What to Watch For in a Deck Remodel

by Glenn Mathewson

The only thing I want to do when confronted with an old deck is get out a chain saw. But with the current economy, more decks may be repaired, re-decked, or added to than replaced this year. This calls for a different mindset than simply designing and building a new deck.

Can It Just Be Re-decked?

When replacing a deck, many homeowners want to cut costs by keeping the old framing and simply installing new decking. The trouble is that a deck's structure may be in just as poor a condition as the decking, it's just not as visible (**Figure 1**) — and you need to be sure you don't open up a rotten box of worms that you hadn't planned or bid for. It's never good to bring to light an expensive contingency for cash-strapped homeowners when the deck is half demolished. Good business is knowing what you're getting into before you get into it, and educating your clients about what may lurk behind the decking and fascia (**Figure 2**). NADRA has a great checklist at nadra.org/Deck_Evaluation_Form.pdf (the Web address is case-sensitive, so enter it as shown here).

Convincing owners that their framing is not sufficient for a re-deck can take showing them the less noticeable portions of the structure. I had a situation where the ledger of a second-story deck appeared fine from the ground. When viewed from a ladder, however, the ledger was obviously peeling away from the house (**Figure 3, page 2**).

Decking and fascia can create big problems for deck framing. They contact the framing and trap water in

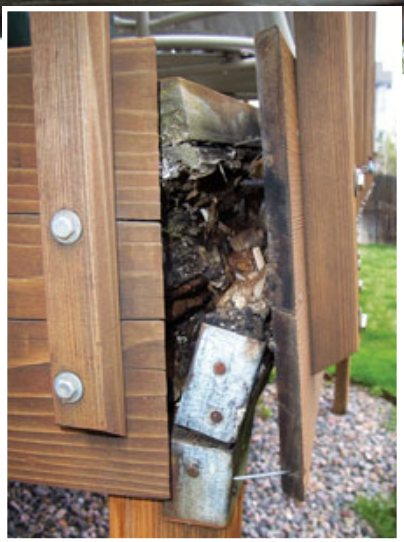

Figure 1. From a garden-level window under the deck, this beam looks merely water-stained (above). The fascia and the guard balusters were in good shape and were even recently stained. The owner thought the deck was fine, but with a slight tug at the fascia, the beam fell apart (left). Though the redwood fascia and decking were able to resist rot, the fir framing had deteriorated from trapped moisture.

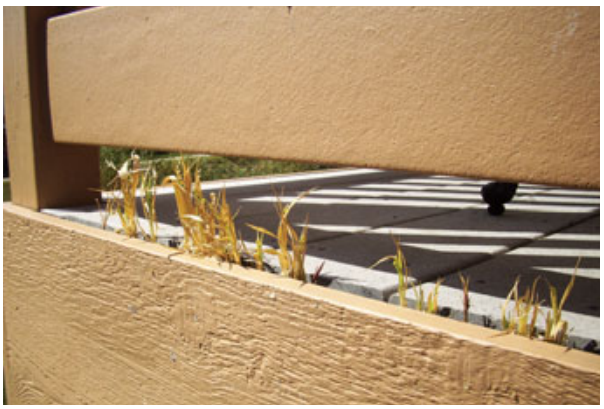

Figure 2. The grass growing out of this deck is a pretty good sign that the framing is likely decayed.

Figure 3. The rotating ledger in this photo was a complete surprise to the homeowner. This ledger has completely pushed the joists out of the hangers, and the deck is at risk of collapse. Ledgers that slowly pull away often rotate from the top, making the hazard less noticeable from beneath.

between — then they hide the rot they helped create. To assess whether the framing is worth saving, you must investigate these contact locations. For example, decking screws can lead water into joists, and because this spot is one where water can be trapped by the contact between the deck boards and the joists, it's a double whammy. This combination almost always litters the top of a joist with spots of decay. Extracting a few fasteners will provide a sense of how hard they'll be to remove, and the extent of corrosion can provide a clue to how deeply the water has penetrated the joist. Poking the joists and fascia with a knife or an awl can also reveal rot. So can just looking. Use a flashlight under the deck, and examine carefully. If you can pull a couple of decking boards, so much the better.

If the decay on the top of the joists is minor, they can probably be reused. Joists can be air-dried, and the tops sealed with a self-adhering polymer-modified bitumen membrane (like Vycor from Grace Construction Products, graceathome.com; or BT25 from Protecto Wrap, protectowrap.com). Shift the new decking a few inches from the old so the new screws can catch good wood. If the wood can dry and future moisture intrusion is stopped, the decay will cease.

Where decking rests on top of a double- or triple-ply joist, however, there are other considerations, as water and debris collects between such joists or beams, and decay is notorious here (**Figure 4**). Removing a deck board located above a multi-ply joist or beam will provide a good view inside the framing. If there is noticeable decay, replace the members; it's likely to be worse where you can't see. In fact, it might be worth planning to replace multi-ply members as a matter of course, particularly if they are to bear additional loads. And when re-decking, cover all multi-ply members with self-adhering membrane so that moisture cannot flow between the plies.

Figure 4. Moisture trapped between its members has rotted this beam, which is at risk for imminent collapse.

Verify Load Paths

When you are refurbishing a deck over existing framing, it's prudent to treat the framing as if it were your own. Visually follow the load paths and be sure they're complete to the footings. Ensure all joints are fastened with the appropriate hardware and replace it if it's significantly corroded. Make sure the fasteners are correct — it's nearly humorous how many decks are built with drywall screws in the hangers (bad idea!) or with no hangers at all.

Verify that the joists are not gapped from the beam. Small gaps are normal in old decks, but large gaps can be a sign the frame is pulling apart. If the frame needs to be tightened, removing key hardware and compressing the frame with a heavy ratchet strap can often be helpful. Angled gaps between the ledger and the joist may mean the ledger is rotating and likely to pull away.

Refurbish the ledger as if it were

Figure 5. Lateral forces applied to the deck are transmitted through the cross bracing attached to the base of the support post. A combination of decay and lateral forces has begun to rip apart this post.

a new installation. Verify the load path to the existing structure and the flashing. Where old decks have been connected, this is all the more important. Improper flashing on old decks can cause dramatic damage to the existing rim joist, sometimes more than to the ledger itself.

There are a few other main things I look for. Check the attachment of the stairs, railings, and railing posts. Notched posts were once common, but they aren't strong enough and should be replaced. Look for rotated footings, and plan to replace any you find. Consider retrofitting anchors into the footings to secure the main posts. Add hold-down hardware to the joint between the posts and the main beams if there is none.

Re-decking and Enlarging

Many deck rebuilds involve enlarging the deck. This usually entails connecting the new structure to the old structure, which may affect the existing load path. New loading directions and magnitudes placed on old and static structures can concentrate stress on connections and components that weren't designed for them.

When designing a new deck's connection to an old deck, the entire structure, new and old together, must be considered. If an existing deck component will handle loads from the new structure, replacing that component may be a good idea, even if the plan is to keep most of the old parts. For example, an existing corner post that will become a center post with the new deck attachment needs to be given a close look. The direction in which a member is loaded can also have an impact on the internal material strengths. Installing new rails, stairs, or bracing on a deck imposes new lateral loads and new loading directions that may tear a member apart (**Figure 5**).

Also consider long-term maintenance and replacement when joining two different generations of framing. The framing will all need to be replaced at some future point, but it likely won't be at the same time. Separating the framing at the junction with a change in elevation is one way to simplify future replacement. If the new portion is at the same level, changing the decking pattern or adding a transition board to separate the decks is a good option. Build the new deck to share as little with the old one as possible. Not only will doing so minimize any new stresses on the old structure, it will make future replacement of the older part of the framing easier. ❖

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