

Lean-to Tool Shed

Includes: Step-By-Step Instructions, Complete Details & Materials Lists



This storage shed is a free-standing building with a wooden skid foundation that makes it easy to move. With all four sides finished, the shed can be placed anywhere, but it works best when set next to a house or garage wall (or a fence)—its steeply pitched roof and narrow profile help it blend in with the neighboring structure. The shed shown in this project includes asphalt shingle roofing, T1-11 plywood siding, and 1 × cedar trim, but you can add any type of finish to match or complement the surrounding structures.

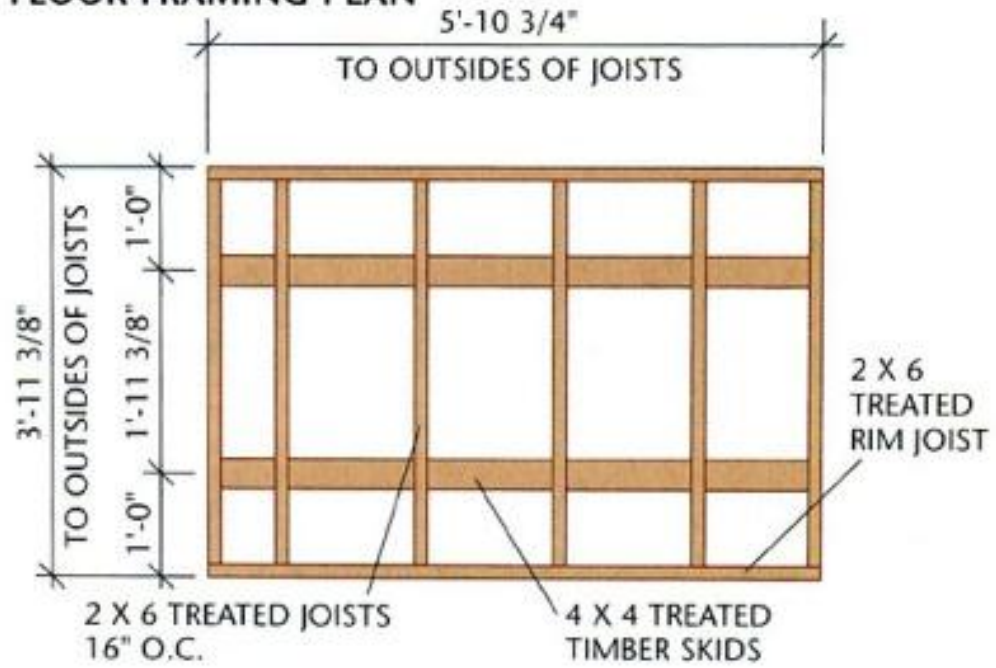
The shed's 65"-tall double doors provide easy access to its eighteen square feet of floor space, and its 8-ft.-tall rear wall can accommodate a set of shelves while leaving enough room below for longhand led tools.

Because the tool shed sits on the ground, in cold climates it will be subject to shifting with seasonal freeze-thaw cycles. Therefore, do not attach the tool shed to your house or any other building set on a foundation.

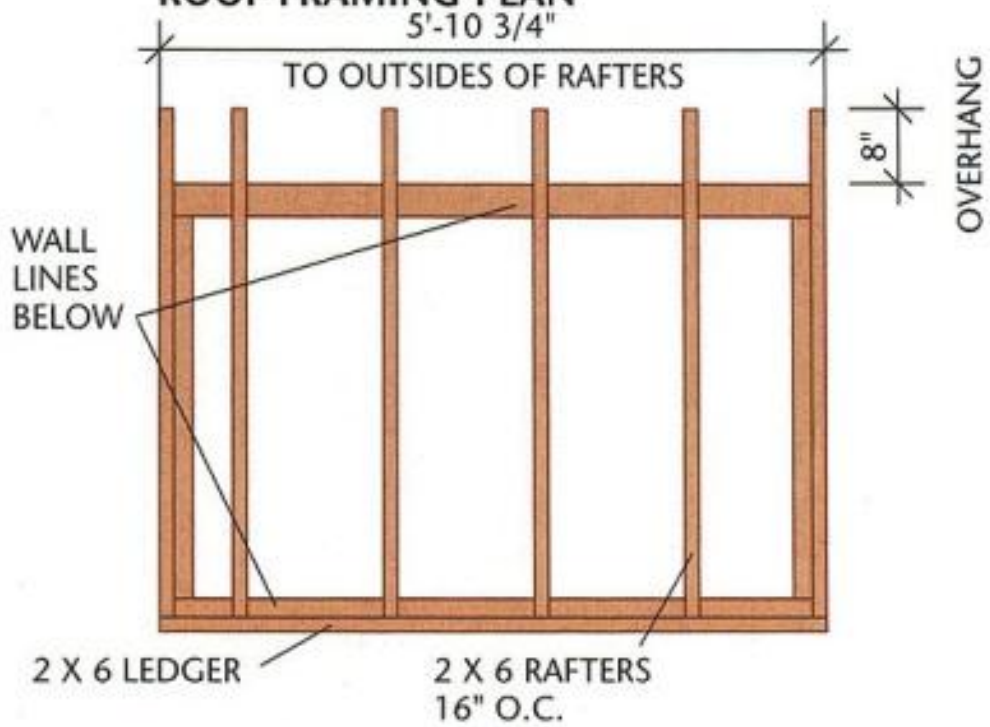
| Materials | | |
|--------------------------|------------------------|--|
| Description | Quantity/Size | Material |
| Foundation | | |
| Drainage material | 0.5 cu. yd. | Compactible gravel |
| Skids | 2 @ 6'-0" | 4 × 4 treated timbers |
| Floor Framing | | |
| Rim joists | 2 @ 6'-0" | 2 × 6 pressure-treated |
| Joists | 3 @ 8'-0" | 2 × 6 pressure-treated |
| Joist clip angles | 4 | 3 × 3 × 3" × 16-gauge galvanized |
| Floor sheathing | 1 sheet @ 4 × 8' | 3/4" tongue-&-groove ext.-grade plywood |
| Wall Framing | | |
| Bottom plates | 1 @ 8'-0", 2 @ 6'-0" | 2 × 4 |
| Top plates | 1 @ 8'-0", 3 @ 6'-0" | 2 × 4 |
| Studs | 14 @ 8'-0", 8 @ 6'-0" | 2 × 4 |
| Header | 2 @ 6'-0" | 2 × 6 |
| Header spacer | 1 piece @ 6'-0" | 1/2" plywood-5" wide |
| Roof Framing | | |
| Rafters | 6 @ 6'-0" | 2 × 6 |
| Ledger | 1 @ 6'-0" | 2 × 6 |
| Exterior Finishes | | |
| Plywood siding | 4 sheets @ 4 × 8' | 5/8 texture 1-11 plywood siding, grooves 8" O.C. |
| Door trim | 2 @ 8'-0" 2 @ 6'-0" | 1 × 10 S4S cedar 1 × 8 S4S cedar |
| Corner trim | 6 @ 8'-0" | 1 × 4 S4S cedar |
| Fascia | 3 @ 6'-0" 1 @ 6'-0" | 1 × 8 S4S cedar 1 × 4 S4S cedar |
| Bug screen | 8 @ 6'-0" | Fiberglass |
| Roofing | | |
| Roof sheathing | 2 sheets 4 × 8' | 1/2" ext.-grade plywood |
| Shingles | 30 sq. ft. | 250# per square (min.) |
| Roofing starter strip | 7 linear ft. | |
| 15# building paper | 30 sq. ft. | |
| Metal drip edge | 24 linear ft. | Galvanized metal |
| Roofing cement | 1 tube | |
| Door | | |
| Frame | 3" × 6'-0" | 3/4" × 3 1/2" (actual) |

| | | |
|-------------------------------|----------------|----------------------------|
| | | cedar |
| Stops | 3 @ 6'-0" | 1 × 2 S4S cedar |
| Panel material | 12 @ 6'-0" | 1 × 6 T&G V-joint AS cedar |
| Z-brace | 2 @ 10'-0" | 1 × 6 S4S cedar |
| Construction adhesive | 1 tube | |
| Interior trim (optional) | 3 @ 6'-0" | 1 × 3 S4S cedar |
| Strap hinges | 6, with screws | |
| Fasteners | | |
| 16d galvanized common nails | 3 1/2 lbs. | |
| 16d common nails | 3 1/2 lbs. | |
| 10d common nails | 12 nails | |
| 10d galvanized casing nails | 20 nails | |
| 8d galvanized box nails | 1/2 lb. | |
| 8d galvanized finish nails | 2 lbs. | |
| 8d common nails | 24 nails | |
| 8d box nails | 1/2 lb. | |
| 1 1/2" joist hanger nails | 16 nails | |
| 7/8" galvanized roofing nails | 1/4 lb. | |
| 2 1/2" deck screws | 6 screws | |
| 1 1/4" wood screws | 60 screws | |

FLOOR FRAMING PLAN

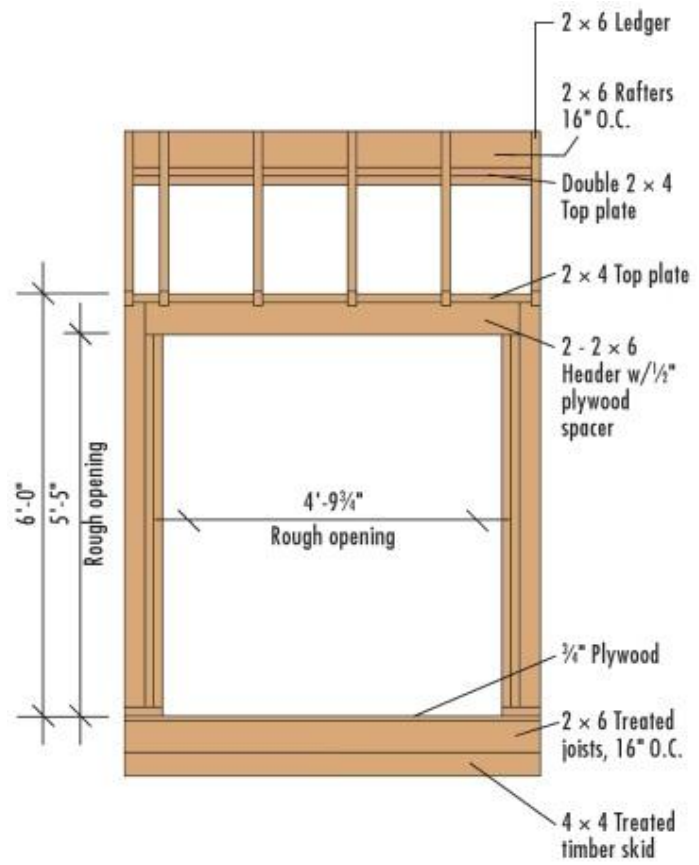
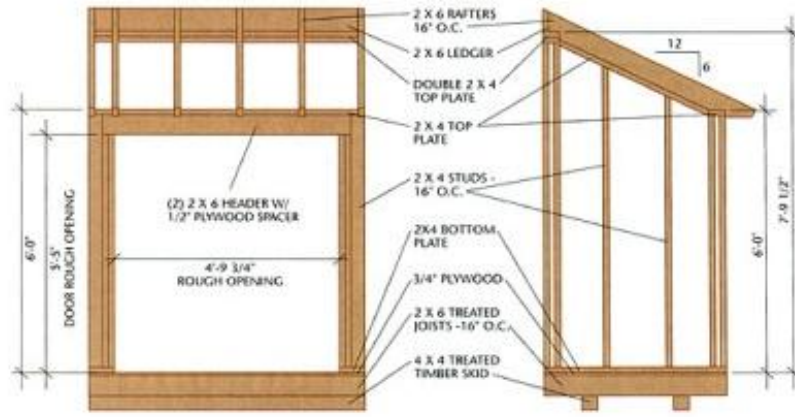


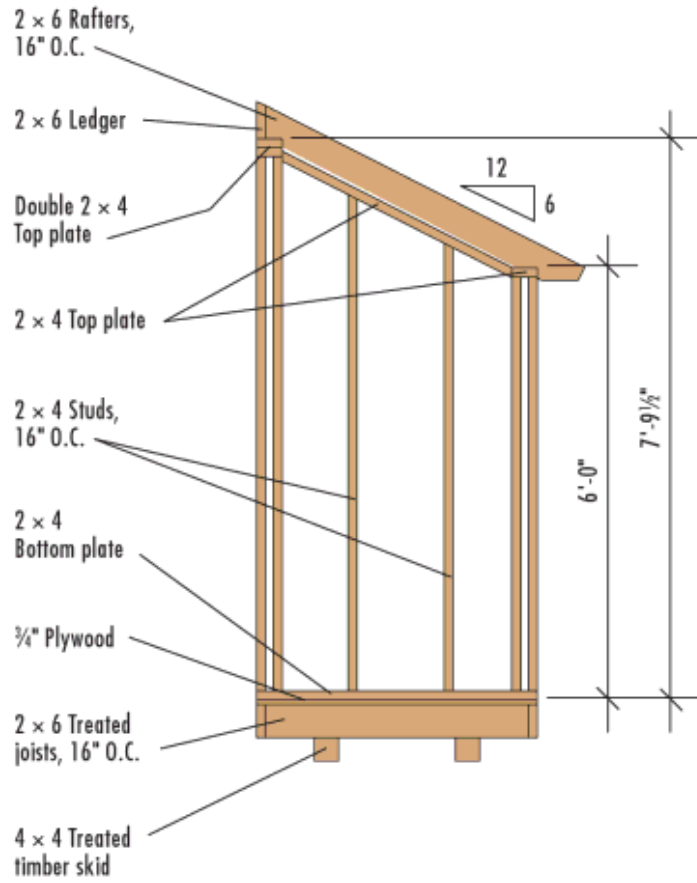
ROOF FRAMING PLAN



FRONT FRAMING ELEVATION

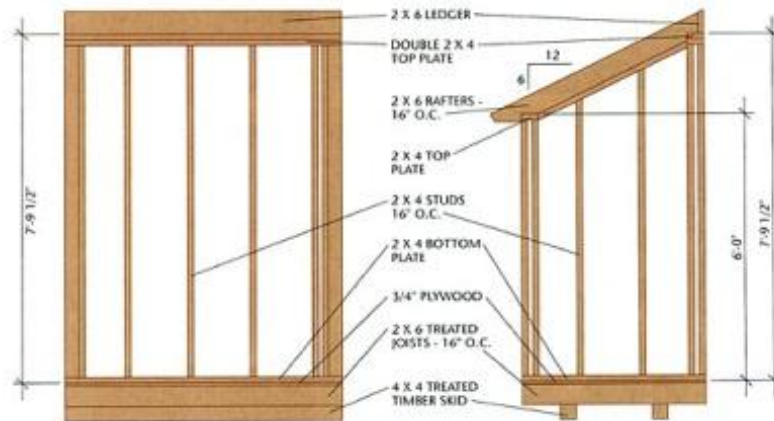
REAR FRAMING ELEVATION

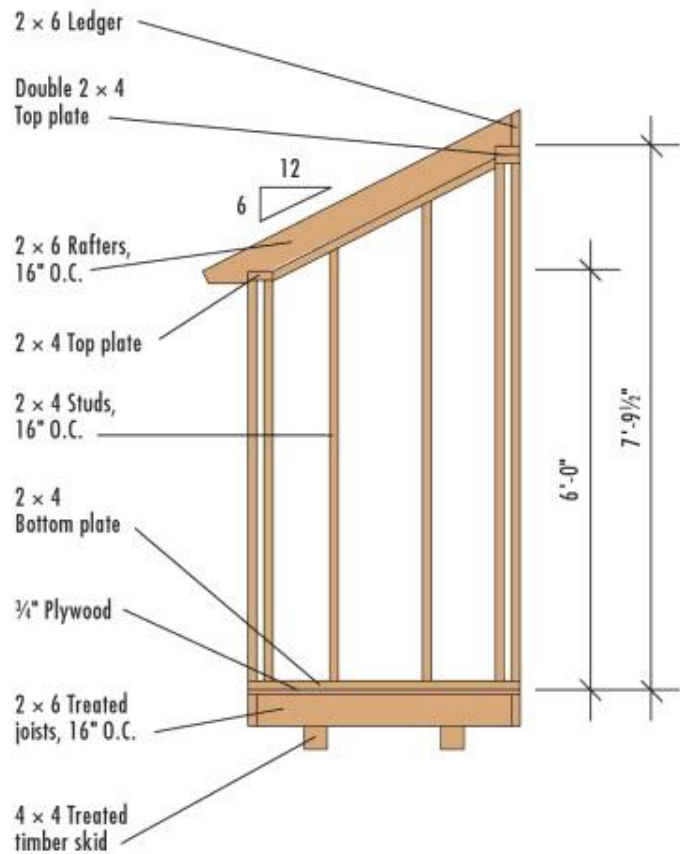
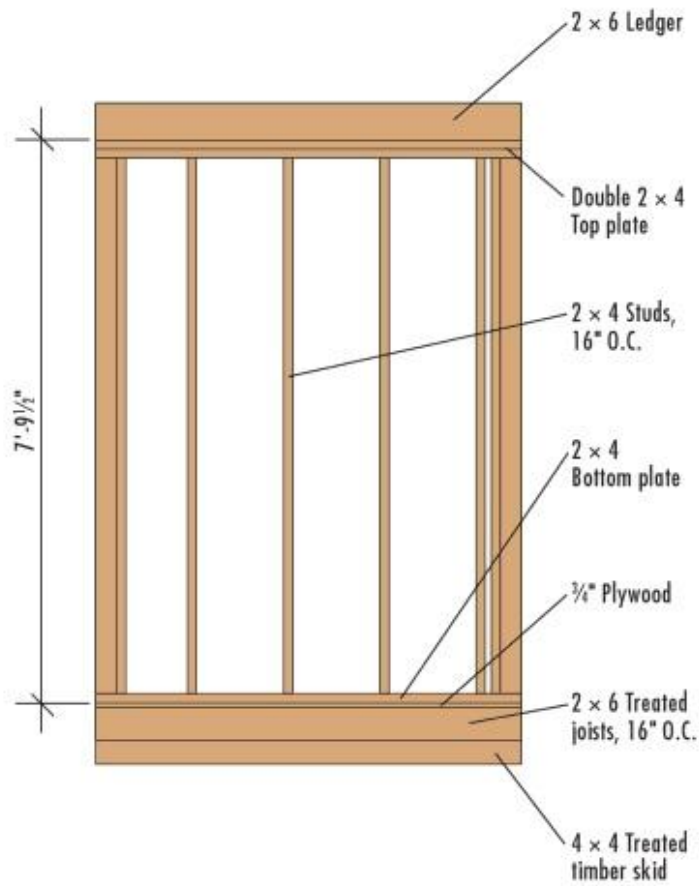




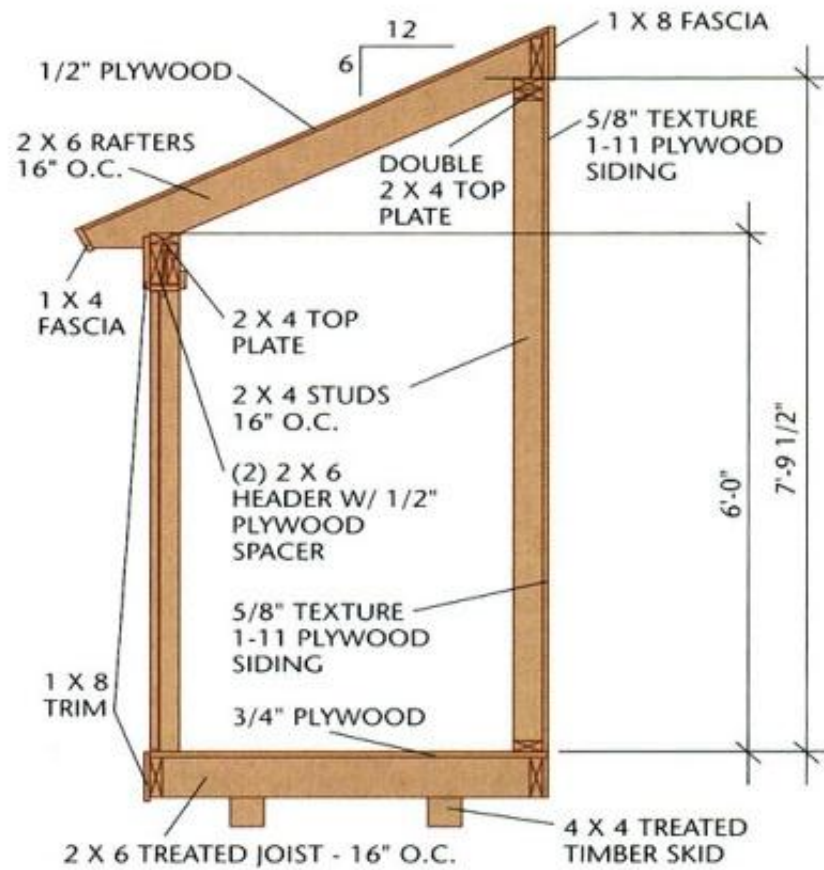
LEFT SIDE FRAMING ELEVATION

RIGHT SIDE FRAMING ELEVATION

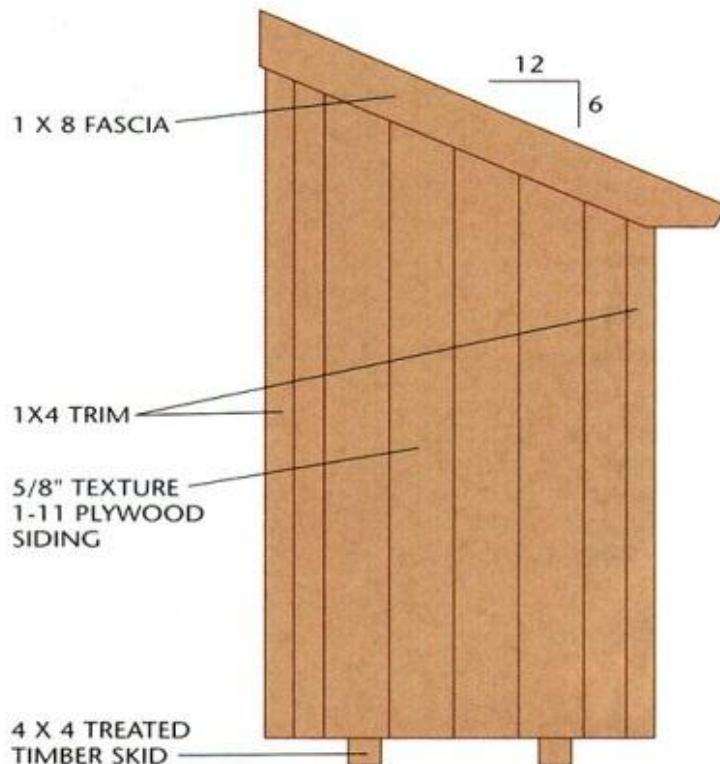




BUILDING SECTION

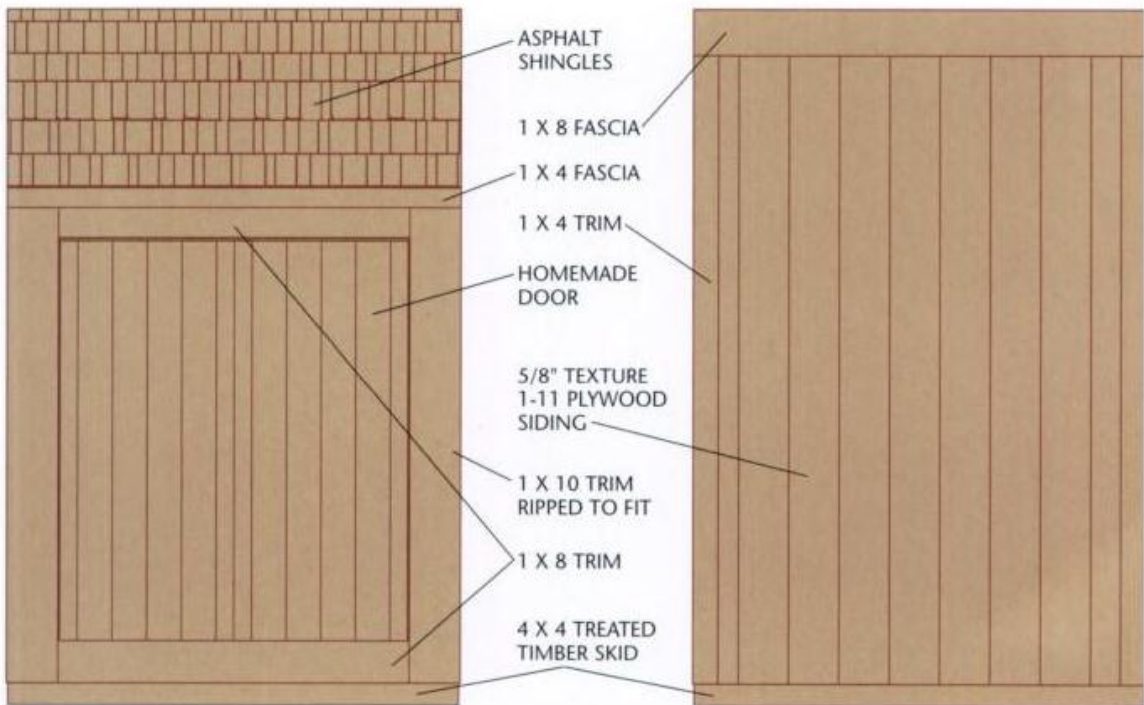


SIDE ELEVATION

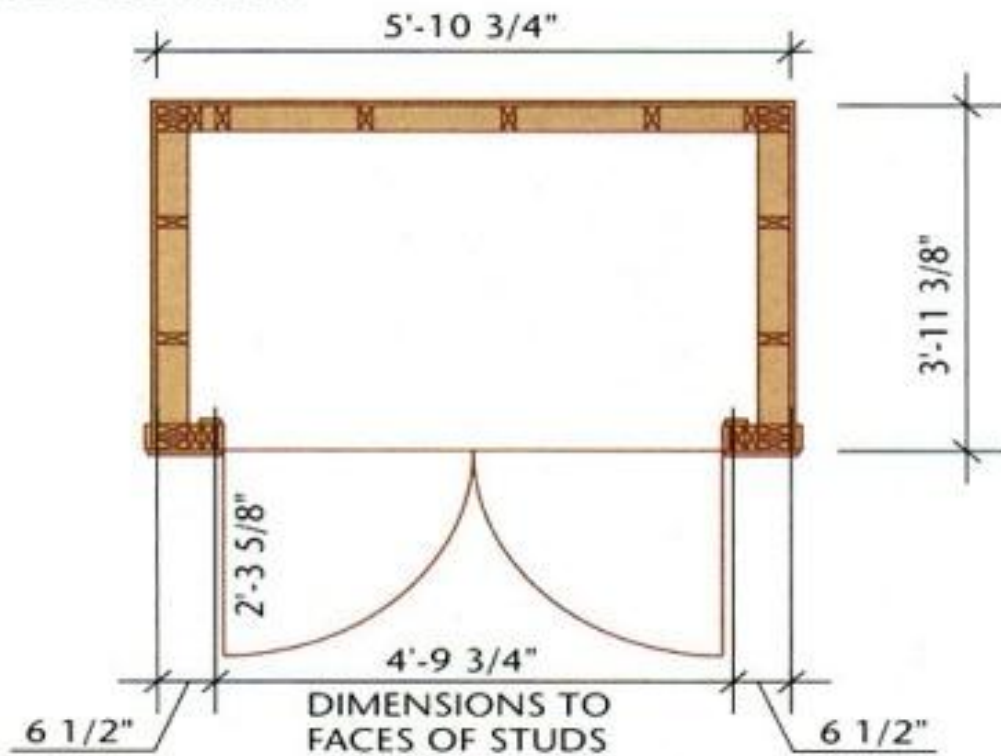


FRONT ELEVATION

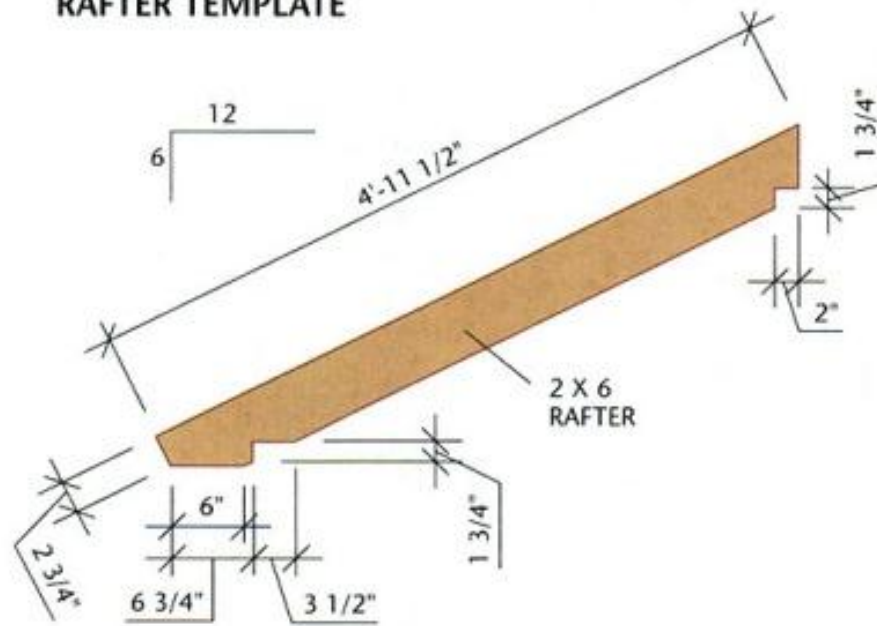
REAR ELEVATION



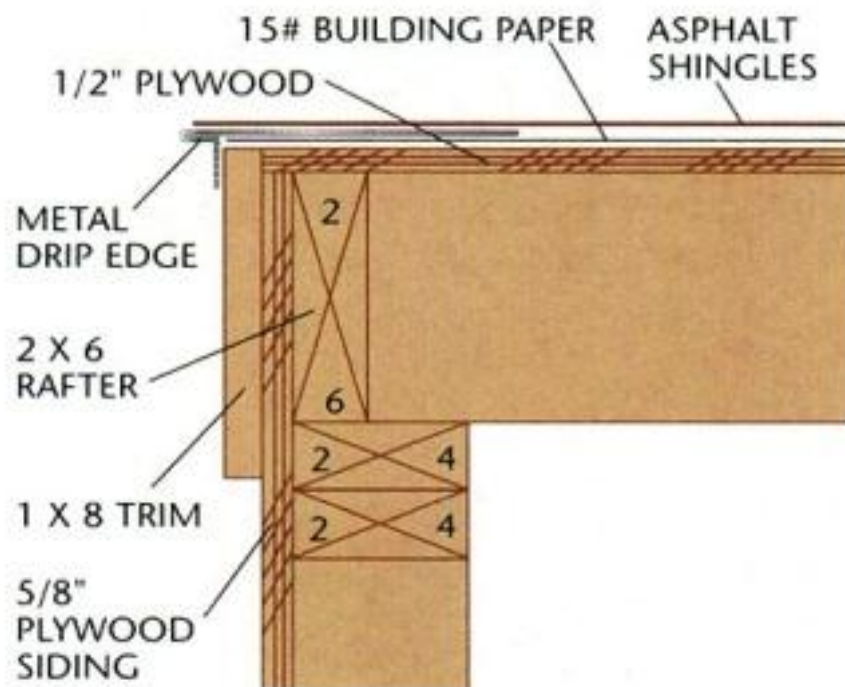
FLOOR PLAN



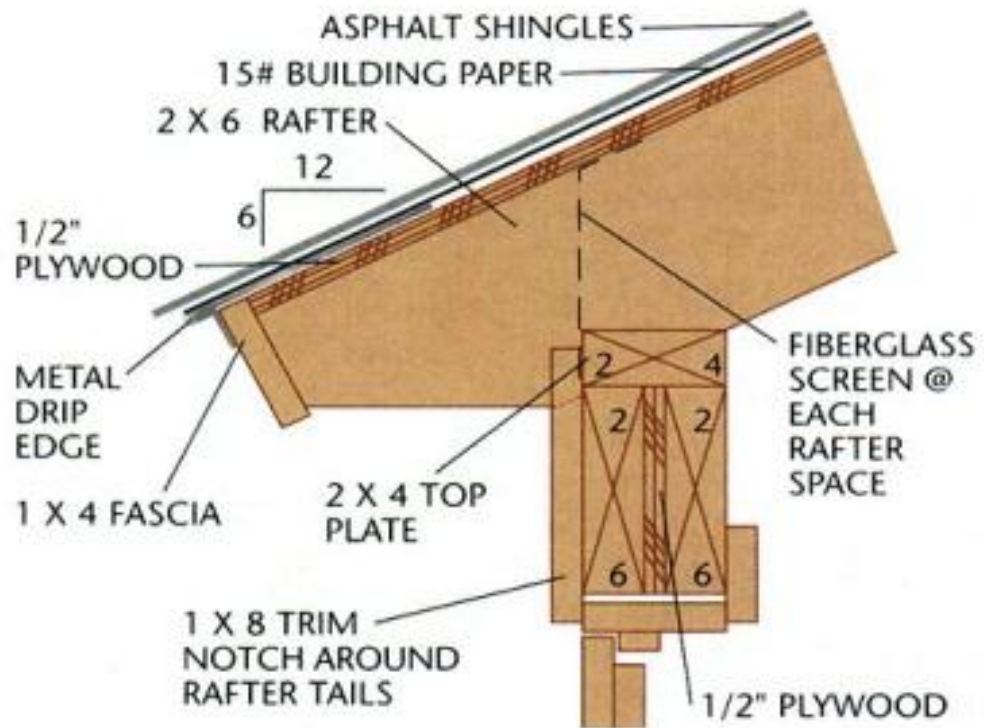
RAFTER TEMPLATE



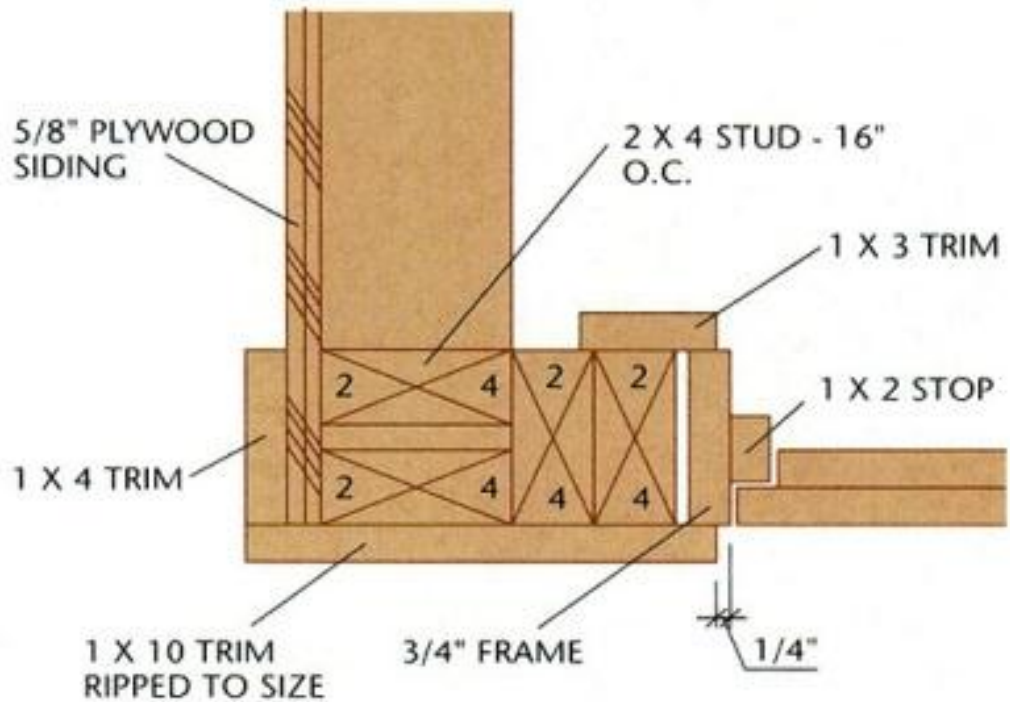
SIDE ROOF EDGE DETAIL



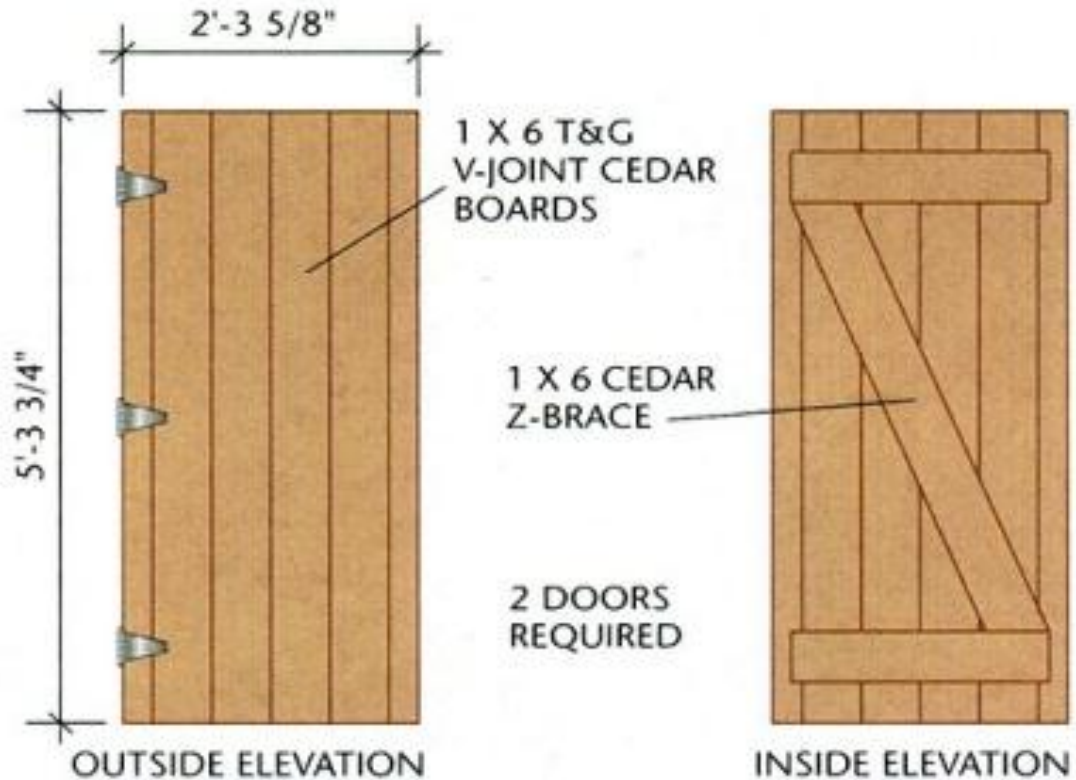
OVERHANG DETAIL



DOOR JAMB DETAIL



DOOR ELEVATIONS



BUILDING THE LEAN-TO TOOL SHED

Step A: Build the Foundation & Floor Frame

1. Excavate the building site and add a 4" layer of compactible gravel. Tamp the gravel thoroughly, making sure it is flat and level.
2. Cut two 4 × 4 treated timber skids at 70 3/4". Arrange and level the skids on the gravel bed, following the FLOOR FRAMING PLAN.
3. Cut two 2 × 6 rim joists at 70 3/4" and cut six joists at 44 3/8". Mark the joist layout onto the rim joists, following the plan. Assemble the frame with 16d galv. common nails—be sure to check each joist for crowning and to install it with the crowned edge up.
4. Set the floor frame on top of the skids and measure the diagonals to make sure it's square. Toenail the joists to the skids with 16d galv. common nails and install metal clip angles where the two outer joists meet the skids, using 1 1/2" joist hanger nails and 16d galv. common nails.
5. Cut the plywood floor sheathing to 47 3/8" × 70 3/4" and install it with 8d galv. box nails driven every 6" along the edges and every 12" in the field.



Check the squareness of the floor frame by measuring diagonally between the outsides of the corners.



Install the front and rear top plates so they span the width of building, covering the sidewall end studs.

Step B: Frame the Walls

Note: In this step, you'll install all of the squarecut studs and plates and the header. In step D you'll install the angle-cut studs and top plates for the side walls.

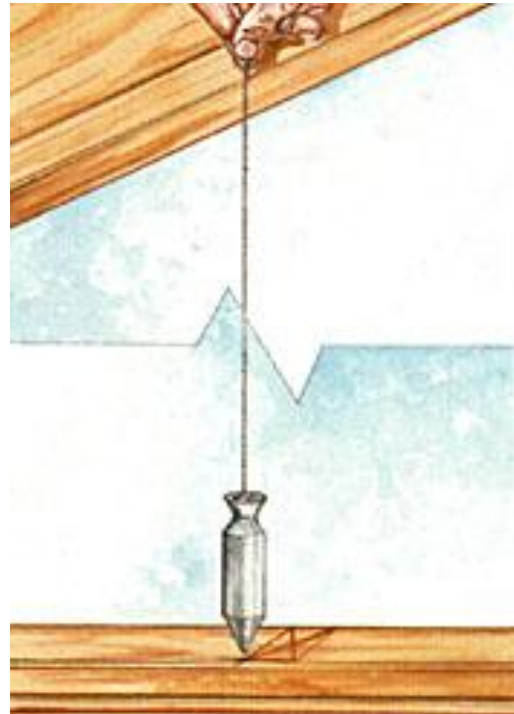
1. Snap chalk lines on the floor for the wall plates.
2. Cut the 2 × 4 bottom plates: two at 47 3/8" for the side walls and two at 63 3/4" for the front and back walls. Cut three 2 × 4 top plates at 70 3/4".
3. Cut six studs at 89" for the rear wall, four at 89" and four at 69" for the side walls, and four at 63 1/2" for the jack studs in the front wall.
4. Build the header at 63 3/4", using two 2 × 6s and 1/2" plywood.
5. Mark the stud layouts onto the plates following the FLOOR PLAN.
6. Nail the four end studs of each side wall to the bottom plate. Raise the side walls and fasten the bottom plates to the floor. Assemble, raise, and fasten the rear and front walls, leaving the top plates off at this time. Also leave off the second stud in from the left side of the rear wall (toenail that stud in place after nailing the corners together). Nail together the corner studs of the adjacent walls, making sure the studs are plumb
7. Install the rear top plates, one at a time—the plates should span between the outsides of the side-wall studs. Install the single top plate on the front wall, making sure the door opening is square.

Step C: Frame the Roofs

1. Cut six 2 × 6 rafters, following the RAFTER TEMPLATE.
2. Cut the 2 × 6 ledger at 70 3/4" and rip it down to 4 5/16" in overall width, cutting a 26 1/2° bevel along the top edge. Mark the rafter layout onto the front face of the ledger and the top plate of the front wall, following the ROOF FRAMING PLAN.
3. Position the ledger on the rear wall, so its outside face is flush with the outside of the wall and its ends are flush with the outsides of the side walls. Toenail the ledger to the wall plates with 10d nails.
4. Install the rafters, toenailing to the wall plates and endnailing to the ledger with 16d nails.



Toenail the ledger to the rear wall plates, then install the rafters. Endnail through the ledger and into the rafters.



Transfer the layout by holding a plumb bob on the stud markings and marking where the string hits the plate.

Step D: Complete the Side Wall Framing

1. Cut a 2 × 4 top plate to fit between the front and rear wall plates, at each side of the shed, angle-cutting the ends at 26 1/2°. Position the plates against the undersides of the rafters so their edges are flush with the outside rafter faces. Fasten the plates to the rafters with 16d nails.
2. Use a plumb bob to transfer the stud layout marks from the bottom plates to the top plates.

3. Cut the remaining four studs to fit between the plates, angling the top ends at $26\frac{1}{2}^{\circ}$. Toenail the studs to the plates with 8d nails.

Step E: Install the Siding & Fascia

1. Install the plywood siding on the side and rear walls, using 8d galv. finish nails. Hold the bottom edges $\frac{1}{2}$ " below the floor frame, and cut the top edges flush with the tops of the rafters. Stop the siding flush with the outside face of the front wall framing, and overlap the siding at the rear corners.

2. Cut and install the 1×4 fascia along the front rafter ends and the 1×8 fascia along the rear ends, holding the boards $\frac{1}{2}$ " above the top edges of the rafters to account for the thickness of the roof sheathing. You can join the corner of the fascia with mitered or butted joints (for butt joints, consider from which sides of the building the butt ends of the boards will be visible). Fasten the fascia to the framing with 8d galv. finish nails.

3. Custom-cut the side 1×8 fascia boards. Angle the bottom ends so they are parallel to the horizontal cut of the rafters and so they taper to $3\frac{1}{2}$ " at the end—to meet the 1×4 fascia at the front. Mark and cut the rear ends to meet the rear 1×8 fascia.



Mark the side fascia so it tapers with a horizontal line that meets the bottom edge of the 1×4 front fascia.



Install shingle courses up to the rear edge, then finish the edge with cut shingles or a solid starter strip.

Step F: Install the Sheathing & Roofing

1. Install the $\frac{1}{2}$ " plywood sheathing perpendicular to the rafters. Rip the first piece to width at about 41" and install it at the lower roof edge, then rip

the upper piece to fit, and install it. Fasten the sheathing with 8d box nails driven every 6" along the edges and every 12" in the field of the sheets.

2. Attach metal drip edge along the front edge of the roof, then apply 15# building paper over the sheathing. Add drip edge along the side and rear edges, on top of the paper.

3. Install the asphalt shingles, starting at the front edge of the roof. Finish the roof along the top edge with custom-cut shingles, or install a continuous roofing strip (starter strip). Cover all exposed nail heads with roofing cement.

Step G: Build & Install the Doors

1. Cut out the bottom plate from the door opening.

2. From $3/4 \times 3\ 1/2$ " (actual dimension) cedar, cut the head jamb of the door frame at 57" and the side jambs at $63\ 7/8$ ". Set the head jamb over the side jamb ends and fasten the pieces with $2\ 1/2$ " deck screws.

3. Cut the 1×2 stops and install them $3/4$ " from the outside edges of the frame (see the DOOR JAMB DETAIL).

4. Install the frame in the rough opening, using shims and 10d galv. casing nails. Make sure the frame is square and plumb and the front edges of the frame are flush with the outside of the wall framing.

5. For each door, cut six pieces of 1×6 tongue-and-siding at $63\ 3/4$ ". Fit the boards together with their ends flush, then mark the two end boards for trimming so that the total width is $27\ 5/8$ ". Trim the end boards.

6. Cut the 1×6 Z-brace boards following the DOOR ELEVATIONS, (keep the braces 1" away from the side edges). Lay the door on a flat surface and attach the brace boards using construction adhesive and $1\ 1/4$ " wood screws.

7. Install the hinges and hang the door.



Fasten the horizontal Z-brace boards, then lay the angled board over them and mark it for cutting.



Rip the vertical door trim boards to width, then notch them to fit around the rafters.

Step H: Add the Trim

1. Staple fiberglass bug screen to the front wall plate and the roof sheathing, to block each rafter bay (see the OVERHANG DETAIL).^a
2. Cut and install the 1 × 8 trim above the door (see the OVERHANG DETAIL), overlapping the side door jambs about 1/4" on each side. Notch the top edge of the board to fit around the rafters. Fasten the trim with 8d galv. finish nails.
3. Rip two 1 × 10 vertical door trim boards to width so they will cover the 1 × 4 corner trim and about 1/2" of the doorjamb, as shown in the DOOR JAMB DETAIL. Cut them to length so they reach from the bottom edge of the siding to the top edge of the 1 × 8 above the door. Notch the top ends to fit around the rafters, and install the trim.
4. Cut and install a horizontal 1 × 8 bottom door trim board between the vertical boards, with its top edge flush with the floor. Install the 1 × 4 corner trim, overlapping the pieces at the rear corners.