BY MICHAEL GARDNER

Heating and Ventilating a Room to Dry Joint Compound

I don't know why, but the columns we contribute on drywall finishing generate more response and discussion than any other topic—and not all of the response is friendly. We can't avoid discussing drywall finishing for the subject generates a reasonable quantity of the technical inquires that come into the Gypsum Association. So at the risk of personal insult and injury, let's jump into one facet of drywall finishing that generates a lot of cold weather discussion: artificially heating and ventilating a room to dry joint compound.

The ideal environmental conditions for drying joint compound are a temperature range of 65 degrees to 80 degrees Fahrenheit and a relative humidity between 20 to 40 percent. The working space should be conditioned for a few days prior to the application of the joint compound, ideally with a warm, gentle breeze flowing through the area to remove excess humidity. At 70 degrees Fahrenheit and an RH of 30, joint compound under tape in a ventilated room will dry in approximately 12 hours. In that environment, you can walk away from a job at 3 p.m., and by 7 a.m. the following morning, the joint compound will be dry.

ENVIRONMENTAL CONDITIONS

However, warm, dry, and breezy environmental conditions are not the norm for extended periods in much of North America – much less a construction site. A typical October day in Seattle, for example, has an average temperature of 46 degrees Fahrenheit and an afternoon RH of 70 to 80 percent. In such conditions, a coat of joint compound will take at least two days to completely dry. Make the work space colder or more humid, and the compound installed on Monday morning may still be wet on Friday afternoon. Moreover, cold and damp weather also can cause the edges of gypsum board to soften if wet joint compound is permitted to sit on the face of the board for an extended period of time.

Therefore, artificial heat and extra ventilation are often needed to create an environment conducive to the drying of joint compound. But in adding heat to an environment, one must be judicious and cautious. Excess heat can negatively affect the ability of the joint tape to bond to the face of the gypsum board. It also can cause joint compound to dry so fast that it shrinks excessively – remember, it shrinks some under optimum conditions—and it can cause cracks to form at the edge of the tape. Superheating a surface finished with compound, or applying wet compound to a joint not yet dry, may not cause an immediately discernable problem; however, it will increase the possibility that joint problems will emerge in the future. For example, joints that are painted when wet may continue to shrink or darken as they dry. Joint compound may turn yellow when exposed to fumes from partially combusted gases present due to temporary heating.

And it is not only the joint compound that can suffer. Excess heat forced directly toward the face of gypsum board can, if the heat is quite extreme, actually cause the core of the board to begin to deteriorate as the chemically combined moisture in the gypsum crystals begins to dissipate.

So what to do in January in Syracuse when there is drywall to be finished? How do you artificially heat or ventilate the environment to get the compound to dry so that the job can be complete before August?

First, don't heat the space to a temperature above 95 degrees Fahrenheit and don't allow heaters to blow directly onto surfaces that are drying. While you want the room warm, dry, and ventilated there are limits; you want to improve the environment, but you don't want to take it to an extreme level. Creating a scalding hot, damp, or windy environment may put you in a worse position than the environment you originally encountered.

Also, don't create an extreme draft or permit artificial or natural wind to blow forcefully onto the finished surfaces and don't permit cold air to blow directly onto the joints. You want a constant, gentle circulation of reasonably warm air to permit the joint compound to dry gradually. A forceful, cold wind blowing on a surface may, if the temperature is low enough, cause the joint compound, because it is water-based, to freeze before it has an opportunity to dry. You're asking for trouble if you apply a coat of paint to or additional joint compound to a partially frozen joint.

SURFACE PREP

Make sure the surfaces to be finished are warm before the compound is applied. The best rule is to condition the space to at least 50 degrees Fahrenheit for not less than 48 hours prior to the application of the joint compound. And make sure that the compound itself is warm and workable—leave the joint treatment materials in the room as the environment stabilizes so that they are the same temperature as the working surface. If it is frozen, don't thaw it by adding warm water.

And exercise caution when introducing heat using temporary heaters, whether fueled or electric, to prevent creating a fire or a personal injury hazard. It's worth noting that some temporary heaters, specifically those that use gas or kerosene fuel, can introduce large amounts of water vapor into the atmosphere during the combustion process. When using fueled heaters, make sure that you create enough air movement to ade-

quately ventilate the work area so that the excess moisture created by the combustion of the fuel can dissipate.

Many extreme weather finishing issues are best addressed by the use of setting-type compounds. Because setting compounds form a set based on their chemical formula and not by exposure to air, they can become firm and hard under less than optimal environmental conditions. However, note that setting compounds have some characteristics that are different than joint compounds – traditional setting compounds dry rock-hard and can be difficult to sand, for example—and that they should be evaluated based on the finishing requirements present on the specific project.

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You may not be alone in trying to modify the environmental conditions on a jobsite. Don't get fooled by another trade that is introducing excess heat into your finishing area in an attempt to get another material to dry. Many building materials must be heated to facilitate setting or hardening. Heat is heat and it doesn't matter where it comes from. Whether it is provided by you or another trade, if it can harm your material, it will. So be cognizant of the actions that other trades are using in an attempt to create an environment conducive to drying materials when damp or cold conditions exist. **W&C**

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