

Lateral-Load Attachments

Q My building department never questions what I do for lateral-load attachments on my decks. Since the building officials don't seem to care, I'm wondering whether I need to worry about it.

A Mike Guertin, a builder in East Greenwich, R.I., responds: Just because your local building department isn't checking decks for dedicated lateral-load connections doesn't mean you should skip addressing the load. And if those connections are required by local code — regardless of whether or not it's enforced — compliance could help limit your liability should there be a problem like a deck collapse.

Here's a little background about the International Residential Code (IRC) requirements for resisting lateral loads on decks, followed by my approach to compliance.

The IRC used to be fairly vague about how to attach a deck to a house: "Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable." Most deck builders used to just bolt and screw ledgers into the house, and if their building inspectors did quantify loads, they focused on vertical ones — the dead and live loads.

In 2007, a supplement to the IRC introduced a connection detail for resisting lateral loads on decks (see "Best Practices for Lateral Load Connections" on page 26). The language was awkward and implied that the new detail was required, but what the supplement actually said was that using the specified detail would satisfy the attachment called for in the performance section. Despite the confusion caused by the language, it was adopted into the IRC in 2009.

Anecdotal Evidence

When I first saw the 2007 supplement, I was sure it was going to get the attention of building officials. The expected onslaught of enforcement, however, hasn't happened yet. I lead lateral-load-connection workshops across the country and regularly ask attendees how their local officials are dealing with lateral loads. The experience of hundreds of deck builders parallels mine: Building officials haven't been looking for anything new since the lateral-load detail was introduced. I've even had inspectors ask me about the lateral-load hardware I install on my decks, noting that they haven't seen it before.

A few jurisdictions — and they are the exception — do look for a means of lateral-load resistance at plan review; if there is no detail on the plans, the reviewer will make a note, citing the code and calling out the code detail as a minimum requirement.

Three Compliance Pathways

I started installing dedicated lateral-load connections on decks even before my state adopted the 2009 IRC. There are three ways to comply with the IRC requirements, and each has its pros and cons depending on the deck design and house framing. (Note that the IRC requirements do not apply to decks that are not connected to a house.)

Follow the IRC prescriptive attachment detail or hardware manufacturer's approved design. The detail in the IRC is pretty easy to install once you've done it a few times. For a deck mounted to a conventionally framed house — provided that the ceiling in the crawlspace or basement is unfinished — it will cost about \$50 in hardware for the required two connections and take less than two hours of labor. A big advantage to using the IRC detail is you don't have to spend extra time coordinating alternatives with an engineer or building official.

If, however, the basement ceiling is finished and you don't want to disturb it, or if you have to work around engineered lumber and open-web floor trusses, it may be simpler and more cost-effective to pursue one of the next two approaches.

Have an engineer design a solution. On complicated projects, building officials may require an engineered solution. For example, if you were building a multi-level deck and one level landed midway between floors, both the vertical and lateral deck attachments in the middle of the wall would need to be engineered.

Work out a design in consultation with the building official. When a deck is to be mounted near grade level to a house that has a finish ceiling inside, it may be worth your time to discuss the design with a building official. Should such a deck pull away from the house, the risk of injury is low, so the building official may not require any special lateral-load connections beyond the screws mounting the ledger to the rim joist. ♦

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