BDCTZ401- TERRAZZO WORKS

Terrazzo is a composite material that originated in Italy during the 15th century. It typically consists of chips of marble, quartz, granite, or glass mixed with a cement or epoxy binder. The word “terrazzo” comes from the Italian word for terrace, as the original technique was used to create durable and decorative flooring in outdoor spaces.

LEARNING OUTCOME 2: **PRODUCE PRECAST TERRAZZO TILES**

IC. 2.1: Identification of terrazzo types

➢ **Type of terrazzo**

✓ Epoxy terrazzo
✓ Cement terrazzo

1. **Epoxy terrazzo**

Uses an epoxy matrix to bind the aggregates and is one of the best thin-set Systems.

Benefits of Epoxy Terrazzo:

- It has small thickness: Because this system uses a resin composite, it has a rise of only 1 cm above the concrete slab.

- It"s also lighter than other terrazzo systems.

- It has also a vast array of color and pattern possibilities, durability, and chemical resistance.

2. Cement Terrazzo

Cement Terrazzo uses a cement matrix to bind the aggregates. Floors use a cement-based mix with the aggregate (chips) to form the terrazzo top. They are often thicker and heavier than an epoxy system.

Benefits of Cement Terrazzo

- They offer a wide color palette,
- Create beautiful earthy tones and some can be used outdoors.

IC. 2.2: Batching of terrazzo materials

Batching is process of determining or measuring quantity materials to be used in terrazzo works.

➢ **Methods of terrazzo materials batching**

✓ Weight batching
✓ Volume batching

Volume batching can be done by **using gauge** box and weight batching by using **electronic balance**.

➢ **Procedure of fabricate wooden gauge box**

Step1. Materials selection
Step2. Design and measurement
Step3. Cutting wood pieces
Step4. Assembly
Step5. Sanding
Step6. Sealing/ finishing
Step7. Quality check
Step8. Testing

IC. 2.3: Mixing of terrazzo materials

Mixing terrazzo materials refers to the process of combining various components to create terrazzo, a composite material often used for flooring and countertops.

➢ **Terrazzo mix ratio**

The white or grey cement and marble chips of different colours are mixed in proportion to 1:1.1/4 to 1:2

➢ **Methods of mixing terrazzo materials**

✓ Hand mixing
✓ Machine mixings

1. **Hand mixing** is process of combing ingredient of terrazzo by using hand tools such as spade, shover, hoe and so on.
2. **Machine mixing** is process of combining more than one ingredients of terrazzo in order to provide homogeneous substances by using mechanical equipements like mixer, mixer trucks

➢ **Procedures of mixing terrazzo materials**

Terrazzo is a combination of marble, glass or other decorative aggregates joined with either a cementitious or epoxy binder.

Using the specified materials, an installer will mix the aggregates, epoxy resin, and epoxy hardener together to form a new terrazzo mix. Mixing of the chips, cement and colour oxide must be batched precisely.

The different sized aggregates must also be batched equally so the material is consistent throughout the finished product so that there are no patches of smaller aggregate in a particular place in the finished floor, nor any discrepancy in colour. Mixing of material is done by a cement mixer on site.

The mixing should follow the terrazzo mix ratio and mix the materials thoroughly with water; the mix is then poured in the specified panels.

IC. 2.4. Procedures of pouring terrazzo materials paste into the mould

1. Mix the materials
2. Transfer the materials to the mould
3. Form the shape of terrazzo tile
4. Curing terrazzo tile
5. Grinding and polishing

IC. 2.5. Method of the decorative pattern on the top of the Terrazzo

✓ Brass angle placement
✓ Webbing placement

i. Brass angle placement
A brass angle is placed on the surface after the concrete has been placed and finished. The terrazzo is placed firstly into the brass strips (usually coloured

differently from the rest of the floor). The same process applies to this patterning as to the rest of the floor.

ii. Webbing method the webbing method is when one adheres other types of aggregates on webbing designed for terrazzo and places the pattern into the wet terrazzo. This pattern is placed wherever designed on the floor, then rolled, beaten and finished along with the rest of the terrazzo floor.

IC. 2.6: Grinding the top of terrazzo tile

Is the process of mechanically smoothing and levelling the surface of thw terrazzo materials.

➢ **Methods of grinding**

✓ Wet method
✓ Dry method

1. Wet method
In the wet method, water is required to cool the diamond grits and cleaning the dust that is formed while grinding process.
In this type of grinding, water works as lubricant, simmers down the friction and elevates the life of polishing equipment, particularly the disks, which can melt due to high temperature.

2. Dry method
In dry grinding the tool is featured with a separate provision to retain the dust within a cover leaving no mess behind.
You can use both types of grinding to get the finest and desired shine in the concrete. Initially you can try dry grinding and finally the wet process to clean and finish the floor completely.

➢ **Functions /importance of grinding**

- Level the surface
- Bring out a shine in a surface
- Bring out the high gloss terrazzo
- Level of smoothness

➢ **Process of grinding**

Once the terrazzo is cured over 24 hours, installers can now grind the terrazzo using grinding machine utilizing diamond-plated grinding pads rotating at fast speeds.
Once the terrazzo floor has cured, an installer will use a grinding machine to smooth out the floor.

A **grinding machine,** often shortened to **grinder,** is any of various power tools or machine tools used for grinding, which is a type of machining using an abrasive wheel as the cutting and smoothing tool.

Each grain of abrasive on the wheel's surface cuts a small chip from the work piece via shear deformation.

The „grinding tool" is made up of abrasive grains and pores and exhibits an irregular distribution of cutting edges.

IC. 2.7. Rolling and beating the terrazzo

Once the terrazzo has been placed and seeded, the floor is beaten with a wooden or magnesium float to make sure the aggregates are all embedded and surrounded by the matrix – the cement binder.

Importance of Rolling and Beating

- Rolling the pavement allows the cement (the binder) to fully coat all the aggregates so that they all bind together cohesively to a hardened state.
- This is important so that the aggregates do not dislodge from the floor when the process of Polishing commences.

Beating marble chips

compacting exposed marble chips with compactor roller

Figure 3: Beating and rolling marble chips