Annex A: Update on the Built Environment Industry Transformation Map (BE ITM) progress

The refreshed Built Environment (BE) Industry Transformation Map (ITM) was launched on 9 September 2022 at the International Built Environment Week (IBEW) 2022. The ITM integrates the transformation plans for the Construction and Facilities Management (FM) industries under one BE umbrella, as part of a building lifecycle approach towards transformation. The three key transformation areas are (i) Integrated Planning and Design (IPD); (ii) Advanced Manufacturing and Assembly (AMA); and (iii) Sustainable Urban Systems (SUS).

Integrated Planning and Design (IPD)

Building on our efforts for Integrated Digital Delivery (IDD) under the Construction ITM, IPD aims to optimise the planning and design of a building/district for its entire lifecycle where downstream considerations are incorporated upfront. This will help to minimise the downstream wastage of resources for construction and maintenance, which could result in unnecessary reworks and retrofits. A key initiative under IPD is CORENET X, a one-stop integrated digital platform which streamlines the regulatory approval process of building works. CORENET X will progressively become mandatory from 1 October 2025.

Target: 70% IDD adoption for all new developments [by Gross Floor Area (GFA)] by 2025. We are on track to achieving our committed target. The IDD adoption rate for new developments (by GFA) has increased from about 58% in 2023, to 67% in 2024.

Advanced Manufacturing & Assembly (AMA)

Building on our efforts to drive Design for Manufacturing and Assembly (DfMA)[1] (i.e. a continuum of technologies which shifts construction activities off-site into more productive factory-like settings), AMA seeks to encourage the adoption of robotics and automation (R&A) to enhance construction productivity both on-site and off-site. This

[1] Examples of DfMA technologies include Prefabricated Prefinished Volumetric Construction (PPVC), structural steel, Advanced Precast Concrete System (APCS) and Prefabricated Mechanical, Electrical and Plumbing (Prefab MEP) System.

will also provide a better work environment and better jobs for our workforce. We will also strengthen the construction supply ecosystem by developing Integrated Construction Parks (ICPs), which would help to improve productivity and land utilisation as well as lead to leaner and more sustainable operations. Over the last 12 months, we have seen the adoption of 23 different robotics and automation solutions across 56 different projects undertaken by 50 firms. In 2024, we also saw the official opening of Jurong Port's Integrated Construction Park.

Target: 70% DfMA adoption for all new developments (by GFA) by 2025. We are on track to achieving our committed target. The DfMA adoption rate for all new developments (by GFA) has increased from about 61% in 2023 to 68% in 2024.

Sustainable Urban Systems (SUS)

Building on existing efforts under the Singapore Green Building Masterplan (SGBMP) launched in 2021, SUS seeks to drive best-in-class sustainability standards to achieve a low-carbon BE sector. In particular, we will ramp up our efforts at the operations and maintenance stage through smart solutions and integrated and aggregated facilities management (FM) services.

Green Buildings

There are three key targets under the SGBMP, or "**80-80-80 in 2030**":

a. **To green 80% of our buildings (by GFA) by 2030**. As of end December 2024, about 61% of our buildings' GFA has been greened.

b. For 80% of new developments (by GFA) to be Super Low Energy (SLE) buildings[2] **from 2030**. In 2024, close to 26% of new developments (by GFA) have been certified as SLE buildings.

c. **To achieve 80% improvement in energy efficiency (compared to 2005 levels) for best-in-class green buildings by 2030**.[3] As of Dec 2024, our best-in-class buildings have achieved 72% improvement in energy efficiency over 2005 levels.

[2] SLE buildings refer to buildings that have achieved at least 60% improvement in energy efficiency compared to 2005 levels.

[3] Best-in-class buildings refer to buildings that achieve the highest possible energy efficiency standards with the technology available at the time.

Facilities Management (FM)

There are three key thrusts of FM transformation under the BE ITM:

Design for Maintainability (DfM). DfM involves upstream collaboration between the developers/building owners, designers, and FM companies (FMCs), to incorporate maintainability and Smart FM considerations upfront at the design stage.

Smart FM. Smart FM is the integration of systems, processes, technologies, and personnel to enhance the management of a building's facilities and raise productivity for FMCs.

1 Target: 80% of public buildings and 40% of private buildings (by GFA) to adopt Smart FM by 2030. We have been making good progress. The Smart FM adoption rate for public buildings (by GFA) has increased from 85% in 2023 to 93% in 2024. The adoption rate for private buildings (by GFA) has increased from 43% in 2023 to 58% in 2024.

2 Integrated FM (IFM) and Aggregated FM (AFM). FMCs can harness efficiencies from managing different FM services on an integrated platform, and aggregating FM services across many buildings.