

HIRF – FLOOR-TO-FLOOR FIRE COMPARTMENTS

DISCUSSION

The amendments to the Alberta Building Code 2006 addressing high-intensity residential fires include requirements for the minimum spacing between individual glazed openings located on the same exposing building face and within the same fire compartment.

In situations where the limiting distance is not more than 2 m or the building is not sprinklered throughout, the Code now stipulates that individual glazed openings must be separated by a minimum of 2 m from one another when they are located within the same fire compartment, as provided in Sentence 9.10.15.4.(4). The rationale behind not applying the 2 m separation requirement to two glazed openings within separate fire compartments is that the interior partitions that form the fire compartments provide an acceptable level of resistance to the spread of fire. Consequently, in the event of a fire, the glazed opening in the adjacent fire compartment will not contribute to the heat flux emanating from the exposing building face of the house until the interior partition is compromised and both fire compartments become engaged in the fire.

A fire compartment is defined as a space in a building that is separated from the remainder of the building by a fire separation having a required fire-resistance rating. Floor assemblies in single-family dwellings, however, do not have a “required” fire-resistance rating, which would seemingly prohibit this type of separation from being considered as creating two separate fire compartments.

This STANDATA has been developed to clarify whether a floor assembly can serve to create two separate fire compartments, thereby allowing glazed openings on opposing sides of the floor assembly to be spaced closer than 2 m apart.

CODE REFERENCES

Sentences 9.10.15.4.(4) and (5) state:

9.10.15.4. Openings in Exposing Building Face

...

4) An individual glazed opening described in Sentence (3) shall be separated by not less than 2 m horizontally and 2 m vertically from any other glazed opening that is located on the same *exposing building face* and within the same *fire compartment*. (See A-3.2.3.1.(6) in Appendix A.)

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2006.



Issue of this STANDATA is authorized by
the Acting Chief Building Administrator

[Original Signed]
Chris Salvian, P.Eng.



SAFETY CODES COUNCIL

- 5) For the purposes of Sentence (4),
- a) two adjacent spaces are permitted to be considered as separate *fire compartments* where there is a full height wall extending not less than 1.5 m from the interior face of the exterior wall, finished in accordance with Subsection 9.29.4. or 9.29.5., and
 - b) two stacked spaces shall be considered to be a single room or space where the spaces are on the same *storey*.

INTERPRETATION

A floor assembly shall be considered to create two separate fire compartments for the purposes of Sentence 9.10.15.4.(4) where the underside of the assembly is protected with

- a) 12.7 mm-thick gypsum board that is properly taped and sealed, or
- b) any material that can be shown to remain in place and prevent the passage of flames for not less than 15 min when subjected to the standard fire exposure in CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials."

Subsequently, a window located above a floor assembly that intersects an exposing building face could be located closer than 2 m to a window located below the floor assembly, as shown in Figure 1.

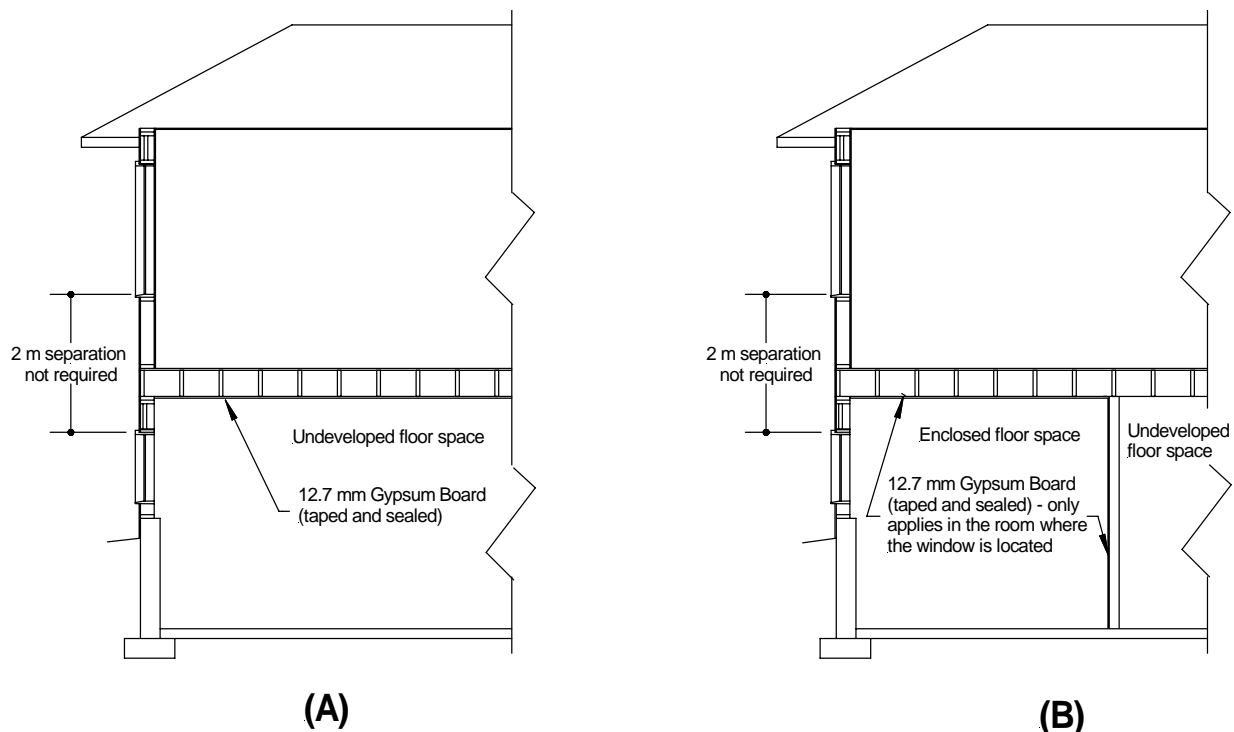


Figure 1 – Glazed Openings Separated by a Protected Floor-Ceiling Assembly

Figure 1A illustrates that where the lower storey consists entirely of an open space, the whole of the underside of the floor assembly must be protected in order to allow for a

glazed opening on the upper storey to be located within 2 m of the lower storey's glazed opening.

Figure 1B illustrates that where a glazed opening belongs to a fully-enclosed space (i.e., a bedroom), only the ceiling of the enclosed space would have to be protected in order to allow a glazed opening on the upper storey to encroach on the 2 m separation requirement, provided the walls of the space are finished in accordance with Subsection 9.29.4. or 9.29.5.

This INTERPRETATION is applicable throughout the province of Alberta.