Annex A

Balancing Standardisation with Design Flexibility for BTO Projects

HDB will launch the Enhanced Precast Components Catalogue (EPCC) on 28 September 2026. The EPCC is a library of detailed precast component specifications and drawings showing how each component is to be fabricated. It offers different levels of standardisation to accommodate varying structural design requirements across building types and heights, while retaining sufficient flexibility for design consultants to create distinctive BTO projects.

The catalogue organises precast components into three categories:

a) The first category comprises specifications for precast components where modifications to designs and dimensions are typically not required across different HDB projects, such as staircases and household shelters. The EPCC will specify the required standard dimensions, concrete grades, rebar contents, and connection details for these components, which will be the same across all HDB projects henceforth. This is the first time HDB is catering for such "off-the-shelf" standardised precast components, which gives precast suppliers the option of building up a stock of these components to support future supply tenders.

b) The second category comprises specifications for precast products where some variation in steel content is needed to function according to their structural design[1], such as façades and prefabricated bathroom units. These individual component types will have the same fixed thickness, heights, concrete grades, and connection details across projects, while their lengths and widths can vary based on what is needed to accommodate their required steel content. While

[1] Structural design refers to the engineering process of determining how a building component must be sized and reinforced to safely carry the loads placed on it. For precast components, this means calculating how much steel reinforcement (rebar) needs to be embedded in the concrete to give the component sufficient strength. As such, the structural design of components varies from project to project based on the loads the components must carry.

façade components are standardised within the EPCC, consultants will still be able to design visually unique facades through the use of attachments such as canopies and fins (i.e. horizontal and vertical protrusions on the façade respectively), as well as tools such as formliners[2] to create textures on the façade or painted patterns.



Canopies, fins and formliners were used to create the textured facades for Dakota One (left) and Kim Keat Ripples (right) (Credits: HDB)

c) Finally, the third category details specifications of precast components where dimensions and steel content can vary across projects to meet the projects' unique structural design requirements, such as beams and columns. Despite these variations, being able to apply some level of standardisation is helpful to ensure that the component still meets the requirements for concrete grades and connection details. Hence, the EPCC caters for variations in these components' dimensions through additions in fixed increments. For example, additions to thicken precast flooring must be in multiples of 25 mm.

[2] A formliner is an elastic mould used to create patterns or textures on a concrete surface. It is placed inside a precast component mould before the concrete is poured. When the concrete hardens, the pattern is left on the concrete, creating the desired look without having to add the design separately afterwards.