FOR IMMEDIATE RELEASE

MEDIA FACTSHEETS ON INITIATIVES TO SUPPORT TRANSFORMATION IN THE BUILT ENVIRONMENT SECTOR

Singapore, 5 March 2024 – The Building and Construction Authority (BCA) has been working closely with the Built Environment (BE) sector on its transformation efforts under the BE Industry Transformation Map (ITM) and there has been progress. More information can be found in **Annex A.**

2 As challenges will continue to remain in the horizon, we must collectively press on towards a more productive, digitalised and sustainable sector. The following initiatives are some of the ways that we will partner the BE sector to do so:

- **Expansion of the Contractors Registration System (CRS) to a Nation-wide Registry** – To enable us to drive transformation more effectively across the construction industry, BCA will expand the scope of its CRS from a public sector registry to a nation-wide registry of construction firms. We will do this by requiring all firms hiring foreign construction workers to register under the CRS.

- BCA will also raise the CRS entry requirements to keep pace with the current market conditions to ensure that firms hiring foreign construction workers have the minimum financial capabilities and experience to sustain their operations and deliver projects. More information can be found in **Annex B**.

- **New Energy Efficiency Grant (EEG) for the Construction Industry** - This grant will help local construction firms adopt energy efficient construction equipment. More information can be found in **Annex C**.

- **Extension of Productivity Innovation Project (PIP) scheme** – To continue supporting our construction firms in their adoption of productive and labour-efficient technologies, the PIP scheme will be extended until 31 March 2025**.** More information can be found in **Annex D**.

- **Update on Growth and Transformation Scheme (GTS)** – Last year, it was announced that the Government set aside $90 million under GTS. Since then, both the CapitaLand Development and CDL-led alliances have applied for and secured funding support for their initiatives. More information can be found in **Annex E**.

Attached:

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

Annex B: Expansion of the Contractors Registration System (CRS) to a Nation-wide Registry

Annex C: New Energy Efficiency Grant for the Construction Industry

Annex D: Extension of Productivity Innovation Project (PIP) scheme

Annex E: Update on Growth and Transformation Scheme (GTS)

Issued on 27 February 2024

About BCA

The Building and Construction Authority (BCA) champions the development and transformation of the built environment sector, in order to improve Singapore's living environment. BCA oversees areas such as safety, quality, inclusiveness, sustainability and productivity, all of which, together with our stakeholders and partners, help to achieve our mission to transform the Built Environment sector and shape a liveable and smart built environment for Singapore. For more information, visit www1.bca.gov.sg.

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

1 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).

2 The BE ITM was developed in conjunction with industry stakeholders through the Future Economy Council (FEC) Urban Systems (US) Cluster Sub-Committee. The FEC US Sub-Committee was co-chaired by SMS Tan Kiat How and Mr Liam Wee Sin (Group CEO, UOL Group Ltd), and comprised representatives from government agencies, Trade Associations and Chambers (TACs) and stakeholders from across the BE value chain.

Integrated Planning and Design (IPD)

3 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.

4 **Target: 70% IDD adoption for all new developments [by Gross Floor Area (GFA)] by 2025**. We have been making good progress. The IDD adoption rate for new developments (by GFA) has increased from about 45% in 2022, to 58% in 2023.

Advanced Manufacturing & Assembly (AMA)

5 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 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).

6 **Target: 70% DfMA adoption for all new developments (by GFA) by 2025**. We have been making good progress. The DfMA adoption rate for all new developments (by GFA) has increased from about 51% in 2022 to 61% in 2023.

Sustainable Urban Systems (SUS)

7 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

8 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 December 2023, we have greened about 58% of our buildings by GFA.

i. The new Mandatory Energy Improvement (MEI) regime, which will be introduced by end-2024, will require owners of energy-intensive buildings to carry out energy audits and implement measures to improve their building energy use intensity (EUI)[2] .

[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.

[2] EUI measures the annual energy consumption of a building over GFA (in kWh / m^2).

b. **For 80% of new developments (by GFA) to be Super Low Energy (SLE) buildings**[3] **from 2030**. In 2023, more than 7% of new developments (by GFA) have been certified as SLE buildings.

   i. One effort to drive this is the Built Environment Transformation GFA Incentive Scheme which encourages new private developments to achieve GM Platinum SLE certification, among other requirements. There have been 9 approved applications as of December 2023.

c. **To achieve 80% improvement in energy efficiency (compared to 2005 levels) for best-in-class green buildings by 2030**.[4] As of December 2023, our best-in-class buildings have achieved 71% improvement in energy efficiency over 2005 levels.

   i. The Green Buildings Innovation Cluster (GBIC) programme continues to push the boundaries of energy efficiency through technology development and demonstration. The first thematic challenge call was launched in Feb 2023 to encourage hotels and high-rise office buildings to achieve a 75% improvement in energy efficiency from 2005 levels by adopting innovative energy-efficient solutions.

Facilities Management (FM)

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

a. 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.

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

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

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

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 33% in 2022 to 85% in 2023. The adoption rate for private buildings (by GFA) has increased from 28% in 2022 to 43% in 2023.

c. 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.

    i. IFM and AFM are still nascent in Singapore. BCA opened applications for a $30 million grant in September 2022 to kickstart their adoption. As of December 2023, 18 potential projects (over 20 companies) have engaged BCA through pre-consultations to apply for the grant. One project has since been awarded funding under the grant.

Annex B: Expansion of the Contractors Registration System (CRS) to a Nation-wide Registry

1 Currently, BCA administers the Contractors Registration System (CRS) to facilitate Government procurement of construction services. Firms that want to participate in Government tenders or to be engaged as first-level subcontractors in public sector projects will need to register under the relevant workheads in CRS.

2 CRS is also one of the three gateways for firms to access foreign construction workers. The other two gateways are BCA's Builders Licensing Scheme (BLS) and Singapore List of Trade Sub-contractors (SLOTS)[5] administered by The Singapore Contractors Association Ltd (SCAL). Entry-level requirements for paid-up capital and track record across these gateways are different *(see Table 1).* This means that some firms may find it easier to access foreign construction workers under certain gateways. At the same time, there are also firms that only hire certain foreign construction workers that do not need to go through any of the three gateways, or are not subject to any requirements set by BCA or SCAL.

Table 1: Comparison of Existing Entry Requirements Between CRS, BLS and SLOTS

Scheme	**CRS**	**BLS**	**SLOTS**
Minimum Paid-Up Capital (PUC)	$10k or $25k for most categories	$25k	$10k
Minimum Track Record (TR)	$100k in total for the past three years for most categories	No requirement	$100k every year, with two testimonies from different main contractors

3 To ensure that the same minimum standards are applied equally to all firms hiring foreign construction workers, BCA will make CRS the sole gateway for firms to

[5] BLS aims to ensure building safety by only allowing firms that meet certain standards to undertake high-impact building works that are regulated under the Building Control Act (BC Act). SLOTS is used as a reference for main contractors to identify competent sub-contractors.

access foreign construction workers. This means that all firms hiring foreign construction workers will need to be registered under the CRS and meet the same entry-level PUC and TR requirements.

4 Effectively, CRS will expand its scope from a public sector registry to a nation-wide registry of construction firms. This enables us to implement quality, manpower, productivity, and innovation measures across the construction industry more effectively, but we will do so in a calibrated manner to minimise disruption to the industry.

5 As a start, BCA will raise the CRS minimum PUC and TR entry requirements to keep pace with the current market conditions *(see Table 2)*. This is to ensure that the registered firms have the minimum financial capability and experience to sustain their operations and deliver projects.

Table 2: Comparison of Current vs New Entry Requirements of CRS

Entry Requirements	**Current**	**New**
Minimum PUC	$10k or $25k for most categories	$50k for all categories
Minimum TR	$100k in total for the past three years for most categories	$300k in total for the past three years for all categories

6 Firms will be given time to meet these entry requirements. BCA will announce further details on the changes later this year.

"SIFMA is supportive of the CRS enhancements as part of the transformation efforts in the Built Environment (BE) sector." - Mr Frank Ngoh, President of Singapore International Facility Management Association (SIFMA)

"SCAL has always been a partner of BCA in transforming the Built Environment sector. SCAL is supportive of raising the standards for the whole industry and SLOTS members are well-positioned to meet the new requirements."
- Mr Lee Kay Chai, President of The Singapore Contractors Association Ltd (SCAL)

7 BCA has engaged the industry, including key Trade Associations and Chambers such as SCAL, SIFMA and STAS on these moves. The industry supports the upcoming changes to CRS.

Annex C: New Energy Efficiency Grant to the Construction Industry

The Government will be expanding the Energy Efficiency Grant (EEG) to new sectors, including construction. EEG aims to support businesses in their sustainability journey by co-funding investments in energy efficient equipment.

2 For the construction industry, the grant will support the cost of energy efficient construction equipment. Companies registered and operating in Singapore with (i) at least 30% local shareholding; (ii) at least one local employee; and (iii) group annual sales turnover of no more than $500 million will be eligible for support under the EEG.

3 The EEG will provide two tiers of support: (i) a Base Tier where eligible local construction firms will be able to receive up to 70% of funding support for pre-approved energy efficient construction equipment, up to $30,000; and (ii) an Advanced Tier to support companies that wish to make larger investments to drive greater energy efficiency, up to $350,000. The energy efficient equipment supported under the Advanced Tier need not be pre-approved, but must demonstrate energy savings above 350t lifetime carbon abatement. The grant amount for this will be based on committed energy savings or up to 70% of the equipment cost, whichever is lower.

4 We target to launch the EEG for the construction industry by the end of 2024. More details will follow.

Annex D: Extension of Productivity Innovation Project (PIP) scheme

1 The Productivity Innovation Project (PIP) scheme supports investments in automation and productive technologies in the Built Environment (BE) sector. This includes Integrated Digital Delivery (IDD) systems, Robotics & Automation (R&A), and Design for Manufacturing and Assembly (DfMA) technologies. The PIP co-funds up to 70% of the costs of adopting these solutions, capped at $10 million.

2 Since 2018, the PIP has helped 78 firms, including local SMEs, adopt productive and labour-efficient technologies. One of the firms that has benefited is **Techniques Air Conditioning and Engineering Pte Ltd**. The Mechanical, Electrical and Plumbing (MEP) subcontractor set up four production lines to automate the cutting and welding of pipes in their off-site factory. The off-site automation has helped to increase its productivity by at least 40% compared to manual cutting, welding and quality inspection processes. Another example is **Great Resources M&E Contractor Pte Ltd**, a builder who has tapped on the PIP and will deploy an automated drilling and anchoring robot on-site, replacing manual drilling and anchoring processes. This will enable the firm to increase productivity by at least 30%, with one-third less workers. With less manual work and fewer workers on-site, they can also carry out this work more safely.

3 To continue our support for firms in their productivity and digitalisation efforts, the PIP will be extended until 31 March 2025. This will give firms more opportunities to invest in transformative technologies.

4 Applicants must meet the following eligibility criteria at the point of application[6]:

- Construction-related companies that are registered and located in Singapore.
- Solutions must meet a minimum productivity improvement of 30% for the trade activity and/or process.

[6] The applicant must not have signed or confirmed a contract with or made payment to a supplier, vendor or third party in relation to the purchase/subscription of the solutions before the application. The submission of application does not automatically entitle the applicant to funding. All applications will be subject to evaluation and approval. Applicants may be required to submit additional supporting documents to facilitate evaluation of the application.

5 Applications for the PIP are open. For more information, visit go.gov.sg/bca-productivity-innovation-project--scheme-pip

Annex E: Update on Growth and Transformation Scheme (GTS)

1 The Growth and Transformation Scheme (GTS) supports initiatives that build best-in-class capabilities and enable holistic transformation for BE value chains. These initiatives are undertaken by groups of firms – each led by a progressive developer, and includes consultants, builders, and subcontractors – to achieve mutually beneficial transformation outcomes. The key objectives of the GTS are to:

a. Groom a core group of strong industry leaders to drive industry transformation;
b. Push the boundaries for best-in-class capabilities, and spearhead adoption of advanced technologies such as Advanced Manufacturing and Assembly (AMA), Integrated Planning and Design (IPD) and Sustainable Urban Systems (SUS); and
c. Achieve transformative workforce development and business growth/strategic collaboration goals.

2 At COS 2023, it was announced that $90 million had been set aside under the GTS to co-fund up to 70% of qualifying costs in areas such as equipment, software and training. Since then, the CapitaLand Development-led and CDL-led alliances have made good progress.

Examples of Key Initiatives by CapitaLand Development-led Alliance

CapitaLand Development (CLD) and its partners are focusing on collaborative contracting, where they will be amongst the first to pilot this contracting approach for the private sector. CapitaLand will also establish and maintain a Common Data Environment (CDE) platform that connects value chain partners working on their projects. The CDE platform will allow value chain partners to refer to a single reference point for key project information and BIM models, and create a conducive environment for upfront collaboration.

Ms Goh Ah Moi, Chief Development Officer, CapitaLand Development (Singapore), said: “By co-funding our efforts, the GTS has accelerated the digitalisation goals of CapitaLand Development and those of our Alliance Partners. Through our CDE

platform supported by the GTS, we can enhance data sharing and deepen collaboration with our partners, which will enable us to improve productivity and deliver better products for our customers.”

List of CapitaLand Development-led Alliance Firms

Firm	Description
CapitaLand Development Pte Ltd (“CLD”)	CapitaLand Development is the development arm of CapitaLand Group, one of Asia’s largest diversified real estate groups. Its well-established real estate development capabilities span across various asset classes, including integrated developments, retail, office, lodging, residential, business parks, industrial, logistics and data centres.
Surbana Jurong Architecture (“SJ”)	Surbana Jurong Group employs over 1000 employees in its architecture and design practice worldwide, including 639 architects. With over 70 years of track record in successful project delivery, SJ provides multidisciplinary consultancy services across a diverse range of sectors such as hospitality, healthcare, and aviation.
Threesixty Cost Management Pte Ltd (“Threesixty”)	Threesixty is a subsidiary of Surbana Jurong Group. It helps clients manage the associated costs and contracts of their projects in an independent, efficient, and responsible manner. Threesixty provides in-depth cost and commercial management and contractual advice from project inception to completion.
Woh Hup (Private) Limited (“WH”)	WH is one of the largest privately owned civil engineering and construction companies in Singapore that consistently delivers high standard of quality in their projects. As a forward-looking company, WH seeks to spearhead cutting-edge, innovative building and engineering solutions. This has led to their market expansion regionally.

Examples of Key Initiatives by CDL-led Alliance

Woh Hup, as one of the partners, is implementing an IDD app, which will compile and analyze key metrics from project sites with near real-time tracking, on a digital dashboard. With the IDD app, Woh Hup will be able to generate detailed reports such as the material wastage, manpower productivity report and progress tracking for different stakeholders. This is expected to improve productivity by 88% at use case level, in the data collection, analysis and reporting processes.

Woh Hup is also implementing the Purchasing Order, Delivery Order, Invoice, Payment Certificate (PDIP) App. This will integrate their contracts, procurement and finance teams, and allow them to track approvals and payment statuses with a new, single digital workflow. This is expected to reduce the time taken for approvals, and facilitate prompt payments to Woh Hup's subcontractors and suppliers. To further streamline processes, Woh Hup is exploring uplifting the digital capabilities of its supply chain via direct integration with its suppliers' payment systems.

"As part of our focus on digitalisation and innovation, we are aligned with BCA's vision to drive value-chain transformation for a future-ready built environment. The Growth and Transformation Scheme (GTS) has enabled us to tap on funding to support our capability-building efforts. By leveraging on digital tools such as the Common Data Environment (CDE) to enhance collaboration and communication among project stakeholders, we have been able to boost project outcomes, increase efficiency and achieve cost savings. We have embarked on the CDE pilot for our upcoming Central Mall/ Central Square redevelopment project and expect to achieve productivity improvements and other beneficial outcomes during the development process." said Ms Lee Mei Ling, Executive Vice President and Head, Property Development of City Developments Limited (CDL).

List of CDL-led Alliance Firms

Firm	Description
ADDP Architects Pte Ltd (“ADDP”)	ADDP is an architectural design firm based in Singapore, providing consultancy services for a wide spectrum of projects in architecture, interior, and urban planning. ADDP also pioneered the use of prefabricated construction and sustainability design in Singapore.
City Developments Limited (“CDL”)	As Singapore’s property pioneer with a heritage spanning six decades, CDL has shaped the Singapore skyline with numerous architectural icons such as Amber Park, CanningHill Piers, Republic Plaza, South Beach, The Sail @ Marina Bay, The Oceanfront @ Sentosa Cove and Tree House, many of which are award-winning green buildings. Since 1995, CDL has embraced its ethos of ‘Conserving as we Construct’, investing in green building innovation and game-changing technology to drive resource efficiency and productivity.
Woh Hup (Private) Limited (“WH”)	WH is one of the largest privately owned civil engineering and construction companies in Singapore that consistently delivers high standard of quality in their projects. As a forward-looking company, WH seeks to spearhead cutting-edge, innovative building and engineering solutions. This has led to their market expansion regionally.

3 More information about the GTS can be found on BCA’s website: https://go.gov.sg/bca-gts.