

Chapter 7 - Porch Framing

Contents

Chapter 7 - Porch Framing.....	7-1
Timing & Prerequisites	7-2
Concrete Porches Caps (Contractor)	7-3
Organize the Porch Framing Lumber	7-3
Types of Porch Roofs	7-3
Porch Beams	7-4
Load Bearing Beams	7-6
Porch Framing Layout	7-7
Identify Location of Porch Posts	7-7
Porch Beam’s Joist Hangers	7-8
Mark where the beams will be hung on the house	7-8
Install the Beam’s Joist Hangers.....	7-9
Porch Posts	7-10
Install Porch Post Bases	7-10
Porch Beam Construction.....	7-13
Build Load Bearing Beams	7-13
Build Non-Load Bearing Beams.....	7-13
Build the Porch Beam Rakes	7-13
Install the porch beams.....	7-14
Install Porch Beam Top Plate	7-15
Summary	7-16

This chapter details the framing to be used to build the front and back porches including:

- Porch concrete cap
- Porch posts
- Porch beams
- Wooden decks

The porch roof trusses will be presented in the “Roof Framing” chapter. The Smart Trim, porch railings and trim will be presented in the “Porch Trim” chapter.

Things to Consider
<ul style="list-style-type: none"> ➤ Porches are framed with boxed beams and 6x6 posts unless otherwise specified in the prints. ➤ Concrete porches will be poured as soon as 1st floor exterior walls are complete.
Safety Issues
<ul style="list-style-type: none"> ➤ Installing the porch beams will require careful placement of ladders. Spotters should be used when working on ladders near the edges of the porch.

Timing & Prerequisites

- This phase of the project cannot begin until the exterior walls are complete.
- The House/Project Lead will work with the Construction Superintendent to coordinate these volunteer activities.

Materials Needed	
Porch Roof Beams	Porch Posts
2X8s or 2x10s for Porch Beams	6x6s for Porch Posts
2x3s for Porch Beams	Post Bases (ABA66)
2x6s for Porch Beams	Post Cap Brackets (AC6 & ACE6)
Concealed Joist Hangers (HUC68)	Metal (4x6) Mending Plates
16d Sinker Nails	2x4s for Bracing
10d Sinker Nails	N10dHGD Hanger Nails (N10)
16d Galvanized Nails	10dHGD Hanger Nails
8d Sinker Nails	3 1/2” Red Head Wedge Anchors
N10dHGD Hanger Nails (N10)	
10dHGD Hanger Nails	

Concrete Porches Caps (Contractor)

Once the exterior wall framing is complete, the contractors will form-up and pour the porch caps. The porch cap is the 4" concrete porch deck poured over the porch foundation.

Before the caps are poured:

- Remove the temporary stairs which are suspended on the porch foundation.
- Ensure the 2" Styrofoam has been installed to the framing behind the area where the porch caps will be poured.

After the caps are poured:

- Re-install the temporary stairs. (See "Re-Install the Temporary Stairs after the Porch Cap is poured" in the Deck chapter).
- For three (3) days after the concrete is poured, cover the traffic areas on the porches with pieces of OSB.

Organize the Porch Framing Lumber

Critical Issues

1. Keep lumber flat and dry to prevent warping.

1. Separate and crown the lumber into stacks of:
 - 2x8s for porch beams.
 - 2x3s for porch beams.
 - 2x6s for porch beam top plates.
 - 6x6s for porch posts.
2. Crown all of the lumber as described in the "Framing Techniques" in Chapter 4 "Framing Materials, Tools, and Techniques".

Types of Porch Roofs

There are 3 basic types of porch roofs:

1. Shed roof – The trusses are perpendicular to and hang off the front or back of the house. The truss tails sit on top of a beam which runs parallel to the house. Shed roof trusses do not have an energy heel.
2. Gable roof – The trusses run parallel to the front or back of the house. Gable roof trusses which continues the house roof line out over the porch will have an energy heel. Those trusses which do not align to the house trusses will not have an energy heel.
3. Extended roof–The house trusses will extend out over the porch. All house trusses have an energy heel.

Refer to the prints for the type of porch roofs to be used and details about the roofs.

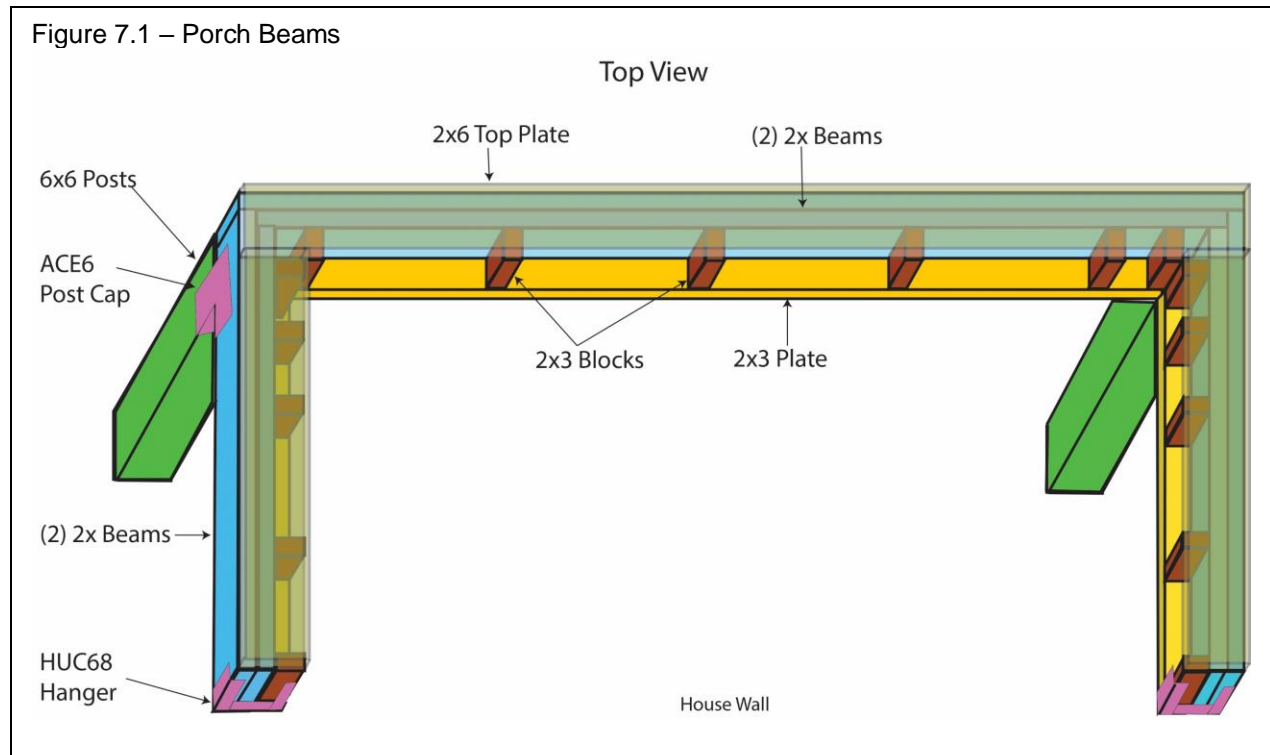
Porch Beams

Critical Issues

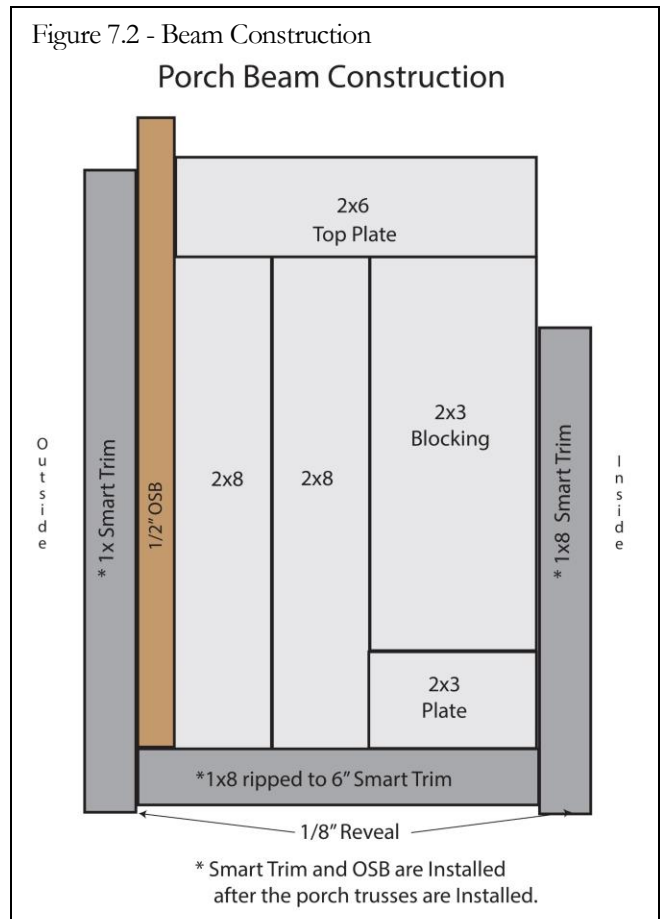
- Porch beams are built with a pair of 2x8 or 2x10, depending on the house model, sandwiched together with a 2x3 rake tacked on.
- The ends of the outside 2x8 or 2x10 of a porch beam which support the roof trusses (load bearing) and are not attached to the house, must extend across the entire top of the porch posts.

Safety Issues

- Ensure platform ladders are set up securely with their legs well away from the porch edges
- Ensure extension ladders are set up securely with their feet level and the top leaning on a solid surface.
- **DO NOT LEAN** extension ladders against posts.
- **DO NOT LEAN** extension ladders against unsecured beams.
- If extension ladders are placed against beams, the top must extend above the beam.
- The beams are heavy. Use many hands to lift them into place.
- Do not leave beams sitting on top of posts unsecured.



- The beam is built with two (2) 2x8s or 2x10 depending on the house model.
- A 2x3 rake is attached to the inside of the beam. (See Figure 7.2).
- Once the beams are all installed, a 2x6 top plate will be installed. The top plate must be installed overlapping the end joints similar to installing the second top plates on the walls.
- The porch trusses will be installed on the beam. (See “Truss Setting” in the Roof Framing chapter.
- After the porch trusses are set, 1/2” OSB will be added to the truss gables, tails, and the beam below.
- The beam will be wrapped with Smart Trim after it is inspected. (See “Porch Trim” Chapter).



Load Bearing Beams

- If the tails of the porch trusses are installed over a beam, that beam is considered a load bearing beam. If a load bearing beam terminates at a post, it will extend entirely over the top of the post.
- Non-load bearing beams which terminate at a post will terminate on the post with the ends positioned behind and perpendicular to the load bearing beam.
- For **shed roofs**, the beams which parallel the house are typically load bearing.
- For **gable roofs** and **extended roofs**, the beams which are perpendicular to the house are load bearing.

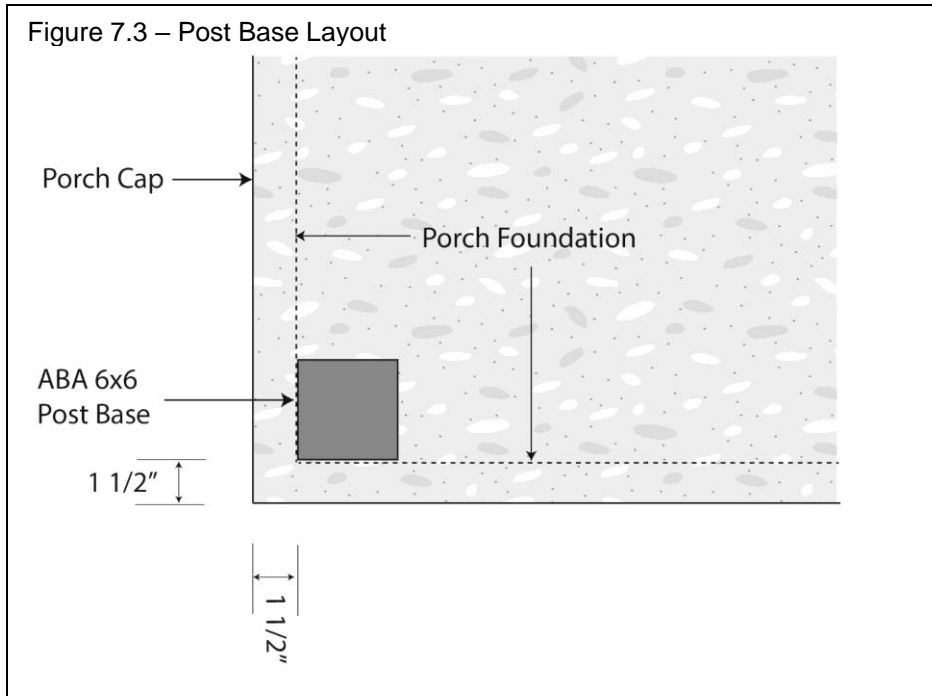
Porch Framing Layout

Identify Location of Porch Posts

Critical Issues

- ◆ The porch post cannot be installed until the porch floor is poured.
- ◆ The porch posts must sit on the porch foundation.
- ◆ Only use BLUE chalk line on concrete porches.

1. Set the ABA66 post base 1 ½" in from the front edge and 1 ½" in from the side of the porch. Mark the edges of the post base. Mark the location of post bases for each end of the porch. (See Figure 7.3)
 - **Note:** The posts must set back from the edge of the porch by 1 ½" so they sit over the porch foundation.
2. Snap a blue chalk line across the porch aligned with front edges of the two post base layouts. Ensure the line is parallel to the house by measuring the distance from the house to the line on each side of the porch. Adjust the line as needed.
3. Reference the prints to determine the spacing between the end posts and the center posts. Mark their position along the chalk line.
4. Mark perpendicular lines back to the house along the sides of the porch. Use a "3-4-5" triangle off the front chalk line at each corner post. The perpendicular lines run along the side of the post base.
5. Draw a vertical plumb line up the house at the point where the lines on the side of the porch meet the house.

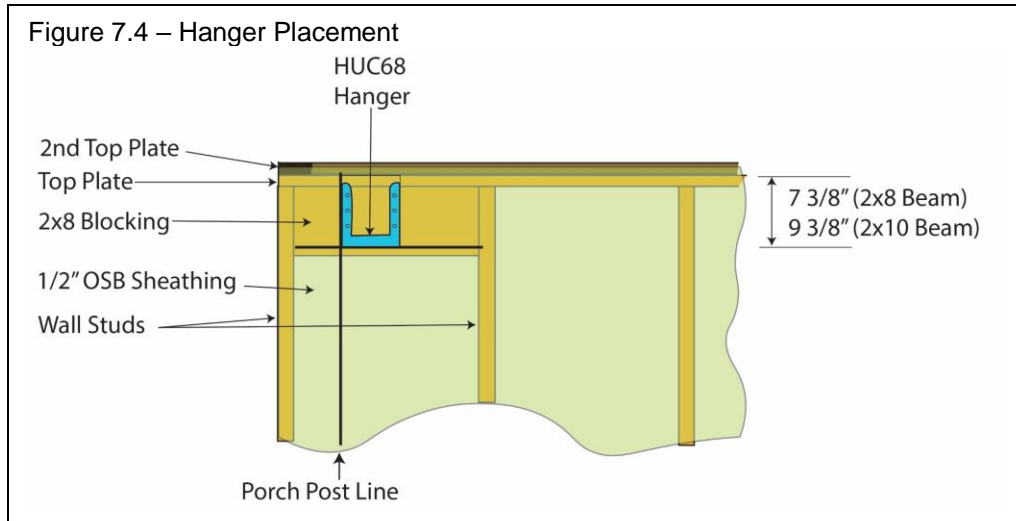


Porch Beam's Joist Hangers

The porch beams which intersect the house will be supported at the house with concealed joist hanger #HUC68.

Mark where the beams will be hung on the house

1. Measure and mark the exterior sheathing where the top of the beam will intersect the house. The top of the porch beam's 2x will be level with the top of the first top plates on the walls. (See Figure 7.4).
2. Measure down and mark the exterior sheathing where the bottom of the beam will intersect the house. The height of the beam will be **7 3/8" for 2x8 beams or 9 3/8" for 2x10 beams.**
3. The joist hanger will be installed with its outside vertical edge flush to the plumb line made above "See "Identify Location of Porch Posts".
4. Make a second mark 5 1/2" from the first mark for the inside edge of the hanger. Use a straight edge to create a vertical line at this mark.



Install the Beam's Joist Hangers

- Install a HUC68 joist hanger at each point where a beam will be attached to the house. The hangers must be attached to solid framing lumber behind the OSB sheathing; not just into the exterior sheathing. 2x8 blocking should have been installed when the walls were built.
- If the blocking has not been previously installed, install 2x8 blocking in the stud bay where the hanger will be attached.

Blocking – Cut and install a block of 2x8 in the stud bay tight to the exterior sheathing. Toe-nail the blocking in place with 16d sinkers.

- Install the joist hanger within the lines made above.
- Hold the joist hanger flush to the horizontal line and even with the vertical lines.
- Install the joist hanger with 10dHGD hanger nails. Place a nail into all holes in the hanger.

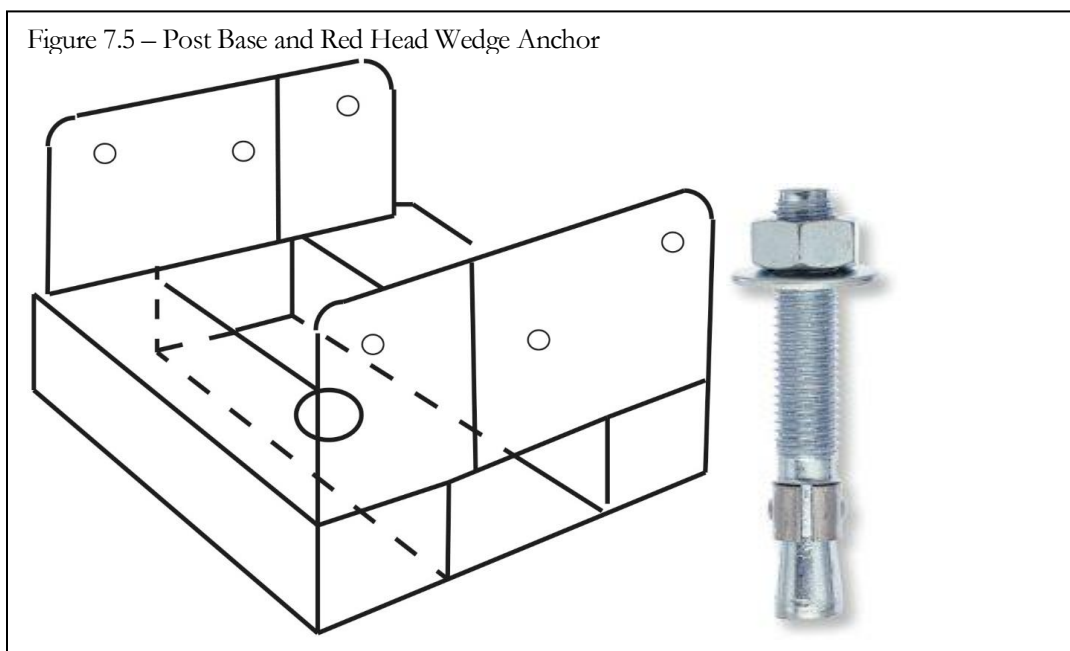
Porch Posts

Install Porch Post Bases

Critical Issues

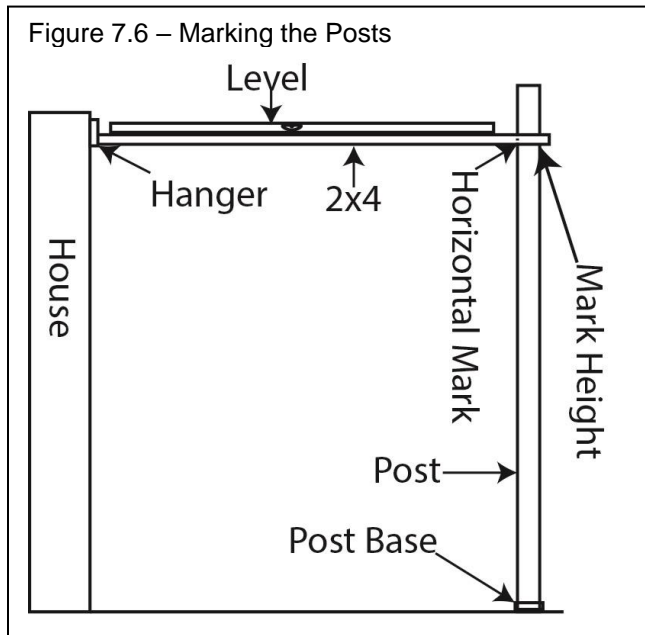
- ◆ Each porch post will be anchored to the porch floor with a post base.

1. Install post bases. (See Figure 7.5).
 - At each location marked above, install an ABA66 post base. Ensure the posts will sit at least 1 ½" from the outside edge of the porch cap.
 - Install the post base (ABA66) with a 3 ½' Red Head wedge anchor. Mark the center and drill a ½" hole in the concrete. Install the base and wedge anchor using a ratchet wrench to drive the anchor into the concrete. **Do Not Over Tighten.**



2. Install the corner 6x6 posts.
 - Cut the two (2) corner post level with the hangers first. (see figure 7.6).
 - Measure the distance between the house and the post base.
 - Make a mark on a straight 2x4 at the distance measured.
 - Position the 6x6 post into the post base. Ensure the post is completely seated in the base. You may need to bore out the bottom of the post to fit over the wedge anchor.
 - Position the 2x4 in the hanger bracket.
 - Hold a level on top of the 2x4.
 - Position the post even with the distance mark on the 2x4.
 - Hold the 2x4 level and mark the 6x6 post with a line across the bottom of the 2x4.

- Remove the post from the post base and cut it to length.
 - Lower the post and carry it to the cutting area.
 - Transfer the marks around the post.
 - Use a circular saw to cut along each line.
 - The saw will not cut all the way through. Use a reciprocating saw to finish the cut.



- Position and brace the post in place.
 - Drive two (2) wooden stakes into the yard for each corner post. Place one stake in front and one stake at the side of each corner post. Align the posts with the edges of the 6x6 post.
 - Attach 2x4s to each stake with 16d sinkers; 1 nail in each stake.
 - Position the post back in the post base.
 - Hold the post plumb and attach the other ends of the braces to the post with 16d sinkers; 1 nail in each 2x4.
 - Attach the posts to the post bases with Simpson N10 hanger nails. Fill all holes.
 - Add additional 16d nails as needed to secure the post.
- 3. Install the center 6x6 posts.
 - To mark the height of the center posts, use a chalk line.
 - Hold the ends of the chalk line on the top edge of the two corner posts.
 - Position the center posts into their post bases.
 - Snap a line across the center post. This will be the height of the post.
 - Cut the post to size similar to the corner post.
 - Position and brace the posts.

- Attach the posts to the post bases with Simpson N10 hanger nails. Fill all holes.
4. Ensure the posts are plumb, aligned with each other, and at the correct position.

Porch Beam Construction

- Two (2) layer of 2x8 or 2x10 will be required for each section of porch beam.
- The top of the 2x6 top plate should be level and at the same height as the top of the second top plates on the first floor exterior walls.

Build Load Bearing Beams

- Cut the outside layer of 2x(s) to extend the entire length of the beam.
 - For Gable Roofs – Extends from joist hanger to front of porch post.
 - For Shed Roofs – Extends from corner to corner of the porch post. If more than one piece of 2x is required, join the pieces over the center of a post.
- Cut the inside layer of 2x to interlace with any intersecting beams. (See Figure 7.1). The inside layer will be 1 ½” shorter.
 - IF more than one piece of 2x will be required, join the 2x(s) over the center of a post; but not the same post as the first layer. The joints must be staggered.
- Place the pieces of the beam on a solid flat surface for assembly with the inside 2x on top. Flush the long edges and stagger the short edges as required. Attach the two (2) 2x(s) with 10d sinkers; 3 rows 16” o.c. for 2x8s and 4 rows 16” o.c. for 2x10s.

Build Non-Load Bearing Beams

- The 2x(s) for non-load bearing beams will be cut and assembled the same as for load bearing beams only they will be cut 1 ½” shorter to allow the interlacing of the load bearing and non-load bearing beams.

Build the Porch Beam Rakes

- Cut a piece of 2x3 for the bottom plate of each beam or section of beam. Cut the 2x3 to the same length as the inside 2x for that section of beam.
- Miter the ends of the bottom plate which sit on top of post at a 45 degree angle. The ends of intersecting beams should fit together.
- Cut 2x3 blocks for the rake. For 2x8 beams the blocks should be 5 7/8” (7 3/8” – 1 ½”) and for 2x10 beams the blocks should be 7 7/8”. Cut enough blocks to build the rakes with the blocks spaced 16” oc.
- Lay out the 2x3 bottom plate. A 2x3 block will be installed at the ends which sit in a joist hanger. A 2x3s blocks will be installed at the ends which sit on a post. The blocks will be attached just before the miter cuts.
- Attach the 2x3 blocks to the 2x3 plate with 10d sinkers; 2 nails through the bottom plate into the bottom of each block.
- Toe-nail the rake to the 2x beam with the bottom to the rake flush with the bottom of the beam with 16d sinkers through the rake into the beam; 1 nail every 16”.

Install the porch beams

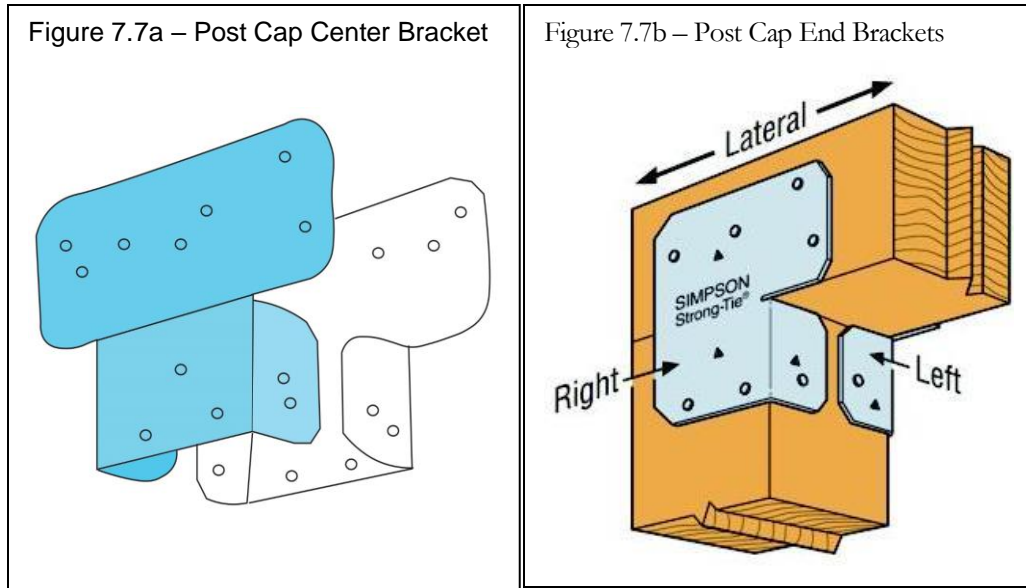
Critical Issues

- ◆ The beams are heavy. Ensure there are enough volunteers to handle the weight of the beam.
- ◆ Install the load bearing beams first.

Safety Issues

- All lifting activities must be coordinated by the Lift Leader.
- Avoid walking backwards
- Clear the porch of tools and materials before lifting the beams.

1. Assign a Lift Leader who will coordinate the lifting activities and will provide instructions to the lifting crew.
2. Install the load bearing beams (those sitting on posts) first.
3. Position a volunteer on a platform ladder at each post on which the beam will rest.
4. With many hands, lift the beam or beam section up to the volunteers on the platform ladders. Do not stand under the beam. Do not let go of the beam until told to do so.
5. The volunteers on the ladders will slide the beam into place.
6. Align the tops of the posts with the sides of the beam.
7. Toe-nail the beam to the posts with 16d galvanized nails. Nail only one post at a time while the other volunteers continue to support the beam. **Keep hands on the beam until it is totally secured.**
8. If this beam is installed in a joist hanger, install the Simpson N10 hanger nails to hold it in place.
9. Install the post cap brackets.
 1. Attach two (2) post cap brackets to the top of each post to hold the beam to the post using N10 hanger nails.
 2. The brackets on the end posts are ACE6. There will be a left and a right bracket for each post. Install them as shown. (See Figure 7.7b).
 3. If the beams have been connected using a hanger bracket, do not install the ACE6 post cap over the hanger bracket. Use a 4x6 mending plate to secure the beam to the post. Attach the mending plate with N10 hanger nails; fill all holes.
 4. The brackets on the center posts are AC6. These brackets are identical. Install one on the outside and one on the inside. (See Figure 7.7a).
 5. Remove the temporary supports holding the beam.



Install Porch Beam Top Plate

1. Cut pieces of 2x6 for the top plates. The top plate must be cut to extend across end and center joints in the beam. The top plate must also terminate over a post or in a hanger.
2. If possible, notch the top plate of the house and extend the top plate over the wall of the house.
3. Ensure the corners are square before installing the top plates.
4. Install the 2x6s top plates. Attach the 2x6s with 16d sinkers into the 2x8s of the beam; 2 nails every 16”.

Summary

Post placement	1 ½" from each edge
Beam width 2x8	8 7/8"
Beam width 2x10	10 7/8"