Sharing on buildability requirements and submissions in CORENET X

No. of Slides: 35

Outline

- Recap on Buildability Requirements and Submission
- CORENET X Gateway Process for Buildability
- CORENET X Submission Portal
- BIM submission in CORENET X
- Learning Points

Current Buildability Submission Procedure

1. Buildable Design Score (B-Score) and the Buildability Detailed Design and Implementation Plan (BDIP) are key documents required for Buildability compliance

2. Submissions are to be made and endorsed by Qualified Persons/PEs (Architect, Structural Engineer, M&E Engineer) at the following stages:
   - Building Plan (BP) stage
   - Temporary Occupation Permit (TOP)/Certificate of Statutory Completion (CSC) stage

3. B-Score for building works must meet the stipulated minimum requirement

4. QPs and PEs must submit BDIP to substantiate the extent of use of Design for Manufacturing and Assembly (DfMA), building systems etc to be/have been implemented in the project, which are as computed in the B-Score form for the building works

Buildability Requirements (COP on Buildability 2022)

<table>
<tr><th>Compliance Approach</th><th colspan="2">Requirements for each compliance approach</th></tr>
<tr><td>1. Code compliance option</td><td>Meeting <u>minimum B-Score</u> using Buildable Design Appraisal System (BDAS)</td><td rowspan="3">Meeting pre-requisite requirements as follows:

<u>For all projects</u>
a. Floor mesh
b. Repetition of typical floor height
c. Industry standard precast staircase for typical storeys
d. Prefabricated and pre-insulated duct for air-conditioning system

<u>For all Residential Non-Landed projects</u>
a. Drywall
b. Precast household shelters (HS)
c. Industry standard precast HS
d. Prefabricated Bathroom Units (PBU)
e. Industry standard PBUs
f. Industry standard door structural openings
g. Industry standard precast refuse chutes</td></tr>
<tr><td rowspan="2">2. Outcome-based option for large projects (GFA ≥ 25,000m²)</td><td>a. <u>Deemed acceptable solutions</u>
• High prefabrication levels
E.g. Residential non-landed projects:
○ Structural: 65% Prefab
○ Archi: 80% Prefab
○ MEP: 50% Prefab
○ System Formwork: 70%

• DfMA adoption
E.g. Residential non-landed projects:
○ 60% PPVC + 70% System Formwork
or
○ 50% PPVC (≤ 5-storey) + 70% System Formwork</td></tr>
<tr><td>b. <u>Open Option</u>
• Proposal demonstrating min. 25% productivity improvement</td></tr>
</table>

Productivity requirements for projects sold under the Government Land Sales (GLS) Programme

<table>
<tr><th>Type of Development</th><th>Requirements</th></tr>
<tr><td>Residential non-landed (including Executive Condominium)</td><td>• Min 65% adoption of Prefabricated Prefinished Volumetric Construction (PPVC)
• Min 65% adoption of Prefabricated Mechanical, Electrical and Plumbing (PMEP)
• Min 70% adoption of system formwork</td></tr>
<tr><td>Hotel</td><td>• Min 65% adoption of PPVC
• Min 65% adoption of PMEP
• Min 70% adoption of system formwork</td></tr>
<tr><td>Office</td><td>• Min 80% adoption of Structural Steel
• Min 65% adoption of PMEP
• Min 70% adoption of system formwork</td></tr>
<tr><td>Selected sites</td><td>• Min 30% productivity improvement (compared to 2010 level)
• Min prefabrication levels:
<table><tr><td>Structural
(min. Advanced Precast Concrete System)</td><td>65%</td></tr><tr><td>Architectural</td><td>80%</td></tr><tr><td>PMEP</td><td>65%</td></tr><tr><td>System Formwork</td><td>70%</td></tr></table></td></tr>
</table>

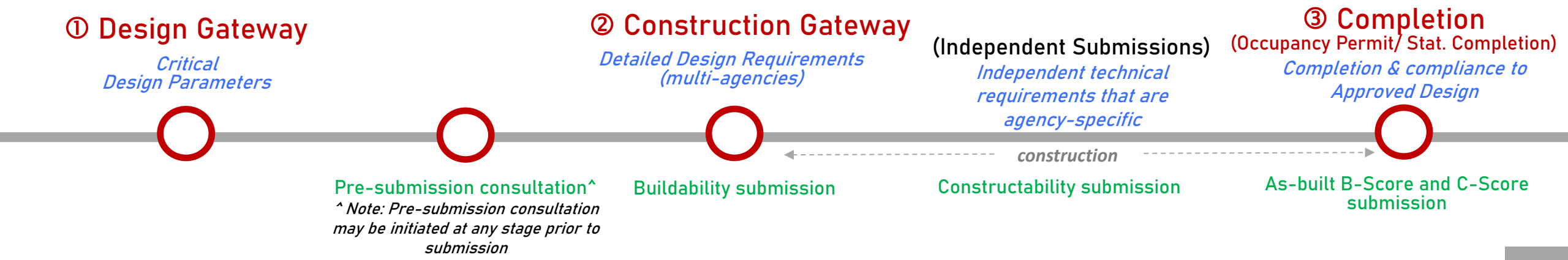
- GLS requirements are over and above the minimum buildability requirements and must be complied with when making submissions

CORENET X Gateway Process for Buildability

QPs/Builders are involved in the various gateways:

1. Pre-submission consultation, waiver (optional)
2. Construction Gateway – Buildability submission
3. Independent Submissions – Constructability Score (C-Score)
4. Completion Gateway – As-built B-Score and C-Score*

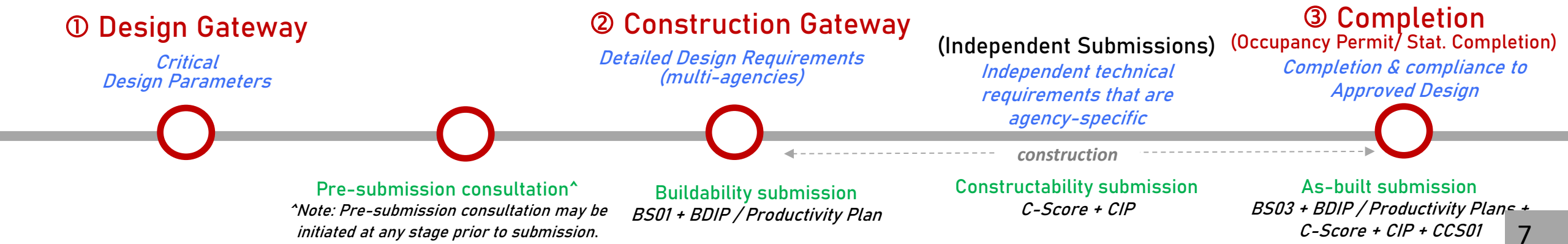
**Note: Project teams are strongly encouraged to submit B-Score and C-Score for clearance prior to TOP application (e.g. 2 months ahead) to ensure timely issuance of TOP*



Documents required for CORENET X submission

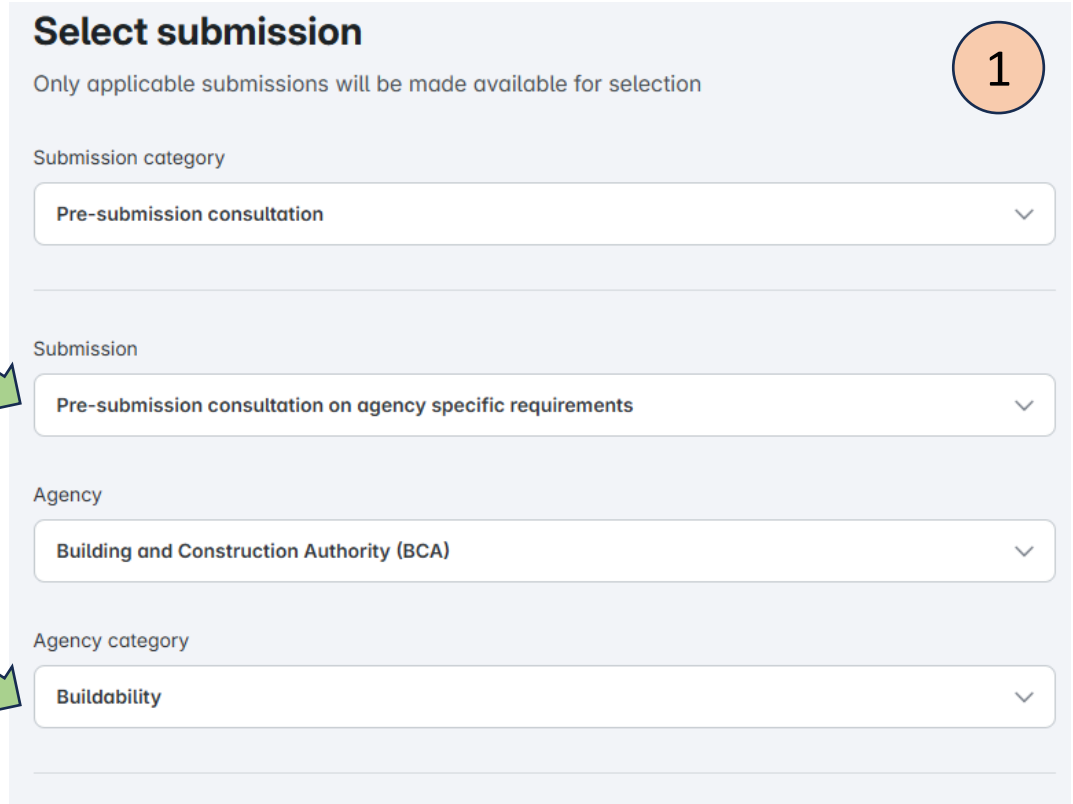
Gateways	Documents required
Construction Gateway	a. Calculations of Buildable Design Score (BS01) b. BDIP / Productivity Plans^ c. For items that cannot be modelled in BIM, 2D plans can be submitted
Independent Submission	a. C-Score calculation form b. Constructability Implementation Plan (CIP)
Completion Gateway* **prior to TOP application*	a. As-built Calculations of Buildable Design Score (BS03) b. As-built BDIP /Productivity Plans c. As-built C-Score calculation form d. As-built CIP e. Certificate of Compliance for Constructability Score (CCS01)

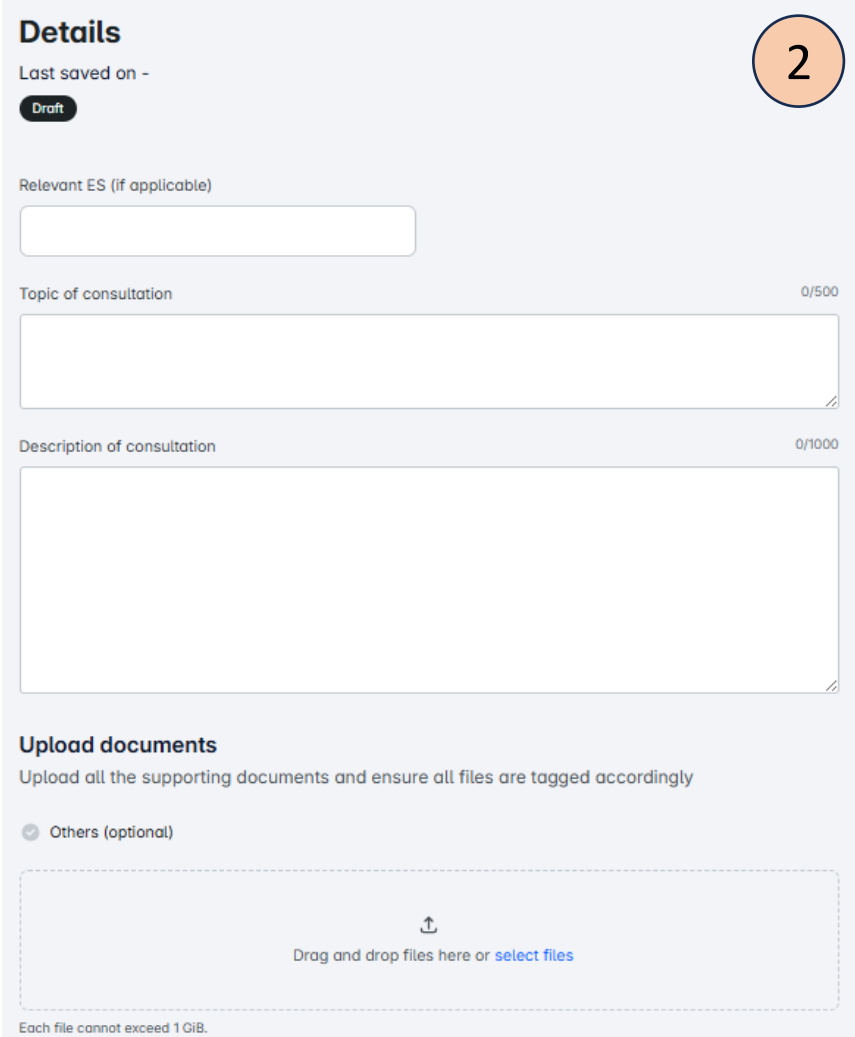
^ BDIP refers to Buildability Detailed Design and Implementation Plan. Productivity Plans include Productivity Concept Implementation Plan (PCIP)



Pre- submission consultation – Buildability

For buildability, constructability and productivity related matters (e.g. Productivity Concept Implementation Plan (PCIP), Integrated Digital Delivery, consultation request can be made by selecting agency specific requirements





Fill in details of consultation

Besides initiating consultation requests via CX, QPs/Builders can also email the relevant Processing Officer (PO) of your project for direct consultation

Construction Gateway – Buildability

QP to select one of the following options when making submission

A. Buildable Design Score (B-Score):

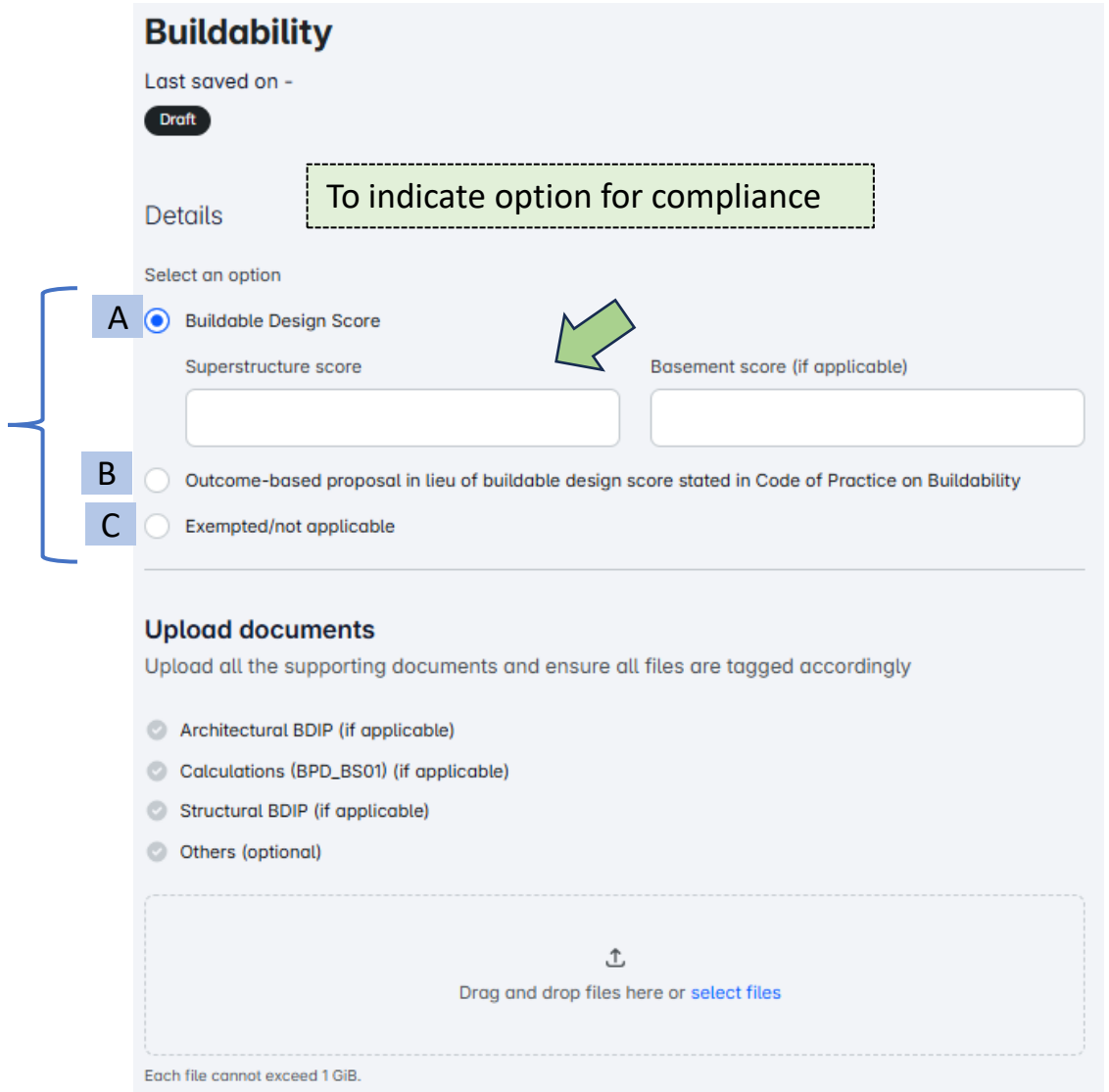
- For project adopting code compliance code option, to select ‘Buildable Design Score’ and fill in the Superstructure score and basement score (if applicable)

B. Outcome-based proposal:

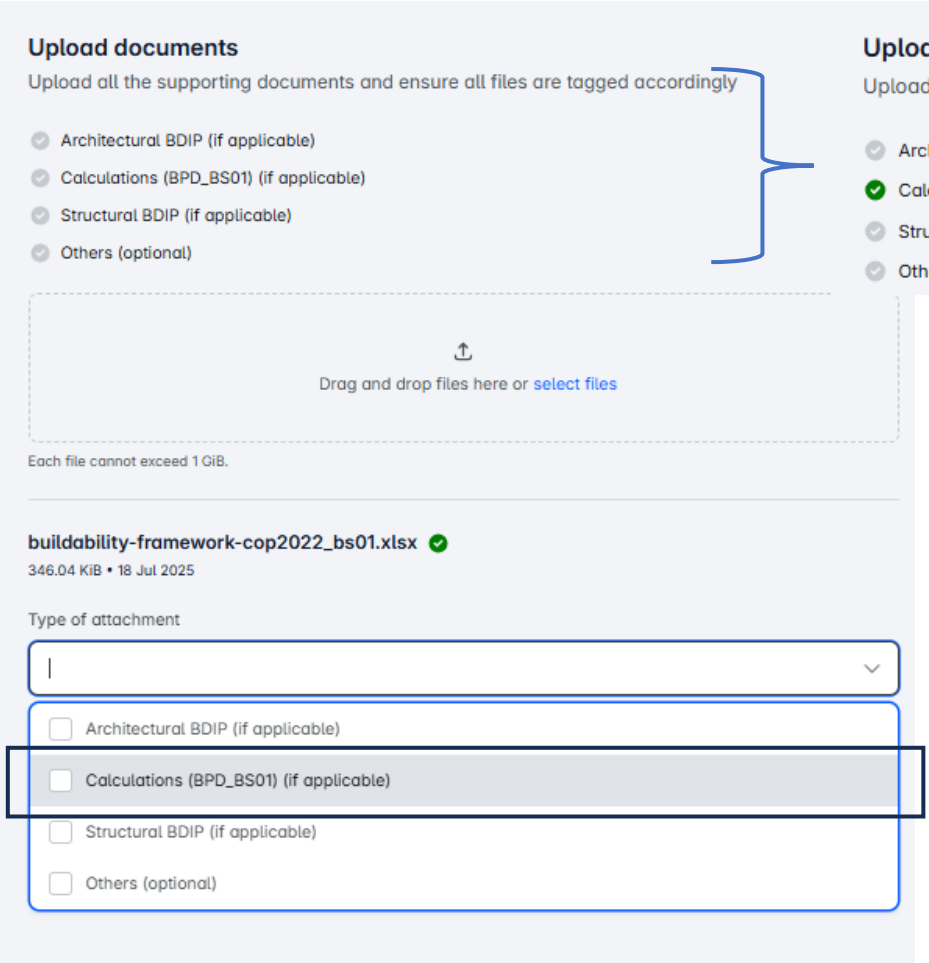
- For large projects (GFA ≥ 25,000m²) choosing the outcome-based approach, to select 'Outcome-based Proposal’

C. Exemption / B-Score not applicable

- For projects that are exempted or where buildability requirements are not applicable



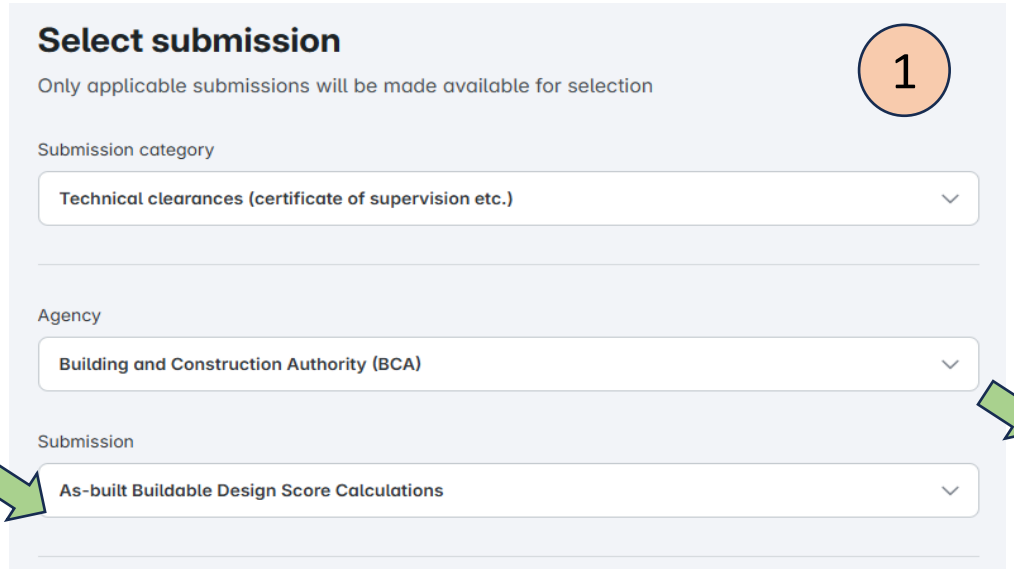
Construction Gateway – Buildability

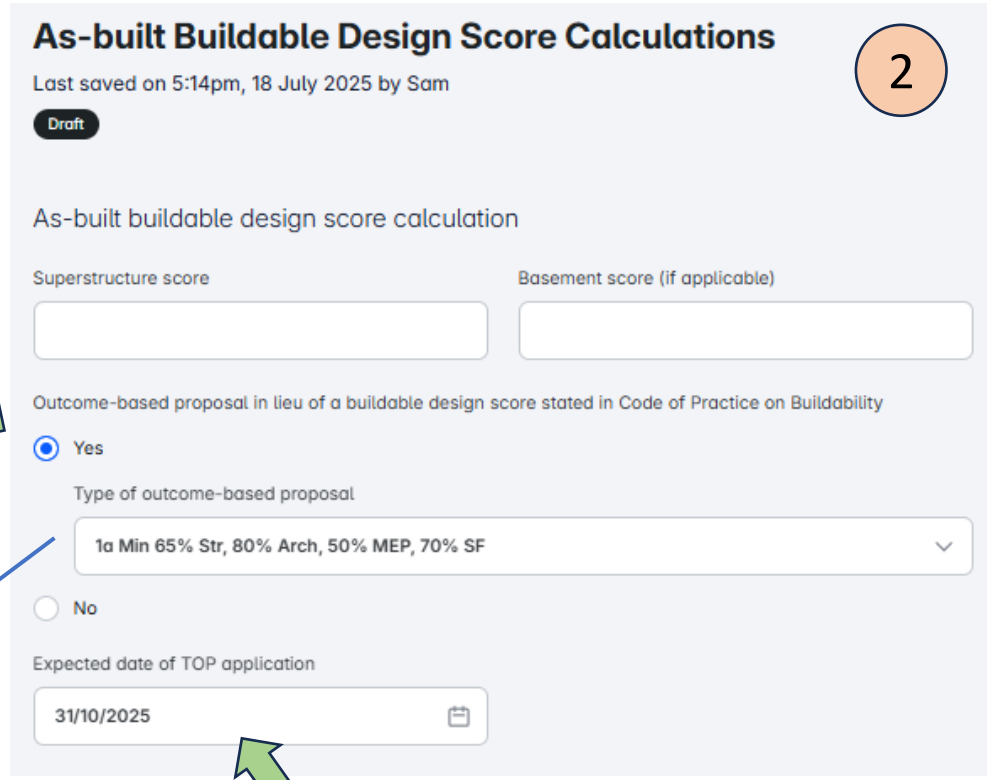


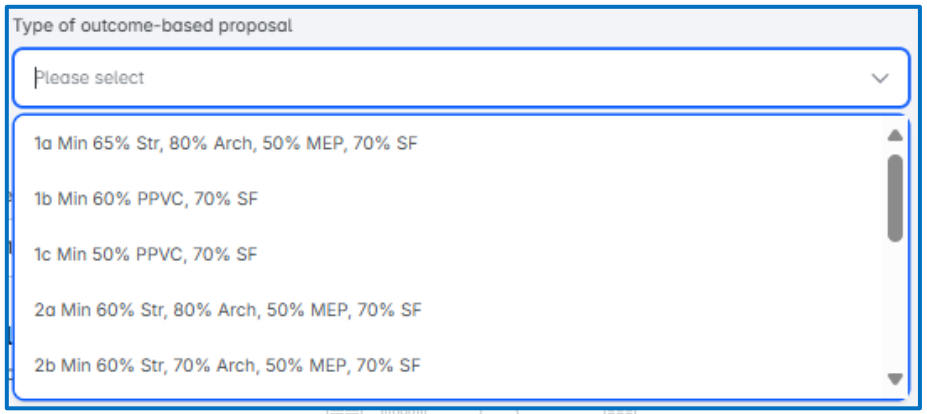
Submit the relevant documents accordingly (see table below)

Buildability	Type of documents / attachment
Code Compliance Option	• Calculation (BS01) • Architectural BDIP • Structural BDIP • Others – MEP BDIP
Outcome-based option	• Calculation (BS01) – to indicate option chosen and compliance to pre-requisites • Others – Deemed Acceptable Proposal/ Project Productivity Improvement Plan (PPIP)
GLS projects	• Calculation (BS01) • Others – Productivity Concept Implementation Plan (PCIP)

As-built B-Score application





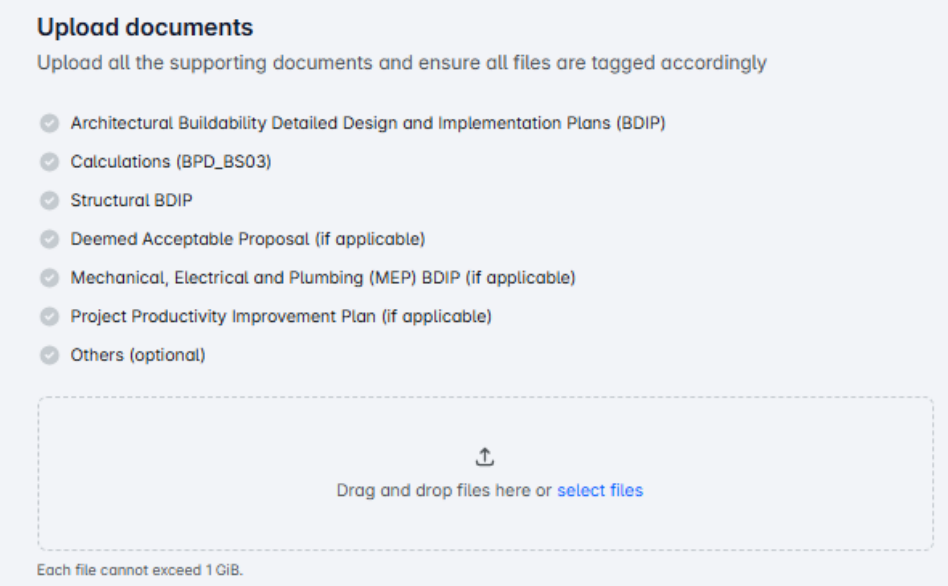


- To fill in as-built B-Score
  or
- indicate 'Yes' to outcome-based option if project has adopted this approach instead of Code Compliance Option, and to select the type accordingly

- Since as-built submission must be made before TOP application, QP to indicate the expected TOP application date in the submission form
  - helps to support smooth TOP clearance for buildability

As-built B-Score application

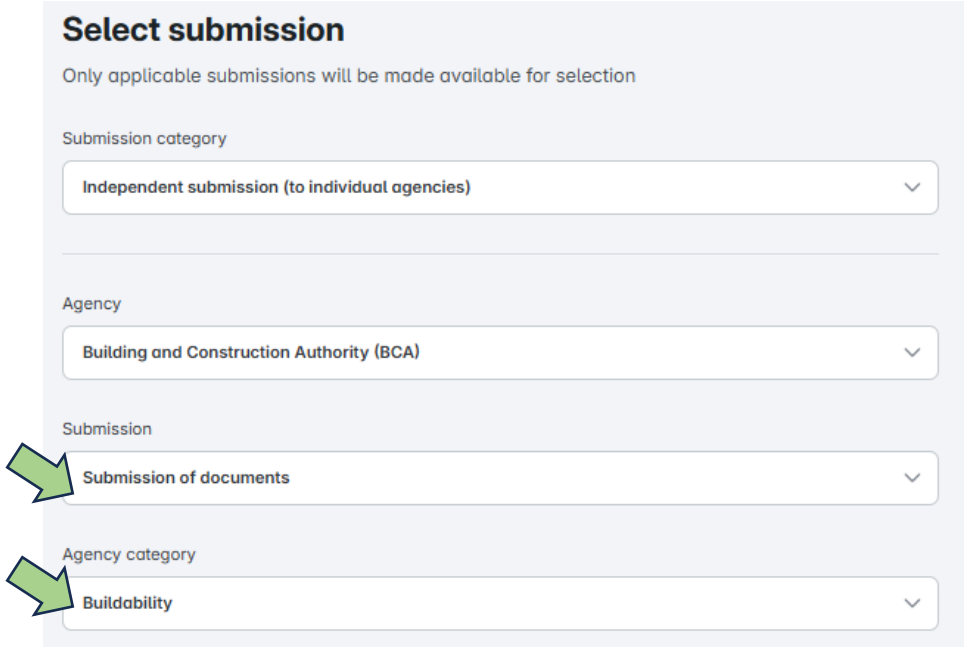
Submit the relevant documents accordingly (see table on the right)

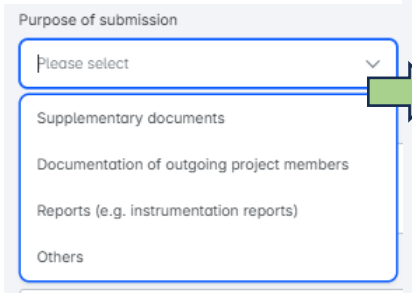


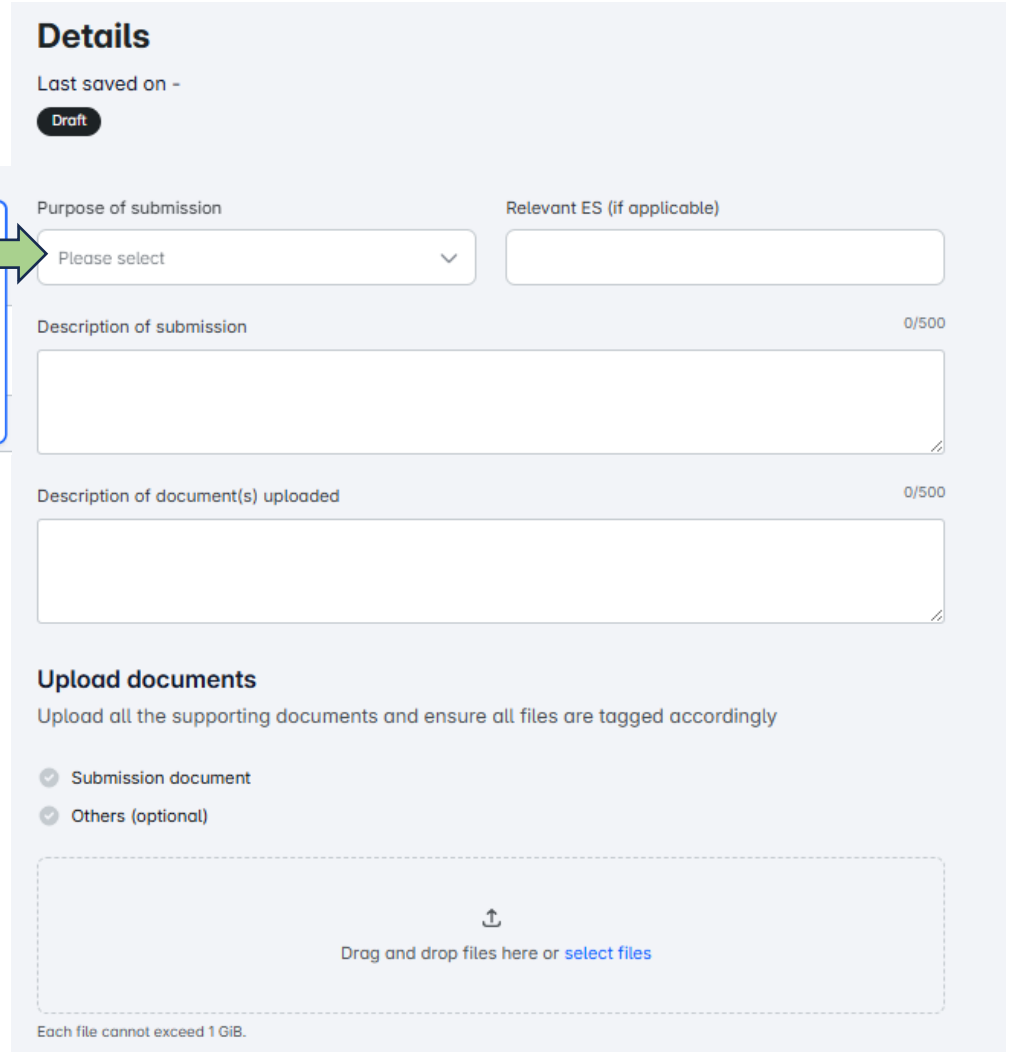
Buildability	**Type of attachment**
Code Compliance Option	• Calculation (BS03) • Architectural BDIP • Structural BDIP • MEP BDIP (if applicable)
Outcome-based option	• Calculation (BS03) • Others – Deemed Acceptable Proposal/ Project Productivity Improvement Plan (PPIP)
GLS projects	• Calculation (BS03) • Others – Productivity Concept Implementation Plan (PCIP)

Submission of Documents for Buildability

‘Submission of Documents’ provides a channel for QPs to submit and communicate buildability-related documentation







Types of Submission via Submission of Documents include:

1. Changes to productivity plans e.g. prefabricated MEP adoption
   a. Updates to the types or extent of prefabricated MEP systems being used
   b. Revisions to the coverage of prefabricated MEP components

2. Supporting documents for B-Score verification such as
   a. Details of pump skid size dimensions
   b. Drawings showing mechanical connections between precast components

3. Changes to the extent of system formwork being adopted

BIM submission in CORENET X

BIM submission in CORENET X

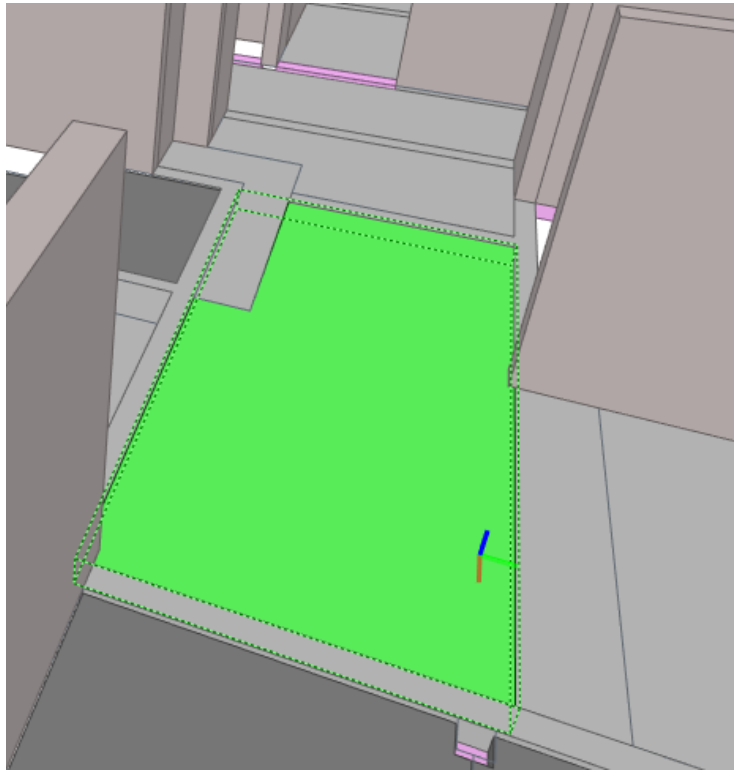
1. Starting 1 October 2025, all new projects with GFA of at least 30,000 m^2 must submit through CORENET X.
2. BIM submissions via CORENET X is required to :
   a. Ensure cross-discipline model coordination with correct Easting and Northing (x,y) coordinates and grid dimensions, standardised level and zone naming for proper alignment across disciplines
   b. Ensure all models are in IFC-SG format and comply with Corenet X COP
3. Incorporate buildability attributes for features such as precast components, prefabricated reinforcement, industry-standard sizes and other construction elements in the submission

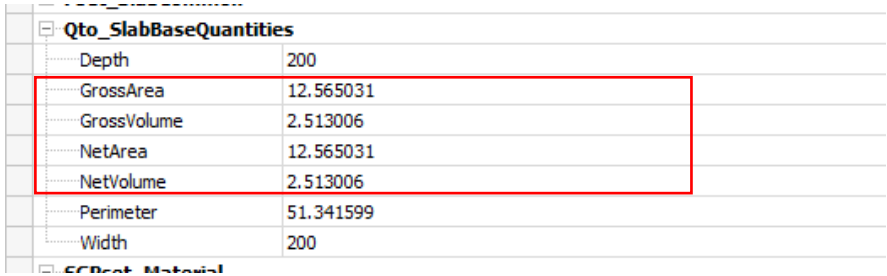
Examples of IFC properties tagged to element - IFC-SG: IfcSlab

IFC-SG properties for IfcSlab to be included when preparing structural model for submission:

IFC Entity	IfcSlab	
S/N	**IFC-SG Property**	**Examples**
1.	ConstructionMethod	CIS/ PC/ PT (Pre)/ PT (Post)/PPVC/ Prefab
2.	Area^	12.56
3.	Volume^	2.51
4.	WeldedMesh	True / False
5.	LatticeGirderReinforcement	True / False

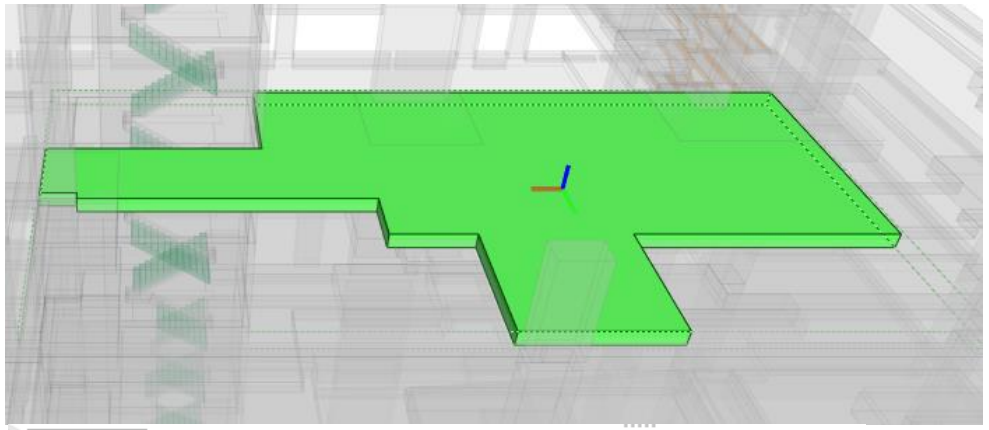
^ These properties can be automatically generated from model's Quantity Take-off (Qto) parameters





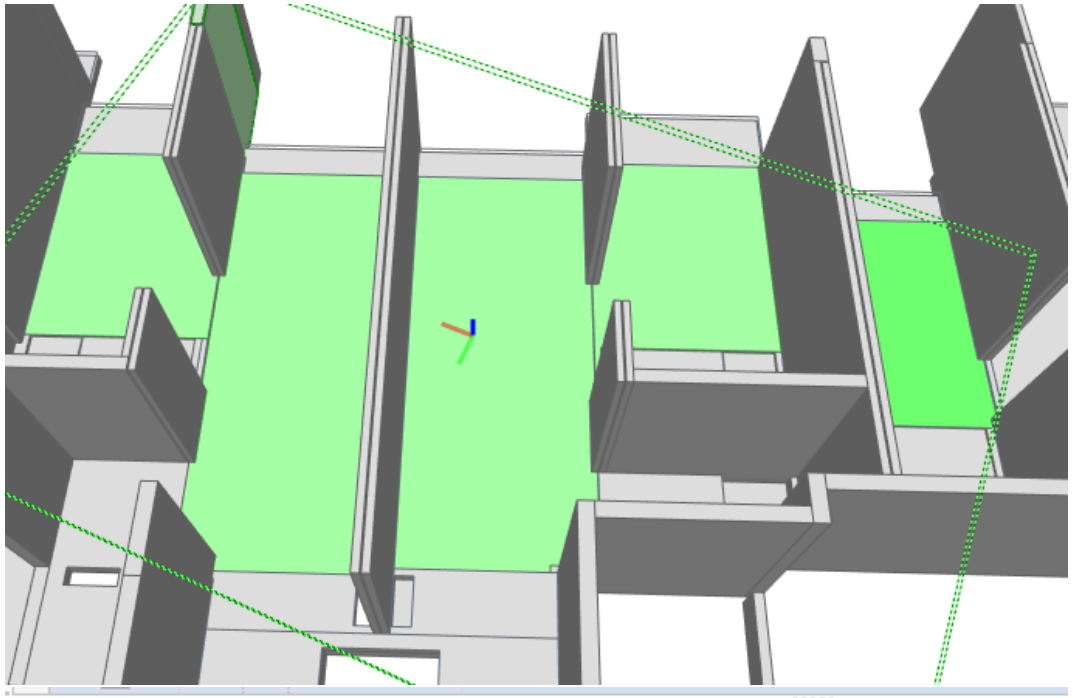
IFC-SG: IfcSlab

Example of IFC-SG properties such as ConstructionMethod, SlabType and WeldedMesh adopted for IfcSlab:



Properties | Location | Classification | Relations

	Name	Value
	Qto_SlabBaseQuantities	
	SGPset_Material	
	MaterialGrade	C32 / 40
	SGPset_Slab	
√	ConstructionMethod	PT
	ReferTo2DDetail	DWG.NO. -- / PT-L4-RD01
	ReinforcementSteelGrade	500B
	ShelterUsage	No
√	SlabType	Flat slab with drop panel
	SGPset_SlabDimension	
	SGPset_SlabReinforcement	
	BottomDistribution_nominal	0
	BottomMain_nominal	0
	Stirrups	-
	StirrupsType	-
	TopDistribution_nominal	0
	TopMain_nominal	0
√	WeldedMesh	Yes



Properties | Location | Classification | Relations

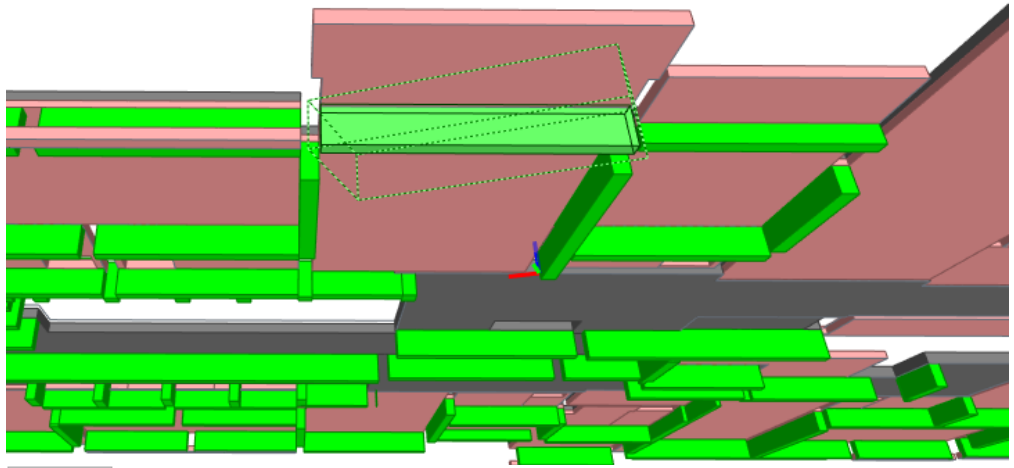
	Name	Value
	SGPset_Material	
	MaterialGrade	C32/40
	SGPset_Slab	
	Accreditation_PAS	No
√	ConstructionMethod	PPVC

Examples of IFC properties tagged to element : IFC-SG: IfcBeam

IFC-SG properties for IfcBeam to be included when preparing structural model for submission:

IFC Entity	IfcBeam	
S/N	**IFC-SG Property**	**Examples**
1.	ConstructionMethod	CIS/ PC/ PT (Pre)/ PT (Post)/PPVC/ Prefab
2.	Depth	600
3.	Width	200
4.	PrefabricatedReinforcementCage	True / False
5.	MechancialConnectionType	Telescopic Beam Connector, grouted sleeves
6.	Volume^	0.94

^ These properties can be automatically generated from model's Quantity Take-off (Qto) parameters



Properties | Location | Classification | Relations

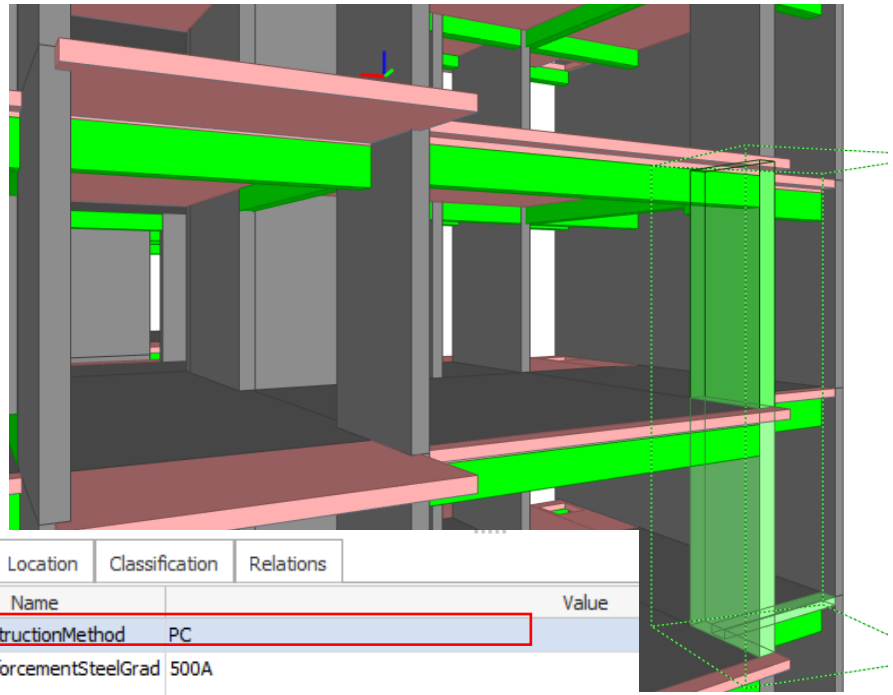
	Name	Value
√	ConstructionMethod	CIS
	MechanicalConnectionType	Rebar connection
	ReinforcementSteelGrade	500A
	SGPset_BeamDimension	
√	Depth	600
	Mark	2-TB65
√	MemberSection	200x600
√	Width	200
	SGPset_BeamReinforcement	
	BeamCage	No
	BottomLeft	2H16
	BottomMiddle	2H16
	BottomRight	2H16
√	PrefabricationReinforcementCage	No
	StirrupsLeft	H10-300

Examples of IFC properties tagged to element - IFC-SG: IfcColumn

IFC-SG properties for IfcColumn to be included when preparing structural model for submission:

IFC Entity	IfcColumn	
S/N	**IFC-SG Property**	**Examples**
1.	ConstructionMethod	CIS/ PC/ PT (Pre)/ PT (Post)/PPVC/ Prefab
2.	Width	300
3.	Breadth	1000
4.	MechancialConnectionType	Column shoes, grouted sleeves, spiral connector
5.	PrefabricatedReinforcementCage	True / False
6.	Volume^	0.94

^ These properties can be automatically generated from model's Quantity Take-off (Qto) parameters



Properties | Location | Classification | Relations

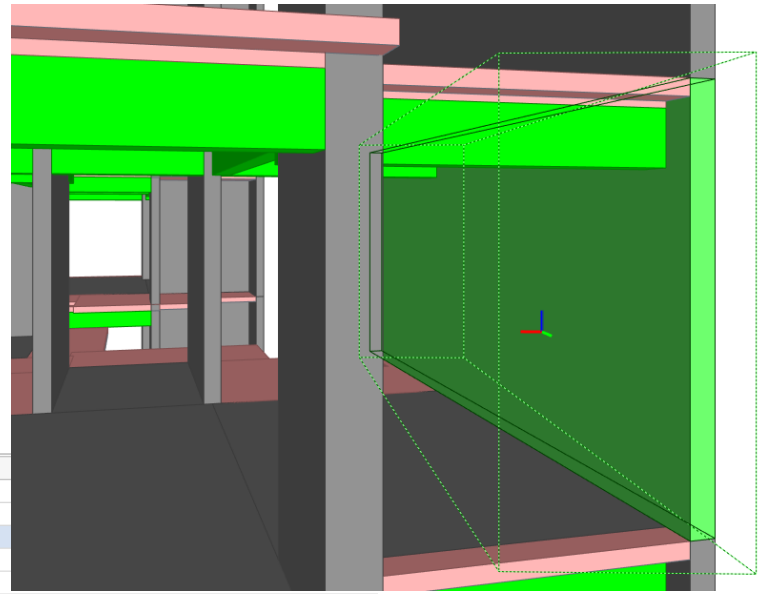
	Name	Value
√	ConstructionMethod	PC
	ReinforcementSteelGrade	500A
	SGPset_ColumnDimension	
√	Breadth	1 000
	EndStorey	Lower Roof
	Mark	4-1TW47
√	MemberSection	APCS - 300x1000
	StartingStorey	18th Storey
√	Width	300
	SGPset_ColumnReinforcement	
	ColumnCage	No
	MainRebar	20H20
√	PrefabricationReinforcementCage	No

Examples of IFC properties tagged to element - IFC-SG: IfcWall

IFC-SG properties for IfcWall to be included when preparing structural model for submission:

IFC Entity	IfcWall	
S/N.	**IFC-SG Property**	**Examples**
1.	ConstructionMethod	CIS/ PC/ PT (Pre)/ PT (Post)/PPVC/ Prefab
2.	Length^	5900
3.	Thickness	200
4.	MechancialConnectionType	Grouted sleeves, spiral connector, flexible loops
5.	PrefabricatedReinforcementCage	True / False
6.	Volume^	0.5

^ These properties can be automatically generated from model's Quantity Take-off (Qto) parameters



Properties | Location | Classification | Relations

	Name	
	GrossVolume	3.716995
	Height	3.150
√	Length	5 899.991359
	NetSideArea	18.584973
	NetVolume	3.716995
	Width	200
	SGPset_Material	
	SGPset_Wall	
	Accreditation_PAS	No
	ArrangementType	no
	BeamFacade	No
√	ConstructionMethod	PC
	Double Bay Façade	No
	IsExternal	No
	IsPartyWall	No
	LoadBearing	Yes
√	MechanicalConnectionType	Horizontal Connection: Splice sleeves; Vertical Connection between walls: Flexible Loop
√	PrefabricationReinforcementCage	No
	Prefinished Façade	No
	ReinforcementSteelGrade	500A
	ShelterUsage	No
	SGPset_WallDimension	
	Mark	4-1TW27
√	Thickness	200

IFC-SG Requirements: Buildability Pre-requisites

Pre-requisites

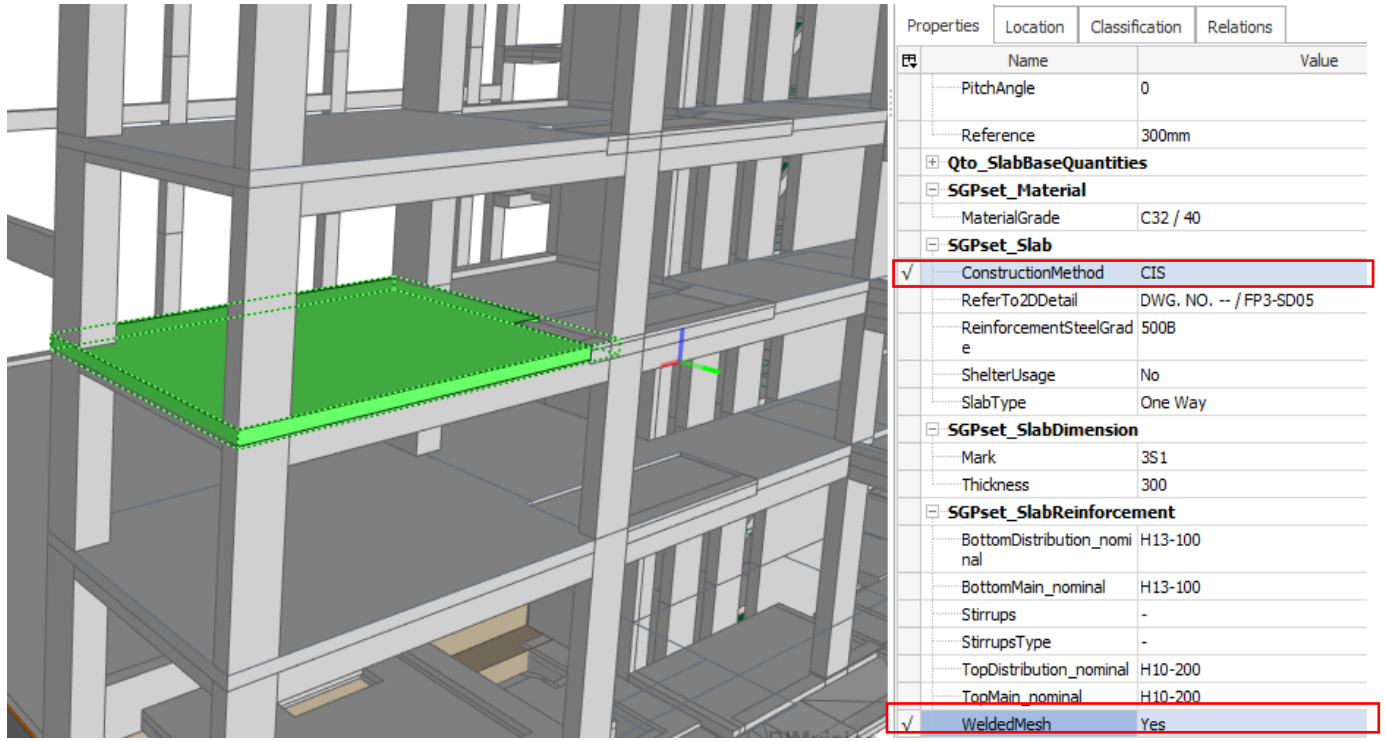
All projects must satisfy the pre-requisites below and 3D model to include their IFC-SG properties accordingly

For all projects	
S/N	**Description**
1.	Floor mesh
2.	Repetition of typical floor height in multiples of 1.5M or 1.75M
3.	Industry standard precast staircase for typical storeys
4.	Prefabricated and pre-insulated duct for air-conditioning system
For all Residential Non-Landed projects	
5.	Drywall
6a.	Precast household shelter (HS)
6b.	Industry standard precast household shelter
7a.	Prefabricated Bathroom Unit (PBU)
7b.	Industry standard Prefabricated Bathroom Unit
8.	Industry standard door structural openings (width) (3 most common sizes)
9.	Industry standard precast refuse chutes

Floor mesh – IfcSlab

IFC-SG requirements in IfcSlab entity to demonstrate the adoption of floor mesh in BIM model

IFC Entity: IfcSlab		
S/N	**IFC-SG property**	**Examples**
1.	ConstructionMethod	CIS, PC, PPVC and etc
2.	WeldedMesh	True or False

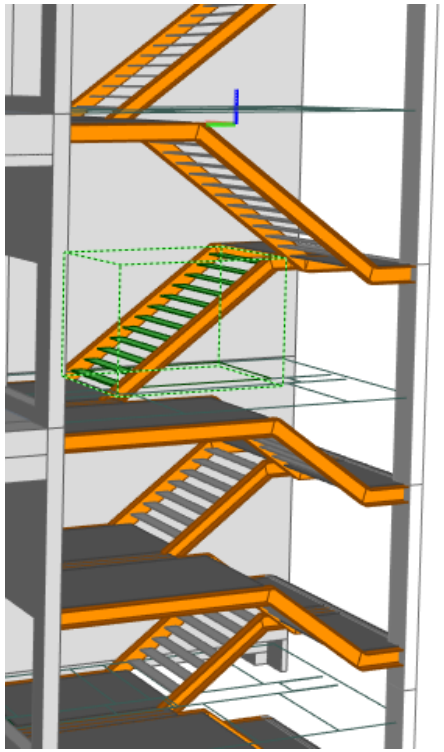


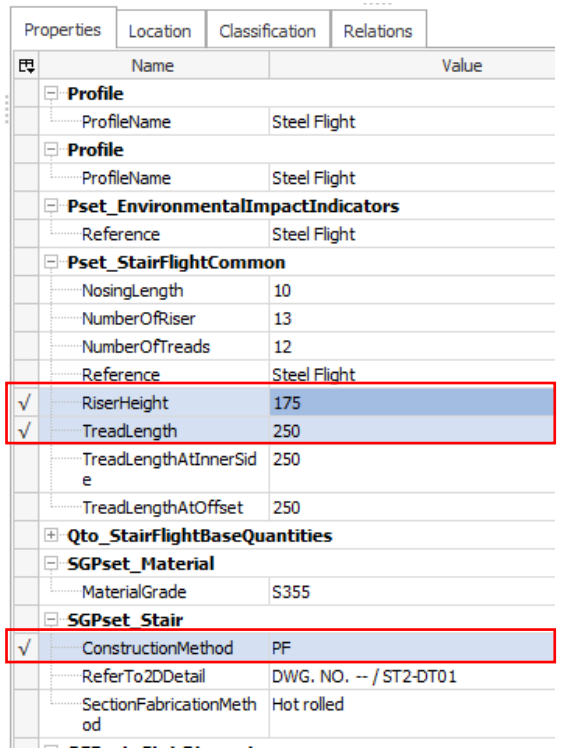
Note: IFC-SG properties must be correctly assigned to show that floor mesh is adopted in 65% of cast in-situ slabs

Precast staircase for typical storeys – IfcStairFlight

IfcStairFlight - IFC-SG requirements to demonstrate the use of precast staircases for typical storeys in the BIM model

IFC Entity: IfcStairFlight		
S/N	**IFC-SG property**	**Examples**
1.	ConstructionMethod	CIS, PC, Prefabricated (PF)
2.	RiserHeight	150mm or 175mm
3.	TreadLength	250mm, 275mm or 300mm





Note: IFC-SG properties must be consistent across typical storeys to show compliance to the 80% precast stair flight requirement with standard dimensions

Precast Household Shelter – IfcSpace, IfcWall, IfcSlab

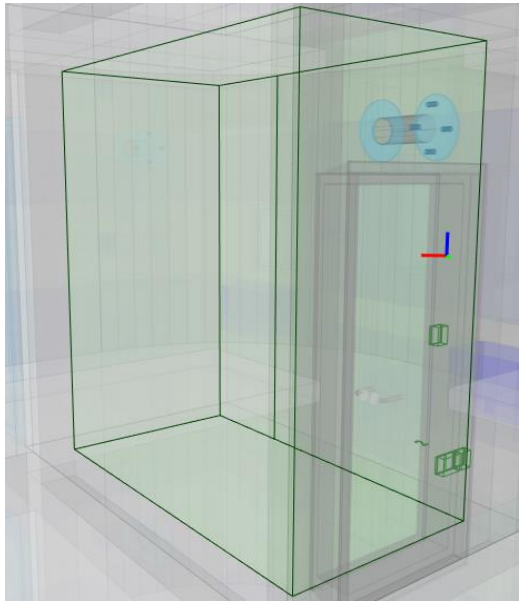
IFC-SG in IfcSpace, IfcWall and IfcSlab - to demonstrate adoption of precast household shelter (HS) and industry standard sizes in BIM model. Internal dimensions must be specified for all HS

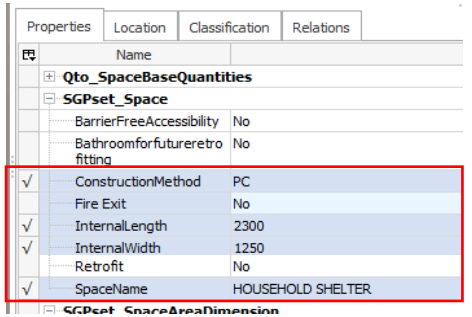
Ifc Entity	IfcSpace	
S/N	**IFC-SG property**	**Examples**
1.	SpaceName	Household shelter
2.	ConstructionMethod	CIS/ PC
3.	InternalLength	2300
4.	InternalWidth	1250

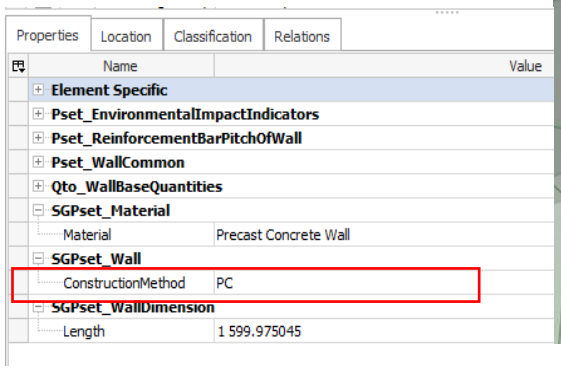
Ifc Entity	IfcWall, IfcSlab	
S/N	**IFC-SG property**	**Examples**
1.	ConstructionMethod	CIS/ PC
2.	Thickness	250/ 300

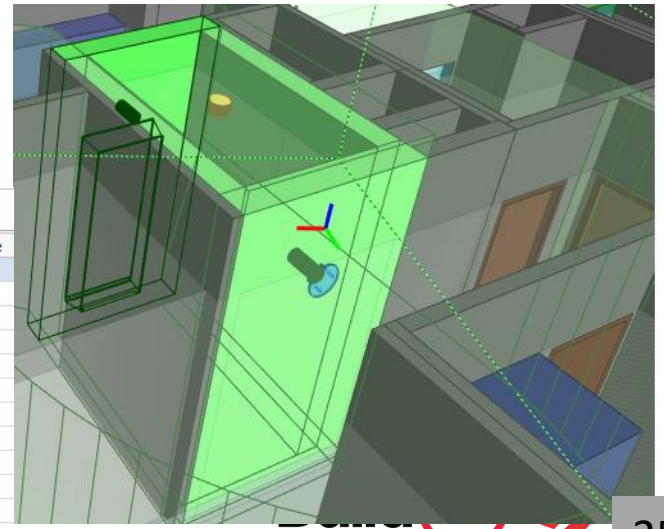
Notes:

1. Ensure all household shelter spaces are tagged with IFC-SG properties, including dimensions, to show both precast and compliance to industry standard sizes
2. Check that the ConstructionMethod property is aligned across all household shelters for IfcSpace and IfcWall components to avoid discrepancies between different elements.







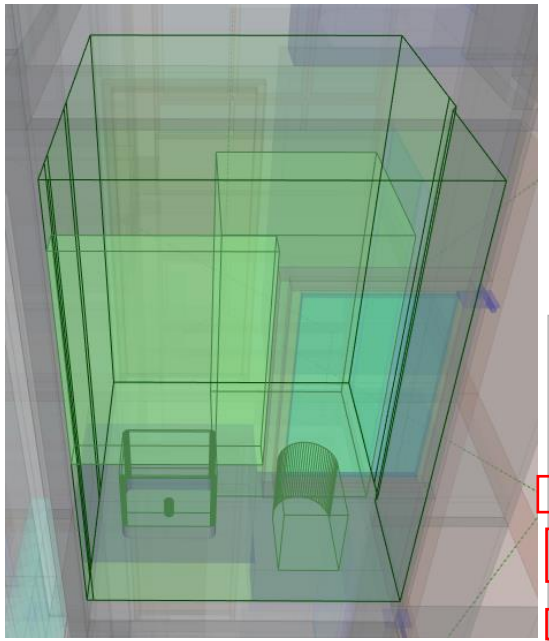


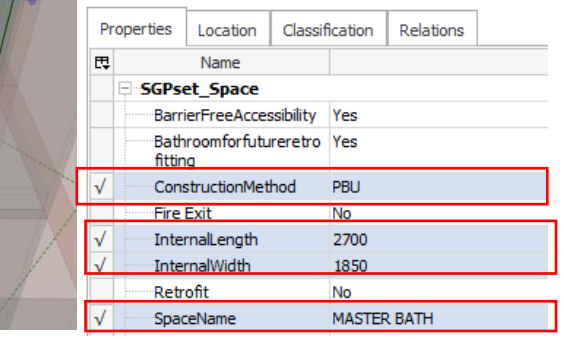
Prefabricated Bathroom Unit (PBU) – IfcSpace, IfcWall, IfcSlab

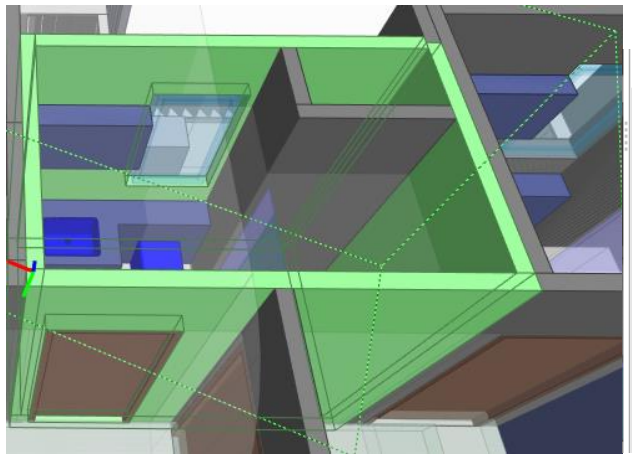
IFC-SG in IfcSpace, IfcWall and IfcSlab - to demonstrate the adoption of PBUs in the BIM model. Internal dimensions must be specified for all bathrooms

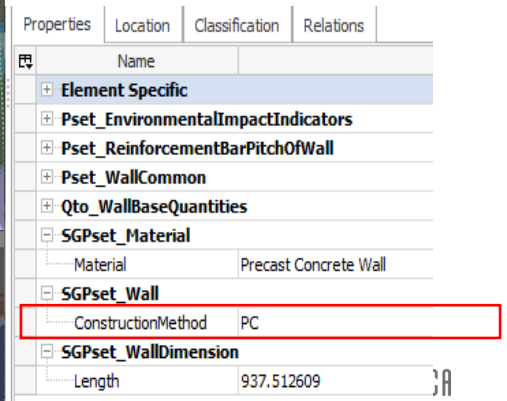
Ifc Entity	IfcSpace	
S/N	**IFC-SG property**	**Examples**
1.	SpaceName	Master Bath, Maid Bath, Toilet
2.	ConstructionMethod	CIS/ PBU
3.	Accreditation_MAS	True/False
4.	InternalLength	2700
5.	InternalWidth	1850

Ifc Entity	IfcWall, IfcSlab	
S/N	**IFC-SG property**	**Examples**
1	ConstructionMethod	CIS/ PC / Prefabricated







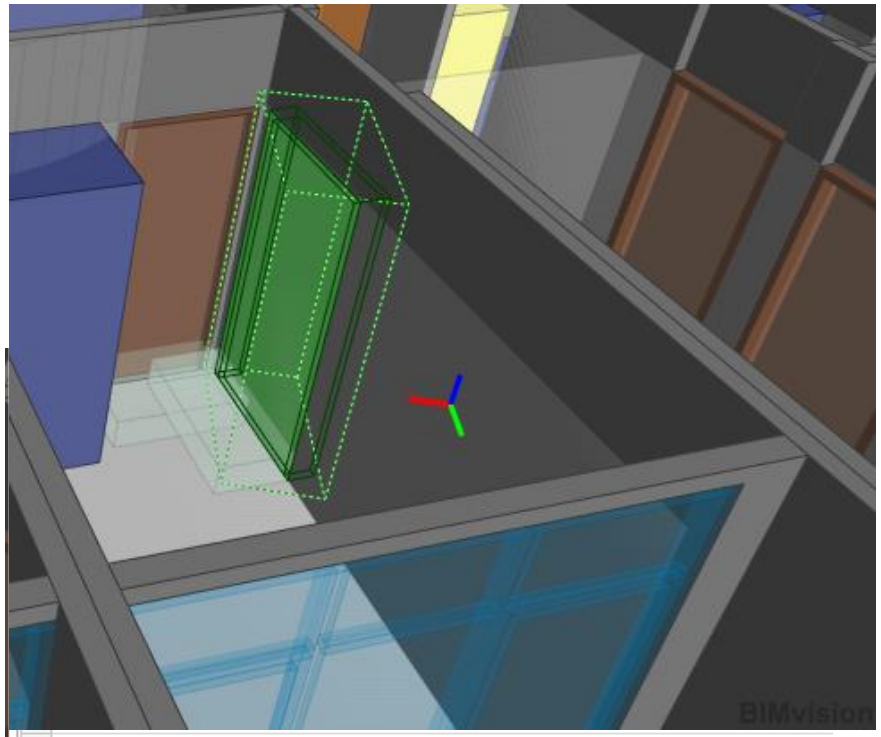


Notes:

1. Ensure all bathroom spaces are tagged with the required IFC-SG properties, including dimensions, to show PBU adoption and compliance to industry standard sizes
2. Check that the ConstructionMethod property is aligned across all bathrooms for IfcSpace, IfcWall and IfcSlab components to avoid discrepancies between different elements

Industry standard door structural openings – IfcDoor

IFC-SG requirements for IfcDoor - to demonstrate the adoption of Industry standard door structural openings in BIM model



SGPset_Door	
BarrierFreeAccessibility	Yes
Self Closing	No
SGPset_DoorDimension	
Clear Height	2 325
Clear Width	858
Overall Width	1 000
ProfileName	Common Bedroom

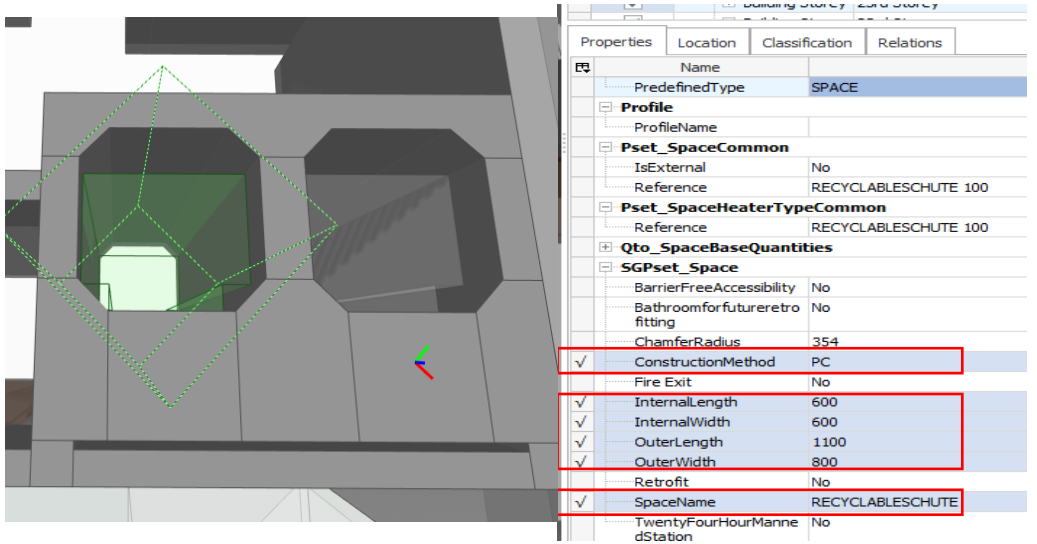
Ifc Entity	IfcDoor	
S/N	**IFC-SG property**	**Examples**
1.	OverallWidth	1000

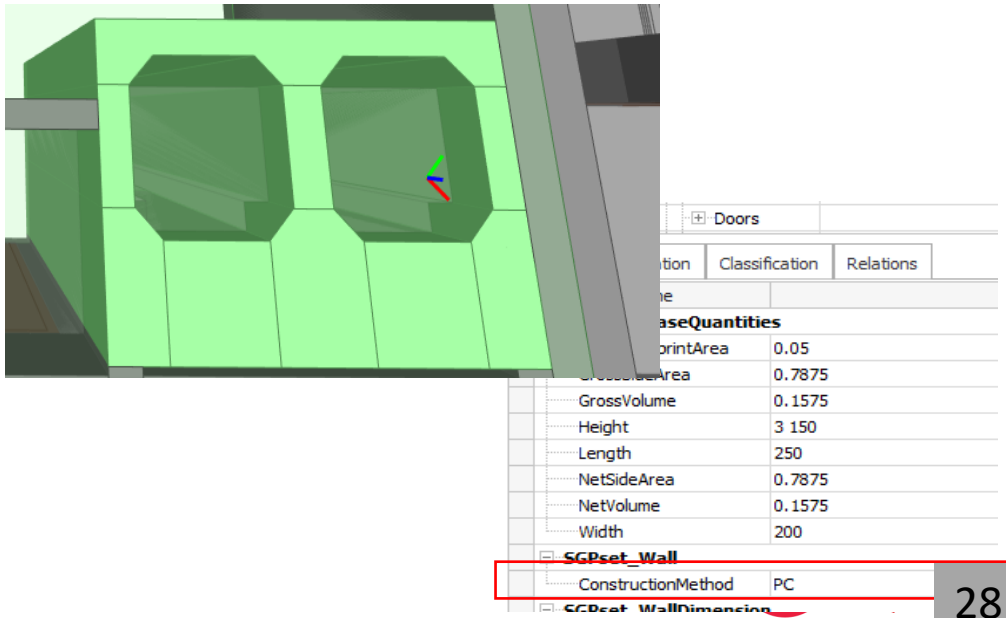
Industry standard Precast Refuse Chutes – IfcSpace, IfcWall

IFC-SG requirements for IfcSpace and IfcWall - to demonstrate the adoption of Industry standard Precast Refuse Chutes in BIM model

Ifc Entity	IfcSpace	
S/N	**IFC-SG property**	**Examples**
1.	SpaceName	RefuseChute, RecyclablesChute
2.	ConstructionMethod	CIS/ PBU/ Prefabricated
3.	InnerLength	600
4.	InnerWidth	600
5.	OuterLength	1100
6.	OuterWidth	800
7.	ChamferRadius	354

Ifc Entity	IfcWall	
S/N	**IFC-SG property**	**Examples**
1.	ConstructionMethod	CIS/ PC
2.	Thickness	100/ 150 / 200





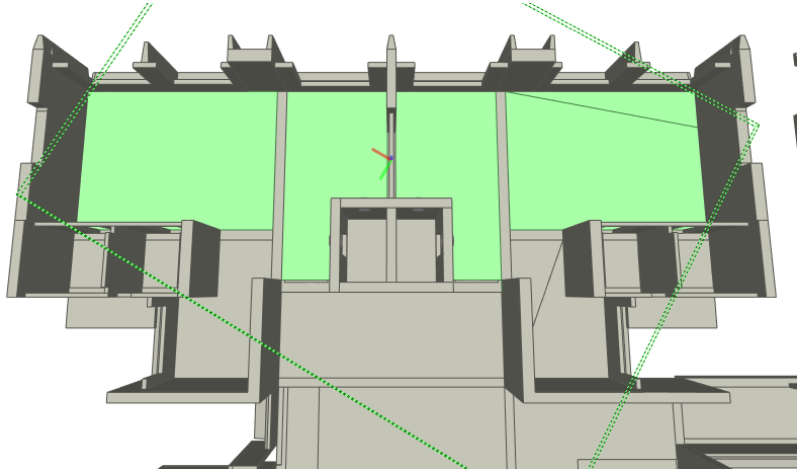
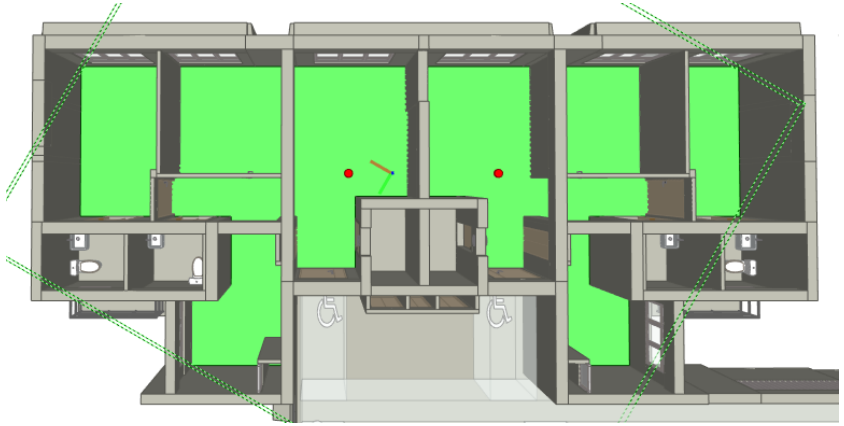
Notes:

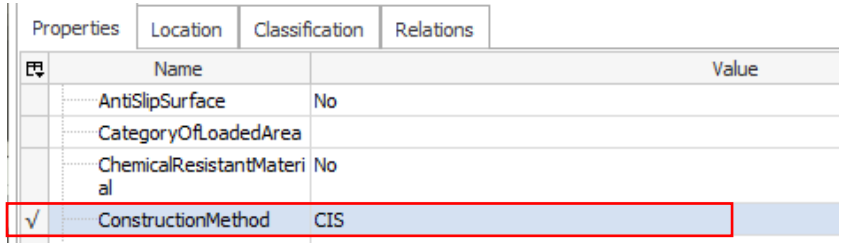
1. Ensure all refuse chutes spaces are tagged with the required IFC-SG properties, including dimensions, to show both precast and compliance to industry standard sizes
2. Check that the ConstructionMethod property is aligned across all refuse chutes for IfcSpace and IfcWall components to avoid discrepancies between different elements

Learning Points

Learning Points

1. **Ensure alignment of properties between the architectural and structural models, including construction methods**
   - In example below for slab, there was a discrepancy in the ConstructionMethod for IfcSlab, which was indicated as 'precast' in the structural model but 'cast in-situ' in the architectural model

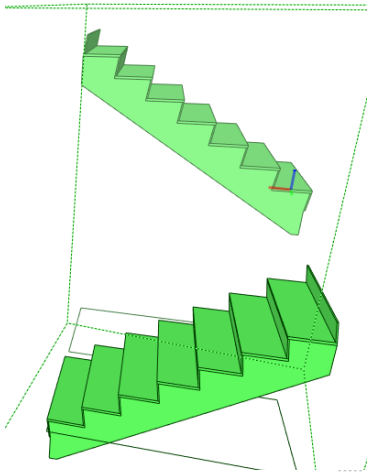
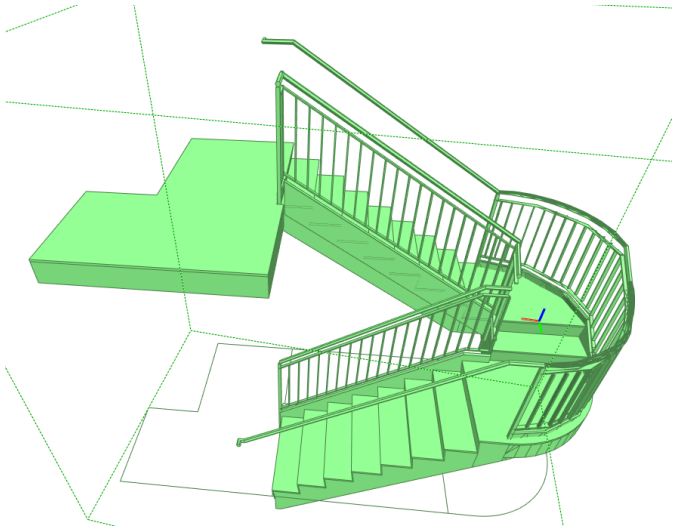
C&S model	Architectural model
	



Learning Points

2. Missing construction method for IfcStairFlight

- This is required as buildability requirements for precast staircases are applicable to stair flights

IfcStairFlight	IfcStair (consists of stair flights, landings and railings)
	

Properties | Location | Classification | Relations

Name	Value
Element Specific	
Guid	17WyMKIzb4MfMFFKGBxXO8
√ IfcEntity	IfcStairFlight
√ RiserHeight	175
√ TreadLength	275
TreadLengthAtInnerSide	275
TreadLengthAtOffset	275
WalkingLineOffset	1.64042
Qto_StairFlightBaseQuantities	
SGPset_StairFlight	
√ ConstructionMethod	PC

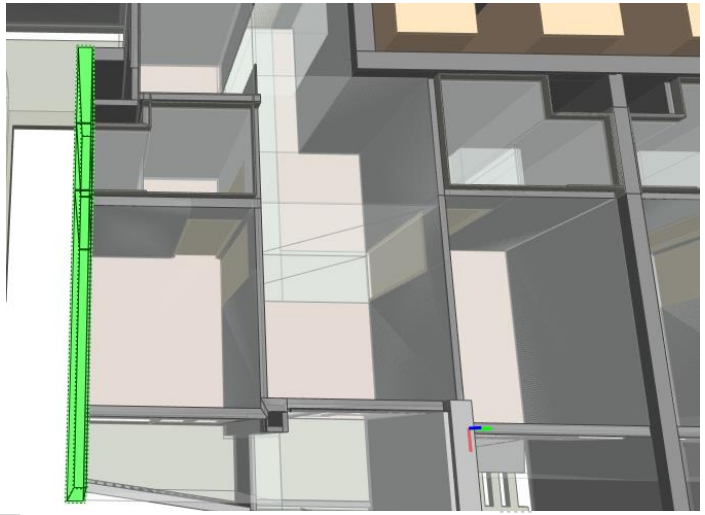
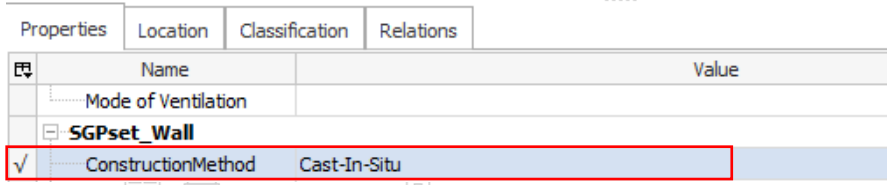
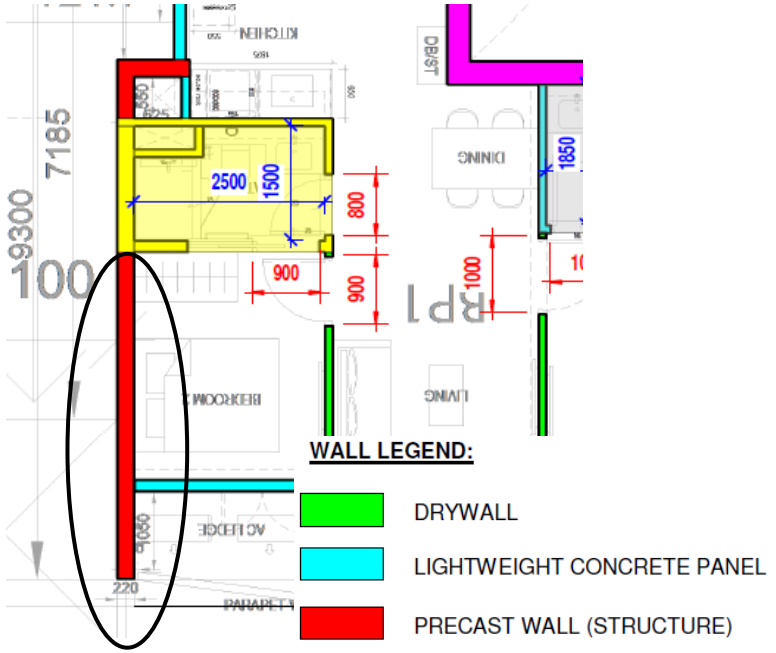
Properties | Location | Classification | Relations

Name	
Element Specific	
Guid	17WyMKIzb4MfMFFKGBxXOF
√ IfcEntity	IfcStair

Learning Points

3. Verify consistency between Productivity Plan submitted and BIM model

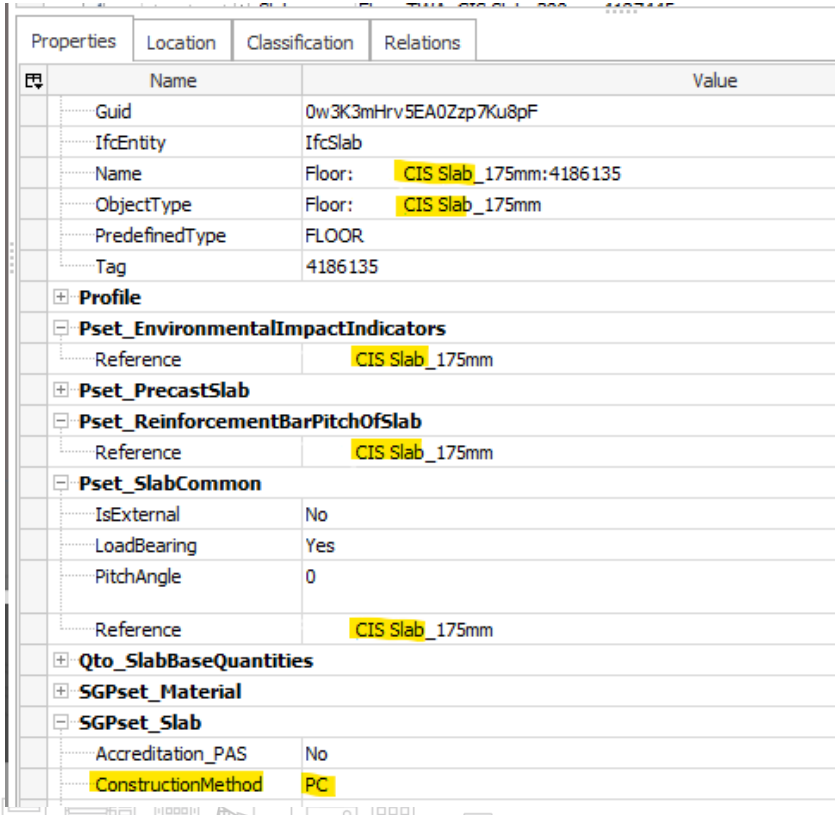
- In the architectural model, the ConstructionMethod was indicated as 'cast in-situ', but 'precast' in the productivity plan

Architectural model	Productivity Plan
 	

Learning Points

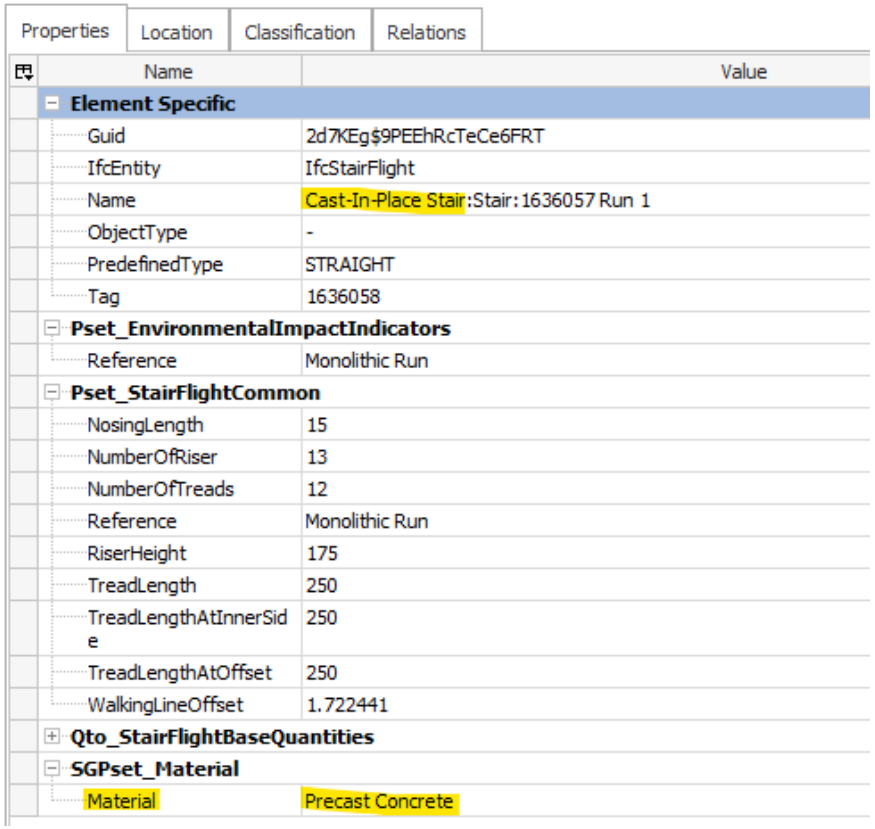
4. Inconsistency in properties under IFC entities

- ConstructionMethod was specified as precast under IfcSlab, while other properties within the same IFC entity indicated cast in-situ.
- Similarly, for IfcStairFlight, the 'name ' property showed 'Cast-In-Place Stair' while the 'Material' property specified 'Precast Concrete'



Properties	Location	Classification	Relations

Name	Value
Guid	0w3K3mHrv5EA0Zzp7Ku8pF
IfcEntity	IfcSlab
Name	Floor: CIS Slab_175mm:4186135
ObjectType	Floor: CIS Slab_175mm
PredefinedType	FLOOR
Tag	4186135
Profile	
Pset_EnvironmentalImpactIndicators	
Reference	CIS Slab_175mm
Pset_PrecastSlab	
Pset_ReinforcementBarPitchOfSlab	
Reference	CIS Slab_175mm
Pset_SlabCommon	
IsExternal	No
LoadBearing	Yes
PitchAngle	0
Reference	CIS Slab_175mm
Qto_SlabBaseQuantities	
SGPset_Material	
SGPset_Slab	
Accreditation_PAS	No
ConstructionMethod	PC



Properties	Location	Classification	Relations

Name	Value
Element Specific	
Guid	2d7KEg$9PEEhRcTeCe6FRT
IfcEntity	IfcStairFlight
Name	Cast-In-Place Stair:Stair:1636057 Run 1
ObjectType	-
PredefinedType	STRAIGHT
Tag	1636058
Pset_EnvironmentalImpactIndicators	
Reference	Monolithic Run
Pset_StairFlightCommon	
NosingLength	15
NumberOfRiser	13
NumberOfTreads	12
Reference	Monolithic Run
RiserHeight	175
TreadLength	250
TreadLengthAtInnerSide	250
TreadLengthAtOffset	250
WalkingLineOffset	1.722441
Qto_StairFlightBaseQuantities	
SGPset_Material	
Material	Precast Concrete

Note: Ensure all properties within the same IFC entity align with each other.

Learning Points

5. For projects with GLS requirements, submit the Productivity Plan during Construction Gateway

- As projects are subject to more stringent productivity requirements, these shall take precedence over minimum buildability requirements
- Productivity plan must be submitted to demonstrate compliance with the higher requirements

6. For projects adopting the outcome-based option, select this option in BS01 form. Fill in the necessary information under Part IV

BS01 form to indicate outcome-based option

(b) We hereby declare that we are submitting one of the outcome-based proposals for the project in lieu of a buildable design score as stated in 1a above.

Please select one of the options if you have indicated 'Yes' for Option (b)	0	Yes

Please select one of the options if you have indicated 'Yes' for Option (b)

- Option 1a (For residential non-landed projects with GFA ≥ 25,000m² only): Min. 65% Prefab Structural + Min. 80% Prefab Architectural + Min. 50% Prefab MEP + Min. 70% System Form...
- Option 1b (For residential non-landed projects with GFA ≥ 25,000m² only): Min. 60% PPVC + Min. 70% System Formwork
- Option 1c (For residential non-landed projects with GFA ≥ 25,000m² only): Min. 50% PPVC + Min. 70% System Formwork(for building with 5 storeys and below only)
- Option 2a (For Industrial or Commercial projects with GFA ≥ 25,000m² only):Min. 60% Prefab Structural + Min. 80% Prefab Architectural + Min. 50% Prefab MEP + Min. 70% System Form...
- Option 2b (For Commercial Office projects with GFA ≥ 25,000m² only):Min. 60% Prefab Structural + Min. 70% Prefab Architectural + Min. 50% Prefab MEP + Min. 70% System Formwork
- Option 2c (For Industrial or Commercial projects with GFA ≥ 25,000m² only):Min. 50% Steel/APCS/MET + Min. 80% Prefab Architectural + Min. 50% Prefab MEP + Min. 70% System Formw...
- Option 2d (For Commercial Office projects with GFA ≥ 25,000m² only):Min. 50% Steel/APCS/MET + Min. 70% Prefab Architectural + Min. 50% Prefab MEP + Min. 70% System Formwork
- Option 2e (For Industrial or Commercial projects with GFA ≥ 25,000m² only):Min. 60% PPVC + Min. 50% Prefab MEP + Min. 70% System Formwork
- Option 3a (For Institutional, School and Other projects with GFA ≥ 25,000m² only):Min. 60% Prefab Structural + Min. 80% Prefab Architectural + Min. 50% Prefab MEP + Min. 70% Syste...
- Option 3b (For Institutional, School and Other projects with GFA ≥ 25,000m² only):Min. 50% Steel/APCS/MET + Min. 80% Prefab Architectural + Min. 50% Prefab MEP + Min. 70% System...
- Option 3c (For Institutional, School and Other projects with GFA ≥ 25,000m² only):Min. 60% PPVC + Min. 50% Prefab MEP + Min. 70% System Formwork

Information to be provided under Part IV

PART IV: OTHER INFORMATION

1. Prefabrication Level (%)

				To input additional prefab level % if system is not listed		
(a) Structural System	0%	+			=	0%
(b) Architectural System	0%	+			=	0%

2. DfMA Level (%) - To input accordingly

(a) PPVC	0%
(b) MET	0%
(c) Structural Steel	0%
(d) APCS	0%
(e) MEP System	0%

3. Use of Industry Standard Components

Description	Sizes (m)	No.	Coverage (%)	Remarks
(a) Prefabricated Bathroom Unit (PBU) - 5 most common sizes	Select PBU size			
	Select PBU size			
	Select PBU size			
	Select PBU size			
	Select PBU size			
(b) Precast Household Shelter - 3 most common sizes	Select Precast HS size			
	Select Precast HS size			
	Select Precast HS size			
(c) Prefabricated Kitchen Unit - 3 most common sizes	To input internal L x W (m)			
	To input internal L x W (m)			
	To input internal L x W (m)			
(d) Precast Refuse Chute - most common size	Select Chute size			
(e) Prefabricated Pump Skid - most common size	Select Skid size			

Thank you

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