

BUILD IT WITH REDWOOD

Garden Tool Shed



R E D W O O D

Naturally beautiful
Easy to use
Practical and economical
Durable and stable
Resistant to decay and insects

Garden Tool Shed

The gardener in the family is sure to delight in the storage convenience this handsome and soundly-built garden tool shed will provide.

Use the redwood garden grades, Construction Common or Construction Heart, for most of the tool shed framing. Choose Deck Heart, available in 2x4 and 2x6, for the foundation framing or throughout the framing for increased durability. Heart B and B grade redwood siding, in either tongue and groove or shiplap patterns, are visually appealing and economical.

BUILD THE TOOL SHED

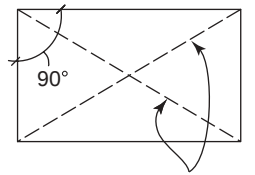
The building of this 42-inch by 72-inch garden tool shed has all the elements of building a house—you start with a foundation and floor, then add the walls, a roof and a door. The vertical siding and gabled roof require additional framing for nailing and structural support, but the result is a very sound structure. You can easily add framing for a window or two for light or provide electrical wiring to the shed. Leave the interior walls rough or add shelving systems or pegboard to help organize the shed contents.

Construction techniques for this tool shed are basic and require simple hand and power tools. A table saw will speed up the job of trimming the rafters and nailers.

The measurements provided in the Materials Lists are for guidance only; measure carefully and trim to fit

FOUNDATION & FRAMING

as you build. It is also important to check that the foundation framing and stud walls are built square. Use only corrosion-resistant fasteners to prevent staining.



String layout is squared when corners are 90° and diagonals are equal.

1. Layout Prepare a level area in your yard. A stake and string layout will help you to accurately position the concrete block piers. To determine whether your layout is square and whether the corners are 90° right angles, use the following 3-4-5 triangle test. Measure three feet along one side of your layout and four feet along the other side. If the distance between these two points is five feet, you have a right-angled corner. Test all the corners of your layout. Now measure the two diagonals from corner to corner. If the distances are equal, your layout is square.

Set the concrete piers so that there will be a couple of inches between the ground and the bottom of the shed for air circulation. Use a 2x4 laid across the piers and a level to check that piers are level and even to each other.

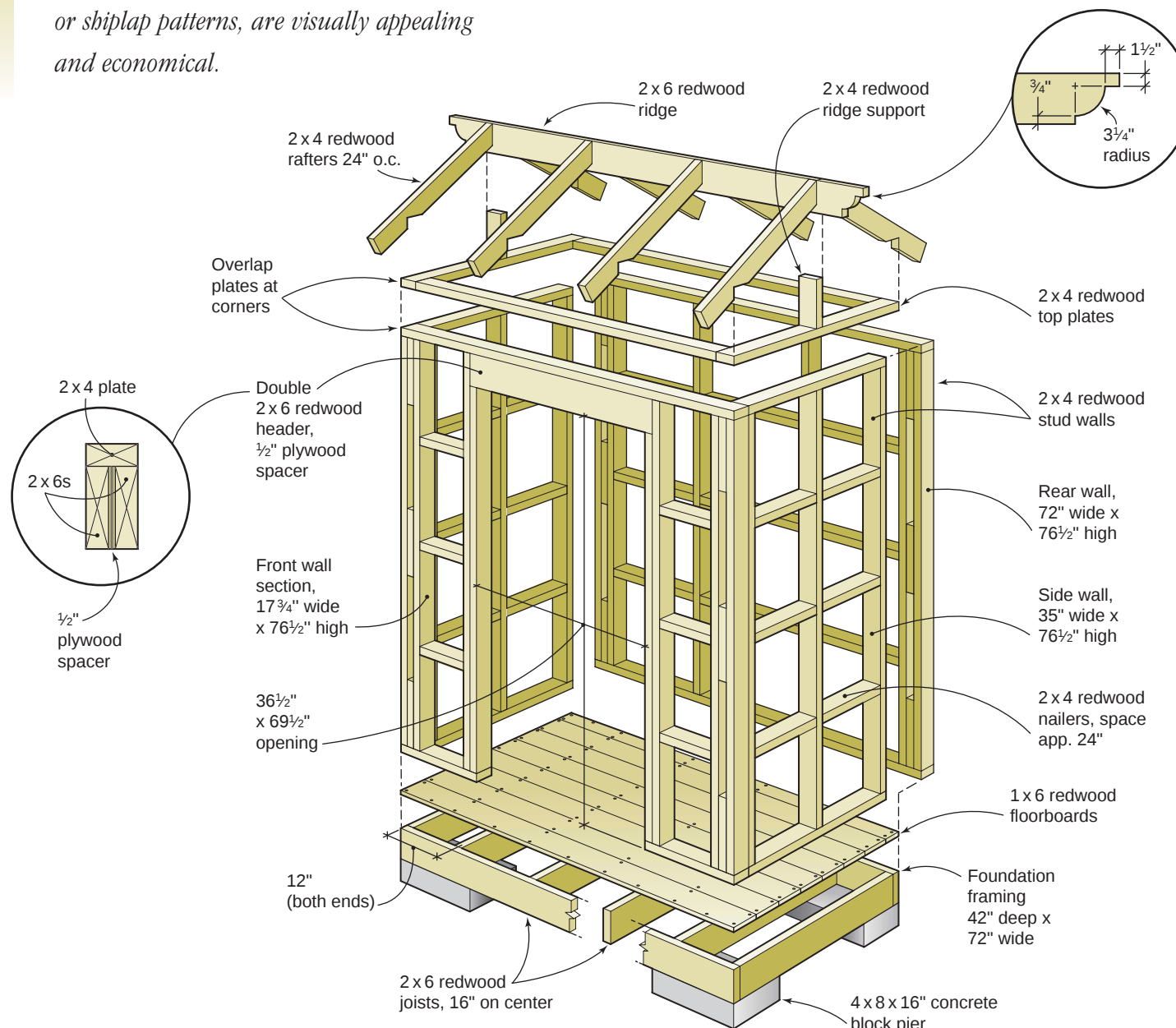
2. Foundation and floor Construct the base with 2x6 redwood trimmed to 72 and 39 inches for the box. Trim joists to 39 inches and use the 3-4-5 test to check for square corners before attaching the joists. Use 10d nails to attach the joists spaced at a maximum 16 inches o.c. (on center).

Install the 1x6 redwood floorboards with two 8d nails per bearing. Trim the last board to fit. Do not gap the boards. Predrill holes at board ends to minimize splitting.

3. Stud wall framing This is the time to include rough framing for windows, if desired. There are many window options available, some pre-built, and many good sources for help in constructing windows.

Assemble and build the stud walls on a level surface before securing them to the foundation. Trim all the studs and common plates at one time. Build four sets of doubled 2x4 corner posts blocked with 2x4 scraps left over from trimming the studs.

Rear wall Assemble the rear stud wall by first toe or end nailing the doubled corner studs into the base and top plates with 16d nails. Make certain the wall is square. Install the remaining studs so they align with and support the roof rafters—spaced 24 inches o.c. from the outside corner stud. Trim 2x4 nailers to fit and install with 10d nails between the studs approximately 24 inches o.c..



FRAMING & RAFTERS

Front wall Assemble the front wall in the same way using 72-inch top and bottom plates. Mark the bottom plate 17¾ inches in from both ends for positioning the doubled-up studs at the door opening. The shorter stud provides support for the double 2x6 header which should span 39½ inches (see detail illustration). Secure the header to the studs by driving nails from the abutting studs. The door opening should be 36½ inches wide by 69½ inches high. Take care in constructing this portion of the wall—it's important that the opening be square for a good fit of the door.

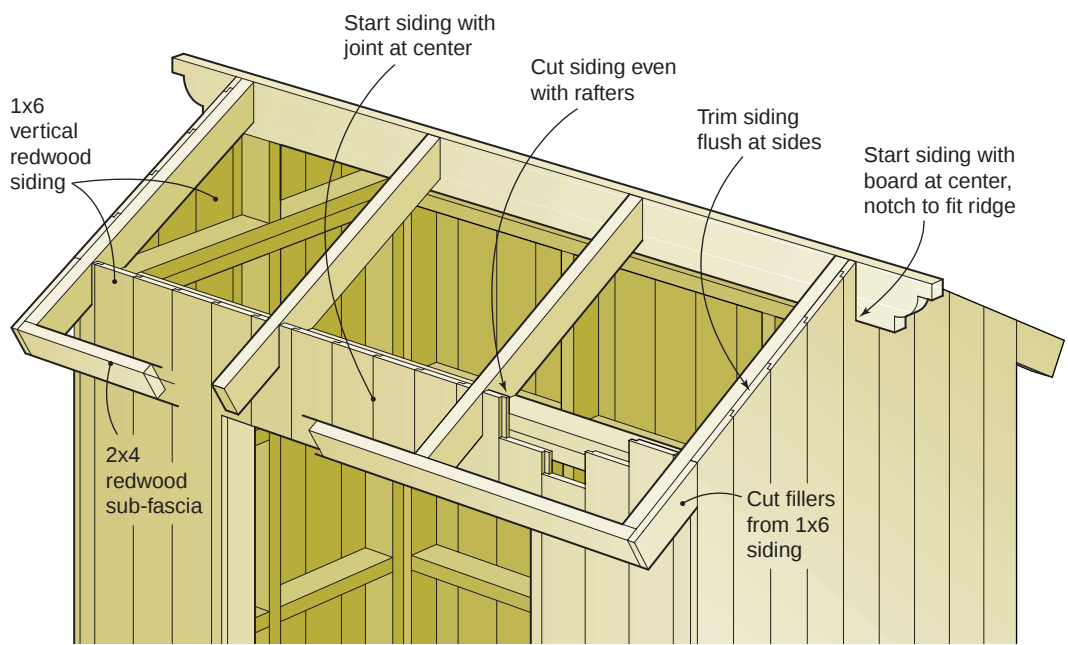
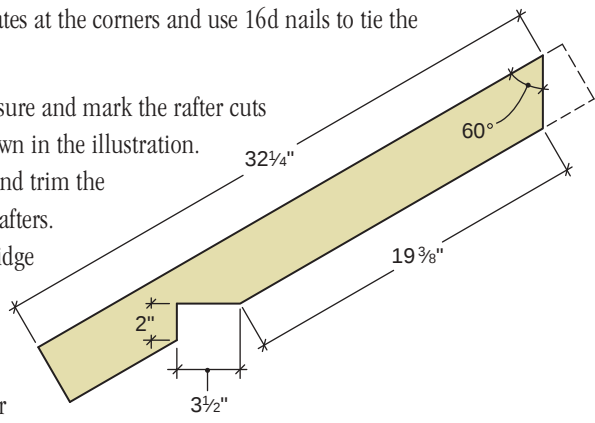
Trim the bottom plate after all of the walls are secured to the base and to the top plates.

Side walls Construct the side walls using 35-inch top and bottom plates and nailers installed 24 inches o.c.

Get help to position and secure the front and rear stud walls. Drive 16d nails through the base plates and the floorboards into the foundation framing. Use temporary braces to secure the walls in a plumb position until you install the side walls. Attach the side walls in the same manner. After checking that the walls are square and plum, overlap the top plates at the corners and use 16d nails to tie the walls together.

3. Rafters Measure and mark the rafter cuts on one 2x4 as shown in the illustration. Use this to mark and trim the remaining seven rafters. Next, trim a 2x6 ridge board to a minimum of 84 inches long. Leave the ends squared off or create a decorative finish similar to the one shown in the illustration.

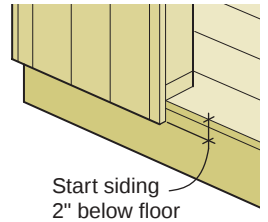
Next, measure and mark the rafter positions on the ridge board at 24 inches o.c. and to match the stud positions in the rear wall. Nail the first and last rafter pairs to the ridge board. Toe nail the 2x4 ridge support at the centers of the side wall top plates. Secure the rafter assembly to the support and then to the top plates at the notches with 12d nails. Attach the remaining rafters to the ridge. The 2x4 sub fascia can be attached after the siding is installed. Framing is now complete.



SIDING INSTALLATION

4. Install siding Choose either tongue and groove or shiplap 1x6 redwood vertical siding; both provide weather-tight joints and will give the tool shed stylish good looks. An economical alternative is board and batten siding. All of the siding is installed at once, leaving openings for the door and windows, if desired. If you plan to stain or paint the siding, do so before installation, so that all surfaces can be sealed. See the reverse side of this brochure for finishing options.

Start all siding two inches below the floor and double face nail the siding to each blocking line. With tongue and groove siding, you can blind nail through the tongue with 8d finishing nails for a nail-free surface. Use siding nails for their holding power.



Nails should penetrate 1½ inches into the framing members and must be non-corrosive to prevent staining.

Installation on the front wall begins with a joint at the center. Cut notches around the rafter tails and trim the siding for the door opening, saving the large pieces for the door itself. At the side walls, begin installation with a full board at the center, notched to fit the ridge. Work out toward the corners and trim boards as necessary to lap the wall corners.

Use a chalk line to snap trimming guidelines along the side wall rafter, then trim the tops of the siding with a hand or power saw. Front and rear wall siding should also be trimmed even with the top of the rafters.

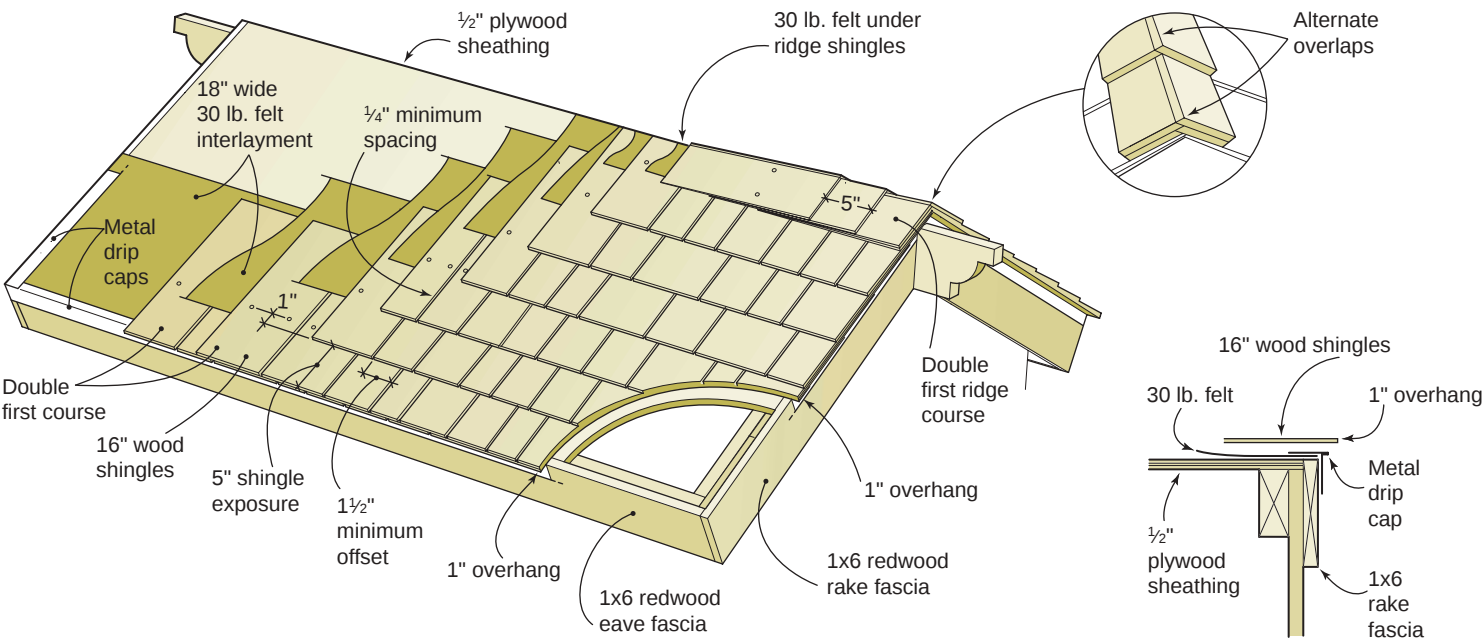
Finish off the rafters by face nailing the 2x4 sub fascia to the rafter tails. Install the 1x6 fillers. As a final touch, finish the corners with 1x4 trim. See item #6 for construction details.

Tools you will need String, stakes, plumb bob, hammer, nail set, tape measure, framing square, chalkline, circular, table and hand saws, carpenter's level, power drill, utility knife, block plane and ladder.

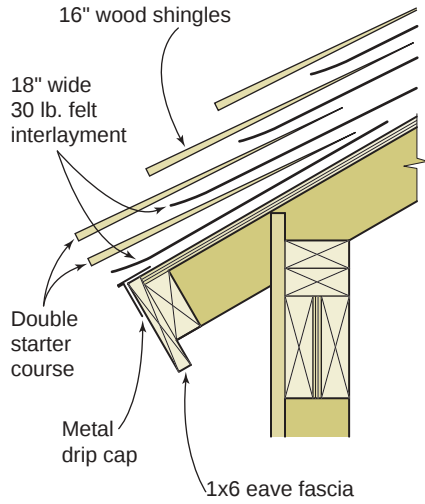
Materials For Tool Shed Framing			
	Quantity	Size	Length
Foundation			
Base	2	2x6	72 inches
	2	2x6	39 inches
Joists	4	2x6	39 inches
Floor boards	8	1x6	72 inches
Concrete pier blocks	4	4x8x16 inches	
Walls			
Wall studs	18	2x4	73½ inches
Door studs	2	2x2	68 inches
Wall plates	4	2x4	72 inches
	4	2x4	35 inches
Top plates	2	2x4	65 inches
	2	2x4	42 inches
Corner stud blocking	12	2x4	12 inches
Nailers, rear wall	3	2x4	22½ inches
Nailers, rear wall	6	2x4	18¾ inches
Nailers, front wall	6	2x4	10¼ inches
Nailers, side wall	12	2x4	15¼ inches
Door header	2	2x6	39½ inches
Siding (includes door siding)	48	1x6	96 inches
Corner trim	8	1x4	84 inches*
Roof framing			
Ridge board	1	2x4	84 inches
Ridge support	2	2x4	8¼ inches
Rafters	8	2x4	32¼ inches*
Sub-fascia	2	2x4	72 inches
Eave fascia	2	1x6	73½ inches
Rake fascia	2	1x6	35⅛ inches
Fasteners			
Nails	1 pound each	8d, 10d, 12d, 16d	
Siding nails	2 pounds	8d	

*Requires additional trims.

ROOFING



5. Roofing Trim two 4x8 sheets of plywood to fit the roof framing and to lap the side wall siding, approximately 32 inches wide by 73 inches long. Allow 1/8-inch expansion gaps all around the edges. Secure the plywood with 8d nails spaced every six inches around the perimeter and spaced every 12 inches at the rafters.



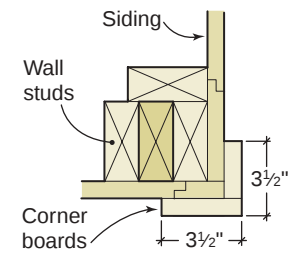
Next, face nail the 1x6 eave fascia through the 2x4 sub fascia and into the rafters using 10d nails. The eave fascia should align with the top of the plywood sheathing. Install 1x6 rake fascia so its top edge is flush with the plywood sheathing and it laps the eave fascia. To keep water from penetrating into the roof, install metal drip caps all around the roof. Now you are ready to apply the shingles.

Wood shingles Installation of wood shingles takes time, but is relatively simple. Wood shingles complete the traditional rustic look of the tool shed and should give good service when installed properly. Asphalt shingles can be a more economical choice.

This design uses typical 16-inch shingles with a 5-inch exposure. Leave 1/4-inch gaps between shingles and offset the gaps for each course by a minimum of 1 1/2 inches. Start at the eaves with a double-shingle starter course. Shingles should overhang the eaves on all sides by one inch. This, along with drip caps, helps prevent water from penetrating the roof sheathing. Interweave additional courses of shingles with layers of 18" wide 30 lb. roofing felt. Use two nails per shingle, set in from the sides approximately 3/4 of an inch and six inches from the butt edge. Use standard roofing nails long enough to penetrate into the sheathing.

Ridge course Use sets of similar-sized shingles—about 4-5 inches wide—to create the ridge course. Again, start with a first course of double shingles. Lap the shingles, alternating directions and install with the same exposure as the roof shingles (see illustration). Interlay all sets with roofing felt. You can clean up the ridge joins with a block plane or utility knife as needed.

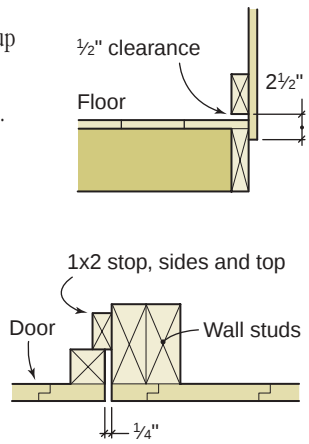
6. Corner boards Corner trim is easy to apply and adds visual interest. Rip four 1x4s to 2 7/8 inches. Square cut the ends of the 1x4s to butt under the rafter tails on the front and rear walls. Trim the smaller 1x corner boards to fit the angle of the side wall rake fascia. Pre-assemble the corners with nails and wood glue. Install using 8d nails driven every 24 inches.



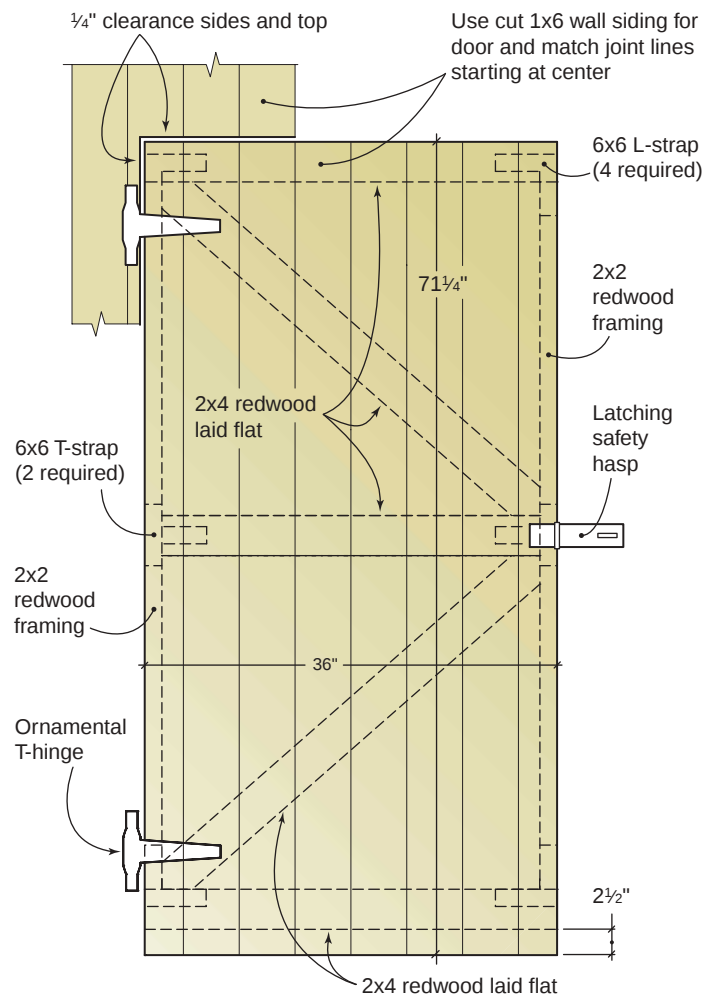
BUILD THE DOOR

7. Build the door Measure the door opening before constructing the door to insure a proper fit. Securely nail the framing together. Check for 90° corners, then use wood screws to attach the metal brackets and T-straps to the corners and center of the door. This will keep the framing rigid and square.

Lay 2x4s flat on top of the squared-up framing and mark them for the angle cuts. Nail braces into position. Turn the framing over with the brackets down to attach the siding. Start with the joint at the center in order to match the front wall siding. Trim the siding at the door edges as needed.



Frame the sides and the top of the inside of the door opening with 1x2 stops inset 2 1/16 inches. Use gate hinges to hang the door and install a latching safety hasp. Small wood shims will help you position the door while you install the hinges.



MATERIALS

Materials For Roofing

	Quantity	Size	Length
Exterior plywood	2	½ inch	4x8 feet
Roofing felt, 30 lb.	1 roll	18" wide	180 feet
Wood shingles	as needed for 2 square		
Roofing nails	½ pound		
Sheathing nails	8d, 10d		
Metal drip cap	20 feet		

Materials For Door

	Quantity	Size	Length
Battens	2	2x4	36 inches
	1	2x4	33 inches
Diagonal braces	2	2x4	44 inches*
Framing	2	2x2	61¾ inches
Stops	1	1x2	36½ inches
	2	1x2	67¼ inches
Siding	8	1x6	71¼ inches
Hinges	2		
L-straps	4	6x6	
T-straps	2	6x6	
Safety hasp	1		
Wood screws	as needed for straps and hinges		

*Trim to fit.

Contact the California Redwood Association for more great publications containing redwood technical and building information. Call us toll free at 1-888-Cal-Redwood for a complete literature list or to ask for any of the titles listed here:

Other Construction Tipsheets

Deck Over Concrete	Mendocino Bench
Freestanding Deck	Lake Tahoe Gazebo
Calistoga Spa Surround	Petaluma Planters
Windsor Shade Shelter	Sonoma Picnic Table
Monterey Potting Center	Adirondack Swing
Adirondack Chair	Santa Cruz Sandbox
2x2 Baluster Railings	

Also Available

Deck Construction	Deck Grades, Nails and Finishes
Fences for All Reasons	Landscape Architecture

Redwood

For beauty and performance, redwood is naturally superior to other woods. That's why it's the first choice for decks, fences and most outdoor projects. Redwood retains its beauty outdoors, shrinks and swells less than other woods and is less likely to warp, split, check or cup. With relatively little or no pitch, redwood is easy to drill, saw and shape. Redwood heartwood has natural durability and resistance to insects and will last longer outdoors than most woods.

Grades

Heart B Architectural heartwood grade with limited knots and other characteristics. Used for quality decking and other above-ground outdoor applications.

B grade Architectural grade with limited knots and other characteristics. Ideal for any above-ground, quality outdoor application.

Construction Heart/Deck Heart is all heartwood and contains knots; used for load-bearing applications near the ground. Deck Heart is graded for strength and is available in 2x4 and 2x6.

Construction Common/Deck Common contains sapwood and knots; used for decking and above-ground uses. Deck Common is graded for strength and is available in 2x4 and 2x6.

Merchantable Heart is all heartwood and contains larger knots than Construction grades; used near the soil.

Merchantable contains sapwood and larger knots; used for fence boards, rails and above-ground uses.

Finishes

Redwood accepts finishes better than most woods. Some heighten redwood's natural beauty, bringing out the color and the grain. Others help the wood harmonize or contrast with surrounding structures. Read the labels on all finish products before using.

No-finish option Redwood performs better than most woods if left unfinished. This no-maintenance option will result in redwood weather-bleaching to a soft driftwood gray

Clear water repellent finish with a mildewcide is recommended to stabilize the color at tan.

Semitransparent stains in "redwood" shades tint the wood without hiding the grain.

Solid-color stains or paints should be applied over compatible oil-based primers.

Fasteners

Use only non-corrosive hardware such as aluminum, stainless steel or top quality hot-dipped galvanized screws or nails. Ordinary nails and screws will cause stains.



405 Enfronte Drive, Suite 200
Novato, CA 94949-7201
Telephone 415 382-0662
Toll Free 888 Cal-Redwood
Fax 415 382-8531
www.calredwood.org