Q&A

Drywall Orientation in Tall Rooms

Q. *I am about to install drywall in a workshop with 9-foot ceilings, and I don't see why I should install it the traditional way, horizontally. Why not buy 10-foot sheets, cut off one foot, and hang the board vertically? This would put all the butt seams where the walls meet the ceiling.*

A. *Myron Ferguson responds:* I often see drywall hung vertically in garages and workshops, which typically have high ceilings and walls longer than 16 feet (the longest available length of drywall). For your job, you could also buy 9-foot-long drywall, and then you wouldn't have any waste.

Another option is to use 54-inch-wide drywall, which is made for horizontal attachment on 9-foot-high walls. It's available only in 12-foot lengths, but this may work out fine if you locate the butt seams above doors or above and below windows. The 54-inch drywall is available in both standard 1/2-inch thickness and 5/8-inch fire-code thickness, in case that is an issue.

My first choice would be to use 54-inch board because I prefer taping horizontal seams. Plus, even when you include any butted seams, you may actually end up with fewer lineal feet of seams to tape. My second choice would be vertically oriented 4-by-9-foot drywall. If you install it this way, be careful not to place a seam on an outward crowned stud, and double-check your stud spacing to be sure that you won't have to cut off a beveled edge to hit a stud.

My last choice would be to hang 48-inch-high drywall horizontally. Not only does this approach generate the most lineal feet of seams to tape, but locating the seams is a problem: Seams up at the top or low along the floor are inconvenient to tape, while a double seam in the middle is difficult to hide.

For really tall rooms — like the 20-foot living room I'm doing right now — I hang the board horizontally, because otherwise it's nearly impossible to tape. It's standard to put on the stilts or work off scaffolding to tape the joints horizontally around the room, whereas trying to tape a joint that starts 20 feet high at the ceiling and runs down to the floor is nearly impossible.

Another advantage to running the board horizontally in tall spaces is that it allows me to bridge the junction between floors. I'll start with a 2-foot rip at the bottom if necessary so that a full-width board covers the joist area at the floor junction. I also avoid screwing into the band joist, because that's the most likely place for shrinkage and pops.

Myron Ferguson *is a drywall contractor in Galway, N.Y., and the author of* Drywall: Professional Techniques for Great Results.

Does Lumber Grow Stronger With Age?

Q. *I've heard that in older buildings (at least 70 years old) the effective strength of wood members like joists and rafters increases with age. If that's true, how does one evaluate the increase? Or is the increase negligible?*

A. *Paul Fisette responds:* The general rule is that the mechanical properties of wood show little change over time. In short, the aging of wood, unlike that of cheese, does not make it better. Nor does it improve its strength. It is still possible that old wood joists may in fact be significantly stronger than they were on the day they were installed, because wood does gain strength as it dries. An existing dry joist (around 12 percent moisture content) might be 50 percent stronger than its original "wet-wood" value if it was originally installed as rough-cut, green lumber.

But, typically, age works against you: It's actually more likely that those 70-year-old joists and rafters are now weaker than when they were installed. Except for the drop in moisture content, everything else works to weaken wood. Seventy years is a long time; there's a good chance the lumber has been exposed to fungi, insects, elevated temperature (like that experienced in south-facing roof structures), and excessive loading. These forces can significantly weaken structural wood.

The bottom line is that there is no reliable way to predict design strength beyond what the grade stamp on the lumber indicates (if there even is a grade stamp).

There are some other interesting ideas about what makes wood stronger: During the World Series, I heard of players rubbing their bats with a bone to make them stronger.

Paul Fisette *is director of Building Materials and Wood Technology at the University of Massachusetts Amherst and a* JLC *contributing editor.*

Curing Concrete in Hot Weather

Q. *I've recently moved my contracting business to the South. Concrete finishers here tell me that a slab poured outside on a hot day won't cure properly unless it's kept wet. They do this by having someone periodically spray the slab with water from a hose or they use a lawn sprinkler, once the concrete is set up enough that the top layer won't wash away. Is this really necessary? Would adding a set retarder to the mix accomplish the same thing?*

A. *Bill Palmer responds:* To start with, a set retarder does nothing to help concrete cure. It simply makes the concrete set more slowly, which would actually make proper curing a more critical concern, since the concrete would have more time to dry out.

For concrete to reach its full strength, it needs water to hydrate the cement. If it dries out, then the resulting concrete is soft, even chalky in an extreme case. This is most common on the surface of a slab. If it dries out even momentarily, it will be weakened (a condition called dusting).

There are three important variables in determining how quickly the concrete will dry out: temperature, relative humidity, and wind speed. Thus, on a hot, dry, windy day, the concrete will dry quickly and that's when curing is most important.

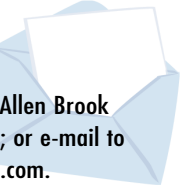
Most concrete has plenty of water when it is placed, so the key is to either prevent that water from evaporating or add enough supplemental water to make up for the evaporation. To prevent evaporation, you can use curing blankets, plastic sheeting, or membrane-forming spray-on curing compounds. Curing compounds can be reasonably effective when the evaporation rate is not too high. Using a pigmented compound allows you to see that you have complete coverage; using white pigment in hot weather helps by reflecting the sunlight.

A better way to ensure proper curing, though — as your local finishers have pointed out — is with water. The water can be ponded, sprayed, or misted onto the surface. To keep it wet, many concrete contractors lay down burlap to hold the water on the surface. But if you try this, don't let the burlap dry out or it could have a negative impact in hot weather by holding heat in.

How long to keep the concrete wet depends on the air temperature and the mix: You want it to have reached sufficient strength on the surface before you let up. Typically, about seven days is sufficient with Type I cement, less in warm weather.

I always tell people that concrete is sort of like a baby: When it is very young, if you keep it warm and wet (rather than dry) it will grow up to be a strong and responsible adult. Neglect it, and you'll have to live with a problem child for many years.

Bill Palmer, P.E., *is editor of* Concrete Construction *magazine.*



Got a question?
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