



# 45 Minute Fire Resistance Rating For Wall With Rigid Insulation

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## 9.10.3.3. Fire Exposure

(2) Exterior walls shall be rated for exposure to fire from inside the building, except that such walls need not comply with temperature rise limits required by the standard tests referred to in Article 9.10.3.1. if such walls have a limiting distance of not less than 1.2 m, and due allowance is made for the effects of heat radiation in accordance with the requirements in part 3.

## 9.10.15.5. Construction of Exposing Building Face of Houses

(1) Except as provided in sentences (1.1), (2), (4) and (6), each exposing building face and any exterior wall located above an exposing building face that encloses an attic or roof space shall be constructed in conformance with Subsection 9.10.8.,

- (a) for the exposing building face as a whole, or
- (b) for any number of separate portions of the exposing building face.

(1.1) Sentence (1) does not apply where

- (a) the limiting distance is not less than 1.2 m,
- (b) the limiting distance is less than 1.2 m but not less than 0.6 m, provided that the exposing building face has a fire-resistance rating of not less than 45 min, or
- (c) the limiting distance is less than 0.6 m, provided that the exposing building face has a fire-resistance rating of not less than 45 min and is clad with noncombustible material.



## **Supplementary Standard SB-2**

### **2.3.5. Consideration for Various Types of Assemblies**

(2) Exterior wall assemblies required to have a fire-resistance rating are required to be rated for exposure to fire from the interior side only (See Sentence 3.1.3.7.(3) of Division B of the 2024 Building Code). When deriving a fire-resistance rating for such wall assemblies using the method described in this Subsection, only wood studs with single layer of gypsum board or non-loadbearing cold-formed-steel studs conforming to Table 2.3.4.E. may be used. Such walls must have a membrane on the exterior side of the stud consisting of plywood, oriented strandboard or gypsum sheathing and exterior cladding. Additional materials are also permitted between the required sheathing and cladding. The spaces between the studs are to be filled with insulation conforming to CAN/ULC-S702.1, ‘Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specifications’, and having a mass per unit area of not less than 1.22 kg/m<sup>2</sup> of wall surface. However, in the calculation of the fire-resistance rating of such an assembly, no additional contribution to fire resistance is to be assigned for the membrane on the non-fire exposed side, since its contribution is already accounted for in value assigned to the other components of the assembly.

### **OBJECTIVE**

Rigid insulation is permitted on the outboard side of the exterior wallboard sheathing for wall assemblies chosen from SB-2 of the Supplementary Standards (SB-2). Subsection 2.3.5. of SB-2 requires such exterior wall assemblies to have an outer membrane consisting of rigid sheathing and exterior cladding. Considerations must be given to wall assemblies where insulated sheathing has low air leakage characteristics and rigid insulation or sheathing material also has characteristics of a vapour barrier, then its location must be chosen carefully to avoid condensation and moisture accumulation due to vapour entrapment. The wall assembly illustrated below was chosen according to SB-2 Zone 1 and has a ratio of outboard to inboard thermal resistance required by Table 9.25.5.2. of the OBC of greater than 0.20 and is therefore acceptable.

