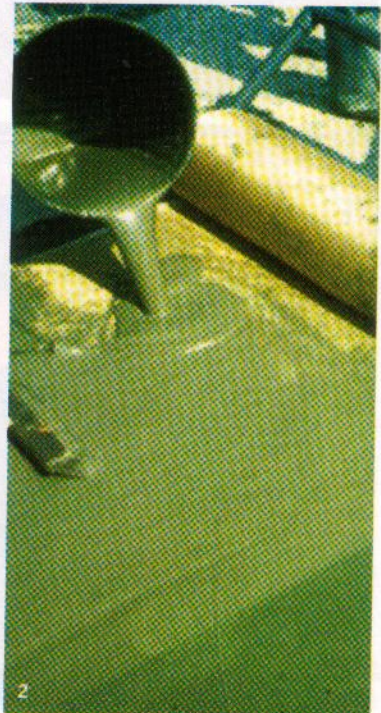
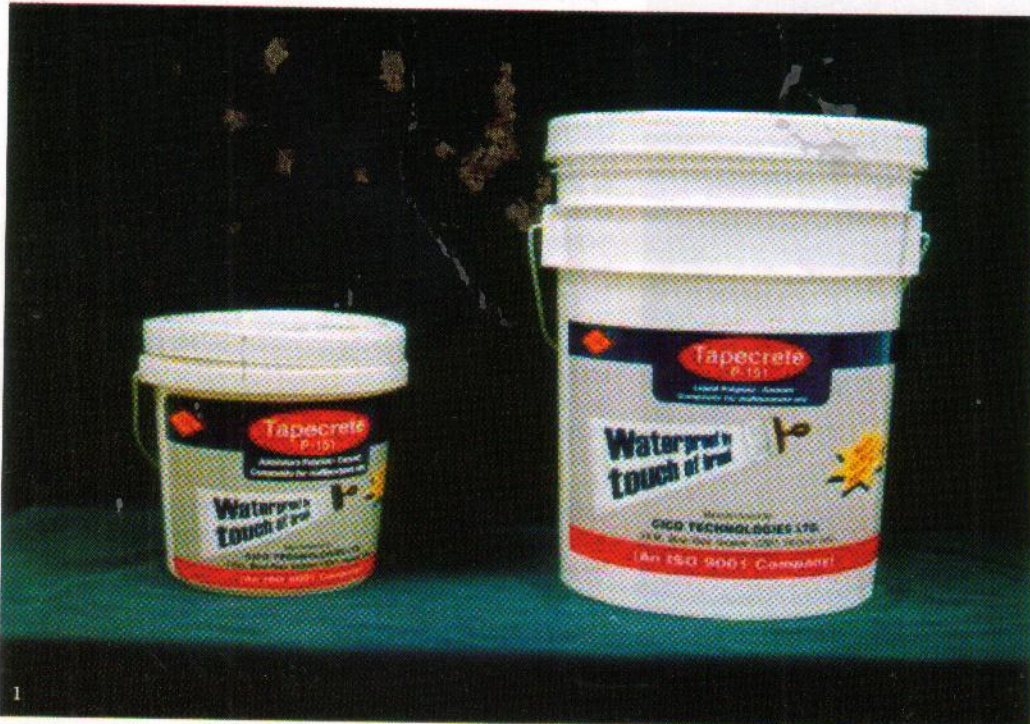


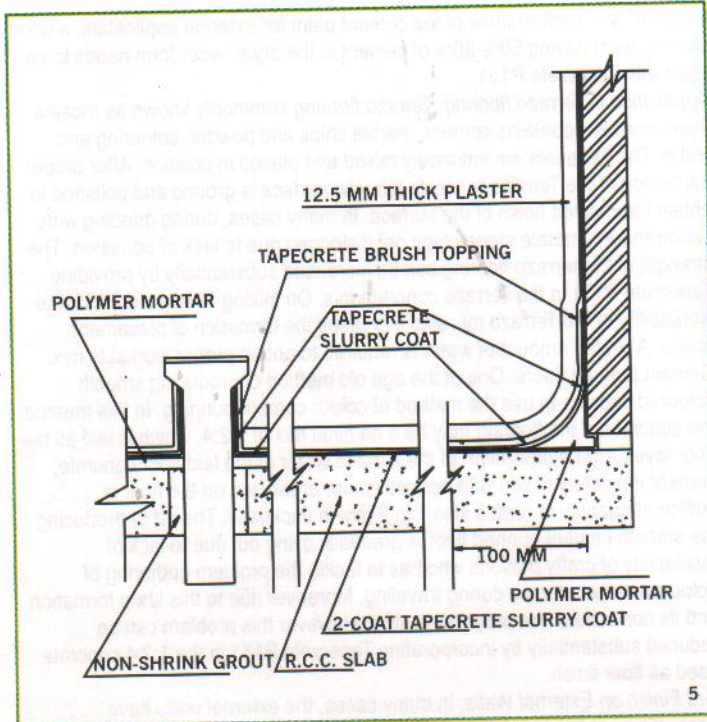
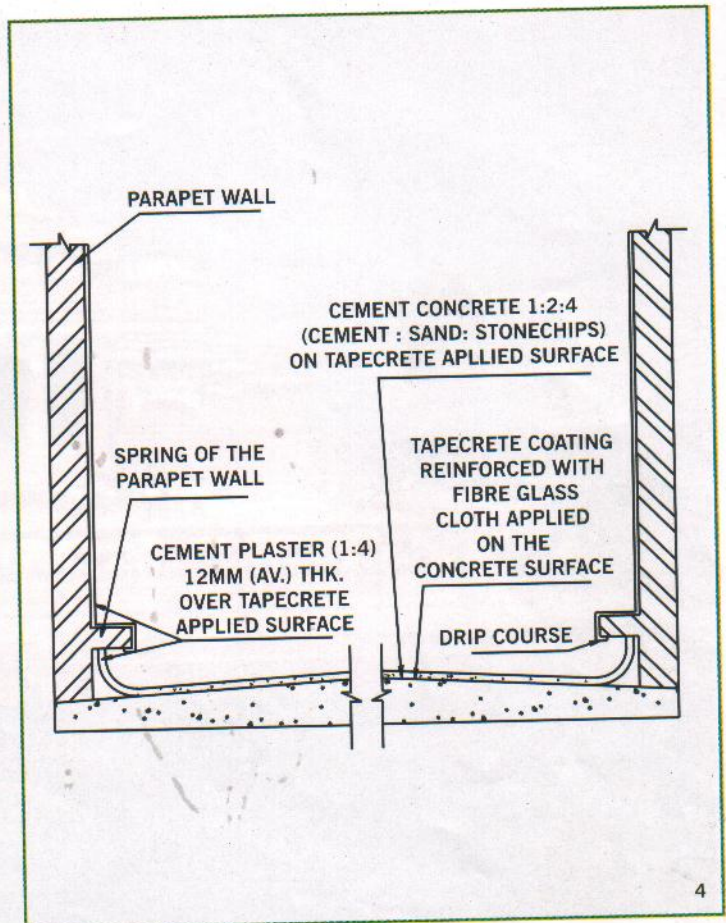
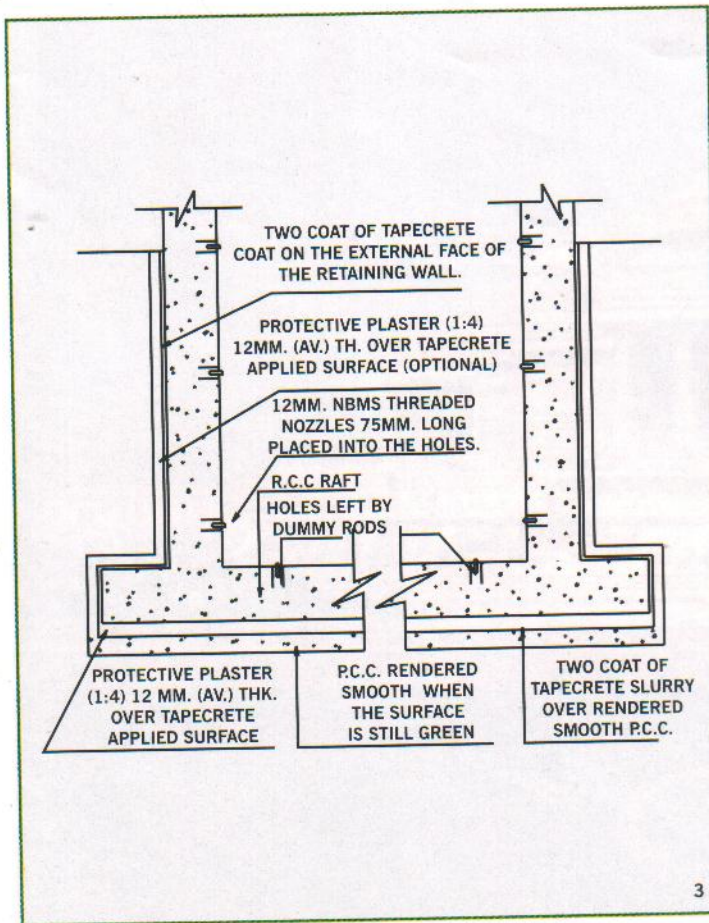
Adopting Compatibility

Being an excellent bond medium, Tapecrete P151 collaborates well with most of the building materials. It has become the most apt material for waterproofing and strengthening of foundation too. Versatile applications of Tapecrete reduce the amount of water used in construction and make it stand as a splendid product.

Text & Photographs: courtesy CICO Technologies Limited



1. Picture of the innovative product Tapecrete P151
2. Tapecrete slurry mix.



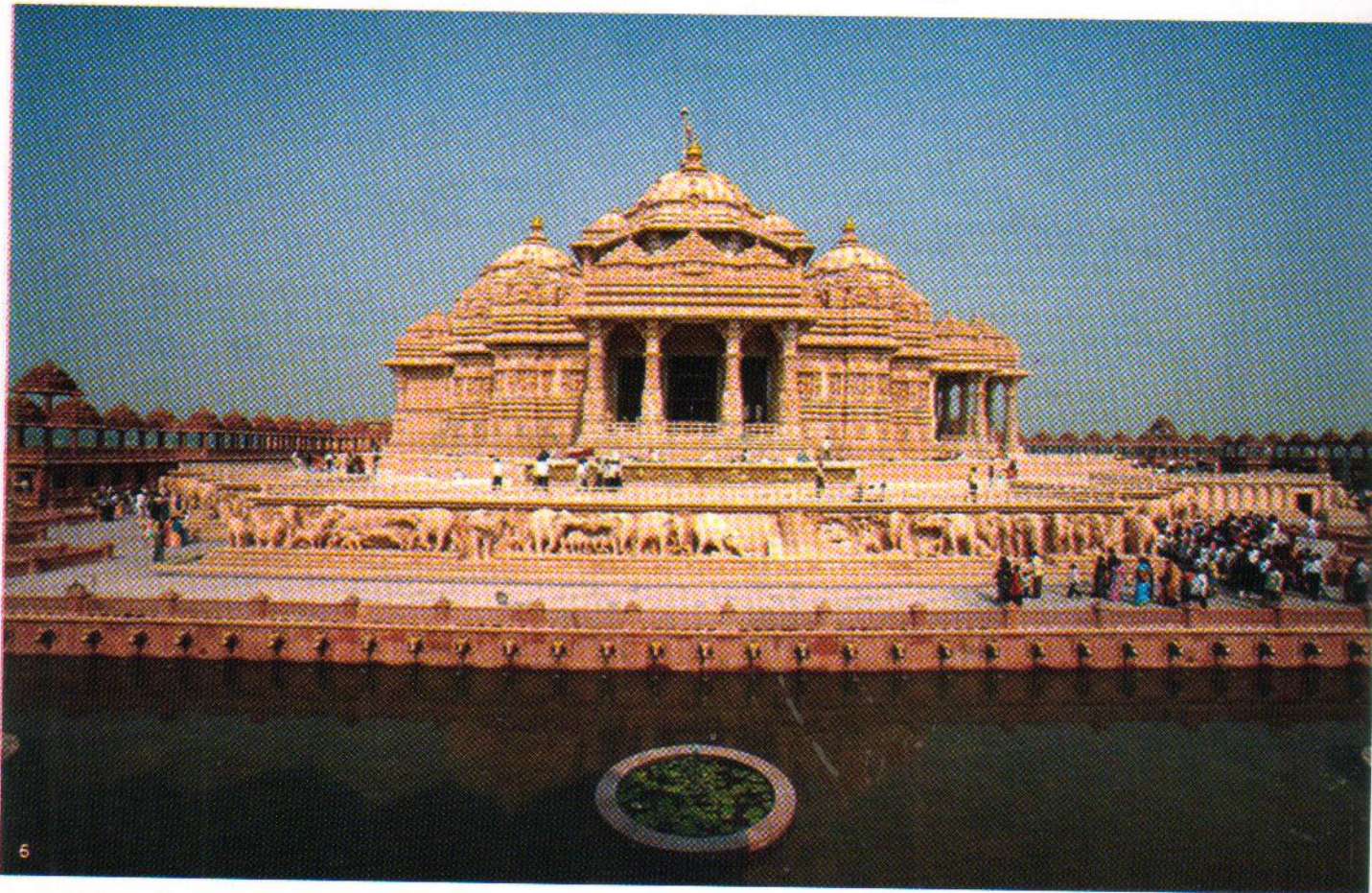
3. Waterproofing treatment of basement (underground structures) with acrylic polymer system.
4. Waterproofing treatment system for roof.
5. System of waterproofing treatment for bathroom/kitchen sunken.

Bonding Material: Tapecrete P151, an acrylic polymer-based product in a slurry form, develops an excellent bond with cement and other types of building material. The slurry composed of one part of Tapecrete intimately mixed with two parts of cement by weight is of thick paint consistency and can easily be applied to the surfaces where bonding of new cementitious material (concrete or plaster) is required. Two historical buildings that were built using this wonderful product are the Lotus Temple and Akshardam Temple.

Repair mortar for cracks and crevices: Many concrete and masonry structures have cracks, which can happen due to many reasons. Generally, these cracks show up as blemishes of construction. The crevices can be due to inadequate or improper compaction of concrete leading to large surface blemishes such as deep honeycombing. In older concrete structures with initiation of corrosion, cracks develop along the length of steel reinforcement. Tapecrete P151 along with two parts of cement and 4-6 parts of silica sand can provide unparallel repair mortar, which could be used for crack sealing and filling up of crevices and hollow spaces. In order to have effective bond of the repair mortar, it is always necessary to use Tapecrete slurry as a bonding medium prior to the application of the repair mortar.

Polymer Concrete: By the term Polymer concrete, we mean a highly workable concrete, which has Tapecrete P151 in the concrete mix. In many cases of restoration/rehabilitation of structures it is necessary to increase sizes of columns and beams by jacketing the structural component with concrete where the jacketing thickness may be in the range of 70-80 mm. The requirement of jacketing concrete is that it should have high adhesion with the existing concrete structure and adequate compressive strength.

Durable Cement Paints: In India, cement-based exterior paints are being increasingly used for exterior painting of building structures. There are many such cement paints available in the country at varying costs. Generally, a good exterior cement paint of lighter colours has white cement as the principal component of the paint. The performance of this paint depends significantly on the curing done on the painted surface. Tapecrete P151 when used as an additive removes most of these blemishes, which significantly enhances the performance and the durability of the cement paint. For increasing the



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6. Akshardham Temple in New Delhi, being located near the Yamuna river has to be protected from erosion. Tapecret P151 was used both for waterproofing and strengthening of foundation.

7. Tapecret P151 was used as a waterproofing material in National Thermal Power Corporation, Simhadri, Andhra Pradesh.

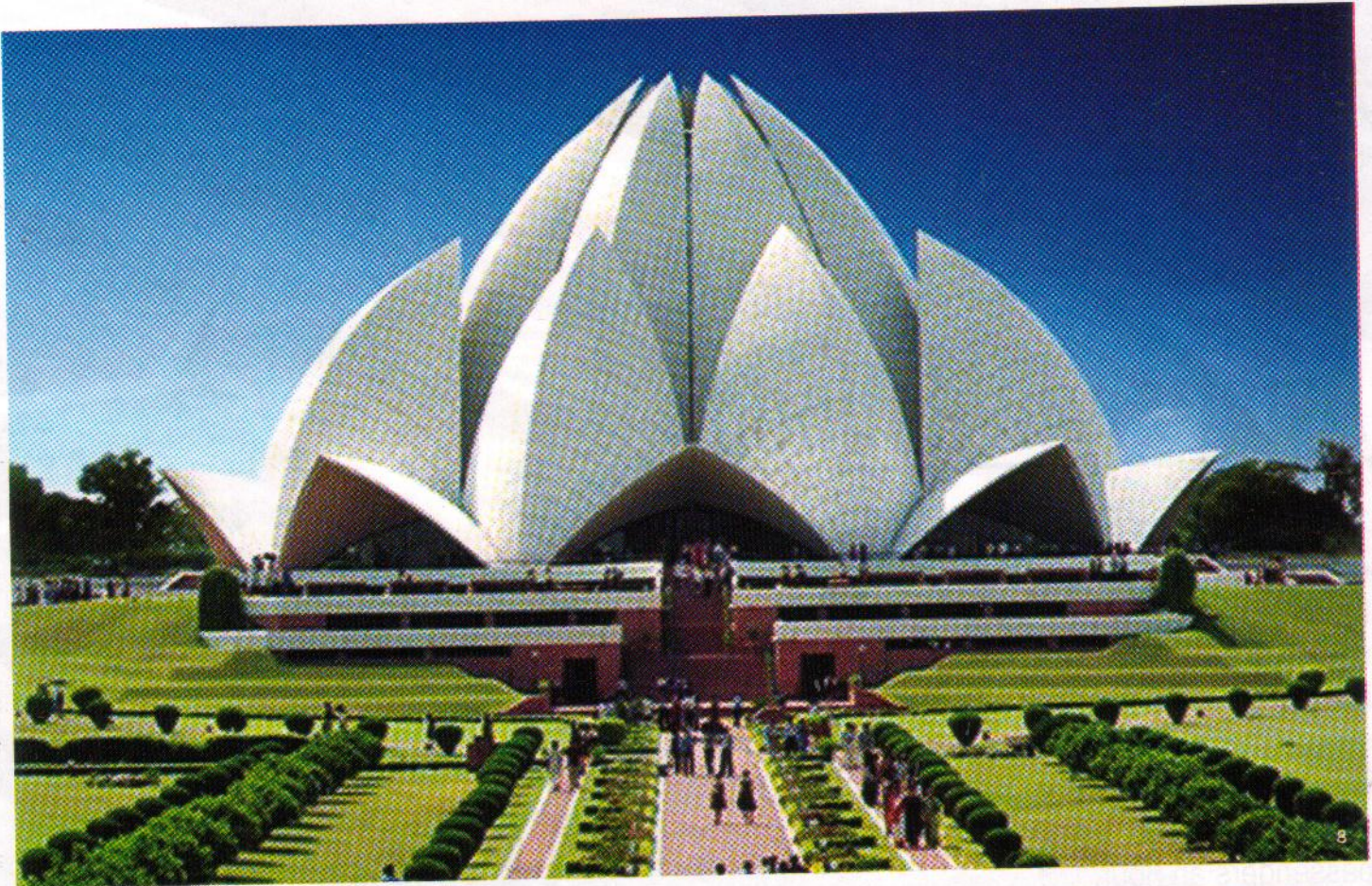
8. The Lotus Temple, New Delhi where Tapecret P151 has been used for waterproofing.

durability and performance of the cement paint for external application, a good cement paint having 60%-80% of cement in the dry powder form needs to be used with Tapecret P151.

Application in Terrazo flooring: Terrazo flooring commonly known as mosaic floors normally contains cement, marble chips and powder, colouring and water. The materials are intimately mixed and placed in position. After proper hardening of the Terrazo concrete mix, the surface is ground and polished to obtain the desired finish of the surface. In many cases, during grinding with caborrendum, marble stone chips get dislodged due to lack of adhesion. The strength of the terrazo flooring can be increased substantially by providing Tapecret P151 in the Terrazo concrete mix. On mixing Tapecret P151, the workability of the Terrazo mix also increases the formation of placement easier. A limited amount of water is required to obtain proper workable mix.

Cement punned floors: One of the age old method of producing smooth coloured floors is to use the method of colour cement punning. In this method the concrete of the flooring may be a nominal mix of 1:2:4, which is laid as the floor layer. After evaporation of the surface water of the laid floor concrete, cement intimately mixed with desired colour broadcast on the floor is sufficient quantity of form a skin 1 to 2 mm in thickness. The art of producing the smooth cement punned floor is gradually dying out due to lack of availability of crafty masons who has to tackle the problem gathering of coloured cement lumps during traveling. Moreover due to this lump formation and its correction, the progress is slow. However this problem can be reduced substantially by incorporating Tapecret P151 in the 1:2:4 concrete used as floor finish.

Grit Finish on External Walls: In many cases, the external walls have decorating grit finish. In applying the grit finish, selected single size grits are used. They are mixed with cement and water, and this combination is applied on the plaster of external wall. Sometimes due to lack of bond, some individual grit pieces get separated and small holes result due to the loss of grit. Tapecret P151 can remove this loss of grit, if 15% of Tapecret by weight is added to the grit, cement and water mixture. For Tapecret P151 to be more effective, the water content should be reduced to a considerable



amount. If water is not reduced the mixture will become soggy, and thus it will be difficult to apply it and retain it in the green stage. The curing may be started 1- 2 days after the application of the grit mixture is admixed with Tapecrete P151 so that there is some initial drying helping to form the acrylic bonding layer.

Waterproofing: Waterproofing is considered to be an important part in modern construction. This is required where there is hydrostatic head of water to be resisted or where unusually dry conditions must be maintained. The basic causes of defects in buildings are due to usage of excess water. This leads to formation of capillaries, pores, gel pores through which water can penetrate into the structure thus endangering the durability of the structure. Concrete possesses pores and capillaries and in this respect, it is fundamentally different from metal. The capillary pore structure allows water under pressure to pass slowly through the material. Concrete subjected to chemically polluted environment also gets deteriorated and damaged. It is here where polymer technology can be advantageously utilised to provide protection against the water, acid and alkalis and chemically polluted environment.

Usually water intrusion in concrete structures is through the following areas: basement, bathroom/kitchen sunken portion and roof. There are various systems tried and tested by CICO Technologies Limited over a span of 75 years for various sectors of the building. These tested systems are described as follows:

Basement: The sub-base concrete (lean concrete) should be rendered smooth with 'Cement: Sand' mortar in the ratio of 1:3 by weight of cement while sub-base concrete is still green. Then apply two coats of Tapecrete P151, acrylic polymer modified cementitious slurry coating in a ratio of 1:2. Over the Tapecrete P151 topping, one should provide a protective plaster of 12 mm thickness. This is done to protect the Tapecrete applied surface against probable mechanical damage due to dragging of reinforcement while placing it. Cast the RCC slab admixed with a super plasticiser. This should be followed by injection grouting by placing 12 mm NBMS threaded nozzles of 75 mm length placed in a grid pattern. The spacing should not exceed 1.5 m c/c

in the slab. Then inject the cement slurry admixed with CICO non-shrink polymeric waterproof grouting compound through the nozzles. Finally, the nozzles should be sealed by CICO quick setting compound.

Retaining wall: Cast the RCC walls admixed with a super plasticiser. Place and fix 12 mm NBMS threaded nozzles of 75 mm length by drilling in a grid pattern (from inside) with maximum spacing of 1.5 m c/c. Then inject grouting with cement slurry admixed with CICO non-shrink polymeric waterproofing grouting compound. This should be followed by application of two coats of Tapecrete P151 acrylic modified cementitious slurry coating over the properly rendered external face of the retaining wall. Provide 12 mm thick cement plaster on the external face of the retaining wall.

Roof: The roof should be cleaned off all loose mortar and existing treatment so as to expose the RCC roof surface. Then cut grooves at a height of 200 mm from roof slab all along the parapet walls. If there is no spring of the parapet wall moisten the surface with water. Then apply one coat of Tapecrete P151 acrylic modified cementitious slurry coating. Place the fiberglass cloth over the slurry coat and followed by Tapecrete P151 brush topping. A protective screening should be provided over this treatment.

Bathroom/Kitchen: Clean the RCC sunken slab and vertical portion of all dirt and loose material with a wire brush. Make corner fillets with polymer mortar at all joints. Seal all pipe joints with polymer mortar. Then apply Tapecrete P151 slurry coat on these pipe joints, and wrap it with fiberglass cloth. Repeat the coating again. Moisten the RCC sunken slab and apply one coat of Tapecrete P151 slurry coating. Place fiberglass cloth over the slurry coated surface. Apply a second coat of Tapecrete P151 slurry over the fiberglass laid surface. Apply one coat of brush topping over the second coat of acrylic polymer modified cementitious slurry coating. Provide a protective plaster over the treated surface as a protective layer.

The above systems of waterproofing have worked perfectly well in the thousands of buildings and even various government agencies are considering changing their specification of conventional box type system for basements to chemical injection and acrylic polymer modified cementitious coating system.