

RB14-039

GLASS FIBRE INSULATION IN BUILT-UP RATED WALL ASSEMBLIES

Reference: Alberta Building Code 2014 Sentence D-2.3.4.(4), Table D-2.3.4.D and Sentence D-2.3.5.(2)

Sentence D-2.3.4.(4) "Prefomed insulation of glass, rock or slag fibre provides additional protection to wood studs by shielding the studs from exposure to the fire and thus delaying the time of collapse. The use of reinforcement in the membrane exposed to fire also adds to the fire resistance by extending the time to failure. Table D-2.3.4.D. shows the time increments that may be added to the fire resistance if these features are incorporated in the assembly."

**Table D-2.3.4.D.
Time Assigned for Additional Protection**

Description of Additional Protection	Time Assigned min.
Add to the fire-resistance rating of wood stud walls, sheathed with gypsum wallboard or lath and plaster, if the spaces between the studs are filled with prefomed insulation of rock or slag fibres conforming to CAN/ULCS702, "Mineral Fibre Thermal Insulation for Buildings" and with a mass of not less than 1.22 kg/m ² of wall surface(1)	15
Add to the fire-resistance rating of non-loadbearing wood stud walls, sheathed with gypsum wallboard or lath and plaster, if the spaces between the studs are filled with prefomed insulation of glass fibres conforming to CAN/ULC-S702, "Mineral Fibre Thermal Insulation for Buildings" and having a mass of not less than 0.6 kg/m ² of wall surface.	5

Notes to Table D-2.3.4.D.:

- (1) There are no test data to justify the 15 min additional protection for prefomed glass fibre insulation.

Sentence D-2.3.5.(2) "When an exterior wall assembly is required to be rated from the interior side only, such wall assemblies may have an outer membrane consisting of sheathing and exterior cladding with spaces between the studs filled with insulation conforming to CAN/ULC-S702, "Mineral Fibre Thermal Insulation for Buildings" and having a mass of not less than 1.22 kg/m² of wall surface."

Regulation Bulletin General Policy Statement

Unless stated otherwise, the Code references in this Regulations Bulletin are to Division B of the Alberta Building Code 2014 (ABC 2014). Regulation Bulletins do not overrule the ABC 2014 nor constitute a relaxation of the Code. They serve to clarify the Code in areas where the latter is ambiguous or does not cover a specific topic. Regulation Bulletins are City of Calgary clarifications for staff use to enable consistency in the application of the Code. Regulation Bulletins should always be read in the context of the appropriate requirements of the Code

Questions:

#1. Can glass fibre insulation be given the same credit of 15 minutes for fire resistance rating (as rock and slag fibres) if the density requirement of 1.22 kg/m² is met?

#2. Is glass fibre insulation meeting the 1.22 kg/m² criteria acceptable under Sentence D-2.3.5.(2)?

Commentary / Relevant Facts / Conclusions:

The construction industry prefers the use of glass fibre insulation to rock and slag fibre due to its superior thermal insulation properties and cost and availability considerations.

Mineral fibre is defined in CAN/ULC-S702 as: "*Mineral fibre--Man-made, inorganic, non metallic, vitreous fibres having a wooly consistency, processed from rock, slag, or glass compositions*".

However, it appears that the above Code reference is very clear in not giving credit of over 5 minutes for glass fibre insulation even if it exceeds a density of 0.6 kg/m².

This Division has contacted major manufacturers of glass fibre insulation in Canada on this matter, and also obtained opinions from the offices of the Director of Building Standards, Edmonton; ULC, Scarborough and the National Research Council, Ottawa. The conclusion is that preformed insulation with a mass of not less than 1.22 kg/m² will contribute 15 minutes to the fire resistance rating of an assembly only if it is of rock or slag fibres and not glass.

Therefore, only rock or slag fibre insulation meeting a density requirement of 1.22 kg/m² may be considered to be providing 15 minutes additional protection under Sentence D-2.3.4.(4) and Table D-2.3.4.D of the Alberta Building Code 2014.

However, Sentence D-2.3.5.(2) does not specify or prohibit the type of mineral fibre insulation (rock wool, slag or glass) if the weight criteria of 1.22 kg/m² is met and the material complies with ULC-S702.

Therefore, glass fibre insulation is acceptable in situations described under Sentence D-2.3.5.(2) of the Alberta Building Code 2014 for assemblies designed under Appendix D.

Chief Building Inspector