

EPOXY TERRAZZO FLOORING A GREEN BUILDING INITIATIVE



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Most building designs today revolve around green building concept, which everyone from Architects to common man agree, is extremely important to reduce construction-related environmental impact. This article analyzes the contribution of interior epoxy terrazzo floorings towards achieving this goal.

Indian green building council defines green buildings as

"A green building is one which uses less water, optimizes energy efficiency,

conserves natural resources, generates less waste and provides healthier spaces for occupants, as compared to a conventional building."

Wikipedia gives a broader definition of green buildings:

Green building (also known as green construction or sustainable building) refers to a structure using process that is environmentally responsible and resource-efficient throughout life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. This

practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

This definition encompasses not only the products that are used in the structure, but also the processes being used in building the structure. Thus the main criteria that emerge to qualify green buildings are:

1. Conserve natural resources
2. Reduces energy & water consumption, i.e. resource-efficient
3. Generates less waste
4. Provides healthier environment



Cement Terrazzo Floor Courtesy: Durocem, Italy

We will now analyze how an epoxy terrazzo flooring as a contributor to the concept of green buildings.

The concept of terrazzo introduced historically in the Middle East thousand years ago, has been in vogue for many centuries in many countries including India. They have been designed and redesigned, modified, innovated over the years and thus resemble the modern cement terrazzo floorings of the present. In India too, cement terrazzo floorings a.k.a mosaic were being used extensively at one time, but were totally replaced by marbles, granites and other natural as well as synthetic stones.

Cast-in-situ cement terrazzo still had some disadvantages such as higher thickness, susceptible to cracks, low stain resistance, not-so-attractive colours etc. All these shortcomings have been addressed in





Epoxy primer applied surface with the pattern set on the floor



Epoxy terrazzo mix is poured into the respective patterns



Cured epoxy terrazzo is ground and polished

Epoxy terrazzo floorings that have the following advantages:

1. Thickness ranging from low 6mm to 10mm.
2. 100% solids formula & V.O.C compliant.
3. Vibrant colours & Unmatched varieties of custom designs
4. Excellent chemical resistance and the lowest maintenance cost of any hard surface flooring.
5. Outstanding workability, colour consistency and performance.
6. Quick cure, faster turn-around enables high productivity.
7. In-situ application ensure monolithic surface and saves space, time, freight cost etc.

Terrazzo is made by laying stone chippings in epoxy resin. This mixture is spread on the floor, and when it has dried, it is machine ground and polished. The result is a perfectly smooth, seamless floor. A grid of

brass/SS/aluminium strips can be embedded to give a tiled appearance. Terrazzo floors are durable, waterproof and easy to maintain. They are a good choice for kitchens, bathrooms, hallways, lobbies and porches.

- Epoxy terrazzo has become exceedingly popular in abroad, because of its thin section, light weight, rich colors and resistance to cracking. Terrazzo has earned the reputation of being the floor

best suited for heavy traffic areas due to its low maintenance and proven durability. (Expected life span of minimum 20 years)

- Epoxy terrazzo has little or no maintenance, resists a wide variety of chemicals and detergents, and can be laid with a stunning array of colours.

Application Methodology

Epoxy terrazzo floors are typically



Grouting, Washing & Cleaning



Finished Floor



(The photographs were taken by Neocrete Technologies Pvt Ltd)

installed in a 6mm thickness, and in two different layers. The first layer is just an epoxy primer that takes around 6 hrs to cure. The epoxy system is then set into place and trowel finished. Once the floor is allowed to cure for a little, the surface is ground and then grouted with an epoxy grout to fill in all of the voids. The final step is to then polish and seal the surface.

(The photographs were taken during the execution of epoxy terrazzo floors in a commercial cum residential complex in Muscat: Job executed by Neocrete Technologies Pvt Ltd)

You can create beautiful designs and patterns with vibrant and durable colours and the finished floor is exquisite and unmatched.

Now let us look at how epoxy terrazzo contributes to green building concept:

Concept of conserving natural resources:

- All natural stones such as marble, granite etc come from quarries and obviously by cutting the mountain and other natural-stone deposits. Compared to this, terrazzo floors use only marble chips or recycled glass that are only by-products of the quarries, which otherwise would have been completely wasted. Thus it does not deplete the natural resources.
- The epoxy terrazzo matrix consists of around 70% of marble chips and 30% epoxy resin system (which is again 100% solids), does not contain any solvent and completely V.O.C compliant.

Concept of reducing energy consumption:

- Cutting of marble or granite at site results in a large amount of water as well as electrical energy, which is completely obviated in the cast-in-situ epoxy terrazzo system
- Near-joint-less epoxy terrazzo system, provides better insulation properties than any of the contemporary stone floors having multiple joints and thus provide a better energy-efficient option.

Concept of reducing wastage:

- The entire system is cast-in-situ and hence do not contribute to any wastage. Unlike marble or granite which need to be cut in order to create a design (balance portion of cut marble becomes a waste), epoxy terrazzo system is poured in place. Thus, the customer gets also the advantage of paying as per sq.m of actual floor area, unlike marble/granite
- Besides, thin-set terrazzo is only around 6 to 10mm which is at least 3 times lower than other alternatives, thus offering lightest load factor of 20 Kg per sq.m (as against a minimum of 120 Kg per sq.m for marble/granite with fixing mortar). Such a light load can lead to plenty of advantages in building design, higher headroom, higher air circulation etc.

Durability:

- Epoxy terrazzo floors can virtually last the life of the building and thus

contributes to the essence of green building concept viz. Sustainable construction. With virtually very low/no maintenance, epoxy terrazzo floors offers the lowest life-cycle cost. Latest advances in pigment technologies enable terrazzo floors to retain the vibrancy of the colours over long periods of time.

- Epoxy terrazzo floors are known to offer better anti-slip characteristics when compared to ceramic tiles or polished granites. That is why, epoxy terrazzo floors are the most preferred flooring systems in USA for airports, hospitals, museums, malls and other public places since they result in lower fatigue compared to those walking over slippery surfaces.

Conclusion:

Epoxy terrazzo floors, not only offers the most durable flooring surface with exquisite designs, colours and patterns, but also qualify as the most ideal flooring option for green buildings. □

Authors Bio

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