

Installation Instruction Booklet

For Steel Frame Buildings



SAFETY CONSIDERATIONS

Important: Please carefully read all of these instructions and warnings before beginning assembly. If you have any questions, contact Technical Assistance at www.toibox.com

BE CAREFUL. IT CAN GET HOT.

Metal parts can become extremely hot when exposed to heat or direct sunlight. Always wear protective gloves and clothing to prevent the possibility of burns.

NOT A WALKING SURFACE.

Do not stand, climb or walk on the building. It is not designed nor intended to support people or materials, other than certain lighting and overhead doors. When installing the ridge cap, work directly above framing members and stay on the flat surfaces.

AVOID ASSEMBLY UNDER HIGH WIND CONDITIONS.

Do not attempt to assemble and erect this structure during high wind conditions. Wind can create hazards, such as blowing materials or the collapse of partially installed components. The parts and components are heavy enough to cause serious injuries.

METALS CONDUCT ELECTRICITY.

Because this structure is a metal building, the danger of electrical shock exists. During assembly, and especially when raising the frames/trusses to their vertical position, keep all components away from any electrical sources. The selected building site should be free of overhead power lines, underground cables or any other source of electrical power. Never work with, assemble, or erect these structures during electrical storms. Serious injury, even death, can occur if contact with electricity occurs.

PROVIDE ADEQUATE VENTILATION.

Be certain to provide proper ventilation, egress and ingress for your building. Hazardous, poisonous or noxious materials **SHOULD NOT BE STORED** in these structures without adequate ventilation. Further, proper ingress and egress is required to prevent anyone (especially children) from being trapped inside the structure.

METAL COMPONENTS HAVE SHARP EDGES.

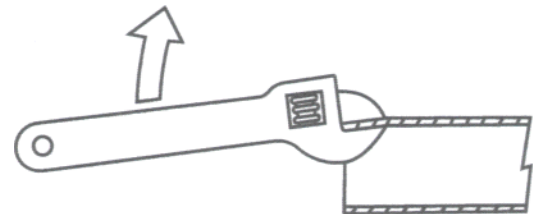
Be extremely careful when handling the various metal components; they can easily cause cuts or lacerations. Always wear protective gloves and suitable clothing, and handle metal parts with caution.

SITE SELECTION IS IMPORTANT.

The building should be mounted on either a concrete pad or continuous concrete frost wall of an approved design capable of withstanding continuous heaving due to frost. It is particularly important that the areas on which the Base Rail assemblies will rest are level **with each other.**

IF FRAMING PIECES DON'T FIT.

Occasionally during installation, you may have difficulty fitting frame components together. If so, use an adjustable wrench as shown at right, and bend the tube wall outward.



TOOLS REQUIRED FOR BUILDING ASSEMBLY

1. Safety Glasses
2. Appropriate Step Ladder (s)
3. Level (s)
4. Hammer (s)
5. Tape Measure
6. Pencil/Markers
7. Work Gloves
8. Hack Saw
9. 5/16" Driving Bits
10. Straight Edge/String Line (use of chalk line is not recommended)
11. Concrete Drill
12. Metal Snips

COMPONENTS LIST/STAMP IDENTIFICATION

Quantities will vary dependent upon building size. See package bill of lading for specifics of your building.

1. Column Stubs
 2. Column Sections
 3. Column Extensions
 4. Eave Sections
 5. Rafter Sections
 6. Rafter Extensions
 7. Ridge Sections
 8. Gable Stubs
 9. Gable Uprights
 10. Gable Extensions
 11. Gable Rails
 12. Column Rails
 13. Corner Column Rails
 14. Mandoor Framing Kit
 15. Window Framing Kit
 16. Door Bulk Head Pieces
 17. Door Header
 18. Eave Braces and Rafter Braces
- Concrete Bit (included)
- Anchor Bolts (included)
- Self-drilling Tapping Screws (included)

Frame Section Assembly (Column and Rafter)

Select two (2) Column sections, two (2) eave corners, two (2) rafter sections and one (1) ridge section and lay them out as shown preparatory to frame assembly. (In each case, a swaged end should abut an open end.) Figure 4.

Install the first swaged end into the adjacent open end making sure you have a tight, snug fit between the two. Use four #12 Tek Screws at each connection inside and outside.

Repeat above process until an entire frame assembly is completed as shown. Figure 5.

TEMPORARY SUPPORT OF FRAME UNITS AS INSTALLATION PROGRESSES IS RECOMMENDED.

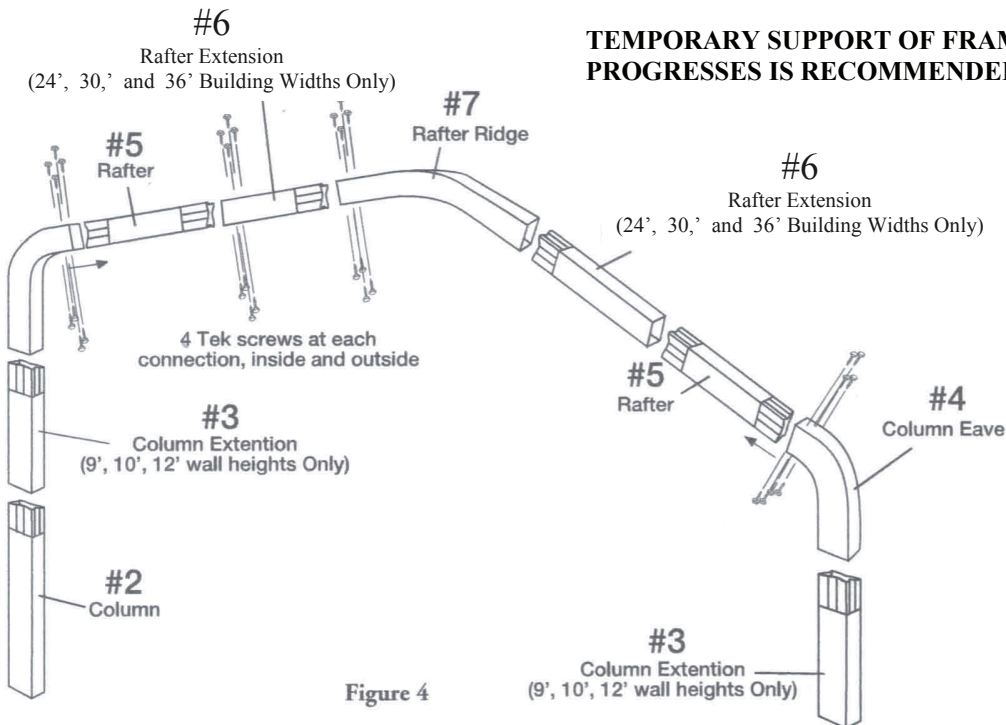


Figure 4

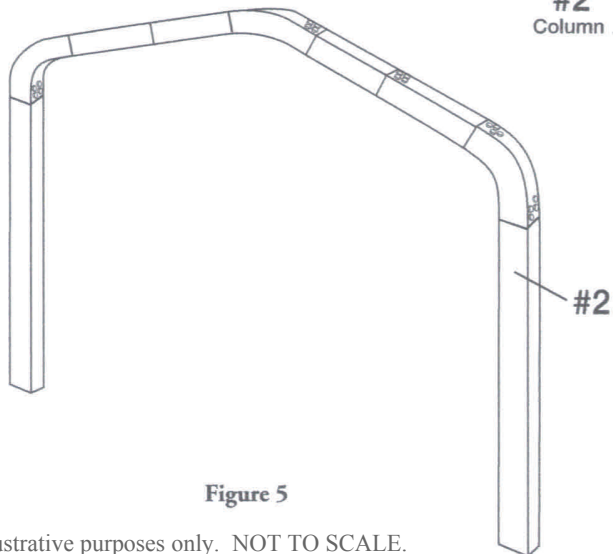


Figure 5

ASSEMBLY INSTRUCTIONS

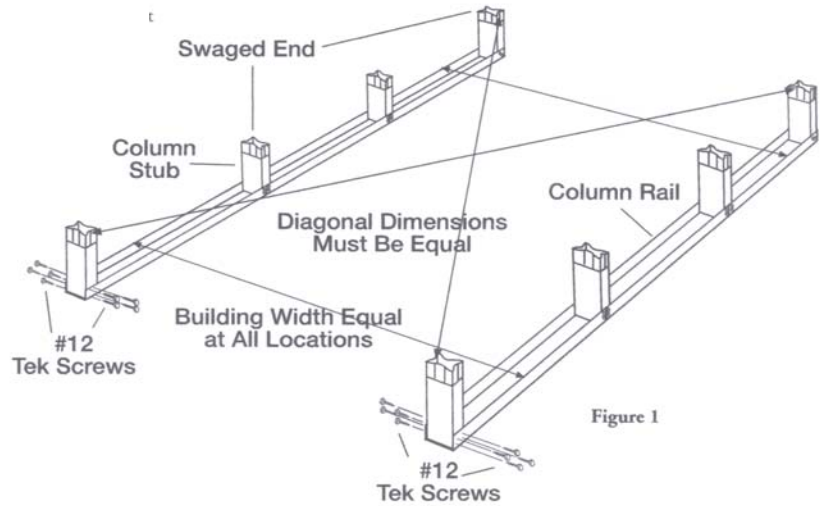
Base Rail Assembly

Lay out Base Rails on the foundation (either floor slab, frost wall, or Sonatubes as shown in Figure 1.

Align the entire Base Rail assembly on the foundation. (At this point, check all out-to-out dimensions of the Base Rail assembly for conformance to assembly drawing dimensions.)

Anchor one Base Rail end section to the foundation with 3/8" diameter anchor bolts. Periodically re-check all dimensions and alignments as the remaining Base Rails are installed from one end of the building to the other.

Repeat the procedure for the other side while carefully maintaining a constant parallel aisle dimension and equal diagonal (corner to corner) dimensions. These are critical to maintaining building squareness.



Attach Base Stubs to Base Rail Sections

Anchoring the Building

Either a concrete pad or a concrete frost wall is recommended to adequately support the building and its snow and wind loads. Whichever foundation is used, it must be true and level. Use of Soil Anchors can be used by the building purchaser in lieu of a concrete slab or frost wall foundation; however, **TOIBOX STEEL STRUCTURES** cannot assure adequate Column anchorage because of the wide variability of soil conditions.

Should you decide to use soil anchors, one anchor should be used to replace each 3/8" diameter anchor bolt and each soil anchor, coupled with the site-specific soil conditions, must provide a minimum of 2200 lbs. of pull-out.

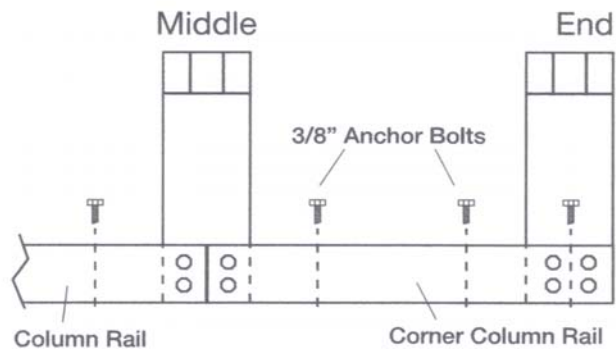
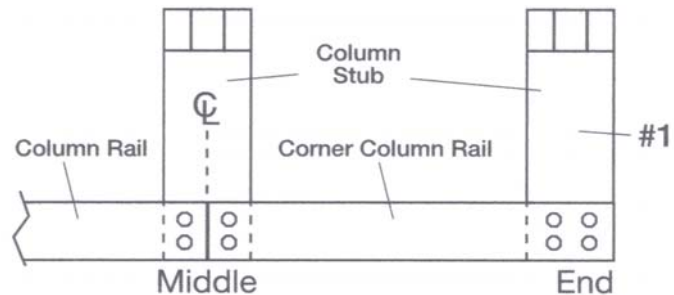


Figure 1 Detail

NOTE: This step requires a minimum of two persons to accomplish it safely.

Lift each frame assembly and place its two open ends over the two opposing swaged end Stub Columns as shown in Figure 6. Install both Columns of the frame at the same time for easy assembly. Be sure each is firmly and completely seated before securing with #12 Tek Screws (supplied) as was done during the frame assembly previously.

Repeat with each frame assembly until all frames are installed in an upright position. See Figure 7.

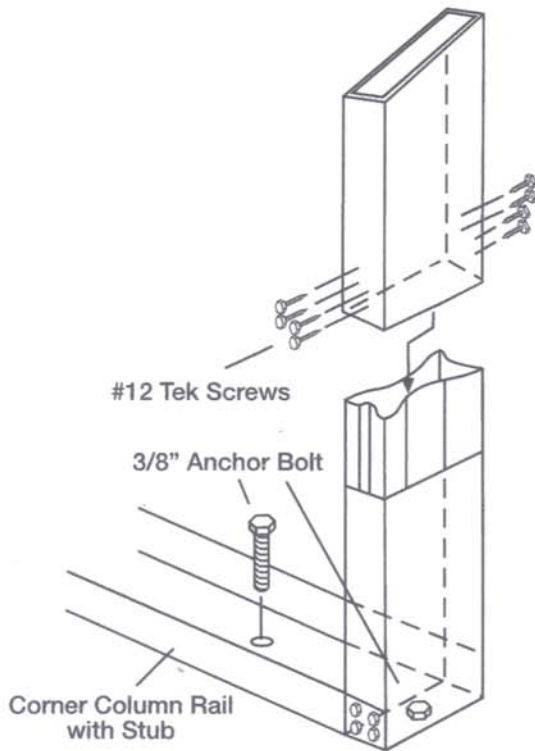


Figure 6

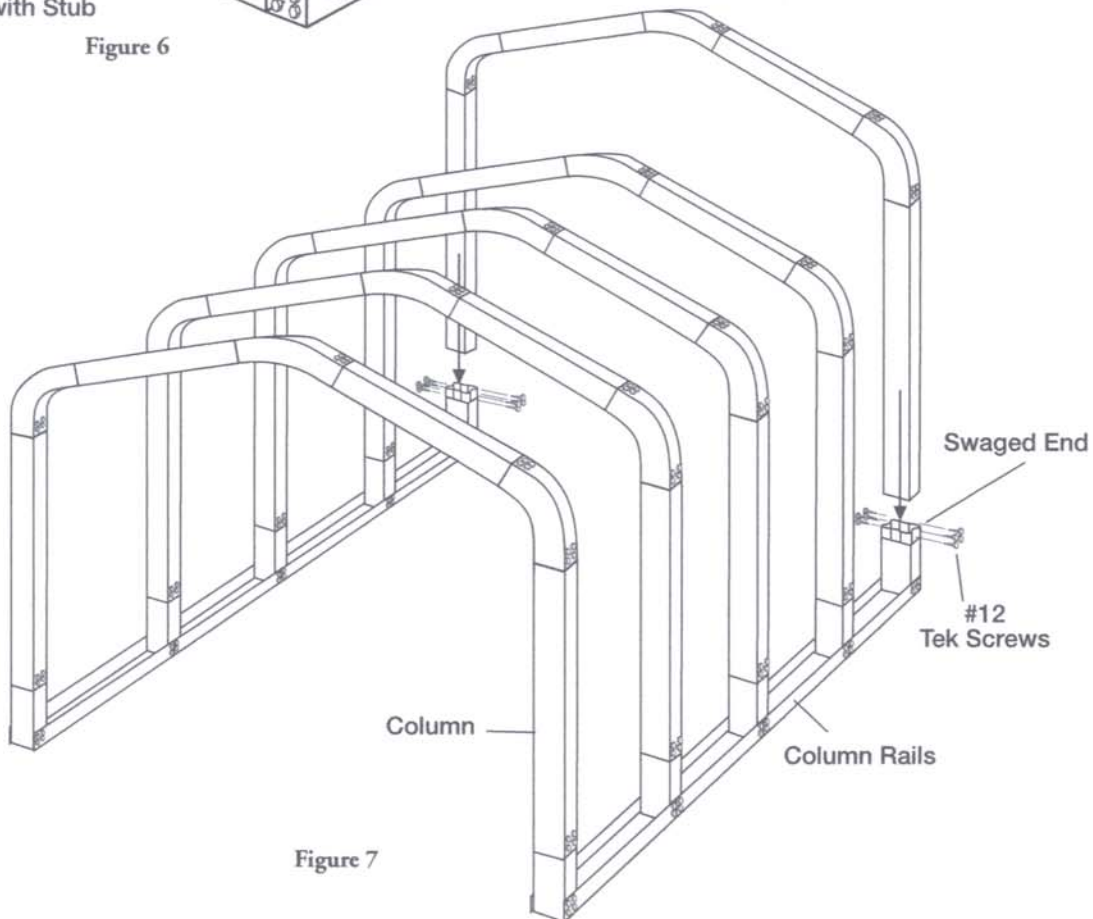


Figure 7

Window/Door Installation

The Window Kit and Door Kit can be installed at this time.

Mount the Window Kit in the desired location between two columns as shown in figure 8A, using #12 Tek Screws.

Mount the Door Kit in the desired location between two columns as shown in figure 8B, using #12 Tek Screws and clips. Make sure to remove column Rail section in the door space first.

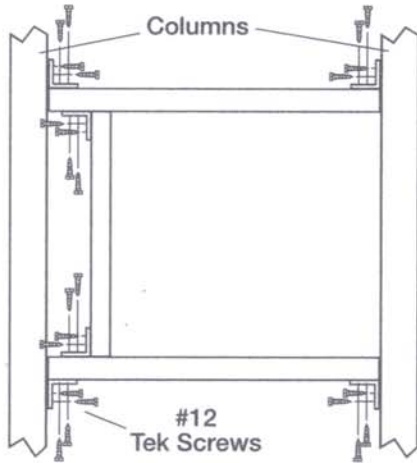


Figure 8A

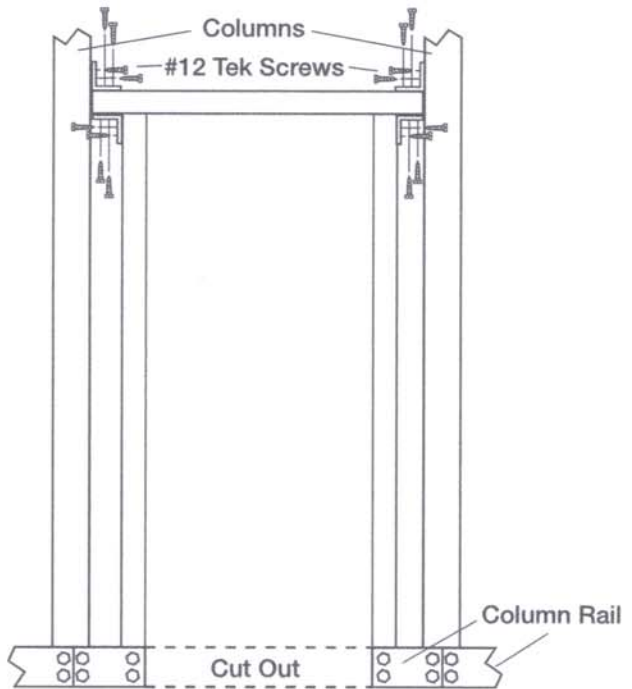
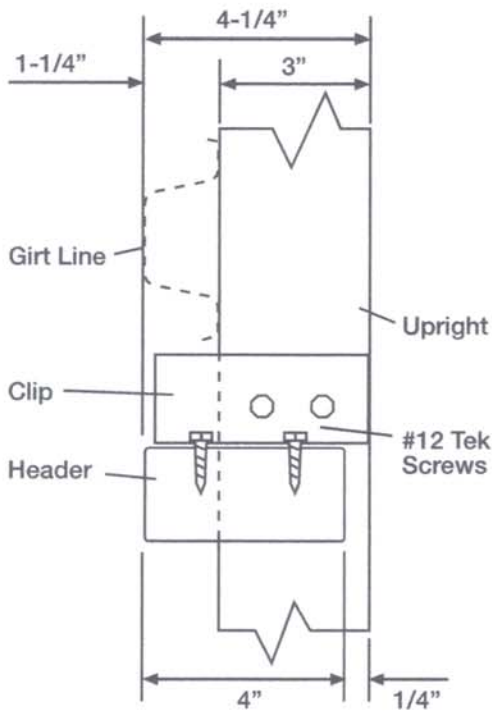


Figure 8B



Side View Detail

Mandoor Installation (at your option)

If you wish to install the mandoor framing, a Base Rail must be cut in two places and the cut section removed. The cuts must be equidistant from the building frame Columns to allow adequate clearance of door jamb connections. The mandoor can be located between any to adjacent building frame Columns. The finished mandoor framing is designed to accept various size pre-hung doors.

Please note that all window, entrance door, and garage door openings must have the header act as a Girt line which must extend out 1 1/4" from the tube as seen in side view detail.

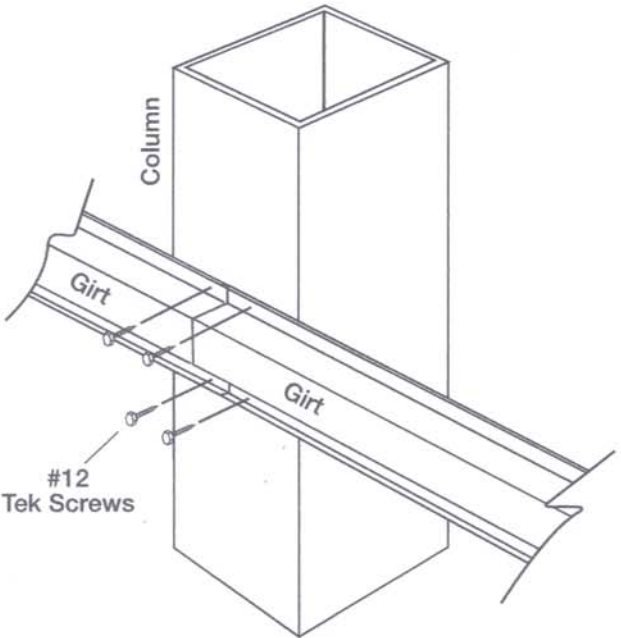


Figure 9

Installing the Sidewall Girts

Prior to installation of the Girts, the frame spacing dimensions at the eave locations, as well as Column plumbness, must be checked and adjusted as necessary.

The hat-shaped Girt members should be installed from the eave (top) location downward. The Girt members abut against each other. See Figure 9.

Each Girt should be fastened to each Column with two (2) #12 Tek Screws. See Figure 9 for locations of fasteners.

Install each hat-shaped girt according to Figure 10.

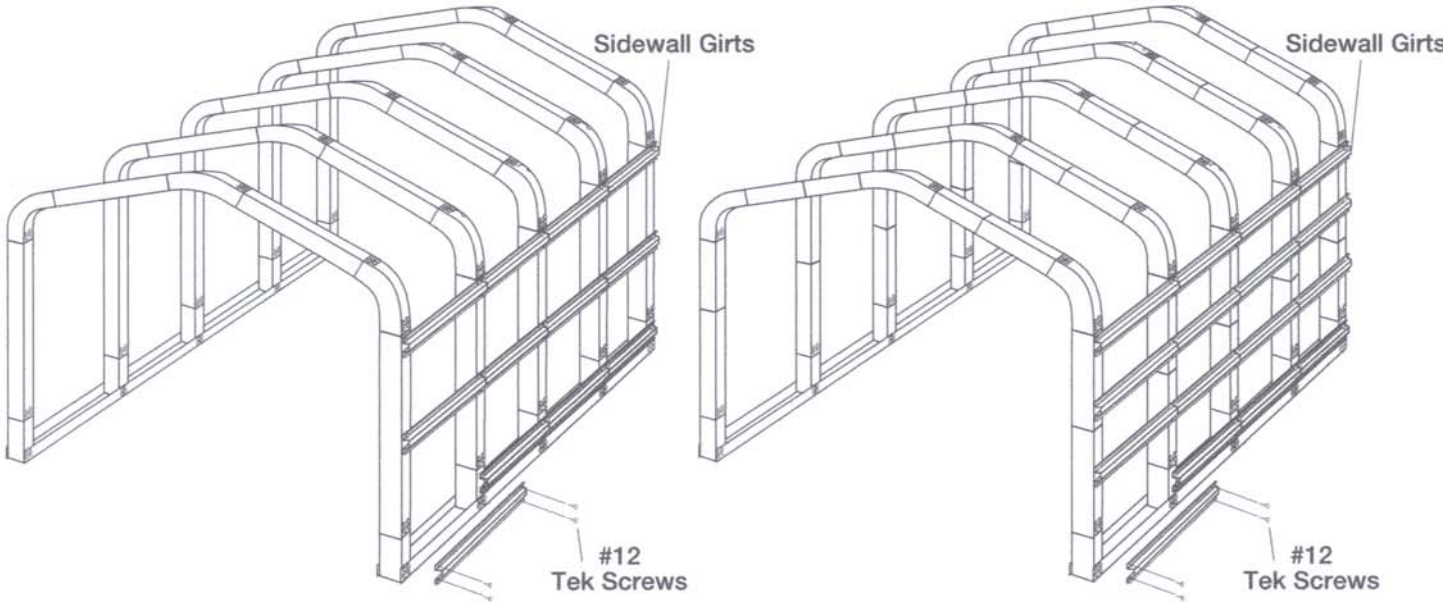


Figure 10

NOTE: 8', 9', and special order only wall heights use 3 Girts spaced equal distance apart (shown left)
10' and 12' wall heights use 4 Girts spaced equal distance apart (shown right)

Installation of Roof Purlins

Install the first hat-shaped Purlin near the ridge, being extremely careful to maintain the dimensional frame spacing. (Sidewall Girt and Purlin sections are identical.) Install Roof Purlins evenly spaced as shown in Figure 11.

On the 2", 3", and 4" rafter/eave tubes have the Purlins and Girts abut against each other. See Figure 9. Again, each Purlin is fastened to each rafter with two (2) #12 Tek Screws.

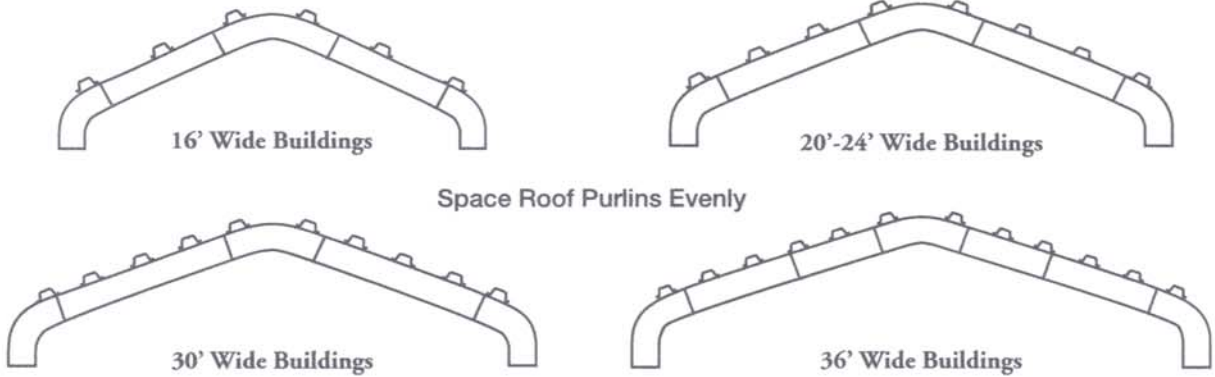
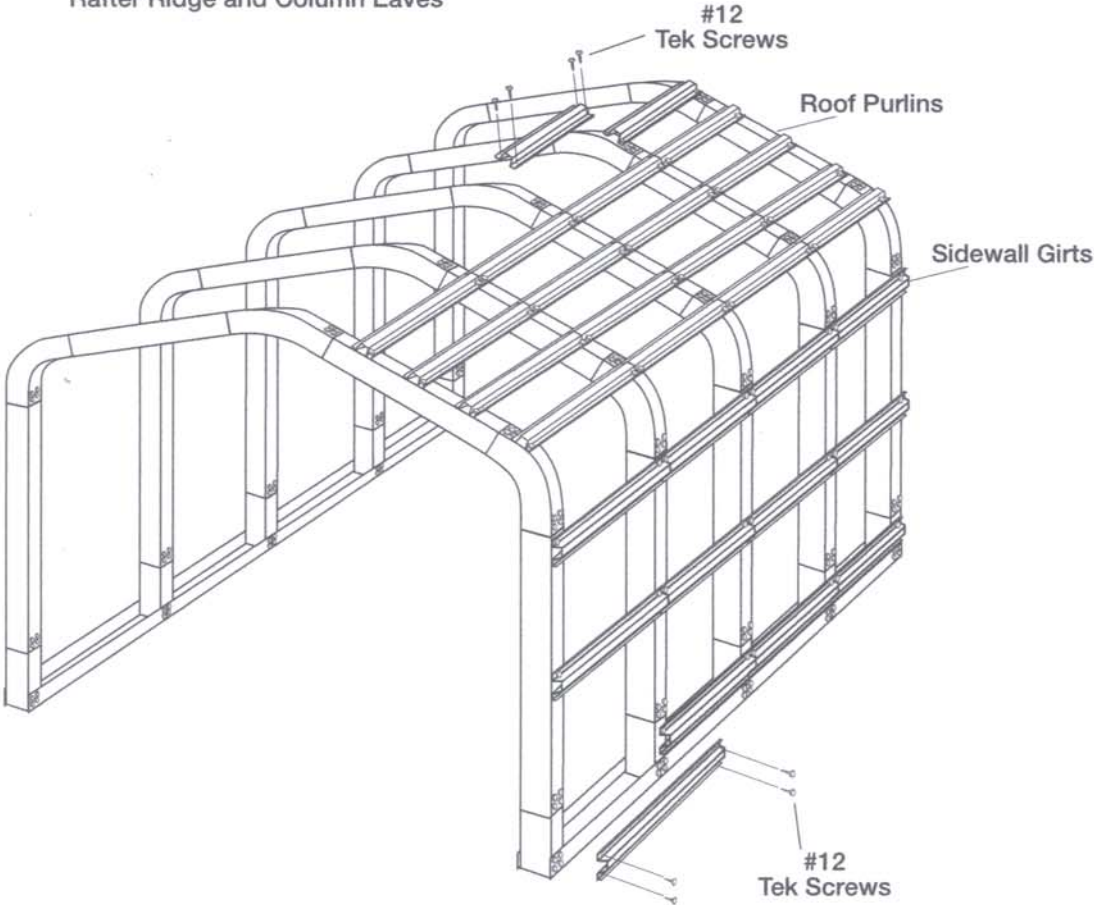
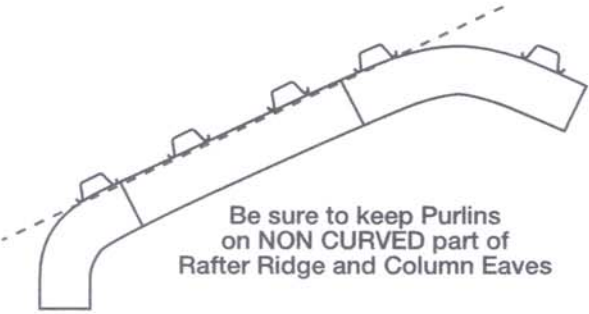


Figure 11

Drawings are for illustrative purposes only. NOT TO SCALE.

Assembling the Back Gable Wall (Non-door Side)

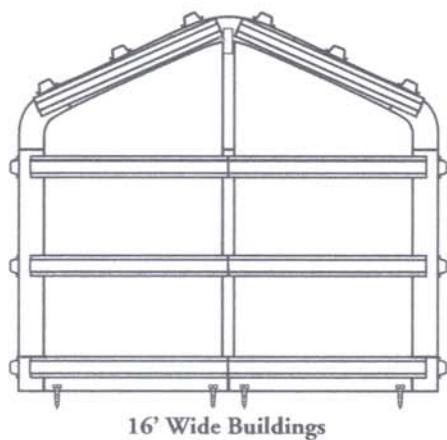
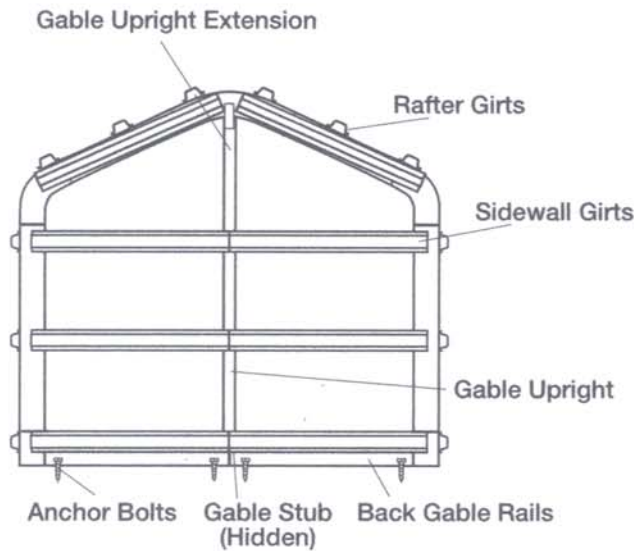
Select and lay out the Back Gable Rail sections on the foundation at the correct location on the building perimeter between the back End Columns as shown in Figure 12. (Be sure to align flush with ends of Side Base Rails and on the inside of the Corner Column Rails.) Use the holes in the Back Gable Rails to fasten to the foundation with the 3/8" anchor bolts which are provided.

Insert the Gable Stub(s) at the place where the rails abut and secure with #12 Tek Screws.

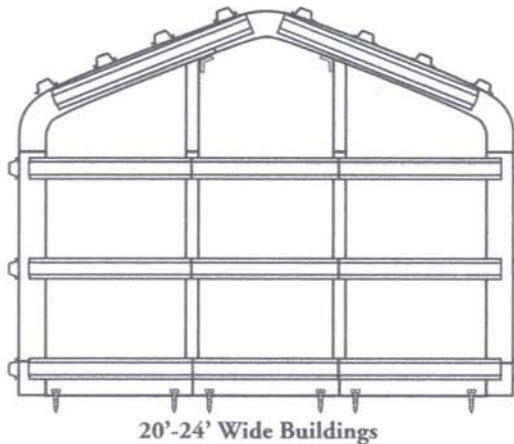
Insert the open end of the Gable Upright onto the swaged end of the Gable Stub and secure with #12 Tek Screws. Next, add the Gable Upright Extension to the Gable Upright and fasten to the Rafter with #12 Tek Screws. Repeat steps with remaining uprights (if applicable.)

Align and attach the Sidewall Girts exactly as on the sides of the building in Figure 10.

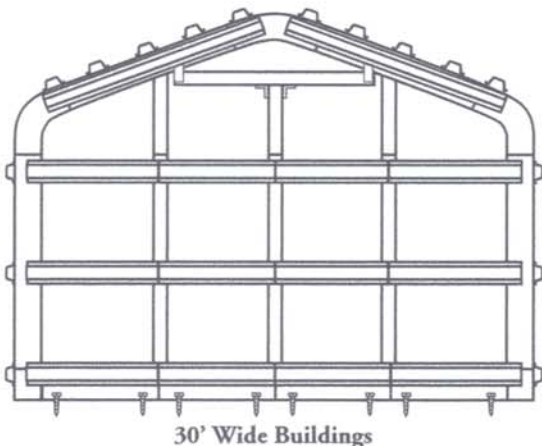
Finally, attach the Rafter Girts onto the Rafter ends with #12 Tek Screws as shown in Figure 12. Please note that there may be more than one rafter girt required.



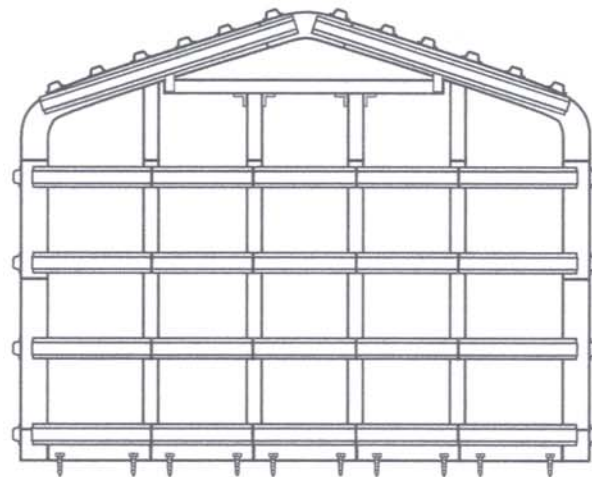
16' Wide Buildings



20'-24' Wide Buildings



30' Wide Buildings



36' Wide Buildings

Figure 12

Front/Opening Gable Assembly
Due to the many variations in door sizes, see included custom Engineering Drawing for Front/Opening Gable assembly instructions.

Installing Roofing and Siding

CAUTION: Pre-cut metal panels have sharp edges. Always wear work gloves and take care when handling the panels. Do not attempt to install panels in windy conditions.

It is recommended that all fasteners be installed at low RPMs.

NOTE: When installing roofing and siding panels, it is recommended that two people and two ladders be used to facilitate safe panel handling.

Tip for hoisting metal roof panels into position: Position a ladder at the side of the frame and using the ladder, center a panel on it and slide it up the rafters to its final position.

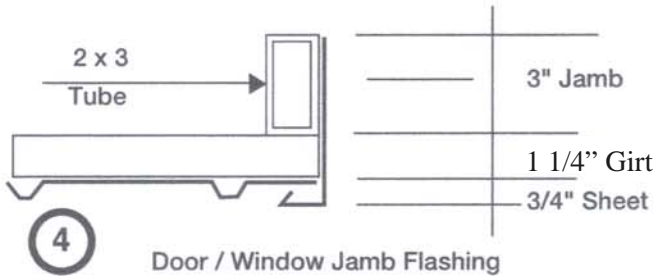
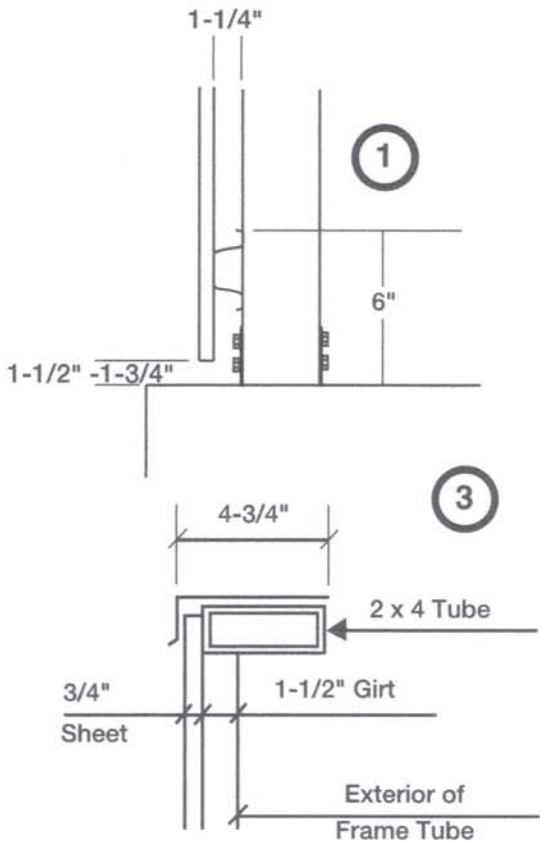
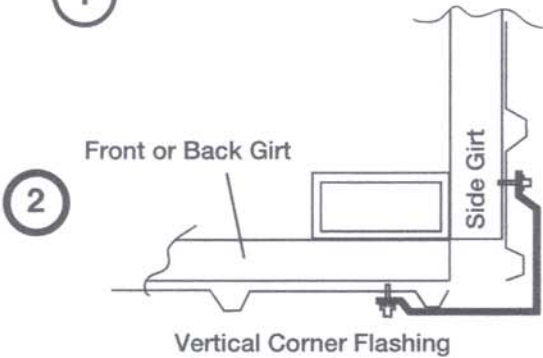
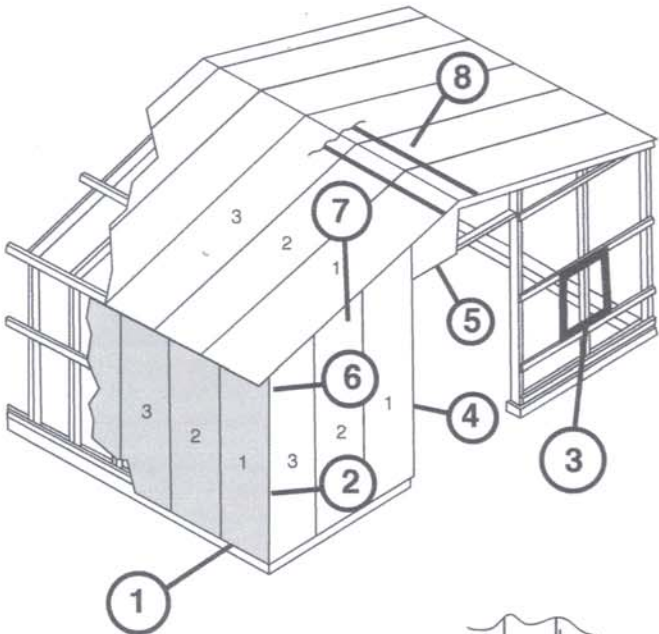
Installing the Roofing Panels

Installing the roofing panels first is recommended in order to provide better squaring of the building and more initial rigidity.

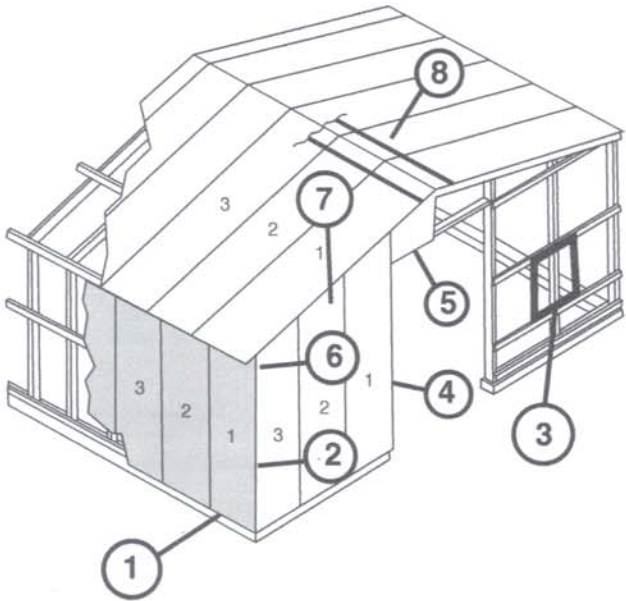
The proper installation of the initial roofing panel is critical to insure that the building is square and that the overall appearance is professional. Be sure that panel edges are parallel to rafter and perpendicular to Purlins. See assembly drawing for location of initial roofing panel.

Fasten the roofing panels at each roof Purlin in the low, flat section of the panel immediately adjacent to the high rib of each panel at 9" on center using #12 Tek Screws. **DO NOT OVERDRIVE SCREWS. WASHERS SHOULD BE SNUG BUT NOT FLATTENED.**

Install the remaining roofing panels according to the sheathing installation drawing, using #12 Tek Screws at 12" on center spacing at each metal side lap in addition to Purlin fasteners. **Do not install any roofing trim/flashing until siding has been installed.**



Drawings are for illustrative purposes only. NOT TO SCALE.



Installing the Siding Panels

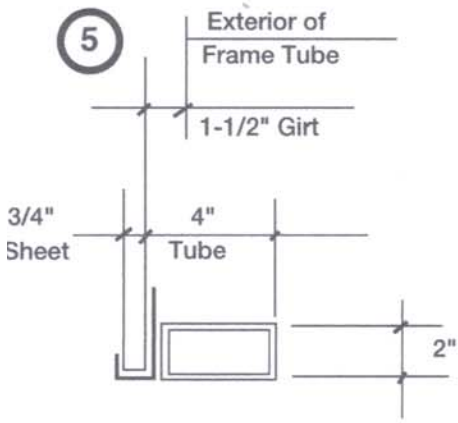
Siding installation can start at any corner of the building.

Be sure the first siding panel on each side of the building is installed vertically (plumb) in order to create an eye-pleasing appearance.

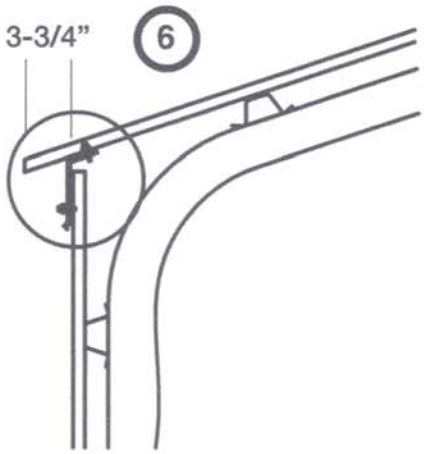
Position each panel to assure proper top of panel location, then fasten at each Girt location with #12 Tek Screws on the flat section adjacent to high rib. **DO NOT OVERDRIVE SCREWS. WASHERS SHOULD BE SNUG, BUT NOT FLATTENED.**

Continue side panel installation according to sheeting installation drawing. Fasten with #12 Tek Screws at 12" on center spacing at each panel side lap in addition to Girt fasteners.

After all siding panels have been installed, then roof and siding trim/flashing may be installed.



Door / Window Header Flashing

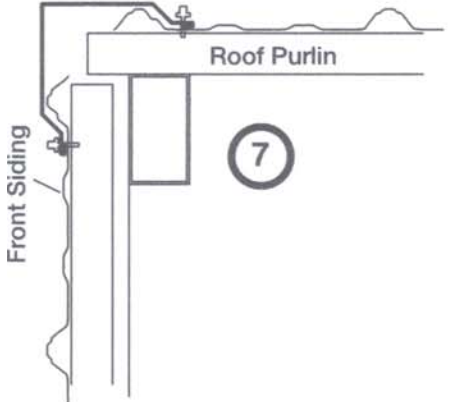


Eave Flashing

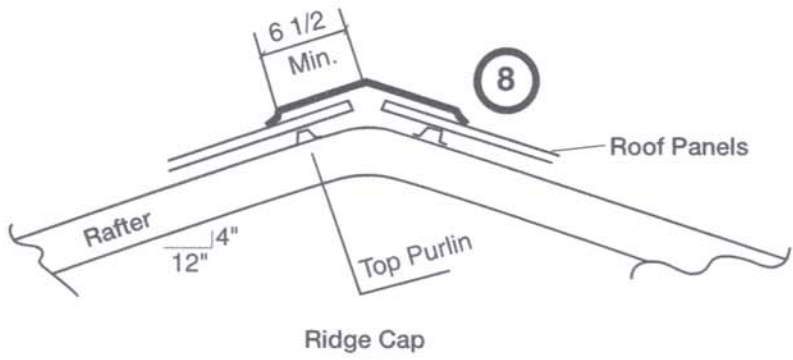
Installing the Trim/Flashing

Install the trim/flashing in the order listed below, using #12 Tek Screws. See detail drawings.

1. Vertical Corner Flashing
2. Window Sill flashing
3. Door/Window Jamb Flashing
4. Door/Window Header Flashing
5. Siding to roof Eave Flashing
6. Siding to Roof Gable Flashing
7. Ridge Flashing



Siding to Roof Gable Flashing



Ridge Cap

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