The National Building Code of Canada (NBC) 2005 and 2010 provide prescriptive requirements for construction of concrete walls using insulating concrete forming (ICF) systems. The NBC 2005 and 2010 prescriptive requirements specifically address ICF construction that results in solid concrete walls of uniform thickness over the height and width of the wall. The NBC 2005 provisions have also been adopted in the 2006 Alberta Building Code (ABC), the 2006 British Columbia Building Code (BCBC) and the 2006 Ontario Building Code (OBC).

The Advantage ICF System® combines rigid expanded polystyrene (EPS) insulation panels with a web and interlock connector system that results in a concrete wall of uniform thickness. The EPS insulation panels in the Advantage ICF System stay in place permanently to provide an insulated cast-in-place concrete wall resulting in a superior, energy efficient building envelope.

The table below summarizes prescriptive requirements contained in NBC Section 9.15. and associate references related to ICF foundation wall applications.

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**Foundation ICF Wall Applications**

<table>
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</tbody>
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The table below summarizes prescriptive requirements contained in NBC 2005 and 2010, Section 9.20, and associated references related to ICF walls not in contact with the ground (above-grade) applications to a maximum of two storeys.

### Above Grade ICF Wall Construction:

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<th>Clause/Article</th>
<th>Requirement</th>
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<td>9.20.17.7.</td>
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The following notes provide additional information related to design and installation of wall construction using the Advantage ICF System:

1. For design conditions beyond the scope of the NBC 2005 and 2010 provisions refer to the Advantage ICF System Design Manual.
2. The Advantage ICF System Installation Manual provides additional information on the construction of ICF walls.
3. Article 9.25.3.2. related to air barrier system properties has been revised in the NBC 2010 to add a reference to a new Table A-9.25.5.1.(1) in Appendix A. Table indicates the air leakage characteristic for minimum 50 mm thick concrete is negligible.
4. Article 95.4.2. relates to vapour barrier materials has been revised to add a new Sentence 9.25.4.2.(6) indicating that foamed plastic insulation (e.g. EPS insulation) with sufficient thickness can be used to meet the vapour material requirements.
5. The following detail drawings attached with this bulletin provide additional assistance to identify NBC requirements for ICF construction:
   c. D.0.3 – RESIDENTIAL OPENINGS REINFORCING REQUIREMENT PER NBC 2005 AND NBC 2010.
ICF FOUNDATION WALLS

9.15.4.3.(5) LATERAL SUPPORT @ TOP
9.20.17.5.(4)
9.23.6.1.(2)

9.15.4.5.(1)(a)(i) TOP REINFORCING

PROTECTIVE COVER EPS
9.10.17.10.(1)

9.15.4.5.(1)(a)(ii) TYPICAL HORIZONTAL REINFORCING

9.15.4.5.(2) TYPICAL VERTICAL REINFORCING

9.13.2 & 9.13.3 DAMPPROOFING
9.13.2.4.(3) ICF PREPARATION
OR WATERPROOFING
9.13.3.4.(3) ICF PREPARATION

9.15.4.4.(1) LATERAL SUPPORT
(SHEAR KEY OR DOWELS)

CONCRETE SLAB

TYPE 2 EPS UNDERSLAB INSULATION AS PER
9.25.2.1
9.25.2.2

SOIL BEARING CAPACITY
AS PER
9.15.1.1.(c)(i)(ii)

FOOTING WIDTH AS PER
9.15.3.3
9.15.3.4
9.15.3.5
FOOTING THICKNESS
9.15.3.8.(1)
STEP FOOTING 9.15.3.9

NOTE: SEE D.0.3 FOR REINFORCING REQUIREMENT FOR OPENINGS
NOTE: SEE D.0.3 FOR REINFORCING REQUIREMENT FOR OPENINGS
### Openings in Non-Loadbearing Walls

- **Below Grade Opening Reinforcing**
  - 9.15.4.5.(4)

- **Above Grade Opening Reinforcing**
  - 9.20.17.3
  - 9.20.17.4

### Openings in Loadbearing Walls

**Residential Openings Reinforcing Requirement**

According to NBC 2005 and NBC 2010, the reinforcing requirements for residential openings are outlined below:

#### Bottom Reinforcing

- NBC Tables A-17, A-18, or A-19
- OR Advantage Tech Manual

#### Stirrups

- 9.20.17.4.(3)

For open spaces greater than 900 in width:

- Bottom reinforcing as specified above
- Stirrups as specified above

**Note:** The diagram illustrates the reinforcing requirements for different size categories of openings in non-loadbearing and loadbearing walls.