

Product Information Bulletin

BULLETIN NO.	209
ISSUED:	June 18, 2013
REPLACES:	July 19, 2011

Code Requirements for Air Barrier and Vapour Barrier Systems

The table below outlines National Building Code of Canada 2010 (NBC), Alberta Building Code 2006 (ABC), 2012 British Columbia Building Code (BCBC) and Ontario Building Code 2006 (OBC) provisions applicable to walls constructed with the **Advantage ICF System®**.

Air Barrier Systems - NBC, ABC, BCBC and OBC Subsection 9.25.3.

Article 9.25.3.1. – Thermally insulated wall assemblies shall be constructed so as to include an air barrier system that will provide a continuous barrier to air leakage.

Sentence 9.25.3.2.(1) – Air barrier systems shall possess the characteristics necessary to provide an effective barrier to air infiltration and exfiltration under differential air pressure due to stack effect, mechanical systems or wind.

OBC Sentence 9.25.3.2.(1) and NBC, ABC, BCBC and OBC Sentence 5.4.1.2.(1) – Sheet and panel type materials intended to provide the principal resistance to air leakage shall have an air leakage characteristic not greater than $0.02 \text{ L}/(\text{s}\cdot\text{m}^2) @ 75 \text{ Pa}$.

Advantage ICF System properties in relation to Code Requirements:

ABC and OBC Table A-9.25.1.2.B– The air leakage characteristic for 25-mm thick CAN/ULC-S701, type 2 expanded polystyrene (EPS) insulation is listed as $0.0214 \text{ L}/(\text{s}\cdot\text{m}^2) @ 75 \text{ Pa}$.

NBC and BCBC Table A-9.25.5.1.(1) - The air leakage characteristic for 50-mm reinforced concrete is listed as “negligible.”

Based upon the above, either the two 67-mm (2-5/8”) thick layers of CAN/ULC-S701, Type 2 EPS insulation or the minimum 152 mm (6”) thick monolithic concrete core provided by the Advantage ICF System would satisfy the required air leakage characteristic of less than $0.02 \text{ L}/(\text{s}\cdot\text{m}^2) @ 75 \text{ Pa}$.

Vapour Barrier Systems – NBC, ABC, BCBC and OBC Subsection 9.25.4.

Article 9.25.4.1. – Thermally insulated walls must be constructed with a vapour barrier so as to provide a barrier to diffusion of water vapour from the interior into wall spaces.

Sentence 9.25.4.2.(1) – The material providing the vapour barrier property must have a permeance not greater than $60 \text{ ng}/(\text{Pa}\cdot\text{s}\cdot\text{m}^2)$ when measured using ASTM E96, desiccant method (dry cup).

NBC and BCBC Sentence 9.25.4.2.(6) – Where foamed plastic insulation functions as the vapour barrier, it shall be sufficiently thick so as to meet the requirement of Sentence (1).

Advantage ICF System properties in relation to Code Requirements:

The vapour permeance characteristic for each 67-mm (2-5/8”) thick EPS insulation panel that form the concrete wall in the Advantage ICF System is less than $60 \text{ ng}/(\text{Pa}\cdot\text{s}\cdot\text{m}^2)$ which meets the requirements per NBC 2010, Sentence 9.25.4.2.(6). In addition, NBC and BCBC Table A-9.25.5.1.(1) lists the vapour permeance for 50-mm reinforced concrete as $23 \text{ ng}/(\text{Pa}\cdot\text{s}\cdot\text{m}^2)$.

Note: In order to meet code provisions for air and vapour barrier systems, continuity must be maintained at all openings in walls and at floor/roof connection using approved sealing materials.