CODE

COMMENTARY

If the field-cured cylinders do not provide satisfactory strength by this comparison, steps need to be taken to improve the curing. If the tests indicate a possible serious deficiency in strength of concrete in the structure, core tests may be required, with or without supplemental wet curing, to evaluate the structural adequacy, as provided in 26.12.6.

(f) Shotcrete shall be cured in accordance with (1) through (3).

(1) For 24 hours from completion of placement, initial curing shall be provided by one of the following methods:

(i) Ponding, fogging, or continuous sprinkling;

(ii) Absorptive mat, fabric, or other protective covering kept continuously moist;

(iii) Application of a membrane-forming curing compound.

(2) After 24 hours from completion of placement, final curing shall be provided by one of the following methods:

(i) Same method used in the initial curing process;

(ii) Sheet materials;

(iii) Other moisture-retaining covers kept continuously moist.

(3) Final curing shall be maintained for a minimum duration of:

(i) 7 days,

(ii) 3 days if either a high-early-strength cement or an accelerating admixture is used.

R26.5.3.2(f) If using a curing compound, it will usually be necessary to apply the compound at a higher rate than the manufacturer's recommendation because of the rougher surface of many shotcrete applications.

26.5.4 *Concreting in cold weather*

R26.5.4 *Concreting in cold weather*

Detailed recommendations for cold weather concreting are given in ACI 306R. Specification requirements for concreting in cold weather are provided in ACI 301M and ACI 306.1. If both ACI 301M and ACI 306.1 are referenced in construction documents, the governing requirements should be identified.

26.5.4.1 Design information:

(a) Temperature limits for concrete as delivered in cold weather.

R26.5.4.1(a) ASTM C94, ACI 306R, and ACI 301M contain requirements and recommendations for concrete temperature based on section size.

26.5.4.2 Compliance requirements:

(a) Adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near-freezing weather.

(b) Frozen materials or materials containing ice shall not be used.

(c) Forms, fillers, and ground with which concrete is to come in contact shall be free from frost and ice.