Ins, (three compartments or more) it is very important to control the alignment of the panels and make sure if there is any growth in the vertical panels that they are growing at the same rate as the ceiling and floors. A quick and accurate way to check for correct alignment is to measure the distance from the edge of the ceiling to the nearest vertical panel joint. This measurement must be 11½"; it must be maintained at every joint to assure proper assembly of the Walk-In. In these instances we recommend that after the floors are placed and leveled that the center most partition be the starting point and to work toward either end of the box.
- Look at the plan view and take special note of which side of the panels the wrench hold are on.

If there is not a door in the partition wall the panels will lock to ceiling and floors in either orientation. An error on the partition wall could cost many man hours to correct. The entire box will most likely have to be taken down to correct this error because condensation will occur. As a general rule of thumb, the wrench holes should always be on the colder compartment side, usually the freezer.

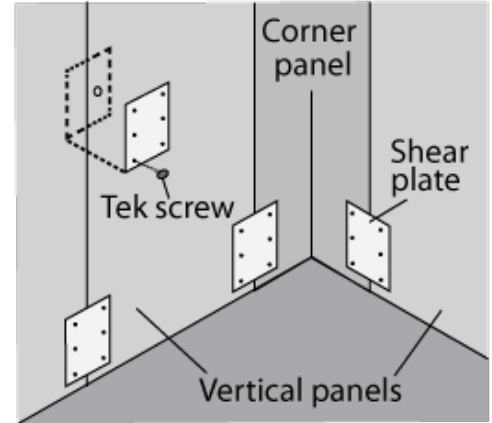
10. Interior Steel

- Interior steel framework is assembled before Modular Building assembly. Details and layouts for interior steel are given on the plan view. Steel pieces are painted primer and are numbered for identification.
- Mark the exact outside perimeter as previously described. Check that outline is square. *See Section 3.*
- Using the plan view and base plate details, mark the positions of centerlines in relation to perimeter. Once base plate locations are anchor bolt locations can be determined using base plate details. *See Figure 9.*
- If the floor surface is considerably uneven, find the highest point of steel column positions and level all other columns to this height using leveling grout or plates *(Supplied by installer).*



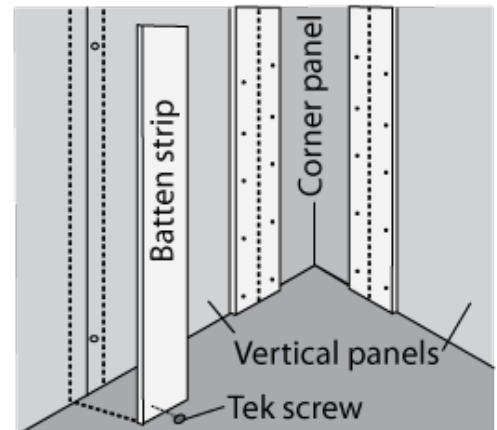
11. Shear Plates

Shear plate locations are described on the plan view of the Modular Building. Shear plates are installed over Speed-Lok locations using 6 self-drilling Tek screws provided by Bally.



12. Batten Strips

Batten strip locations are described on the plan view of the Modular Building. Batten Strips are installed over vertical and/or ceiling joints. Batten Strips are to cut length and installed using Tek screws provided by Bally. Tek screw centers should be approximately 2" from ends and 8" center to center.



Note: Depending on architectural specifications, J-bolts can be foamed into concrete when slab is poured or anchor bolts after concrete slab is cured. Place all columns into position and secure them to concrete slab. Plumb columns and position lateral steel. Install lateral steel as shown on plan view details. When ceiling panels are assembled, install provided self-drilling Tek screws through RA-1 tabs to secure to interior steel.

13. High Wind Securing

The following high wind anchoring methods are suggestions and are not inclusive of all possible anchoring methods. The type of anchoring and the space between tie downs are dictated by local building codes. All materials used are provided by building installer.

- A. Anchor Bolt Through (For Modular Buildings with floors only): Anchor bolts are located in concrete prior to Modular Building installation. Anchor bolt locations should avoid floor panel penetration limits and compression plates should be at least 1/2" from interior of vertical panels.
- B. Eye Bolt and Hold Down Cable: Anchor bolts are located in concrete prior to Modular Building installation. Light Structural Member determined by local building code advisory. Light Structural Member should be placed as to not trap water. Precautions should be taken to prevent Light Structural Member from chafing exterior membrane roof.
- C. Earth Anchor and Hold Down Cable: Earth Anchors can be located after Modular Building installation. Installer should use Anti-Flutter Padding to keep hold down cable from chafing exterior roof. Distribution angle should be at least 18" to allow hold down cable to migrate and allow ample load distribution.

14. Outdoor Considerations

All outdoor installations require some type of weather roof to cover the top of Modular Building.

- A. Aluminum Roofs are available for buildings that have a wall width of 34' 7" or less. See *Instruction Manual IM-276-90*.
- B. Membrane (polyvinyl sheet) Roofs are available as dictated by building specifications. See *Instructions for Membrane Roof*.
- C. Ceiling panel exterior joints must be caulked with silicone or other waterproof sealant after assembly. Floor panels must be elevated above immediate area of installation. Concrete pads must have drainage as shown in Bally floor detail on plan view. Installation must not allow water to seep under Modular Building.

15. Door Canopy

Bally supplies door canopies for outdoor installations. It is recommended that canopy be installed over door opening to prevent water damage and icing. Apply caulking to back of canopy mounting flanges. Form fillet with caulking when canopy is mounted. Install canopy centered and level over door opening with provided self-drilling Tek screws. Canopy height should be high enough to clear door operation.

16. Wall Standards for Mounting Equipment

Wall post locations are determined by customer equipment arrangement within Modular building. Please note the location limits shown. See *Figure 10*.

- A. Position standard against vertical panel with one end touching ceiling panels. Check standard plumb with 48" level. Mark hole locations with marker and drill using 3/32" drill. Do not punch holes. Install standard with #8-1/2" screws. Install screws in all wall post mounting holes.
- B. Temporarily install ceiling bracket with (2) clamp halves, (1) 3/8" x 1/4" bolt and (1) 3/8" nut at top of standard. Hold ceiling bracket in against ceiling panels and mark the (4) mounting holes with marker. Drill 3/32" holes and install ceiling bracket with (4) #8-1/2" screws and previously mentioned clamp. See *Figure 11*.

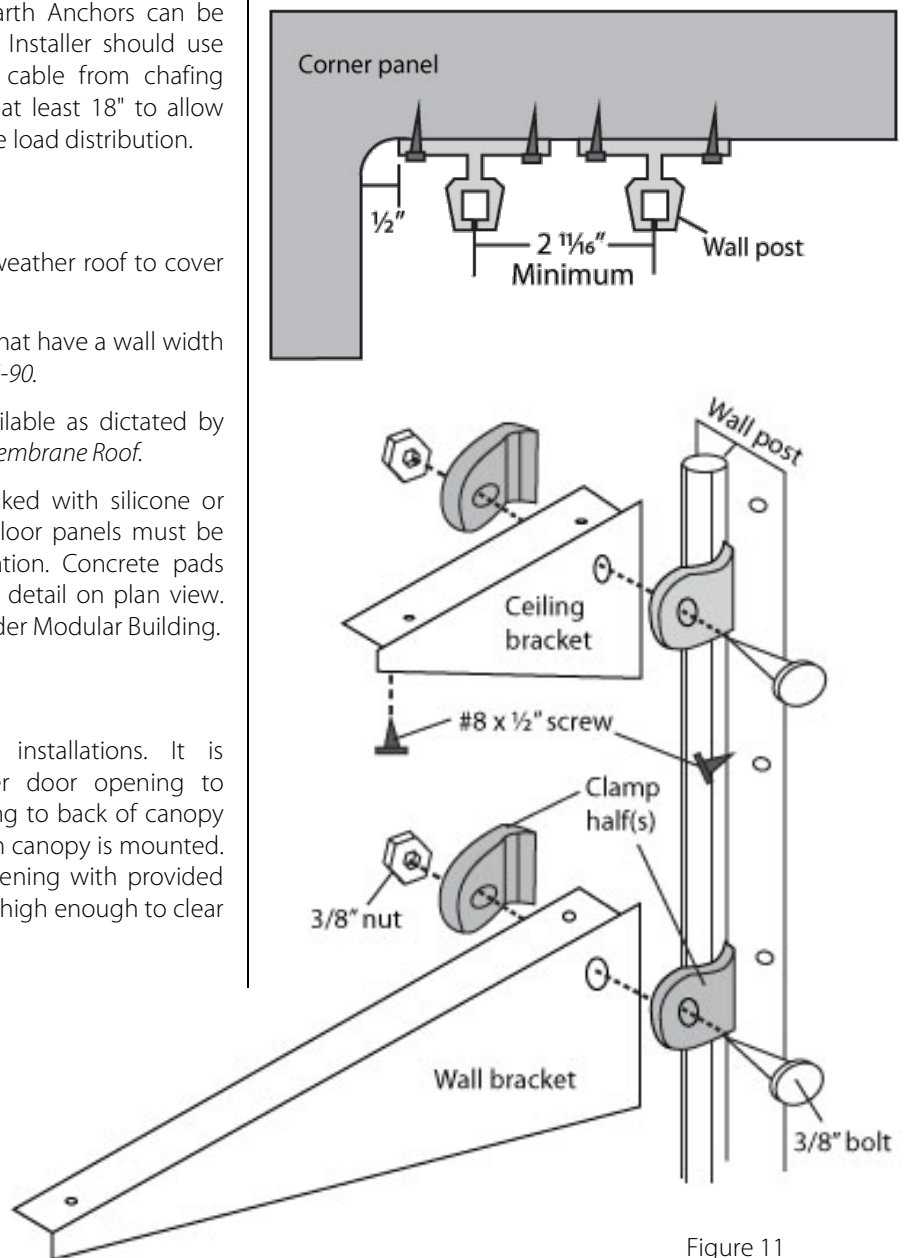


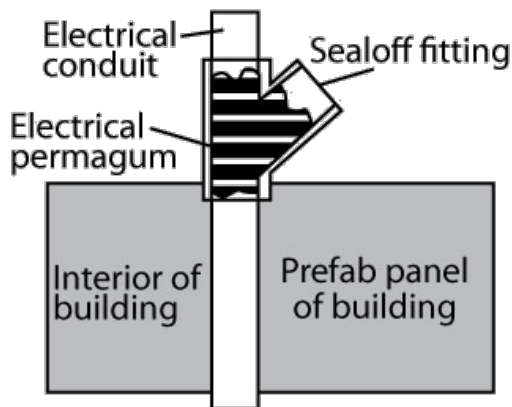
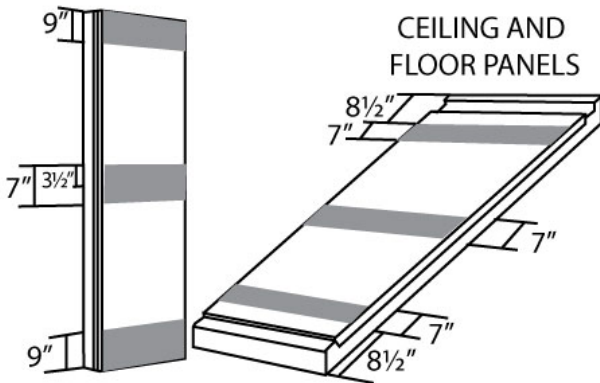
Figure 11

17. Panel Penetrations

If penetrations in panels are needed, avoid the areas that are shown. Penetrations should be made as needed by competent installer or mechanical service. If shaded areas are avoided, urethane insulation can be easily removed from opening. After equipment installation, fill in hole with permagum caulk. See Figure 12.

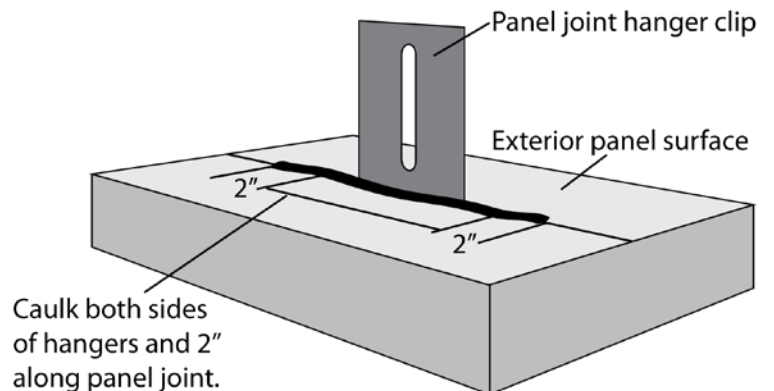
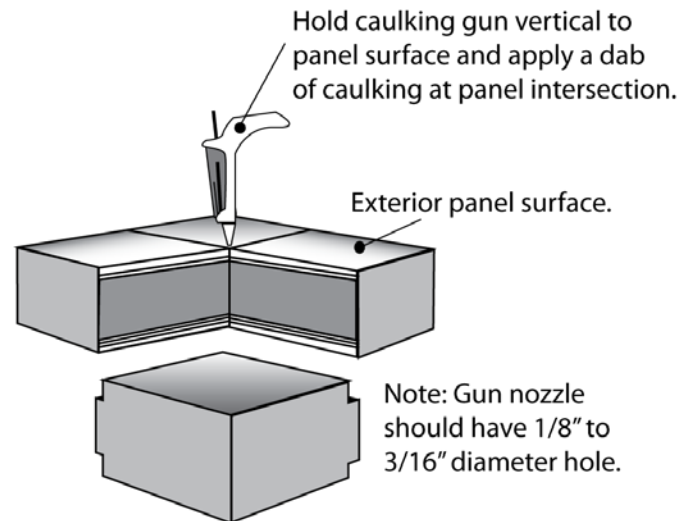
Condensation in electrical junction boxes can be eliminated by installing a seal-off fitting in conduit where they pass through Modular Building walls.

VERTICAL PANELS



18. Prevent Vapor Leaks

- Modular panels are square and dimensionally accurate so in most installations they will seal effectively against vapor leaks. However in some unusual cooler applications, minor vapor leaks may occur. The leaks can occur if the panels follow slab variations or if the building in which the Walk-In is installed settles. If the internal temperature is cycled periodically, the expansion and contraction of building materials will cause enough movement to allow some vapor penetration.
- Unfortunately, internal dripping does not always occur directly across from the vapor leak which can make locating a leak troublesome. In order to avoid time-consuming search procedures, caulk the exterior junction of three or more panel joints. Most leaks caused by settlement will be at these points.
- All wall penetrations should be sealed. This includes any protruding clips or hangers installed in panels joints.
- Use either industrial-grade or silicone caulking. When silicone is used, sealed areas must be cut opened whenever the panels are to be disassembled for relocation or enlargement.



Note: Cut nozzle of caulking tube to a 45° for best results. Bead should be 3/16" wide.

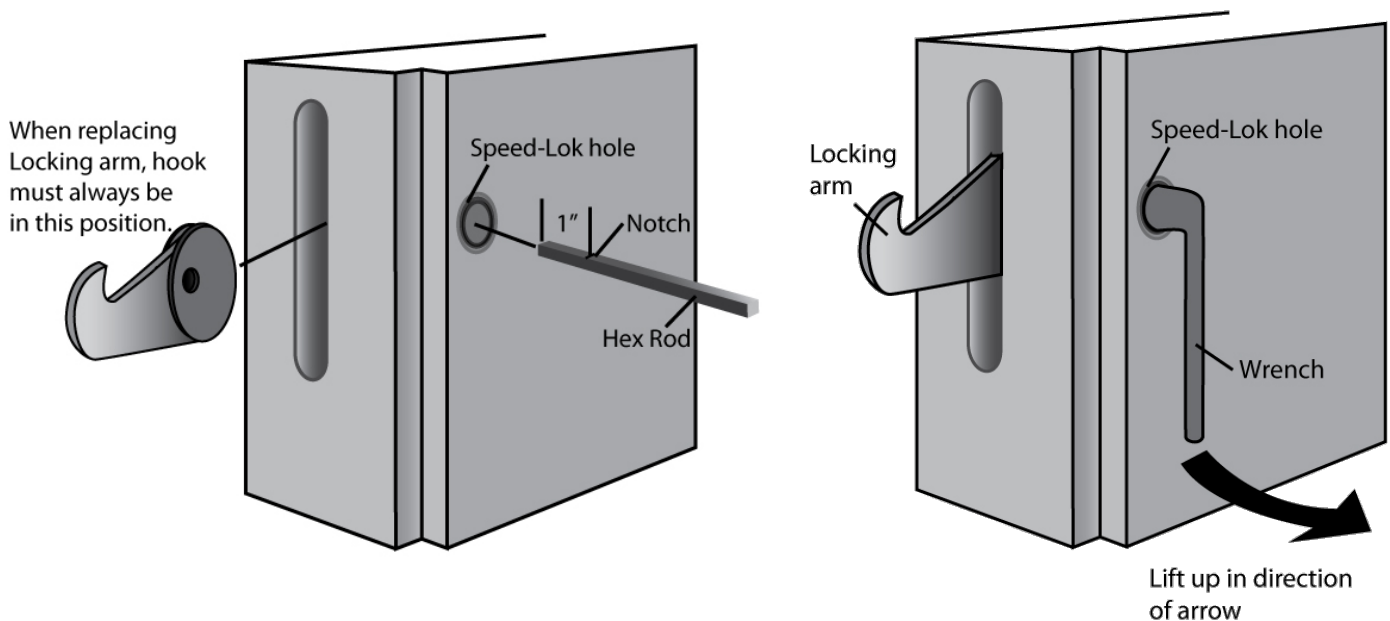
19. Grounding

Ensure that all protective plastic coating is removed from panels.

- A. Install Angled Batten strips along interior top of Vertical panels using #8 3/4" Metal screws (Install Angled Batten strips along interior bottom of Vertical panels if Modular Building has Floor panels). Install Braided copper wire at every Speed-Lok location for Ceiling end panels using #8 2-1/2" Metal screws (Install wires at Speed-Lok locations for Floor panels if equipped). Install Metal screws in line with Speed-Lok holes and at least 3" from edge of panel.
- B. If Modular Building does not have a Bally aluminum roof, install exterior Batten strips using #B 3/4" Metal screws.
- C. Install #8 2-1/2" Metal screws at Speed-Lok locations on both legs of Corner panels. Install Metal screws at the same height of Speed-Loks and at least 3" from edge of Corner panel.

20. Broken or stripped locks

- A. The panel contained the lock must be slid away from adjacent panels in order to obtain adequate working space. First check for any obstructions (dirt, foam, etc) once you have unlocked a panel reset the cam stop by turning the lock fully back to it's original position. If the hook is broken or stripped replacements can be found in Miscellaneous Parts Box#1.
- B. Position the lock wrench on the hex rod and turn clock-wise until the locking arm protrudes. *See Figure 13.*
- C. Place your hand near the bend in the wrench as shown in Figure 5 and use a lift-up motion. This will produce a clamping action on the hex rod. While doing this, pull forward until the rod is free of the panel. The locking arm will then drop free.
- D. Hold the new locking arm in position. Make sure the hook of the arm faces in the proper direction. *See Figure 14*
- E. Insert the new hex rod into the lock hole. Care must be taken to insert the notched end of the rod. The end to be inserted has a notch located 1" from the end. This notch acts as a stop so the rod will not be inserted too far.
- F. Align the hex rod with the hex hold of the locking arm; gently tap it until the notch stops against the locking arm.
- G. Replace and refasten the panel in its original position.



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