

and ducts imbedded in the concrete. It is generally agreed that calcium chloride must not be used in amounts in excess of 2 per cent by weight of the cement.

MASONRY

While much is known about winter concreting, little study has been devoted to cold weather masonry construction. Regulations which have been in use are based on the results of work done about thirty years ago on concrete since it was considered that the mortar would react to cold weather in much the same way as does concrete. Many masonry buildings have been constructed, however, without protection and, even under severe winter conditions, these structures have shown remarkable durability. This has led to some relaxation of the regulations regarding winter masonry construction, but this does not mean that masonry can take care of itself in cold weather. Failures are still reported and are no doubt due to inadequate supervision on the site.

Storage of Materials

The first step in preparing for winter masonry construction is to provide a storage space where masonry units and mortar materials can be kept on a platform raised to prevent wetting from ground moisture. The materials must be covered with tarpaulins, building paper or plastic film to keep them dry and free of ice or snow. Space located in an area where the temperature is above freezing is desirable but not essential.

Preparation of Mortar

When the temperature falls below 40°F., the water for the mortar should be heated to provide a mortar with a temperature between 60°F. and 80°F. The water must not be heated to a temperature higher than 150°F. In very cold weather, the sand also may require to be heated, but again care must be taken to avoid overheating. All that is required is that the temperature