GA-231-2019
ASSESSING WATER DAMAGE TO GYPSUM BOARD

In general, gypsum board should not be exposed to water for extended periods of time. Examples of sources of water include, but are not limited to, exposure to rain, condensation, water leakage, and standing water. Some board exposed to such conditions may not need to be replaced, depending upon the source of the water, how long the board remains wet, the temperature, and the condition of the gypsum board. IF THERE IS EVER DOUBT ABOUT WHETHER TO KEEP OR REPLACE GYPSUM BOARD THAT HAS BEEN EXPOSED TO WATER -- REPLACE IT.

ASSESSING THE NEED FOR REPLACEMENT OF GYPSUM BOARD

When gypsum board becomes wet, an assessment of the potential damage must be made after drying to determine whether the board must be replaced. Gypsum board may experience limited intermittent exposure to water from a variety of sources, such as improper storage, construction or design defects, high relative humidity conditions, water leaks, and janitorial activities. Gypsum board exposed to water should be replaced unless all of the following conditions are met:

- The source of the water is identified and eliminated.
- The water to which the gypsum board was exposed was uncontaminated. [1]
- The gypsum board can be dried thoroughly before mold growth begins (typically 24 to 48 hours, depending on environmental conditions).
- The gypsum board is structurally sound and there is no evidence of rusting fasteners, paper delamination, or physical damage that would diminish the physical properties of the gypsum board or system.

CAUTION: When replacing gypsum board in a fire-resistance or sound-rated system, care must be taken to ensure that all repairs are consistent with the specific fire-resistance or sound-rated design initially constructed (gypsum board type, fasteners and their spacing, and staggered joints. Refer to GA-225 *Repair of Fire-Rated Gypsum Panel Product Systems*).

RECOMMENDATIONS FOR DRYING CONDITIONS

These are general recommendations; for more detailed information, contact a water damage restoration specialist.

- Adequate ventilation, air circulation, and drying are essential to minimize the potential for mold or other fungal growth.
- The source of water must be eliminated.
- Damaged gypsum board and other wet materials that are to be replaced must be removed from the building to facilitate drying of the structure.
- The interior of the building must be thoroughly dried immediately.
- The indoor humidity must be lowered by using fans and portable dehumidification equipment. If the outdoor air is dryer than the inside and not less than 40°F (4°C), ventilate the building.
- Closets, cabinets, and doors between rooms shall be opened to enhance circulation of air.
- Fans should be used to increase air movement. (Central HVAC systems should not be used for this purpose if the air ducts were covered with water during the incident that created the wet conditions.)
- For information on safe practices when working in water damaged structures, refer to publications of the Federal Emergency Management Agency (FEMA)[2] and/or those of state or local emergency response agencies.

[1] Gypsum board that has been exposed to sewage or flood waters must be replaced.

[2] *Repairing Your Flooded Home* (FEMA 234). Available from Federal Emergency Management Agency.

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NOTE: Once the gypsum board has been thoroughly dried, it should receive a final inspection for defects before redecorating.

MEASURING MOISTURE IN GYPSUM PANELS

Commercial hand-held moisture meters are often used by contractors and consultants to identify and assess building materials that either are or have been exposed to water. Many moisture meters are designed to provide direct readings for the percent of moisture content of specific materials. Moisture meters should be used with caution when evaluating gypsum board. Although many moisture meters have a specific setting for gypsum board, they have not been shown to be accurate or reliable for this use. Accurately measuring the moisture content of gypsum board is best accomplished by using a laboratory test procedure, not a hand-held moisture meter.

For a moisture meter to function properly, it must be calibrated for the specific material being tested, and the operating instructions must be carefully followed in order for the information to be valid. A moisture meter calibrated for wood will not provide an accurate reading for other materials, such as gypsum board. When used on gypsum board, moisture meters may be capable of providing a "rank-ordering" of areas based on wetness, thereby enabling the user to tell which areas are wetter than others. However, the numerical readings may not correlate to the actual or relative moisture content of the gypsum board core and paper. In addition, the moisture meter may be affected by the presence of salts or carbonaceous materials in or on the specimen being tested.

If moisture meters are used to identify wet areas on gypsum board, they must be used with careful attention to calibration and interpretation of the results. Prior to using any hand-held moisture meter to evaluate the moisture content of gypsum panel products, the meter should be calibrated in accordance with ASTM C1789, *Standard Test Method for Calibration of Hand-Held Moisture Meters on Gypsum Panels*. The best use of moisture meters for testing gypsum board that has been exposed to water or moisture is to help identify the areas that are wet versus the areas that are dry. This can be done by taking readings on areas known to be dry and comparing the meter scale readings to areas suspected of being wet. However, as previously stated, the ability of moisture meters to distinguish between differences in moisture content of only a few percentage points has not been established. The moisture meter can determine when there are large differences in moisture content between the areas being tested.

ADDITIONAL SOURCES OF INFORMATION

ANSI/IICRC S520 Standard and IICRC R520 Reference Guide for Professional Mold Remediation

ANSI/IICRC S500 Standard and Reference Guide for Professional Water Damage Restoration

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