

ANYONE CAN BUILD A DECK

By

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So, you walk around to the rear of the home and there it is - the deck! Every home now a days just has to have one, and if one is not present, no problem for the homeowner. Just buzz down to the local "you-do center", pick up a load of lumber and bang it together an bingo, a deck is born! Or, the homeowner might hire Mr. Flybynight, the carpenter who can certainly build a quality deck for a song and dance.

Does the latter scenario sound familiar? Now we come to the thrust of this article, for as you know, we home inspectors must evaluate the deck and prepare a final report for our clients which includes our observations regarding the deck along with the rest of the home.

Where to start. Let's approach a deck inspection methodology by asking ourselves several pertinent questions:

- 1. Do the footings appear to be adequate?**
- 2. What holds the deck up?**
- 3. Is the ledger joist anchored to the house and is it flashed?**
- 4. Is the floor frame undersized, over-spanned or over spaced?**
- 5. Do the joists have proper end bearing?**
- 6. Does the deck have a means of lateral bracing?**
- 7. Do the handrails & guardrails pass your scrutiny?**
- 8. Are the stairs safe?**
- 9. Is their wood / soil contact or signs of decay or potential for decay?**
- 10. Are there visible UNSAFE nail pops or splinters in the deck?**
- 11. Documenting access & life - safety issues.**

Do the footings appear adequate? I like to inspect the deck from the ground up. I start by examining the visible piers or footings at ground level. If I find patio blocks, cement blocks or five-gallon buckets filled with cement, then I automatically think "red flag" and investigate a little more carefully by probing. Up here in New England, all footings must extend a minimum of four feet below the ground to prevent frost heave, but all too often I must document "shallow footings beneath deck, potential for frost heave movement". You might include a disclaimer at this point: "DISCLAIMER: The actual depth of the footings that support the deck is undetermined and can only be determined by excavation and measurement."

Finding any visible shortcuts causes my inspection antennae to go up. I start wondering just who built the deck, the owner or a contractor, and why were these errors allowed? Was a permit pulled? Shift the burden of proof and suggest that your client do a little research at the local building department.

While our focus is under the deck, how many times have you seen a crater beneath the deck that will retain surface water & roof run-off that will soak into the ground and end up in the basement? How

many times have you seen vegetation left under the deck? How many times have you seen a dryer vent terminate under the deck? How many times have you seen the deck built right over the septic tank or the basement entrance or the oil fill & vent pipes? There are many things to consider that are easy to miss.

What holds the deck up? Working upwards in inspection methodology, the next components encountered are the columns or support posts and beams. I like to sight down the line of support posts from several vantage points to see if the posts are out of plumb, missing or improperly spaced or excessively notched. If the support posts are wood, out comes my probe again as decay is very prevalent with wood decks. Some of the deficiencies I see in the area of support posts are downright scary when you think that the deck may be asked to support the weight of numerous people during a cookout.

Next, I check the base of each post to see if it is buried within the concrete footing, whether the post falls properly upon the footing and how it is attached. When posts are buried within the concrete, decay is likely in the future even if the wood is pressure treated. More importantly, the concrete footings are likely to blow apart from frost heave because the wood shrinks allowing water to enter each posthole.

I like to observe a posts that fall squarely upon the footing and do not dangle half off in space using a skyhook for bearing. Better still are post brackets that provide a means of anchoring between the footing and the post while separating the two to prevent decay.

When the posts fall beneath a beam, I like to see a top plate that anchors the two components together, or at least a proper nailing schedule. The presence of extra posts, sticks and braces usually indicate original poor workmanship and attempts to stabilize the deck frame from movement.

When the support posts are also used to support a let-in rim joist, floor joists and railing posts, then a whole new series of defects may be present. Over-notching or improper notching seem to be frequent flyer problems. Sometimes, notches are cut too deep and the remaining wood is drilled out for bolts, leaving posts that easily wobble when the guard railings are tested with lateral pressure. Imagine someone leaning on the guardrail and the post suddenly breaks in half where it is notched! Ouch!

Built-up beams frequently rest upon the deck posts. The beam may be situated at the outside edge of the deck or several feet back to create a cantilevered effect. The problems with the built-up beams seem to fall within categories of improper splicing and inadequate nailing. Quarter-point splicing is best and the splices should fall above a post. However, Mr. Do-it-yourselfer can stretch a 2 x to infinity and beyond with no regard for load bearing, bending or potential collapse.

Is the ledger joist anchored to the house and is it flashed? The ledger joist is usually the first piece of stock fastened to the house. But simply face nailing the ledger board in place is not enough to both anchor and support the deck. The ledger board must first be flashed or held off by cleats to prevent moisture damage to the underlying siding, and then it must be secured to the house frame with anchor bolts. Time and again, I find both the anchor bolts and the flashing missing on decks built by so called professionals and inspected and passed by local officials. It seems that every summer there is a news story about a raised deck that has collapsed causing multiple personal injuries - tragedies that could have been prevented. As a home inspector, safety concerns should be paramount in your mind, so look under the deck when possible and check for lag bolts as a means of secure attachment.

Is the floor frame undersized, over-spanned or over spaced? You may not be doing a code compliance inspection, but quite often a deck frame cries foul. The specifications used by the average do-it-

yourselfer cease to amaze me. I am sure that you have walked on a deck and observed springy floor frame problems, but did you look under the deck to see why and did you alert your client that there might be a deficiency in this area? Many times a center beam is totally missing or cantilevering is excessive. 2 x 6 floor joists may span a distance of 14-16 feet with 24 inch spacing producing a floor frame that behaves like an elastic band when you do a little "bounce test". A bounce test is something I routinely use to sense deck frame problems. I simply walk on the deck, stop at several strategic places, rise up on my toes and drop my weight on my heels. No one else needs to know what I am doing, but if I feel excessive movement then I investigate more closely.

Does the deck have a means of lateral bracing? Raised or elevated wood decks make me nervous! Countless times I have walked across a deck and have found that it wants to follow my path by shifting from side to side. So, another simple test I use is a "lateral shift test". I stand on the deck along the center of the outside guardrail. Facing it, I grasp the guardrail, spread my feet and try to shake the deck frame laterally. Sometimes, a raised deck frame will respond with frightening lateral movement. Imagine a group of people walking across the deck and the deck frame moving laterally and collapsing! Every year there is a story in the news about just such a tragic occurrence and people are unnecessarily injured.

In my opinion, the decking boards alone do not provide adequate lateral bracing. I like to look under the deck and see angular braces at the posts, or a piece of strapping nailed diagonally under the floor joists. If I find that a deck frame exhibits excessive lateral movement, then I alert my client.

Do the handrails & guardrails pass your scrutiny? Putting codes aside, lets use a little common sense approach to handrails and guardrails. I start at the deck stairs and a few simple questions. Is a handrail present or missing? Is a handrail needed? If a handrail is missing, why not recommend that one be installed for safety? I grasp the handrail and apply lateral pressure. If it moves, I investigate further and document my observations. Of course the height of the handrail, size of the openings and projection are important, but following my common sense approach, I next check the handrail for those prevalent splinters and nail pops.

Moving up to the deck surface, I walk over to each guardrail and give it the old "movement test". If the guardrail is loose, not high enough or has splinters, then a WARNING is highlighted in my report. Likewise, if the spacing between balusters is excessive, I document the facts and make appropriate safety suggestions.

Are the stairs safe? Going back to the deck stairs, I look first at ground level. In my opinion, a deck staircase that falls onto a concrete stoop at grade level is a far superior installation than ending the stringers directly on the soil. Decay is preventable if ground contact is eliminated and treated lumber is used. I find that many deck staircases are not level as either the stoop or the soil under the stringers has eroded or settled. Using that common sense approach again, uniform tread & riser dimensions are something that is a foreign language to the do-it-yourselfer, so of course I inspect accordingly. Open risers may be allowed, but I like to suggest that closed risers provide greater protection against tripping. Other typical defects such as, loose treads, decayed treads, decayed stringers, nail pops, poor attachment, etc.; are all documented when warranted.

While on the subject of stairs, the step down from the interior floor to the outside deck should not be ignored as often the elevation may be far beyond maximum riser dimensions. One thing I frown on is a deck that is built at the same elevation as the interior floor. In my experience, building a deck and interior floor at the same elevation is undesirable as an egress door can easily be blocked by snow & ice,

and moisture can easily infiltrate under the door threshold creating a new water supply for the home. Not much can be done after matching deck and floor frame elevations are completed, but I educate my client that it is important to clear the snow away from the door, maintain all caulking and monitor the area for moisture problems.

Is their wood / soil contact, signs of decay or a potential for decay? We all know that wood in soil contact is an invitation for decay or pest infestation now or in the future, but one of the first things I try to determine is if the deck has been constructed with treated or untreated lumber as untreated lumber simply will have a relatively short service life due to the wet environment. Identifying the type of material can be tricky as the deck surface may be painted or stained, so I squat down and look at the underside where the material is unfinished. When I find untreated materials, my inspection antennae goes up and I am on the prowl for expected areas of decay.

Every piece of wood in soil contact that I can reach gets probed regardless of type and decay is noted in my report. Numerous times I have found that my probe goes right through decayed floor joists or decking boards in concentrated locations, causing me to think about the source of all the moisture. Nine times out of ten, the roof drainage is not controlled and water is constantly waterfaling onto the deck. By the way, outdoor carpeting is wonderful if you like that soggy wood feeling under your feet and plan to replace the deck in a few years.

Are there visible UNSAFE nail pops or splinters in the deck? As part of my routine "show & tell" performance, I briefly educate my client that the deck has two enemies, sunlight & moisture. I explain that even a pressure treated deck needs periodic maintenance with a wood preservative to retard moisture absorption and the drying effects of the sun. As mentioned earlier, deck components directly facing the sun and weather experience greater exposure to the wet / dry cycle, they undergo expansion and contraction and ultimately suffer from frequent dangerous nail pops or splinters. Imagine a deck full of such hazards that you failed to document resulting in personal injury. My advice is to check the deck surface and rails carefully.

Documenting access & life-safety issues. Our "Standards of Practice" require us to document what was or was not inspected and why. Many times it is not possible to fully inspect a deck because of snow cover, storage, locked crawl spaces, crawl spaces full of storage or other unforeseen circumstances. In these situations, a little "risk reduction" is needed in your report. For example, tell the client that "the snow cover prevented complete analysis of the deck, that true conditions are undetermined, that there could be hidden problems not documented in your report and that a re-inspection is advised when the deck is clear of snow."

Let me stress again, that a deck inspection should be approached with a practiced methodology. The key points should be evaluated professionally. Most importantly, any defects which in your opinion fall into the category of life-safety should be highlighted in your report using CAPS and BOLD type to capture the readers attention. Throughout this article, I have touched on examples of defects that pose a risk of personal injury. I cannot stress enough that all such items be documented, as failure will expose you to monumental liability.

In closing, when you walk around to the rear of the home and encounter a deck, you should automatically be suspicious and remember the thought: "Anyone can build a deck." Ask yourself the pertinent questions and inspect each component with a practiced eye.

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