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## Guide Specification

### Cem-Kote Barrier Coat 100- Concrete Structures, Waterproofing & Protection

#### PART I: GENERAL

##### 1.1 Description

- A. This specification is for installation of Cem-Kote Barrier Coat 100, a high performance cementitious waterproofing coating/topping manufactured by **Gemite Products Inc.** The material is suitable for concrete waterproofing, finishing and protection. This specification should be read in conjunction with Cem-Kote Barrier Coat 100 Product Data Sheet. **Gemite Products Inc.** offers comprehensive technical assistance to consultants when specifying the products and systems.
- B. The general conditions, supplementary conditions and general requirements of this document apply to General Contractors, Sub-Contractors, Material Suppliers and all other persons furnishing labor and materials under this section.
- C. This specification combines Metric measurements and US. Brackets ( ) indicate choice, alternative, data required or need for the specifier to make a decision.

##### 1.2 Work Included

Provide all labor, material and equipment necessary to apply Cem-Kote Barrier Coat 100 in application over concrete surfaces as shown on the contract drawings and specified herein.

##### 1.3 Related Work

Insert list of divisions and sections where related or allied work is specified, such as concrete slab, wall, tanks and other types of concrete waterproofing, finishing and protection. See Cem-Kote Barrier Coat 100 Product Data Sheet.

##### 1.4 Quality Assurance

- A. The contractor will provide the proper equipment, manpower and supervision at the job site to install Cem-Kote Barrier Coat 100 in compliance with the project plans and specifications.
- B. Prepare a site sample approximately 1200mm x 1200mm (4' x 4'). This sample will be regarded as the minimum standard of workmanship acceptable for this project.
- C. The applicator must be an approved applicator by Gemite Products Inc. Key tradesmen on the site must be factory trained in the product mixing and application procedures prior to commencing work.
- D. Maintain a record of the batch numbers of all materials supplied for this project.

##### 1.5 Submittals

- A. Provide owner with manufacturer's literature, including Specification Guide, Product Data Sheet and installation instructions, for all products used to complete project
- B. Submit documentation that Quality Assurance criteria have been met

##### 1.6 Product Delivery, Storage and Handling

- A. Deliver materials to the site in original, unopened and undamaged packaging with manufacturer's identification and labels intact.
- B. Store Cem-Kote Barrier Coat 100 in a clean, dry area protected from direct sunlight, weather and other damage. Store all wet materials at a temperature of not less than 5°C (44°F) at all times.
- C. Material Safety Data Sheets (MSDS) will be available at the job site.

##### 1.7 Alternates

Obtain written permission from the owner's representative at least ten days prior to close of tender. The alternate material must have been in use for a minimum of eight years.

### 1.8 Standards

All reference standards will be the most current version of these specifications:

- a. ASTM 109/109M-05 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
- b. ASTM C348-02 Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars
- c. ASTM C321-00 (2005) Standard Test Method for Bond Strength of Chemical-Resistant Mortars
- d. ASTM E96/E96M-05 Standard Test Methods for Water Vapor Transmission of Materials ("Wet Cup" procedure)
- e. ASTM C672/C672M-03 Standard Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals
- f. TT-P-1411 – Hydraulic Impermeability

### 1.9 Job Site Conditions

- A. Cem-Kote Barrier Coat 100 material must never be applied if ambient temperatures cannot be kept above 4°C (40°F) during application and for 48 hours thereafter. At temperatures above 28°C (82°F) follow "hot weather concreting" practice
- B. Protect surrounding surfaces from damage due to work of this trade.

### 1.10 Co-ordination/Scheduling

The work in this section requires close co-ordination with related sections and trades.

## 2 PART II PRODUCTS

### 2.1 Manufacturers

- A. Manufacturer's materials are specified by brand name to establish a standard quality, by general description of product and by performance requirements. The Engineer will consider substitutions for brand name products specified, if the procedures set out for substitutions are followed. The Engineer reserves the right to reject any material, which, in his opinion, will not produce the quality of work, specified herein.
- B. The following are acceptable manufacturers: **Gemite Products Inc.** or approved equal.

### 2.2 Materials - General

- A. Cem-Kote Barrier Coat 100- supplied as a Kit comprising of dry Component A + Liquid Component B, as manufactured by Gemite Products Inc.
- B. Reinforcing Fabric HD - supplied in rolls 9 1/2 " (24.1 cm) wide for crack treatment, or 48" (122 cm) wide for application on the entire surface, supplied by Gemite Products Inc.
- C. Cem-Kote Flex ST and PLUS - supplied as a Kit comprising of dry Component A + Liquid Component B, as manufactured by Gemite Products Inc.
- D. Gem-Plast TC - thin set concrete restoration mortar, manufactured by Gemite Products Inc.
- E. Fibre-Patch OV (ST) - restoration mortar for coving of corners, thin to thick repairs, OV (overhead, vertical) and ST (horizontal), manufactured by Gemite Products Inc.

## 3 PART III: EXECUTION

### 3.1 Inspection

- A. Inspect surfaces to which Cem-Kote Barrier Coat 100 will be applied.
- B. Report to owner's representative, in writing, any defects in previously prepared work, or unsatisfactory site conditions. Proceed with work under this section only when such defects have been entirely corrected.
- C. Starting work under this section means acceptance of the surface and previously prepared work.

### 3.2 Surface Preparation

- A. **Surface Preparation:** High-pressure wash, 4,000-6,000 psi (27.6 - 42 MPa), or wet or dry sandblast to thoroughly clean the surface and remove soft concrete surface and any bond inhibiting material, such as form

oil. Wash the surface thoroughly with water prior to the application and allow to dry off to achieve a SSD (Saturated Surface Dry) condition. When in doubt do a bond test to assure proper surface preparation is being done, or if any additional cleaning is required.

- B. **Surface Repair:** Use Gem-Plast TC Premix to patch the "honeycombing" and air pockets. Use Fibre-Patch Premix, OV (overhead & vertical) for deeper patching. Uneven concrete due to concrete form misplacement must be chipped away and surface patched smooth. Uneven concrete due to form misplacement must be chipped away and surface patched smooth.
- C. **Treatment of Existing Cracks & All Non-Structural Joints and interfaces with other materials e.g. steel of FRP:** Identify all the existing cracks, construction joints and apply a layer of Cem-Kote Flex ST or Plus, approximately 25 cm (10") wide and 1-1.5 mm (3/64"-1/16") thick, by trowel or squeegee. Embed the Reinforcing Fabric HD over the entire area of Cem-Kote Flex ST or Plus and work into the Cem-Kote Flex ST or Plus, using trowel. Cem-Kote Flex ST or Plus must totally cover the Reinforcing Fabric HD. Apply an additional coat of Cem-Kote Flex ST or Plus, to build up a total thickness of 2- 3 mm (3/32" - 1/8"), over the entire area. Note: In applications where the temperatures will below the freezing point or when a larger crack movement is expected, use Cem-Kote Flex Plus. Otherwise use Cem-Kote Flex ST. For more detail information regarding crack treatment contact Gemite Technical Service.
- D. **Protruding elements e.g. pipes and corners:** Form a 2" x 2" (5 x 5 cm) minimum, using Fibre-Patch OV in the corner using Cem-Kote Barrier Coat 100 as a bonding agent. The following day, clean the surface with steel brush and pressure wash, and apply two coats of Cem-Kote Flex ST or Plus
- E. When applying the Reinforcing Fabric HD over the entire surface, use the same procedure as described in "C". Overlap the fabric by a minimum of 1 in (2.54 cm). Avoid "sharp" corners. Apply Fibre-Patch material into the corner to form a "cove" (gradual transfer from one side to the other side of the corner).

### 3.3 Mixing

- A. Mix the content of the bag, Component A with the liquid component B. Use a heavy-duty drill (400-600 RPM) with a helix screw, or paddle mixer to achieve a thorough mixing.
- B. Pour approximately 80% of the liquid component B into the mixing container (mixer) and **gradually add the dry Component A into the liquid** and mix until a smooth and lump free mix is obtained. Lumps will form if the dry material is added suddenly into the liquid. Depending on application, add the remaining liquid as required for a given application consistency. A small amount (1/2 coffee cup) of water can be added, if required, at high ambient temperatures.

### 3.4 Application

- A. **Application:** Brush, or spray apply the first coat of Cem-Kote Barrier Coat 100. When using spraying, it is necessary to brush the first coat to eliminate the "pin holes". As soon as the first layer allows the next application, apply the second coat. This can take 15 to 30 minutes depending on the environmental conditions such as temperature, relative humidity, sun, wind, etc. The thickness of the first coat should be approximately 1/32 in (0.8 mm). The second coat is applied at the same thickness as the first coat to a total thickness of approximately 1.6 mm. It is also "brushed" when spraying is used. Cem-Kote Flex Barrier Coat 100, if necessary, e.g. when used as a thin, floor topping, can be applied at the total maximum thickness of 6 mm. Protect against surface water evaporation. Under hot, sunny and windy conditions, extreme care must be given to protect the surface against rapid evaporation of water. Contact Gemite Products Inc. for information on suitable spraying equipment.
- B. **Finishing:** Cem-Kote Barrier Coat 100 can be left with "brushed" surface. In application where a smooth surface is required, e.g. waste water treatment facilities, swimming pools the surface must be "closed" using a steel trowel.
- C. **Curing:** Air-dry cure Cem-Kote Barrier Coat 100 for 48 hours minimum.
- D. **Hot Weather Application:** Protect the surface against rapid evaporation of water between the finishing and the final set time. Use water misting, or apply a surface evaporation retarder.
- E. **Cold Weather Application:** Apply in temperatures above the freezing point and protect the material against freezing for a minimum of 48 hours. Use electrical, (**NOT propane**) heaters to avoid carbonation and carbonation cracking.

### 3.5 Site Cleanup

All excess and waste materials are to be removed from the job site by the contractor in accordance with contract provisions. Surrounding areas where the material has been applied will be left free of debris.