

Annex A – About Transformation across the BE Value Chain

Background

1 To enhance industry resilience and collaboration, it is imperative that firms in the Built Environment sector take a long-term view and work with their partners to collectively transform business and human capital practices, while they attend to business-as-usual work. Adopting this approach has helped firms better manage the negative impacts of the Covid-19 pandemic and has prepared them well to seize new opportunities post-pandemic.

About the Growth and Transformation Scheme (GTS)

2 The Growth and Transformation Scheme (GTS) was first announced at the Committee of Supply 2021 as a scheme that supports value chain transformation efforts in the BE sector, and the qualifying criteria were announced at the International Built Environment Week 2022. This is a significant shift from project-based support schemes where stakeholders usually focus on implementing initiatives to deliver the project on hand.

3 The 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 beneficially transformation outcomes. The key objectives of 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.

4 Over the past year, BCA has worked with the industry to refine the scheme

further. The Developer, as the main applicant, is required to work with its partners to develop a multi-year business plan, detailing how the group of firms will work collectively over multiple projects to meet more ambitious business transformation targets. This ensures that firms take a longer-term view on capability development and their working relationships. Applicants are required to demonstrate that their proposed business plans and initiatives will meet all of the following outcomes:

No.	Outcomes	Requirements
1	Strategic Collaboration / Business Growth	<ul style="list-style-type: none"> • Proposals should demonstrate a clear plan for implementing collaborative contracting and project management. This could entail putting in place structured processes for regular progress reporting, early notification of potential problems and dispute resolution, to encourage all parties to resolve differences expeditiously in service of shared project objectives. Drafting of collaborative contracts, training and hiring of professionals with collaborative contracting experience can be supported. • Proposals to strengthen business fundamentals will also be considered (e.g. consultancy for business strategy development and process re-engineering/redesigning, etc.). These should go beyond basic business functions, such as accounting.
2	Human Capital Development	<ul style="list-style-type: none"> • Proposals should detail the workforce transformation initiatives to increase productivity, as well as attract and develop talent across the value chain. Firms are required to submit their Human Capital Diagnostic Tool results and demonstrate that the proposed initiatives address gaps in their Human Capital practices.
3	Advanced Manufacturing and Assembly	<ul style="list-style-type: none"> • Proposals should detail how more productive methods of construction will be implemented to achieve more than 30% (non-residential buildings) and 35% (residential buildings) increase in site productivity over 2010 levels in at least two projects. The initiatives can comprise process redesign initiatives, as well as robotics and automation solutions.
4	Integrated Planning and Design	<ul style="list-style-type: none"> • Proposals should demonstrate a holistic view of digital transformation across the value chain and entire development/building lifecycle. Initiatives could include the development of a Common Data Environment to be used by all project partners, review and implementation of common data standards, integration of key functions such as procurement and contract management, or the setup of

		core digital teams to oversee and guide the implementation of the digital transformation initiatives.
5	Sustainable Urban Systems	<ul style="list-style-type: none">• New buildings are expected to achieve Green Mark 2021 Platinum Super Low Energy with Maintainability and Intelligence badges. This will yield at least 60% improvement in energy efficiency over the 2005 industry average. Proposals should also detail the initiatives to attain at least 20% manpower savings from process redesign and/or deployment of advanced technologies in Facilities Management.

5 Firms can visit BCA's [website](#) to find out more about the GTS.

Annex B – About the Expected Benefits of Collective Transformation

1 Recognising the value of collective transformation, CapitaLand Development, City Developments Limited, GuocoLand and UOL Group Limited have stepped forward to further strengthen their relationships with builders, consultants, and sub-contractors through the signing of MOUs. The MOUs are a demonstration of the strong commitment of industry-leading firms to support each other on this transformation journey and collectively achieve best-in-class outcomes to improve productivity, reduce foreign labour and build resilience against unprecedented crises.

2 The MOU partners include Small and Medium Enterprises (SMEs) that play an important role in ensuring supply chain resilience in Singapore. These SMEs can potentially benefit from the collective process improvements, leverage available support to improve human capital practices and digitalise their operations to achieve longer-term transformation.

CapitaLand Development (CLD)

MOU Partners: Woh Hup (Private) Limited, Threesixty Cost Management Pte Ltd., SJ Architecture, Santai Construction (S) Pte Ltd and Kai Peng Construction Pte Ltd

Through this strategic partnership, CLD and its partners are studying the implementation of collaborative contracting and project management for its projects. This involves putting in place structured processes with enablers such as a digital platform and systematic mechanism to facilitate better communications and collaboration, guide early identification of issues as well as manage dispute resolution and risk allocation.

“CapitaLand Development is pleased to play our part as an industry leader to drive industry transformation. This partnership across the value chain is aligned with our business philosophy of embracing strategic collaborations with our ecosystem partners to make a larger and more positive impact on the industry. We believe that it is only when all parties in the value chain collaborate closely in a systematic and transparent manner throughout the project development life cycle that productivity,

workforce development, digitalisation, and business growth objectives may be better achieved.”

- **Mr. Chew Peet Mun, Managing Director, Investment & Development, CapitaLand Development (Singapore)**

City Developments Limited (CDL)

MOU Partners: Woh Hup (Private) Limited, ADDP Architects LLP, Teamtech Private Limited, China Star Building Construction

CDL is working towards establishing a Common Data Environment (CDE) platform that connects value chain partners working on a project. CDE enables data sharing across all parties, creating a one-stop conducive environment for upfront cross-disciplinary collaboration and facilitating a single source of truth for all stakeholders.

“In line with our ethos of ‘Conserving as we Construct’, we embrace a holistic approach towards sustainable development and innovation. For over two decades, we have introduced initiatives to drive productivity and environment performance improvements amongst our builders and consultants. We continue to leverage technology to improve cross-disciplinary workflows within our value chain, which requires large-scale collaboration overall. The closing of digital gaps, such as through the Common Data Environment (CDE) platform, will provide all stakeholders with greater visibility of the entire building life cycle, enabling us to make more informed, data-driven decisions that will enhance resource efficiency and productivity.”

- **Mr. Chia Ngiang Hong, Group General Manager, City Developments Limited (CDL)**

GuocoLand

MOU Partners: Kimly Construction Pte Ltd., Woh Hup (Private) Limited, ADDP Architects LLP, DP Architects Pte Ltd, CGW Construction & Engineering, Integrated Precast Solutions Pte Ltd, APP Engineering Pte Ltd, DLE M&E Pte Ltd and Sing Moh Electrical Engineering Pte Ltd

GuocoLand aims to establish a cloud-based CDE platform from Design to Facilities Management (FM) that will connect their value chain partners to work towards

common productivity, quality control, decarbonisation and achieving Environmental, Social and Governance (ESG) Goals. GuocoLand will look into making it commercially available for their partners. In addition, GuocoLand has also begun to transform existing assets into smarter and greener buildings, and implement integrated data delivery and digital solutions for all their ongoing developments.

“There is an urgent need for the built environment sector to reduce its carbon emissions and raise productivity. This requires a fundamental transformation of the sector’s processes and mindsets. Stakeholders across the value-chain need to work together. As a developer, we are a key buyer of materials, technologies and services. We play a critical role in mobilising our partners in this transformation process. It will be a deep and exciting learning process for GuocoLand and our partners, and we look forward to contributing to the sector’s innovation and transformation.”

- **Mr Cheng Hsing Yao, CEO, GuocoLand**

UOL Group Limited (UOL)

MOU Partners: United Tec Construction Pte Ltd., P&T Consultants Pte Ltd.

UOL is committed to supporting its partners in the adoption of new technology to improve productivity across the value chain. UOL and United Tec have collaborated on several projects, including the 56-storey Avenue South Residence, which is the world’s tallest residential building using the prefabricated prefinished volumetric construction (PPVC) method. The success of such support and collaboration has increased confidence between partners to leverage technology, develop strong alliance and accelerate transformation growth in the built environment industry.

“The COVID-19 pandemic has highlighted the challenges faced by the built environment industry, which is fragmented and susceptible to supply chain disruptions. There is a crucial need to strengthen collaboration across the value chain in the ecosystem to integrate different functions, increase productivity and build resilience. As a developer, we understand that we are a key player in helping to realise the transformation of the built environment industry. UOL is committed to

working closely with our partners to unlock value collectively and deliver positive impact to all our stakeholders.”

- **Mr. Liam Wee Sin, Group Chief Executive, UOL**

Participating Firms

Firm	Description
ADDP Architects LLP (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.
APP Engineering Pte Ltd (APP)	Established in 1979, APP is a local integrated one-stop building service provider for mechanical and electrical engineering works. APP provides a wide range of services such as air-conditioning and mechanical ventilation (ACMV) Systems, electrical, Extra Low Voltage System, security systems, fire protection system and plumbing and sanitary works. Some notable projects that APP was involved in are VivoCity, Compass Point, ITE West, Marina One and CapitaSpring.
CapitaLand Development (CLD)	CLD is the development arm of CapitaLand Group. Focusing on its core markets of Singapore, China and Vietnam, CLD's 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. Its strong expertise in master planning, land development and project execution has won numerous accolades including the Building and Construction Authority Quality Excellence Award and FIABCI Prix d'Excellence Award.
CGW Construction & Engineering Pte Ltd (CGW)	CGW is a subcontractor that has a wealth of experience in reinforcement concrete (RC) works. CGW has progressed significantly over the last few years and has become a key player in the industry, providing a complete range of value-added construction services to their customers.
China Star Building Construction Pte Ltd (China Star)	China Star is an architectural wet trade subcontractor that has proven track record in project delivery, safety, and quality standards. With their strong track record, China Star will have an ongoing role in the value chain and has been awarded multiple projects where they continue to perform well.

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.
DLE M&E Pte Ltd (DLE)	DLE is an integrated mechanical & electrical contracting firm for commercial, residential, industrial, and hospitality projects. DLE offers a full suite of service from design, and development to installation, execution, and maintenance. With a staff strength of 300, DLE strives to deliver the best solutions and value to their customers.
DP Architects Pte Ltd (DPA)	DPA is a multidisciplinary architectural design practice firm with 18 global offices strategically linked from Shanghai to London, and 8 specialist companies providing expertise from engineering and sustainable design to interior, façade, lighting and landscape design. The DPA group of companies function as One Global Studio; harnessing the collective design experience and knowledge of its people and its rich pool of resources and data to deliver fully coordinated, innovative and well-calibrated design solutions at all scales, contributing to a city's long-term sustainability and socio-economic health.
GuocoLand	GuocoLand is a public company listed on the Singapore Exchange Securities Trading Limited since 1978. As a premier real estate group, GuocoLand is focused on achieving scalability, sustainability and growth in its core markets through its property development, investment and management businesses. The Group has established property operations in the geographical markets of Singapore, China and Malaysia, through a portfolio of quality integrated mixed-use developments as well as other premium residential, commercial, retail and hospitality developments. In Singapore, through the iconic Guoco Tower, Tanjong Pagar has been transformed into a new business and lifestyle destination within the Central Business District.
Integrated Precast Solutions Pte Ltd (IPS)	As part of Teambuild Construction Group, Integrated Precast Solutions Ptd Ltd (IPS) specialises in Advanced Precast Concrete technology in Singapore. With vast experience in Prefabricated Prefinished Volumetric Construction (PPVC), Prefabricated Bathroom Units (PBU), and other conventional precast products, IPS is one of the pioneers in the field, lending rich expertise and comprehensive services to residential and commercial projects – both as a precaster and consultant.
Kai Peng Construction Singapore Pte Ltd (Kai Peng)	Kai Peng, a sub-contractor for architectural wet trades, has been an important partner of Woh Hup since the start of the pandemic, ensuring that jobs can be completed despite the pandemic-induced manpower crunch. Kai Peng has grown steadily from 100 workers to around 450 workers today.
Kimly Construction Pte Ltd (Kimly)	Kimly is a progressive builder in Singapore. With vast experience in an array of projects, Kimly is committed to drive productivity and

	embed innovation and sustainable approaches into its construction projects.
P&T Consultants Pte Ltd (P&T)	P&T is an award-winning, global design firm offering Architectural & Engineering Services since its inception in 1868. The Group has more than 1500 architects, engineers, planners and designers and has completed thousands of projects in more than 25 countries over the 150 years in operation.
Santai Construction (S) Pte Ltd (Santai)	Santai is a sub-contractor for reinforced concrete and architectural wet trades. Santai became a regular partner of Woh Hup in 2011 and has been able to deliver projects with good progress, quality and safety performance, excelling in both Residential and Civil projects.
Sing Moh Electrical Engineering Pte Ltd (Sing Moh)	With more than 30 years of experience in the building industry, Sing Moh has completed projects for various types of building developments including residential, institutional and commercial. Sing Moh prides itself as an early adopter of Prefabricated Prefinished Volumetric Construction (PPVC) and Design for Manufacturing and Assembly (DfMA). Sing Moh has also worked on projects using Cross Laminated Timber/Glulam material and strives to improve its capabilities and competitive edge. Sing Moh is a subsidiary of the listed company, Solis Holdings Limited which is listed on the main Board of the Hong Kong Stock Exchange.
SJ Architecture	Surbana Jurong Group is a global urban, infrastructure and managed services consulting firm, with over 70 years of track record in successful project delivery. Headquartered in Singapore, the group has a global talent pool of 16,000 across Surbana Jurong and their member companies AETOS, Atelier Ten, B+H, KTP, Prostruct, RBG, SAA, Sino-Sun and SMEC, based in more than 120 offices in over 40 countries. SJ Architecture, part of Surbana Jurong's global design practice of architects and planners, is driven by progressive thinking and creative solutions to help shape a better future.
Teamtech Private Limited (Teamtech)	Teamtech is a subcontractor for structural/reinforced concrete works that was founded in 2006. It has provided vital support to main contractors through the pandemic amidst manpower shortages and established itself as a reliable subcontractor in the industry. Teamtech has grown steadily from 100 workers to around 450 workers today.
Threesixty Cost Management Pte Ltd (Threesixty)	Surbana Jurong Group is a global urban, infrastructure and managed services consulting firm, with over 70 years of track record in successful project delivery. Surbana Jurong provides a full suite of multidisciplinary consultancy services that cover the entire project life cycle from planning and design, through to delivery and management, decommissioning and closure. Threesixty Cost Management, a subsidiary of Surbana Jurong Group, helps clients manage the associated costs and contracts of their projects in an independent, efficient, and responsible manner. It provides in-depth cost and commercial management and contractual advice from project inception to completion.
United Tec Construction Pte Ltd (United Tec)	United Tec Construction was founded in 2018. Despite being a relatively young firm, United Tec has developed a niche in PPVC mainly for private residential projects. Using a combination of in house PPVC design, installation method and supply chain management,

	<p>United Tec is constantly innovating and improving their competitive edge. To date, United Tec has successfully installed 6,000 PPVC modules.</p>
<p>UOL Group Limited (UOL)</p>	<p>UOL Group Limited (UOL) is a Singapore-listed property and hospitality group with a diversified portfolio of development and investment properties, hotels and serviced suites in Asia, Oceania, Europe and North America.</p>
<p>Woh Hup (Private) Limited (Woh Hup)</p>	<p>Woh Hup is one of the largest privately owned civil engineering and construction companies in Singapore that consistently delivers projects on time with no compromises in quality. As a company at the forefront of the industry, Woh Hup continues to build on its strong foundation for growth by seeking to spearhead cutting-edge, innovative building and engineering solutions to remain competitive in this dynamic environment. This has also led to the group's expansion regionally.</p>