

## \_\_\_\_\_ PROTECTION

The Contractor shall protect all concrete against damage until final acceptance by the Government. Concrete shall not be loaded, forms and shoring shall not be removed, and backfill shall not be placed against concrete until the concrete has gained sufficient strength to safely support its weight and all imposed loads.

Fresh concrete shall be protected against: erosion from rain, hail, sleet, or snow; contamination from foreign materials; and damage from foot traffic until the concrete has hardened. <sup>1</sup>(Hardened concrete surfaces which receive U2 or U3 finish shall be protected against damage from foot traffic and other construction activity by covering with protective mats, plywood, or by other effective means.) Methods of protection shall be subject to approval by the Government.

<sup>2</sup>(Whenever freezing temperatures are imminent, the Contractor shall enclose exposed concrete with warmth-retaining sheets or other insulating means and maintain the concrete at a temperature of not less than 50 EF for 72 hours after placement. In addition, concrete being water cured shall be protected from freezing for the duration of the curing cycle. Then after discontinuance of the water curing, this concrete shall be maintained at a temperature of not less than 50 EF for 72 hours.

Where artificial heat is employed, special care shall be taken to prevent the concrete from drying. Use of unvented combustion heaters will not be permitted during the first 24 hours of curing unless unformed concrete surfaces are sealed from the resulting carbon dioxide rich environment.)

Discontinuance of protection against cold temperatures shall be such that the drop in temperature of any portion of the concrete will be gradual and will not exceed 5 EF per hour and 40 EF in 24 hours <sup>3</sup>(for thin sections and 5 EF per hour and 20 EF in 24 hours for massive sections greater than 36 inches).

When precipitation <sup>2</sup>(or freezing weather) appears imminent, the Contractor shall immediately make ready at the placement site all materials which may be required for protection of concrete. The Government may delay placement of concrete until adequate provisions for protection against weather are made.

Concrete curing membranes shall be kept intact, and other curing materials and processes shall be maintained as necessary to assure continuous curing for the minimum specified curing time. Protection of curing membranes and other curing methods shall be as described in paragraph \_\_\_\_\_ (Curing).

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<sup>1</sup>Delete when U2 or U3 finish is not required.

<sup>2</sup>Delete or revise as required. Especially in areas not subject to freezing.

<sup>3</sup>Delete if no massive sections exist.

3-15-85 Revisions: Revised throughout.