

ANNEXURE - XI

CONCRETE FINISHES

Finishes and Finishing

01. Concrete surfaces shall be tested where necessary to determine whether surface irregularities are within the specified limits. Surface irregularities are classified as 'abrupt' or 'gradual'. Offsets caused by displaced or misplaced from sheathing or lining or form sections, or by loose knots in forms or otherwise defective timber forms shall be considered as abrupt irregularities, and shall be tested by direct measurement. All other irregularities shall be considered as gradual irregularities and tested by use of a template, consisting of a straight edge or the equivalent there of for curved surface and 300 cm (or 10ft) for testing of unformed surface.

02. **Formed Surface:-**

The finish for formed concrete surfaces shall be of the following four classes:

- (a) **Finish F1 - Finish F1** shall apply to formed surfaces upon which or against which backfill or concrete is to be placed. The surfaces required no treatment after removal of forms except removal and repair of defective concrete and the specified curing. Correction of surface irregularities shall be done only for depressions which when measured as described under 01 exceed 2.5 cm (or 1 in.)
- (b) **Finish F2 - Finish F2** shall apply to all permanently exposed formed surfaces for which finishes F3 and F4 are not specified surface for which finish F2 is specified will need no filling of pits or sack rubbing and no grinding other than that needed for repair of surface imperfections. Surface irregularities, measured as described under 01 shall not exceed 0.5 cm (or ¼ in.) for abrupt irregularities and 1 cm (or ½ in.) for gradual irregularities.
- (c) **Finish F3 -** Immediately after removal of forms from surfaces designated for F3 finishes, all required patching, clean up and correction of major imperfections shall be completed and the surfaces shall be given a sack-rubbed mortar finish in the following manner:

The surface shall be thoroughly wetted and permitted to approach surface dryness before starting the sack rubbing. The surface shall be finished in areas sufficiently small to prevent complete drying of any part before the sack rubbing is completed for that area. The mortar used for the sack rubbing shall consist of one part of the cement to two parts by volume of sand passing through IS sieve 100, and enough water so that

the consistency of the mortar is that of thick cream. The mortar shall be rubbed thoroughly over the area with clean burlap or a sponge rubbed float, completely filling all pits and irregularities. While the mix in the ho;e is still plastic, a mixture of the dry ingredients of the mortar in the same proportions shall be rubbed over the area. After the mortar has stiffened adequately to prevent smearing, but before it has hardened, the excess mortar shall be removed by rubbing with clean burlap. After the final sack rubbing, a light fog spraying shall be applied to the coated surface, the moisture thus applied being just sufficient to damp the surface without allowing water to run down the face of the walls.

All sack - rubbed areas shall be kept continuously damp for at least 72 hours after the final sack rubbing, or until completion of the curing period for the concrete. When measured as described under 01, abrupt irregularities shall not exceed 0.5 cm (or ¼ in.) for irregularities parallel to the direction of flow and 0.25 cm (or ⅛ in.) for irregularities in other directions. Gradual irregularities shall not exceed 0.5 cm (or ¼ in.). Irregularities exceeding these limits shall be reduced by grinding on a bevel of 1 to 20 ratio to length.

- (d) **Finish F4** - Finish F4 shall apply to formed surfaces where absorptive form lining is used. Surface provided by absorptive form lining shall not be rubbed or treated in any way except for cleaning by wire brushing and grinding of thin fins or small projection.

03. Unformed surfaces -

The classes of finish for unformed concrete surface are designated by the symbols U1,U2 and U3. Interior surfaces shall be sloped for drainage where shown on the drawings. Surfaces which would be exposed to the weather and which would normally be level, shall be sloped for drainage. Unless the use of other slopes or level surfaces is specified. Narrow surfaces, such as tops of walls and curbs, shall be sloped approximately 3 cm per metre of width, border surfaces, such as walks, roadways, platforms, and decks shall be sloped approximately 1.5 cm per metre. The classes of finish to be applied shall be as follows

- (a) **Finish U1 (screened finish)** - It shall apply to unformed surfaces that are to be covered by backfill or by concrete and surfaces of sub floors which will be covered by concrete, floor topping. Finish U1 is also used as the first stage for Finishes U2 and U3. Finishing operations shall consist of sufficient levelling and screening to produce even uniform surfaces. Surface irregularities, measured as described under 01 shall not exceed 1 cm.

- (b) **Finish U2 (floated finish)** - It shall apply to uniformed surfaces not permanently concealed by backfill or concrete or unformed surfaces for which Finishes U1 and U3 are not specified, and shall include floors of sumps, tops of walls, parking areas, parapet walls, surfaces of gutters, sidewall and outside entrance slabs. Finish F2 is also used as the second stage for Finish U3. Floating may be performed by use of hand or power-driven equipment. Floating shall be started as soon as the screened surface has stiffened sufficiently, and shall be the minimum necessary to produce a surface that is free from screed marks and is uniform in texture. If finish U3 is to **be applied, floating shall** be continued until a small amount of mortar without excess water is brought to the surface, so as to permit effective trowelling. Surface irregularities, measured as described under 01 shall not exceed 0.5 cm. Joints and edges of gutters, sidewalks, entrance slabs, and other joints and edges shall be tooled where necessary.
- (c) **Finish U3 (trowelled finish)** - It shall apply to uniform surfaces, such as slabs to be covered with built-up roofing or membrane water-proofing and stair treads. When the floated surface has hardened sufficiently to prevent excess of fine material from being drawn to the surface, steel trowelling shall be started. Steel trowelling shall be performed with firm pressure, so as to flatten the sandy texture of the floated surface and produce a dense uniform surface, free from blemishes and trowel marks, light steel trowelling will be permissible on surfaces of slabs to be covered with built-up roofing or membrane waterproofing, in which light trowel marks are not considered objectionable. Surface irregularities measured as described under 01 shall not exceed 0.5 cm.