

## **SPECIFICATION FOR WATER PROOFING & PAINTING OF UNDERGROUND STRUCTURE**

All underground structures like basements, pump houses, water retaining structures etc., shall have plasticiser cum waterproofing cement additives conforming to IS: 9103. In addition, limit on permeability as given in IS: 2545 shall also be met with.

Considering the severe corrosive atmosphere prevailing at site due to coastal exposure condition, adopting approved coatings shall protect foundation concrete. Protection of concrete work shall be ensured by adopting the following painting systems:

1. Concrete Penetrating Bipolar Corrosion Inhibitor (CPCI)
2. Epoxide Resin Based Paint (ERBP)

The CPCI shall be applied first on concrete surface by brush or spray as per manufacturer's instruction. Subsequently, as per direction of Engineer-in-charge, the ERBP shall be applied. The time lag between application of CPCI & ERBP shall be between five (5) minutes to fifteen (15) minutes. The residual deposit of CPCI after migration of inhibitor in to the concrete shall be wiped with a cloth prior to 1st coat of ERBP application. The properties of the coated system shall conform to the various requirements of applicable ASTM standards viz. ASTM-D-217-68, B-117, D-4541, D-2794, G95 etc. The specifications for the application of these systems are given in clauses as under:

### **1. Concrete Penetrating Bipolar Corrosion Inhibitor:**

One coat of water based Concrete Penetrating Bipolar Corrosion Inhibitor (CPCI) shall be applied over the surface, irrespective of grade of concrete as per manufacturer's specification to inhibit the corrosion process of embedded reinforcement bars. The CPCI shall be non-toxic with pH of minimum 9.5 and specific gravity 1.00 to 1.08. It shall be free from nitrite, chromates and phosphates and shall be dosed as per manufacturer's instructions. It shall have minimum 1 to 2 years successful usage history conforming to field validation and evaluation technique (ASTM G5-94, C-102-89, C-109-92, C-876-91).

## **2. Epoxide Resin Based Paint:**

Two (2) coats of Epoxide Resin Based Anti-corrosive and chemical resistance paint over a coat of CPCI shall be applied as per manufacturer's instruction for protection of concrete against carbonation and chloride penetration in saline/marine environment. The primer coat shall be of grey colour and topcoat shall be of black colour with DFT of 150-162.5 microns each, thus giving the total DFT of 300-325 microns.

\*\*\*\*Before application of paint, the following shall be particularly checked for conformance to this specification and recommendation of the paint manufacture:

- a) Surface profile
- b) Catalysis ratio for two component paints
- c) Minimum and maximum top coating times