

Nailing Cedar Shingles

Q. A new lead carpenter on my crew says that when installing cedar shingle siding on a house, he was always taught to put a third nail in the wider shingles. Is he right?

A. Martin Obando, director of application specifications for the Cedar Shake and Shingle Bureau, responds: A shingle less than 8 inches wide should receive only two nails. However, a shingle 8 inches or wider should receive four nails. The extra two nails should be placed near the center of the shingle, about an inch apart.

Experience has shown that two nails in the center of a wide shingle are less likely to cause the shingle to split than a single nail in the center.

Installing Asphalt Shingles on a Low-Slope Roof

Q. What is the minimum slope allowed for asphalt shingles? I have heard that asphalt shingles can be applied on a roof with a pitch as low as 2/12, as long as a rubberized asphalt eaves membrane is installed under the shingles.

A. Corresponding Editor Paul Fisetta replies: The CABO One and Two Family Dwelling Code permits the installation of asphalt shingles on roofs with a slope as low as 2/12 if the shingles are double-coverage, self-sealing versions.

Shingles that are not self-sealing must be hand-sealed with asphalt roofing cement. This low-slope application requires a double layer of #15 felt

underlayment, cemented together, for a distance extending from the eaves up to a point 24 inches inside the interior wall line of the building. For the rest of the roof slope, the felt underlayment must be installed with a 19-inch top lap and a 12-inch side lap, providing double coverage of the felt layer.

Asphalt shingle manufacturers will warrant shingles installed on roof slopes as low as 2/12 when these special installation procedures are followed. Self-sticking rubberized asphalt products like Grace Ice & Water Shield are acceptable but expensive substitutes for #15 felt.

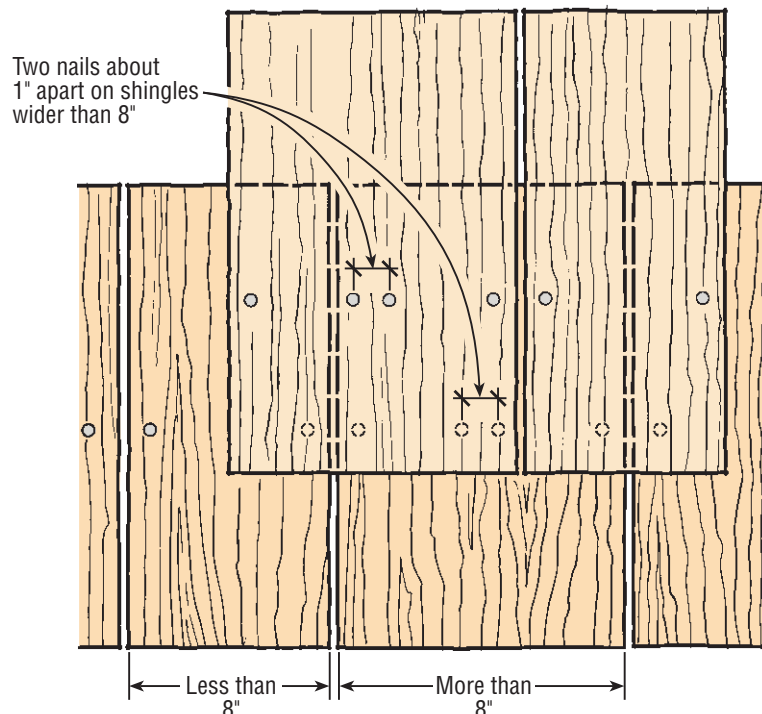
Having said this, I would never install shingles on a 2/12 roof, especially in an area where snow falls. In fact, I have had numerous problems in northern climates with asphalt shingles on 3/12 roofs. As a result of this experience, I would limit the application of asphalt roof shingles to roofs that are 4/12 and steeper. The National Roofing Contractors Association recommends that asphalt shingles be installed only on roofs with slopes that are 3/12 and greater.

I believe that if you have to depend on felt paper, asphalt cement, or Ice & Water Shield to block water after it gets past the primary roof covering, you have the wrong roof system. Shingles get brittle with time, and at the reduced slope of a 2/12, a slight curl at the end of the shingle line shunts water backwards under the leading edge of the overlapping shingle. When you have snow or ice sitting on the roof and melting, you don't have a prayer at keeping the water out. Felt paper and Ice & Water Shield are emergency back-ups, not a plan for everyday protection.

Boxing in a Metal Chimney Above the Roofline

Q. My company has been asked to enclose a triple-wall metal chimney with a

Preventing Splits in Wide Shingles



When installing cedar shingle siding, shingles 8 inches or wider should receive four nails.

rectangular chase above the roofline. The chimney vents a fireplace, and extends about 4 feet above the roof. The homeowners want to box in the chimney with framing, sheathing, siding, and trim.

What type of clearance is necessary between the metal chimney and the box? What is the best way to flash the top of the box?

A. Builder Mike Guertin responds: First, check the chimney manufacturer's printed specs to determine the minimum clearance between the chimney and the framing. In most cases, the minimum clearance will be 1 or 2 inches; if uncertain, err on the conservative side.

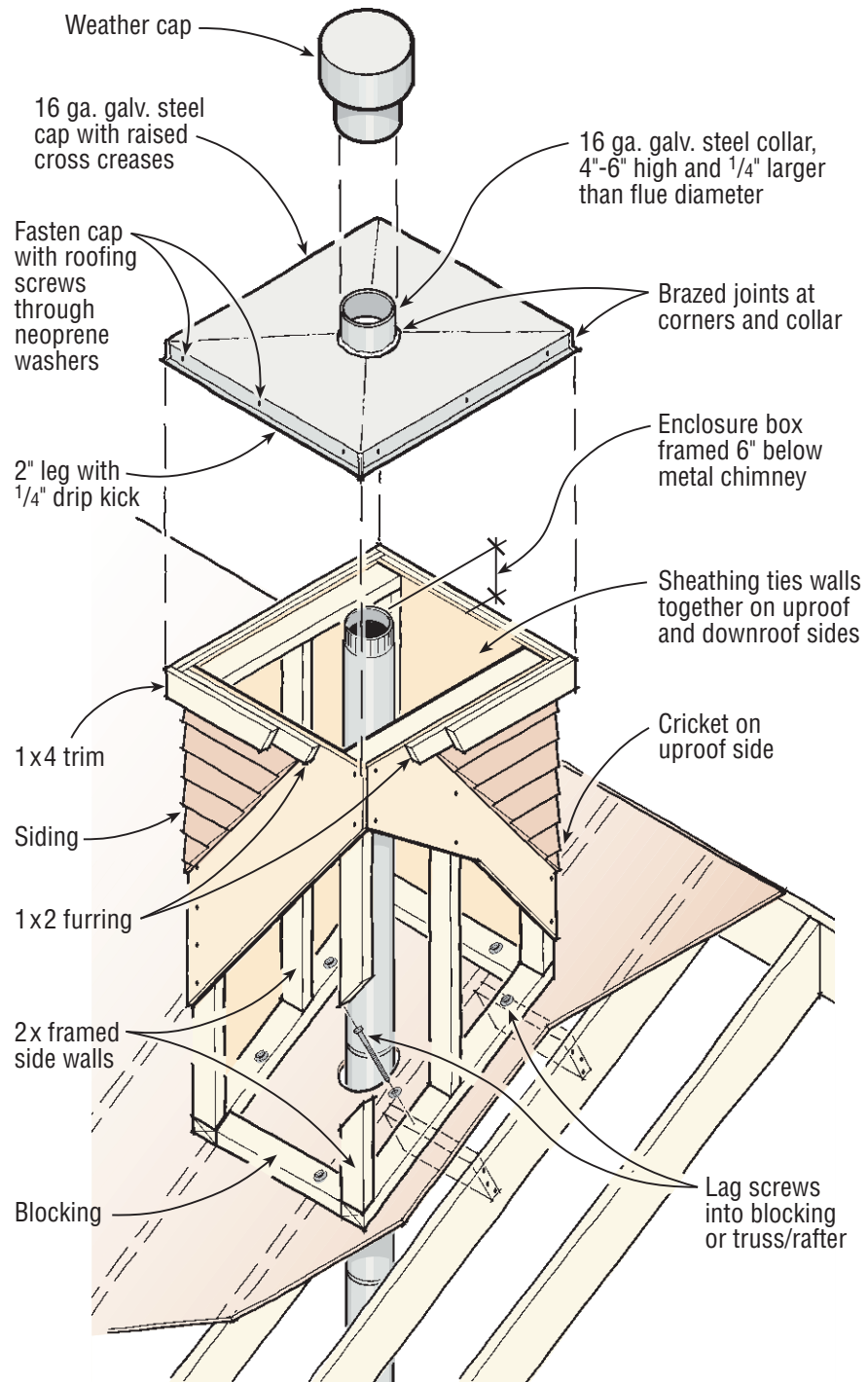
Frame a wooden box to match roof pitch. I usually build two side walls from 2x3s or 2x4s, and just use sheathing to tie the walls together at the uproof and downroof sides. Make the overall height of the box 6 inches short of the pipe termination exclusive of the weather cap. This leaves enough of the pipe exposed to install the weather collar and the cap. Assuming shingle or clapboard siding, install a 1x2 furring strip around the perimeter of the box flush with the top edge.

Fasten the box to the roof framing, preferably with screws or lag bolts. Install blocking between the roof trusses or rafters if necessary, so the screws bite into something. Check to be sure the box is plumb and square at the top. If necessary, frame in a cricket on the uproof side.

Install step flashing and roof shingles as usual. Install the siding, and then cover the 1x2 furring at the top with a 1x3 or 1x4 piece of finish trim all around the box. Measure the top of the trimmed box, taking dimensions carefully. Make a sketch locating the chimney within the perimeter. Note the actual chimney diameter; the chimney hole diameter should be $\frac{1}{4}$ inch larger than the pipe.

Make or have made a galvanized sheet metal cap with a separate 4- to 6-inch tall collar that slips over the chimney. I prefer to use 16-gauge material because it's more rigid than 20 gauge. Diagonally crease the metal cap in both

Metal Chimney Enclosure



directions before installing the collar. The creases add rigidity to the cap and give a hip effect to shed water. The edges of the cap should fold over the trim about 2 inches, with a $\frac{1}{4}$ -inch drip kick along the bottom edge.

Snip and bend tabs from either the top or the neck for a secure connection.

Although some builders secure the tabs with pop-rivets and seal the seams with high-temperature silicone, I am doubtful that a caulked joint will be durable. It's best to braze or solder the joints in the galvanized metal.

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Stucco Repair

Q. *What's the best way to build up a damaged bullnose corner on exterior stucco?*

A. *Ron Webber, owner of Prime Plastering in Irvine, Calif., responds:* Repairing a damaged rounded corner is handled like any other repair job. Assuming that the corner has been hit, and a chunk of stucco has been knocked out, the loose and damaged stucco should be chipped back. Carefully tuck the top of the weather barrier patch under the existing weather barrier, creating a lap, so that the weather barrier keeps out the water.

Then install the wire or metal lath, again lapping the old and the new by about 2 inches. If there is nothing to nail to at the repair location, then you can tie the lath together using tie wire. Now you're ready to install the stucco base coat, taking care to maintain the desired shape. If it is a heavy fill, you may need to do it in two coats. The finish coat should be installed using the same technique that the original plasterer used, to match the texture.

Two Layers of Housewrap

Q. *I plan to install new cedar shingle siding over existing T&G board siding. Should I install housewrap under the new shingles? Since there is already a layer of housewrap between the plywood sheathing and the board siding, I'm worried that two layers of housewrap may lead to moisture problems.*

A. *Corresponding Editor Paul Fiset responds:* I would recommend that you use a layer of #15 asphalt felt to cover the T&G boards. The new siding will not keep all rainwater out, especially in a heavy soaker of a storm, and the T&G boards need to be protected from water that penetrates the siding.

If you installed a second layer of plastic housewrap instead of asphalt felt, and liquid water were to leak into the region between the two layers of housewrap, the T&G boards could have a difficult time drying out. Asphalt felt is forgiving. Initially it blocks vapor and

liquid water, but if it does get wet (under extreme exposures) it first stores water, then allows liquid and vapor to pass, and ultimately dries out. The perm rating of asphalt felt is about 5 (fairly low) when it is dry, but rises to 60 (fairly high) as the felt nears saturation.

Fussy installation and detailing is important. Carefully lap the asphalt felt so it sheds water, and be sure the flashing at the window heads is tucked under the felt.

Wiring Bathroom Lights

Q. *At several jobs, I have noticed that the electrician wires the bathroom light downstream from the bathroom GFCI receptacle. When the GFCI trips, the light goes out. Does this meet the NEC?*

A. *Master electrician Rex Cauldwell responds:* Even though it doesn't make sense, I'm afraid that this installation does meet the code. The NEC doesn't require installations to follow common sense or be convenient. Certain dangers are permitted, as long as the danger is non-electrical.

The code doesn't care that if the light goes off, you may be nude, walking in darkness on a wet, slippery floor, trying to find the door handle, or that you may have to walk (presumably, with a towel wrapped around you) through the party in the living room out to the garage to throw the GFCI breaker back on.

Box, Sinker, and Cooler Nails

Q. *I would like to know the definitions for a box nail, sinker nail, and cooler nail. How do they differ from common nails?*

A. *Scott Smith, vice president of nail manufacturer Prime Source Building Products, responds:* A box nail has a smaller gauge shank than a common nail. For example, while a 10d (3-inch long) common nail has a 9-gauge (0.148-inch diameter) shank, a 10d box nail has a 10¹/₂-gauge (0.125-inch diameter) shank, which is thinner. Because a box nail is lighter than a common nail, it has less shear strength.

Cooler and sinker nails also have a smaller gauge shank than a common

nail, but not as small as the shank of a box nail. 10d sinkers and 10d coolers are both a little shorter (2⁷/₈ inches), and have an 11-gauge (0.120-inch diameter) shank. Sinker and cooler nails are usually resin-coated; the resin acts as a lubricant as the nail is driven and as an adhesive when the nail cools after being driven.

Cooler nails, like common and box nails, have a flat head. Sinker nails, on the other hand, have a bugle-shaped head to promote countersinking.

All of these terms — common, box, sinker, and cooler — refer to loose nails, not collated nails. Collated nails are categorized according to head type (full round head or clipped head), length (in inches), and shank diameter (in inches). For example, a 16d common nail (loose) is equivalent to a full-round-head 3¹/₂-inch-long 0.162-inch-diameter collated nail.

Stripping Paint from Fiberglass Doors

Q. *What is the best way to remove paint or varnish from a fiberglass door?*

A. *Former painting contractor Ed Fillbach responds:* Before removing the door from its hinges, wash the door with warm water and common household detergent. Rinse the door well, and allow it to dry. Remove the door to a cool area (55°F to 65°F) and lay it across sawhorses at a comfortable working height. Be sure to cover the floor area to avoid damage from spilled paint remover. Remove the door hardware

The best paint removers are citrus-based, and can be bought at any paint store. They're effective for removing either latex or oil-based paint and won't damage the fiberglass.

Apply paint remover to a small area (4x4 inches) to test the time needed for the paint remover to work. Depending on the number of layers of existing paint, it can take from 5 minutes to an hour for the paint remover to work.

When the test is complete, brush a liberal amount of paint remover on the door, brushing in one direction.

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Remove the residue with a small nylon scrub brush, which will help remove any paint remover remaining in the fiberglass grain. Rinse well, according to the paint remover manufacturer's instructions.

Concrete Cracks

Q. *Within 60 days of pouring a concrete basement, some vertical cracks appeared. The cracks are between 1/32 inch and 1/16 inch wide, and extend from the top of the foundation wall down about 4 to 5 feet. My subcontractor tells me that the foundation is structurally sound, but the client is worried. Is this type of cracking normal, or can such cracks be avoided?*

A. *Jay Meunier, contracting specialist at S. T. Griswold and Co. in Williston, Vt., responds:* Many house foundations will exhibit small hairline cracking from curing and shrinking. If the cracks do not enlarge much more than their present size, the foundation should be fine.

There are several possible causes of the cracks, including normal shrinkage from curing, and early backfilling of the foundation without bracing the walls. As concrete cures, it dehydrates and wants to shrink. Factors affecting whether cracks will appear on walls include the length of the walls, the number of wall penetrations, and the slump of the concrete.

Early backfilling can cause problems by placing extra pressure at the upper regions of the walls, where there is the least support. The pressure can cause small deflections in the upper wall areas, inducing cracks from the top of the wall down. You can check for wall deflection by running an offset string from wall end to wall end, verifying whether the distance from the string to the wall is consistent.

If the cracks continue to open up and

lengthen as the walls cure, you should talk to your concrete contractor about your options for preventing water and insect penetration. If the cracks open up beyond 1/8 inch, the cracking may be caused by factors other than curing or early backfilling.

Does Snow Insulate?

Q. *Assuming an attic is leaking some heat that reaches the roof sheathing, causing an ice dam, does the snow on the roof tend to act as insulation, trapping the heat near the sheathing? Will the melting of the roof snow be worse when there are 12 inches of fluffy snow on the roof than when there are 4 inches of snow?*

A. *Corresponding Editor Paul Fiset responds:* The simple answer is yes. Snow is an insulator. Its R-value varies, depending on moisture content and density of the snow granules; but on-average snow has an R-value of 1 per inch — about the same as wood. Twelve inches of snow have roughly the same insulating value as a 2x4 wall filled with fiberglass insulation.

The worst ice dams occur when there is deep snow followed by a period of very cold weather. To prevent ice dams, the most important and least expensive step is to seal all air leaks connecting the house to the attic. It is also important to reduce conductive heat loss from the house with deep layers of carefully installed insulation.

Once you have minimized heat flow into the attic, install an effective roof venting system. Continuous soffit vents that communicate effectively with continuous ridge vents are a good choice for most houses. I think ridge vents that have an external baffle are best. They provide more reliable suction because the air stream jumps over the baffle regardless of wind direction, creating negative pressure over the vent.

Replacing Sheathing Behind Brick Veneer

Q. *My company is in the process of gut rehabbing a house with brick veneer siding. From the interior, we have removed the drywall and wall insulation, exposing 16-gauge steel studs, 24 inches on center. The existing gypsum sheathing is in very poor condition. There is a 3/4-inch air space between the brick veneer and the deteriorated sheathing. Is there any way to replace the sheathing from the interior of the house?*

A. *Corresponding Editor Paul Fiset responds:* Bricks absorb rainwater. Water is driven through the bricks by gravity, capillary suction, vapor pressure, and air pressure. Since the existing gypsum sheathing is wet and deteriorated, it is especially important to maintain the air space between the bricks and the new sheathing, so that any water that penetrates the brick veneer can drain down to weep holes at the bottom of the wall. It is also important to install a layer of #15 or #30 felt over the outside of the sheathing, to protect the wall from future moisture damage.

Replacing the sheathing is an interesting challenge. I can imagine inventive JLC readers everywhere thinking of clever ways to solve this problem. I believe the most effective repair method is to remove the studs in 4-foot sections, and then to insert new pre-assembled wall panels. The panels should have felt attached to the outside. Be sure to provide overlaps of felt at the top, bottom, and sides.

GOT A QUESTION? Send it to On the House, JLC, 186 Allen Brook Ln., Williston, VT 05495; or e-mail to jlc@bginet.com.

