MEDIA RELEASE

NEW FUNDING FRAMEWORK, MANPOWER SCHEME TO SUPPORT TRANSFORMATION OF BUILT ENVIRONMENT SECTOR

Singapore, 6 March 2019 – To support the transformation efforts in the Built Environment (BE) sector, Mr Zaqy Mohamad, Minister of State for Manpower and National Development, announced two initiatives during the Ministry of National Development's Committee of Supply debate today.

i. BuildSG Transformation Fund

2 The BuildSG Transformation Fund (BTF) consolidates existing funding schemes in the areas of Design for Manufacturing and Assembly (DfMA), Integrated Digital Delivery (IDD) and Green Buildings. This will help firms to more easily find relevant funding schemes to support their transformation. The various schemes under the BTF amount to about $770 million.

3 This includes the following two schemes which have received top-ups:

a. Productivity Innovation Project (PIP) scheme - The PIP scheme will receive a top-up of about $200 million to support firms that adopt solutions offering at least 30% productivity improvement. Firms that can achieve 40% productivity improvement will qualify for more support. The PIP will also help to build up IDD

capabilities through funding support for digital solutions to be applied in at least three out of four stages[1] of a construction project.

b. Public Sector Construction Productivity Fund (PSCPF) – A top-up of $95 million will be provided to support public sector projects to adopt DfMA technologies. The public sector is expected to contribute about 60% of the projected DfMA demand from 2019 to 2023.

ii. Off-site Construction Special Scheme

4 A new voluntary Off-Site Construction Special Scheme (OCSS) for eligible DfMA facilities will be introduced to encourage the shift towards DfMA, and reduce the reliance on foreign workers in the long run. This is an interim measure while the Government reviews how to remove the Man-Year Entitlement (MYE) framework for the construction industry, to better align our foreign manpower policies to support industry transformation. BCA will engage the industry as part of the review.

5 Under the OCSS, DfMA facilities[2] will be able to employ an allocated number of work-permit holders (WPH) at the MYE levy rates, depending on the facility type and manpower profile. BCA will be engaging eligible companies to explain the details of the scheme, which will be introduced in the second half of this year.

6 Mr Kenneth Loo, President of the Singapore Contractors Association Ltd (SCAL), said, “We welcome the scheme as it supports industry efforts in the shift towards DfMA. This will help to shift more work from on-site to off-site locations, while raising productivity and lowering cost.”

[1] These four stages in a construction project are design, pre-fabrication, construction and facility management.
[2] These include (a) Integrated Construction Prefabrication Hubs (ICPHs); (b) Prefabricated Prefinished Volumetric Construction (PPVC) / Prefabricated Bathroom Units (PBUs) / Prefabricated Kitchen Units (PKUs) fitting out facilities; and (c) Prefabricated Mechanical, Electrical and Plumbing (MEP) fitting out facilities.

7 BCA's CEO Mr Hugh Lim said, "Since the launch of the Construction ITM in October 2017, we have made good progress in our ITM focus areas. For example, our DfMA adoption rate reached about 22% by the end of 2018, on the way to our target of 40% by 2020. The top up for the funding schemes and the introduction of the OCSS signal the Government's support for industry transformation, especially in the area of DfMA."

Update on Facility Management industry

8 As part of the Facilities Management transformation, a tripartite Facilities Management Implementation Committee (FMIC), comprising representatives from various agencies, building owners, service providers and industry bodies, was formed in April 2018. To transform the FM industry from a labour-intensive industry to a productive one that leverages data analytics, predictive maintenance and smart solutions, the FMIC has proposed recommendations in four key areas –

- Design for Maintainability (DfM);
- Smart FM;
- Procurement; and
- Manpower and Industry Development.

9 BCA will partner the TACs to develop a skills framework to provide better guidance on career progression and training opportunities for firms and individuals for the BE sector, including the FM industry. BCA is also developing an accreditation framework with key industry stakeholders to recognise better-quality FM firms. In addition, BCA is working with A*STAR, IMDA and the International Facilities Management Association Singapore Chapter (IFMA SC) to develop a technology roadmap for the FM industry, which is targeted for launch by the end of 2019. This will help achieve greater productivity and operations efficiency through harnessing the potential of technology.

Enclosed

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Annex B – Off-site Construction Special Scheme (OCSS)

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About BCA

The Building and Construction Authority (BCA) of Singapore champions the development of an excellent built environment for Singapore. BCA's mission is to shape a safe, high quality, sustainable and friendly built environment, as these are four key elements where BCA has a significant influence. In doing so, it aims to differentiate Singapore's built environment from those of other cities and contribute to a better quality of life for everyone in Singapore. Hence, its vision is to have "a future-ready built environment for Singapore". Together with its education arm, the BCA Academy of the Built Environment, BCA works closely with its industry partners to develop skills and expertise that help shape a future-ready built environment for Singapore. For more information, visit www.bca.gov.sg.

Annex A

About the BuildSG Transformation Fund (BTF)

1. BCA will be establishing the BuildSG Transformation Fund (BTF), which is a consolidation of funding support for firms and individuals in key areas of the Construction Industry Transformation Map (ITM) (i.e. Design for Manufacturing and Assembly (DfMA), Integrated Digital Delivery (IDD) and Green Buildings). Currently, the total funding allocated to the schemes under the BTF is about $770million.

2. The BuildSG office in BCA will administer the BTF, and help companies understand and apply for the relevant grant schemes. BCA has developed a webpage (https://www.bca.gov.sg/Professionals/GovAsst/BuildSG-Transformation-Fund-btf.html) that consolidates information on all the schemes under the BTF, and will serve as a one-stop portal for the industry to get information on the BTF.

3. A breakdown of the list of schemes consolidated under the BTF is tabulated below.

S/N	List of Schemes under the BTF	Description of Funding Scheme
Design for Manufacturing and Assembly (DfMA) and Integrated Digital Delivery (IDD)		
1	Productivity Innovation Project *[Topped-up]*	This scheme supports Singapore-registered firms to build up their capability in DfMA technologies and IDD, and improve site processes in order to achieve higher site productivity.
2	Public Sector Construction Productivity Fund *[Topped-up]*	This scheme supports government agencies to use DfMA technologies for their construction projects.
3	Investment Allowance Scheme	This scheme supports the mechanisation efforts of Singapore-registered firms through providing tax incentives for capital investments on productive construction equipment.
4	Off-site Construction Special Scheme *[New Scheme]*	This voluntary manpower incentive scheme encourages the shift towards DfMA and more off-site work. The scheme allows eligible DfMA production facilities to employ an allocated number of work permit holders at the lower Man-Year Entitlement levy rates, depending on the facility type and manpower profile.

Green Buildings		
5	Green Mark Incentive Scheme for Existing Buildings and Premises	This scheme supports building owners and tenants to adopt energy efficient retrofitting designs, technologies and practices in existing buildings to improve building energy efficiency.
6	Green Mark Incentive Scheme for Existing Buildings (Health Check)	This scheme supports building owners to conduct health check audits of their buildings at subsidised costs.
7	Building Retrofit Energy Efficiency Financing Scheme	This scheme allows building owners to obtain financing from participating financial institutions to offset upfront costs for energy efficiency retrofits of existing buildings and repay the loans through energy savings reaped.
8	Green Mark Gross Floor Area Incentive Scheme	This scheme encourages private sector developers to build buildings that can attain higher tier Green Mark ratings (i.e. Green Mark Platinum or Gold^{Plus}) by granting additional floor area over and above the Master Plan Gross Plot Ratio.
Research & Innovation		
9	MND Research Fund	This grant supports the research, development and deployment of technologies/solutions in key areas such as DfMA, IDD, maintainability, safety and quality.
10	Cities of Tomorrow R&D Programme	This programme is a multi-agency effort, led by MND, to identify challenges that cities face and develop R&D solutions to address the challenges. The key research thrusts that are supported under the BTF include Advanced Construction, Resilient Infrastructure and Greater Sustainability.
11	Green Buildings Innovation Cluster (GBIC)	GBIC is a one-stop integrated Research & Innovation (R&I) hub that accelerates the adoption of promising building energy efficient technologies and solutions through programmes such as the GBIC Building Energy Efficient Demonstrations Scheme and the Super Low Energy Building Smart Hub.
12	Built Environment Robotics R&D Programme	This programme supports the research, development and deployment of innovative robotics with practical implementation and commercialisation potential, in

		areas such as manufacturing, assembly as well as smart and sustainable assets.
13	2-Stage Innovation Grant (iGrant)	This grant supports the industry in conducting fast-tracked proof-of-concept and proof-of-value type of R&I in areas such as Advanced Construction and IDD for subsequent quick deployment.
14	Built Environment Accelerate to Market Programme	This programme supports the fast-tracked development and commercialisation of innovative solutions supported by ESG's Gov-PACT initiative, which connects innovators with firms in the BE sector seeking to solve identified challenges through the use of their solutions.
Workforce Development		
15	iBuildSG Scholarship and Sponsorship	The suite of scholarship and sponsorship programmes (in collaboration with industry firms) supports students of high-calibre and in-service personnel in pursuing full-time and part-time BE-related courses at local universities, polytechnics, ITE or BCA Academy.
16	iBuildSG Workforce Training and Upgrading	This programme supports firms to upgrade their workforce through co-funding of selected skills assessment and training courses.
17	SkillsFuture Study Awards for Built Environment Sector	This programme provides funding support to Singaporeans to develop and deepen specialist skills in areas of demand in the BE sector.

Annex B

Off-site Construction Special Scheme (OCSS)

1. Under the Construction Industry Transformation Map, BCA is building a robust DfMA ecosystem to sustain the adoption of productive technologies over the longer term. BCA's key thrusts are to:

i) Create lead demand to bring down the cost premium of DfMA technologies;
ii) Build supply capacity and capabilities; and
iii) Develop industry competencies in productive technologies.

2. To support these key thrusts, existing funding schemes and manpower development initiatives need to be complemented with changes to the foreign manpower policies. BCA has worked with MOM to develop an Off-site Construction Special Scheme (OCSS) for DfMA facilities. The OCSS serves as an interim measure to encourage more firms to shift towards DfMA. With this scheme in place, the Government will progressively reduce the Man-Year Entitlement (MYE) quota for on-site works and engage the industry on eventually removing the MYE framework for the construction industry.

Details on the OCSS for DfMA Facilities

3. The voluntary manpower incentive scheme for DfMA facilities will encourage the industry to do more off-site prefabrication work. Concurrently, BCA will work with firms on this scheme to ensure that they build up their local pipeline of Singaporeans for the skilled jobs in the DfMA facilities.

4. The scheme will be made available to the following three types of DfMA facilities and their sub-contractors:

i) Integrated Construction Prefabrication Hubs (ICPHs);
ii) Prefabricated Prefinished Volumetric Construction (PPVC) / Prefabricated Bathroom Units (PBUs)/ Prefabricated Kitchen Units (PKUs) fitting out facilities;
iii) Prefabricated Mechanical, Electrical and Plumbing (MEP) fitting out facilities.

5. There are currently 15 DfMA facilities. These DfMA facilities are not allocated MYE quotas directly as they are not main contractors. So, most of the Work Permit Holders (WPH) hired by the DfMA facilities are on the higher MYE-waiver tier.[3]

6. Under the new OCSS scheme, eligible facilities will be able to hire workers at the lower MYE levy rates of $300 and $700 for Higher-Skilled (R1) and Basic-Skilled (R2) workers respectively, for an allocated number of workers.

[3] Current MYE levy rates are $300 for higher-skilled R1 workers and $700 for basic-skilled R2 workers. As a reference, the MYE-waiver rates are $600 for higher-skilled R1 workers and $950 for basic-skilled R2 workers.

7. Firms under the OCSS will be required to improve their workforce profile, including building a stronger Singaporean core in higher skilled jobs by committing to train and hire more locals to fill the good quality jobs created in DfMA facilities.

8. BCA will engage eligible DfMA facilities to share more details, and will start the OCSS in the second half of 2019.

Annex C

Company profile for OCSS

One such company that would potentially benefit from the OCSS scheme is Greyform Pte Ltd, which operates an off-site construction facility.

Greyform Pte Ltd

Greyform Pte Ltd (Greyform), a member of Straits Construction Group, was incorporated in December 2015 to offer precast and prefabricated solutions to the construction industry. Greyform capitalises on digital technology and automation for long term competitiveness, and aims to transform the traditional industry by injecting youth and new skills for the future economy.

The Greyform Building, an Integrated Construction & Prefabrication Hub (ICPH), comprises a four-storey precast concrete components production factory and office, three blocks of 12-storey dormitory (housing 750 workers), a multi-storey (seven-tier) automated precast components storage and retrieval, and a concrete batching plant with underground aggregate storage facility.

The ICPH can produce a wider range of products (columns, beams, planks, walls, façade, hollow core slabs, precast staircases, precast household shelters and prefabricated bathroom units etc.), and utilises a greater degree of mechanisation and automation where most manufacturing operations are carried out by intelligent computer systems, efficiently reducing the manpower required as compared to traditional precast yards.


Open Precast Yard
TRANSFORMS
Greyform

Annex D

Facilities Management Implementation Committee

The tripartite Facilities Management Implementation Committee (FMIC) was formed in April 2018. It comprises representatives from building developers and owners of both public and private sectors, FM service providers, trade associations & chambers (TACs) and unions. Besides formulating detailed action plans, the FMIC will also oversee the implementation of these plans (see Annex D(i) for Terms of Reference of the FMIC). The goal is to advance the FM industry from a labour-intensive industry to a productive one leveraging on data analytics, predictive maintenance and smart solutions.

The FMIC has been engaging the FM companies to gain insight on the challenges they face. The key findings identified are summarised in Table 1 below.

FM Industry	Key Challenges
Industry-level	• **Lack of authoritative standards** to guide FM service delivery • **No industry champion** to guide the sector's development • Building owners rely on **headcount-based procurement practices** and offer short contracts that do not reward innovation and quality FM service
Firm-level	• Firms in FM sector **do not enjoy professional recognition** • Despite being responsible for the long-tail operation and maintenance (O&M) of a building, FM firms often have **no influence in initial planning and design**. • Building owners view FM as a cost-centre and hence, the FM industry has resorted to **fee-diving strategies**, which compromises on service quality.
Manpower-level	• The industry is facing an **aging workforce** • The sector is **labour-intensive and has low productivity** • This leads to **unattractive pay** for the workforce, resulting in FM being portrayed as an unattractive career option

Table 1: Current Key Challenges Faced by the FM Industry

The FMIC has hence proposed recommendations in four key areas - **(a) Design for Maintainability (DfM), (b) Smart FM, (c) Procurement, and (d) Manpower and Industry Development.** The FMIC will oversee the implementation of the recommendations. The detailed timeline for implementing the recommendations will be worked out later.

S/N	Key Proposed Recommendations
1	**Design for Maintainability (DfM)** *(i.e. include FM considerations in upstream design)* • **Enhance DfM Guide** with Smart FM content, and streamline it according to different building types to facilitate ease of adoption by industry practitioners • **Develop a DfM appraisal scheme** to assess building designs' degree of maintainability based on labour efficiency and cost-effectiveness of downstream maintenance regimes
2	**Smart FM** *(i.e. enhance maintenance capabilities through Smart FM to improve productivity and maintenance quality and reduce FM man-hours)* • **Develop a Smart FM Framework** which conceptualises the various tiers of Smart FM sophistication that FM companies can aspire to achieve, and the different levels of Smart FM deployment for buildings (see **Annex D(ii)**) • **Develop a Smart FM Technology Roadmap** to guide the adoption of technologies in FM applications • **Pilot precinct-level Smart FM solutions in upcoming projects** such as Punggol Digital District (PDD) and Jurong Lake District (JLD)
3	**Procurement** *(i.e. establish standard guidelines for FM procurement and promote the adoption of outcome-based contracting)* • **Streamline registration requirements** for FMCs bidding for government FM job tenders • **Develop a structured FM tender evaluation framework and standard set of Conditions of Contract (CoC),** which will be outcome-based rather than headcount-based
4	**Manpower and Industry Development** *(i.e. ensure the FM workforce is adequately trained and firms are credible in service delivery through accreditation)* • **Develop a skills framework for the FM workforce** that will provide better guidance on career progression and training opportunities • **Develop an accreditation framework for FM firms** to recognise the better performing firms

Table 2: Key Proposed Recommendations by the FMIC

BCA will also partner stakeholders, including TACs such as the International Facilities Management Association (IFMA) and Association for Property and Facilities Management (APFM) to transform the FM sector.

Annex D(i)

Facilities Management Implementation Committee Terms of Reference

a) To conduct stock-take on the challenges and to identify current and emerging best practices in the FM sector

b) To formulate detailed implementation plan

c) To oversee the implementation of action plan to develop the FM industry

d) To review and provide post-implementation feedback on the ITM

Annex D(ii)

	Level 1 **Workflow Automation**	**Level 2** **Optimisation within Systems**	**Level 3** **Integration across Systems**
	When triggered, by human/ sensor, automatically initiates a process that tracks and logs an incident up to closing state	Use of data analytics to optimise systems, quantify operations efficiency and perform predictive maintenance	Optimisation of resource deployment and utilisation across various building systems
Single Building/ Facility	**Example:**  CCTV to trigger intrusion alert  Toilet sensors to trigger on-demand cleaning	**Example:**  Software making sense out of data collected to optimise chiller system performance  Software making sense out of data collected to predict maintenance needs of lift systems	**Example:**  Centralised management and command & control of building systems on the streamlined platform(s)
Aggregation across Buildings/ Facilities	**Example:**   Mobile deployment of central security/ cleaning team within a precinct upon trigger/ on-demand	**Example:**  Connected services with big data analytics to improve system efficiency and performance	**Example:**  Centralised management and command and control of building systems across multiple facilities

Table 3: Examples of different levels of Smart FM Deployment (for buildings)

Tier 1	Use of basic technologies to provide digital FM services for improved productivity and efficiency
Tier 2	Use of advanced technologies to provide integrated and data-driven predictive FM services
Tier 3	Research and development of innovative technologies and solutions to revamp conventional way of FM operations and stay ahead of competition

Table 4: Different tiers of Smart FM Sophistication (for FM Companies)

Annex E

Company profiles for FM

Company/ Personnel	Representation	Brief Info
Cushman & Wakefield	FM Companies	C&W operates based on a forward-looking, forward planning business strategy/ model, leveraging on technology to improve and create value for customers and increase business profitability. C&W's approach in smart solutions and innovations are based on 3 principles – Productivity, Safety, Sustainability.
Cushman & Wakefield	FM personnel – Ms Catherine Ng Wei Ting	Ms Ng is experienced in managing technical and maintenance personnel to provide quality facilities management services to government and critical facilities. In the FM industry, where service level standards are very important, Ms Ng has often been commended by clients for her fast thinking and effective response to their needs, taking charge of her FM team and going the extra mile to get things done Along the course of work, she has also attained qualifications in water efficiency and risk management, acquiring a holistic understanding to further her expertise and commitment to the industry.