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

<table>
<thead>
<tr>
<th>Thickness of Monolithic Concrete Wall Load Bearing or Non-Loadbearing</th>
<th>Fire-Resistance Rating</th>
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</thead>
<tbody>
<tr>
<td>Minimum 150-mm thick Type N concrete</td>
<td>3 Hour</td>
</tr>
<tr>
<td>Minimum 171-mm thick Type N concrete</td>
<td>4 Hour</td>
</tr>
</tbody>
</table>

A concrete wall formed using the Advantage ICF System was tested by Intertek Testing Services (ITS) in accordance with test standard CAN/ULC-S101\(^1\) 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