

## Q I'm building a SIPs house, and plans call for a porch in front and a deck in back. What's the best way to attach a porch or deck to a SIPs house?

**A** Paul Malko, technical director at Foard Panel and a speaker at JLC Live, responds: Part of the answer depends on the rim detail. If the structural insulated panels (SIPs) land on top of a conventionally framed deck, you can use 1 5/8-inch-thick structural rim boards and attach the deck ledger as prescribed by the code. If a SIP rim is used, the panel by itself would not be strong enough for attaching a deck or porch ledger to.

The foam doesn't have enough compressive strength to be through-bolted.

That said, we have two ways of beefing up the outer skin of a SIP or SIP rim. The first is by adding double 5/16-inch OSB nailers behind the outer sheathing, for a total thickness of 1 5/16 inches of OSB. This strategy creates a heavier outer skin, but I would not recommend going that route for attaching anything but the smallest deck or porch.

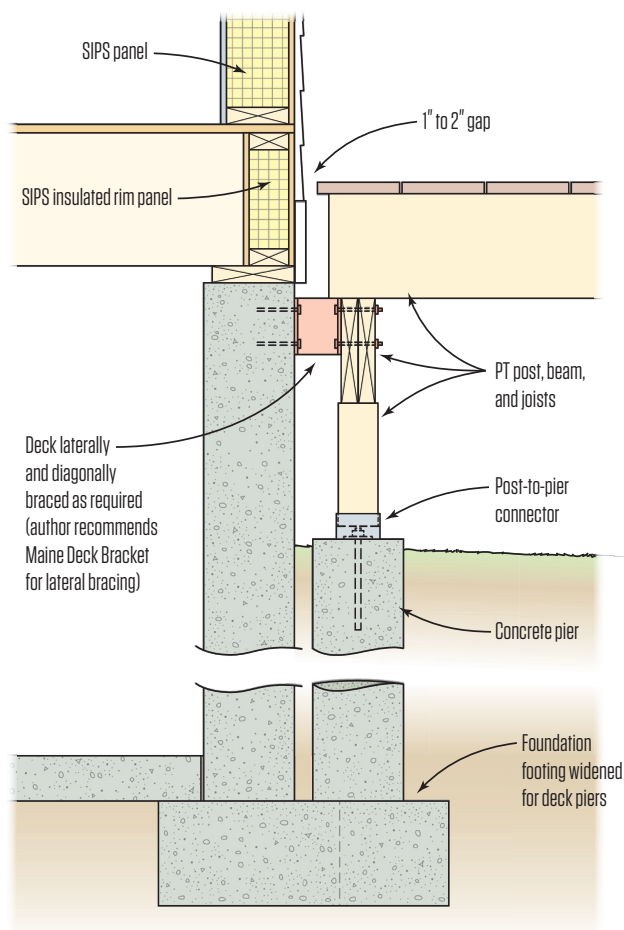
For the second method, we embed a 9 1/2-inch-wide by 1 3/4-inch-thick LVL behind the outer skin of the insulated rim; and a pressure-treated ledger, which will hold the deck framing, is attached to the outside with SDS or TimberLok screws that don't need to be predrilled. Even with the embedded LVL, I would not proceed without careful engineering that takes into consideration all the particulars of the project.

The third and best option is building a deck or porch that is independent of the house with no direct connection to the house for support. With planning, the footings for the deck or porch can be made integral with the house foundation in a monolithic pour. Alternatively, porch footings can be attached to the foundation with steel dowels.

The freestanding structure is then built with a small gap between the house and deck. I would make the size of the gap as large as practically possible (to encourage drying). I suspect that the size is a balance of aesthetics and safety. A gap of an inch or two is probably fine.

When a porch or deck is built as an independent structure, an important consideration is lateral bracing to prevent racking, which can be accomplished with diagonal bracing between the posts. Another way to provide stability is by anchoring the structure back to the house. For first-floor decks where the post height is minimal, you can anchor back to the concrete foundation, which is better than connecting to the wooden structure of the house. For freestanding decks or porches above the first floor and with taller posts, your only option may be bracing back to the wooden walls of the house. In either case, I suggest using a product like the Maine Deck Bracket, which is a clever improvement over other spacer schemes I've seen.

### Freestanding Deck or Porch



**Q** I'm installing ½-inch-diameter screw anchors in concrete footings. How long does the concrete need to cure before I can drill and drive the anchors? And are there concrete mixes that have a faster curing time?



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**A** Bill Palmer, an engineer and the editor-in-chief of *Concrete Construction*, a sister publication of *JLC*, responds: Screw anchors (such as those available from Simpson Strong-Tie or ITW Red Head) are a great addition to the more common concrete anchors on the market today and have the same pull-out strength as expansion anchors or adhesive anchors. Screw anchors start with a smooth hole, but these innovative products create a bond by cutting threads into the concrete with high-strength serrations.

Anchor manufacturers rate the pull-out strength of screw anchors in tension and shear based on specified concrete strength. Most concrete achieves its rated strength in 28 days, although in reality the concrete usually achieves its specified strength more quickly than that. In most parts of North America, 3,000 psi is the minimum recommended compressive strength for footings. Assuming you are using 3,000-psi concrete for the footings, you should be safe installing the anchors after 28 days in most circumstances.

But there are a few things that can greatly alter the "normal" rate of strength gain: concrete temperature and the use of fly ash or admixtures. Concrete gains its strength through a chemical reaction called hydration that depends heavily on the temperature of the concrete. Below 50°F, concrete typically gains strength much more slowly. Adding fly ash to the mix can also make concrete gain strength more slowly.

If you need your footings to harden more rapidly, accelerating admixtures can make that happen. The most common of these is calcium chloride—although it may not be a good choice because it can also cause the anchor bolts to corrode. Non-chloride accelerators tend to be more expensive (and less effective) and should be matched to the specific cement being used. Rely on your concrete producer for this.

If you want to install the anchors before 28 days have passed, and want to be sure the rated strength has been achieved, you can test the concrete footing with a Schmidt hammer. However, this expensive tool is not something that the average contractor is likely to be carrying in his toolbox.