



Solutions for Mid-Rise Wood Construction: Intermediate-Scale Furnace Tests with Encapsulation Materials

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Light Frame (Lumber+Panels)

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Summary:

The acceptable solutions provided in the 2010 National Building Code (NBC) Division B [1] limits the use of combustible (wood) construction based on building height. For example, for Group C (Residential), Group D (Business and Personal Services) and Group E (Mercantile) occupancies, combustible construction can be used up to 4 storeys, and up to 2 storeys for Group A – Division 2 (Assembly) occupancies. In addition to the building height limitation, there are also building area limitations in the 2010 NBC for the use of combustible construction for these occupancies. For buildings that exceed the height and area requirements for combustible construction, the prescriptive requirements in the 2010 NBC require that noncombustible construction be used for the primary structural elements.

Three materials were selected for investigation as encapsulation materials for combustible structural elements: Type X gypsum board (12.7 mm thick and 15.9 mm thick), cement board (12.7 mm thick) and gypsum-concrete (25 mm thick and 39 mm thick). This report documents the results of intermediate-scale furnace tests conducted to investigate the performance of the three encapsulation materials.

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