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See Distribution list

Dear Sir/Madam

CORENET X

This circular is to inform and prepare the industry for CORENET X implementation, planned progressively from 2H 2023 onwards and will replace CORENET 2.0.

What is CORENET X?

2 Announced by Minister of National Development in September 2021 at the International Built Environment Week, CORENET X is a co-creation effort led by BCA and URA between the public agencies¹ and industry² to transform the current regulatory landscape and practices through process re-engineering, adoption of Building Information Modelling (“BIM”) technologies and collaborative workflows.

3 The new regulatory approval process under CORENET X will require industry to collaborate and coordinate their designs upfront before submission. CORENET X leverages on digital technologies to enable industry players to conduct pre-submission

¹ CORENET X is co-led by the Building and Construction Authority (BCA) and Urban Redevelopment Authority (URA), alongside six other regulatory agencies National Parks Board (NParks), Singapore Civil Defence Force (SCDF), Land Transport Authority (LTA), Public Utilities Board (PUB), National Environment Agency (NEA) and Singapore Land Authority (SLA), and two public developers, Housing & Development Board (HDB) and JTC Corporation (JTC) and supported by the Government Technology Agency (GovTech)

² CORENET X was developed in close collaboration with professional institutes such as the Singapore Institute of Architects (SIA), Real Estate Developers' Association of Singapore (REDAS), Association of Consulting Engineers, Singapore (ACES), Institution of Engineers, Singapore (IES), Singapore Contractors Association Limited (SCAL) and Singapore Institute of Surveyors and Valuers (SISV). Through a service journey design thinking approach, the co-creation involved a total of 91 practitioners comprising developers, architects, engineers, builders and surveyors who have participated in 8 workshops and 10 interviews.



checks and allows regulatory agencies (“**Agencies**”) to collectively review the submission and issue coordinated responses to the project team. This seeks to improve the current practice of Qualified Persons (“**QPs**”) dealing separately with multiple Agencies and having to reconcile the requirements thereafter, resulting in project delays.

Key Changes to Regulatory Approval Process under CORENET X

4 CORENET X will bring about two critical changes to the submission process:

1. New Regulatory Approval Process for all Building Works

All building works, regardless of GFA, will need to go through a new process involving 3 key sequential submission gateways to all Agencies for one collective and co-ordinated approval at each gateway.

2. BIM submissions in openBIM format

Submissions that are made in BIM (currently mandatory for new projects with Gross Floor Area (“**GFA**”) $\geq 5,000$ sqm) will need to use the openBIM standard³. Agencies will issue written directions and approvals based on the submitted BIM model in openBIM standard.

New Regulatory Approval Process for Building Works (“RABW”)

5 The current regulatory processing supporting concurrent separate submissions to Agencies consists over 20 approval touchpoints across the Development Control (“**DC**”) and Building Plan (“**BP**”) stages. The information and level of details required in DC and BP stages have been rationalised and sequenced into 3 key submission gateways. An overview of the gateway objectives are outlined in **Table 1**.

³ We encourage new projects with GFA $\leq 5,000$ sqm to consider making submissions in BIM (and use the openBIM standard), which will facilitate upfront planning and coordination for projects.



Table 1: Objectives of each stage of submission

Submission Stage	Objectives
Design Gateway (for design parameters)	To resolve multi-agency key parameters which have impact on design parameters and client's brief, before proceeding to detailed design
Piling Gateway <i>(Optional)</i>	To resolve requirements pertaining to piling and foundation works (e.g. pile caps, raft foundation, earth retaining and stabilising structures), excluding super structural works
Construction Gateway (for building details)	To resolve multi-agency requirements concerning design details that need to be coordinated before commencement of main structural works and launch of sales
Independent submissions <i>(if applicable)</i>	To clear agency-specific requirements with no cross-agency dependencies e.g. structural submission of ancillary structures such as barriers/ claddings to BCA
Completion Gateway (application for Temporary Occupation Permit ("TOP") / Certificate of Statutory Completion ("CSC"))	To document "As-Built" plans and obtain Occupancy Permit/ Statutory Completion

6 This new process requires **all** new projects⁴ to be submitted through CORENET X. For each gateway, a coordinated BIM model by the project team would be produced and jointly submitted by the appointed QPs to all Agencies for collective review. The gateway is cleared only after all Agencies' approvals are obtained, without which a

⁴ New projects not subjected to mandatory BIM submissions will likewise be submitted through CORENET X for collective approval by all Agencies at the respective gateways.



submission cannot be made for the next gateway. All other agency-specific requirements with no cross-agency dependencies may still be submitted independently. The detailed requirements under each gateway can be accessed by scanning the QR code or accessing the URL link in **Annex A**.

BIM submissions in openBIM format

7 Submissions of coordinated BIM models through CORENET X are required to adopt openBIM standard, Industry Foundation Classes⁵ (“**IFC**”). An extension “**IFC-SG**” is under development to cater to local regulatory needs.

8 To guide the preparation of BIM models and the level of details required at each of the submission gateways, a Code of Practice for regulatory BIM submission is currently being co-developed with industry partners, targeted for Industry consultation before 2Q 2023.

Implementation Plan

9 CORENET X will be implemented progressively to the industry. It will operate alongside CORENET 2.0 for a period to ensure a smooth cut-over. When CORENET X is formally launched in end 2023, the following projects may be submitted through CORENET X and new submission requirements will apply.

	Project Criteria	New Submission Requirements
1	New projects with no prior or ongoing submissions to Agencies	<ul style="list-style-type: none"> Approval process will follow new RABW (refer to paras 5 and 6)

⁵ Industry Foundation Classes (IFC) – an international Open BIM standard developed by buildingSMART International (bSI) to facilitate interoperability in the building and construction industry. It is also an ISO 16739-1:2018 standard. bSI is an international non-profit organisation developing open standards and workflows for the built environment.



2	New projects submitting BIM plans (currently mandated for projects with GFA \geq 5,000 sqm) with no prior or ongoing submissions to Agencies	<ul style="list-style-type: none"> • Approval process will follow new RABW (refer to paras 5 and 6). • BIM submission is required to adopt openBIM format (refer to paras 7 and 8)
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10 More details on the new process and submission requirements (including for BIM submissions) will be made available by mid-2023.

Industry's Preparation

11 Over 10 Industry webinars on CORENET X have been conducted since 2021 with over 3000 participants. Industry training on IFC-SG has commenced since August 2022. To help more practitioners familiarise with the new RABW and openBIM format IFC-SG, additional training programmes and workshops will be made available by mid-2023. Information on latest available training can be found on the website, <https://go.gov.sg/cx-courses>.

11 For more information on CORENET X, you may wish to visit the CORENET X website, <https://www.go.gov.sg/cx>. The website provides the latest updates, Frequently Asked Questions, informational videos and past webinar recordings/materials. Should you wish to provide suggestions or take part in the CORENET X Community of Practice⁶, you may submit your contact details and feedback by scanning the QR code or accessing the URL link in **Annex B**.

⁶ CORENET X Community of Practice (COPr) was formed with industry practitioners from over 37 firms to gather insight on best practices and validate CORENET X proposals and identify areas for improvement. The COPr is a continual partnership effort that would lead up to the launch of CORENET X.



Yours faithfully

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ANNEX A

SUMMARY OF DETAILED SUBMISSION REQUIREMENTS FOR EACH GATEWAY UNDER THE NEW REGULATORY APPROVAL PROCESS FOR BUILDING WORKS (RABW)	
<p><u>FormSG QR Code</u></p>  <p>https://go.gov.sg/newrabw</p>	<p><u>FormSG URL Link</u></p> <p>https://go.gov.sg/newrabw</p>

ANNEX B

FEEDBACK CHANNEL FOR CORENET X via FormSG	
<p><u>FormSG QR Code</u></p>  <p>https://go.gov.sg/cxfeedback</p>	<p><u>FormSG URL Link</u></p> <p>https://go.gov.sg/cxfeedback</p>



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