

Product Information Bulletin

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NBC 2005 and 2010 Firewall and Fire Separation Requirements

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The purpose of this bulletin is to review National Building Code (NBC) of Canada 2005 and 2010 requirements for **firewalls** and **fire separations** in relation to the Advantage ICF System®.

The Advantage ICF System is used to construct monolithic concrete walls having uniform thickness of either 6-inch (152-mm) or 8-inch (203-mm) thickness. Table 1 below provides information excerpted from NBC, Appendix Table D-2.1.1 regarding fire resistance ratings for monolithic concrete walls.

Table 1 – Fire-Resistance Ratings for Monolithic Concrete Walls

Monolithic Concrete Wall Thickness	Fire-Resistance Rating
Minimum 150-mm thick Type N concrete	3 Hour
Minimum 171-mm thick Type N concrete	4 Hour

A concrete wall formed using the Advantage ICF System was tested by Intertek Testing Services (ITS) in accordance with test standards: CAN/ULC-S101¹, NFPA-251 and ASTM-E119. The test confirmed that a 6" thick concrete wall formed with the Advantage ICF System faced with standard 12.7-mm (1/2") gypsum board mounted on the fireside would provide a 3-hour fire resistance rating. Additional information on this fire test can be found in Plasti-Fab Technical Bulletin 153-01.

The following NBC definitions will help to understand these differences:

1. **Fire separation** means a construction assembly that acts as a barrier against the spread of fire and smoke. **NOTE: The fire-resistance rating of a fire separation may be waived in some cases on the basis of the presence of an automatic sprinkler system.**
2. **Firewall** means a type of fire separation of **noncombustible construction**, which subdivides a building or separates adjoining buildings intended to resist the spread of fire. **A firewall has a fire-resistance rating** as prescribed in the Code and has structural stability to remain intact under fire conditions for the required fire-rated time.
3. **Noncombustible construction** means that type of construction in which a degree of fire safety is attained by the use of noncombustible materials for structural members and other building assemblies. Except for closures, the NBC states that required **fire-resistance rating for a firewall shall be provided by masonry or concrete.**

Note that the Principal differences between a fire separation and a firewall relate to the construction materials that are permitted and the requirement for a minimum fire-resistance rating.

¹ CAN/ULC-S101-M, Standard Methods of Fire Endurance Tests of Building Construction and Materials

4. A **party wall** is defined in the NBC as a wall jointly owned and jointly used by two parties under easement agreement or by right in law, and erected at or upon a line separating two parcels of land each of which is, or is capable of being, a separate real-estate entity.
 - a. In a building of **residential occupancy** in which there is **no dwelling unit above another dwelling unit**, a party wall on a property line between dwelling units can be constructed as a **fire separation** having a fire-resistance rating not less than a 1 h.
 - b. **Except as noted above** for residential occupancy a party wall on a property line must be constructed as a **firewall**.

As noted, the NBC requires that a **firewall** be constructed of **non-combustible construction**. The fire-resistance rating of a wall constructed with the Advantage ICF System is provided by the 152 mm or 203 mm (6" or 8") concrete wall thickness.

Based upon the above, **use of the Advantage ICF System in constructing a firewall must be confirmed with local code authorities at the time of building permit approval.**

The following information regarding fire-resistance ratings of firewalls can be found in NBC Article 3.1.10.2.:

1. A **firewall** which separates a building or buildings with floor areas **containing a Group E or a Group F, Division 1 or 2 major occupancy** shall be constructed as a fire separation of noncombustible construction having a **fire-resistance rating not less than 4 h**, except that where the **upper portion of a firewall** separates floor areas containing **other than Group E or Group F, Division 1 or 2 major occupancies**, the fire-resistance rating of the upper portion of the firewall is **permitted to be not less than 2 h**.
2. A **firewall** which **separates a building or buildings** with floor areas containing **major occupancies other than Group E or Group F, Division 1 or 2** shall be constructed as a fire separation of noncombustible construction having a **fire-resistance rating not less than 2 h**.

NOTE: Major occupancy classification information can be found in NBC, Table 3.1.2.1.