7. PROTECTION AND COMPLETION OF WORKS

7.1 PROTECTION

The Contractor must ensure that after completion, the area is cordoned off until a protective covering or screed has been laid. He must be notified of any damage and given time to carry out necessary repairs before protective covering is applied. The Contractor should ensure that work is carried out under controlled conditions and membrane protection is provided during and after application. Certain products require a layer of slurry coat as a protective layer against subsequent damage to horizontal membrane surfaces. All subsequent works should be carried out carefully to avoid any damage to the membrane.

All pipe/ floor openings in wet areas should be fitted with temporary caps so that debris or rubble cannot enter and cause chokage.

Figure 7.1: Entrance barricaded

Figure 7.3: Slurry coat

Figure 7.4: Opening protected from debris

7.2 SCREEDING AND FINAL FINISHES

A layer of protective screed should be laid over the membrane immediately after the completion of the watertightness test (refer to section 7.3) to prevent any damage to the waterproofed area. Construct level pegs as points of inspection to ensure correct falls to floor outlets. The waterproofing screed as defined in Chapter 2 is then prepared and laid.

As stated in CP 82, waterproofing screed should be mixed according to the specified mix proportion by a mechanical mixer. The adding of the mix constituents to the mechanical mixer according to the right procedure is important to ensure a workable and consistent mix for ease of travaelling to the required fall. Cement mortar mix of 1 part cement to 3 or 4 parts washed sand by volume with a water/ cement ratio not exceeding 0.40 is recommended by CP 82.
Supervision would be required to ensure compliance of correct proportions of the mix:

(a) correct dosage of waterproofing additive
(b) correct water to cement ratio
(c) correct cement to sand ratio
(d) uniformity of mixing

Alternatively, pre-packed waterproofing screed can be used, which will require less supervision.

Care should be taken not to damage the membrane during screeding. Proper supervision should be provided. Remedial works done after membrane application should be avoided. If this is unavoidable, the Waterproofing Specialist should be consulted on the proper action for the remedial works.

Complete with tile finishes in accordance to Architect’s detail (refer to Good Industry Practices - Ceramic Tiling, BCA). Ensure that the finished floor level of the wet area is lower than the concrete slabs of adjacent areas to prevent migration of water into dry areas.

### 7.3 WATERTIGHTNESS TEST

Watertightness test should be conducted at the following stages during the application of waterproofing membrane:

1. During surface preparation, before laying the waterproofing membrane (structure watertightness test).

2. After application of waterproofing membrane, before laying of screed or final floor finishes.

3. After laying of screed or final floor finishes, depending on whether the final floor finishes are susceptible to staining, such as in the case of natural stones.

The watertightness test should be carried out as follows:

1. Temporarily seal all outlets.

2. Flood the whole area to a minimum of 25mm of water (as measured from the highest point of the area). Ensure the water level is not above the finished level of the membrane upturn at walls.

3. Flooding time should be 24 hours, or as specified. Inspect bottom of the concrete slab for signs of leakage.
If leakage is observed during the structure watertightness test, repair all honey-combed and defective concrete areas by removing any unsound concrete and patch with suitable mortar such as shrinkage compensated grout, polyurethane grout, polymer modified mortar, epoxy mortar, etc. Special attention should be paid to all corners and wall-floor joints. Conduct watertightness test on the concrete slab again after the repair to ensure that the leakage has been rectified before proceeding with the subsequent waterproofing works.

If leakage is found after application of membrane, the preferred method is to re-apply membrane to the entire wet area. Otherwise, if leakage is localised, re-apply the waterproofing membrane at the localised area. Conduct watertightness test until water leakage is arrested.

If the final floor finishes (e.g., natural stone) are susceptible to staining, one last watertightness test can be conducted after screeding has completed instead of after the final floor finishes. This will allow any dampness to escape without causing staining to the final floor finishes. There should also be a visual check to ensure that there is no stagnation of water.

Small areas on the walls should also be randomly selected and subjected to shower spray for a duration of 15 minutes. Check for signs of dampness on walls from the other side of the wall. Alternatively, use a moisture meter to check the moisture content of the walls before and after water spray for any significant increase in moisture content which may be an indication of ineffective waterproofing.