



TIPS ON COMPACTION OF CONCRETE

UltraTech
C E M E N T

The Engineer's Choice

GET DENSE, STRONG, DURABLE & WATER TIGHT CONCRETE BY PROPER COMPACTION

Compact the concrete while in its plastic state, as soon as it is placed in the forms.
Fully compacted concrete gives better strength and becomes more durable

WHAT DOES COMPACTION DO?

- ✓ Expels the pockets of entrapped air and reduces empty spaces
- ✓ Produces dense mass of concrete without voids, making it water tight
- ✓ Ensures that concrete fills all around the reinforcement
- ✓ Closer packing of the aggregate particles



Formation of Honey Comb
Due to Improper Compaction.

EFFECTS OF IMPROPER COMPACTION

- ✓ Formation of Honey Combed Structures – leads to leakage problems
- ✓ Formation of air voids - makes concrete porous and hence of low strength
- ✓ Every 1% of voids in concrete reduces the compressive strength by 5%

METHODS OF COMPACTION

FOR COMPACTING THE CONCRETE, USE:

- ✓ Needle vibrators of 20mm diameter for footings, beams and columns
- ✓ Surface/Screed vibrators for slabs and flat surfaces
- ✓ Manual methods like Rodding (for footings, beams and columns), Tamping and Ramming (for slabs and flat surfaces); if vibrators are not available



Compaction - Using Needle Vibrator of dia 20mm



Compaction - Using Screed Vibrator



Rodding - Using 2m Long, Iron Rods/Wooden Ballies

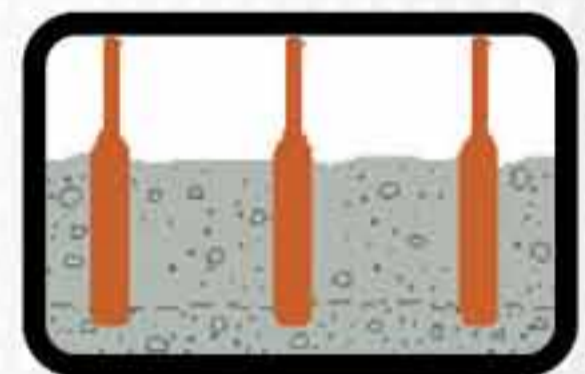


Tamping - Using Wooden Cross Beams of Size 10x10 cm

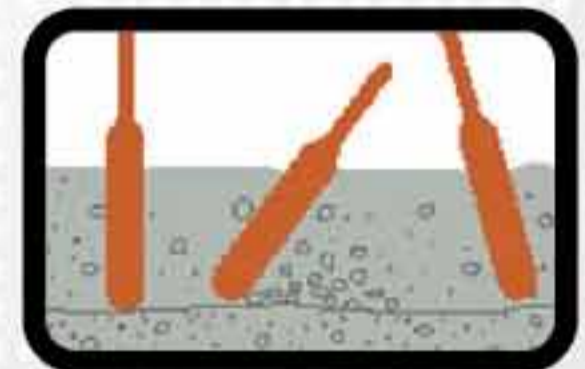
Compacting using vibrators is preferable to manual methods of compaction.

POINTS TO REMEMBER WHILE USING NEEDLE VIBRATORS

- ✓ Immerse the needle vertically to full depth and maintain the vertical position through out the operation
- ✓ Keep the tube of the vibrator straight; do not bend at sharp angles
- ✓ Vibrate the concrete for about 15 seconds and withdraw the needle when the air bubbles cease to appear around the needle
- ✓ In case of depositing concrete in more than one layer, the needle should go into the previously laid layer of concrete
- ✓ Vibrator should be withdrawn slowly at the rate of 7.5 cm to 8.0 cm per second
- ✓ Over vibration leads to segregation
- ✓ Spacing of the immersion points depends on the size of the needle
- ✓ The spacing shall be 15cm and 30cm for 20mm and 40mm dia needles respectively
- ✓ Do not push the concrete laterally using vibrator
- ✓ Do not touch the inside of formwork or reinforcement with the needle of the vibrator



Right way



Wrong way



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UltraTech Cement Limited

*Conditions apply. Services available in select cities/locations only

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