FREEFORM™
ARCHITECTURAL DRY MORTARS

APPLICATION METHOD

HARDTOP N C Application Method

Preparation

1. Surface preparation

HardTop is applied as a dry compound onto the fresh concrete surface.
Application can be done by hand or mechanically.

The sub-grade should be suitably strong, adequate and free of defects for the intended purpose. Cracks or level differences if any should be properly treated. Concealed electrical pipes or other utilities should be properly closed with non-shrink grout/screed adequately in advance.

CHARACTERISTICS OF FRESH BASE CONCRETE:

a. Only non-air entrained concrete should be used (de-entrainer if required may be added). Air content shall not exceed 3.0%.
b. Concrete mix w/c ratio should be around 0.50 to secure the adequate amount of water for hydration of the HardTop hardener. Segregation/bleeding of the concrete should be avoided.
c. Slump may be between 100 to 125 mm.
d. Fly ash or similar pozzolona will make the surface sticky and are to be avoided.
e. The concrete if used as an overlay, and without steel reinforcement, can be reinforced suitable by Alkali resistant glass fibres to reduce chances of cracks in the finished floor. Please ask us for more details on this.

Use of RMC or Site Mixed Concrete?

Both types of Concrete have their pros and cons. Concrete supplied by a RMC plant has all the usual benefits of a plant prepared concrete mix. However, some disadvantages include;

a. Concrete is normally not customised to site requirement, especially in case of small pours.
b. The speed of supply of Concrete is not controlled; usually too much.

High finish concrete floors require patient workmanship at all stages and steps to happen within fixed time windows. Having excess supply of concrete, and not being able to complete all steps and stages can be harmful for the concrete floor finish.

So it can be said that Ready Mixed Concrete is more suitable for larger sites and only with adequate deployment of teams of masons, helpers, supervisors and machines. Smaller residential interior sites may prefer site mixed concrete to have a better control on the quality and the supply quantity of concrete.

Prior to pouring of concrete, weigh out the hardener at desired spreading rate of 3 to 8 kg per square metre and place at regular intervals to ensure that the desired quantity per area is used up. Keep in mind that approximately 2.25 kgs per square metre will give 1 mm thickness of coat.

2.

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Work area preparation/Setting up

1. Mixing

   The Concrete supplied to site should be a minimum of M 20 grade. Variations in concrete characteristics such as water content and cement may lead to slight colour variations.

2. Recommended application thickness

   Normally 2-3 mm of final thickness of HardTop is sufficient, and depending on the end use of the floor, the thickness could be increased to 3-5 mm. Usage will be approximately 3 to 8 kg per square metre.

3. Laying/Pouring/Installation

   a. Place and consolidate the concrete.
   b. Hand or mechanically screed the concrete.
   c. Use bullfloat or highway straightedge to flatten the surface and remove imperfections taking care to not close the surface of the concrete.
   d. The application of HardTop powder must not be carried out in strong wind or in dry conditions.

   INSTALLATION/APPLICATION METHOD

   The floor hardeners may be applied either by Single Pass application or by Dual Pass application.

   A. SINGLE PASS HARDTOP APPLICATION

   a. HardTop shall be applied at a rate of 3 to 5 kg per square meter preferably by a calibrated mechanical spreader or else by hand.
   b. After HardTop has completely wetted out from below, float it into concrete using walk behind or ride-on power-trowel with float shoes.
   c. After HardTop has been worked into concrete and slab has been given time to further “tighten up” begin final trowelling operations.

   B. DUAL PASS HARDTOP APPLICATION

   a. This procedure is the best method to use when a coloured HardTop hardener is applied for aesthetic purposes.
   b. HardTop shall be applied at a rate of 4 to 10 kg per square meter preferably by calibrated mechanical spreader or else by hand.
   c. Allow slab to dry sufficiently to a point where weight of the finishers and power-trowel equipment do not leave indentation.
   d. Using float shoes, break the surface of the slab open and apply 2/3rd of desired amount of dry shake.
   e. Once HardTop has fully darkened due to absorption of moisture, continue the floating process to work dry shake into surface.

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APPLICATION METHOD

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f. Once first application of HardTop has been worked into the slab, immediately apply remaining 1/3 of HardTop to slab.
g. Pay close attention to areas where colour may not be prevalent from the first application.
h. Continue floating process to work second application into slab.
i. After slab has been given time to further "tighten up" begin final trowelling operations.

While not recommended, some light water misting/sprinkling over the Hardtop powder may be required if the surface feels dry during the trowelling process.

4. Curing

Curing should be done as required for the base concrete. Quick evaporation from the surface must be adequately prevented. This can be done by covering the surface with plastic sheets on completion of the work. If the floor is adequately covered immediately after completion of operations, that is ideal and further curing may not be required.

5. Open to Traffic

The floor can be opened to traffic based on recommendations of opening to traffic of base concrete, normally as under
- Pedestrian traffic: 3 days
- Light traffic: 7 days
- Intended normal traffic: 28 days

6. Grinding/Grouting/Polishing/Densification

Possible to finish off with a basic polish or brushed finish or even a shotblasted surface or may be fine polished to a mirror polish.

7. Protection/Sealing

Densification and sealing are also possible for a superior finish and better characteristics.
Use only pH neutral cleaners.

8. Cleaning and maintenance

If temperature is high or conditions windy, evaporation retarder may have to be used in concrete after concrete placement or after any floating operation as required to prevent surface from drying out prematurely from jobsite conditions.

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