Good Construction Practices – Part IV
Grinning

- Grinning is the term given to the appearance of a plastered wall, when the positions of the mortar joints are clearly visible through the plaster.

- It is caused by the difference in suction between the masonry units and the mortar. Raking out mortar joints also causes grinning and the practice should thus be limited to soft clay brickwork.

- While grinning may be unsightly, it is unlikely to lead to further cracking.

- The choice is to live with it, or to remove and replace the plaster.

- Application of an undercoat or a spatter dash coat before plastering will help to avoid grinning.
Grinning
Grinning of Plaster Surface

ACC Limited

Good construction practices

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Lack of hardness in plaster

Causes

- Insufficient cement.
- The use of sand containing excessive quantities of dust (more than 15% by mass passing the 0.075 mm sieve).
- The use of a mix with poor water retention properties
- The addition of extra water later with time gap after first mixing (a practice known as retempering)
- Rapid drying due to plastering in full sun or wind.
Lamination

- De-bonding of plaster is often noticed as a hollow sound when the surface is tapped.
- Plaster is inclined to curl and de bond from the wall because the outside skin of the plaster that is exposed to the air will shrink at a different rate from the plaster in contact with the wall.
- This is especially true of excessively thick plaster layers.
- Because de-bonding is generally the result of inadequate preparation of the substrate, it is important to make sure that the bond between plaster and wall is as good as possible.
Structural cracks

- Some cracks visible in the plaster may result from cracking of the wall.
- This can be caused by differential movement of the foundations, moisture expansion or drying shrinkage of masonry units, or thermal movement of the roof.
- This type of crack often forms in straight vertical or horizontal lines, or in stepped diagonal lines, and may be quite unsightly.
- The crack width will often vary with the seasons.
- Because these cracks originate in the wall and not in the plaster, repairing the plaster is ineffective.
Structural crack
The problem of blistering is reported in case of plastering with two coats, during summer. The second layer of plaster should be around 5 to 6mm. However, if the second coat is of only 2 to 3mm thickness, then the outer layer swells and appears as blisters. Due to extreme heat, the trapped water evaporates before the second layer (outer layer) hardens and this water vapour creates pressure on the thin layer (approx 2 to 3mm) of 2nd coat & due to poor bonding with 1st coat, a part of 2nd layer swells in patches. These patches start giving hollow sound & comes off, when struck. This problem is noticed during summer & on those walls, which are exposed to direct sun or heavy wind.
Blistering

- The problem is found to be due to poor bonding with the first layer, whose surface was not adequately roughened by the masons.

- It is a wrong perception that the cement acts like an adhesive. In fact the cement is a binder and that there is no chemical bonding between the two layers of plaster.

- The second coat of plaster sticks with the first coat due to the mechanical bond provided by the scratched/roughened surface of the first coat, with wire brush.
Blistering of Concrete Surface
Blistering
How to avoid blistering

- The first coat of plaster should be roughened with broom or by wire brush for good mechanical bond.
- The grooves should be 2 to 3mm in depth and at close spacing of say 5 to 10mm.
- Second layer of plaster should be minimum of 5 to 6mm.
- Avoid plastering on the surface, which is exposed to direct sun or likely to face direct heat in next two hours.
- In extreme summer, plastering can be done in evening hours on surfaces, which are exposed to direct sun.
- Plastered surface can also be covered by Plastic sheets immediately to protect it from direct sun and wind.
Spalling
Good construction practices
Water Stagnation

- Avoid Stagnation of Water
  - Over Roof Slab
  - Over Chajja of Window
  - Over Canopy
  - Drip mould on the projected slabs

Have good drainage around building to prevent rising dampness
Absence of Drip Mould & Faulty Slope at Bottom
R/F Bar should be embedded inside the Concrete
R/F Bar should be embedded inside the Concrete
Holes should be Properly Filled with Mortar
Growth of Plants on Slab surface due to improper maintenance