

FRESH CONCRETE

Introduction

- ❖ Fresh concrete is that stage of concrete in which concrete can be moulded and it is in plastic state. This is also called "Green Concrete".
- ❖ Another term used to describe the state of fresh concrete is consistency, which is the ease with which concrete can flow.

Batching and mixing

- ❖ Batching is measuring and introducing the concrete ingredients into the mixer.
- ❖ Batching by weight is more accurate than batching by volume , since weight batching avoids the problem created by bulking of damp sand.
- ❖ Batching by volume is commonly used in small jobs with continuous mixers and hand mixing

Batching and mixing cont...

- A gauge box is used for batching of fine and coarse aggregate by volume
- The box should not be too shallow. It should be completely filled with aggregates.
- The top of the materials should be struck off level with a straight edge.
- Generally capacity of a gauge box is equal to the volume of one bag of cement (i.e. 35 litres).

Batching and mixing cont...

- For hand mixing, the following operation are performed
 - Measured quantity of sand is spread evenly on platform
 - Spread the measured quantity of cement on this sand and mix it till the colour of mixer is uniform

Placing, Compacting and Curing of Fresh Concrete

When is compaction complete?

- Compaction is complete when bubbles stop rising to the surface
- When using a poker, you can also tell by the fact that the sound of the poker stops changing.
- And with non-air-entrained concrete, a glistening film of mortar on the surface is another good sign
- In general, vibrate a bit longer than you think necessary – except for slabs and high workability mixes, where excessive surface mortar may result

Placing, Compacting and Curing of Fresh Concrete

Applying a sprayed membrane

- Sprayed membranes are designed to form a superficial seal on the concrete, preventing water evaporating.
- Be careful when selecting a suitable product, as some prevent subsequent adhesion of screeds or applied finishes. In general, membranes should be applied to damp, not wet, surfaces as they can be absorbed and cause discoloration. If the surface has dried, dampen it before spraying. For even coverage, apply in two directions at right-angles, with the spray head about 300 mm from the surface. With slabs, a portable walkway may be needed to avoid damage to the concrete surface.

Troweling

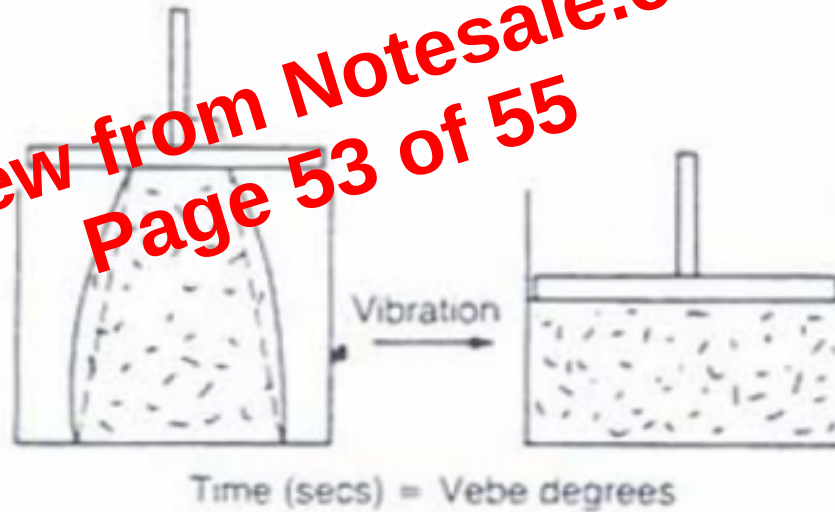
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- Creates smooth, hard, dense surface
- Exterior concrete should not be troweled because:
 - it can lead to a loss of entrained air caused by overworking the surface
 - troweled surfaces can be slippery when wet.

3. Vebe test

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1. A slump test is performed in a container
2. A clear perspex disc, free to move vertically, is lowered onto the concrete surface
3. Vibration at a standard rate is applied

Vebe time is defined as the time taken to complete covering of the underside of the disc with concrete container

Vebe test: Used for low workable concretes (fiber reinforced concrete).

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THE END