Attaching Posts to a Rooftop Deck

Q How can I mount newel posts to a deck on a flat roof without cutting into the roof?

A Paul Nichter, a contractor in Islesboro, Maine, responds: I've been building wood decks with safe railings over flat EPDM roofs on the rainy coast of Maine for over 15 years without compromising the waterproofing. I avoid the traditional method of bolting a 4x4 post deep into the framing, as it penetrates roof surfaces and increases the possibility of a leak long before either the decking or the roof membrane is worn out from age.

My approach to keeping water out while achieving good resistance to lateral forces is two pronged and is based on the deck being built on sleepers above the roof. First, I design rooftop decks with corners every 6 feet to 12 feet. Corners stabilize the railing, as lateral loads aren't borne by just one post; rather, the loads are shared with adjacent posts.

Second, I mount the posts with hardware that bolts to the top of the deck (**Figure 1**). Each post is a hollow box that fits over a vertical threaded rod. The rod threads into a 3/4-inch nut welded to the center of a 1/4-inch-thick steel plate. I secure the plate to the deck with four 2 1/2-inch RSS Structural Screws (GRK Fasteners; 800/263-0463, grkfasteners.com), but galvanized lags would work too. The screws or lags should be as long as possible without protruding from the bottom of the sleepers and putting holes in the roof membrane. It is essential to place 2x12 blocking on the flat between the sleepers at post locations so the lags will have something solid to bite into.

Once the plate and rod are installed, I stand the post in place. Usually, some scribing and fitting are needed to make it stand plumb without wobble or lean. Then I run a bead of construction adhesive on the bottom of the post and seat it on the deck surface.

A second piece of 1/4-inch plate fits at the top of the post in a rabbet cut for that purpose. The threaded rod runs through a hole drilled in the plate, and the assembly is drawn tight with a nut. The nut tensions the threaded rod, compressing the post and creating a solid connection.

I've also used manufactured posts from Fypon (800/446-3040, fypon.com) and WeatherBest (800/343-3651, weatherbest.com). One advantage of using manufactured posts is that their makers have tested them for code compliance.

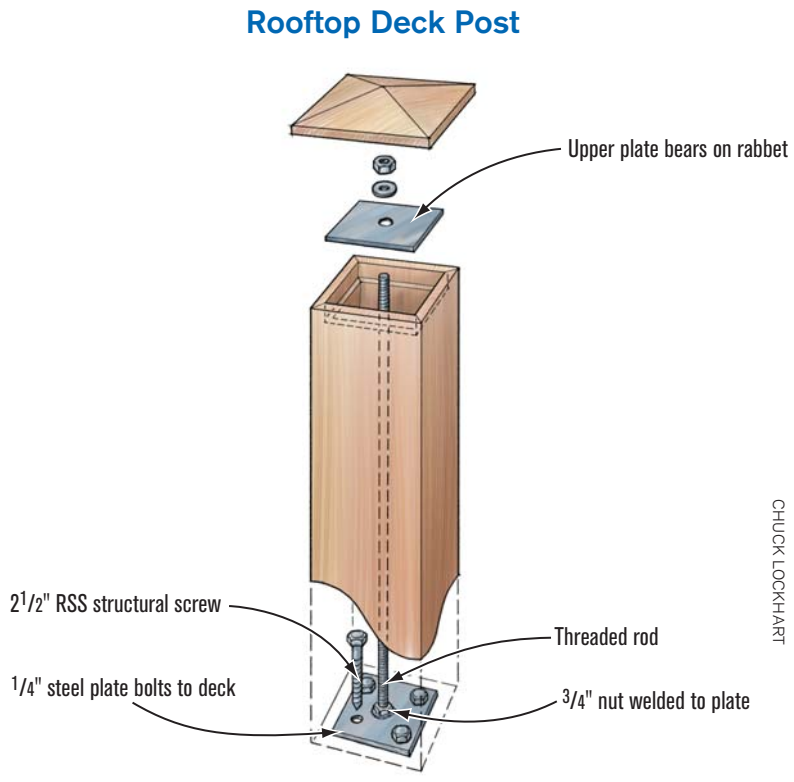

Figure 1. A threaded rod between one plate screwed to the framing and another plate at the top of the post firmly connects a hollow newel to a rooftop deck.

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Replace the Framing or Just Re-Skin?

Q I'm getting a lot of requests for deck remodels, and I'm not sure how to price the jobs, or whether it's a problem to reuse the existing frame. Do you have any guidelines or points to consider?

A Greg DiBernardo, a deck builder in Waldwick, N.J., responds: At least half of my deck projects are "re-skins," where worn-out wood decking, railings, and staircases are removed, but the existing joists are left intact to be used as a base for new (usually synthetic) decking and railing.

For obvious reasons, if the clients are willing to pay for a complete demo and rebuild, the deck will be better for it. But a re-skin can be a great lower-cost alternative, provided the existing framing is up to the task. If the clients are satisfied with the design of their existing deck, a re-skin can get them a renewed look quickly. Plus, I'll often change the shape by clipping a corner, adding a new staircase, or extending the existing deck.

While I'm taking measurements on the sales appointment, I make a careful inspection, looking for obvious signs of rot, mildew, or decay on the deck surface. More often than not, if the deck boards have begun to rot, the framing beneath them is also rotted. Simple things like a leaky gutter or downspout in a shady corner of the deck can destroy an isolated section of an otherwise structurally sound deck.

If I can access the underside of the deck, I'll poke and prod to identify framing that needs to be replaced. I'll also note the cause of the rot and add the cost of remediating it to my proposal. If the root of the problem is not corrected, failure down the road is guaranteed.

While I'm under there, I inspect the ledger to make sure it's flashed and fastened to the house properly; I make sure all joists have hangers and that any hangers present are in good condition; and I check for signs of rot between the layers of built-up girders. I also check built-up girders to ensure there's no separation between the 2x10s or 2x12s. If there is, I'll draw the layers together using Timber-Lok screws (FastenMaster; 800/518-3569, fastenmaster.com).

It's critical to have access under the deck to ascertain whether the framing is worth reusing. My rule of thumb is if the deck is too low for me to get underneath to inspect, the framing has to be demolished and rebuilt. Generally, the low-to-ground decks of yesteryear weren't built with airflow in mind. Most of such decks I've come across are examples of rot, mold, and decay. There's no point installing a modern synthetic decking product with a 25-year warranty over a frame that's past its prime.

Although my inspection is thorough, some issues may remain hidden until the decking and railings are removed. Therefore, I include a clause in my contract permitting me to replace framing members at a fixed cost as I deem necessary once I begin.

Another important consideration is how the existing decking is attached to the joists. If the decking is nailed down perpendicular to the joists, it can be pried up with little damage to the joists. Removing diagonally installed nailed decking is usually as harmless; it just takes a bit longer.

Screwed-down decking, though, can be difficult to remove — be warned. Unscrewing each fastener usually doesn't work because the heads strip. Prying up the boards may or may not be possible and usually damages the joists, anyway.

The fastest way to remove screwed-down deck boards is to cut them on either side of the joists, letting the pieces of decking fall between the joists. The 1 1/2-inch-long pieces of decking remaining on the joists can be removed with a prybar, leaving the screws in place. The fastest way to remove the screws themselves is to cut them with a grinder equipped with a cut-off disk.

Most of the time, if a deck has screwed-down decking, I trash the entire deck. I cut the decking with a chainsaw run in between the joists; then I cut the joists, now with short pieces of decking attached to them, into manageable pieces to cart to the trash bin.

I always tear off existing staircases and rebuild them to my spec. I have never encountered a staircase I couldn't build stronger and safer. Besides the safety issues a wobbly or rotted staircase presents, most of the staircases I come across do not have the proper tread width to accommodate typical 5 1/2-inch synthetic deck boards, with a 1/2-inch-thick riser and a 1-inch nosing.

I also make sure the old stairs landed on a solid surface such as a concrete slab or pavers. If the existing stairs land on the ground, I include the cost for installing a 4-inch-thick concrete pad for my new staircase to sit on. ❖