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## ZIP System® Wall Technical Bulletin ZIP System Wall Panels and Wet Sprayed Cellulose Insulation

### Wet Spray Cellulose

Application of wet spray cellulose insulation entails a mixture of the insulation, adhesive and water that is sprayed into the open wall cavity. Most wet blown cellulose insulation manufacturers recommend that moisture content of the installed insulation not exceed 20%-25% prior to installation of drywall or other interior finishes.

A critical factor in using wet spray insulation is allowing proper drying time after installation. Ideally, the wall cavity should be completely dry before installing drywall. Industry and manufacturer guidelines often note a normal drying time of 24-48 hours. However, actual drying time can take significantly more time.

Drying time can increase significantly in humid climates or when the wet insulation is installed during cold winter months. Drying of the insulation requires indoor temperature and humidity to be controlled. Insulation must be kept above freezing temperatures and the indoor air moisture content must be kept well below that of saturated air. As noted above, the indoor and outdoor humidity and temperature all directly influence the rate of insulation drying. Please see Figure 1 in the appendix for recommended maximum indoor humidity as a function of outdoor temperature.

Current wet spray cellulose industry and manufacturer guidelines specify the application of the insulation with a 30%-40% moisture content. As the insulation dries, moisture moves outward towards the exterior sheathing panel, increasing the panel moisture content. The normal moisture content of wood used in framing and sheathing is about 12% with a saturation point at approximately 30%. If the moisture content of the insulation remains above 20-25% for extended periods, the excess moisture can cause dimensional changes in framing and sheathing, mold growth, rot and other moisture related issues

Commonly used natural gas, kerosene and propane heaters actually generate water which can drive additional moisture into the insulation and wall cavity. Dehumidifiers or proper ventilation are necessary to promote proper drying.

### Recommended Installation

Wet sprayed cellulose fiber insulation is compatible with ZIP System wall panels and standard OSB provided the insulation is applied according to manufacturer's installation instructions. When outdoor air temperatures are warm and outdoor humidity is low, drying happens relatively quickly and evenly through the entire insulation layer. However, installing wet blown cellulose in cold temperatures should be avoided. If it cannot be avoided, indoor temperature and humidity must be controlled. If outdoor temperatures fall below freezing, drying may stop or dramatically slow as the insulation freezes within the wall assembly. In such installations, it is necessary to provide supplemental electric heating until moisture levels throughout the insulation reach 25% or less. Along with heat, it is imperative to make provisions to ventilate moisture outside the structure.

Due to variability within installation practices and the moisture movement ("drying") of wall systems, moisture often migrates to the exterior wall panel within the wall system. Therefore, we recommend an insulation moisture reading of <25% at the inside surface of the ZIP System wall panel. Installation of drywall should not proceed until the moisture contents noted above are achieved.

It is imperative that installers properly control the moisture content of the cellulose mix and closely follow cellulose insulation manufacturer's installation instructions. The addition of too much water during application will elevate the insulation moisture content beyond the manufacturer's recommended range.



## APPENDIX

As exterior temperatures decline, indoor relative humidity must also decline to allow for proper drying.

