



CORENET X Connect: SCAL Workshop

14 Mar 2025



Programme

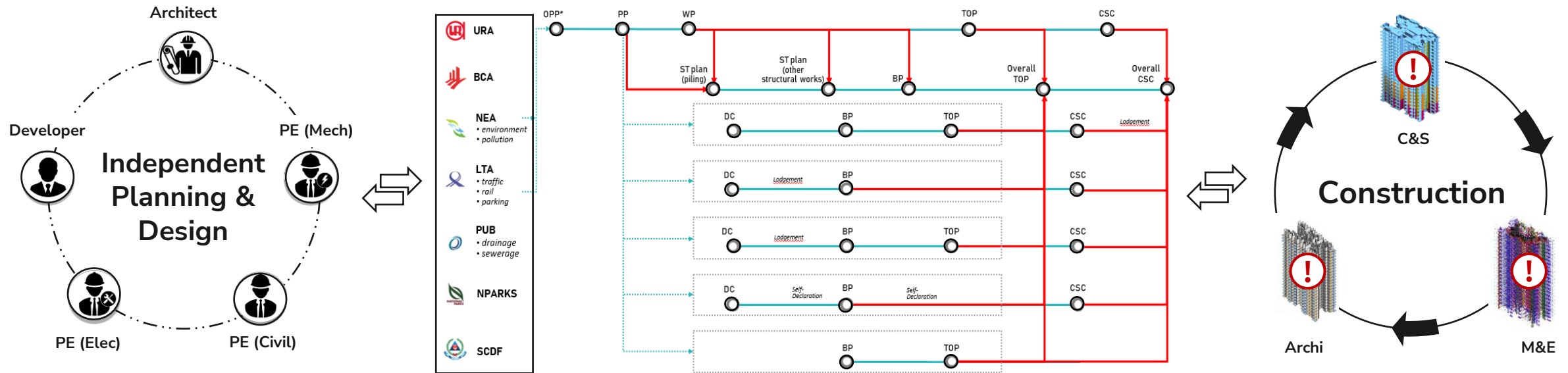
2.00 PM	Registration
2.30 PM	Opening by BCA/DCEO, Mr Chin Chi Leong and SCAL President, Mr Lee Kay Chai (10 min)
2.40 PM	Mentimeter Check-in (10 min)
2.50 PM	Recap and Update of CORENET X (20 min)
3.10 PM	Discussion (20min)
3.30 PM	<Break for 15 min>
3.45 PM	Sharing from discussion
4.30 PM	Wrap up discussion & Closing



Recap and Updates on CORENET X

Key Impetus for Change

Today's Separate and Concurrent Regulatory Approval Process



Industry

Agencies

Construction

upstream

downstream

- Plans are prepared by **different professionals independently**
- Plans are **submitted separately** to different agencies at different milestones concurrently

- Each of the 7 agencies has a **different regulatory mandate**
- Comments from one agency may lead to **resubmission/ amendment** to others
- Approved plans can be **conflicting; no single integrated view** of the approved plan

- Plans contain **conflicts that need to be resolved** during construction
- Rectifications = **Abortive Works**
- Delayed issuance** of TOP/CSC

What if...



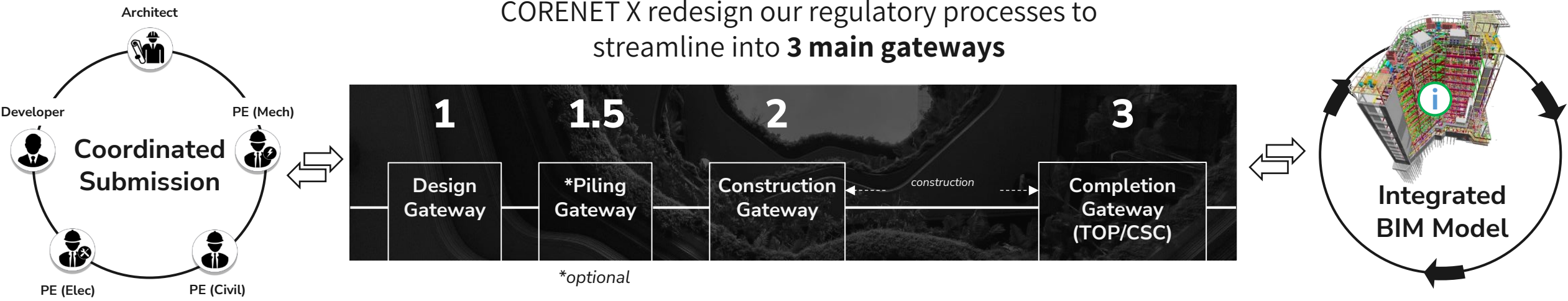
We could harness **digital technologies** such as **BIM fully?**


Regulatory agencies can **collaborate** seamlessly and interact with industry on a **single shopfront?**


Quality of designs can be improved through **better coordination; reducing abortive works?**

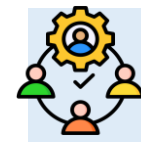
New Regulatory Approval Process for Building Works (RABW)


CORENET X redesign our regulatory processes to streamline into **3 main gateways**




 Coordinated BIM and Plans: Reduces confusion and miscommunication among stakeholders

Fewer Touchpoints with agencies: Streamlined review process at key milestone, minimising dealing with agencies individually 

 Coordinated Response from agencies: Agencies review joint submission collaboratively and provide a consolidated response

Increased Transparency & Certainty: Project members have better transparency on the status of submissions with more certainty of response with SLA implemented 

 Less abortive reworks downstream: Coordinated design upfront reduces chances of costly rework during construction

New Regulatory Approval Process for Building Works (RABW)



AT THE GATEWAYS

Coordinated submissions (consisting of various disciplines) will be submitted and reviewed collectively by agencies. **This helps to ensure cross-agency issues and conflicts are identified upfront.**

1

Coordinated & consolidated response

- Agencies review, deconflict & respond collectively. Comments can be location-tagged on BIM model
- Industry no longer be required to produce comments/clearances from another Agency

2

Iterations through Written Directions

- With collective review and collaboration across Agencies, submissions should not iterate with more than 2 Written Directions at each gateway

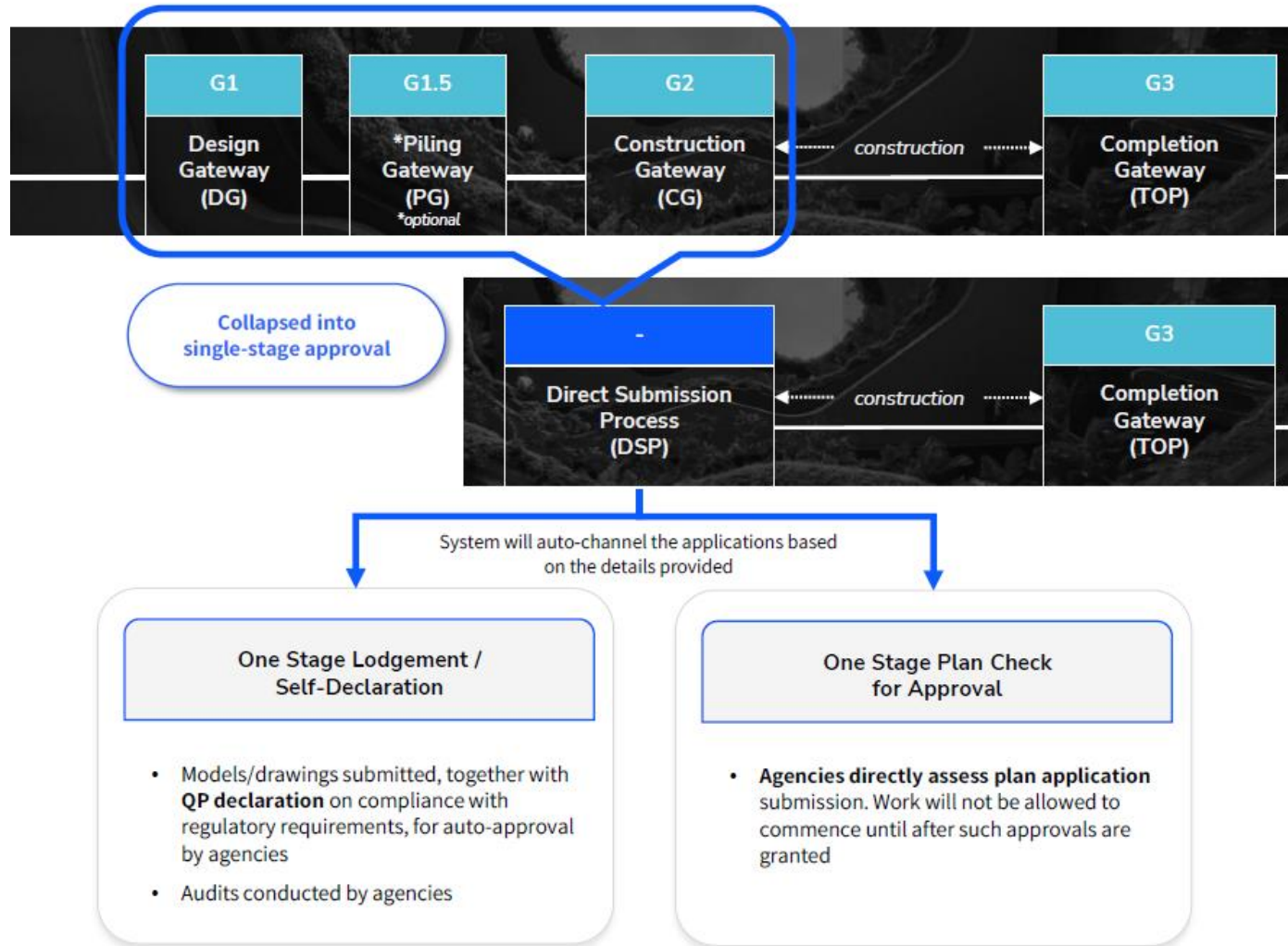
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Working days response time by Agencies

- Submissions go through Agencies' inter and intra-agency level reviews
- Agencies will collaborate to respond to industry collectively within 20 working days

RABW: Direct Submission Process

Differentiated approach for simple building works that need not be subjected to the typical RABW 3-Gateway process (*e.g. single-unit residential landed development, standalone pavilion/ linkway/ racking system*)



Direct Submission Process

Developing a **single-stage, cross-agency plan approval stage** prior to TOP/CSC, instead of multiple touchpoints at Design Gateway, Piling Gateway (optional) and Construction Gateway.

BIM Submissions in OpenBIM Format

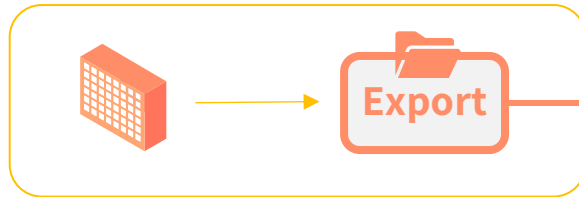
BIM submission in IFC-SG format is mandatory for

- New projects with GFA of 5,000 sqm or more; or
- Major A&A projects where the new GFA is 5,000 sqm or more

For more info on IFC-SG, visit go.gov.sg/ifc-sg



Native BIM Software A



Native BIM Software B



Common Representation



IFC-SG

- **Industry Foundation Class (IFC)** is an ISO international open standard and BIM format
- **IFC-SG** is adapted to cater for local Regulatory Requirements

CORENET X

COLLABORATION PLATFORM



AUTOMATED MODEL CHECKER



“A MUST READ”

- 2nd edition was **released in Nov 2024**
- Help industry practitioners in understanding **how to prepare multi-agency regulatory submissions across the key submission gateways in CORENET X**
- Provides all the essential information about CORENET X and details **all the agencies’ requirements at each Gateways** and the **BIM modelling requirements**



corenetx



Code of Practice
Second Edition | Published on 2024-11

Update on CORENET X Implementation

1 October 2025

Mandatory CORENET X submission for all new projects with Gross Floor Area (GFA) $\geq 30,000 \text{ m}^2$

1 October 2026

Mandatory CORENET X submission for all new projects, regardless of GFA

1 October 2027

Mandatory onboarding to CORENET X for all ongoing projects

Progress of CORENET X Projects Submitted to Date

3 Gateway Process Pilot Projects

21 3GW Projects

- ✓ **12** DG approvals
- ✓ **5** PG approvals
- ✓ **3** CG approvals
- ✓ **6** projects completed feedback sessions

Direct Submission Process (DSP) Pilot Projects

15 DSP Projects

- ✓ **8** DSP projects approvals
- ✓ **6** DSP projects completed feedback sessions

Firms involved

Architect

31

C&S

33

M&E

12

Multi-Disciplinary

17

Builder

22

Developer*

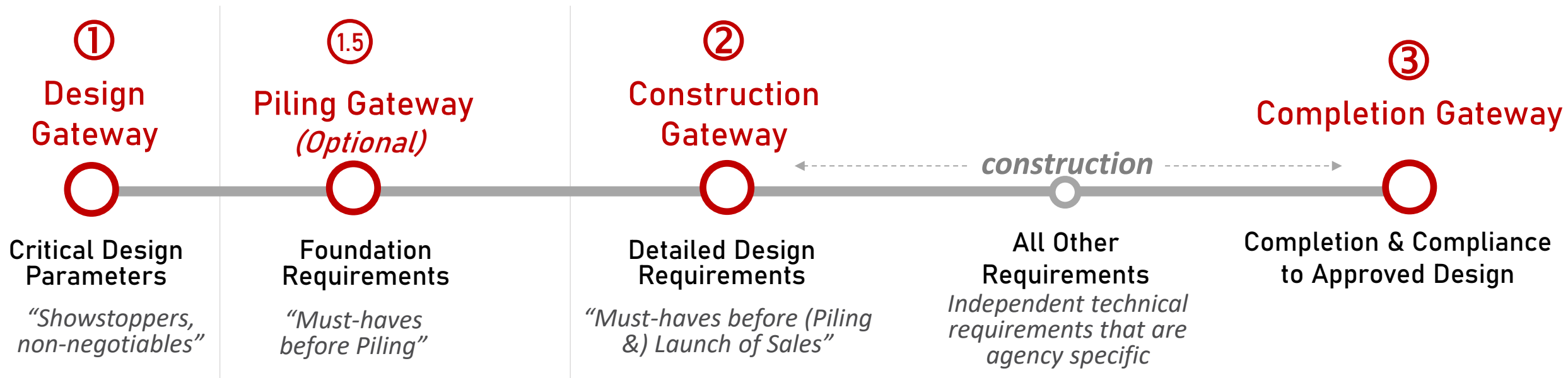
31

*excluding homeowners



Submission Flow & Key Things to Note

Approvals under consolidated CORENET X gateways



Approvals at each Gateway consist of the following agencies' equivalent clearances today* :

- | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • URA PP • LTA Layout Plan, NEA and PUB DC Clearances • NParks DG Approval including tree-cutting | <ul style="list-style-type: none"> • BCA ST Approvals for Permanent Piling Works • LTA RPZ AIP for Pile Design and Layout Plan • Independent clearances, e.g. NParks EMMP & PUB's Earth Control Measures Approval | <ul style="list-style-type: none"> • URA WP • BCA BP and ST Approvals • LTA Street Plan Clearance, BP (Parking), BP (Rails) • NEA and PUB BP Clearance Cert • SCDF BP Approval • NParks CG Approval |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Key Objective of Gateways
Resolve **multi-agency requirements** concerning design details that need to be **coordinated**

* Requirements at each Gateway may not be the same as requirements for clearances today. For more info, please visit <https://info.corenet.gov.sg/regulatory-process/about-the-new-submission-process> or refer to the Code of Practice

Approvals under consolidated CORENET X gateways

① Design Gateway

Critical Design Parameters

“Showstoppers, non-negotiables”

Resolve key parameters

impacting design parameters & client’s brief, before proceeding to detailed design

Examples

- Master Plan land use / intensity
- Building massing (e.g. height)
- Site layout, access points
- Broad planning parameters of drainage, sewerage and sanitary works
- Greenery provision

Proceed to obtain approval for next Gateway

Key Things To note

- Project teams are encouraged to carry out **pre-submission consultations** as early as possible, to clarify/enquire on agency requirements and potential deviations.
- There are some submissions (e.g. NParks EMMP, NEA NIA) that are to be submitted directly to the agencies – refer to the COP for more info.
- **Demolition application**, if required, **can proceed independently from DG submission for the new development**. It will be a joint application to URA and BCA.
- After creating the initial Design Gateway draft, the QPs can start creating drafts for any submission at any time.

Approvals under consolidated CORENET X gateways

1.5

Piling Gateway

(Optional - if project team wishes to start piling works early)

Foundation Requirements

“Must-haves before Piling”

Resolve **requirements pertaining to piling and foundation works** (e.g. piling, pile caps, raft foundation, earth retaining and stabilizing structures), excluding superstructural works

Examples

- Structural design
- Earth Control Measures
- Earthworks
- Engineering assessment for piling works within Rail Protection Zone/Rail Corridor (if applicable)

→ **Start Piling**

Key Things To note

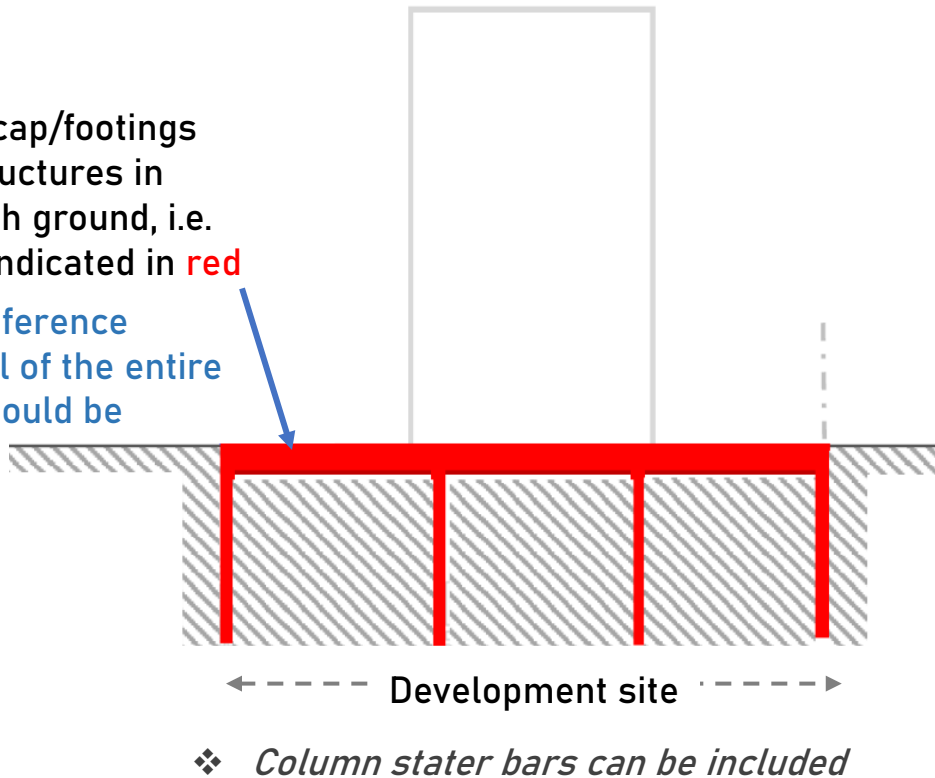
- Project team should **assess the risk involved when opting for PG** before superstructure is approved
- **PG submission can be made after DG application is submitted and processing.** But approval will only be granted after DG approval has been obtained.
- PG and CG submissions can be made concurrently.
- **Phasing for structural submissions at PG is not encouraged.** A request can only be put up at the pre-submission consultation for agencies' consideration on a case-by-case basis if:
 - The site area covers more than 15,000sqm;
 - The project site possession are in multiple phases; or
 - The structural design involves complex building

Piling Gateway (Optional)

The Piling Gateway clearance pertains to the design of permanent piling and substructure works **that do not affect internal layout**.

Conventional Foundation System

Piling, pilecap/footings and substructures in contact with ground, i.e. Elements indicated in red (a set of reference plan/model of the entire building should be provided)



QP(ST) can initiate Permit to commence structural works application once Demolition/PG/CG (where applicable) submission is approved.

- Builder (TC) can indicate specialist builder and apply the permit to commence specialist building works simultaneously.
- Builder & specialist builders need to declare in CORENET X submission portal when the application proceeds to declaration stage
- The project team needs to amend the permit application whenever there is any addition/updates to the RE/RT0/specialist builders.

Other site works (e.g. for site clearance, temporary protection, etc.), which do not form part of the permanent structures but still require agencies' clearances can be cleared in parallel and need not be tied to the Piling Gateway approval

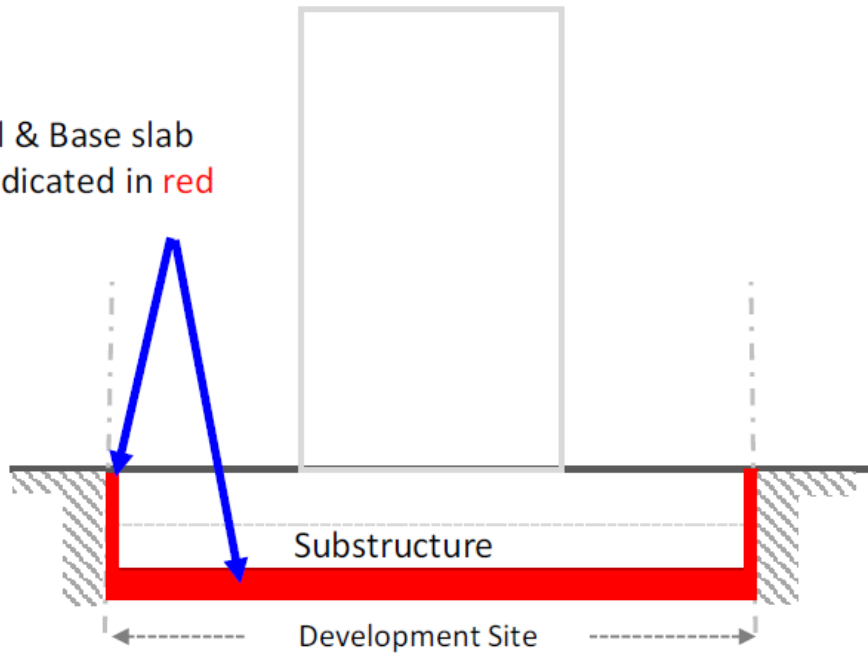
For independent ST works, project team can apply for ST plan and Permit under 1 application.

Piling Gateway (Optional)

For projects with Basement

Bottom up Construction & Foundation

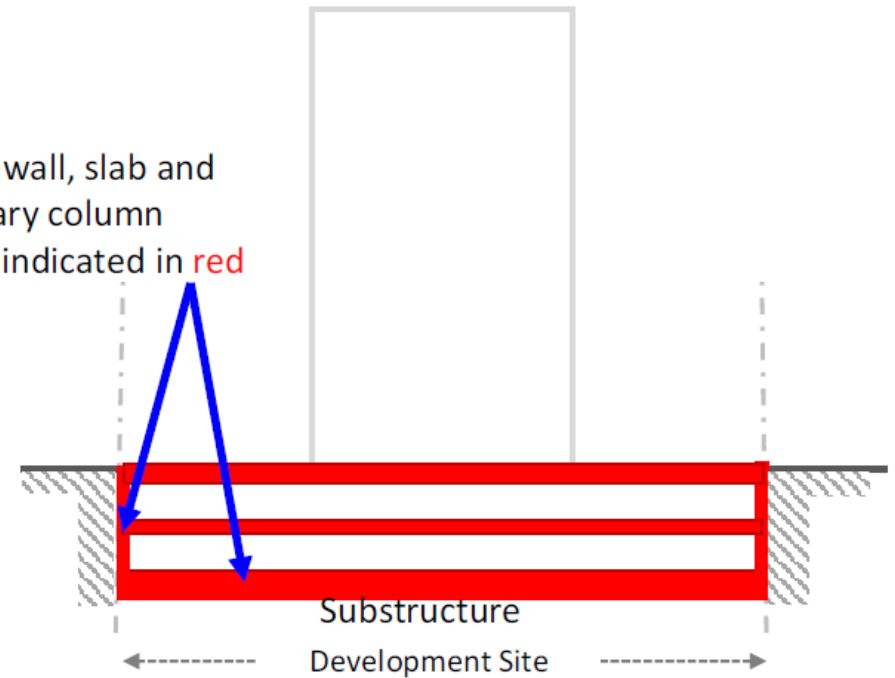
Diaphragm wall & Base slab
i.e. Elements indicated in red



- ❖ Column starter bars can be included

Top down Construction & Foundation

Diaphragm wall, slab and
temporary column
i.e. Elements indicated in red



- ❖ Any temporary structures to support top down construction must be included.
- ❖ For any permanent structures required to be included, QPs must ensure their works will not lead to non-compliances later on (eg: circulation and headroom).

Approvals under consolidated CORENET X gateways

② Construction Gateway

Detailed Design Requirements

*“Must-haves before construction
& Launch of Sales”*

Resolve multi-agency requirements concerning design details that need to be coordinated before work commences. This seeks to **minimise abortive works on-site downstream**

Examples:

- Superstructure design
- Detailed floor layout within building (e.g. floor, fire safety, carpark)
- Accessibility and connectivity
- Household shelters

**Launch sales &
start construction**

Key Things To note

- Preparations for CG should start as early as possible.
- The project team, including the builder where applicable, should **discuss early on how part ST submissions should be carried out** prior to pre-consultation with BCA.
- Cater **sufficient time for the engineers** to do their design and calculations, and for **AC checking** (where applicable)



Must the full structural submission (including detailed design and calculations, AC/ACO report, etc.) for the whole project be submitted in one go at CG?

To address industry's concern that structural design takes time (especially if AC/ACO reports are required) and it is impractical to complete the full structural details in one go

- Detailed structural design and calculations of eligible projects **need not** be submitted in a single package but done through a **limited number of part ST submissions.**

□ Building projects:

1. Any project with a **Gross Floor Area (GFA) > 40,000sqm** is eligible for part ST submission if –
 - a. the project consists of 5 or more blocks of building of at least 4 storeys high each; or
 - b. the project consists of 3 or more blocks of building of at least 4 storeys high each, with common podium or basement.
2. Cluster housing projects with 40 or more landed units

□ Infrastructure projects:

1. Infrastructure works that function like a building **with length > 150m** (e.g. MRT stations, transport nodes/ interchanges);
2. Infrastructure works that are mostly engineering works **with length > 400m** (e.g. viaducts, large scale drains, sewers)
3. Infrastructure works that are mostly coastal works **with length > 4,000m** (e.g. land reclamation, revetment, sea wall, bund wall)

Part ST Submissions – Submission Flow

First CG Submission (CG01)
(WP, all agencies' BP and **C&S Part ST 01**)

1. Coordinated IFC Model comprising:
 - a) Full Architectural model
 - b) Full M&E model; and
 - c) Structural model (contains full details of structures under Part ST 01; carcass only for structures in remaining Part STs)
2. Supplementary structural drawing, detailed calculations, AC/ACO report for Part ST 01



Approval for **subsequent** C&S Part ST can only be obtained **after First CG is approved.**

C&S Part ST 02
(C&S only, under **Independent Submission** Module)

1. Structural IFC Model containing full details of structures under Part ST 02
2. Supplementary structural drawing, detailed calculations, AC/ACO report for Part ST 02



Remaining Part ST submissions (Part ST 03, ST 04, etc)

Part ST Submissions - Guidelines

Project teams should propose the Part ST Submission plan based on below guidelines and seek agencies' concurrence during pre-submission consultations, before making any submissions.

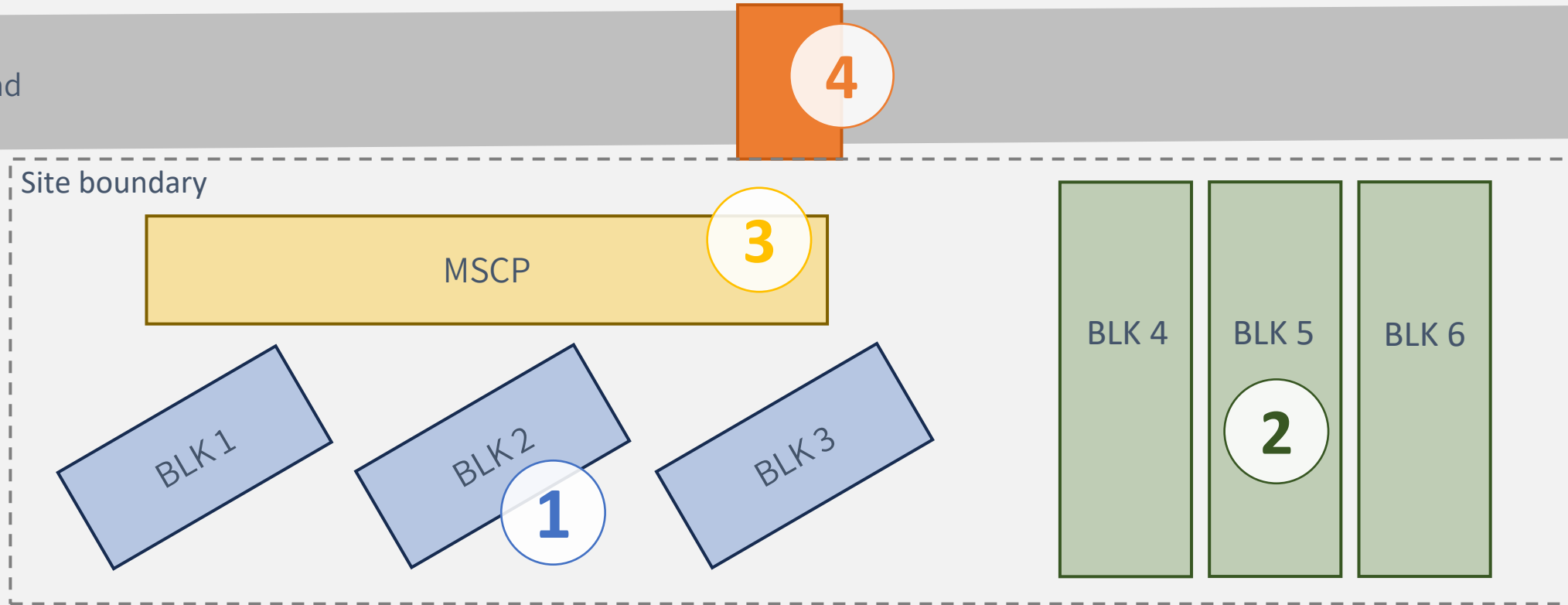
Undergoing further refinements

Scope of Works	Number of Part ST Submissions Allowed
Superstructure	1 no. of Part ST Submission for every 4 blocks (rounded to nearest unit) 1 no. of Part ST submission for every 40 landed units (rounded to nearest unit) <u>Example:</u> For a building project consisting of 9 tower blocks, 3 no. of Part ST Submissions of <u>equal GFA</u> is allowed. (i.e. if the total GFA is 105,000 sqm, each of the Part ST Submission should be about 35,000 sqm)
Common Basement	1 no. of Part ST Submission
Common Podium	1 no. of Part ST Submission
All ancillary works	1 no. of Part ST Submission
All external works	1 no. of Part ST Submission
ERSS	Independent submission *No change from the standard RABW (without phasing)
Cladding	
Façade	
Temporary Deck	

Part ST Submissions – Guidelines (Illustrated with Example)

Example Project: 6 HDB blocks with MSCP and ancillary works

Major road



 Part ST Submission 1: Block 1 – 3

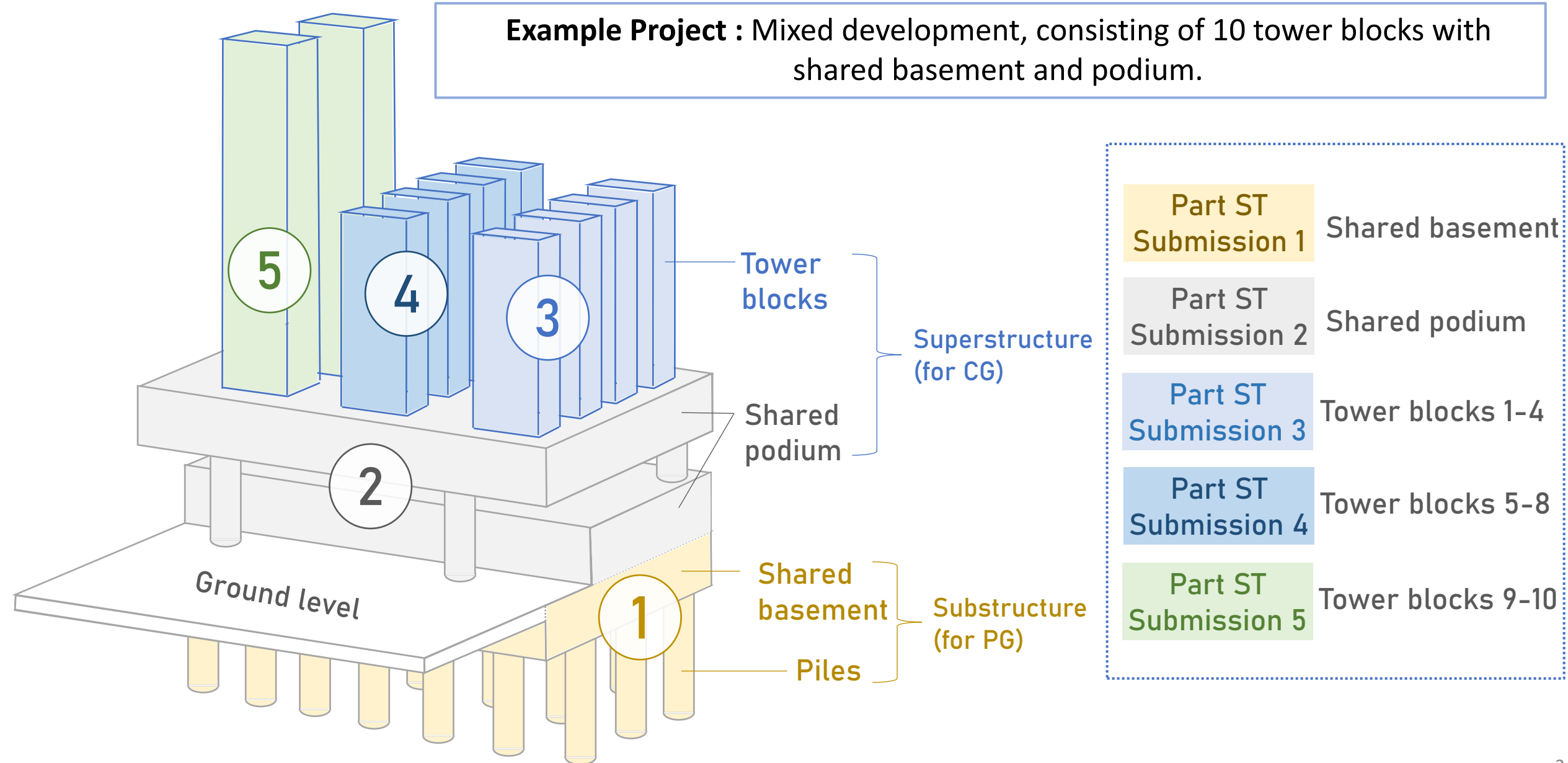
 Part ST Submission 2: Block 4 – 6

 Part ST Submission 3: Ancillary works within site boundary

 Part ST Submission 4: External works outside site boundary

Part ST Submissions – Guidelines (Illustrated with Example)

Example Project : Mixed development, consisting of 10 tower blocks with shared basement and podium.

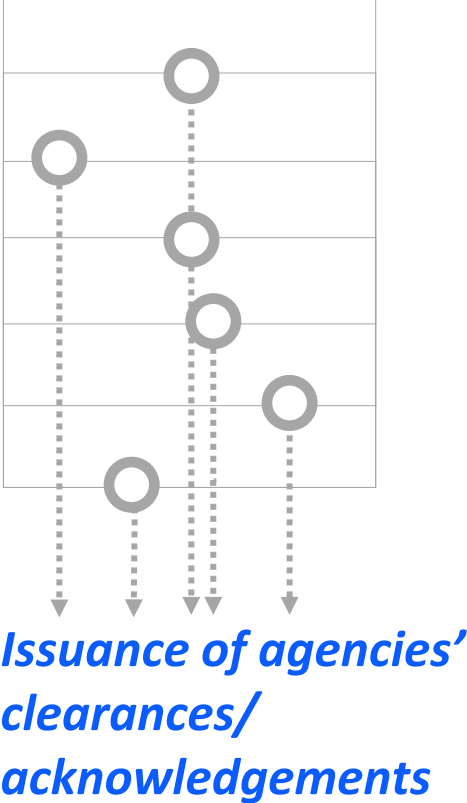


Independent Submissions

Technical submissions to one agency line department on **specialist details and agency-specific details** that do not affect other agencies.

Examples:

- Equipment and services (e.g. lifts, cooling tower, fire fighting system, water pumps)
- Structural details of ancillary components (e.g. barrier, cladding, curtain wall)
- C-score



Key Things To note

- It is important to understand when and which Independent Submissions need to be submitted for your project - Please study the Code of Practice carefully.
- QP(ST) can submit ERSS, temporary traffic decking, barrier and cladding work as independent submissions together with permit application.
 - QP can link the independent submission with existing permit if there is no change on the project parties.
 - Else QP can apply for a fresh permit together with this independent submission.

Approvals under consolidated CORENET X gateways

③ Completion Gateway (TOP/CSC)

Completion & Compliance to Approved Design

- Site inspection to ensure building works are **constructed as per approved plans and comply with requirements**
- Ensure completed building is **fit for occupation**



*Start occupation,
obtain Statutory
Completion*

Key Things To note

- TOP submissions are to be made to respective agencies independently and concurrently, whenever ready.
- The final TOP/CSC will be issued when the project obtains all the necessary clearances from all agencies.
- A **one-stop dashboard of the project's status of TOP/CSC applications across various agencies** will be available in the CORENET X Submission Portal for **greater transparency and better tracking.**

Amendment Plan Submission



- **Major deviations** from the approved DG proposal entails a re-evaluation and will **require a fresh DG submission**, along with payment of any applicable processing fees.
- **Minor deviation** to the approved DG can be **incorporated in the subsequent Gateways** (i.e. PG or CG)

- **Material changes** to approved PG / CG will require Amendment Submission to PG / CG.
- **Immaterial changes** can be captured in subsequent Amendment Submission (if any) or in record plan (as-built plans) if there is no further amendment submission

Key Things To note

- Project team should assess the impact and extent carefully before deciding to proceed with the change.
- QPs need to assess which agencies are affected and require re-approval.
- For joint submission (eg: DG, CG), all QPs involved will be notified of the amendment plan.



Submission Portal

Key Differences in the CORENET X Submission Portal

More activities can now be carried out on the CORENET X Submission Portal as compared to the CORENET 2 system.

Other than submissions by QPs, the following activities will also be covered in CORENET X:

- Appointment of Project members by Developer or relevant members
- Declaration by relevant project member(s)

Note: The following project members are now required to login and use CORENET X:

- Developer (Individual) **for homeowners or other individual owners, etc.*
- Developer (Organisation)
- Licensed Builder
- Specialist Builder
- Accredited Checker
- Specialist Accredited Checker
- Resident Engineer/Resident Technical Officer
- Licensed Plumber
- Fire Safety Engineer
- Peer Reviewer for Fire Safety Engineer
- Transport Consultant

All project members can add Assistants & control their access to the projects

The screenshot shows the 'Add member details' form in the CORENET X Submission Portal. At the top, there are two numbered steps: '1 Add member details' and '2 Add responsibilities'. The main heading is 'Add member details', followed by a note: 'A notification email will be sent to the added project member. Additional information will be retrieved from the member's Myinfo data upon their authorisation.' Below this, there is a 'Roles' section with a 'Role' dropdown menu set to 'Professional Engineer (Civil)' and a 'Registration no.' text input field. A '+ Add additional role' link is also present. The 'Member details' section includes a 'Name' text input field, an 'NRIC/FIN' text input field with a note 'Last 4 alphanumeric characters (example: 567A)', and an 'Email' text input field.

Builders need to interact more with the CORENET X Submission Portal than before

- Licensed Builders and Specialist Builders – All submissions will be made via CORENET X (including Permit, Constructability Score and C-forms, Builders' Certificates etc.)
- Approved Person (AP) and Technical Controllers (TC) – Ensure AP and TC info are up-to-date (validation will be done with Builders' Licensing System)
 - can appoint members
 - can add assistant to help prepare the required submissions
- Builders can now track submission progress directly and download approved plans from the portal
- [Coming soon] Builders can also add up to 2 secondary personnels to support the appointment of members

Access to Project information and Submission Status

Builders, as part of the project team, now have access to view the project progress & status

Access to submission milestone dashboard

Viewing of submission timeline (whether it is approved or issued with WD)

Agencies' Responses & Approved Plans can be accessed without the need to go through QP or decryption process

The screenshot displays a project management interface with several key sections:

- Project overview:** Shows project details for A2546-A0015-2023, created on 21 September 2023.
- Submission milestone dashboard:** A table tracking the progress of joint submissions. A yellow box highlights this section.
- View submission timeline:** A detailed view of a submission cleared on 21 September 2023, showing applicable sections and submission status. A yellow box highlights this section.
- View responses:** A table showing responses from regulatory agencies, including a 'Clearance' response from NEA, NPARKS, URA, LTA, PUB on 21 Sep 2023. A yellow box highlights this section.
- Project information:** Includes project address (Residential (Non-Landed)) and project title (Internal Workflow Testing for IP-CP for CX R2 Go-Live on 21 Sep 2023 Multi Step).

SUBMISSIONS	SUBMISSION STAGE	WD OUTSTANDING	ACTIONS
Plan application Design gateway	New Submission ES20230921-50012-DG01R00 Clearance	-	View submission
Plan application Piling gateway (Optional)	Not started	-	
Plan application Construction gateway	Not started	-	
Completion TOP/CSC clearance	Not started	-	

RESPONSE	SUBMISSION TYPE	AGENCY	ISSUED ON	ACTIONS
Clearance	New Submission ES20230921-50012-DG01R00	NEA, NPARKS, URA, LTA, PUB	21 Sep 2023	Download

Plans reflected here are provided by the appointed project parties for the applicable sections when section is ready for review.

CORENET X Submission Portal – Builders

- Project members who currently do not need to use CORENET 2.0 but will need to access CORENET X will need to familiarise themselves with Singpass for Business (Corppass).
- As regulatory forms have digitalised on CORENET X, the appointment of QPs and the subsequent workflows such as creation of submissions will be delayed if Corppass for each firm’s representatives has not been set up.



Good Practice

- All industry stakeholders should set up their Corppass accounts as early as possible including Corppass access to the CORENET X Submission Portal so that any issues that may arise can be addressed with their Corppass Admin (e.g. internal clearances required, Corppass Admin is away on leave, etc.)
- Corppass admins should authorise their staff (Developer/Builder/QP and their assistants) to represent the company and be able to access “CORENET X Industry Portal” (<https://portal.corenet.gov.sg/>) e-Service.



Resources Available

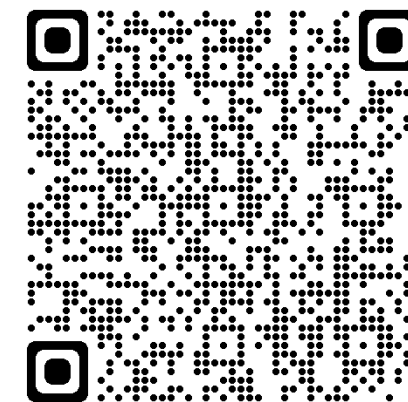


Training/Courses for Industry Practitioners

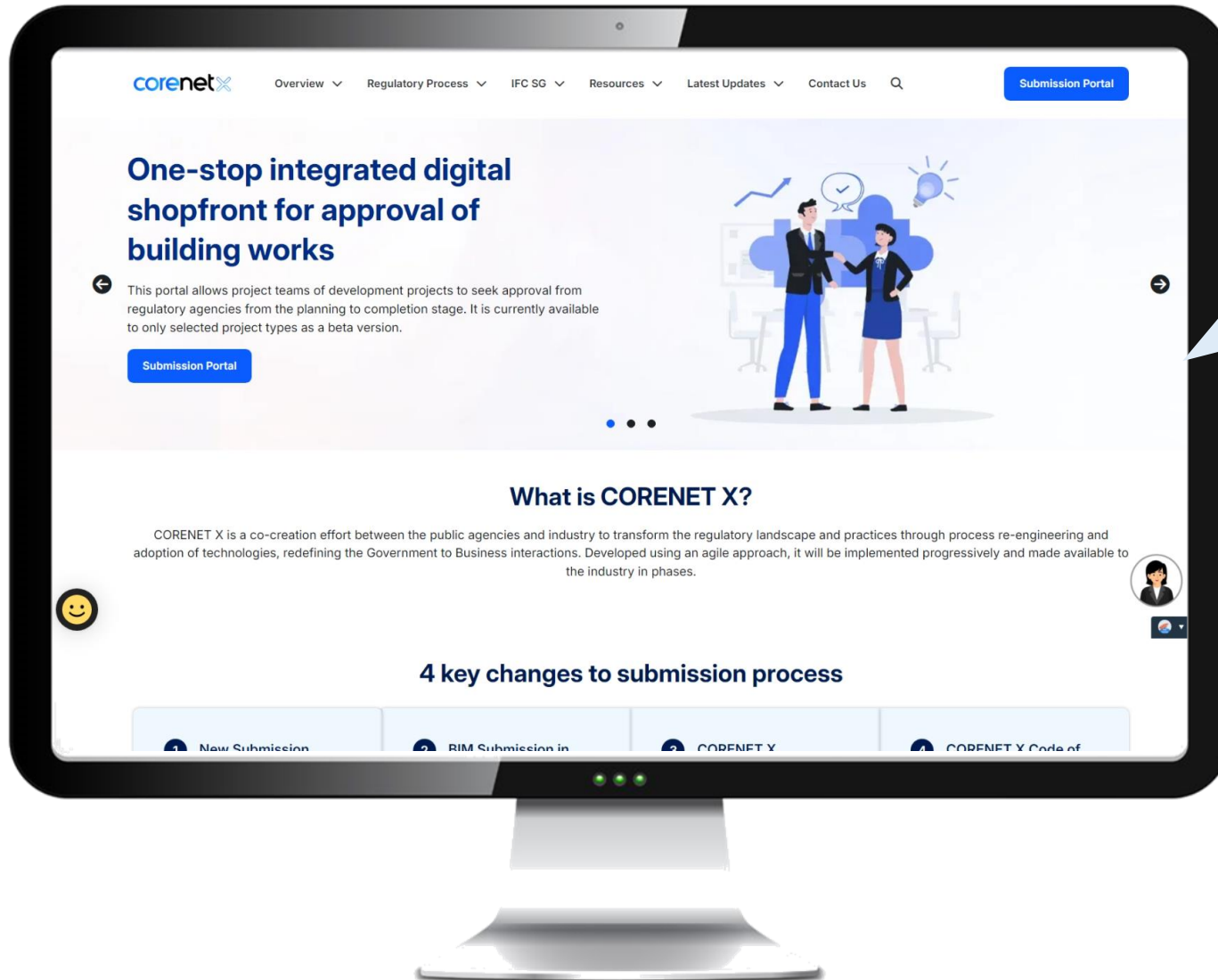
1	Mode of Lessons	<u>Trainers</u>
<p>CORENET X Regulatory Approval for Building Works (RABW) Course</p> <p><i>Understanding the new RABW Processes</i></p>	Physical	The Architect's Academy by Singapore Institute of Architects (SIA)
		BIMAGE
		BCA Academy
		SP Pace Academy
	Self-paced Online Learning	Bluskai
2	Software	<u>Trainers</u>
<p>IFC-SG Training</p> <p><i>Preparing OpenBIM submissions using IFC-SG</i></p>	Revit	AcePLP Pte Ltd, BIMAGE consulting, SP Pace Academy, Innocom
	Tekla	AcePLP Pte Ltd
	Archicad	Graphisoft
	Bentley	Bentley, AcePLP(AIA)

Please scan the QR code below to find out more:

<https://go.gov.sg/cx>



New CORENET X Website & Resources



- Interactive COP
- Submission Portal Guides
- IFC-SG
- Training & Funding
- Past Events & Material

More details on
CORENET X can be
found at:

<https://go.gov.sg/cx>



SCAN ME



Discussion

Submission Sequence & Construction Scheduling



How will you optimise your construction scheduling and resource mobilization to align with CORENET X's redesigned approval process?

- What are the key factors to consider?
- What adjustments will you make?

Observations from Pilot Project

- Planning and Coordination issue between Builder and C&S Engineers
- For large projects, Part ST submission packaging and timing directly affects the construction schedule
- **Observation 1: The offsite preparation time for precast works were not factored in** and precast work could not start in time resulting in construction delay. **Precast elements for superstructure was not included in the first ST package.**
- **Observation 2: Part ST scope was small** and completed before subsequent Part STs are approved, resulting in **idling time for builder.**

Getting Prepared for CORENET X



How do you prepare your company for CORENET X?

- How do you organise your team?
- How do you manage your consultants for D&B projects?
- What are the value-adds that you can bring to your clients?
- What are the impacts/challenges do you foresee and how do you mitigate?

Observations from Pilot Projects

- Lack of coordination and communication between the architects, engineers and contractors.
- Insufficient time given to C&S for design and calculations, and AC checking.
- Lack of clarity among project team on who is responsible for BIM coordination before submission.

Getting Prepared for CORENET X



How will you optimise your construction scheduling and resource mobilization to align with CORENET X's redesigned approval process?

- What are the key factors to consider?
- What adjustments will you make?

How do you prepare your company for CORENET X?

- How do you organise your team?
- How do you manage your consultants for D&B projects?
- What are the value-adds that you can bring to your clients?
- What are the impacts/challenges do you foresee and how do you mitigate?



Thank You!

For enquiries/feedback related to CORENET X, you can reach us via online form go.gov.sg/cxenquiry or contact us at 3129 7483.



Additional Reading Materials





Checksum for Approved Plans

Approved plans in CORENET X will not have the watermark unlike current practice. Industry can verify if a set of plans are approved using the checksum method.

What is Checksum?

- A checksum is a unique alphanumeric value, like digital fingerprint of a file
- Unlike traditional watermarks, allows for easy detection of even small changes without affecting the file's contents or accessibility.

The Checksum values of each approved plan are found in the “List of Approved Plans”, attached to the Notice of Approval

- **Standardised approach** across agencies and can be used all kinds of files (BIM or 2D)
- **Ease of access** - files can be used without decryption
- **Quick verification** of approved plan without using specific application, software or internet and low likelihood of forgery

Building and Construction Authority
An MND Statutory Board

CX ES Number: [REDACTED] Building Engineering Group
Tel: [REDACTED]
Email: [REDACTED]

DEVELOPER: [REDACTED] QUALIFIED PERSON: [REDACTED]

Dear Sir/Madam

BUILDING CONTROL ACT
[Section 5/Section 5A]
NOTICE OF APPROVAL
(Regulation 14(1) of the Building Control Regulations 2003)

PROJECT REFERENCE NUMBER: [REDACTED]
PROJECT TITLE: [REDACTED]

1 The above structural plans are hereby approved subject to the provisions of the Building Control Act (Cap. 29) and Building Control Regulations, and the following term and condition of approval.

a) there is a valid planning permission.

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52 Jurong Gateway Road #11-01 Singapore 608550
Tel: 3800 3425 222 | Email: bca_enquiry@bca.gov.sg
www1.bca.gov.sg

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List of Approved Plans (BCA)

RENCE NO.: [REDACTED]
E: [REDACTED]

Drawing2 Proposal plan(s) [QR Code]	Drawing3 Proposal plan(s) [QR Code]	Drawing4 Proposal plan(s) [QR Code]
Drawing5 Proposal plan(s) [QR Code]	Drawing6 Proposal plan(s) [QR Code]	Drawing7 Proposal plan(s) [QR Code]
Drawing9 Proposal plan(s) [QR Code]		
Drawing11 Proposal plan(s) [QR Code]	Drawing12 Proposal plan(s) [QR Code]	

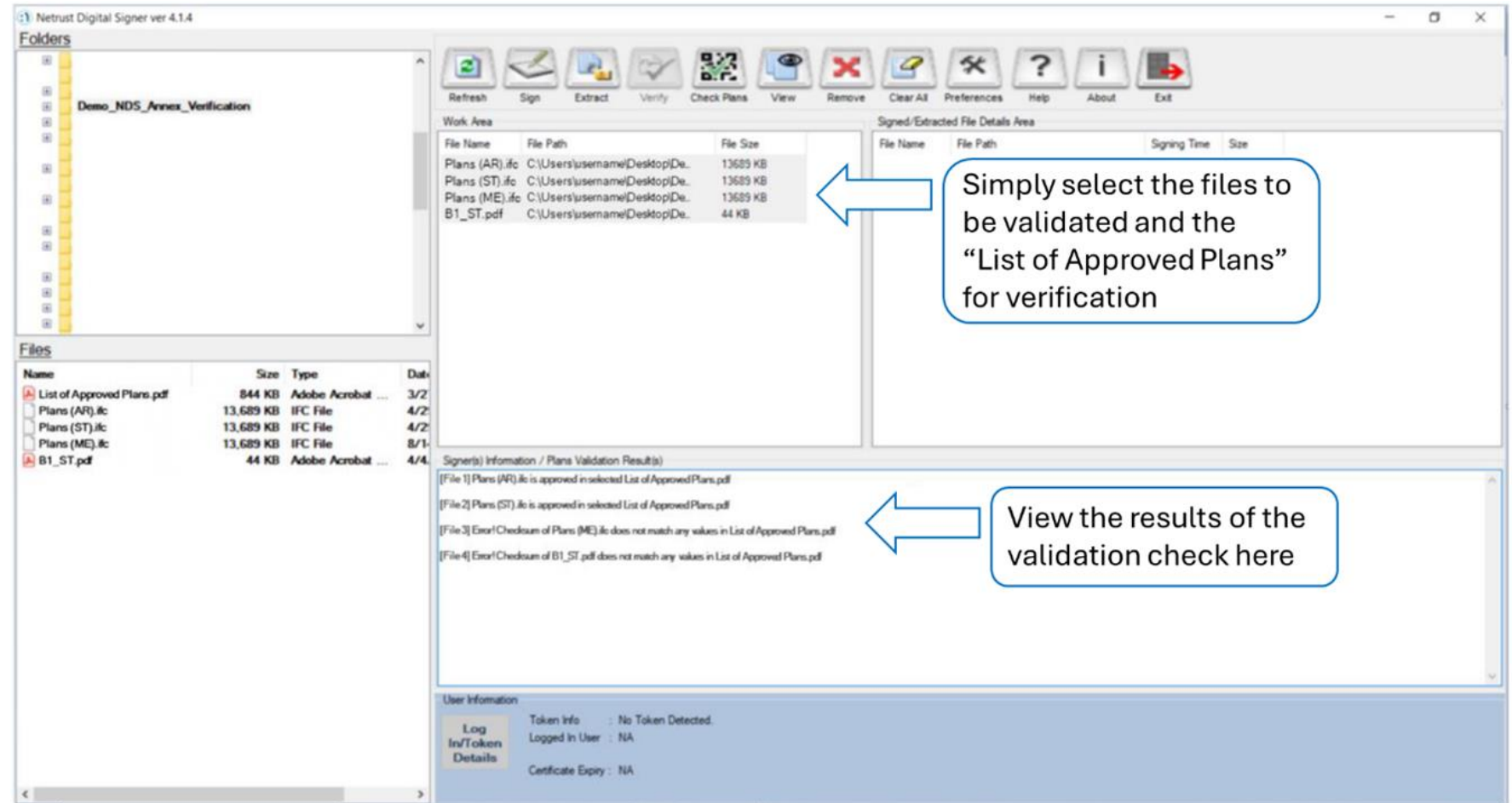
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To verify if a file is an approved plan, you can compare the checksum of the file with the checksum listed in the “List of Approved Plans”

1. Verification with Netrust Digital Signer (ND)

The latest version of NDS has the capability to perform validation of files with a List of Approved Plans.

1. Simply select the files to be validated and the “List of Approved Plans” for verification
2. View the results of the validation check in the Plans Validation Results(s)



To verify if a file is an approved plan, you can compare the checksum of the file with the checksum listed in the “List of Approved Plans”

1. Verification without Netrust Digital Signer (NDS)

1. Scan the QR Code in the approval letter using any QR code reader to obtain the SHA256 checksum of the approved plan
2. Obtain the SHA256 checksum of the file you wish to verify
 - There are many ways to do this (e.g. through free online tools)
3. Compare Checksum values from Step 1 and 2

1

List of Approved Plans (BCA)

PROJECT REFERENCE NO.: [REDACTED]
PROJECT TITLE: [REDACTED]

...

Building Design			
Drawing1 Proposal plan(s) [QR Code]	Drawing2 Proposal plan(s) [QR Code]	Drawing3 Proposal plan(s) [QR Code]	Drawing4 Proposal plan(s) [QR Code]
Structural Design			
Drawing4 Proposal plan(s) [QR Code]	Drawing5 Proposal plan(s) [QR Code]	Drawing6 Proposal plan(s) [QR Code]	Drawing7 Proposal plan(s) [QR Code]
Drawing8 Proposal plan(s) [QR Code]	Drawing9 Proposal plan(s) [QR Code]		
Buildability			
Drawing10 Proposal plan(s) [QR Code]	Drawing11 Proposal plan(s) [QR Code]	Drawing12 Proposal plan(s) [QR Code]	

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Checksum of file embedded in QR code

Checksum (digital ID) of file:
09f0ca9916116e3a2391bc40164a7368c79ed5d91bd03b317482bd851bf0a6a6

2 Example of free online checksum viewer

Online Tools

SHA256 File Checksum

This SHA256 online tool helps you calculate the hash of a file from local or URL using SHA256 without uploading the file. It also supports HMAC.

Input

Drag and drop the file here or click to select a file. It will process locally and won't be uploaded.

Output

09f0ca9916116e3a2391bc40164a7368c79ed5d91bd03b317482bd851bf0a6a6

Settings

3 Compare Checksum values

NOTE: QR code is only for checksum value, approved plans can only be downloaded from Submission Portal

- Approved plans in CORENET X will not have a watermark, unlike current practice.
- Industry can verify if a set of plans are approved using its checksum, an alphanumeric value unique to each file
- The checksum value of the approved plans are found in the “List of Approved Plans”, attached to the Notice of Approval
- To verify if a document is an approved plan, simply compare the checksum value of the document* to the value on the “List of Approved Plans”
- The checksum approach can be used for all types of files (BIM or 2D), can be used without decryption and can be quickly verified, even without internet.

Building and Construction Authority
An MND Statutory Board

CX ES Number: [Redacted] Building Engineering Group
Tel: [Redacted]
Email: [Redacted]

DEVELOPER: [Redacted] QUALIFIED PERSON: [Redacted]

Dear Sir/Madam

BUILDING CONTROL ACT
[Section 5/Section 5A]
NOTICE OF APPROVAL
(Regulation 14(1) of the Building Control Regulations 2003)

PROJECT REFERENCE NUMBER: [Redacted]
PROJECT TITLE: [Redacted]

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Drawing12 Proposal plan(s) [QR Code]		

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*there are many digital tools that can be used to generate a document's checksum value. Netrust Digital Signer (NDS) also has an inbuilt function to compare checksum values against the “List of Approved Plans”