Benchmarking of the Advanced Hygrothermal Model HygIRC – Large Scale Drying Experiment of the Mid-Rise Wood Frame Assembly

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Summary:

Recent research in the field of assessment of hygrothermal response has focused on either laboratory experimentation or modelling, but less work has been reported in which both aspects are combined. Such type of studies can potentially offer useful information regarding the benchmarking of models and related methods to assess hygrothermal performance of wall assemblies.

This report documents the experimental results of a benchmark experiment that was designed to allow benchmarking of stud drying predicted by NRC's an advanced hygrothermal computer model called hygIRC, when subjected to nominally steady-state environmental conditions. hygIRC uses hygrothermal properties of materials derived from tests on small-scale specimens undertaken in the laboratory. The drying rates of wall assembly featuring wet studs that result from moisture accumulated during the framing stage of a 5 or 6 storey building. The drying rate of those studs was assessed in an experiment undertaken in a controlled laboratory setting. The results were subsequently used to help benchmark hygIRC reported under separate cover.

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