Are there specific required drying times for a joint treatment compound? The job requires a level 5 finish, and I’m concerned that there may not be sufficient time allowed for proper drying. —E-mail

The necessary drying time for joint treatment compound depends on the material being used and the environmental conditions on the job. There are several types of joint treatment compounds. Some are quick setting (designed to set up anywhere between 90 and 20 minutes) and can be top coated very quickly. AWCI has a couple of publications that address the situation, as does the Gypsum Association.

AWCI’s Technical Manual No. 11, Guide for the Finishing of Gypsum Board describes several joint treatment compounds and their uses. A brief paraphrasing of each is as follows: Taping compound is designed for adhesive strength. It is best used for taping joints and for the first coat with accessories, including corner and casing beads. Finishing compound or topping compound is to be used for the fill and finish coats over the taping compound, accessories and fastener heads. All-purpose compound combines the properties of taping and finishing compounds. Setting-type compounds achieve hardness (set up) by way of a chemical reaction rather than evaporation. They are great for situations where drying conditions are less than ideal, but keep the applicator scrambling to get the material on the surface before it sets up on her tools. Ready-mixed compounds are premixed in the bucket. This is a great feature for jobs where the water supply is hard to get to or non-existent.

All but the setting type of compound rely on the evaporation of water to dry, and that process is entirely dependent on the environmental conditions. The above mentioned manual, as well as AWCI’s Technical Manual No. 14, Site Conditions for the Installation of Gypsum Board, the Gypsum Association’s GA-216, Application and Finishing of Gypsum Board, all recommend that the areas to be finished are maintained at a temperature of no less than 50 degrees Fahrenheit for 48 hours prior to finishing, and though not specifically stated, the materials need to be kept warm as well. Clearly when temperatures are too cool, the water in the compound is not going to dissipate very quickly. But humidity must be factored in to the mix as well. AWCI’s Technical Manual No. 14 and the Gypsum Associations GA-236 contain tables that show the drying times of “typical” compounds at various temperatures and humidity levels. So one must have both a thermometer and a “sling psychrometer” to check the temperature and humidity to roughly predict the drying time of the compound.

Heat can be bad too. These same documents also admonish the user not to direct heat at the wall surfaces for fear of getting the surface too hot too quickly. Likewise, naturally high heat can result in drying too quickly. (GA 236 recommends that in extreme conditions, cold or hot, the setting-type compound be used because the material does not rely on evaporation to set up.)

Similarly, heaters can be bad for the drying of compounds. The Drywall Finishing Council warns that the use of gas heaters dumps 6.8 gallons of water in the air for every gallon of propane burned. Not only does this wreak havoc with the drying of the compound, but it provides unwanted moisture for the framing to absorb. That can result in problems associated with shrinking and swelling of the whole assembly.

Finally, a level 5 skim coat is intended to have enough material on the surface to achieve uniform profile and absorption rates, so it doesn’t require much material at all. Since such a layer is quite thin, its drying time is not nearly the factor that several layers of compound over the joints are.

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