

Chapter 22. Shed Construction

22.1 BUILDING SHED FLOOR

22.2 BUILDING SHED WALLS

22.3 BUILDING SHED ROOF

22.4 ASSEMBLING SHED

Tools needed by volunteers:

Hammer
Nail apron
Tape measure
Square
Utility knife
Pencil

Materials needed:

4 x 8 Treated plywood
2 x 4 Treated lumber
2 x 4 lumber
2 x 6 lumber
Roof trusses
4 x 8 OSB
Steel door
H-Clips
Timber screws
8d nails
16d nails
2³/₈" Paslode nails
3¹/₄" Paslode nails
2¹/₂" Deck screws (tan-colored)
See Table 22-1 for Materials List

Tools and equipment needed:

Generator
Extension cords
Chop saw
Circular saw
Table saw
Paslode nailers
6' level
Framing square
C-clamps
5/16" nut driver

Personal Protection Equipment:

Safety glasses (required)
Work gloves (recommended)

Reference Materials:

House Plan

Safety First! Review the Safety Checklist before performing tasks in this chapter.

22.1. **BUILDING SHED FLOOR**

22.1.1. **Frame Floor Sections**

1. Create two identical floor sections using treated 2x4s.

NOTE: The two frames will be joined together on the home site unless temporary assembly is required for photos (see Section 22.3.2.5 for instructions on temporary assembly).

2. Cut four pieces of treated 2x4 to 48" lengths for end plates.
3. Cut six pieces of treated 2x4 to 93" lengths for floor joists.
4. Assemble each floor section as shown in Figure 22-1 by nailing through the end plates into the end of each floor joist with two 16d nails.

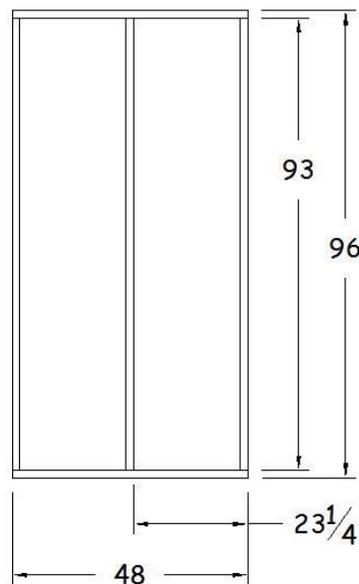


Figure 22-1. Floor Framing - Two Req'd.

22.1.2. **Sheath Floor Sections**

1. Square each frame using diagonal measurements.
2. Cover each section with one 4'x8' sheet of 3/4" treated plywood. Nail to the end plates and all floor joists with 8d nails every 6". See Figure 22-2.

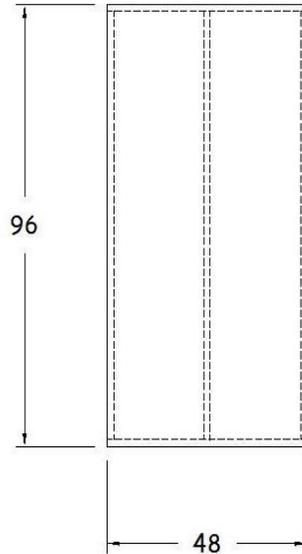


Figure 22-2. Floor Sheathing – Two Req'd.

22.2. BUILDING SHED WALLS

22.2.1. Frame Walls

1. Front Wall:
 - a. Cut two pieces of 2x4 to 89" lengths. Pair them up as upper and bottom plates (one pair for each wall) and lay out stud locations as shown in Figure 22-3.

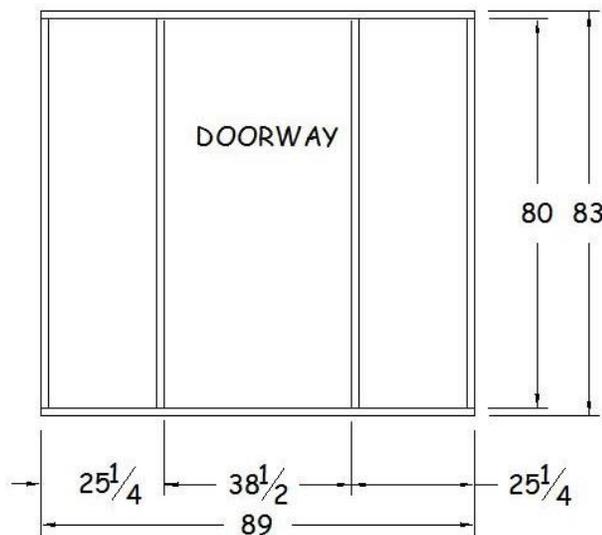


Figure 22-3. Front Wall Framing – One Req'd.

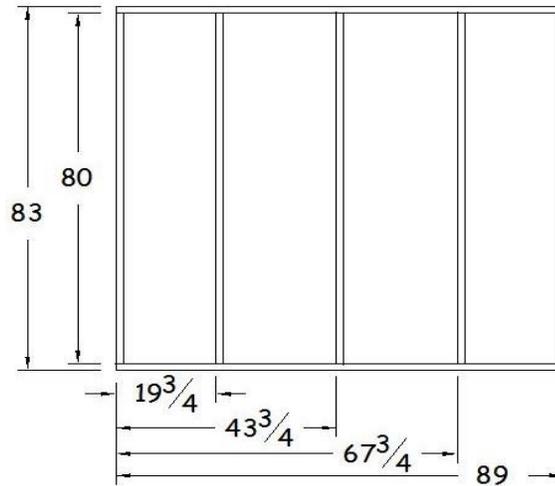


Figure 22-5. Back Wall Framing – One Req'd.

22.2.2. Sheath Walls

1. Front Wall:

- a. Square the wall frame using diagonal measurements.
- b. Cut two pieces of 1/2" OSB 28 3/4" x 84 1/2". Position OSB rough side up flush with the edge of the door opening and flush with the top edge of the upper plate. There should be overhang of 3 1/2" on each side and overhang on the bottom plate of 1 1/2". A scrap piece of 2x4 can be used as a gauge for the 3 1/2" end overlap. Nail each piece of OSB into studs and both plates every 6" using 8d nails. See Figure 22-6.

NOTE: Save the 19" wide OSB drop. Label it "Save for Scuttle" and keep it with the assembled shed components.

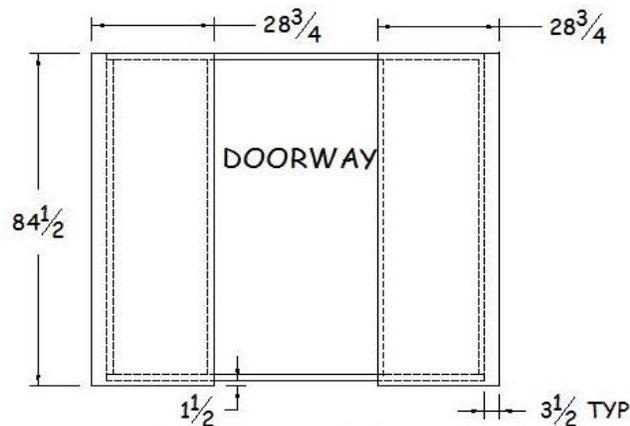


Figure 22-6. Front Wall Sheathing – One Req'd.

2. Side Walls:

- a. Square each of the two side wall frames using diagonal measurements.
- b. Cover the upper half of each wall with a 48"x 96" sheet of 1/2" OSB with the rough side up. Nail into all studs and the upper plate with 8d nails every 6". These pieces should be flush with the top edge of the upper plate.
- c. Cut two additional pieces of 1/2" OSB approximately 36 1/2" x 96", to fit below the upper section of OSB. These pieces should fit flush to the upper OSB pieces and overhang the bottom plate by 1 1/2". Nail into all studs and the bottom plate with 8d nails every 6". See Figure 22-7.

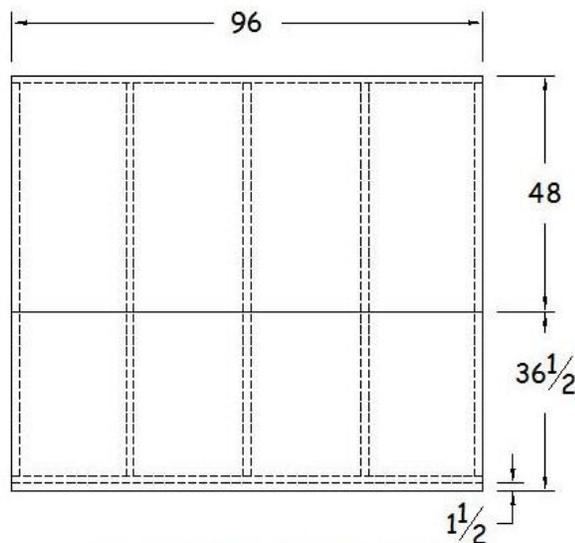


Figure 22-7. Side Wall Sheathing – Two Req'd.

3. Back Wall:

- a. Square the wall frame using diagonal measurements.
- b. Cover the upper half of the wall with a 48"x 96" sheet of 1/2" OSB with the rough side up, flush with the top edge of the upper plate and overhanging each side by 3 1/2". Nail into all studs and the upper plate with 8d nails every 6".
- c. Cut an additional piece of 1/2" OSB. approximately 36 1/2" x 96", to fit below the upper section of OSB. This piece should fit flush to the upper OSB piece, overhang each side by 3 1/2" and overhang the bottom plate by 1 1/2". A scrap piece of 2x4 can be used as a gauge for the 3 1/2" end overlap. Nail into all studs and the bottom plate with 8d nails every 6". See Figure 22-8.

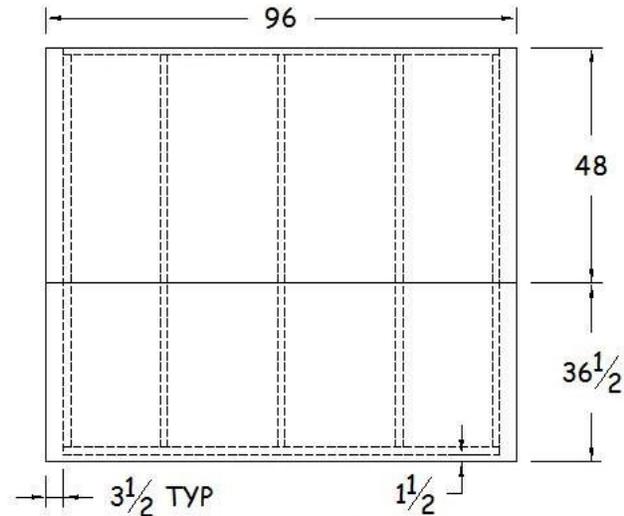


Figure 22-8. Back Wall Sheathing – One Req'd.

22.3. BUILDING SHED ROOF

22.3.1. Frame Roof

1. Create two identical roof sections.
2. Cut two sheathing pieces for the gable end of each roof section. Snap two diagonal lines from corner to corner on one 4'x8' sheet of 1/2" OSB to locate the center. Set a truss on the OSB with the truss peak at the center point and the bottom chord flush with the long edge of the 4'x8' sheet. Use a pencil to trace the top of the truss onto the OSB. Repeat this on the other half of the OSB sheet. Cut out these two large triangles and angle nail them with 8d nails to the two gable end trusses, rough side of the OSB out. (Angle nailing prevents nails from protruding through the other side.) Keep the lower edge flush with the bottom edge of the bottom chord.
3. Cut two pieces of 2x4 exactly 4' long to create "truss ties". Set three trusses on their tails. Set one of the 4' truss ties on edge on top of the bottom truss chord and tight to the vertical truss support (see Figure 22-9). Position the truss tie flush to the outside edges of the two end trusses. Secure the truss tie to the two vertical truss supports on the end truss braces with two 16d nails for each truss. Center the middle truss 24" from the outside edges of the end trusses and nail the truss tie to the vertical truss support with two 16d nails.
4. Repeat Step 3 to create the second roof section.

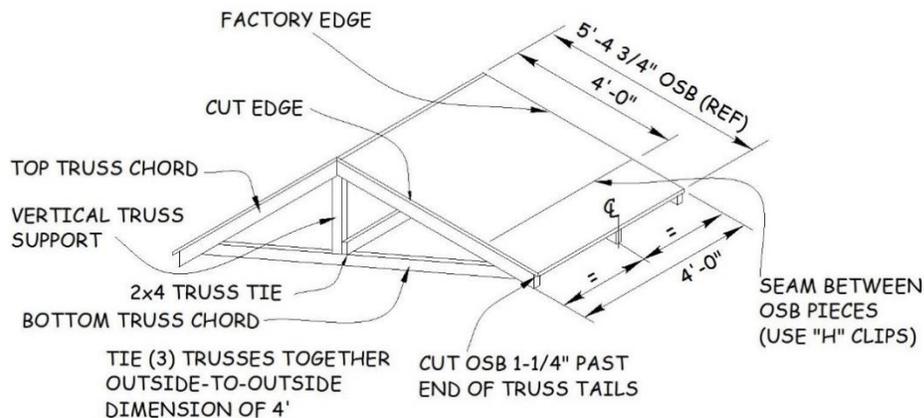


Figure 22-9. Shed Truss Component Assembly – Two Req'd.

22.3.2. Sheath Roof

1. Sheath both sections of the roof making sure the cut end of the OSB is positioned flush with the sheathed gable end.
2. Measure down 48" from the peak on the two end trusses of each section and make a mark on each truss. Snap a chalk line across all three trusses on both sections. Repeat on the other side of each peak.
3. Cut two 4'x8' sheets of OSB into four 4'x4' pieces. Place one 4'x4' piece of OSB on the trusses of one roof section, rough side up, cut edge flush with the non-sheathed end truss and the bottom on the chalk line. Make sure trusses are 48" from outside to outside as the OSB may not be cut straight. Make sure the center truss of each section is still centered. Nail at the top and bottom OSB corners with one 8d nail. Repeat on the opposite side of each section.

NOTE: Aligning the cut edge flush with the non-sheathed end truss ensures the proper orientation of the OSB for roof strength.

4. Measure from the bottom edge of the OSB to the truss tail. Add 1 1/4" to provide the desired overhang. Do this for each roof section. Cut two pieces this width from a 4'x8' sheet of 1/2" OSB lengthwise to the width needed for each section, then cut each of these into two 48" lengths. Center the OSB pieces on the trusses, rough side up, add two H-Clips to each top edge, spaced about 12" in from each end truss, and nail with 8d nails 6" apart.
5. This concludes the off-site construction assembly steps, unless temporary assembly is required for photos. If photos are desired:
 - a. Turn the two floor sections upside down, flush all surfaces, clamp the two center joists and join with 2 1/2" deck screws. Remove the clamps and turn the floor frames right side up.

- b. Assemble the wall sections with 2½” deck screws into the platform and at all wall intersections. Use an adequate number of screws to ensure the shed is securely assembled.
 - c. Using an appropriate number of people, lift the two roof sections and place on the walls and clamp the two sections together. Center the sections and take photos.
 - d. Disassemble roof, wall, and floor sections.
6. Store all assembled components on a flat surface to avoid warping prior to on-site construction.

22.4. ASSEMBLING SHED

22.4.1. Assemble and Secure the Floor Frames

1. Locate the 9’x9’ pad of stone. Verify that the location conforms to the House Plan. Check the pad of stone for level on each side and diagonally. Adjust the base as necessary using a long 2x4 until level.
2. Check with the homeowner for desired door location. The default orientation is the door facing the street.
3. Turn the two halves of the floor upside down, flush all surfaces, and screw together with 2½” tan-colored deck screws (24” centers, alternating on opposite sides).
4. Flip the floor over onto the stone base, orient so the seam is NOT in the doorway, and adjust until level.

22.4.2. Set and Temporarily Secure the Walls

1. Verify that all the wall components have been sheathed (see Figures [22-6](#), [22-7](#) and [22-8](#)). There should be two 8’ long walls for the sides, a short back wall and a short front wall with the door opening. The OSB sheathing on all walls should extend 1½” below the bottom plate to attach to the sides of the floor frame. On the short walls, the OSB should also extend beyond the end studs by 3½” to overlap the long wall end studs.
2. Set one long wall on either side of the floor frame, with end studs flush to the outside of the frame, and with the OSB sheathing extending 1½” below the bottom plate and tight to the side of the floor frame. Tack the OSB with 8d nails at the ends and center. Nail the bottom plate in place at both ends and in the middle with 3¼” Paslode nails.

3. Temporarily brace the first wall with a 2x4 x 10' from the front wall upper plate to the front floor frame. Set the short back wall in place with the 3½" OSB sheathing overlapping the first wall. Make sure the corner is tight to the long wall corner and the OSB is tight to the outside framing. Tack the OSB with 8d nails at the ends and center. Nail the 2x4 corner together with two 3¼" Paslode nails, one at the top and one at the bottom. Nail the bottom plate in place at both ends and in the middle with 3¼" Paslode nails.
4. Repeat Step 2 above with the remaining side wall.
5. Remove the brace and install the front doorway wall between the side walls. When the corners are tight and the OSB is tight to the framing, tack the bottom OSB with 8d nails at the ends and center. Nail the 2x4 corners together at the top and bottom with two 3¼" Paslode nails. Nail the bottom plate with 3¼" Paslode nails at the two ends only. **Do not** nail the bottom plate inside the doorway.

22.4.3. Complete the Wall Assembly

1. Verify that all corners are flush and tight, that all bottom plates are straight, and that the bottom of the sheathing is tight to the outside of the floor frame.
2. Verify that the floor frame is level and adjust if necessary. Then check the corners for plumb, adjust if necessary, and nail the overlapping OSB at the corners with angled 2⅜" Paslode nails every 6".
3. Finish nailing the 1½" overlapping OSB at the bottom to the floor frame with 2⅜" Paslode nails every 6-8". Finish nailing the bottom plates to the floor frame with 3¼" Paslode nails, one in each bay between the studs. Finish nailing the corners with three additional 3¼" Paslode nails in each corner.

22.4.4. Install the Roof Sections

1. Place the two sections of the roof on top of the walls with gable ends over front (door) and back walls. Center the sections so they have approximately the same overhang on both eave sides and at each gable end. Line up the two center trusses so that both the tails and roof sheathing are flush between the two sections. Clamp these two center trusses tightly together and angle nail with 3¼" Paslode nails on both sides, about 12" apart with opposite sides staggered.
2. Starting with the gable end truss that is over the door, align the outside edge of the gable end truss chord flush with the outside surface of the front wall framing, then center the truss so the overhang is the same on both eave sides. Secure the truss to shed wall with 16d nails, through the upper plate into bottom chord of the truss.
3. Once the front gable truss is secured, adjust the eave overhangs at the back gable truss until centered. The overhangs should now be approximately the same at both ends of the shed. If it is difficult to center the back truss, "rack" the assembly to

one side until front and back are equal. Then secure this truss to the back wall with 3/4" Paslode nails, through the upper plate into bottom chord of the truss.

4. Drive one 6" timber screw through the upper plate and into the bottom of the truss chord on both ends of the non-gable trusses.

22.4.5. Install Sub-Fascia

1. On each gable end, cut two pieces from a 2x6 x12' to attach to the top chord of the upper truss. Measure from the truss peak to the end of the truss tail and cut to this length. Install the pieces over the OSB sheathing, with the top edge flush with the top of the gable truss. Nail each right and left side sub-fascia piece to the top truss chord with five pairs of 3/4" Paslode nails. Repeat on the opposite gable end.
2. On an eave end, measure the outside-to outside length from the front to the back gable sub-fascia. Cut a 2x6 x10' to this length. Install with the crown up, tight to the underside of the roof sheathing, with outside corners.

22.4.6. Install Gable End Corners

1. At each corner of the shed, measure the distance from the inside edge of the eave end sub-fascia to the shed wall (inside measurement). Using a framing square, make a mark on the shed wall at the height of the bottom edge of the gable truss tail. Do this at every corner because the measurements at each corner can vary slightly. Snap a chalk line from corner to corner. Repeat on the opposite side. (These lines will also be used to reference the location of the bottom of the F-channel.)
2. Cut a scrap 2x6 to the length measured in Step 1 above and angle cut each end to the end dimensions shown for the gable end corner in Figure [22-10](#). Also, cut a scrap piece of 2x4 about 6-8" long for use as a wall end support block behind the end corner.
3. Lift the end corner up behind the gable sub-fascia and position between the wall and the inside surface of the eave sub-fascia. Position the bottom flush with the chalk line and the bottom of the eave sub-fascia. Nail to the gable end sub-fascia (**on an angle** to prevent nailing through the sub-fascia) and through the eave end sub-fascia with two 3/4" Paslode nails at each location. Place the 2x4 support block behind the end corner, flush the bottom surfaces, nail two 3/4" Paslode nails into the corner framing, then nail through the front of the gable end corner into the support block with two 3/4" Paslode nails.

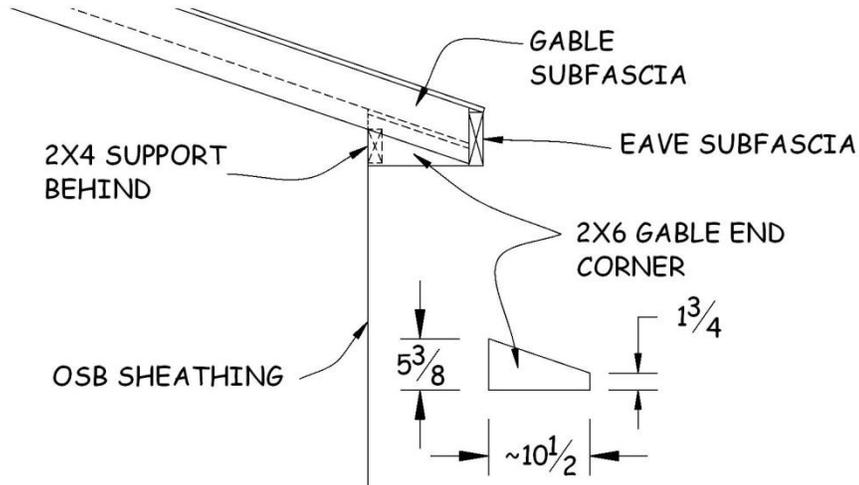


Figure 22-10. Gable End Corner Installation.

22.4.7. Complete the Shed

1. After the gable end sub-fascia has been installed, extend the OSB roof sheathing to cover the top of the gable sub-fascia. Cut 2" wide strips of OSB, install rough side up, flush with the outside edge of the gable sub-fascia. Nail the OSB strips every 6" using 2 3/8" Paslode nails.
2. Refer to Section 9.3 for instructions on installing the shed door.
3. Refer to Section 11.3 for instructions on siding the shed.

Table 22-1. Storage Shed Materials Sheet.

Assembly Location	Quantity	Description
Off-Site	2	3/4" x 4' x 8' treated plywood
	8	2 x 4 x 8' treated lumber
	29	2 x 4 x 8'
	6	5:12 x 8' roof truss with 12" overhang
	12	1/2" nominal 4' x 8' OSB
On-Site	2	2 x 6 x 10' for eave end sub-fascia
	2	2 x 6 x 12' for gable end sub-fascia
	1	2 x 4 x 10' for wall brace
	1	3'-0" outswing steel door