Anyone with basic carpentry skills can construct this classic one-room cabin for under $4,000.

by STEVE MAXWELL
Illustrations by LEN CHURCHILL
ays of early-morning sunlight gently peek through the windows, easing you awake. Looking down from the sleeping loft, you see everything you need: a pine table, a box of split firewood, and a compact kitchen in the corner. This is the cabin dream.

On the following pages, I’ll show you how to build a 14-foot-by-20-foot cabin with a sleeping loft over the porch, all for about $4,000 (see Page 81 for the design). I will alert you to the main challenges of framing a cabin and explain how to clear the most important hurdles.

I believe in building for the long haul. When it comes to cabins, this means working to the same standards of durability and beauty that you’d apply to a full-size house, even though the style, size and soul of a good cabin are entirely different. I’m sold on durability because it takes such small amounts of extra care, materials and money to yield a huge increase in longevity. Although a cabin certainly can never build a cabin of your own, these basic instructions will be useful when building a garage, shed or other outbuilding.

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In this cabin design, you need one pier at each corner of the cabin, one in the middle of each long side, three piers spaced evenly on the front of the porch and one in the middle of the rear wall. In light soil, it’s reasonable to dig the 10 holes you need for 8- to 12-inch-diameter pier forms using a long-handled shovel. Otherwise, call in a neighbor or contractor with a tractor-mounted auger. You can use 8-inch concrete piers, but the larger size is more forgiving if you don’t get the alignment just right.

The best way to mark your foundation outline is with 12-inch spikes pushed into the earth and connected with nylon string. Regardless of the foundation design, the main construction challenge is the same: leveling the top of the foundation pads or piers. Try to borrow a laser level from a friend to successfully level the foundation.

When setting concrete pier forms in the ground, dig the holes large enough to allow room for side-to-side adjustment.

Building the Floor Frame

There are many ways to frame a cabin floor, but I favor the timber-rim approach. “Timber rim” refers to a load-bearing frame of timbers that defines the perimeter of the floor area. It’s better than a continuous foundation wall because it eliminates

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**Cost Estimates for Your Cabin**

The following includes the frame, rough floors and shingled roof, but not windows, doors and exterior siding. All costs are rounded up to account for miscellaneous expenses.

**TOTAL COST: UNDER $4,000**

**Floor assembly:** $900
- two 20’ 6 x 6 rot-resistant beams (timber rim, length sides)
- two 14’ 6 x 6 rot-resistant beams (timber rim, width sides)
- 27 14’ 2 x 10 boards (blocking, joists and headers)
- nine 5/8” plywood tongue-and-groove subfloor panels

**Walls and porch frame:** $1,000
- 50 8’ 2 x 8 studs (walls)
- 15 14’ 2 x 6 boards (wall plates)
- five 8’ 6 x 6 rot-resistant wooden posts (porch)
- one 14’ 6 x 6 rot-resistant beam (porch)
- 21 7/16” oriented strand board wall siding panels (wall planks)
- six 14’ 2 x 6 fascia boards (exterior wall trim)

**Roof:** $1,500
- 34 12’ 2 x 8 boards (rafters)
- two 12’ 2 x 10 boards (ridge board)
- 17 14’ 2 x 6 boards (cross ties)
- four 8’ 2 x 4 studs (rafter support)
- two 20’ 2 x 8 boards (blocking)
- 17 3/4” spruce plywood panels (roof planks)
- wooden shakes for 550 square feet of roof surface; roof liner; gutter apron

**Hardware:** $350
- six 12” spikes (foundation markers)
- 10 10” Sonotubes (pier forms)
- 10 5/8” threaded rod anchors (foundation)
- eight 1/2” x 6” carriage bolts (header anchors)
- 10 pounds of 3 1/2” ardox (spiral-shanked) nails (wall studs, floor joists)
- 10 pounds of 2 1/2” ardox nails (subfloor, roof planks)
- eight 1/2” x 8” lag bolts (post tops)
- 15 pounds of 1” roofing nails
the need for lots of block work or a poured foundation, offers great stability, and is durable and simple for first-time cabin builders. For this project, it provides continuous support for a building that's held up at only 10 points around its perimeter.

Start by gathering rot-resistant 6-by-6 timbers for the outer rim. Timbers for the ends of the cabin and porch should be long enough to do the job in one piece. If you need to splice two timbers together for the 20-foot cabin sides, that’s fine. Just locate the splices directly on top of your concrete pads or piers. (It is possible to get away with thinner pieces of wood here, but that would require adding more piers—an option that’s probably less attractive than dealing with thicker timbers.) Be sure to make half-lap corner joints to connect the rim timbers (see illustration, Page 81).

Measure, mark and drill 1-inch-diameter holes in your 6-by-6s for the five-eighths-inch threaded rod anchors you embed in your concrete piers, then settle the timbers in place over the rods. Before bolting down the timbers, double-check that the top surfaces of the 6-by-6s are level to within one-eighth inch of each other. Pouring concrete is coarse work, and it’s possible the foundation piers aren’t exactly the same height now that they’ve hardened. Now’s the time to correct any errors. Install shims underneath the uneven timbers to make them level; bolt them down tightly under 2-inch washers; then check one last time with a level. You now have a sturdy timber rim on which to begin building the cabin. As long as the bottom of the timber rim is at least several inches above the soil, natural ventilation should keep this structure strong for many decades.

The timber rim supports floor joists and headers (the frame around the joists) that in turn form the cabin and porch floor. By running joists across the 14-foot width of the building, you'll have the stiffest possible floor for a given width of joist, minimizing squeaks and ensuring long-term durability. As a general rule, 2-by-10s spaced on 16-inch centers across the span of this cabin will give you a good floor. But because the type of wood affects the total allowable span, double-check floor joist sizes with your local authority (building codes vary). Consider using 2-by-10 joists across the porch and 2-by-12s for the main floor (but if you do, remember to use a 12-inch-wide header for the main floor, or your joists will be taller than the floor frame). Using 2-by-12s raises the cabin floor slightly, creating a lip at the door that helps repel water and snow.

Regardless of the floor framing wood you choose, use four or five 3 ½-inch nails on each joint connecting the floor joists to the headers. Make sure the edges of your floor frame are straight. Use 3 ½-inch hot-dipped, galvanized nails driven at an angle to connect the floor frame to the timber rim. You also can use galvanized connector plates.

Next you’ll apply a floor surface to your joists. If you want flooring that’s easy to build, inexpensive and requires no maintenance for a cabin that won’t see much cold weather, then three-fourths-inch softwood planks are the way to go. Even left completely unfinished, these form a fine, rustic floor that’s easy to sweep clean. Over time, bare wood like this also takes on a burnished beauty. If you want a better floor to keep out drafts and bugs, consider shiplapped floorboards. They’re one step up from square-edged planks, offering all the same advantages as plain boards, while preventing board-to-board gaps. The best floor option is five-eighths- or three-fourths-inch plywood, though this makes sense only when you’re planning to apply a finished floor material over the top. Plywood keeps drafts out and adds an element of rigidity that dimensional lumber can’t match, but it also looks unattractive.

### Wall Framing

With your rough floor in place, you can now build the walls. Stud-frame construction is still the most popular approach for residential projects, and it makes sense for...
Fig. 1 RAFTER DETAIL
Exterior Options

The exterior wall treatment you choose for your cabin matters a great deal because it sets the tone for how the place looks and how much maintenance you’ll be saddled with over the years. The exterior of your cabin can be made of wooden shingles, boards and battens (right illustration), wooden panels or other materials. Research the pros and cons of each material before choosing one for your cabin, and choose a material that won’t burden you with much maintenance.

Cedar shingles are a terrific option because they look great in a rural setting, last many decades and are lightweight. They always live up to their reputation on roofs. On walls, cedar shingles will satisfy those people who insist on wood siding. Hand-split cedar shingles

cabin, too. Although you can save money by framing with 2-by-4s, I recommend 2-by-6s instead, even if you won’t be insulating. The extra 2 inches of frame depth is stronger and looks better. The illustration on Page 81 shows how stud-frame walls have three main parts: the plates (horizontal members that form the top and bottom of the walls); studs (vertical frame members); and lintels (horizontal members that span doors and windows). Start by cutting one top and one bottom plate for the rear wall (the one opposite the door). Make these plates out of one 2-by-6 each, then temporarily screw them together so all sides are flush. Joining them together ensures the marks you make to show stud location are accurate. Make these plates 13 feet, 1 inch long. The completed front and back walls will measure 14 feet wide when flanked by the two long walls.

With the pair of plates on edge, use a carpenter’s square to draw lines across the edges of the plates at the same spot. Each pencil line shows where one side of each stud should be located. An “X” marks the side of the line where the stud needs to sit. Studs measuring 92½ inches long should be spaced 16 inches apart from center point to center point, with extra studs where door and window openings will go. Before you frame openings for windows and doors, you need to know the sizes of the openings required for them. Make window openings 1 inch wider and 1 inch taller than the overall size of your window (1 inch wider and a half inch taller for aprehung door, when you get that far).

Remove the screws that temporarily held the top and bottom plates together, separate these pieces about 8 feet apart (with the bottom plate near its final place on the wall), and then position your wall studs between them. Begin by nailing the plates to the ends of the full-length studs, then cut and add shorter studs to form the window opening. Use three 3½-inch nails per joint. If you’re planning to build insulation into your floor, add a second bottom plate to the wall to raise it up. Now get ready to heave the wall upright and into position.

Softwood planks form a fine, rustic floor that takes on a burnished beauty.

Raise the frame with helpers, then push, pull and pound it into alignment with the edge of the floor frame. Use your level to align the wall so it’s perfectly vertical (plumb), then drive two nails into the wall’s interior and adding interior siding (covering the 2-by-6s from the inside), you can use plywood or oriented-strand board (OSB) wall siding panels.

Roof Framing

There are many ways to frame a roof, but when you want to create usable loft space, you need to address a few design issues. The first is roof pitch. For both aesthetics and efficiency, the 12:12 pitch is best. This means the slope is 45 degrees from horizontal, with a 90 degree angle formed at the peak. The parts of your cabin that form the slope of your roof are called rafters, and cutting them accurately will be the most challenging part of building your cabin. But if you tackle the job with care, you’ll succeed.

The first step is to take another look at Page 81. Fig. 1 shows a side view of the
rafters you need to build. You'll need 34 in all. This includes 30 that span the cabin itself, and two more pairs ... cozy, affordable cabin will make you realize that small really is beautiful!

Start by marking rafter locations where they will sit on the top of the side walls, ideally atop wall studs. Use the same “line-and-X” marking scheme you used to lay out the top and bottom wall plates. Next, measure the width of your building across the top of the side walls. It should be 14 feet. Chances are good that your cabin width across the front and back walls will match this measurement, but maybe not across the middle. No problem. Take one or two spare planks, rest them across the top of the building and spike one end of each in place. Get some help wrestling the walls inward or outward (whichever is needed to get a 14-foot building width), then spike the second end of your brace planks down. These will come off later, when the rafters and cross ties are added, so don’t pound the nails all the way home. Also, make sure these temporary braces are well away from the rafter locations you marked earlier. You don’t want them to get in the way of the rafters.

Follow the pattern on Page 81 (Fig. 1) and cut out a pair of rafters. Although they should fit nicely on your cabin, double-check your cuts with a tape measure. Tack a piece of 1½-inch-thick scrap wood to the top end of one rafter (to simulate the ridge board that will be part of the completed roof), then get some help temporarily hoisting the rafters up and leaning them against each other. You want a gap-free fit where the rafter meets the top of the walls, and where they come together at the peak.

When you’re satisfied with your pair of test rafters (and have adjusted their size if necessary), make the entire batch of 34 rafters. Of these, you must add a special feature to 12 of them. Page 81 shows how you should cut 1½-by-3½-inch notches along the top edge of these 12 special rafters to accept 2-by-4 braces. These support the outer pair of rafters that create the overhang. The best way to cut these notches accurately and quickly is by temporarily clamping two sets of six rafters together, marking each set as a group, then cutting the notches with multiple passes from a hand-held circular saw. It’s easy to knock out the slivers of remaining wood with a hammer and chisel.

Total length of the cabin’s ridge is 22 feet (20 feet across the building and porch plus 1 foot of overhang at each end), so the ridge board probably will have to be made in two lengths of 2-by-12s. Prepare these now, arranging the joint between them so it lands in one of the spaces between rafter pairs. Next, lay the ridge boards end-to-end on top of one wall plate and then transfer rafter locations onto these boards. When it comes time to raise the rafters and ridge boards, do one half of the cabin at a time. Raise one pair of rafters at the end of the cabin and another pair in the middle, near the place where the ridge board will end. Fill in the spaces along the wall with more rafters, angling screws so they penetrate the ridge board and sink into the ends of the rafters. Repeat the process for the second half of the roof. Add the 2-by-4 rafter supports, then the four rafters that form the front and back eaves.

Don’t worry about a two-part ridge board. The roof sheathing will join these two halves together solidly. I recommend using solid-wood planks that are three-fourths inch thick, not the more expedient option of plywood or OSB, unless you are building in a hurry. The underside of the roof plays a large visual role in this cabin, and sheet woods never enhance the natural backwoods aesthetic. Just remember to lap the roof planks across the area where the two ridge boards meet.

You’re now well on your way to finishing your cabin. Add the ceiling joists that tie the cabin together at the top and form the floor of the sleeping loft. Shingle the roof, install doors and windows, and then apply your exterior wall treatment. Once your cozy, affordable cabin has become part of your life, you’ll realize something that many folks never understand: Small really is beautiful!