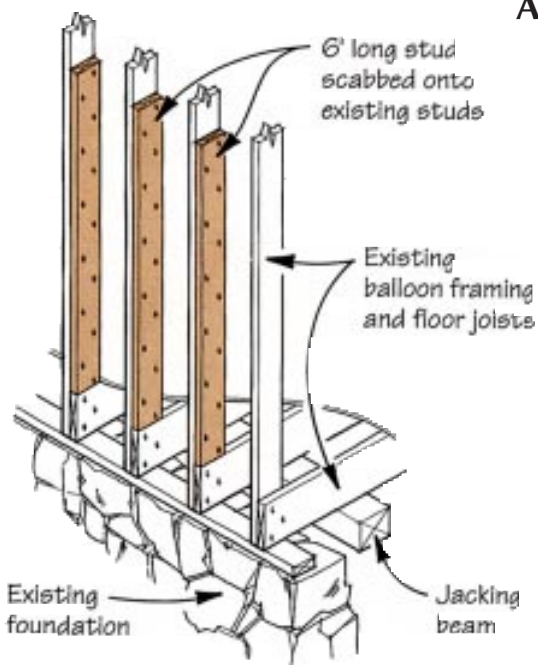


Shoring a Balloon Frame

Q. I am rehabbing an old two-story balloon-framed house with a crumbling limestone foundation. I need to jack the walls slightly to repair the foundation. The floor joists rest on a 2-by leveling plate, and the 20-foot-tall studs are face-nailed to the sides of the joist ends (see illustration). With platform framing, I would ordinarily run a temporary beam under the joists as close to the foundation wall as possible and place my jacks under the beam. If I do that with this frame, I am concerned that the weight of the walls, which are carrying the second floor and roof, will shear the old face nails. Any suggestions?

A. Master carpenter Mike Shannahan, of La Porte, Texas, responds: Here's a simple technique that will work if you can get into the wall cavity. Scab on 6-foot lengths of stud material along the bottom of each wall stud (for a single-story house, I might go with every other stud.) Make sure the bottom of the sister member sits squarely on top of the joist, and nail it off with 10 or 12 16-penny nails.



(Use duplex nails if you plan to remove the scabs. In my climate, uninsulated wall cavities are common, so I just leave the 6-foot members in place permanently.) Now you can jack in the manner you described.

Rust on Rebar

Q. Our rebar was delivered to the site before excavation for a stemwall foundation began. After sitting in the weather, it's gotten quite rusty. Is this a problem?

A. Robert Shuldes, of the Portland Cement Association, responds: Light rust on rebar is not a problem. Heavy rust scale, however, should be removed with a wire brush.

Shingling Over Stress-Skin Panels

Q. Is it necessary to provide ventilation under shingles installed over SIP (structural insulated panel) roofs? I've heard that shingles installed directly over SIPs, without a vent cavity, fail prematurely.

A. Bill Rose, a researcher with the Building Research Council of the University of Illinois in Champaign, responds: Unfortunately, the best answer I can provide at this time is "I don't know." I am ten years into a side-by-side comparison research test, and so far the performances of the fully vented roof and the unvented SIPs-equivalent roof appear to be about the same.

Our research has turned up other relevant information, though. In a vented cathedral ceiling (SIPs or not), with a continuous slot, say 1½ inches deep, with openings top and bottom and the sun shining on the surface, air will be buoyed

upward in the cavity. The air flow may be considerable. It has a distinct cooling effect on the lower part of the roof. However, the engine that drives this cooling is the temperature difference between the top and bottom of the slot, and the upper part of the slot may be quite hot. In fact, our measurements indicate that the top of the vented slot is at about the same temperature as an unvented cavity. Conclusion: In a long shallow vent slot in cavity roof construction, venting can cool the lower part of the roof but not the upper part.

We've also found that a vented cathedral ceiling cavity is much hotter than an unvented full attic, other things being equal. In addition, our research shows that some ridge vents are so well designed to exclude snow that air barely moves through them.

So far I find little technical support for the claim that ventilation enhances the service life of shingles. One argument — that higher temperatures cause faster diffusion of the compounds that keep shingles pliable — makes sense, but the temperature difference between vented and unvented is awfully tiny. Shingle color and latitude make for a much greater temperature difference. In the absence of technical support, I believe that either course of action — venting or not — is viable. Those who vent encounter fewer problems with code officials and shingle warranties. Those who do not are working in the fine tradition of craftsmen who use common sense to challenge accepted wisdom.

Venting has been presented as the key to blissful service life of shingles. My opinion is that service life is first and foremost a matter of shingle quality. If ventilation has one ill effect, it is that it gives shelter to manufacturers who are not investing in product improvement.

