

# **Code of Practice on Buildability**

## **Addendum No. 2**

Effective from 1 April 2023

Applicable to 2022 Edition

This Addendum shall be read in conjunction with the Code of Practice on Buildability and Addendum No. 1, and shall form part of the Code.

## Amendments to the Code

BCA has streamlined the regulatory clearance process and remove the requirement for projects to only use Prefabricated Bathroom Units (PBU) and Prefabricated Prefinished Volumetric Construction (PPVC) systems that have obtained an In-Principle Approval (IPA) from the Building Innovation Panel (BIP).

The following parts of Annex A of the Code relating to PBU and PPVC shall be replaced as provided below:

1. Note (c) of “Explanatory Notes to Table 2” in Page 33;
2. Note (1) and Note (2) of “Table 4 - Architectural Systems, Finishes and Buildable Features –  $A_N$  Value” in Page 44
3. Note (f) of “Explanatory Notes to Table 4” in Page 50;
- 4a. Section 3 on “Requirements for Prefabricated Bathroom Units (PBU)” in Page 64;
- 4b. Sub-section 3.2 on “Fabrication Facilities for Prefabricated Bathroom Units (PBU)” in Page 66;
- 5a. Section 4 on “Requirements for Prefabricated Prefinished Volumetric Construction (PPVC)” in Page 67; and
- 5b. Sub-section 4.3 on “Fabrication Facilities for Prefabricated Prefinished Volumetric Construction (PPVC)” in Page 69.

The changes are highlighted in blue.

## **EXPLANATORY NOTES TO TABLE 2**

- (c) All residential non-landed projects are required to adopt a minimum of 65% Prefabricated Bathroom Units (PBU), of which 60% shall be of the industry standard sizes as shown in Table 2B. The fabrication facility of the PBU system has to be accredited under the Prefabricated Bathroom Unit Manufacturer Accreditation Scheme (PBU MAS). The requirements for PBU systems are spelt out in Section 3. Points will be awarded only if a project adopts a minimum of 80% industry standard PBUs.

**Table 4 Architectural Systems, Finishes and Buildable Features – A<sub>N</sub> Value**

S/N	DESCRIPTION	ALLOCATED POINTS, A <sub>N</sub>			
		A <sub>1</sub>	A <sub>2</sub>	A <sub>3, A<sub>5</sub></sub>	A <sub>4, A<sub>6</sub></sub>
<b>DfMA Architectural Wall Systems</b>					
<b>1. Fully Integrated Systems</b>					
1.1	Prefabricated Prefinished Volumetric Construction (PPVC) <sup>(1)</sup>	30	30	20	20
<b>2. Fully Integrated Sub-assemblies</b>					
2.1	Prefabricated and prefinished wall with Mechanical, Electrical and Plumbing (MEP) services	28	29	19	18
2.2	Prefabricated Bathroom Unit (PBU) <sup>(2)</sup>	28	29	19	18
<b>3. Advanced Prefabricated Systems</b>					
3.1	Prefabricated and prefinished wall / Precast wall off-form <sup>(3)</sup>	27	27	18	17
<b>4. Prefabricated Components</b>					
4.1 (a)	Drywall partition for party wall / wet areas (For residential non-landed projects)	25	26	17	16
4.1 (b)	Drywall partition for other areas <sup>(4)</sup>	25	26	17	16
4.2	Curtain wall / Full height glass partition / Prefabricated railing	25	26	17	16
4.3	Precast concrete wall <sup>(5)</sup>	25	26	17	16
4.4	Lightweight concrete panel <sup>(6)</sup>	22	22	13	13
<b>5. Other Wall Systems</b>					
5.1	Cast in-situ wall	16	16	12	10
5.2	Precision blockwall	5	5	4	5
5.3	Brickwall / blockwall	0	0	0	0
<b>6. Other System(s) Not Listed Above</b>					
6.1	<i>Description of wall system(s)</i>	<i>Points for other wall systems not shown in this Table shall be determined by BCA on a case-by-case basis. For such cases, the QPs are advised to seek BCA's comments before proceeding with the designs.</i>			

**NOTE:**

(1) Please refer to Section 4 for the requirements for PPVC.

(2) Please refer to Section 3 for the requirements for PBU.

- (3) Off-form cast in-situ concrete and off-form precast concrete external walls and columns do not require additional labour-intensive surface treatment.
- (4) The use of drywall in all internal dry areas of residential non-landed projects is mandatory. No points would be given in this case as stated under Part 2.1.1.
- (5) Precast concrete walls refer to precast walls that are generally non-proprietary and manufactured to customise to a specific project.
- (6) Lightweight concrete panels include autoclaved lightweight concrete (ALC) panels, autoclaved aerated concrete (AAC) panels.

## **EXPLANATORY NOTES TO TABLE 4**

- (f) The fabrication facilities of the Prefabricated Bathroom Unit (PBU) systems have to be accredited under the PBU Manufacturer Accreditation Scheme (PBU MAS). The requirements for PBU systems are spelt out in Section 3.

### **3 REQUIREMENTS FOR PREFABRICATED BATHROOM UNITS (PBU)**

This section covers the requirements for Prefabricated Bathroom Unit (PBU) systems that are to be adopted for all residential (non-landed) and residential non-landed component of mixed-use developments. The minimum number of PBUs to be adopted at each of these developments shall be 65% of the total number of bathroom units.

#### **3.2 Fabrication Facilities for Prefabricated Bathroom Units (PBU)**

The fabrication facilities producing PBU systems are required to be accredited under the PBU Manufacturer Accreditation Scheme (PBU MAS), which is managed by the Singapore Concrete Institute (SCI) as part of the effort to promote greater self-regulation by the industry. The accreditation criteria were jointly developed by SCI and BCA. The production of PBUs for the purpose of preparing for Part 2: Plant Audit under the PBU MAS can only commence after the date of issuance of Provisional Certificate under the PBU MAS. The PBU manufacturer is required to notify BCA for Part 2: Plant Audit. Installation of PBUs at site can only commence after the date of issuance of Certificate of Accreditation for the PBU fabrication facility.

Further details on the accreditation scheme can be found at [www.scinst.org.sg](http://www.scinst.org.sg).

## **4 REQUIREMENTS FOR PREFABRICATED PREFINISHED VOLUMETRIC CONSTRUCTION (PPVC)**

This section covers the requirements for Prefabricated Prefinished Volumetric Construction (PPVC) systems.

The coverage of PPVC adoption shall be computed based on the total super-structural floor area of the building. Total super-structural floor area refers to the total constructed floor area of the building consisting of the ground floor and all floors above the ground floor, but excluding any floor area constructed for use as a roof or car park. Where applicable, the super-structural floor area shall also exclude:

- (a) environmental deck
- (b) void deck (for public housing projects)
- (c) swimming pool
- (d) landscaped areas including sky terrace
- (e) hotel lobby

### **4.3 Fabrication Facilities for Prefabricated Prefinished Volumetric Construction (PPVC)**

The fabrication facilities producing PPVC systems are required to be accredited under the PPVC Manufacturer Accreditation Scheme (PPVC MAS), which is managed by the Singapore Concrete Institute (SCI) as part of the effort to promote greater self-regulation by the industry. The accreditation criteria were jointly developed by SCI and BCA. Further details on the accreditation scheme can be found at [www.scinst.org.sg](http://www.scinst.org.sg).