



CSR Building Bulletin

Cold Weather Requirements - 2018 BCBC "Concrete/Masonry, Mortar & Grout, Stucco"

With the cold weather and winter months ahead the CSR would like to remind those building that there are specific requirements for concrete placement and curing required to achieve full strength.

All reinforced and unreinforced concrete and masonry, including concrete block and stone, shall be designed, mixed, placed, and cured as tested in accordance with clause 8.13 of CSA A23.1, "Concrete Materials and Methods of Concrete Construction"

9.3.1.8. Admixtures

1. Admixtures shall conform to ASTM C 260/C 260M, "Air-Entraining Admixtures for Concrete," or ASTM C 494/C 494M, "Chemical Admixtures for Concrete,"

9.3.1.9. Cold Weather Requirements

1. When the air temperature is below 5°C, concrete shall be
 - a. kept at a temperature of not less than 10°C or more than 25°C while being mixed and placed, and
 - b. maintained at a temperature of not less than 10°C for 72 h after placing.
2. No frozen material or ice shall be used in concrete described in Sentence (1).

9.12.1.3. Protection from Freezing

1. The bottom of *excavations* shall be kept from freezing throughout the entire construction period.

9.20.3.2. Mortar and Grout Mixes

5. Except as provided in Sentence (6), mortar shall be used and placed in final position
 - a. within 1.5 h after mixing when the air temperature is 25°C or higher, or
 - b. within 2.5 h after mixing when the air temperature is less than 25°C.
6. Mortar and grout containing a set-control admixture shall be manufactured off-site in a batching plant and shall be used and placed in final position within a time not exceeding the useful life stipulated by the manufacturer.

9.20.14.1. Laying Temperature of Mortar and Masonry

1. Mortar and masonry shall be maintained at a temperature not below 5°C during installation and for not less than 48 h after installation.
2. No frozen material shall be used in mortar mix.

9.20.14.2. Protection from Weather

1. The top surface of uncompleted masonry exposed to the weather shall be completely covered with a waterproofing material when construction is not in progress.

9.28.6. Stucco Application - 9.28.6.1. Low Temperature Conditions

1. The base for stucco shall be maintained above freezing.
2. Stucco shall be maintained at a temperature of not less than 10°C during application, and for not less than 48 h afterwards.

Helpful Resources:

<http://lehighhansoncanada.com/curing-concrete>

Cold Weather Concreting Guidelines

1. Use air-entrained concrete when exposure to moisture and freezing and thawing conditions are expected.
2. Keep surfaces in contact with concrete free of ice and snow and at a temperature above freezing prior to placement.
3. Place and maintain concrete at the recommended temperature.
4. Place concrete at the lowest practical slump.
5. Protect plastic concrete from freezing or drying.
6. Protect concrete from early-age freezing and thawing cycles until it has attained adequate strength.
7. Limit rapid temperature changes when protective measures are removed.

There are many different ways that you can conform to the requirements within the BC Building Code. Please talk to your contractor and/or concrete supplier for options.