CORENET X Key Concept

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Programme Highlight

Items

Part 1: CORENET X Key Concept

- Introduction to new RABW & Lodgment
- Part submission
- Project creation appointment & acknowledgement

Part 2: New Submission Portal

- Project planning and submission naming convention
- Create submission, amendment & resubmission
- C&S plan application & independent submissions
- Permit to commence work
- Completion of structural works

Refreshment

Part 3: Streamlining C&S Format & Workflow

- Update of ST declaration and BE forms
- Introduce checksum
- C&S IFC-SG model preparation
- Model review & IFC tool available in market
- COREMET X resources



Overview of CORENET X

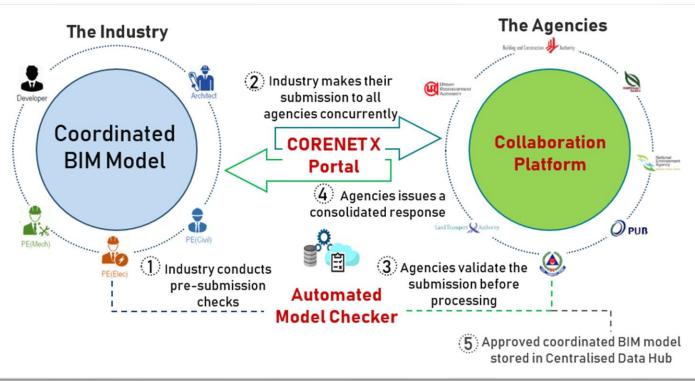
Vision: A Future Ecosystem of Regulatory Approval of Building Works that Accelerates The Transformation of the Construction Industry

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

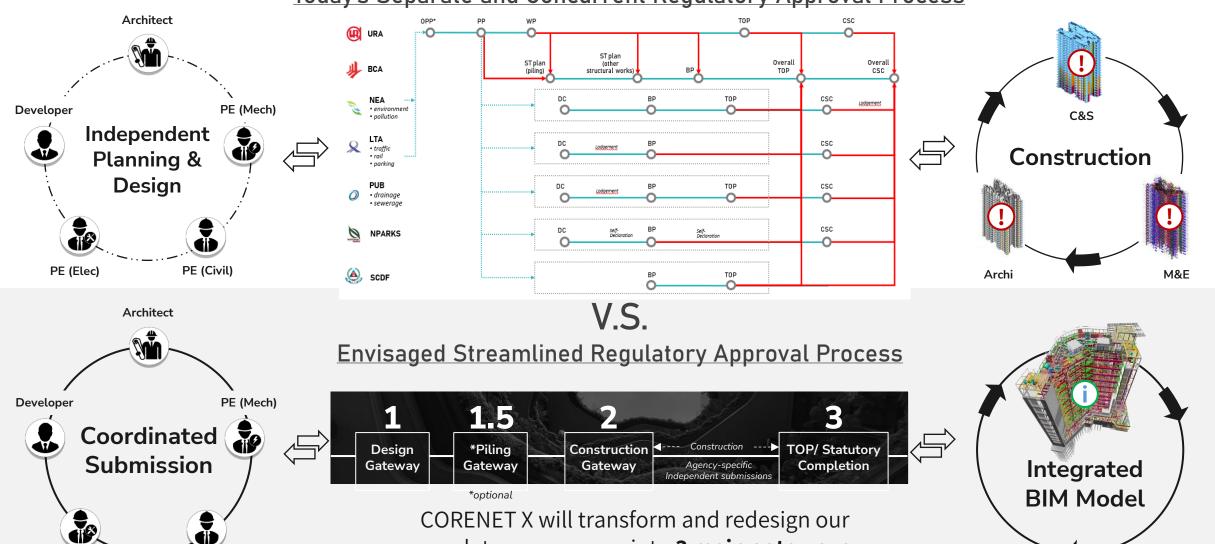
- Reduce silos, iterations& condense touchpoints
- Embrace collaboration & raise productivity amidst rising demands
- Improve accessibility & centralise information towards a Single Source of Truth

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.



Key Changes and Potential Impact – New Regulatory Gateway

Today's Separate and Concurrent Regulatory Approval Process



regulatory processes into 3 main gateways

PE (Elec)

PE (Civil)



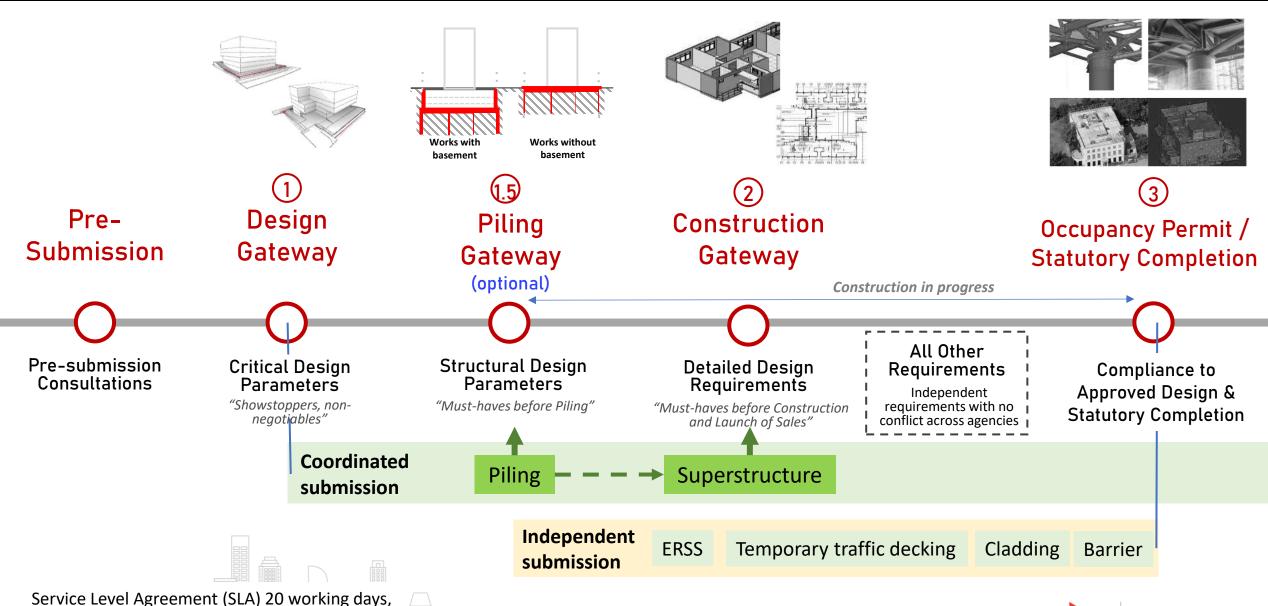
Structural Submission in CORENET X

- 1) 3 Main Gateway Approval Process
- 2) Direct Submission Process (DSP)
- 3) Lodgment





Key Principles of CX Gateway Approval Process

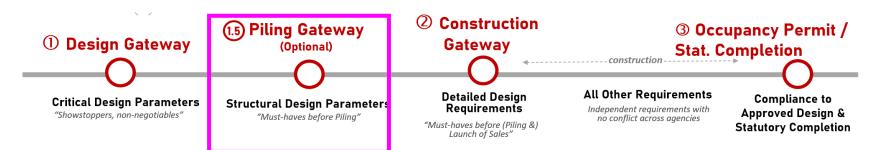


max 2 WDs with 60 days WD response time





CORENET X Workflow - 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)

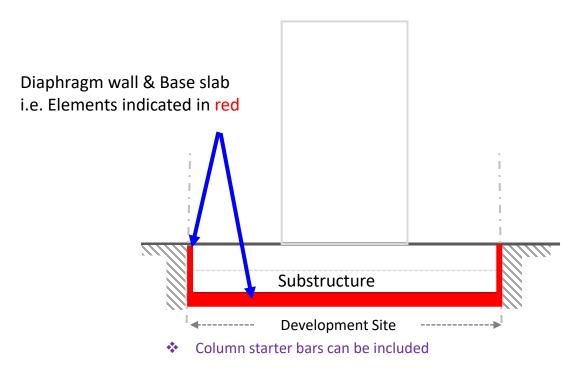
Conventional foundation system Piling, pilecap/ footings and substructures in contact with ground, i.e. Elements indicated in red (a set of reference plan/ model of the entire building should be provided) **Development Site** Column starter bars can be included

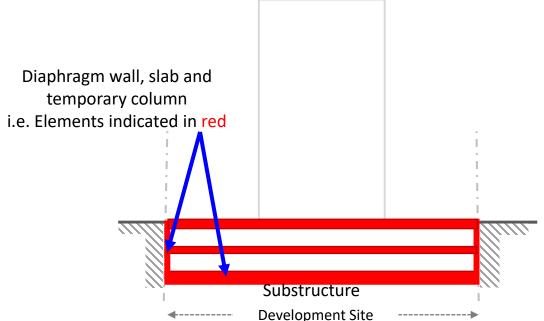
- The Piling Gateway clearance pertains to the design of <u>permanent</u> piling and substructure works (that do not affect internal layout), where its clearance is for design approval and not for commencement of works
- Other site works (e.g. for site clearance, temporary protection, etc), which do 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

CORENET X Workflow - Piling Gateway (Optional*)

Bottom up Construction & Foundation

Top down Construction & Foundation



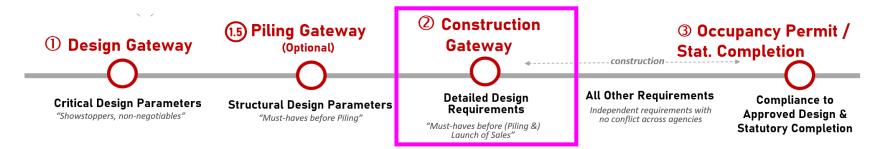


- Any temporary structures to support top down construction must be included.
- For any permanent structures required to be included, QPs must ensure their works will not lead to non-compliances later on (eg: circulation and headroom).





CORENET X Workflow - Construction Gateway



To resolve multi-agency requirements concerning design details that need to be coordinated before commencement of main structural works and launch of Sales.

Agency	Requirement Category	
BCA	 Complete set of IFC-SG model(s) for all structural elements & details 2D Drawings limited to: 	
(continued from previous page)	 General notes Special details (e.g. slab reinforcement detailing, complex structure detailing, transfer pl detailing, irregular section detailing, precast joints, prestressed details, steel connection 	
	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)



System will auto-channel the applications based on the details provided

One Stage Lodgement / Self-Declaration

- Models/drawings submitted, together with QP declaration on compliance with regulatory requirements, for auto-approval by agencies
- Audits conducted by agencies

One Stage Plan Check for Approval

 Agencies directly assess plan application submission. Work will not be allowed to commence until after such approvals are granted

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 autochanneled to either:
 - i. Lodgment/selfdeclaration/simplified submission scheme OR
 - ii. One-stage plan check

for the respective agencies

 Independent submission for agencyspecific requirements is still available and supported under DSP



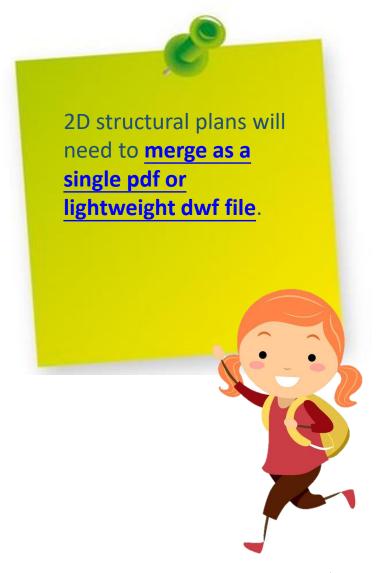


CORENET X Workflow – Direct Submission Process



To resolve multi-agency requirements concerning design details that need to be coordinated before commencement of main structural works.

Structural Design (continued t	tructural Design (continued from previous page)		
Agency	Requirement Category		
BCA (continued from previous page)	Complete set of structural plan (including civil defence shelter) for all structural elements & details 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)		





CORENET X Workflow - Independent submission



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

Structural Design • 2D Drawings are acceptable for independent submissions. • Structural design of ancillary works and component such as demolition, temporary ERSS, barriers & clack 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). Design Calculation Reports • From QP, AC, [QP(Geo) & AC (Geo), if needed)]

QP's & AC's Certification for fixings of ancillary structures

Design consideration for Earth Retaining or Stabilisng Structures (ERSS)) - ERSS Annex A

The project team can submit independent submission design details separately after direct submission process.

Site investigation report in pdf & AGS format

Additional Supporting Documents:

Impact assessment report

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

Our Ref: APPBCA-2023-17 22 December 2023

See Distribution List

Dear Sir/Madam

NEW LODGMENT SCHEME FOR REGULATORY SUBMISSIONS OF THE PLANS OF LESS COMPLEX AND LOWER-RISK BUILDING WORKS

This circular is to inform the industry on the introduction of a new Lodgment Scheme for regulatory submissions of plans of less complex and lower-risk building works under the Building Control Act 1989 ("BC Act") and Building Control Regulations 2003 ("BC Regulations").

Background

- In tandem with the launch of CORENET X, the new Lodgment Scheme is introduced as a proenterprise approach to facilitate a simplified regulatory plan approval process for building works identified to be less complex and lower-risk ("lodgment works").
- 3 For such projects, Qualified Persons ("QPs") could lodge the plans with the Commissioner of Building Control ("CBC") along with the required declaration(s) and document(s) ("lodged plans"). QPs who lodge the plans with the CBC will receive an acknowledgment via CORENET X, and the plans will be deemed approved by the CBC.



1. Prepare

2. Submit

3.Acknowledge receipt

4. Commence

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*





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 storevs
- Excavation ≤ 2m
- ERSS ≤ 4m
- Cantilever ≤ 6m

Site formation works



- Slope ≤ 4m
- Slope gradient < 22deg
- No soft soil beneath slope

Full height windows & glass panels



- Full height window in landed residential ≤ 3 storeys
- Glass panel at height ≥ 2.4m, not as safety barrier

Single storey non-residential buildings



- Beam or roof trusses span ≤ 6m
- Cantilever span ≤ 3m
- Height of the building ≤ 6m
- Excavation works ≤ 2m depth

Cranes



- Independently supported
- Span between 2 supports ≤ 6m
- Span of any cantilever supporting frame ≤ 3m

Single storey working platform



- Height ≤ 4m
- Span between 2 supports ≤ 6m
- Span of any cantilever ≤ 3m
- Area ≤ 100m²

Chimney, light masts



• Height ≤ 20m

Single storey container



Area ≤ 35m2



1. Prepare

2. Submit

3.Acknowledge receipt

4. Commence

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



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 Acknowledgmentl 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 developerOwner, the qualified persons and the builder) remain the same.







1. Prepare

2. Submit

3.Acknowledge receipt

4. Commence

- 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 noncompliances found. CBC may refuse to accept any further lodgment and direct plan application to be made under Section 5 of BC Act instead



Part ST Submissions for large projects





Part ST Submissions for large projects

- 1) Large projects that qualify for part ST submissions
- 2) Flow of part ST submissions
- 3) Number of part STs allowed

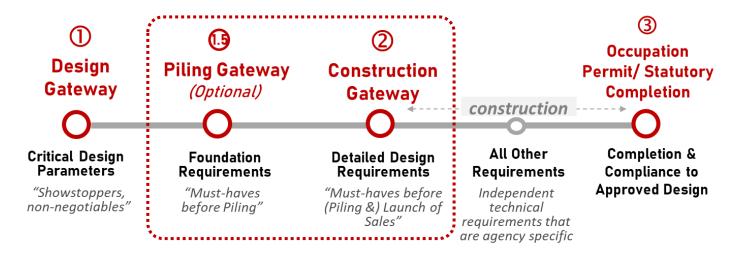




Approach for Large Projects - Part ST Submissions



Must the full structural submission for the whole project be submitted in one go under CORENET X?



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

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



Large projects that qualify for 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:

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



Flow of Part ST Submissions (Construction Gateway)

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

- 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)
- Supplementary structural drawing, detailed calculations, AC/ACO report for Part ST 01

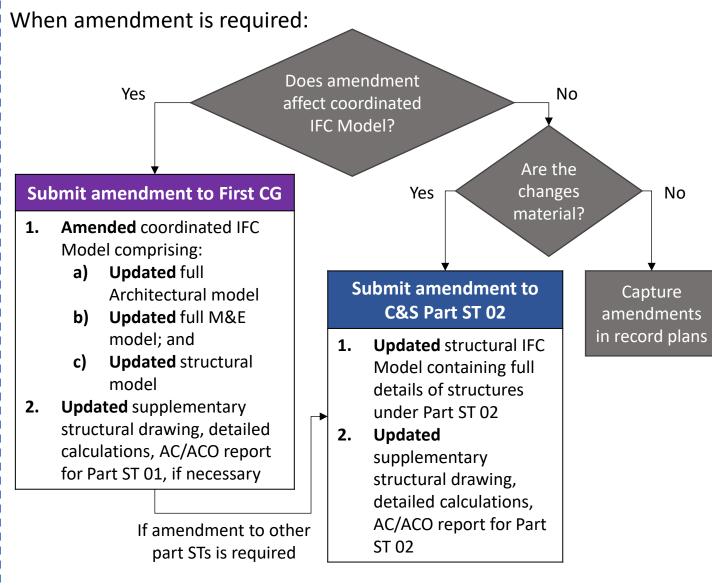


C&S Part ST 02

(C&S only, under independent submission module)

- Structural IFC Model containing full details of structures under Part ST 02
- Supplementary structural drawing, detailed calculations, AC/ACO report for <u>Part ST 02</u>

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



All amendments must be made to the original submission



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) Example: 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 1 no. of Part ST Submission 1 no. of Part ST Submission	
All ancillary works		
All external works		
ERSS	Part ST submission not applicable	
Cladding		
Façade	(submitted under Independent submissions as per the current arrangement under the standard RABW (without part ST submission) framework)	
Temporary Deck		

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





Example Project: 6 HDB blocks with MSCP and ancillary works.

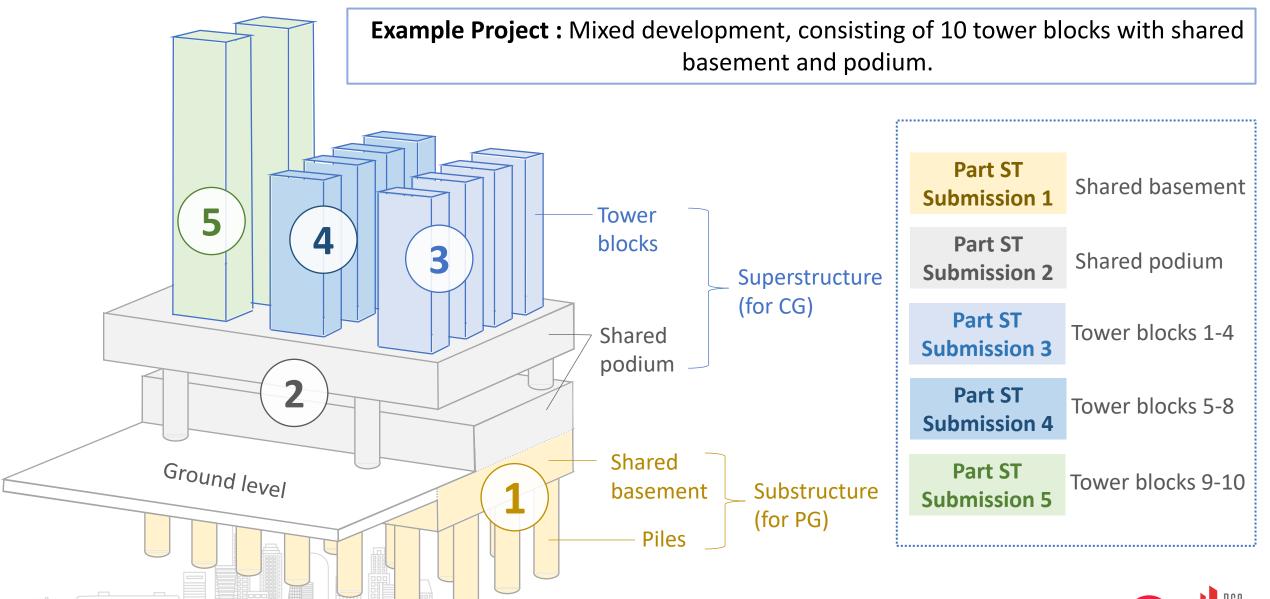




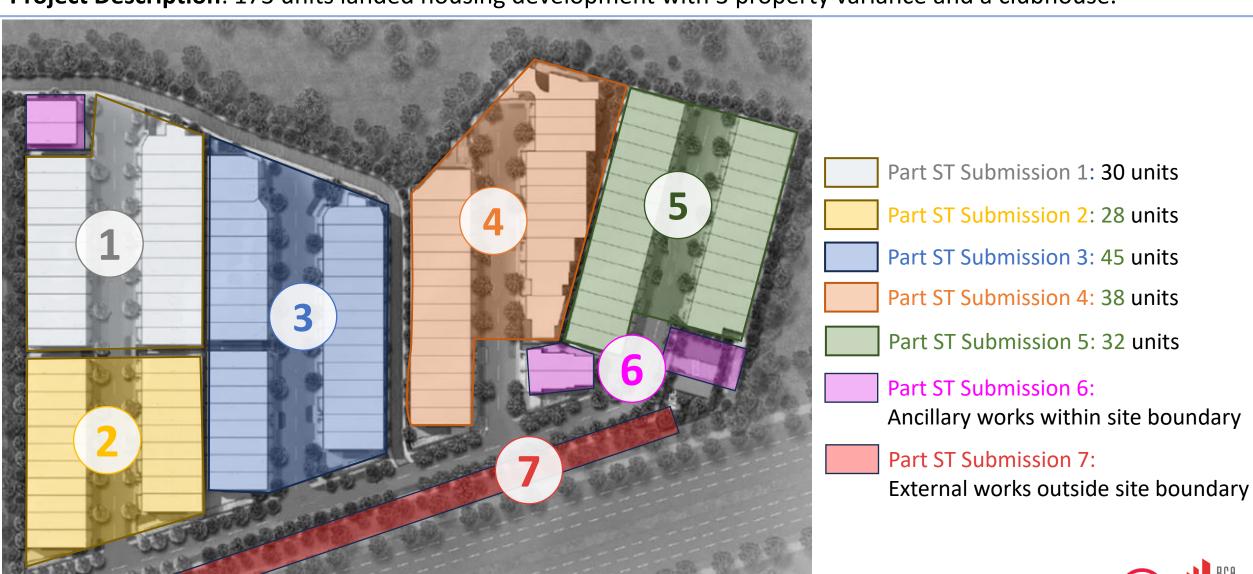
Part ST Submission 2: Block 4 – 6

Part ST Submission 3: Ancillary works within site boundary

Part ST Submission 4: External works outside site boundary



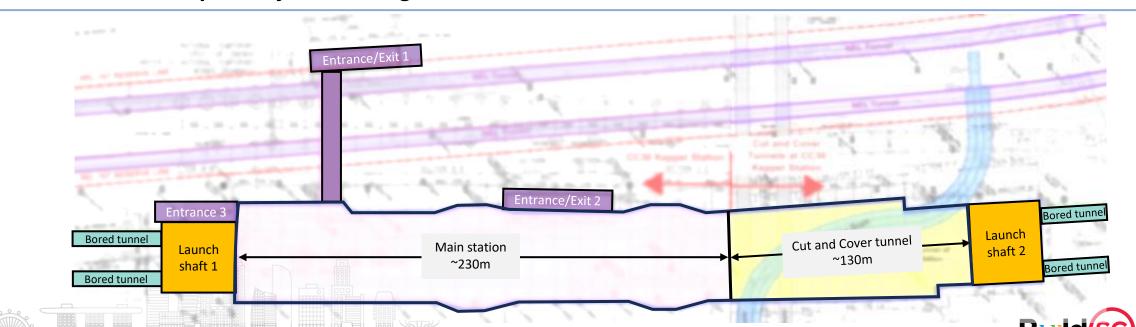
Project Description: 173 units landed housing development with 3 property variance and a clubhouse.



Section of underground MRT Station	Number of Part ST Submissions Allowed	Number of Part ST Submissions in Example
Main station	1 no. of Part ST Submission for every 150m (rounded up to nearest unit)	2 no. of Part ST Submissions
Cut and cover tunnel, Open box tunnels		1 no. of Part ST Submission
Entrances/Exits	1 no. of Part ST Submission each	3 no. of Part ST Submissions
Launch shafts	1 no. of Part ST Submission each	2 no. of Part ST Submissions
Bored Tunnels	1 no. of Part ST Submission per direction	2 no. of Part ST Submissions

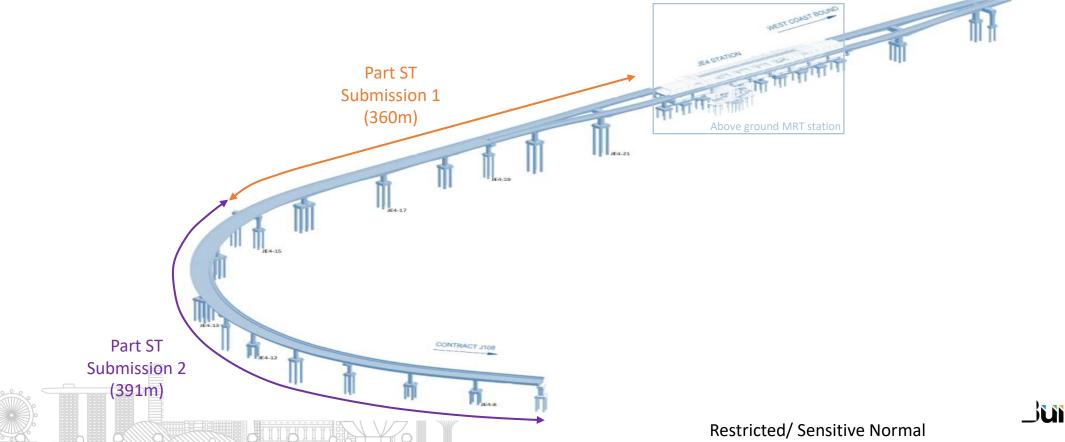
Example Project: Underground MRT station with 3 entrances/exits and 2 launch shafts

Restricted/ Sensitive Normal



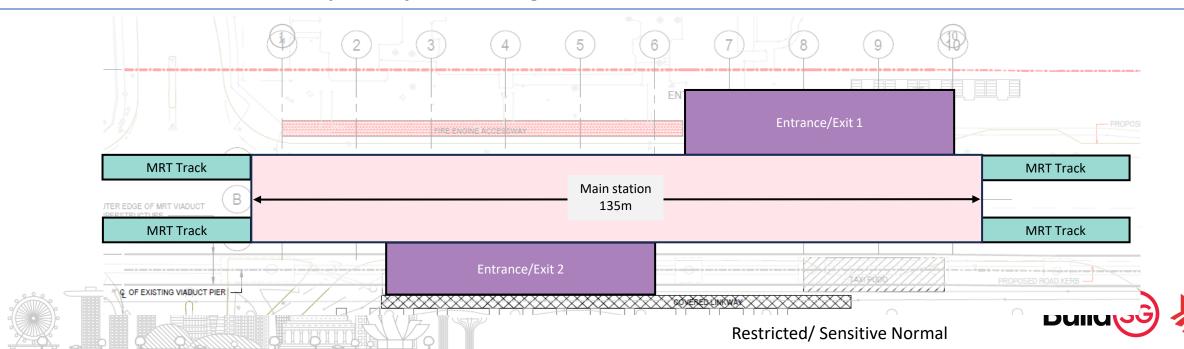
Infrastructures	Number of Part ST Submissions Allowed	Number of Part ST Submissions in Example
Railway tracks and Viaducts	1 no. of Part ST Submission for every 400m (rounded up to nearest unit)	2 no. of Part ST Submissions [751 / 400 = 1.88 (rounded to 2)]

Example Project: 751m long aboveground Railway Track



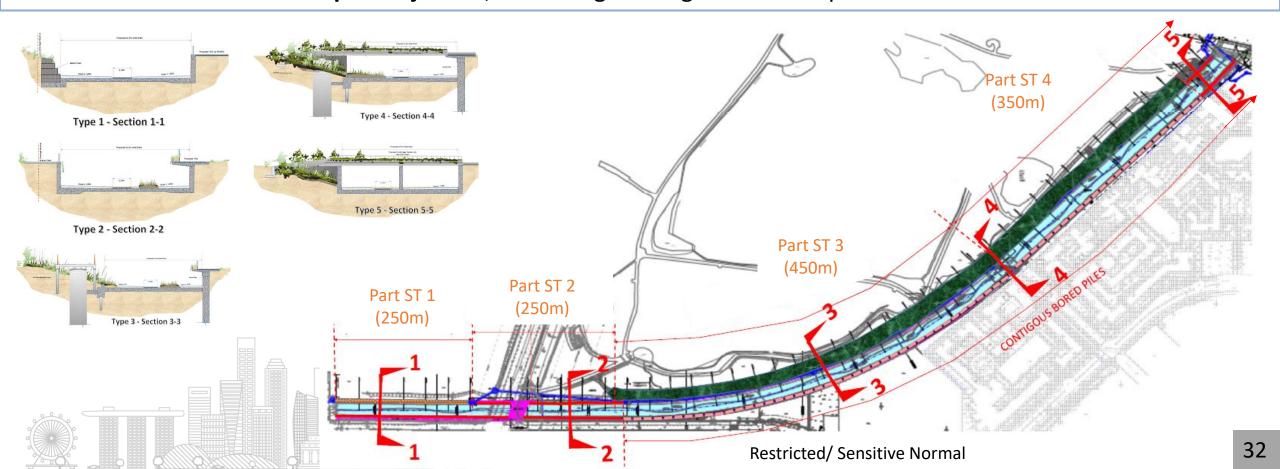
Section of Aboveground MRT Station	Number of Part ST Submissions Allowed	Number of Part ST Submissions in Example	
Main station	As per underground MRT station (1 no. of Part ST Submission for every 150m)	1 no. of Part ST Submission	
Entrances/Exits	As per underground MRT station (1 no. of Part ST Submission each)	2 no. of Part ST Submissions	
MRT Tracks	Aboveground – As per railway track (1 no. of Part ST Submission for every 400m) Underground – As per bored tunnel (1 no. of Part ST Submission per direction) or cut and cover tunnel (1 no. of Part ST Submission for every 150m)		

Example Project: Aboveground MRT station with 2 entrances/exits



Infrastructures	Number of Part ST Submissions Allowed	Number of Part ST Submissions in Example
Drainage and sewer	1 no. of Part ST Submission for every 400m (rounded up to nearest unit)	4 no. of Part ST Submissions [1300 / 400 = 3.25 (rounded to 4)]

Example Project: 1,300m long drainage with 5 unique drain sections



Infrastructures	Number of Part ST Submissions Allowed	Number of Part ST Submissions in Example
Land reclamation, revetment,	1 no. of Part ST Submission for every 4,000m (rounded up to nearest unit)	3 no. of Part ST Submission [9000/4000 = 2.25 (rounded up to 3)]
sea wall, bund wall	1 no. of Part ST Submission for each casting yard	1 no.
	1 no. of Part ST Submission for dumping plan	1 no.

Example Project: 9km long land reclamation project with 1 caisson casting yard Part ST 1 (3.2km caisson) Due to the complexity and scale of such projects, factors that can be considered for part ST submissions quota adjustments include: Part ST 4 Part ST 5 a. Variation of soil type; (Caisson (Dumping area) Part ST 2 b.retaining structure types; and casting yard) (2.5km caisson) c.foundation types.

Part ST 3 (3.3km caisson)

Project creation and appointment in CORENET X





Log in to submission portal

Login to CORENET X via https://portal.corenet.gov.sg/ (or Google search "CORENET X")



One-stop integrated digital shopfront for approval of building works

This portal allows project teams of development projects to seek approval from regulatory agencies from the planning to completion stage. It is currently available to only selected project types as a beta version.

Sign up as a beta user [2]

Login with Singpass

or Make payment as guest





Collaborative project workspace to better manage submissions

Project workspace allows all members to easily access information and status of the submissions under the project, providing more clarity and transparency to all project stakeholders

corenetx

Log in to submission portal

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?

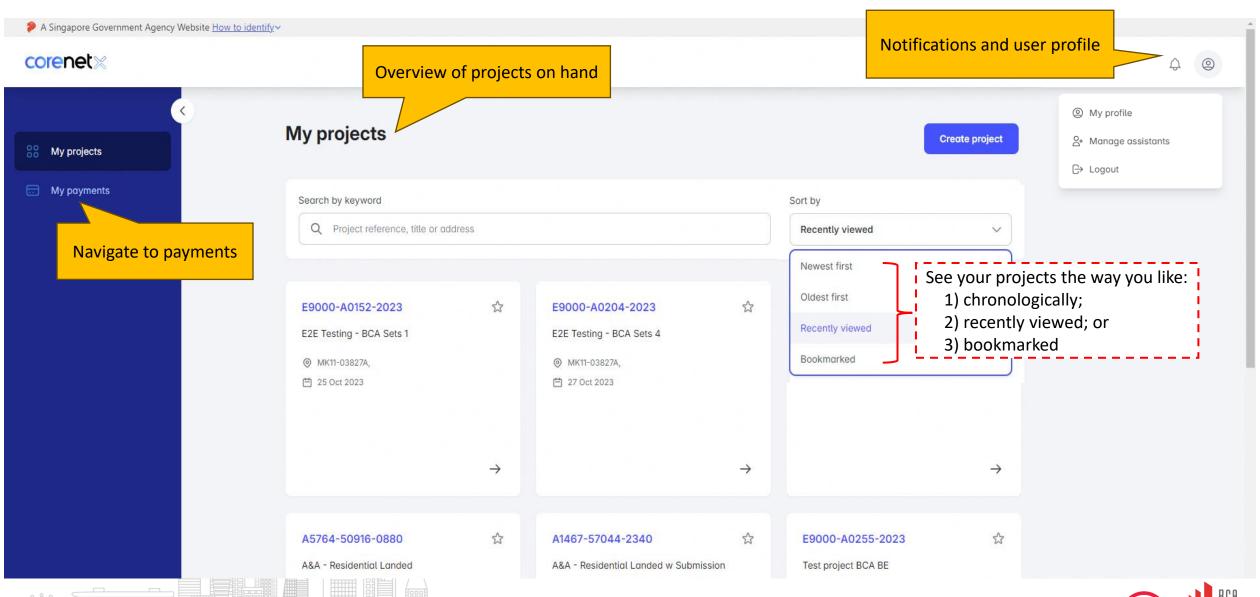
Log in as Business

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

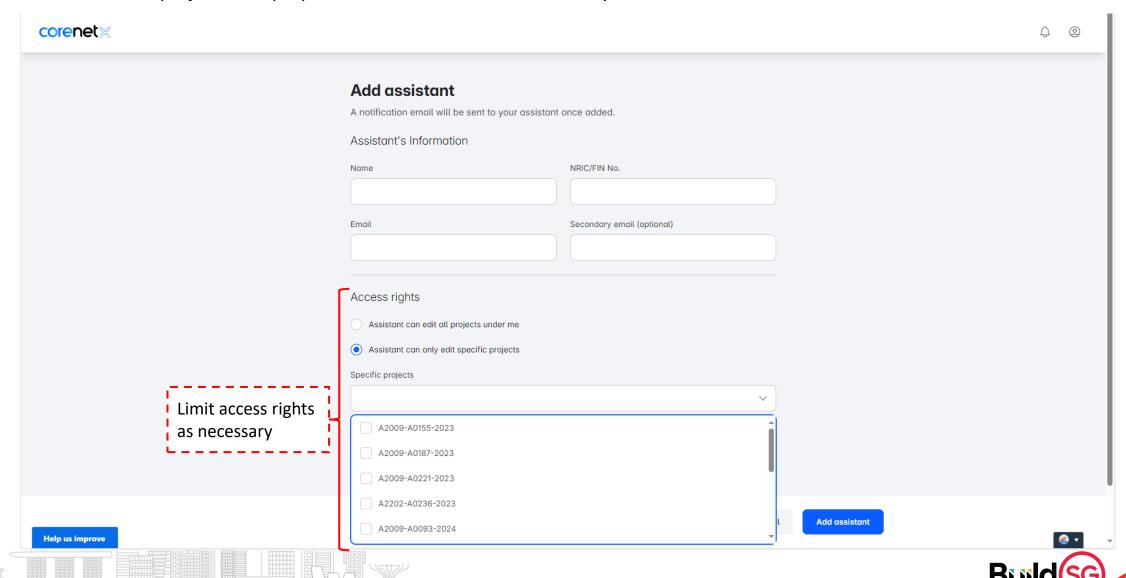


Submission portal dashboard



Add assistant to projects

Assistants can create projects and prepare submissions, but not make any submissions on QP's behalf.



Create new project

Project details Residential (Landed) Residential (Non-Landed) Project coordinator Delphia Loh Professional Engineer Commercial Industrial Project creation should be initiated by the Project Coordinator. If your project involves a QP(Architect), he/she should be the Project Coordinator. Agriculture New erection (including reconstruction) **Building works** Development type Institutional Additions And Alterations (A&A) Please select Please select Healthcare Full demolition only For projects involving For developments with more than 1 development type, select the predominant use. Otherwise, select Mixed Development. Civil engineering works 0/1000 Project title Standalone structures [BCA TESTING] PROPOSED ERECTION OF A 30-STOREY APARTMENT ON LOT 05416W MK 18 AT 2 MAHMOOD WAY (GREAT WORLD PLANNING AREA) Transport stations Find out more about development type [2] Mixed development Others Cancel

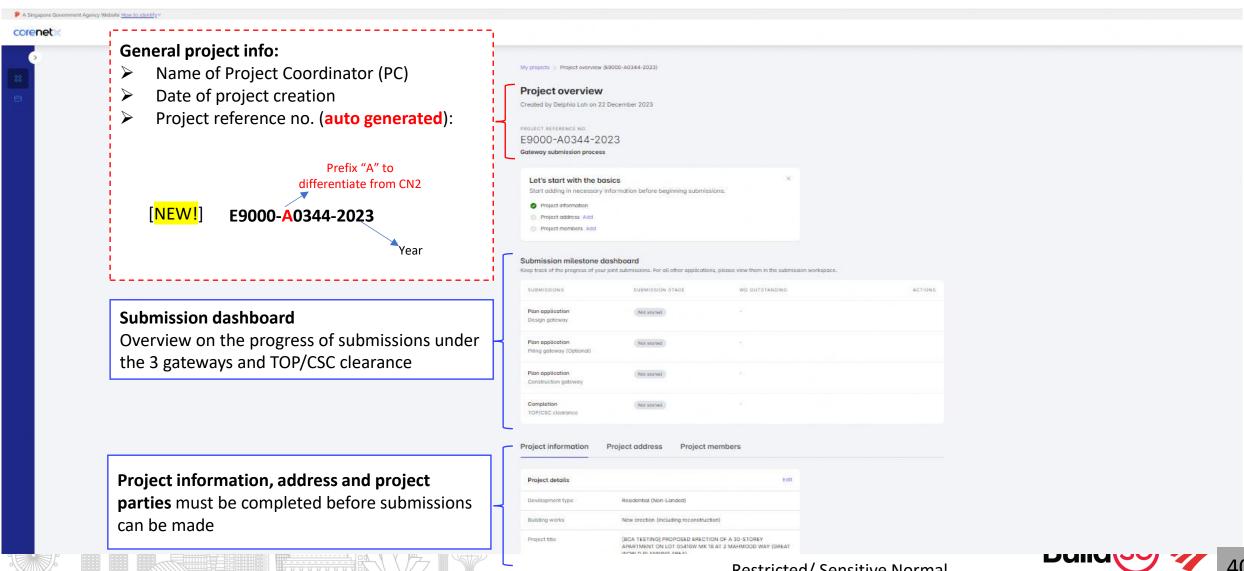
demolition works only

Create project

Create new project

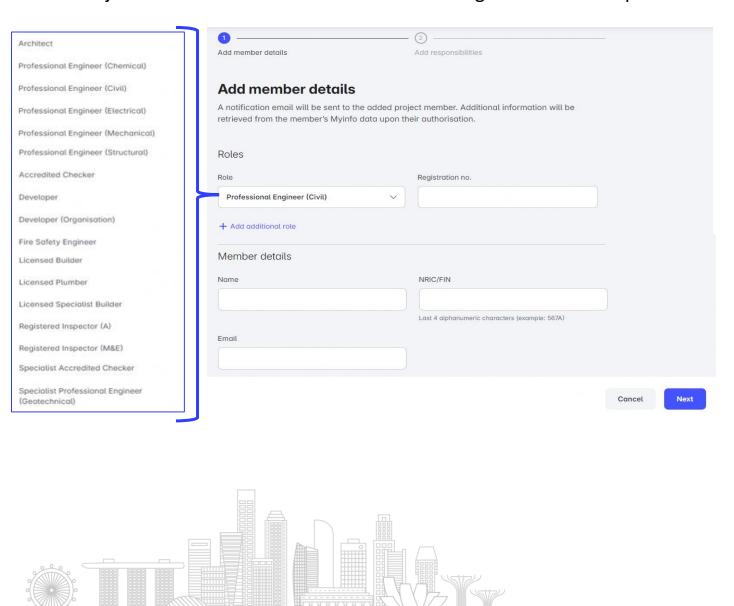
Project overview appears after a project is successfully created.

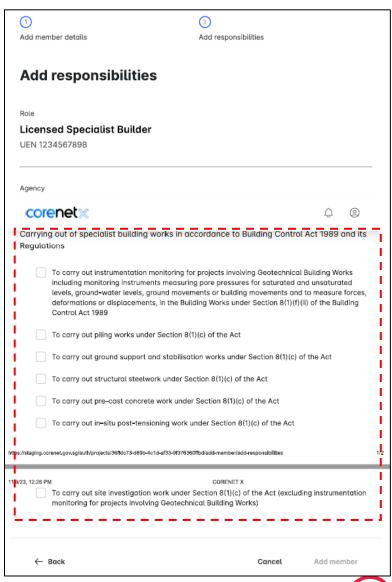
From this page, navigate to key functions incl. addition of project members, make submissions and payments



Add project members, assign roles and specify responsibilities

Project coordinator will add member with assigned role and responsibilities.

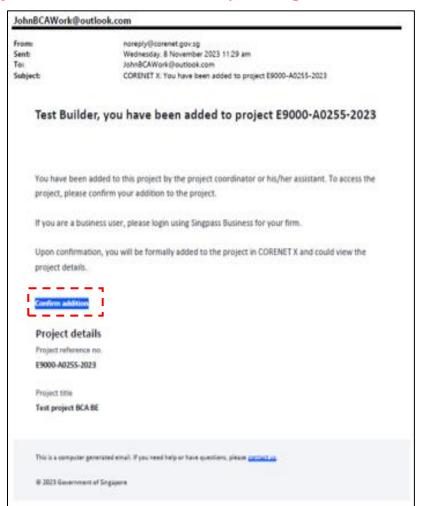




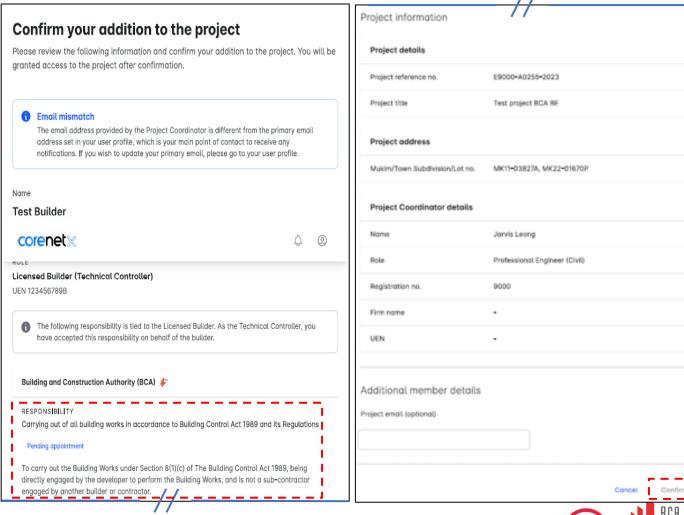
Add project members, assign roles and specify responsibilities

[NEW!] Project member acknowledge and confirms his addition to a project with his assigned responsibilities via a system generated link delivered through email

Project member receives system generated email



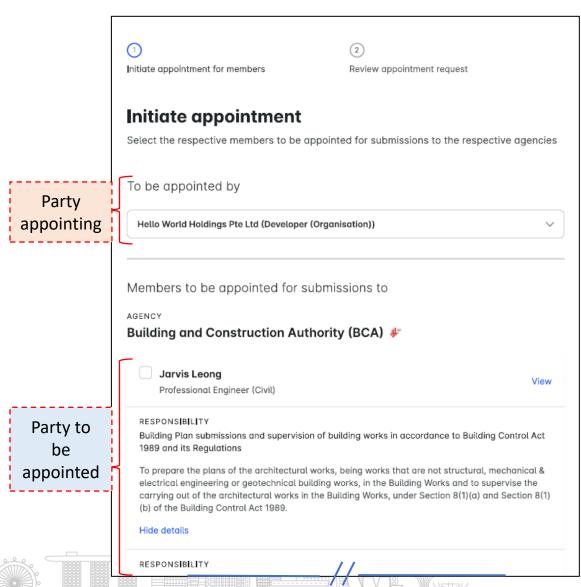


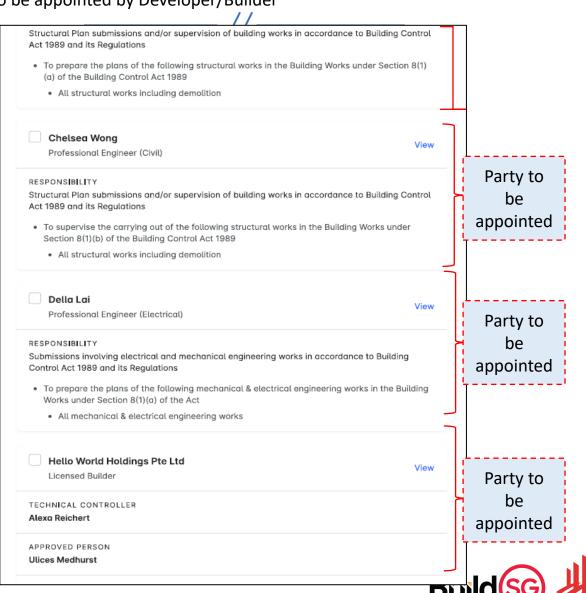




Appointment of project members

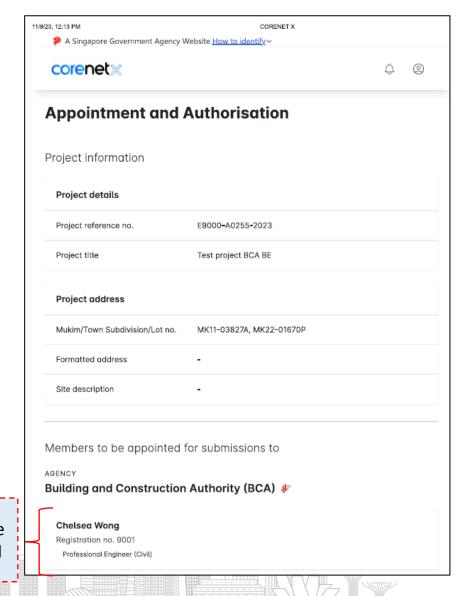
Project coordinator can initiate the appointment process on project member to be appointed by Developer/Builder





Appointment of project members

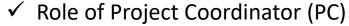
[NEW!] Developer/Builder will confirms the appointment and performs declaration in Submission Portal





In a nutshell

Project Coordinator (PC) creates project on submission portal



- ✓ 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- <mark>A</mark> 0001-2024 (auto- generated)	A1234-00001-2024
Member adding & role responsibility	Added by Project Coordinator and individual member acknowledgement with singpass	Added by Project Coordinator
Appointment		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