



MID IOWA CONSTRUCTION CODE COMMITTEE

Metro Cold Weather Concrete Policy

Promulgated by
The

Mid-Iowa Construction Code Committee

March, 2001

ALTOONA

ANKENY

CLIVE

DES MOINES

GRIMES

INDIANOLA

JOHNSTON

NORWALK

PLEASANT
HILL

URBANDALE

WAUKEE

WEST
DES MOINES

DALLAS
COUNTY

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COUNTY

1. Purpose

- 1.1 The purpose of this policy is to regulate the placement of concrete during *cold weather* by providing minimum standards.

2. Scope

- 2.1 This policy shall apply to all new or replacement concrete that is placed during cold weather, as determined by Sec. 4 of this policy. This shall include but is not limited to walls, slabs, sidewalks and drives.

3. General

- 3.1 Local jurisdictions have the power to render interpretations of the building code, and to adopt and enforce rules and supplemental regulations to clarify the application of its provisions.

4. Requirements

- 4.1 For slab on grade concrete, cold weather practices apply when the National Weather Service's predicted low for the next 24 hours is 32° Fahrenheit or colder. For thin section concrete walls (typical residential basement walls), the cold weather practice applies when the National Weather Service's predicted low for the next 24 hours is 25° Fahrenheit or colder.
- 4.2 Concrete cannot be placed when the temperature is predicted to drop below 10° Fahrenheit during the following 24 hours. Concrete inspections will be not scheduled.
- 4.3 Air entrained concrete must be used when exposure to moisture and freezing and thawing conditions are expected.
- 4.4 Concrete cannot be placed on frozen subgrade. It may be possible to thaw a few inches of frost using heat or blankets, or remove the frost and regrade with appropriate compacted subgrade material.
- 4.5 Dry calcium chloride cannot be field added to ready mix concrete. Calcium chloride and any other admixture must be used according to manufacturer's specifications and guidelines.
- 4.6 Concrete must not be allowed to freeze for a minimum of 48 hours after placement; or until it reaches strength of 500 psi as determined by a laboratory testing. In order to satisfy curing requirements of a minimum of 50° Fahrenheit, any approved method of protecting the concrete (blankets, straw, tenting, etc,) must remain in place and effective for the minimum 48 hours. Forms may be removed during this curing period, provided that the protection is reinstalled and effective until the 48-hour period has expired.



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5. Recommendations

- 5.1 Humidity is normally lowered when heating an enclosure. Membrane-forming curing compounds should be used to ensure that the concrete surface does not dry out too soon and cause plastic shrinkage cracks.
- 5.2 Fossil fuel burning heaters can cause carbonation of newly placed concrete surfaces. This may cause unacceptable dusting. Therefore, combustion byproducts must be vented from enclosures.
- 5.3 During cold weather, the concrete mix should be increased from 3500 psi to 4000 psi, or another high early strength mix. Guidelines and manufacturer's recommendations for utilizing admixtures should be followed.

Please Note: This policy is not intended to apply to projects designed and constructed in accordance with the Urban Standard Specifications for Metropolitan Public Improvements.

This policy is adopted for use in the following communities: Altoona, Ankeny, Clive, Des Moines, Grimes, Indianola, Johnston, Norwalk, Pleasant Hill, Polk County, Urbandale, Waukee, West Des Moines, & Windsor Heights