

Advantage ICF PIB 211

**NBC 2010 Firewall
and Fire Separation
Requirements**

Product Information Bulletin

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

The following definitions from the NBC 2010 identify requirements for a **fire separation** versus a **firewall**:

1. **Fire separation** means a construction assembly that acts as a barrier against the spread of fire.
2. **Firewall** means a type of **fire separation** of **noncombustible construction** that subdivides a building or separates adjoining buildings intended to resist the spread of fire and that 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.

Fire Separation and Firewall Notes:

- a) *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.*
- b) 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**.

The following definition from the NBC 2010 identifies requirements for a party wall:

1. A **party wall** means 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.

Party Wall Notes:

- 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**.

Table 1 provides information excerpted from NBC Appendix D, Table D-2.1.1. regarding fire-resistance ratings for monolithic concrete walls.

Table 1 – NBC Fire-Resistance Ratings for Monolithic Concrete Walls

Thickness of Monolithic Concrete Wall Load Bearing or Non-Loadbearing	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 standard CAN/ULC-S101¹ as required by NBC Sentence 3.1.7.1.(1). The test confirmed that a 6" thick concrete wall formed with the Advantage ICF System with standard 12.7-mm (1/2") gypsum board mounted on the fire exposed side of the assembly would provide a 3-hour fire-resistance rating.

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. However, as noted previously, the NBC requires that a **firewall** must be constructed of **noncombustible construction**. Therefore, based upon the above the NBC requirements, **use of the Advantage ICF System for construction of a firewall must be confirmed with local code authorities at the time of building permit approval.**

NBC Article 3.1.10.2 provides the following additional information regarding **fire-resistance ratings of firewall**:

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.

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