

## **The Use of Cellulose Insulation in Below Grade Areas and Basements**

Basements and below grade insulation systems offer their own set of challenges and rewards to the builder or homeowner. Without insulation, these areas are not only a significant source of heat loss, due to low ground temperatures in the Northeast, but they are also commonly a source of moisture and odor problems, as moist air condenses on their cool surfaces. When cellulose insulation is installed, its high density blocks the flow of air and its high R-value warms the surface that it is in contact with, preventing condensation and odor. Cellulose insulation is also hygroscopic, allowing it to transport moisture and redistribute it from areas of higher to lower concentrations.

The key to successfully insulating below grade areas is to understand the moisture loads and flows in these areas. High moisture levels in the ground (i.e. fill) surrounding below grade areas prohibit them from drying outward. Therefore, basement insulation systems must be installed so that they are able to dry to the inside, which means a vapor barrier should not be installed behind the interior finish.

Proper rain and ground water management are also critical to the performance of below grade insulation systems. Exterior grading, drainage, capillary breaks, exterior waterproofing, and insulation systems all help buildings cope with these moisture sources.

National Fiber approves the use of our spray applied NuWool cellulose insulation and both our NuWool and Cel Pak in dry dense pack applications in below grade and basement areas, without interior vapor barriers, that meet current code requirements for drainage, exterior waterproofing and foundation insulation systems. Thousands of below grade areas and basements across the country have been successfully insulated with cellulose insulation, resulting in improved building performance and comfort.

If you have any questions or would like to discuss this further, please contact our Technical Manager, Bill Hulstrunk at [technical@nationalfiber.com](mailto:technical@nationalfiber.com).