

If water is heated to a maximum temperature of 140°F. then it should not be necessary to heat the aggregates to a temperature in excess of 60°F. even during the coldest weather.

Placing the Concrete

The temperature of the concrete when placed should be between 60°F. and 80°F. This applies winter or summer. There is nothing to be gained and damage can result if concrete is placed at too high a temperature.

Before concrete is placed, all ice, snow and frost must be removed from forms, reinforcement and other contact surfaces. The temperature of surfaces in contact with the concrete should be above 40°F. No concrete should be placed on a frozen sub-grade or on one that contains frozen materials.

Curing

As soon as the concrete is placed, steps must be taken to ensure that the temperature of the concrete at all surfaces does not drop below 50°F. for a period of 5 days or below 70°F. for 3 days. In either case, the concrete after the initial curing period should be kept at a temperature above freezing until it has reached an age of 7 days. When high early strength cement is used or an additional 20 per cent of cement is added to the mix, the protection period may be reduced to 3 days at 50°F. or 2 days at 70°F.

Higher curing temperatures than those indicated may result in reduced strength and durability of the concrete. Rapid changes in temperature are also undesirable. At the end of the protection period, the temperature of the concrete should be gradually reduced at a rate of 20°F. per day until the outside air temperature has been reached.

During the initial curing period, the concrete must be kept damp as well as warm. At the lower wintertime temperatures, the forms will usually retain sufficient moisture to ensure adequate curing. They may, therefore, be left in place for as long a period