

ANNEX A – NEXT PHASE OF FUNDING INITIATIVES UNDER RESEARCH & INNOVATION ENTERPRISE (RIE) 2030

Background

1 Launched in 2017, MND's Cities of Tomorrow (CoT) R&D Programme is the Urban Solutions and Sustainability (USS) domain's flagship programme to drive Research and Innovation (R&I) for Singapore's built environment sector.

2 Initially conceptualised to develop cutting-edge urban solutions, CoT's research focus areas have evolved over the years to also address existential challenges (e.g. impact of climate change on our liveability and health) and support national plans and aspirations (e.g. BE Industry Transformation Map (ITM), Singapore Green Plan 2030). Driven by our limited space as a small city-state, CoT's efforts have been centred around the need to plan, build, maintain, and redevelop in a productive, safe and sustainable manner, to support population, social and economic needs in the long-term while ensuring liveability in light of increasing urbanisation.

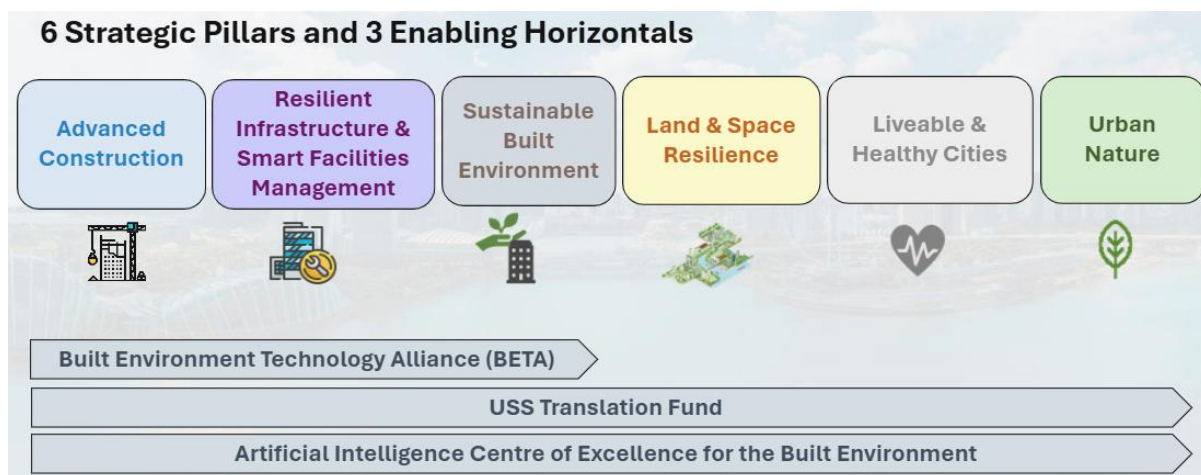
CoT RIE2030

3 The government remains committed to partnering the sector to drive R&I that addresses national challenges such as ageing infrastructure and reliance on foreign manpower, to build a future-ready built environment. RIE2020 and RIE2025 were focused on developing solutions that address specific challenges, such as enhancing task-level construction productivity. Building on that, the CoT RIE2030 will provide sustained investment to support growth and good jobs, while helping Singapore's Built Environment sector tackle key national challenges.

4 In RIE2030, CoT will focus on six strategic research pillars and three enabling horizontals (*Figure 1*) to tackle pressing national challenges and foster a future-ready built environment sector. The following Funding Initiatives under CoT have been progressively announced in 2026.

Funding Initiatives	Announcement Platform	Funding Secured (\$ million)
USS Translation Fund	USS R&I Congress (Feb 2026)	40
Artificial Intelligence Centre of Excellence for the BE		30
Land & Space Resilience	World Cities Summit (Jun 2026)	39.4
Liveable & Healthy Cities		32
Urban Nature		44

Figure 1.



Note: (1) USS Translation Fund, (2) Artificial Intelligence Centre of Excellence for the BE, and (3) Land & Space Resilience Funding Initiative, (4) Liveable and Healthy Cities Funding Initiative, (5) Urban Nature Funding Initiative, have been announced earlier at the USS R&I Congress (Feb 2026) and the World Cities Summit (Jun 2026).

Funding Initiatives announced at IBEW 2026

5 At the International Built Environment Week (IBEW) 2026, an additional \$112 million under RIE2030 was announced to support four funding initiatives over a five-year period (from FY26 to FY30) to drive the next bound of R&I in four key areas to align with Singapore's latest priorities:

- i. Advancing productive and safe demolition techniques to support urban rejuvenation needs while improving productivity and minimising disamenities in built-up areas
- ii. Expanding capabilities in modelling building lifespan, improving building maintenance reliability and timeliness of repairs

- iii. Strengthening focus on embodied carbon reduction and energy efficiency towards achieving net zero carbon emissions in the built environment by 2050
- iv. Catalysing the translation of R&I outcomes into industry adoption through the Built Environment Technology Alliance (BETA) Catalyst Programme.

Funding Initiatives	Details	Funding
Advanced Construction	Building on ongoing efforts in DfMA, Robotics & Automation, and high-strength and lightweight construction materials, a new focus area on productive and safe demolition will be established to facilitate the rejuvenation of ageing towns.	\$31.2 million
Resilient Infrastructure and Smart Facilities Management	Expanding upon RIE2025's focus on improving inspection, repair and maintenance productivity and reliability of M&E services, with new focus areas such as modelling building lifespan to support prioritisation of estate rejuvenation programmes.	\$30.2 million
Sustainable Built Environment	Strengthening the focus on embodied carbon reduction and improving buildings' energy efficiency, in support of Singapore's goal to achieve net zero carbon emissions within the built environment by 2050.	\$45.3 million
Built Environment Technology Alliance (BETA) Catalyst	Supporting bottom-up initiatives by industry to de-risk their investment in R&I and build up competitive capabilities for the entire value chain of progressive BE firms, through collaborative R&I over a sustained period and drive industry adoption.	\$5 million

ANNEX B – A Refreshed BCA Green Mark Version 7 to Accelerate Decarbonisation and Foster a Greener Built Environment

1 The BCA Green Mark certification scheme was first launched in 2005 as Singapore's pioneering green building certification scheme. BCA Green Mark has since certified over 2,700 buildings in Singapore and expanded internationally to over 350 projects across 18 countries. These buildings collectively save over 4.6 billion kWh of electricity annually. This is the equivalent to powering over one million 4-room HDB flats, avoiding approximately 1.9 million tonnes of carbon emissions, and generating cost savings of approximately \$1.6 billion per year.

2 The BCA Green Mark certification scheme is periodically refreshed to keep pace with evolving global sustainability trends, strengthen alignment with international standards, and raise the bar for the built environment in support of Singapore's national climate and sustainability goals.

BCA Green Mark Version 7

3 The new BCA Green Mark Version 7 (GM v7) takes sustainability standards to the next level. It builds on the current BCA Green Mark 2021 scheme and introduces key enhancements to accelerate decarbonisation of the built environment in support of Singapore's broader climate commitments under the Singapore Green Plan 2030. It also adopts a pro-business approach in alignment with evolving global sustainability trends.

4 The GM v7 refresh is anchored on three key objectives:

- i. Advance the greening of Singapore's building stock
- ii. Mainstream Super Low Energy buildings
- iii. Respond to industry feedback to make sustainability more practical and achievable

A New Energy Rating to Advance the Greening of Singapore's Building Stock

5 A key introduction under GM v7 is the new standalone BCA Energy Rating, which is a certification focused purely on energy performance.

6 The new Energy Rating provides a new, alternative entry point into the green building ecosystem, especially for building owners not yet on the green journey. Building owners would be encouraged to invest in energy improvement retrofits, which have proven to offer clear return on investment in terms of cost savings on energy consumption. This approach is similar to rating formats that have been successfully adopted in international green building frameworks. This will support more buildings to enter the green ecosystem, move the needle on Singapore's greening target, and contribute directly to our Nationally Determined Contribution (NDC) commitments.

7 GM v7 also introduces a new Super Low Energy tier, SLE70, to challenge and incentivise progressive developers to continue raising the bar on energy efficiency. Attainable by today's best performing buildings, SLE70 is achieved by delivering over 70% energy savings against a building's 2005 baseline. It presents an opportunity for forerunners in the industry to demonstrate leadership and push the boundaries of what is achievable in sustainable building design. It is an ambitious but achievable target that we hope will mainstream Super Low Energy standards across the industry, directly supporting our second 80-80-80¹ target of 80% of new developments meeting Super Low Energy standards from 2030. Looking further ahead, SLE70 also serves as a clear stepping stone towards the national target of 80% energy efficiency improvement compared to 2005 levels.

8 To further support the industry in achieving energy performance, Alternative Cooling Technologies (ACTs) will be recognised as a means to offset energy performance shortfalls. ACTs such as hybrid cooling, active chilled beams, and passive displacement cooling can achieve up to 50% energy savings compared to conventional air-conditioning systems.

Holistic BCA Green Mark Certification

¹ The Singapore Green Building Masterplan was developed to push the boundaries of energy efficiency and environmental sustainability in buildings through our targets of "80-80-80 by 2030", namely 80% buildings green by 2030, 80% new developments with Super Low Energy standard from 2030, 80% energy efficiency improvement from 2005 for best-in-class buildings by 2030.

9 After achieving an energy rating, industry frontrunners who want to demonstrate more comprehensive sustainability performance can pursue the holistic BCA Green Mark certification. The holistic BCA Green Mark combines the Energy Rating with points scored across five additional sustainability sections covering Intelligence, Health & Wellbeing, Whole Life Carbon, Resilience, and Maintainability. This enables a fuller assessment of a building's sustainability performance across all green building aspects.

10 Buildings pursuing holistic BCA Green Mark certification will receive two separate certificates, one reflecting their BCA Energy Rating performance tier, and another reflecting their holistic rating. This gives building owners flexibility to display either certificate, or both, depending on their objectives and target audience. More details on the holistic BCA Green Mark can be found in the section on “Green Mark Version 7 Badges” below.

Collaborative Development with Industry Consultation

11 GM v7 was developed in close collaboration with industry stakeholders across the built environment value chain, financial institutions, Trade Associations and Chambers, and other Government Entities. It incorporates feedback from consultation sessions with over 150 organisations and 280 professionals across the built environment value chain. Designed with businesses in mind, GM v7 balances sustainability ambition with practical, cost-effective implementation.

12 Recertification processes have also been made more efficient for building owners. Under select certification pathway², owners with large portfolios of similar properties can recertify multiple buildings concurrently, reducing time and administrative effort. Buildings which can demonstrate sustained energy performance will also benefit from an extended certification validity of up to five years, up from the current three, reducing their recertification frequency cycle.

² Applicable only for Pathway 1 EUI projects under Green Mark In-Operations.

13 GM v7 is also aligned with Environmental, Social, and Governance (ESG) reporting requirements, enabling building owners unlock green financing opportunities and stay competitive in an increasingly sustainability-conscious global market.

Transition Timeline

14 Projects can apply for GM v7 as of 2 September 2026. BCA Green Mark 2021 will continue to run in parallel to provide the industry time to transition, with applications closing from 1 April 2027, and all active Green Mark 2021 assessment to conclude by end 2027.

15 More details on GM v7 scoring and certifications can be found here <https://go.gov.sg/gmv7>

Successful Pilot Projects

16 The GM v7 pilot phase was successfully completed by 26 projects, across all building typologies, with strong participation from key developers and environmental sustainability consultant firms. Stakeholders shared positive feedback on the new ratings, highlighting how it supports practical and impactful improvements towards a greener building ecosystem. Some key pilot projects include:

No.	Key Pilot Projects
1	Project: The New Comcentre Development Type: Mixed-use commercial <i>BCA Green Mark: Platinum</i> <i>BCA Energy Rating: Zero Energy</i> <i>5 Badges: Intelligence, Health and Wellbeing, Whole Life Carbon, Maintainability, Resilience</i>



The new Comcentre is a large-scale Grade A commercial redevelopment located in the Orchard Road precinct, comprising two 20-storey office towers with a gross floor area of more than 100,000 sqm. Designed with sustainability and technology leadership and innovation at its core, the development demonstrates how the strategic adoption of Alternative Cooling Technologies (ACTs) can enable large commercial developments to achieve industry-leading energy performance.

Through a combination of high-efficiency cooling systems, the new Comcentre is projected to achieve more than 70% energy savings against the 2005 baseline, qualifying for Super Low Energy (SLE70) status entirely through on-site efficiency measures. Together with extensive solar photovoltaic deployment and smart building optimisation technologies, these efforts have enabled the development to attain Green Mark Platinum with a Zero Energy rating under the BCA Green Mark v7 pilot. It demonstrates how the strategic adoption of ACTs can be a key enabler in reaching the highest tiers of energy performance for large commercial developments.

A key contributor to this performance is the adoption of Active Chilled Beams supported by a high-performance dual-temperature chiller plant. These active chilled beams are ceiling-mounted units that use high-speed pre-cooled air through nozzles to induce larger volumes of air over chilled water coils, providing both cooling and ventilation with minimal ductwork and low noise. This water-based approach is significantly more efficient than conventional air distribution and can achieve between 20% to 65% cooling energy savings. Complementing this, hybrid cooling with elevated temperature setpoints is adopted across occupied spaces,

reducing the demand placed on the cooling systems. These measures optimise energy use while maintaining occupant comfort across the development.

“As the first Grade A commercial building in Singapore to receive this distinction, the new Comcentre exemplifies how an integrated approach across design, technology and building operations can transform the energy performance of large developments. The project is on track to achieve Super Low Energy status of more than 70% energy savings, delivering a reduction in operational carbon emissions and creating stronger long-term value for both occupiers and asset owners.”

- Ms Debra Ma

Director for Development, Singapore, Lendlease and Project Director,
Comcentre Project

“Singtel and Lendlease are honoured to receive this Green Mark v7 recognition, demonstrating how sustainability goals can be translated into meaningful environmental impact. The new Comcentre sets new benchmarks for environmental performance while creating a world-class workplace for generations to come. This achievement underscores our strong partnership, innovation and long-term commitment to sustainable development.”

- Ms Gan Siok Hoon

Group Chief Corporate Officer, Singtel



2

Project: SMU Administration Building**Development Type: Institutional***BCA Energy Rating: SLE60*

SMU Administration Building is a 14-storey building located at the junction of Bras Basah Road and Victoria Street. It houses the University Administration, teaching and learning spaces as well as supporting facilities including a Conference Hall, a Multi-Purpose Sports Hall and a Swimming Pool that serve the needs of students, faculty and staff. The building has a total Gross Floor Area of approximately 22,000 sqm. Completed in June 2005, it has been in use by the University since then.

In 2026, the SMU Administration Building has undergone a comprehensive series of retrofitting works to transform it into a highly energy-efficient facility. Key upgrades include the replacement of the chiller plant, optimisation of air handling units (AHUs), installation of solar panels, upgrading of M&V equipment, and replacement of light fittings with energy-efficient light fittings.

The building employs hybrid cooling across its office spaces, alongside lighting controls powered by presence and daylight sensors, and a maximised rooftop solar photovoltaic installation to harness renewable energy. Together, these measures deliver significant energy savings while maintaining a comfortable and productive environment for occupants.

These efforts have enabled the SMU Administration Building to attain the BCA Energy rating SLE60 Provisional rating under the BCA GM v7 pilot project, with all retrofitting works achieved at a payback period of less than 4 years, demonstrating that sustainability and cost-effectiveness can go hand in hand.



3

Name: Gardens by the Bay (Bay East and Bay South)

Development Type: Large-scale Development

BCA Green Mark: Platinum

BCA Energy Rating: SLE70

2 Badges (Bay East only): Resilience and Maintainability



Gardens by the Bay (Bay South) is a horticultural attraction spanning 54 hectares located along Marina Bay, comprising conservatories, an energy centre, Supertrees, and supporting facilities. It is a showpiece of horticulture and garden artistry, with its conservatories serving as an energy-efficient showcase of sustainable technologies.

What makes Gardens by the Bay (Bay South) remarkable from an energy perspective is how it generates and uses energy in ways that are entirely unique to its identity as a garden. Organic waste from the gardens is converted into renewable energy through a biomass cogeneration system, which generates green electricity and hot water to power the cooling of the iconic conservatories. The Supertrees also serve a functional purpose, hosting a 1,080 kWp solar installation at their canopies. Inside the conservatories, cooling is delivered stratification strategy that

works with the natural behaviour of cold air and heat, keeping vast glass-enclosed spaces comfortable without the energy intensity of conventional systems.

These efforts have enabled Gardens by the Bay (Bay South) to upgrade its certification to Green Mark Platinum with an Energy Rating of SLE70 under the BCA GM v7 pilot, demonstrating how a world-class attraction can turn its own natural processes into an energy asset, achieving the highest tiers of sustainability performance.



Gardens by the Bay (Bay East) is a new public park development by Gardens by the Bay, located at the new Founders Drive along the waterfront at Marina Reservoir. Spanning 24.7 hectares of green space, it will offer a range of public amenities alongside supporting back-of-house facilities. Anchored in the core tenets of biophilic design, Gardens by the Bay (Bay East) is envisioned as a living testament to Singapore's greening journey and its connection with nature, integrating biodiversity, heritage, and sustainability into its landscape and built environment.

Gardens by the Bay (Bay East) has been designed to minimise energy use from the ground up. Large portions of the development rely on natural ventilation rather than air-conditioning, while shading and high-performance glazing reduce heat gain

across the buildings. Where mechanical cooling is needed, efficient systems are used. Crowning the development is a rooftop solar installation of over 900 kWp — large enough to generate the equivalent of more than 40% of the park's annual energy needs entirely from the sun.

These efforts have enabled Gardens by the Bay (Bay East) to attain a Green Mark Platinum with an Energy Rating of SLE70 under the BCA GM v7 pilot, demonstrating how integrated passive design, efficient building systems, and maximised on-site renewables can together achieve Super Low Energy performance even for complex, multi-building public park developments.



Full List of Pilot Projects

No.	Name Of Project	Developer	Sustainability Consultant	Energy Rating	Green Mark & Badges
1	Comcentre	Lendlease and Singtel	Surbana Jurong Group	ZE	Platinum · 5 Badges
2	Pasir Laba Camp (Multi-Storey Vehicle Storage & Standard Obstacle Course)	Defence Science and Technology Agency	Surbana Jurong Group	SLE70	Platinum · 5 Badges

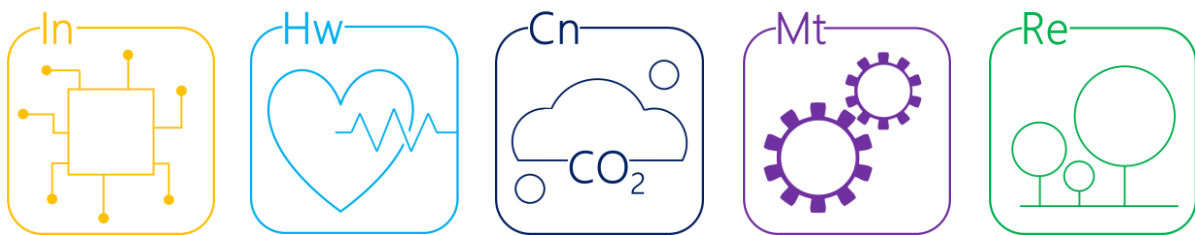
32	The Clifford at Raffles Place	Singapore Land Group Limited	GreenA Consultants	SLE60	Platinum · 5 Badges
43	NUS Sustainability & Resilience Building	National University of Singapore	DP Sustainable Design	SLE60	Platinum · 5 Badges
54	Gombak Office Building	Defence Science and Technology Agency	DP Sustainable Design	SLE60	Platinum · 5 Badges
6	Kranji Camp (Workshop & Fuel Station)	Defence Science and Technology Agency	Surbana Jurong Group	PE	Platinum · Hw Cn Mt
7	Lucerne Grand & Lucerne Galleria	City Developments Limited	DP Sustainable Design	SLE60	Platinum · Mt Re Cn
8	Bay East Garden	Gardens by the Bay	Atelier Ten	SLE70	Platinum · Re Mt
9	Tuas Water Reclamation Plant – Administration and Operations Buildings	Public Utilities Board	GreenA Consultants	SLE70	Platinum · Mt
10	Nanyang Polytechnic (Block D1)	Nanyang Polytechnic	GreenA Consultants	SLE60	Platinum · Mt
11	Interim Ferry Terminal, Jetty & Berths	Mapletree	Building Systems & Diagnostics	SLE60	Platinum · Mt
12	Bay South	Gardens by the Bay	LJ Energy	SLE70	Platinum
13	Engineering Design & Innovation Centre (E2A Building)	National University of Singapore	National University of Singapore	SLE60	Platinum

14	Environment Building	Ministry of Sustainability and the Environment	CBRE Singapore	SLE60	Platinum
15	111 Somerset	MCST 4744	Savills Singapore	SLE60	Platinum
16	313@Somerset	Lendlease	Savills Singapore	SLE60	Platinum
17	Republic Plaza	City Developments Limited	CBM Pte Ltd	SLE60	Platinum
18	Raffles Hotel	Raffles Hotel	Savills Singapore	EE55	Platinum
19	Serangoon North Vista	Housing & Development Board	DP Sustainable Design	EE50	GoldPLUS
20	Tengah Plantation Close 8	Housing & Development Board	Surbana Jurong Group	EE50	GoldPLUS
21	Collyer Quay Centre	Savu Investments	CBRE Singapore	EE45	Gold
22	Benoi Factory	Kazon Pte Ltd (China Construction)	GreenA Consultants	PE	-
23	UOB Tower 80	United Overseas Bank	GreenA Consultants	SLE60	-
24	SMU Admin Building	Singapore Management University	DP Sustainable Design	SLE60	-
25	NUS E7 Building	National University of Singapore	National University of Singapore	EE55	-
26	30 Teban Gardens Crescent	Perpetual (Asia) Limited	Savills	EE50	-

Green Mark Version 7 Badges

Projects pursuing holistic BCA Green Mark certification may also be recognised for exemplary performance in individual sustainability sections.

There are five environmental sustainability sections under GM v7 Framework. These sections are developed with various industry stakeholders and fulfil the relevant UN Global Goals for SDGs. There are 15 points available in each section – a project scoring 10 points and above from each section qualifies to get a badge which represents their exceptional performance in that area.



Intelligence (In)

	The Intelligence section will score buildings on the adoption of relevant smart technologies and systems, and data management environments within the building design, construction, retrofit and operation of the building, that enable fully integrated, automated, intelligent, and responsive buildings.
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Health and Well-being (Hw)

	The Health and Well-being section will score buildings on how they are designed, retrofitted, constructed, and operated to facilitate the mental, physical, and social well-being of their occupants. The original section was developed jointly with the Ministry of Health Office for
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	Healthcare Transformation (MOHT) and Centre for Liveable Cities (CLC).
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Whole Life Carbon (Cn)

	The Whole Life Carbon section will score buildings on their Whole Life Carbon performance based on international calculation methodologies, upfront (embodied) carbon (i.e., carbon footprint of the construction materials), use of sustainable construction methods, and the sustainable fitting-out of buildings. The section will also evaluate the plans, and delivery of those plans to transition the building towards zero carbon emissions.
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Resilience (Re)

	The Resilience section will evaluate buildings on their resilience and adaptation to climate change as well as the use of nature-based or natural climate solutions with actions to protect, sustainably manage, and restore natural or modified ecosystems.
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Maintainability (Mt)

	The Maintainability section will score buildings on their Design for Maintainability (DfM), which refers to designing buildings for their safe and effective maintenance to optimise lifecycle performance of the asset. This section uses the Maintainability Framework (the DfM evaluation tool) and translates this into Green Mark points.
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ANNEX C – NEW ACCREDITATION SCHEME FOR SITE SUPERVISION FIRMS

Background

1 As Singapore's built environment advances with increasingly complex projects, there is a need for more specialist works and sophisticated methods of construction. As such, built environment firms must build up a broad range of technical competencies to meet supervision demands. To address this, from 2028, large-scale structural works projects valued above \$75 million will be required to appoint BCA-licensed firms to carry out site supervision services.

2 Additionally, there is increasing adoption of remote site supervision (RSS). This enables firms to supervise multiple project sites virtually by leveraging digital tools and technologies such as data platforms, smart glasses and live streaming devices, while maintaining rigorous governance and standardised operating procedures.

3 Engaging BCA-licensed firms for supervision will ensure that complex projects benefit from firm-level resources, expertise, and the latest technological developments to meet evolving demands and deliver safer, higher-quality infrastructure for Singaporeans.

Raising Safety and Quality Standards in Site Supervision

4 The Singapore Accreditation Council (SAC) has launched the Site Supervision Firm (SSF) Accreditation Scheme to provide a firm-level capability framework that supports consistent and effective implementation of technology-enabled supervision. Firms must first be accredited under SAC's SSF Accreditation Scheme to be licensed by BCA to provide mandatory site supervision services for such large-scale projects.

5 To be accredited, firms must meet stringent requirements for competence, impartiality and consistent operation for inspection bodies, in accordance with ISO/IEC 17020³³.

6 Additionally, firms are expected to validate six key technical competencies and leverage digital technologies to drive productivity and efficiency. There are also seven different specialist competencies the firms can be validated for, to give developers and builders the confidence of the service they are buying. The competencies are listed as follows:

Six key technical competencies

1. Concreting works, including precast concreting
2. Structural steelworks
3. Reinforcement in reinforced concrete (RC) members
4. Foundation works
5. Earth Retaining or Stabilising Structures (ERSS) works
6. Safety barriers

Seven specialist competencies

1. Pre-stressing and post-tensioning works
2. Post-installed anchors/rebars
3. PPVC systems
4. Demolition works
5. Curtainwall and cladding systems
6. Tunnelling
7. Land Reclamation

³³ *ISO/IEC 17020 specifies the requirements for the competence, impartiality and consistent operation of inspection bodies. More information is at <https://www.sac-accreditation.gov.sg/resources/sac-documents/inspection-body-accreditation/>*

7 Proper governance structures and standard operating procedures at the firm-level will enable more effective collaborations among employees and across different projects. This will establish robust knowledge management systems, leading to more consistent and efficient service delivery for service buyers.

8 Firms are also required to have minimum staffing levels and years of experience for employed professionals, and an established structured training programmes for their employees. This facilitates institutionalising of knowledge that will help retain engineering expertise within the built environment sector.

9 Applications for the Site Supervision Firm Accreditation Scheme will open in September. Firms can get more details on the application requirements and apply for the scheme on the Singapore Accreditation Council's website: <https://www.sac-accreditation.gov.sg/>