



Sound Insulation Performance of Elevator Shaft Walls built with Nail-Laminated Timber Panels - Exploratory Tests and Preliminary Results

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Summary:

As 6-storey wood-frame, massive-timber and hybrid wood buildings are increasingly accepted by more jurisdictions across Canada, there is a need to develop reliable elevator shaft designs that meet the minimum structural, fire, and sound requirements in building codes. Elevator shaft walls constructed with wood-based materials have the advantages of material compatibility, use of sustainable materials, and ease of construction.

In this exploratory study, selected elevator shaft wall designs built with nail-laminated-timber (NLT) structural elements were tested to investigate their sound insulation performance because little is known about the sound insulation performance of such wall assemblies. The tests were carried out in an acoustic mock-up facility in accordance to standard requirements, and provide preliminary data on the sound insulation performance of elevator shaft walls built with NLT panels.

Four different elevator shaft walls built with NLT panels were tested and their measured apparent sound insulation class (ASTC) ratings ranged from 18 to 39 depending on their construction details. Some of the reasons that may have contributed to the ASTC ratings obtained for the elevator shaft walls described in this report as well as recommendations for future designs were provided.

It is recommended to continue improving the sound insulation of elevator shaft walls built with NLT panels to meet or exceed the minimum requirements in building codes.

Online Access: Free

Resource Link

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