ITEM 526

MEMBRANE CURING

526.1. Description. This Item shall govern for the curing of concrete by the use of membrane curing compound in accordance with the plans and specifications.


Copies of Departmental Materials Specifications are available from the Texas Department of Transportation, Division of Materials and Tests, 125 East 11th Street, Austin, Texas 78701-2483.

Sampling and testing will be in accordance with the Department's Manual of Testing Procedures.

526.3. Packaging. The compound shall be delivered to the job only in the manufacturer's original sealed containers. The manufacturer shall legibly mark these with the brand name of the compound, the type of compound and class of vehicle, and a batch number or symbol with which test samples may be correlated. All approved containers will be stamped, "Division of Materials and Tests" with the laboratory number and the date after which retesting is required.

526.4. Equipment. The membrane curing compound shall be applied by means of approved mechanical-powered pressure sprayers, either air or airless. With approval of the Engineer, the Contractor will be permitted to use hand-pressureized spray equipment only on small miscellaneous concrete repairs and/or placements. All sprayers shall be equipped with appropriate atomizing nozzles.

Equipment used to apply the compound to concrete pavement shall travel at a uniform speed and be mechanically driven. The equipment shall be of such design that it will insure uniform and even application of the compound. Similar equipment may be used for application of interim membrane curing on bridge decks if it can be adapted to the rail system used by the screed.

When hand-operated spray equipment is used the spraying device shall be hand-operated spray bar equipped with two or three fan-spray nozzles. The spray from each nozzle shall overlap the spray from adjacent nozzles approximately 50 percent. The nozzles shall be held approximately 18 inches above the surface of the concrete and moved along the deck parallel with the striated finish. The nozzles may be held higher or lower as dictated by wind condition. The spray bar shall be held perpendicular to the striated finish.

For all spraying equipment the Contractor shall take suitable precautions to prevent loss of the compound between the nozzles and the concrete surface during spraying operations and to prevent the formation of runs and sags.

526.5. Construction Methods. Just before using the membrane curing compound, it shall be thoroughly agitated in its original container until any settlement has been uniformly dispersed. Redispersion shall be checked with a one (1) inch by one (1) inch wooden slat or similar device scraped along the interior of the container and then examined for accumulation of settlement and uniformity of dispersion. The compound shall be maintained in a uniform condition, substantially free of settlement, during its use.

The compounds shall not be applied to a dry surface and if the surface of the concrete has become dry, it shall be thoroughly moistened by water fogging prior to application of membrane.

The membrane curing compound shall be applied after the surface finishing has been completed, and immediately after the free surface moisture has disappeared. The surface shall be sealed with a single coat of the specified type of curing compound applied uniformly at the rate of coverage recommended by the manufacturer and directed by the Engineer, but not less than one (1) gallon per 180 square feet of surface area.
The curing compound shall not be thinned or diluted in any manner prior to application. The Contractor shall provide satisfactory means and facilities to properly control and check the rate of application of the compound.

At locations where the coating shows discontinuities, pinholes, or other defects, or if rain falls on the newly coated surface before the film has dried sufficiently to resist damage, an additional coat of the compound shall be applied immediately at the same rate of coverage specified herein.

To insure proper coverage, the Engineer will inspect all treated areas after application of the compound for the period of time designated in the governing specification for curing, either for membrane curing or for other methods. Dry areas are identifiable because of the lighter color of dry concrete as compared to damp concrete. All suspected areas shall be tested by placing a few drops of water on the suspected areas. If the water stands in round beads or small pools which can be blown along the surface of the concrete without wetting the surface, the water-impervious film is present. If the water wets the surface of the concrete as determined by obvious darkening of the surface, or by visible soaking into the surface, no water-impervious film is present. Should the foregoing test indicate that any area during the curing period is not protected by the required water-impervious film, an additional coat or coats of the compound shall be applied immediately, and the rate of application of the membrane compound shall be increased until all areas are uniformly covered by the required water-impervious film.

When temperatures are such as to warrant protection against freezing, curing by this method shall be supplemented with an approved insulating material capable of protecting the concrete for the specified curing period.

If at any time there is reason to believe that this method of curing is unsatisfactory or is detrimental to the work, the Contractor, when notified, shall immediately cease the use of this method and shall change to curing by one of the other methods specified under this contract.

526.6 Measurement and Payment. The work performed, materials furnished and all labor, tools, equipment, and incidentals necessary to complete the work under this Item will not be measured or paid for directly, but will be considered subsidiary to the various bid Items of the contract.