Hong Kong Green Building Council Limited (HKGBC)

Hong Kong Smart Green Building Design Best Practice Guidebook Including Interfacing with Smart City

<u>Invitation for Expression of Interest (EOI)</u>

1. Project Background

Launched in June 2017, the Government's Report of Consultancy Study on Smart City Blueprint for Hong Kong provides an overview of smart city planning and development in Hong Kong. The study presented development plans in six major areas: Smart Environment, Smart Mobility, Smart Living, Smart Environment, Smart People, Smart Government and Smart Economy, with proposals of potential projects and activities in the short, medium and long-term. The HKGBC supports the Government's vision to embrace innovation and technology to build a smart and people-centric Hong Kong characterised by a strong economy, high quality of living, and a high quality working environment.

The three areas of Smart Environment, Smart Mobility and Smart Living are more directly related to the built environment. Smart Environment promotes green and intelligent buildings in construction and maintenance, encourages waste and pollution management, and motivates energy efficiency in commercial settings. Smart Mobility promotes green and intelligent transport through for example, the use of IoT sensors to improve traffic management and enhance efficiency in searching for carparking spaces, as well as carpooling and car sharing. Establishing "bicycle-friendly" new towns and new development areas are also encouraged. Lastly, Smart Living encourages the offering of more options for digital payment, promotes the use of digital profile and the use of different technology applications for healthcare and to support the elderly.

With a strategic direction towards smart city development and specialised knowledge and experience in the design, construction and operation of a highrise high density urban environment, Hong Kong is well positioned to take a lead role in advocating smart green building development in a compact city constituting a large proportion of existing and aging buildings. Through the consolidation of feasible smart green design and operational best practices, and the development of practical guidelines, the "Hong Kong Smart Green Building Design Best Practice Guidebook" will support the building industry to align with and progress towards Hong Kong's vision of smart and sustainable development.

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2. The Hong Kong Green Building Council (https://www.hkgbc.org.hk/eng/)

HKGBC is an overarching industry body driving the promotion and creation of green and sustainable buildings throughout the Hong Kong Special Administrative Region, and in engaging community, industry and Government to create a greener and more sustainable built environment.

HKGBC has engaged stakeholders of the building industry (including architects, engineers, surveyors, property/facility managers, developers and related Government bodies etc.) to publish a series of best practice guides to facilitate different types of premises in the transformation to green and sustainable buildings.

HKGBC is seeking to engage a consultant to develop a practical guidebook to provide developers, building owners, operators as well as other stakeholders with practical information on smart green building design/features/operation for a smart and green market transformation.

3. Project Objectives

This project aims to address how innovation and transformative technologies in areas such as advanced manufacturing, construction processes, data access and analytics, and cloud-based solutions for example are redefining the interface between green and smart. The main objective in the development of the "Hong Kong Smart Green Building Design Best Practice Guidebook" is:

> To establish a set of practical design and operation guidelines and strategies for advancing smart green building with a view to optimise the performance of new and existing buildings leading to better decisions and planning to accelerate the development of smart green built environment and communities.

4. Scope of Services

The project will involve desktop studies and stakeholder engagement with recommendations to practitioners in the building industry. The scope shall include but not limited to the following:

    a. Examining the definitions and concepts (e.g. system resilience, learning, adaptation,

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interoperability) of smart building and how these can support climate change mitigation in the construction of new buildings and in the retrofit of the existing building stock;

b. Examining emerging trends in innovative smart technologies, access to vast amounts of data, and smart cloud-based solutions etc. and how these are transforming the way green buildings are designed and operated with pros and cons for each trend clearly identified (e.g. how smart technologies have influenced renewable energy generation, delivery, storage, and interfacing with district energy systems);

c. A comprehensive review of relevant local and international research/studies in smart green building with particular focus on:

- Components (e.g. interconnectedness of technologies related to building envelope, building systems, building management systems, IoT, renewables etc.)
- Functions (e.g. data analytics related to energy monitoring and verification, demand response, predictive maintenance)
- Environmental, economic and social performance outcomes (e.g. energy savings, cost effectiveness, human/user interaction/satisfaction)

*Note - The Consultant shall reference similar or related studies and guidelines previously produced by the Government, industry bodies and universities etc. to help further clarify the gaps in the building industry for which this project can contribute;

d. An in-depth analysis and evaluation of local and international case studies of new buildings and the retrofit of existing buildings which demonstrate the successful integration and balancing of innovative smart technologies with green building aspects (e.g. sustainable site aspects, energy efficiency, water efficiency, materials and resource efficiency, indoor environmental quality etc.) in optimising building performance. This should be supported by quantitative findings with implications for how potential challenges and opportunities can be addressed for wider adoption in Hong Kong;

e. Identifying and examining how policies, programmes and specific tools and measures can support the effective interfacing of smart and green design to optimise building energy performance, monitoring, measurement and verification, and innovation in design;

f. Providing a framework, working templates, checklists and practical recommendations on the application and knowledge transfer of smart green building design/features/operation, with feasible integrated strategies and approaches for the Hong Kong context now and in the near future with a particular focus on retrofit opportunities for the existing building stock; and

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g. Prioritising current and emerging trends and providing recommendations on opportunities to enhance Hong Kong's competitiveness in smart green building both locally and internationally.

5. Project Deliverables

The Consultant shall provide (but not limited to) the following deliverables during the project:

a. An inception report including the initial findings, detailed project framework and schedule;

b. An executive summary and a simplified reading guide with attractive graphics to be submitted for the Project Steering Committee's easy reference and approval;

c. A detailed research report with analysis and evaluation of local and international research, best practices, future trends, threats and opportunities (supplemented with figures, comparison tables, schematic diagrams, etc.), to support recommendations on the application of smart green building design/features/operation in Hong Kong;

d. Stakeholder engagement workshops which will be organised and conducted by the appointed Consultant to solicit case studies and feedback on the contents of the guidebook during different stages of guidebook development. Participants shall include but not limited to:

 • Stakeholders of premises (e.g. developers, owners, property/facility managers, single/multi-tenants, etc.)

 • Building industry professionals, academia, and experts in smart and green building (e.g. architects, engineers, contractors, project managers, facility managers, experts/specialists in IoT, data analytics, smart building operation, smart building systems design and integration etc.)

 • Relevant Government Bureaux and organisations (e.g. Buildings Department, Architectural Services Department, Environmental Protection Department, Smart City Consortium, etc.) and

 • HKGBC members

 During the stakeholder engagement workshops, the Consultant shall present the purpose of the guidebook, conduct surveys and host discussions with key stakeholder groups to elicit their views and align the guidebook with their needs and expectations;

e. A technical seminar cum launching ceremony for the Hong Kong Smart Green Building Design Best Practice Guidebook;

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f.   Two additional seminars after the launch of the Guidebook;

g.   Liaising with locally and internationally renowned speakers related to the topic for seminars/conferences/publicity events hosted by HKGBC;

h.   A mobile app for basic smart and green design/operation criteria assessment (by a qualified I.T. contractor under the Consultant) to complement the guidebook;

i.   A guidebook framework, detailed contents, recommendations and pragmatic approaches for smart green building design and operation which are forward looking and readily applicable to the near future and beyond. The guidebook shall be delivered in the form of a web version with clickable interface from the HKGBC website (http://www.hkgbc.org.hk), to be presented in both English and Chinese versions;

j.   Optional items:

- Layout design of the Guidebook
- Printing of the Guidebook - 200 hard copies with no more than 50 double-sided pages in A4 size using recycled paper with perfect binding
- Translation of the Guidebook (English to Traditional Chinese and Simplified Chinese)
- Expenses for Stakeholder Engagement Workshops, Launching Ceremony and Technical Seminars (including venue booking, video recording, refreshments, etc.).

The project will be steered by HKGBC Steering Committee Members, with project management by the HKGBC Secretariat. The Consultant shall complete the project in **18 months** from tender award. HKGBC reserves the right to edit any items of work subject to mutual agreement of both Parties.

6. Consultant Requirements

Consultants should fulfil the following minimum requirements for their submissions to be considered:

a.   History of establishment - established at least 3 years;

b.   Local and international research and/or job references of smart and green building design/features/technologies within the last 5 years;

c.   A competent project team with relevant qualifications, knowledge, expertise and experience in smart and green building related projects (local and/or overseas).

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The team shall comprise at least professional staff with expertise and experience in the following areas:

- Green building design, operation and management
- Smart building design, operation and management
- Smart building technologies (e.g. IoT, control systems, integrated smart building solutions etc.)
- Smart preventive building maintenance
- Data analytics and strategies for building environmental performance optimisation
- I.T. for mobile app development

7. Submission

Interested consultants are invited to submit their EOI in undertaking this consultancy. Interested consultants shall include the following information in their EOI proposal of no more than **six A4 pages**:

a.   Company profile, background and expertise

b.   Staff resources – organisation chart of the proposed project team and curriculum vitae of key team members

c.   Previous relevant experience and smart green project references in Hong Kong and overseas – preferably including new building developments and retrofitting of existing buildings

d.   Brief summary statement of understanding of the key requirements, constraints and opportunities, and overall approach to meet the requirements of the consultancy

e.   Indication of sub-consultants to be employed - e.g. academic institutions, specialists, experts, advisors etc.) to provide the services specified under the Agreement

*Note - Supplementary materials can be attached as appendices.

The EOI submission must be contained in a sealed envelope and delivered by mail or in person to the below address **on or before 6:00pm** on **1 Mar 2019**.

> **Expression of Interest for Smart Green Building Design
> Best Practice Guidebook**

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Late submissions shall not be considered. In the event that a Typhoon Signal No. 8 or above or Black Rainstorm warning is hoisted on the closing date, the EOI submission closing date will be postponed to 6:00pm on the following working day.

This invitation for EOI does not constitute an invitation to offer nor does this document or any document made available pursuant to this invitation constitute any contract or agreement of any kind whatsoever with HKGBC. The HKGBC also reserves the right to cancel or terminate the process of EOI at any time and shall not be liable to any party for any loss or damage, cost or expenses as a result of such action.

8. Enquiries

For any enquires concerning this EOI invitation, please contact:

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Tel: 3994 8821
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