

Screened Sanctuary

Enhance your existing deck's privacy and protection

BY MIKE BERGER

Each year blazing sun, sudden rains and swarms of insects conspire to keep us from enjoying our decks as much as we'd like. Wouldn't it be nice to have outside living space that not only protected you from insects and weather but also added beauty and value to your house? You can achieve all of this by building a screened enclosure over your existing deck.

Although it's impossible to design an enclosure that fits every deck or need, you can easily modify our structure to fit almost anywhere, thanks to its few components and simple construction techniques. If you have a basic understanding of carpentry, in just a few weekends you'll be able to build your own version of our screened-in sanctuary.





Keep bugs and bad weather at bay
by adding a romantic screened
enclosure to an existing deck



Before



After

PHOTOS BY PHIL LEISENHEIMER, SCOTT JACOBSON AND MIKE ANDERSON
ILLUSTRATIONS AND PROJECT DESIGN BY MIKE ANDERSON



1 Cut a 4- x 10-in. notch in the top of each of the four 6x6 corner posts to support the doubled 2x10 full-size headers.



2 To cut the saddle joint where the center post and crossbeam meet, make repetitive passes with a circular saw, and remove the waste with a sharp chisel.



3 Scribe a decorative profile on the ends of the headers, ridge and rafters. There's no set rule to the design — just pick a profile that looks good to you.

Designing the structure

Though building a screened enclosure may seem daunting at first, take heart: surprisingly few structural elements are necessary to this design. Five 6x6 posts provide the primary support. Two headers run the length of each side — in our case, the headers are doubled 2x10 full-size cedar beams. (Full-size lumber differs from dimensional lumber in that its actual dimensions match its stated size, whereas a dimensional 2x10 measures only 1-1/2 x 9-1/2 in.) A ridge beam runs down the center of the roof and forms the prow of the roofline — again we used doubled 2x10 full-size cedar. Rafters made of 2x8 full-size lumber support the roof sheathing of 2x6 tongue-and-groove cedar, and asphalt shingles keep the elements off your head.

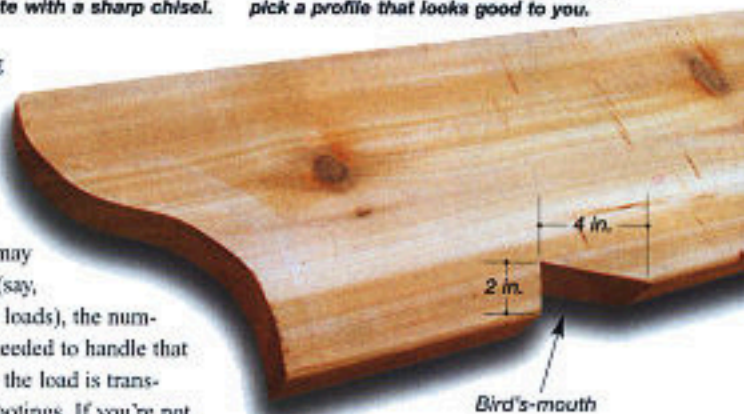
It's up to you whether to add railings, lattice, doors or trim, depending on your structure. For example, if you're building on top of a ground-level deck, you might be able to omit a railing altogether. If you're building on an elevated deck with no access to the ground, skip the door.

Of course, local codes will govern some aspects of the design. You must file a final plan with your municipality before construction, and you must

obtain a building permit. Local officials will closely analyze such factors as the amount of weight the roof may need to support (say, because of snow loads), the number of footings needed to handle that weight, and how the load is transferred to those footings. If you're not sure that your existing deck will work, ask for a preconstruction site inspection. It's better to have experts discover a potential problem before construction than to have to remedy it afterward.

Building the framework

To begin construction, cut the notches in the 6x6 corner posts that will support the headers (photo 1), and cut the saddle joint where the 6x6 center post and the 4x4 crossbeam will meet (see drawing, opposite, and photo 2). Also cut the curved profile of the headers, ridge and rafter tails. Choose a radius that is pleasing to the eye, scribe it with a compass and make the cut with a jigsaw (photo 3). Then cut notches (called bird's-mouths) in the rafters where they'll sit atop the headers.



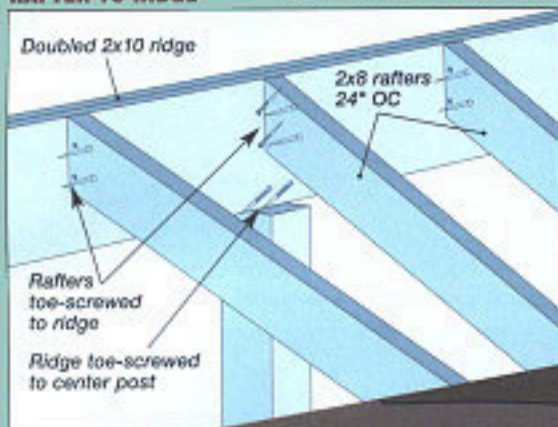
The 2- x 4-in. bird's-mouth provides a flat spot for the rafters to engage the headers.

Mark the locations for the 6x6 posts on the existing deck, hold them in place and have a helper drive in lag screws to fasten them to the deck (photo 4, p. 38). If you need to add bracing to transfer the load (as dictated by your local building inspector), install it after you've driven the lag screws — otherwise it may restrict access to the undersides of the post locations (see drawing). To further secure the two posts that abut the house, drive 3/8-in.-dia. x 10-in. lag screws through the posts and into the walls.

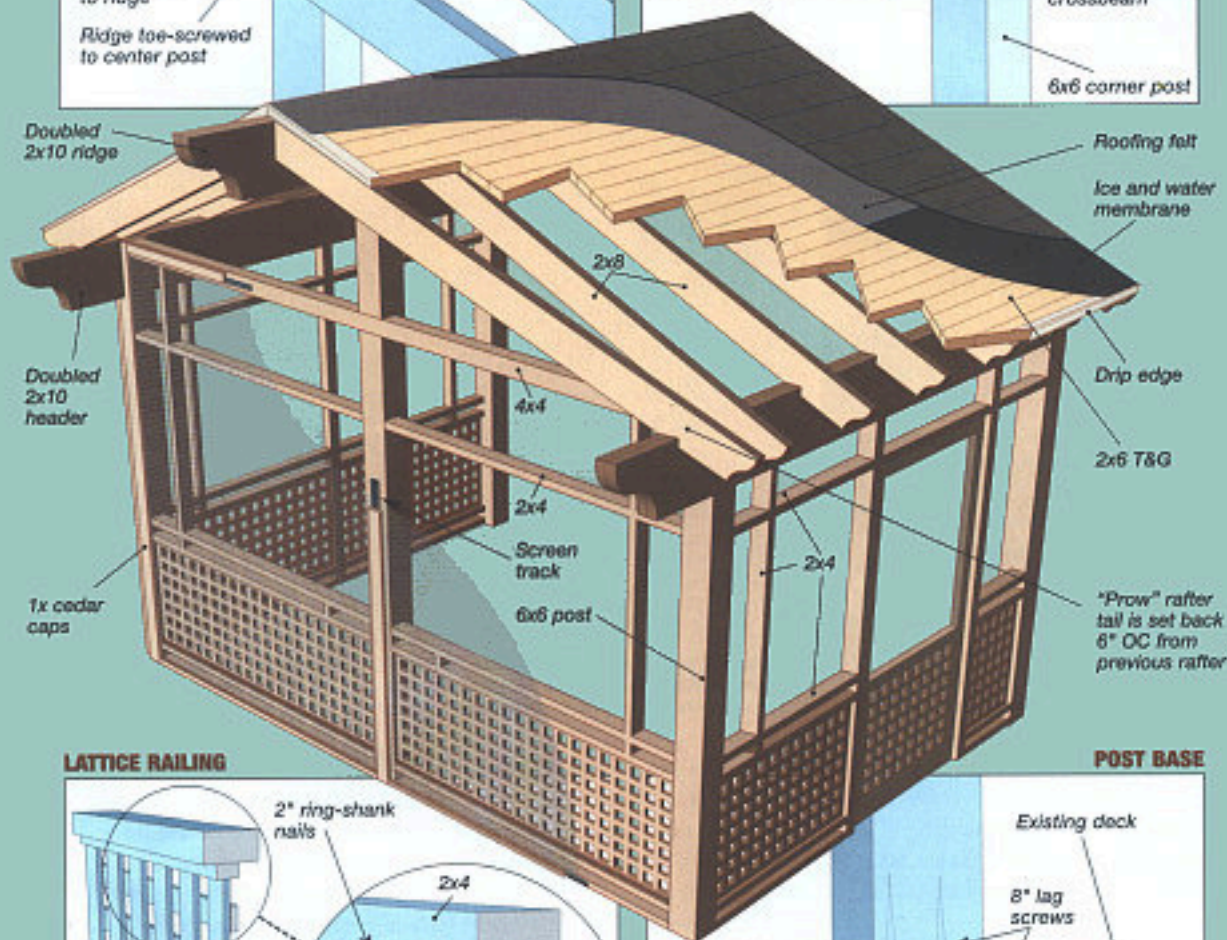
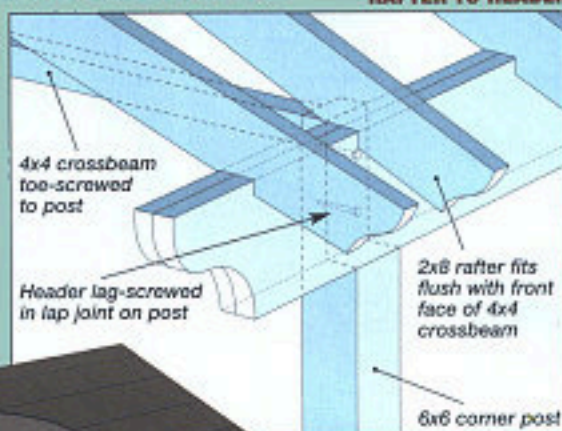
Once the 6x6 posts are secure, lift the headers into place and screw them

CONSTRUCTION DETAILS

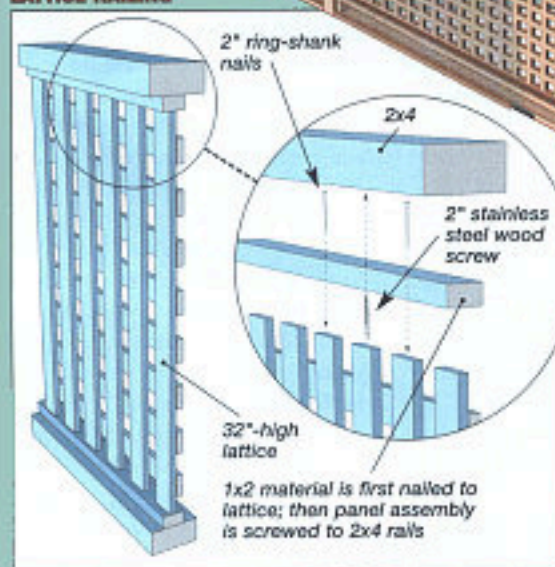
RAFTER TO RIDGE



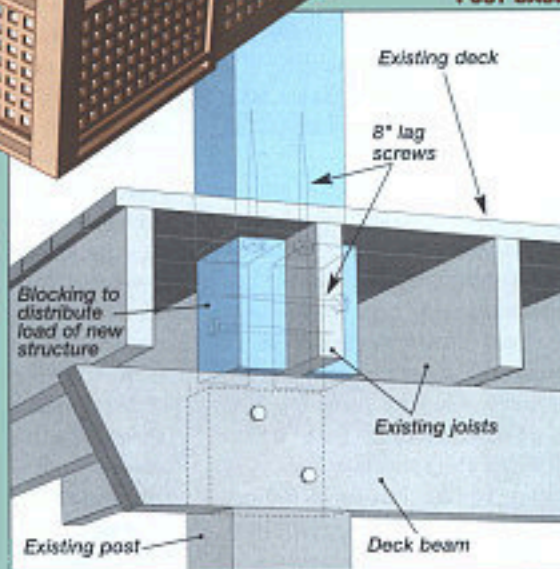
RAFTER TO HEADER



LATTICE RAILING



POST BASE



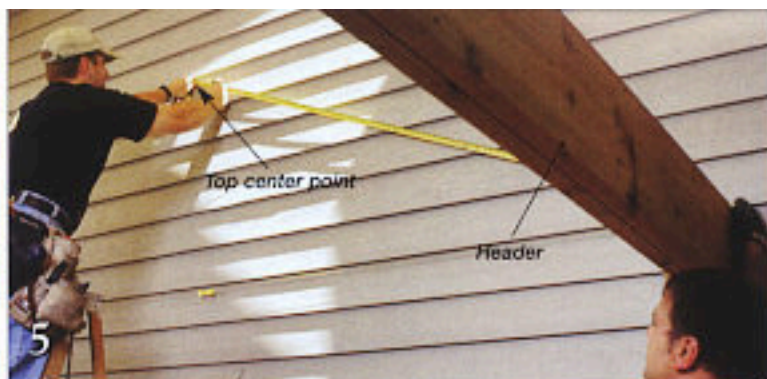


Hold the 6x6 posts in place and, from beneath, drive two 8-in. lag screws in each post. If necessary, add extra blocking after you've driven the screws.

to the posts. Then measure for the placement of the first set of rafters (the ones that will rest against the house) by marking the top center point (photo 5). Temporarily screw the rafters to the house wall, and use them as a guide to cut away the siding with a circular saw (photo 6). Set the saw blade just deep enough to cut through the siding, but not the sheathing. Once you've completed the cut, take down the rafters and remove the cut siding pieces.

Temporarily attach to the house wall a block of wood to serve as a support, just below the pinnacle of the removed band of siding. Rest the square end of the ridge beam on top of the block, lift the other end of the beam to the top of the center post and toe-screw it in place (photo 7, p. 40).

Set the first pair of rafters into the channels where the siding was removed — the bird's-mouth will rest on the header; the other end sits flush against the face of the ridge beam.



Set the headers in place and mark the top center point of the first set of rafters.



Temporarily attach the first rafters to the house, and use them as a cutting guide. Be careful to not cut so deep that you damage the sheathing beneath the siding. When the cuts are complete, take down the rafters and remove the cut siding.

Drive 4-in. lag screws through the rafter faces and into the sheathing, install rafter hangers to attach the ridge beam to the rafters and then remove the support block.

Lift the 4x4 crossbeam into the saddle joint you previously cut. Face-screw the beam to the center post, and toe-screw it to each of the front corner posts (photo 8). Make sure the beam is level and that you're not pulling the corner posts out of plumb.

Now that the beams are secure, set the remaining rafters 24 in. OC (photo 9). Because the last rafter cants outward, you'll need to miter the rafter ends where they meet the ridge and make adjustments for the angle to the bird's-mouths.

Adding roofing

Building a roof for a screened enclosure is a bit different from building one for a garden shed or an other outdoor structure where you don't really care what the underside looks like. Because this project's sheathing is visible from below, the roof is as decorative as it is functional. To heighten the rustic look, we opted for 2x6 cedar tongue-and-groove (T&G) boards. Besides providing visual warmth, the 1-1/2-in. thickness of the boards prevents the roofing nails used to fasten the shingles from completely penetrating the sheathing.

Nail the T&G boards to the rafters (photo 10) and apply roofing felt on

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Temporarily attach a block to the house just below the rafter location. Set one end of the ridge beam on this block, and lift the other end to the top of the center post. Toe-screw the ridge to the center post, lag-screw the rafters to the house and attach the ridge to the rafters with rafter hangers; then remove the support block.



Lift the 4x4 crossbeam into place, face-screw it to the center post and toe-screw it to the corner posts.



Set the remaining rafters 24 in. OC. Toe-screw at both the bird's-mouth and the ridge.



Nail the 2x6 T&G boards to the rafters. Let them overhang the last rafter — once they're all in place, strike a line and trim them flush with the last rafter.

top (photo 11). If local code dictates, add an ice and water membrane. Attach drip edges to the perimeters of the roof, step flashing where the new roof meets the side of the house, and shingles. Tuck the upper edge of the flashing sections beneath the cut edges of the siding.

Building the railings

Our railings needed to match an existing deck, but yours could be as simple or as complex as you like. To duplicate ours, start with 4x8 sheets of cedar lattice, cut in half to create 2-ft.-wide

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Apply roofing felt and, if required, an ice and water membrane. Then attach the shingles of your choice. For consistency, use the same type of shingles that are on your house.



Assemble the railing sections and set them in place. Toe-screw through the 2x4s and into the 6x6 posts.

panels. Nail lengths of cedar 1x2s to the top and bottom of the lattice panels using stainless steel ring-shank nails placed every 12 in. Drill pilot holes, as the thin lattice has a tendency to split (see lattice railing detail on the drawing, p. 37).

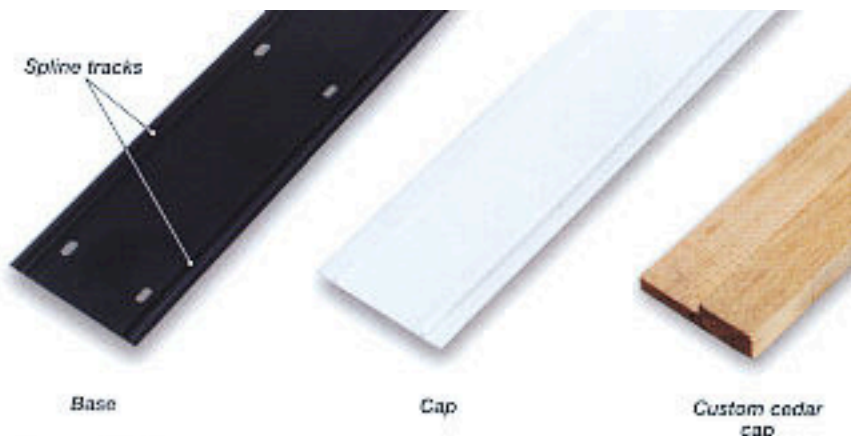
Toe-screw through the 1x2s into pre-cut cedar 2x4s. Then lift the railing sections into place and toe-screw through the 2x4s into the corner and center posts (photo 12).

The rest of the infield trim pieces are lengths of cedar 2x4s placed to convey an Arts and Crafts design. You could just as easily replace the pieces with manufactured gingerbread trim to suggest a Victorian or country look or omit them altogether for a contemporary appearance.

Staining and screening

Cedar is naturally rot-resistant, but if left untreated, its color will fade and it will deteriorate much more quickly. To retain the color of fresh cedar and extend the longevity of the enclosure, treat the lumber with a stain or clear preservative — we used Natural Choice transparent fin-

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Screen Tight's components consist of a vinyl base track and a cap. For a custom look, cut matching caps from 1x4 cedar.



Keep the screen taut with one hand as you roll the spline in place with the other. If you get a wrinkle, pull out the spline and re-roll the area.



Attach the cedar caps by driving 1-1/2-in. stainless steel screws through both the cap and the vinyl base. Drill pilot holes to keep the cedar from splitting.

SCREENING ODD SPACES

You may need to construct screen frames to fit odd openings. In our enclosure, we had to build some frames because we simply couldn't reach up into the rafter spaces to roll screen spline. If you face a similar dilemma, you can easily make small frames from 1x2 stock as shown here. To match the slope of the roof, I mitered the stiles and then glued and screwed the frame components together.

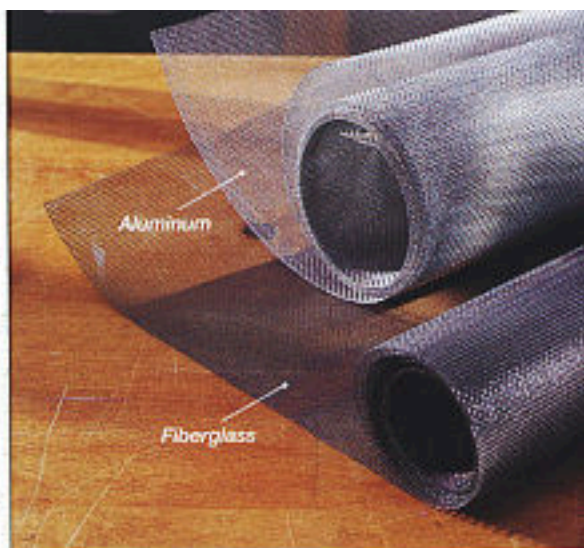
As you work, take the time to measure each opening. Even if you have multiple similar openings (as we did with the rafter spaces), don't cut the frame components for all of them at once. Unless you've been unusually diligent at setting the rafters, you'll likely find small variations. — MB



THE BEST MESH

To get the most from your new enclosure, you'll need the right screening material. Fiberglass and aluminum are the most common types of screening. Both are available in a variety of mesh sizes — the larger the number, the smaller the weave — and in various colors. (We used 20x20-mesh fiberglass.) Fiberglass is the most worry-free of all screening materials, as it will not rust, rot or stain.

In some cases, additional considerations apply. For example, if you'll share your enclosure with pets or young children, you may need a more durable screening such as Phifer Wire Products' PetScreen. If you live near the ocean, bronze screening will resist the corrosive properties of salt air and provide an upscale look. And if your enclosure will be exposed to direct sunlight, you can reduce heat and glare by installing a shading fabric such as Phifer's SunTex, which blocks 80 percent to 90 percent of the sun's rays, yet still allows soft light to filter in. — MB



ish from Okon (see SOURCES) — before installing screening.

When it came to the screening, the last thing we wanted was to mess with traditional screen frames, for two reasons. First, building frames is extra work. Although they allow you to remove the screens, that's unnecessary for most enclosures. Second, we didn't want to clutter the clean lines of the enclosure with additional frame components. In fact, we wanted the screening to virtually disappear.

To achieve both the appearance and functionality we desired, we chose Screen Tight's porch screening system. Made of maintenance-free UV-resistant vinyl, Screen Tight uses a base track that screws to the face of the opening (see photo, top right, p. 42). Just as with manufactured screen windows, a rubber spline is then rolled into the base, securing the screening without nails, staples or screen molding. Bases come in 8-ft. lengths — easily cut with pruning shears — and are available in both 1-1/2- and 3-1/2-in. widths, perfect for both 2x4 and 4x4 applications.

Screen Tight also offers vinyl caps that snap over the bases. Though we opted to make our own from matching cedar, the caps (available in white, beige, gray or brown) easily snap on with a light mallet blow.

To install the bases, simply measure and cut them to length and then screw them to the outer faces of the posts and beams using 1-in. stainless

steel screws. Drive a screw into each of the pre-cut slots, and make sure there's one within 2 in. of the end of each base strip. Drive the screws so they are snug but not so tight that they deform the vinyl track.

Installing the screen material is not difficult but initially can be a bit awkward. To start, hold the screening up to the top track, and with a spline roller (available at most hardware stores), press the rubber spline into the molded groove. Use a .175-in. rubber spline for fiberglass screen and .160-in. spline for aluminum screen. As you roll the spline, pay attention to the direction of the screen mesh, and keep the wires parallel with the track.

Once you've rolled the top spline, work your way down each side. Pull the screen taut with one hand as you roll the spline into the groove with the other (photo 13). If you accidentally create a wrinkle, just pull out the spline and reroll that area.

Roll the bottom edge last. If you're using the vinyl caps, you don't need to stretch the screening drum-tight; as you snap the caps in place, they'll help to tighten it.

If you construct cedar caps as we did, start with 1x4 strips cut to the same length as the vinyl bases. Cut a 3/8- x 1-7/8-in. rabbet running the length of each strip, and screw the caps over the bases using 1-1/2-in. stainless steel screws (photo 14).

Finishing the job

The last few steps, such as installing a door or adding lighting, can make or break the overall look of the enclosure. If you've gone to great lengths to create an ornate railing system (as with our enclosure), a generic prefabricated screen door might look out of place. Likewise, the wrong style of lighting can make an otherwise elegant addition seem cobbled together.

To unify the overall look of our enclosure, we built a custom screen door (see "Cedar Screen Door," p. 12). We also could have installed a solid vinyl screen door such as those from Screen Tight.

To heighten the Arts and Crafts look, we installed period-inspired low-voltage lights from Progress Lighting and an Outdoor Elements ceiling fan in raw copper from Hunter Fan. Both fixtures add to the overall ambience and help bring an increased sense of light and warmth to an already inviting addition.

SOURCES

Hunter Fan Co.
800-448-6837, www.hunterfan.com

Okon Inc.
800-237-0565, www.okoninc.com

Phifer Wire Products Inc.
800-633-5955, www.phifer.com

Progress Lighting
(864) 599-6000, www.progresslighting.com

Screen Tight
800-768-7325, www.screentight.com