4. GOOD PRACTICES IN INSTALLATION, ARCHITECTURAL FINISHES, M&E SERVICES AND RENOVATION

While it is possible to achieve high quality PBU by following closely approved work procedures, adopting good practices in installation, M & E services and renovation of PBU can often lead to greater productivity and better user experience. This may require the employment of professionals and more skilled workers to achieve higher quality standards. However, as every project’s objective may be different, it may be necessary to be selective or customize the suggested good practices mentioned herein to suit each project.

4.1 Installation

The precast concrete PBU is the sturdiest and heaviest PBU available. Therefore the design of the receiving platform and installation is critical to the success of the PBU installation. As the precast concrete PBU typically weighs up to 9 tons, the slot-in (non- critical path) method may not be suitable and hence, the top down (critical path) installation is often used. For top down approach, coordination is critical and protection of finishes can be challenging.

It is necessary to ensure that the structure of the receiving platform is adequately designed. The selection of single slab or double slab types for receiving platforms is often determined by the floor to floor height and other considerations e.g. ease of tracing seepage or leakage, etc.
4.1.1 Double Slab Approach

Pros
• Base slab facilitates ease of installation of PBU

Concerns
• A challenge to trace leak
• Reduces headroom

Edges at gap between slabs should be sealed to prevent water ingress during construction
4.1.2 Single Slab Approach

Pros

- Easier to trace water leakage
- Able to install complete finishes with fittings

Concern

- Need more precise co-ordination during installation

Pros

- Easier to trace water leakage

Concern

- Need more precise co-ordination during installation
4.2 Architectural Finishes

It is recommended to cast the floor slab of the precast concrete PBU with a gradient to reduce some work processes such as screeding works.

Floor slab gradient

- Gradient to fall in both directions
- For slab without gradient, need to control thickness and quality of the screed

Waterproofing works

- Water proofing works to commence after structural ponding test

Tiling works

- Tiling work is done over render and screed
Other works

- Other works such as cabinets can follow

Long Bath

- Use metal frame for long bath installation instead of bricks or blocks

Manufacturer’s Label

- Incorporate manufacturer’s label in the completed PBU
- Visible to homeowners
- Reference for repair, replacement and renovation work.
4.3 M & E Services

The choice of M & E services must take into consideration conduct of tests and future maintenance.

Location of Stack Pipes

- Location of stack pipes and orientation of shaft within unit is important for future maintenance, repair and renovation.
- Locating pipes at or facing external wall will pose greater challenge for replacement and repair.

Concealed Services

- Cast in concealed piping.
- Block-out within PBU make replacement easier.
**Conventional Floor Trap**

- Maintenance and repair similar to conventional bathroom
- It is important to have sufficient floor height

**Shallow Floor Trap**

- Select brands approved by PUB
- To comply to BSEN 1253 standard
- Test certificates required
  - Anti-blockage test
  - Water tightness test
  - Flow rate test
  - Odour tightness test
  - Resistance of Water Seal to Pressure
  - Depth of Water Seal
  - Access for Cleaning
  - Side inlet
Routing of Pipes Above PBU

- route pipes near the edge of PBU (reachable from outside) or accessible via ceiling access panel

Air-conditioning drain pipe (Concealed)

Pros

- Connect to floor trap and cast in, do not require false ceiling

Concern

- Unable to achieve sufficient gradient within slab thickness

Air-conditioning drain pipe (through slab)

Pros

- Can achieve sufficient gradient

Concern

- Need false ceiling and sufficient headroom
4.4 Renovation

Although precast concrete PBU is similar to conventional bathroom, it is essential to exercise care during renovation to prevent damage to the PBU. A trained renovator should be engaged who should use appropriate tools and follow the instructions in the homeowner user manual.

Renovation

- Renovator should be trained
- It is important to use appropriate tools for renovation works
- Exercise care when renovating and replacing tiles by referring to the homeowner user manual
4.4.1 Homeowner User Manual

Besides engaging renovation contractors who are trained, homeowners should have a ready reference of the PBU system used in the unit. It is good practice for developers/builders to provide a homeowner user manual of the PBU upon completion of the project. The homeowner and subsequent buyers of the unit should obtain a copy of the homeowner user manual after taking over the unit and follow the recommendations on PBU renovation provided in the manual.

The information in the homeowner user manual could include (but not limited to) the following:

(a) General information on PBU
   (i) Introduction to the PBU installed
   (ii) Safety notices
   (iii) Instructions for use

(b) Structure of the PBU
   (i) Floor
   (ii) Wall
   (iii) Ceiling
   (iv) Water piping
   (v) Sanitary discharge pipe/vertical soil stack
   (vi) Electrical conduits

(c) Layout of the PBU
   (i) General layout
   (ii) Waterproofing layout
   (iii) Locations of concealed services
   (iv) Location of access panel
   (v) Location of the manufacturer’s label

(d) Cleaning and maintenance advice
   (i) Internal fittings, tiles and accessories
   (ii) Floor trap
   (iii) Ceiling access panels

(e) Alteration, repair and replacement works
   (i) Replacement of accessories/installation of additional fittings
   (ii) Availability and supply of spare parts
   (iii) Instructions for drilling and fixing
   (iv) Instructions for tile replacement
   (v) Instructions for grab bars installation