

Taking forward our efforts to create awareness on waterproofing, this issue of ReBuild is devoted to waterproofing of roof and terraces of the buildings. Waterproofing is one of the most neglected components of building construction. In case of luxury residential flats, professionals can afford to provide fancy interior decoration such as Italian marbles, French lightings, microfiber sofa furniture, modular kitchens, different coloured shadings, wall mirrors, etc. But surprisingly, the same interior-decorated building might have a traditional waterproofing system with Brickbat Coba and China mosaic as observed in most of the cases. Waterproofing has been given a step-motherly treatment without realising how critical its role is in creating a building envelope in the absence of which all the money spent on high-end aesthetics goes down the drain. Similarly, waterproofing for all other public and private buildings is neglected. Though the concept of building envelope suggests the provision of protection to both below and above grade structures, the most vulnerable areas are the roofs and terraces. A common misconception is that Brickbat Coba with the IPS finishes or China mosaic can provide adequate protection against waterproofing. But if cracks and leakages appear on the surfaces of the roof slab, then further seepage will take place. In such cases, Brickbat Coba system will lead to water-ponding instead of working as waterproofing system. This will further result in corrosion of steel reinforcement, spalling of concrete and damage to the structural members and loss of durability. The bitumen- or asphalt-based material is still widely used as waterproofing on roof terrace which tears down on attaining high temperature in Indian climate and undergoes photo-oxidation initiated by UV radiation. This also causes several health hazards.

But before conducting waterproofing of the roof slab, design considerations for waterproofing such as construction detailing, slope of the roof slab, specification of materials and accessories, the fixing method, the joining of waterproofing membrane with other structures and drainage of rain water need to be in place. Apart from these design considerations, there are many fixtures and parts on roof terraces which can affect the performance of the waterproofing system such as pipe penetrations, plumbing, roof drains, upturn, parapet, expansion joint, etc. which need to be detailed and installed properly.

The advent of the recent, new-generation chemical waterproofing coatings or preformed membranes has provided the greatest contribution to the waterproofing industry for increasing the durability of structures. These are highly elastomeric, flexible, breathable with weatherability, and have high elongation, crack-bridging abilities plus a lot of additional properties formulated to meet the specific requirements. The liquid-applied coating of either single or multi-component can be easily applied with a hand brush or a roller. They can be acrylic, polyurethane, polymer modified bitumen, polymer-modified cementitious or epoxy-based coatings. The preformed membranes may be of modified bituminous membranes (APP/SBS), PVC, TPO, HDPE, EPDMs, etc. having different thickness and application methodologies. They are either torch-applied, stuck with adhesive or cold-applied, fixed mechanically. But the selection of the material is more important, keeping in view the different environmental conditions and desired service life. There are still a lot of failures of these modern waterproofing systems reason being wrong systems of application or the behaviour and limitations of the material itself in terms of adhesion or UV stability. In case of application, surface preparation is very important for adhesion which can be improved by using a superior primer. The surface moisture needs to be checked before any coating application, since excess moisture will damage the coating system. In fact, it is a difficult task for a common man to choose a particular product or system for waterproofing from a wide range of products and systems available in the market. So, the selection should be such that the material characteristics match to the required physical, chemical and weather resistance properties of the coating system. In case of liquid-applied coating material, the active solid contents need to be checked, which affect the dry film thickness for an effective performance. While a liquid-applied coating system can be applied easily, preformed membrane application needs skilled manpower.

Since the waterproofing of roof and terraces of new structures is very important for durability of the structure and covers lot of materials and systems, we have decided to bring out all those systems in two consecutive issues for which this issue should be read in conjunction with the next issue of our ReBuild.