5. CRITICAL INSPECTIONS AND QUALITY CHECKS

5.1 Critical Functionality Inspection and Tests

Every construction process requires inspection or testing to ensure its functionality. The functionality of PBU is critical and needs to be inspected or tested from fabrication to installation either at the precast yard or construction site.

5.1.1 M&E Provision

![M&E cast-in-items](image1.png) ![M&E block-outs](image2.png)

It is important to ensure all the M&E cast-in-items/block-outs are provided in the correct position and properly secured during fabrication. M&E services functionality depends on the proper securing of these block-outs during concreting. All works should follow the M&E, sanitary and plumbing approved method statements and construction drawings.
5.1.2 Waterproofing Works

Water tightness is one of the primary functionality of PBU. To achieve quality waterproofing works, an effective waterproofing method should be developed. The BCA's Good Industry Practices “Waterproofing for Internal Wet Areas” under CONQUAS Enhancement Series is a good reference for development of the approved method statement. The waterproofing in-process installation, inspection and testing should then be conducted in accordance to the approved method statement.

5.1.3 Shallow Floor Trap Tests

The floor trap is crucial towards the functionality of a bathroom. Manufacturers can choose among the conventional P, S or shallow floor trap. When using shallow floor trap, it is essential to ensure that it has been tested and meet the following requirements:

- 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
5.1.4 Pipe Pressure Test

Pipe pressure test will determine the ability of the pipe and its connection to take the stipulated pressure. The test should be conducted in accordance to the approved method statement. All pipes in PBU should be pressure tested.

5.1.5 Tiling and Tile Pull-Off Test

To achieve quality flooring and wall finishing works, it is recommended to conduct in-process tiling installation inspection and, if applicable, wall tiles pull–off test to an approved method statement as in BCA Good Industry Practices Guides on “Ceramic Tiling” or “Marble and Granite Finishes”.
5.1.6 Grouting

It is important to seal up the gaps between slabs for double slab system, by grouting. It is recommended to follow the grouting procedure according to the approved method statement.
5.2 Quality Checks

Process checks during every stage of the bathroom unit production are important to ensure a high quality final product is achieved.

5.2.1 Structural Works

Checks on formwork, reinforcement and concreting defects should be made progressively in accordance to the specified requirements.

It is recommended that the PBU base slab is concreted to the desired gradient to receive the tiles. This method is highly productive and it reduces defects by removing the need for thick screed for floor tiling works.
5.2.2 Architectural Works

Upon completing PBU fabrication, it is important to conduct quality checks to approved architectural internal finish standards before delivery.

Floor, wall and ceiling should be checked on finishing, alignment and evenness, crack and damages, roughness, and jointing.
Door, window, component and M&E works should be checked on joints and gap, alignment and evenness, material and damages, functionality, and accessories defects.
The final check before the PBU is delivered to site will be the protection work, internally and externally. It is important to protect the completed PBU before delivery. The protection of the PBU should not be removed unless necessary until after installation and access to the PBU must be controlled after removing the protection.

*It is recommended to have another round of checks once the protection is removed to ensure the PBU meets the design and specified requirements.*