

CORENET X: New Regulatory Approval Process for Building Works (RABW)

No. of Slides: 43

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Agenda

- ❑ What is CORENET X ?
- ❑ CORENET X Regulatory Process
- ❑ General Workflow in Submission Portal
- ❑ Introduction to Automated Model Checker



☒ What is CORENET X ?

☐ CORENET X Regulatory Process

☐ General Workflow in Submission Portal

☐ Introduction to Model Quality Checker



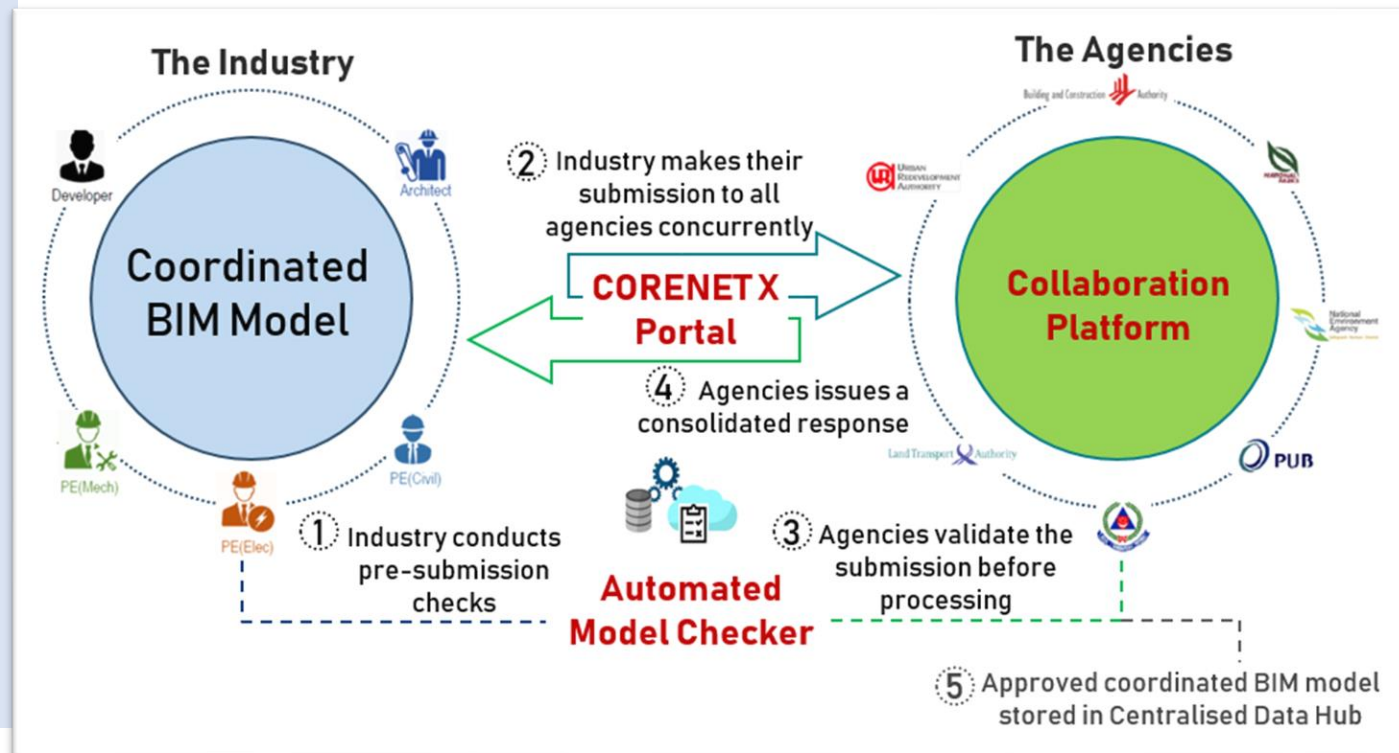
Vision of CORENET X

Vision: A Future Ecosystem of Regulatory Approval of Building Works that Accelerates The Transformation of the Construction Industry

FIRST IN THE WORLD One-Stop Integrated Digital Shopfront

TRANSFORMATION of INDUSTRY

- Promote design coordination and teamwork
- Promote digitalization of construction sector
- Support IDD¹ & DfMA² imperatives



TRANSFORMATION of REGULATORY AGENCIES

- Reduce silos, iterations & condense touchpoints
- Embrace collaboration & raise productivity amidst rising demands
- Improve accessibility & centralise information towards a Single Source of Truth

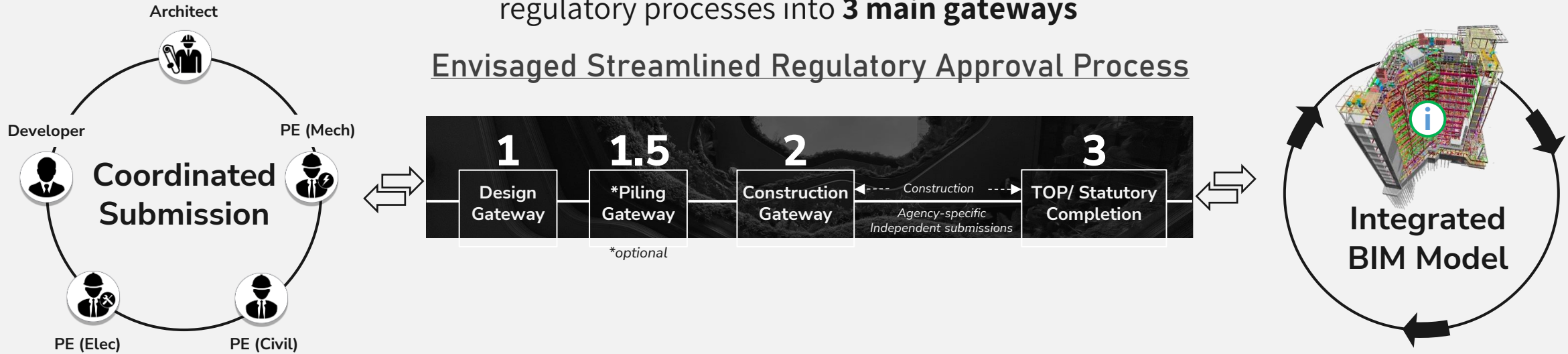
¹ IDD is the use of digital technologies to integrate work processes and connect stakeholders working on the same project throughout the construction and building life-cycle

² DfMA is a continuum of various technologies and methodologies that promote offsite fabrication from prefabricated components to fully integrated assemblies across the structural, architectural and Mechanical/ Electrical disciplines.

New Regulatory Approval Process for Building Works

CORENET X will transform and redesign our regulatory processes into **3 main gateways**

Envisaged Streamlined Regulatory Approval Process



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

20

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

❑ What is CORENET X ?

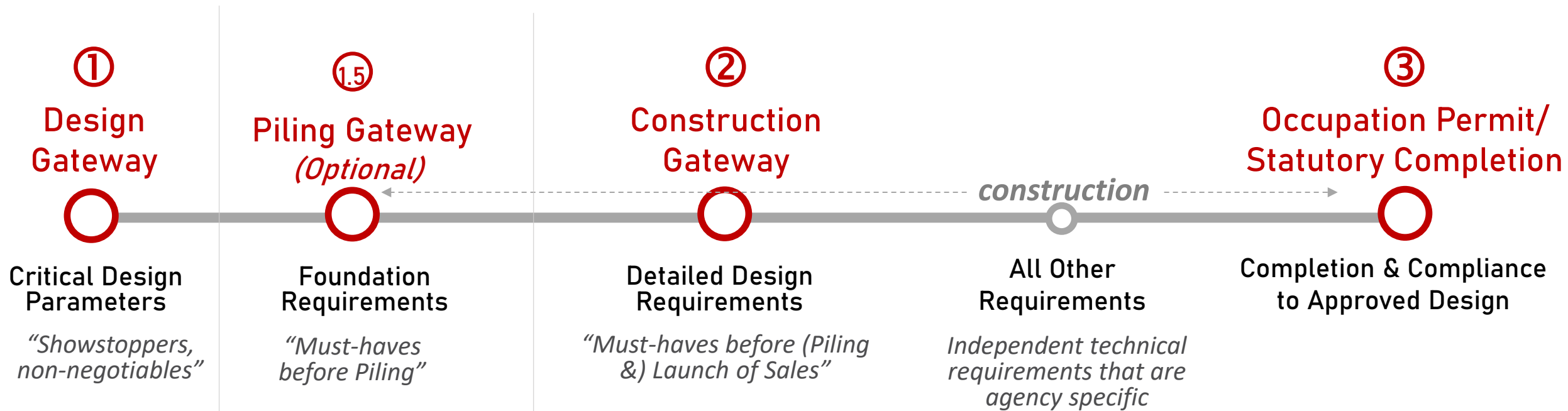
❑ **CORENET X Regulatory Process**

❑ General Workflow in Submission Portal

❑ Introduction to Automated Model Checker



Approvals under Consolidated CORENET X Gateways



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

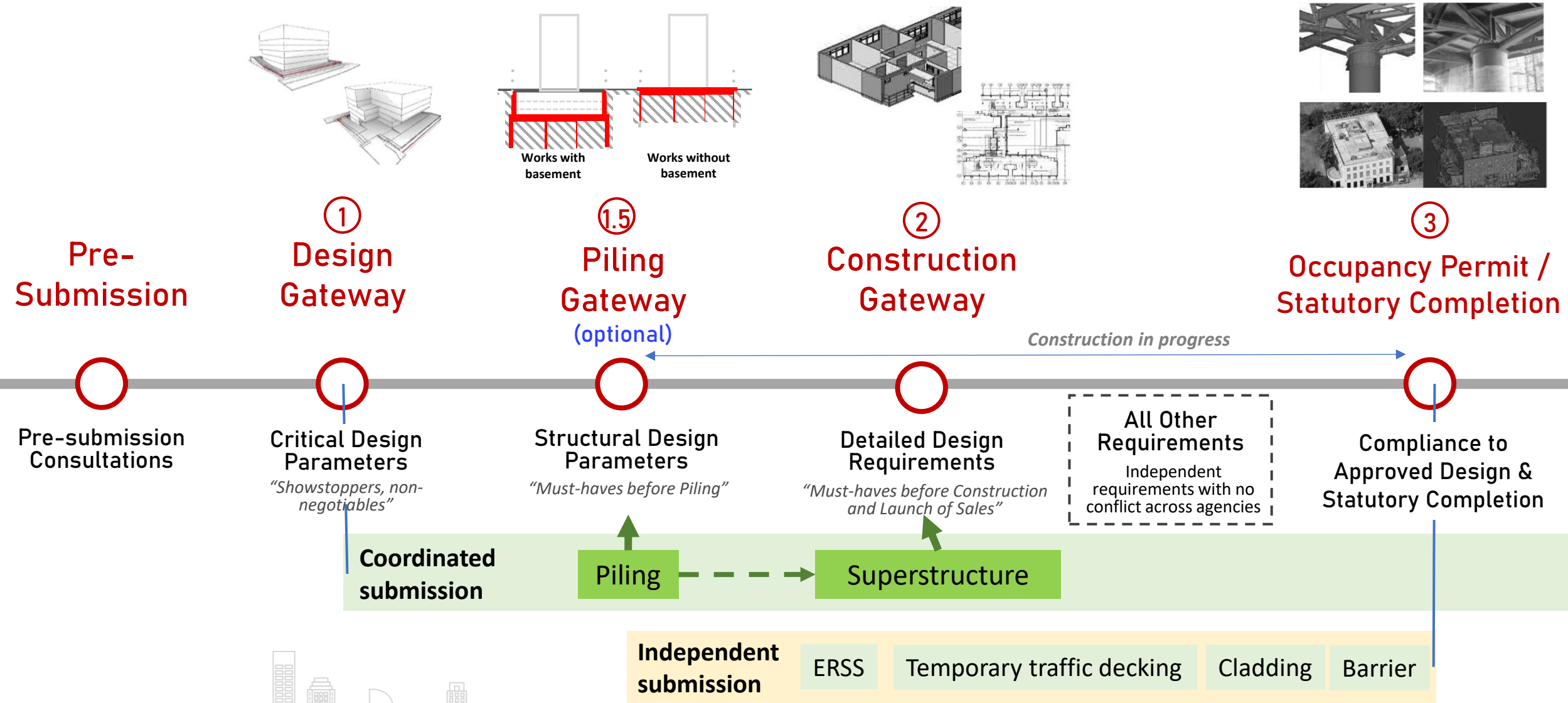
- | | | |
|--|---|---|
| <ul style="list-style-type: none"> • URA PP • LTA, NEA, Npark and PUB DC Clearances/A pproval. | <ul style="list-style-type: none"> • BCA ST Approvals for Permanent Piling Works • LTA RPZ AIP for Pile Design and Pile Layout Plan | <ul style="list-style-type: none"> • URA WP • 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

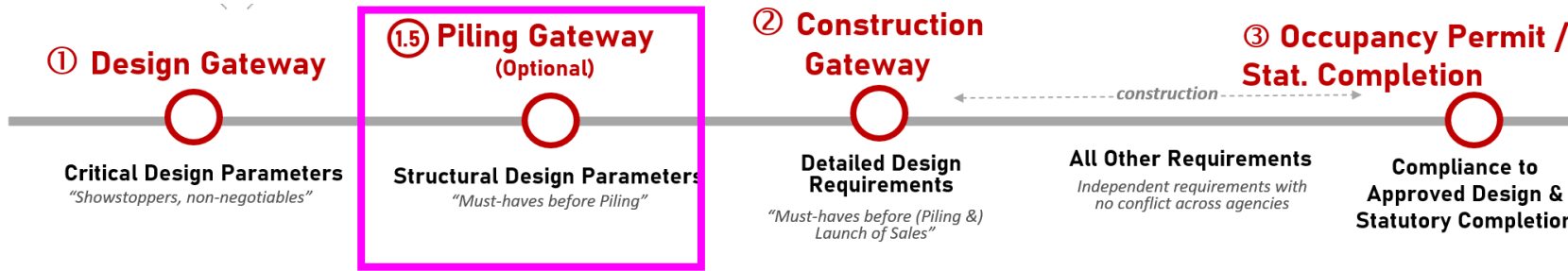
Resolve **multi-agency requirements** concerning design details that need to be **coordinated**



Approvals under Consolidated CORENET X Gateways



Piling Gateway (Optional*)



*QPs are to assess the risk involved when opting for piling gateway before superstructure is approved.

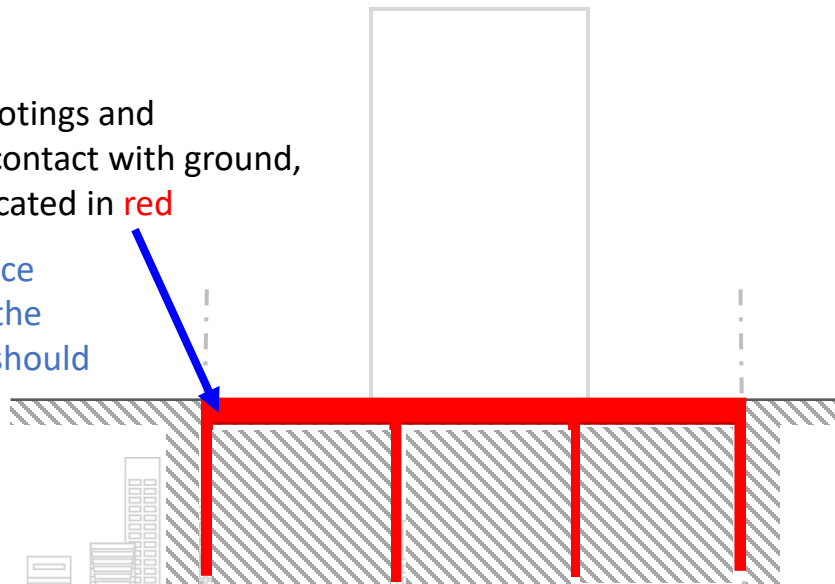
Agencies involved:
BCA-ST & LTA

Agencies have developed the Piling Gateway as a clearance for 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)

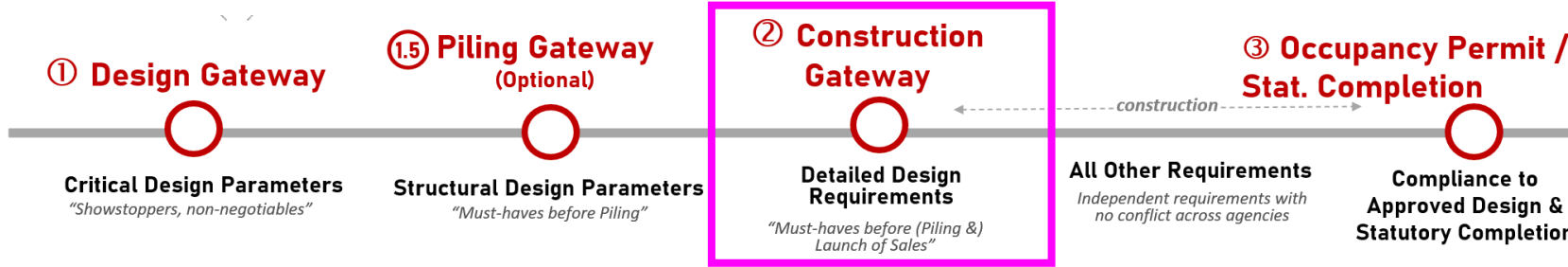


❖ Column starter bars can be included

- The Piling Gateway clearance pertains to the design of permanent piling and substructure works (that do not affect internal layout), where its **clearance is for design approval and not for commencement of works**
- 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



Construction Gateway



Resolve multi-agency requirements concerning design details that need to be coordinated before commencement of main structural works and launch of Sales. This seeks to **minimise abortive works on-site downstream**

Structural Design (continued from previous page)

Agency	Requirement Category
BCA <i>(continued from previous page)</i>	- Complete set of IFC-SG model(s) for all structural elements & details 2D Drawings limited to: - General notes - Special details (e.g. slab reinforcement detailing, complex structure detailing, transfer plate detailing, irregular section detailing, precast joints, prestressed details, steel connections.) Design Calculation Reports: - From QP, AC, [QP(Geo) & AC (Geo), if needed] Additional Supporting Documents: a) Site investigation report in PDF & AGS format b) Impact assessment report c) Topography d) Complete set of building plan submitted simultaneously e) Completion letter of pre-consultation (for complex structure only)

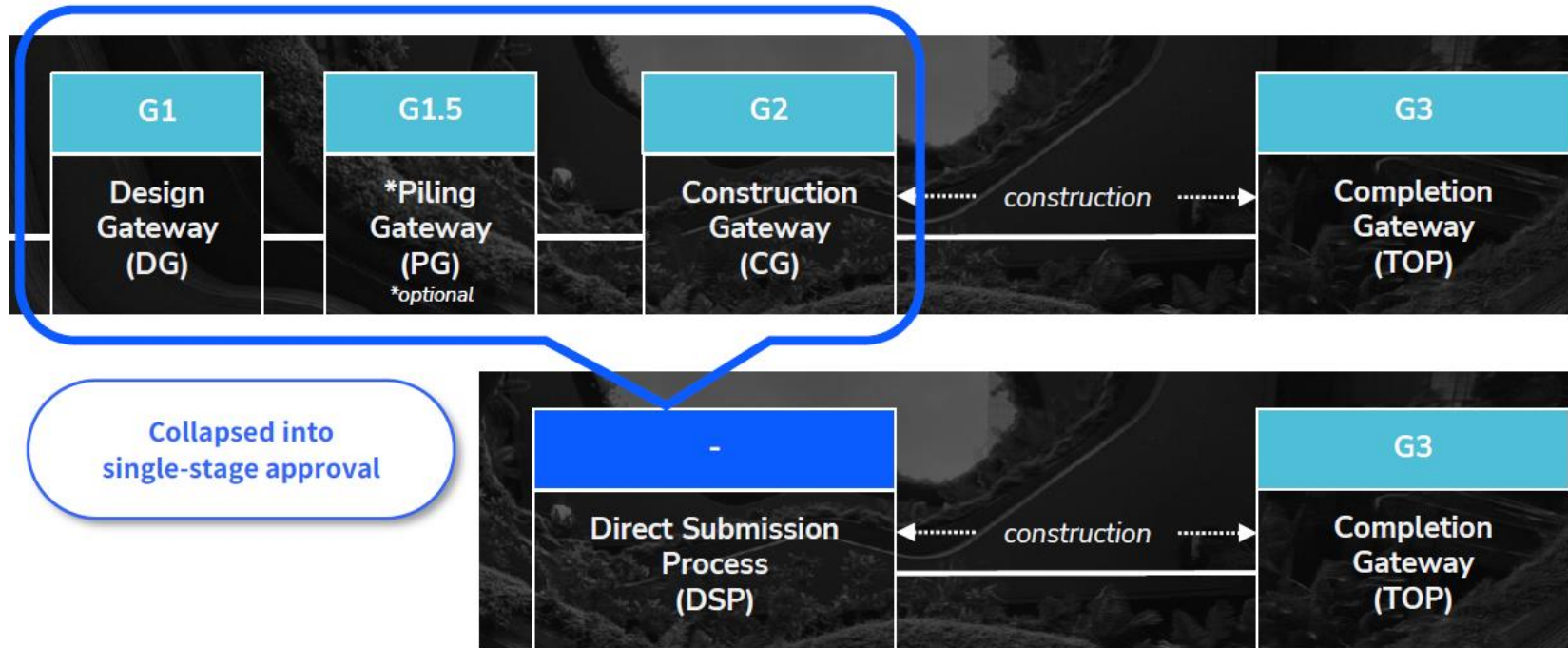
The project team should include foundation and substructure elements in Construction Gateway if they do not opt for a Piling Gateway.



Direct Submission Process (DSP)

Direct Submission Process (DSP): For less complex building works that need not be subjected to the typical 3-Gateway process

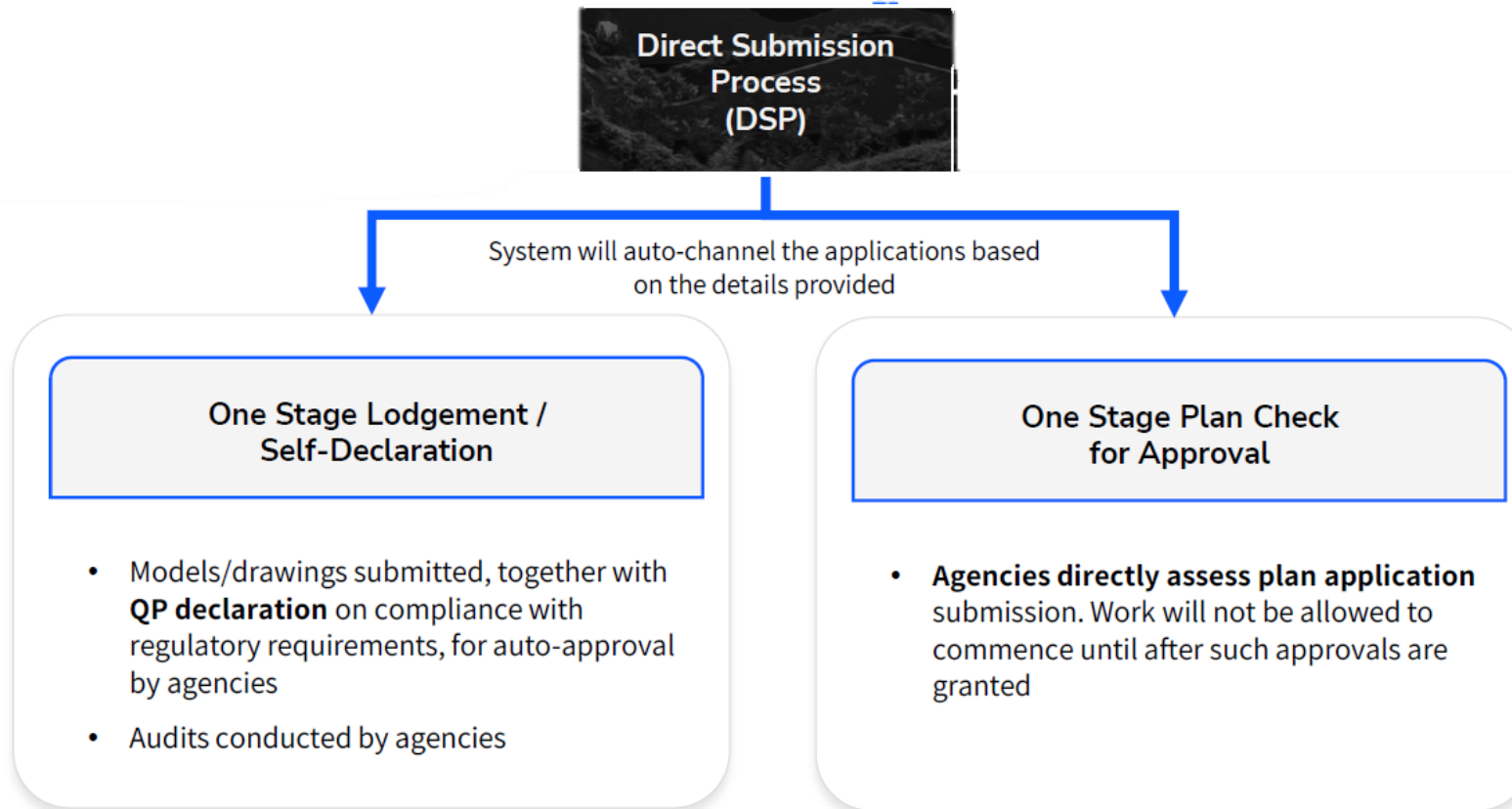
DSP is developed as a single stage approval prior to TOP/CSC, instead of multiple touchpoints at Design Gateway, Piling Gateway (optional) and Construction Gateway.



Examples of eligible type of building works: single-unit residential landed development, standalone pavilion/ linkway/ single storey platform



Direct Submission Process (DSP)



Direct Submission Process

- Only eligible projects will be put under DSP
- Through a guided submission process, QP will answer a set of eligibility questions to determine whether project will be auto-channelled to either:
 - Lodgment/self-declaration/simplified submission scheme OR**
 - One-stage plan check**for the respective agencies
- Independent submission for agency-specific requirements is still available and supported under DSP



Simplified Process- Lodgment



New Lodgment Scheme

- Pro-enterprise approach in tandem with the launch of CORENET X
- Facilitate a simplified regulatory plan approval process for building works identified to be less complex and lower-risk
- CORENET X submission portal available for voluntary submissions since 1 June 2024

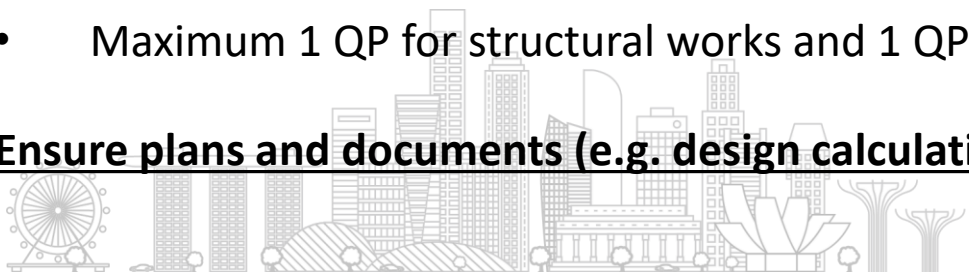
Check lodgment conditions for eligibility

- Full list of works can be found in the Ninth Schedule
- Maximum 1 QP for structural works and 1 QP for architectural works

Ensure plans and documents (e.g. design calculations) are ready

Differentiation from First Schedule (IBW)

Unlike IBWs, QPs are required to lodge the plans with the CBC **for records and audit purposes**



Simplified Process- Lodgment

1. Prepare

2. Submit

3. Acknowledge receipt

4. Commence

Works that qualify for lodgment submission*

*refer to detailed requirements in Building Control Regulations 2003 Ninth Schedule

Landed residential homes



- ≤ 3 storeys
- Excavation $\leq 2\text{m}$
- ERSS $\leq 4\text{m}$
- Cantilever $\leq 6\text{m}$

Site formation works



- Slope $\leq 4\text{m}$
- Slope gradient $< 22\text{deg}$
- No soft soil beneath slope

Full height windows & glass panels



- Full height window in landed residential ≤ 3 storeys
- Glass panel at height $\geq 2.4\text{m}$, not as safety barrier

Single storey non-residential buildings



- Beam or roof trusses span $\leq 6\text{m}$
- Cantilever span $\leq 3\text{m}$
- Height of the building $\leq 6\text{m}$
- Excavation works $\leq 2\text{m}$ depth

Cranes



- Independently supported
- Span between 2 supports $\leq 6\text{m}$
- Span of any cantilever supporting frame $\leq 3\text{m}$

Single storey working platform



- Height $\leq 4\text{m}$
- Span between 2 supports $\leq 6\text{m}$
- Span of any cantilever $\leq 3\text{m}$
- Area $\leq 100\text{m}^2$

Chimney, light masts



- Height $\leq 20\text{m}$

Single storey container



- Area $\leq 35\text{m}^2$

Simplified Process- Lodgment



Lodgment of the following plans and documents

- (a) Building plans;
- (b) Detailed structural plans and design calculations;
- (c) Site formation plans and pile layout plans;
- (d) Civil defence shelter plans (if any); and
- (e) Demolition works plans (if any)

Prescribed lodgment fee

- Based on per lodgment application
- 50% of the non-lodgment plan fees



Simplified Process- Lodgment

1. Prepare

2. Submit

3. Acknowledge
receipt

4. Commence

Upon successful lodgment, an acknowledgement letter will be issued to the developer and the QP(s).

BUILDING CONTROL ACT
[Section 5AA]

(Regulation 14(1) of the Building Control Regulations 2003)

WRITTEN ACKNOWLEDGMENT

STRUCTURAL PLAN (INCLUDING HOUSEHOLD SHELTER)

PROJECT REFERENCE NUMBER:

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

a) there is a valid planning permission.

2 If Household Shelter structural plans ("Shelter Plans") were lodged together with the above structural plans, please note that the deemed approval granted pursuant to this Written Acknowledgment shall also be deemed to be a deemed approval of such Shelter Plans. Should there be any amendments to the deemed approved Shelter Plans which materially affects the structural details of the shelter, the Qualified Person is required to lodge the amended Shelter Plans for deemed approval before construction. To facilitate inspection of shelters, the Qualified Person is advised to submit a construction work schedule in relation to the shelter to us at least two months before the commencement of shelter works.

3 Please note that you are required, under section 6 of the Building Control Act, to apply for and obtain the permit to commence work before carrying out structural works. If a permit has already been issued for this project, there is no need to apply for the permit again as long as the parties to the permit (i.e. the developer/owner, the qualified persons and the builder) remain the same.

✓ Reduced
time to
obtain NOA

Simplified Process- Lodgment



- **All other requirements will continue to apply to lodgment works**, including construction supervision, application for permit to commence structural works, Record Plans, C-Forms, application for TOP/CSC
- The statutory responsibilities of the developers, QPs, builders and site supervisors under the BC Act and BC Regulations **remain unchanged**.
- QP to lodge the **amendment plans** with prescribed lodgment fees
- **Audits may be conducted** on lodged plans and Written Directions may be issued in respect of any non-compliances found. CBC may **refuse to accept any further lodgment** and direct plan application to be made under Section 5 of BC Act instead



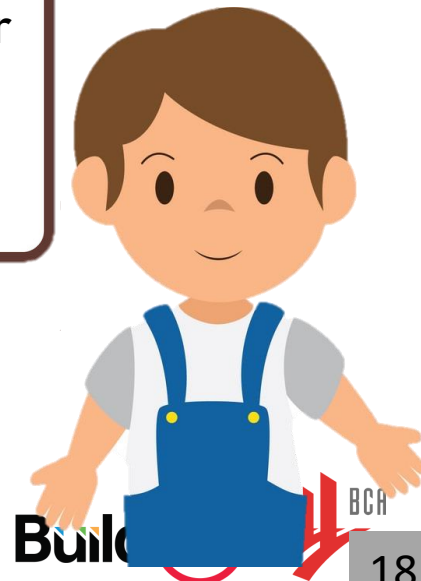
Independent submission



To clear agency specific requirements with no cross agency dependencies (i.e. typically affecting only one relevant agency)

Structural Design	<u>Structural Design</u> • 2D Drawings are acceptable for independent submissions. • Structural design of ancillary works and component such as demolition, temporary ERSS, barriers & cladding, temporary traffic decking • Structural design of localized works for ancillary structures e.g. cladding, barrier • These plans will need to make reference back to the coordinated model submitted by the Main QP at the Construction Gateway (G2). ☐☐☐☐ <u>Design Calculation Reports</u> • From QP, AC, [QP(Geo) & AC (Geo), if needed] ☐☐☐☐ <u>Additional Supporting Documents:</u> a) Site investigation report in pdf & AGS format b) Impact assessment report c) Design consideration for Earth Retaining or Stabilising Structures (ERSS)) – ERSS_Annex A d) QP's & AC's Certification for fixings of ancillary structures
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The project team can submit independent submission design details separately after direct submission process.



- ☐ What is CORENET X ?
- ☐ CORENET X Regulatory Process
- ☒ **General Workflow in Submission Portal**
- ☐ Introduction to Automated Model Checker



Submission Procedures in CORENET X

Project Coordinator (PC) creates project on submission portal



PC adds project members, assigns roles, specifies responsibilities, and initiates appointment of project parties.



PC creates a plan application submission

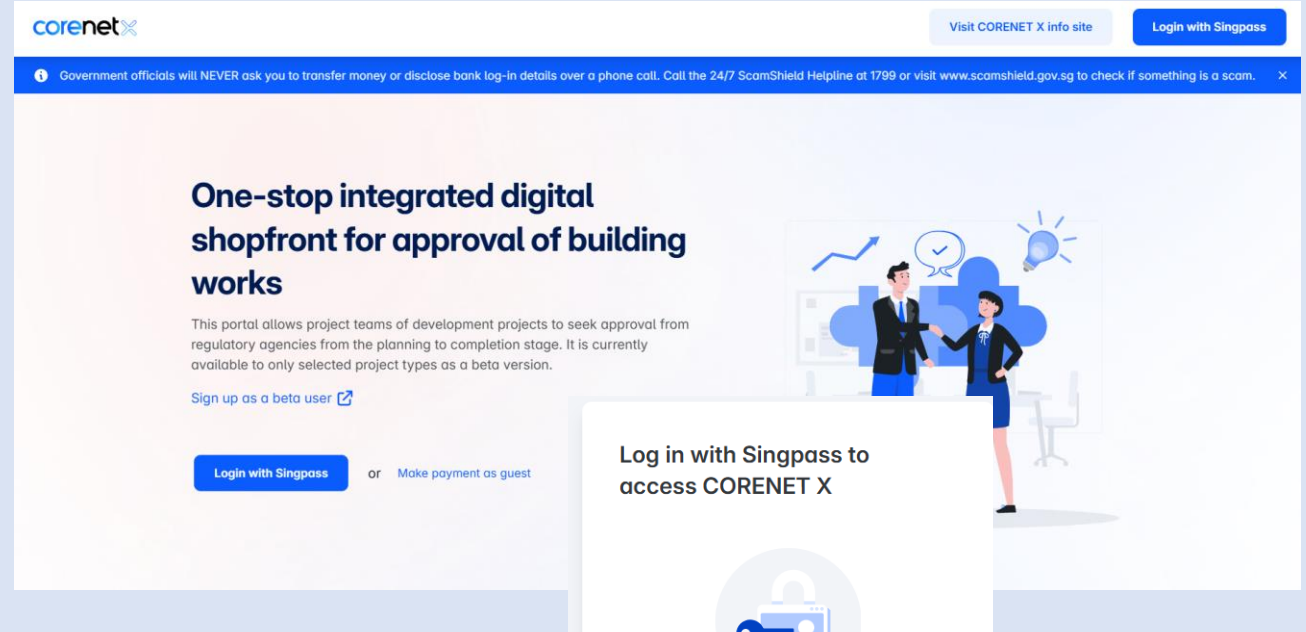


Appointed QPs complete web based dynamic form fields, upload coordinated model and supplementary documents, and complete declarations



Makes payment (if any) and submits for approvals

Login to CORENET X via <https://portal.corenet.gov.sg/> (or Google search “CORENET X”)



Log in with Singpass to access CORENET X



Developer (organisation), Licensed Builders, Qualified Persons, registered/licensed professionals representing companies should be Corppass-registered and log in as business.

[How do I apply for Singpass Business?](#)

Log in as Business

Acting in your personal capacity e.g. Developer (individual) or no Corppass? [Log in as an individual](#)

Please sign in with Singpass for business if you hold an account

Submission portal dashboard

A Singapore Government Agency Website [How to identify](#)

corenetX

Overview of projects on hand

Notifications and user profile

My projects

Create project

My profile
Manage assistants
Logout

Search by keyword

Project reference, title or address

Sort by

Recently viewed

Newest first

Oldest first

Recently viewed

Bookmarked

See your projects the way you like:
1) chronologically;
2) recently viewed; or
3) bookmarked

E9000-A0152-2023

E2E Testing - BCA Sets 1

MK11-03827A,

25 Oct 2023

E9000-A0204-2023

E2E Testing - BCA Sets 4

MK11-03827A,

27 Oct 2023

A5764-50916-0880

A&A - Residential Landed

A1467-57044-2340

A&A - Residential Landed w Submission

E9000-A0255-2023

Test project BCA BE

Navigate to payments



Overview on PC Roles

Project Coordinator (PC) creates project on submission portal

- ✓ Role of Project Coordinator (PC)
- ✓ Assign assistants to projects
- ✓ Auto-generated project reference no.

PC adds project members, assigns roles, specifies responsibilities, and initiates appointment of project parties.

- ✓ Projects accessible by all project parties
- ✓ Upfront assignment of roles and responsibilities
- ✓ Confirm roles and responsibilities using Singpass

Scope	CORENET X	CORENET 2
Project reference no	A1234- A 0001-2024 (auto-generated)	A1234-00001-2024
Member adding & role responsibility	Added by Project Coordinator and individual member	Added by Project Coordinator
Appointment	acknowledgement with singpass	Sign on BCA-LU-NAPPQP01 form
Assistant for Submission Portal	Assistants can create projects and prepare submissions, but not make any submissions on project party's behalf	Assistants can create projects and prepare submissions



Submission Procedures in CORENET X

Project Coordinator (PC) creates project on submission portal



PC adds project members, assigns roles, specifies responsibilities, and initiates appointment of project parties.



PC creates a plan application submission



Appointed QPs complete web based dynamic form fields, upload coordinated model and supplementary documents, and complete declarations



Makes payment (if any) and submits for approvals



Create submissions

From Project overview page, navigate to “Submission workspace” tab then select “Create submission”

My projects > Project overview (E9000-A0152-2023)

Project overview

Created by Pietro Ang on 25 October 2023

Project creation should be initiated by the Project Coordinator. If your project involves a QP(Architect), he/she should be the Project Coordinator.

Dismiss

PROJECT REFERENCE NO.
E9000-A0152-2023

Gateway submission process

Submission workspace
Prepare project submissions

Make payment
Add and pay for multiple payments

Submission milestone dashboard

Keep track of the progress of your joint submissions. For all other applications, please view them in the submission workspace.

SUBMISSIONS	SUBMISSION STAGE	WD OUTSTANDING	ACTIONS
Plan application Design gateway	New Submission ES20231026-50013-DG01R00 Processing	-	View submission
Plan application Piling gateway (Optional)	Not started	-	
Plan application Construction gateway	Amendment - Draft	-	View submission
Completion TOP/CSC clearance	Not started	-	

My projects > ... > Submission workspace

Submission workspace

Joint space for project members to manage and prepare project submissions

Gateway submission process

Guided process to obtain the required agency clearances for your project

- Design gateway
Start your submission process with a plan application (Design gateway) for plans approval
- Piling gateway (optional)
- Construction gateway
- Completion
Obtain TOP/CSC approvals from relevant regulatory agencies before requesting for BCA's final clearance

All submissions

Create and manage your submissions

SUBMISSIONS	STATUS	AGENCY	LAST UPDATED	ACTIONS
Plan application (Construction Gateway) -	Amendment - Draft	All	29 Jan 2024	View
Waiver/non-compliance -	New Submission - Draft	BCA (Structural works)	12 Jan 2024	View

Create submission

Select submission

Only applicable submissions will be made available for selection

Submission category

- Plan application (Gateways/Direct Submission/Full demolition)
- Plan application (Gateways/Direct Submission/Full demolition)
- Permit application (to carry out works)
- Waiver/non-compliance
- Independent submission (to individual agencies)
- Pre-submission consultation

Drop down list in Submission Portal for selection



Perform submissions (web-based dynamic form)

Example: “Plan application - (Construction Gateway)”

Select the type of submission to be created

Select submission

Only applicable submissions will be made available for selection

Submission category

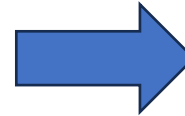
Plan application (Gateways/Direct Submission/Full demolition) ▾

Submission

Plan application (Construction gateway) ▾

Submission coordinator

PIETRO ANG - 9000 (Professional Engineer (Civil)) ▾



Select the sections required for approval

1

2

Select sections required for approval

Review summary

Select sections required for approval

Determine the relevant agencies for approval of the proposed building works

- ☒ Planning parameters (URA)
- ☒ Greenery provision and tree conservation - External greenery (NParks)
- ☒ Greenery provision and tree conservation - Internal greenery (NParks)
- ☒ Building control - Building design (BCA)
- ☒ Building control - Structural works (BCA)
- ☒ Building control - Buildability (BCA)
- ☒ Roads - Street plans (LTA)
- ☒ Rails (LTA)
- ☒ Vehicle parking (LTA)
- ☒ Public utilities - Sanitary works (PUB)
- ☒ Public utilities - Sewerage works (PUB)
- ☒ Public utilities - Reinforced Concrete (RC) trench (PUB)
- ☒ Public utilities - Used water pumping system (PUB)
- ☒ Public utilities - Drainage (PUB)
- ☒ Environmental health and pollution control - Environmental health (NEA)
- ☒ Environmental health and pollution control - Pollution control (NEA)
- ☒ Fire safety - Building plan (SCDF)

Select additional details

Are there Geotechnical Building Works involved in this submission?

☒ Yes ☐ No

Is there an Accredited Checker involved in this submission?

☒ Yes ☐ No

Is there public/transit Civil Defence shelter (building) involved in this submission?

☒ Yes ☐ No

Is there public/transit Civil Defence shelter (structural) involved in this submission?

☒ Yes ☐ No



Cancel

Next

Back

Cancel

Next

Perform submissions (web-based dynamic form)

At submission overview, navigate to “assign project party”

My projects > ... > Submission workspace > View submission timeline

View submission timeline

Last updated on 1:40pm, 14 November 2024

+ Submission created
14 November 2024
Appointed project parties may proceed to complete the submission form

Plan application (Construction Gateway)

Submission stage	New Submission
Last saved	1:40pm, 14 November 2024

[Edit](#)

SECTION	ASSIGNED PROJECT PARTY
Project information	Pietro Ang Professional Engineer (Civil) Submission coordinator
Planning parameters URA	No assigned project party Please assign a project party to this section
External greenery NParks	No assigned project party Please assign a project party to this section
Internal greenery NParks	No assigned project party Please assign a project party to this section
Building design BCA	Pietro Ang Professional Engineer (Civil)

SUBMISSION
Plan application (Construction Gateway)

SUBMISSION STAGE
New Submission

STATUS
Draft

[What is submission status?](#)

E-SUBMISSION NO.
-

[View all members](#)

Actions

- [Assign project party](#)
- [Edit sections and schemes](#)
- [View responses](#)
- [View submission activity](#)
- [Delete submission](#)

Assign project party responsible to complete sections of the forms

Assign project party

Select a project party responsible for completing and declaring for each section

i Please note that the assigned project party will be responsible for the respective section of the joint submission. In the event of any changes, assigned project party will be notified of the change(s) made once the page is successfully saved.

SECTION	ASSIGNED PROJECT PARTY
Project information	Pietro Ang - 9000 (Professional Engineer (Civil)) This section can only be prepared and submitted by the submission coordinator
Planning parameters URA	Please select
External greenery NParks	Please select
Internal greenery NParks	Please select
Building design BCA	Trudie Chew - 2000 (Architect)
Structural works BCA	Pietro Ang - 9000 (Professional Engineer (Civil))
Geotechnical Building Works BCA	Zoe Chua - 9003 (Specialist Professional Enginee...
Accredited Checker certificate BCA	Zander Carroll - 8000 (Accredited Checker)
Specialist Accredited Checker certificate BCA	Zander Carroll - 8000 (Specialist Accredited Che...
Buildability BCA	Trudie Chew - 2000 (Architect)
Public/transit Civil Defence shelter (building) BCA	Trudie Chew - 2000 (Architect)
Public/transit Civil Defence shelter (structural)	Pietro Ang - 9000 (Professional Engineer (Civil))

[Cancel](#) [Assign](#)

Perform submissions (web-based dynamic form)

Example: “Plan application - (Construction Gateway)”

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Project information

Planning parameters

Greenery provision and tree conservation

Building control

Building design
Submitted for review

Roads

Rails

Vehicle parking

Public utilities

Help us improve

Submitted by Main QPD (Civil)

Submitted by QPD (Geo)

Submitted by AC

Submitted by AC (Geo)

Structural works

Last saved on 5:10pm, 6 March 2024 by Pietro Ang

Draft

Structural information

Does the project involve [complex building structure\(s\)](#)?

☒ Yes

Type(s) of complex building structures involved

Multiple level/cantilevered transfer structure X Non-vertical/inclined structural element X

☐ No

Is [seismic design](#) required?

☒ Yes

☐ No

Are alternative solution(s) adopted?

☒ Yes

☐ No

Are vehicular bridge, viaduct/flyover and traffic decking applicable?

☒ Yes

☐ No

Are Prefabricated Prefinished Volumetric Construction (PPVC) structures applicable?

☒ Yes

Type of PPVC

☐ Concrete PPVC

☐ Steel PPVC

SUBMISSION
Plan application (Construction Gateway)

SUBMISSION STAGE
Amendment

APPOINTED PROJECT PARTY
Pietro Ang
Professional Engineer (Civil)
Ophelia Rempel
Professional Engineer (Civil)

SUBMISSION SCHEME
Plan application

Save section as draft **Review section**

Back

Build(SG) **BCA**

27

Perform submissions (declaration by project parties)

Project Coordinator (PC) will kickstart declarations by QP/AC after all form fields are completed.

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Project information

Last saved on 2:57pm, 14 November 2023 by Lionel Lai

[Ready for review](#)

Information provided here is provided by the appointed project party. For any edit, please contact the appointed project party.

PROJECT REFERENCE NO.
E9001-A0153-2023

Project details

Type of project	Developer cum Builder project (where developer has financial interest in builder's company)
Are you applying for works that have already been built or carried out?	No
Is the land on which the development lies sold under the Government Land Sales Programme?	No
Is the proposed development within Tree Conservation Area or vacant land?	Yes

[Back](#)

[Edit](#) [Proceed to declaration by QP\(s\)](#)

SUBMISSION
Plan application (Construction Gateway)

SUBMISSION STAGE
New Submission

APPOINTED PROJECT PARTY
Lionel Lai
Professional Engineer (Civil)

Project information

Planning parameters

Greenery provision and tree conservation

Building control

Roads

Rails

Vehicle parking

Public utilities

Environmental health and pollution control

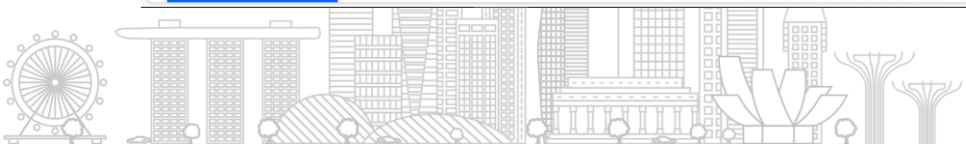
Fire safety

Coordinated BIM

Plans

Fee computation

[Help us improve](#)



Perform submissions (declaration by project parties)

All relevant project parties, including Accredited Checkers, RE/RTOs, are required to perform declaration **personally** before the submission can be submitted for review by agencies. No changes to statutory duties.

The screenshot displays the 'corenetX' submission workspace. The main heading is 'View submission timeline', with a sub-note 'Last updated on 2:05am, 1 October 2023'. A section titled 'Pending declaration by appointed project party(s)' dated '1 October 2023' explains that submission details are reviewed and locked, and declarations must be in place before submission. Below this, a table for 'Plan application (Design Gateway)' shows submission details: 'Submission stage' is 'New Submission' and 'Reviewed on' is '2:05 am, 1 October 2023'. A 'View' button is present. A table below lists declarations with columns for 'DECLARATION', 'APPOINTED PARTY', and 'STATUS'. Three entries are shown, all with a 'Pending' status. A pink arrow points to a 'View' button next to the first entry. On the right, a sidebar contains submission details: 'SUBMISSION: Plan application (Design Gateway)', 'SUBMISSION STAGE: New Submission', 'STATUS: Pending declaration' (highlighted in a blue button), 'What is submission status?', 'E-SUBMISSION NO.: -', and 'View all members'. An 'Actions' section at the bottom right includes 'View responses' and 'Delete submission'.

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My projects > ... > Submission workspace > View submission timeline

View submission timeline

Last updated on 2:05am, 1 October 2023

Pending declaration by appointed project party(s)
1 October 2023
Submission details are reviewed and locked. Declaration(s) sent to all appointed project party(s). All declaration(s) must be in place before submission can be paid.

Plan application (Design Gateway)

Submission stage	New Submission
Reviewed on	2:05 am, 1 October 2023

[View](#)

DECLARATION	APPOINTED PARTY	STATUS	
Planning parameters Planning Act	Araceli Koh Architect	Pending	View
External greenery Parks and Trees Act	Araceli Koh Architect	Pending	
Internal greenery Parks and Trees Act	Araceli Koh Architect	Pending	

SUBMISSION
Plan application (Design Gateway)

SUBMISSION STAGE
New Submission

STATUS
[Pending declaration](#)

[What is submission status?](#)

E-SUBMISSION NO.
-

[View all members](#)

Actions
[View responses](#)
[Delete submission](#)



Perform submissions (declaration by project parties)

Project parties to access relevant subsections of the form and include declarations

corenetX

Project information

Planning parameters

Greenery provision and tree conservation

Building control

Building design
Submitted for review

Structural works
Submitted for review

Geotechnical Building Works
Submitted for review

Accredited Checker certificate
Submitted for review

Specialist Accredited Checker certificate
Submitted for review

Buildability
Submitted for review

Roads

Help us improve

Accredited Checker certificate

Last saved on 5:31pm, 1 March 2024 by Zander Carroll

Pending declaration

Submission is now pending declaration by the appointed project party. For any edits, please contact the Project Coordinator or the main QP coordinating to revert submission to draft.

Details

Accredited Checking Organisation (ACO)

Name of ACO	ACO 1 Pte. Ltd.
ACO registered no.	A004

Non-standard criteria adopted for review and evaluation of design (if applicable)

Please specify --

Uploaded documents

FILE TYPE	FILE NAME	FILE SIZE
No plans uploaded		

Back

Declare for submission

Declaration under Building Control Act and its Regulations

I declare that

- ✓ The information contained in the forms, documents, drawings and plans which are submitted for this application are true and correct in all material particulars
- ✓ The plans do not deviate from the plans submitted to the rest of the regulatory agencies in the joint submission

I certify that:

I am a registered accredited checker and have in accordance with the Building Control (Accredited Checkers and Accredited Checking Organization) Regulations carried out an evaluation, analysis and review of the plans of the building works attached, and to the best of my knowledge and belief, the plans do not show any inadequacy in the key structural elements of the building to be erected or affected by the building works carried out in accordance with those plans.

In arriving at my conclusion, I confirm that I have reviewed and evaluated the design in accordance with Regulation 7 of The Building Control (Accredited Checkers and Accredited Checking Organizations) Regulations using the following criteria:

- ✓ Codes of Practice adopted in the design
- ✓ Design loading (including wind load, construction load or dynamic load, if applicable) checked
- ✓ Standards and specifications of structural materials checked
- ✓ Structural design concept ascertained and the key structural elements identified
- ✓ Key structural elements including foundation system analyzed
- ✓ Stability of the structural elements including foundation system analyzed
- ✓ Structuring detailed checked;

I have carried out an evaluation, analysis and review of the detailed structural plans and design calculations presented herein and am satisfied that there are no inadequacies in the key structural elements.

I hereby declare that I have no professional or financial interest in the building works shown in the plans as defined in section 18 of the Building Control Act (Cap 29).

Declaration By

Name	Zander Carroll
Role	Accredited Checker
Registration	8000
NRIC/FIN no.	****003C

DATE

1 October 2023

Cancel

Declare and Submit

Submission Procedures in CORENET X

Project Coordinator (PC) creates project on submission portal



PC adds project members, assigns roles, specifies responsibilities, and initiates appointment of project parties.



PC creates a plan application submission



Appointed QPs complete web based dynamic form fields, upload coordinated model and supplementary documents, and complete declarations



Makes payment (if any) and submits for approvals



Training and Courses for Industry

1		Mode of Lessons	Trainers
CORENET X Regulatory Approval for Building Works (RABW) Course <i>Understanding the new RABW Processes</i>	Physical		The Architect's Academy by Singapore Institute of Architects (SIA)
			BIMAGE
			BCA Academy
			AcePLP(AIA)
	Self-paced Online Learning		Bluskai

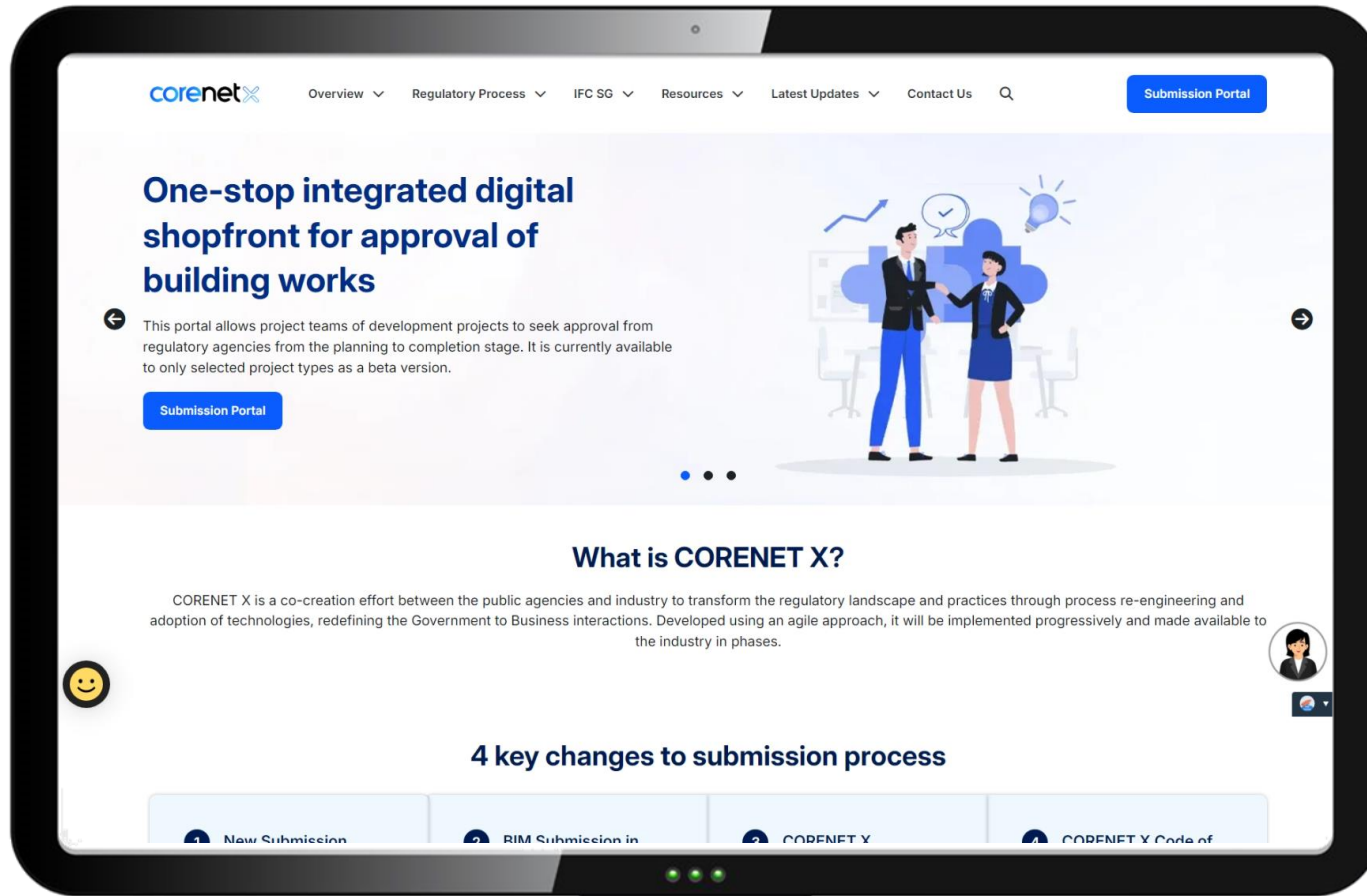
2		Software	Trainers
IFC+SG Training <i>Preparing OpenBIM submissions using IFC+SG</i>		Revit	AcePLP Pte Ltd, BIMAGE consulting, SP Pace Academy, Innocom
		Tekla	AcePLP Pte Ltd
		Archicad	Graphisoft
		Bentley	Bentley, AcePLP(AIA)

Please scan the QR code below to find out more:



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

CORENET X Website & Self-Help Resources



- Interactive COP
- Submission Portal Guides
- IFC+SG
- Training & Funding
- Past Events & Material
- Circulars
- List of firms that have made submissions to CORENET X
- C&S Tutorial Videos

More details on CORENET X can be found at:
<https://go.gov.sg/cx>



- ❑ What is CORENET X ?
- ❑ CORENET X Regulatory Process
- ❑ General Workflow in Submission Portal
- ❑ **Introduction to Automated Model Checker**

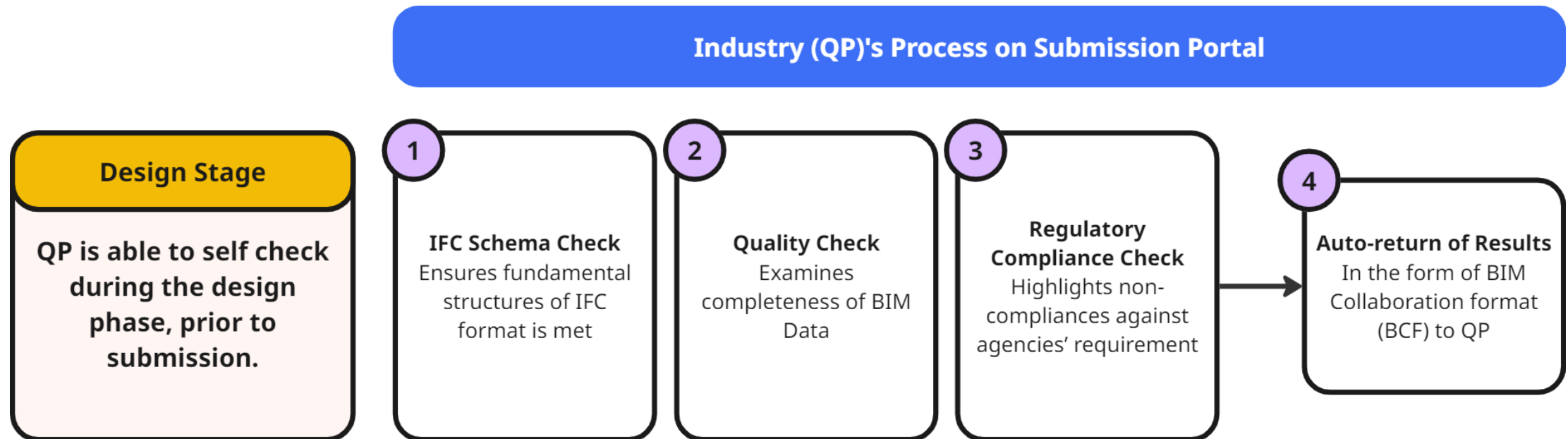


Introduction to Automated Model Checker

MC MVP is still WIP

The CORENET X Automated Model Checker (AMC) is a rules-based engine that allows

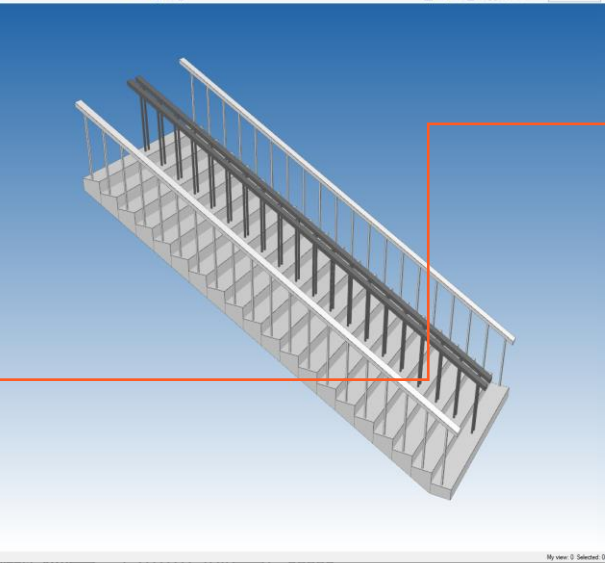
- 1) The **Industry** to **validate BIM models** for quality and regulatory compliance before actual submission.
- 2) Upon formal submission, **Agency Processing Officers** will **review AMC-generated results** before issuing response letters to the Industry.



Automated Model Checker Minimum Viable Product

MC MVP is still WIP

- The MC Minimum Viable Product (MVP) is the **early version of the MC** and covers selected rules from the different agencies. It will be **expanded and released progressively** to include more rule checks.
- MC MVP will be **made available to QP (date of MVP release will be shared when firmed)** to facilitate pre-checking of submissions, to identify issues with BIM models and non-compliances upfront, prior to submission.
- Results will be returned to QP in the form of **BCF**



1. BCA-APD:E.3.3-0001001

Description

Approved Document E.2.4 Staircase was flagged as #39;oddly-shaped#39; staircase, therefore, not checked for all staircase-related rules. BCA-APD:E.3.3-0001001 Staircase was flagged as #39;oddly-shaped#39; staircase, therefore, not checked for all staircase-related rules. 11Vi2w2Tb4Cx9ID6pfqJh scdf-2.2.9_addendum 1_tm.tif

Status: Active

Resolve Resolve and close

Quick comment

Assign to: Unassigned

Notify: <select users to notify>

2 BCF Issue

Nr	Value
1	
Modified	15-06-2025
Title	BCA-APD:E.3.3-0001001
Description	Approved Document E.2.4 Staircase was flagged as #39;oddly-shaped#39; staircase, therefore, not checked for all staircase-related rules. BCA-APD:E.3.3-0001001 Staircase was flagged as #39;oddly-shaped#39; staircase, therefore, not checked for all staircase-related rules. 11Vi2w2Tb4Cx9ID6pfqJh scdf-2.2.9_addendum 1_tm.tif
Status	Active
Assigned to	Unassigned
Created by	corenetxautomations@tbc.com
Area	__Undefined__
Type	Alert
Label	
Milestone	Undecided
Deadline	
Priority	Open
Visible for	All
Approval	
Custom field 1	
Custom field 2	
Custom field 3	
Custom field 4	

1 BCF Export Package to QP

Quality Checks Minimum Viable Product

MC MVP is still WIP

The following types of quality checks will be conducted on the model to ensure the **models are well coordinated fundamentally across disciplines**.

More details of each check will be shared on CX website nearer to MVP release date.

Building Level Naming	Checks if building levels follow typical naming convention.
Clash Detection	Checks for significant clashes between selected entities especially structural elements.
Modelling inputs following IFC-SG in COP	Checks that parameters are correctly provided as per Section 4 of Code of Practice
Completeness of room tagging	Checks that rooms/spaces are properly modelled and tagged in BIM models.
Alignment of BIM Model Coordinates	Checks that the submitted BIM models contain the same coordinates to help ensure good federation of coordinated BIM models
Level Consistency	Verify that same level name has the same FFL, and vice versa for clarity to project team and Agencies



Working analogy for Quality Check

MC MVP is still WIP

Quality Check:
QC003

IfcBeam check example:

Property Set:
SGPset_Beam

Property Name:
BeamSpanType

Corresponding Values:
Single | End | Interior | Cantilever

QP's model input

Scenario:	IFC parameter	Design input/ checks	Checking logic
1	Mark	Value = [Blank]	Value should not be [Blank]
2	MaterialGrade	Missing Parameter	Parameter should not be missing
3	MaterialGrade	Value = C40	Wrong input format. Should be C32/40
4	MaterialGrade	C32/40	Correct format
5	Depth	300	Correct format



Pre-Submission Checks

MC MVP is still WIP

To proceed with a pre-submission check, Industry practitioners will need to:

1. Select **Model Checker (MVP)**
2. Select **Request for pre-submission check**

A Singapore Government Agency Website [How to identify](#)

corenetX

My projects > Project overview (A2202-A0843-2025)

Project overview

Created by Pratik Dixit on 9 May 2025

PROJECT REFERENCE NO.
A2202-A0843-2025

Gateway submission process

Submission workspace
Prepare project submissions

Make payment
Add and pay for multiple paymen

Model Checker (MVP)
Minimum Viable Product for Automated Model Checker

1

Submission milestone dashboard

Help us improve

A Singapore Government Agency Website [How to identify](#)

corenetX

My projects > ... > Pre-submission check of BIM models

Pre-submission check of BIM models

[View available pre-submission check quota](#)

2 [Request for pre-submission check](#)

The current version is a Minimum Viable Product (MVP) of the Automated Model Checker. It covers selected rules from the different agencies and will be expanded progressively. QPs can conduct pre-submission check for compliance prior to formal submission to agencies. For any feedback, please contact helpdesk.

[Contact helpdesk](#)

CREATED BY	REFERENCE NO.	STATUS	LAST UPDATED	ACTIONS
No precheck of BIM model has been created				
0-0 of 0 results				

Help us improve

*Should the project team has any feedback on the BETA version, you can send your feedback to **CORENET X Helpdesk***

Pre-Submission Checks

MC MVP is still WIP

IFC Model processing and rendering upon BIM file upload

IFC Schema Checks will run automatically upon BIM file upload. Thereafter, Submission Portal will Preview model URL.

For both pre-submission and formal submission, Industry practitioners will be able to preview model on LBV by clicking on the link (selecting Preview model).

Upload BIM model(s)

Please ensure you upload at least one file and tag it accordingly. Additional files are optional.

- ☒ Architectural model (if applicable)
- ☒ Civil and Structural model (if applicable)
- ☒ Mechanical and Electrical model (if applicable)

Process for request of pre-submission check

- ☒ Upload BIM model(s)
Select and upload one or multiple IFC file(s)
- ☒ Completion of rendering
- ☒ Proceed with BIM quality check

Model_xyz.ifc 

File size • Timestamp upload

IFC Schema Check Results

 BIM model cannot be processed for rendering due to the following error(s) detected in the BIM model. Should you proceed with submission, processing by Agencies could be affected. Please check and revise the BIM model prior to submission. Please contact helpdesk should you require assistance.

[Error details](#) [Contact helpdesk](#)

Type of attachment

Architectural model

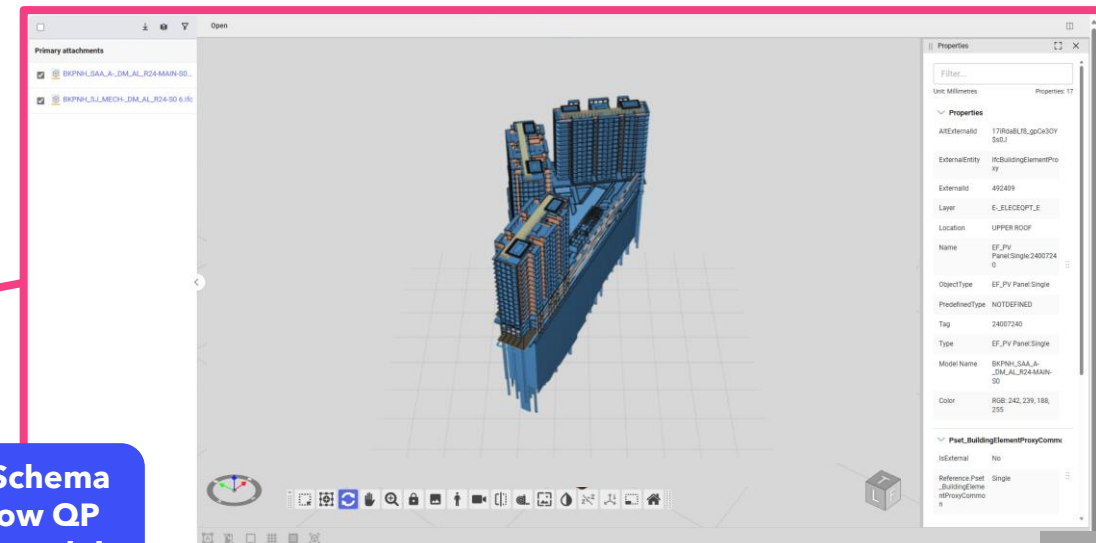
Preview model

Download

Delete

Passing of IFC Schema Checks will allow QP to preview the model

Preview of BIM model



Quality check of BIM model

After initiating quality check, the results will be available for download as a BCF file.

Import favorites For quick access, place your favorites here on the favorites bar. [Manage favorites now](#)

corenetx

Project information

- ✓ Pre-submission check of BIM models

Review BIM model quality

1 Status **Completed**

Reference no. QC20250603-25083224-RNMD

Last reviewed on 3 Jun 2025

2 Quality review response [Download](#)

Details

Relevant gateway • Construction Gateway

Uploaded documents

FILE TYPE	FILE NAME	FILE SIZE
-----------	-----------	-----------

Downloads

ModelChecker (1).bcfzip
[Open file](#)

See more

Process for request of pre-submission check

- ✓ **Upload BIM model(s)**
Select and upload one or multiple IFC file(s)
- ✓ **Completion of rendering**
Rendering will take some time and you will be notified upon completion
- ✓ **Proceed with BIM quality check**
Submit model(s) for model quality check
- ✓ **View BIM model quality result**
You will be notified once the



Before making Formal Submissions to Agencies

MC MVP is still WIP

- **The submission process is similar to pre-submission check.** IFC Schema Checks, and Quality Checks will be run on the BIM model.
- **Regulatory Compliance Checks will be conducted** upon completion of formal submission application.
- Results for **Quality Checks** and **Regulatory Compliance Checks** will be returned in agencies' response letter to project team.

The screenshot displays the 'corenetx' interface for a Singapore Government Agency Website. The main heading is 'Coordinated BIM', with a sub-header 'Last saved on -' and a 'Draft' button. Below this is the 'Review BIM model quality' section, which includes instructions: 'Check that your BIM model(s) have met the minimum quality required prior to conduct of pre-submission check. You may refer to side panel on guidance to complete the pre-submission check application.' A table shows the submission status:

Status	
Pending review	
Reference no.	-
Last reviewed on	-
Quality review response	-

On the right, a 'SUBMISSION STAGE' section shows 'New Submission'. A green notification bubble states: 'Environmental health and pollution control is updated and ready for review. Email sent to all appointed members.' A pink box highlights the 'Process for request of pre-submission check' steps: 'Upload BIM model(s)' (selected), 'Completion of rendering', and 'Proceed with BIM quality check'. At the bottom, there are buttons for 'Back', 'Save section as draft', and 'Review BIM model quality'.



Thank you



@BCASingapore

