4.0 PREPARATORY WORKS

4.1. SURFACE PREPARATION

The surface of substrate to be laid should be free from dirt, dust, oil, grease or other contaminants. All concrete substrates must also be sound and hard with adequate strength to ensure good bond.

Any loose materials must be removed using high pressure cleaner or water jet. The photos (Figure 4.1.a to 4.1.f) demonstrate some surface preparatory works prior to laying of screed or plaster.

Removing concrete protrusion
Figure 4.1.a

Cleaning surface with water
Figure 4.1.b

Cleaning surface with broom
Figure 4.1.c

Checking level of surface
Figure 4.1.d

Checking substrate hollowness
Figure 4.1.e

Checking moisture content
Figure 4.1.f

4.2. LAYING OF FLOOR SCREED/RENDER

4.2.1. FLOOR SCREED

For floor, where screeding is required, pre-packed screed can be considered. It has consistent quality of the mortar mix.

Screed should be allowed to air cure based on the period recommended by the manufacturers before tiling begin. After curing, moisture content should be checked. Permissible moisture content depends on project requirement. Any hollowness or cracks need to be rectified to ensure soundness of the screed. Floor evenness also needs to be checked. It should not exceed a tolerance of more than 3mm gap over 2m prior to tiling work. This tolerance is not accumulative over the entire span of the floor. Self-levelling screed may be required to correct the floor evenness. For a screed thicker than 50mm, a layer of non-oxidising metal-mesh should be considered to be placed in the middle as reinforcement and to reduce occurrence of screed surface cracks. The screeding base shall be air cured for at least 7 days before laying of floor tiles.

The photos below (Figure 4.2.1.a to 4.2.1.e) show the process of the laying of the floor screed.

Provide level pegs to ensure uniform and level surface
Figure 4.2.1.a

Provide level pegs before screeding
Figure 4.2.1.b

Apply a layer of slurry bond coat using brush or roller and lay screed mortar immediately
Figure 4.2.1.c

Levelling the screed to a flat surface with timber/aluminum trowel
Figure 4.2.1.d

Finishing up the screeding works
Figure 4.2.1.e

4.2.2. MOISTURE CONTENT (MC) OF SUBSTRATE

Prior to the installation of ceramic tiles, it is important to ensure that the substrate is thoroughly cured. Substrate could be the floor screed or concrete slab (screedless flooring system). Thorough curing is crucial towards achieving equilibrium relative humidity of the substrate. This minimises movement of moisture between the substrate on the ceramic tiles and joints. If the ceramic tiling is installed onto a substrate that is not completely cured, the moisture movement may cause debonding of cementitious adhesive or staining of joints. There are various methods, be it non-destructive or destructive, to test the moisture in the substrate.

One of the methods is to check the Relative Humidity (RH) of concrete. This is done by drilling a small hole in the substrate based on tester's specification 24hrs before the testing and sealing it up. A reading within the hole 24hrs later will indicate the RH of the concrete. The optimum is to have the RH within the range of 40% to 70%.

Checking of RH by drilling
Figure 4.2.2.a

Checking surface moisture content
Figure 4.2.2.b

The common method used in Singapore is measuring the moisture content of the substrate. This is done by placing the measuring device on the substrate surface. The surface moisture content should be less than 6% or as specified by the tile manufacturer.

4.2.3. WALL RENDER

Cement-sand based render is commonly used. Similar to floor screed, render should be allowed to air cure based on the period recommended by the manufacturers before tiling begins. Checks as mentioned for the floor, similarly, need to be carried out for the wall as well.

Wall rendering, strips of non-oxidising ribbed metal latching should be added if render thickness exceed 20mm.

Allow the rendering to air cure for at least 7 days before placing tiles.

The M&E contractor should identify the concealed services in the wall by marking their locations on the surface of the render. This serves as a pre-cautionary measure to prevent any damages to the concealed services arising from subsequent installation works.

4.3. SETTING OUT TILING

It is important to set out tiles lines (Figure 4.3.a and Figure 4.3.b) according to the approved tiling setting out drawings. Care should be taken to minimise the number of tiles that need to be cut for satisfactory visual effects. Where tile cutting is necessary, the position of cut tiles should be planned and marked before laying tiles. Cut tiles should be placed at less visible corners.

Contractors need to work out in advance the methods to deal with interruptions to surfaces (such as openings).

It is a good practice to allocate switches and power points at the edge of tiles to minimise cutting of tiles.

Wall tile setting out
Figure 4.3.a

Floor tile setting out
Figure 4.3.b