Building Information Modelling (BIM) Guide for Structural Engineering
(Version 4.0)

Structural Engineering Branch
Architectural Services Department

Objective

The primary purpose of this Guide is to gather and present factual materials in such a manner that project officers, both professional and technical, could obtain a common reference of the various practices on the adoption of BIM in design and construction for structural engineering in building projects undertaken by the Structural Engineering Branch of the Architectural Services Department.

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Clause	**Page No.**	**Revision Details**
1-5	All	- Line up document formatting and file convention with other branch

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Clause	Page No.	Revision Details
1-5	All	- General Update of Clause 1.1, 1.2 and 1.3 - Update of Clause 2.3 and 2.4 - Update of Section 2.5.1 to 2.5.5 of Clause 2.5 - Deleted Section 2.5.6 and 2.5.7 in Clause 2.5 - Update of Clause 3.1 and 3.8 - Delete Section for Schedule in Clause 4 - Update of Clause 4.4, 4.6. 4.9 and 4.11 - Added Clause 4.13 to 4.15 - Update of Clause 5.2 - Update of Appendix A and B - Relocate Appendix C to Clause 4.11.2

1 Introduction

1.1 Overview

With the implementation of ***DEVB Technical Circular (Works) No. 1/2025 - Adoption of Building Information Modelling for Capital Works Projects in Hong Kong*** on 21 January 2025, this guide aims to achieve the following objectives for delivering projects in ArchSD adopting BIM in relation to Structural Engineering discipline.

- To standardise the settings and configurations of BIM structural model
- To facilitate a more standardised output with high quality
- To outline the procedures for using BIM software to prepare a BIM structural model
- To facilitate the production of common set of BIM objects

The primary purpose of this Guide is to provide a common reference on the adoption of BIM for structural engineering in projects undertaken by the Structural Engineering Branch of the Architectural Services Department.

1.2 Reference BIM Standards and Guidelines

This Guide has made referenced to the following international and local standards and guidelines:

(a) Development Bureau Technical Circular (Works) No. 1/2025 - Adoption of Building Information Modelling for Capital Works Projects in Hong Kong;
(b) Development Bureau Technical Circular (Works) No. 8/2021 – Building Information Modelling Harmonisation Guidelines for Capital Works Projects in Hong Kong;
(c) BIM Harmonisation Guidelines for Works Departments (Version 3.0 – December 2025) by the Development Bureau;
(d) CIC BIM Standards for Architecture and Structural Engineering (Version 2.1 - 2021);
(e) CIC BIM Standards - General (Version 2024);
(f) CIC Production of BIM Object Guide - General Requirements (Version 2 - 2021);
(g) CIC BIM Dictionary (2024);
(h) Computer-Aided-Drafting Standard for Works Projects (CSWP) issued by Development Bureau of the HKSAR Government;
(i) Computer-Aided-Drafting Manual for ArchSD Projects (Version 1.03 – April 2024) issued by Architectural Services Department;
(j) BS EN ISO 19650-1:2018 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling, Part 1: Concepts and principles;
(k) BS EN ISO 19650-2:2018 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling, Part 2: Delivery phase of the assets;
(l) BS EN ISO 19650-3:2020 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling, Part 3: Operational phase of the assets;
(m) BS EN ISO 19650-5:2020 Organization and digitization of information about buildings and civil

engineering works, including building information modelling (BIM) – Information management using building information modelling, Part 5: Security-minded approach to information management;

(n) American Institute of Architects (AIA)'s G202™-2013 Project Building Information Modeling Protocol Form;

(o) SEBGL-DD2 Drafting Manual for R.C. Structures (Revision 3) issued by Structural Engineering Branch of Architectural Services Department;

(p) BIM Guide for Facilities Upkeep issued by Property Services Branch of Architectural Services Department; and

(q) BIM Guide for Cost Estimation issued by Quantity Surveying Branch of the Architectural Services Department.

1.3 Terminology

The abbreviations and terminology/glossary as stated in the CIC BIM Dictionary 2024 applies.

2 Data Management Requirements

2.1 General

Prior to BIM model production, a unified data management structure must be established for collaboration and information exchange efficiently. The project setup framework should make reference to the BS EN ISO 19650-1:2018 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling, Part 1: Concepts and principles.

A typical project setup must be applied for individual project according to the framework described in Item 2.2 Project Folder Structure of this Guide and documented in the BIM Execution Plan (BEP).

For consistency, it is recommended to have the same project setup both in the Common Data Environment (CDE) and the individual computer workstation.

2.2 Project Folder Structure

Project folder structures for BIM operation in the design and construction stage are recommended as follows:

Folder Structure	Description
[Project Name/Code/Identity, e.g. InForM no.]	
01 General	Folder to share general information such as contact list, project information, templates, title block, reference materials, etc.
02 WIP	
10 Architectural	Folders to store work in progress (WIP) models/information being developed by individual discipline teams for internal collaboration. Usually the access is restricted to the individual discipline teams.
20 Building Services	
30 Structural	
40 Landscape Architecture	
50 Quantity Surveying	
60 Project Management	
03 Shared	
10 Architectural	Folders to share approved models /information by individual discipline team for collaboration. Only current models /information should be stored and outdated/obsolete files should be moved to the "05 Archive" folder.
20 Building Services	
30 Structural	
40 Landscape Architecture	
50 Quantity Surveying	
60 Project Management	
04 Published	

Folder Structure	Description
10 Architectural	Folders to share authorized models /information for publishing at milestones (usually in non-editable format) where they are ready for submission, procurement and construction (e.g. GBP, Tender DWG, etc.).
20 Building Services	
30 Structural	
40 Landscape Architecture	
50 Quantity Surveying	
60 Project Management	
05 Archive	
10 Architectural	Folders to store historical records of file transaction such as previously shared /published models which were outdated.
20 Building Services	
30 Structural	
40 Landscape Architecture	
50 Quantity Surveying	
60 Project Management	
06 As-built	
10 Admin	Folders to store as-built models /information with structure referenced to BIM Guide for Facilities Upkeep.
20 BIM Library	
30 As-built BIM	
40 O&M Documentation	
50 Photo	
60 Drawing Sheet	
70 Inspection	
80 Statutory	
90 Others	

Project Folder Structure for As-built Model

Refer to the current version of Building Information Modelling (BIM) Guide for Facilities Upkeep by Property Services Branch.

2.3 Model Division

A project BIM model should be divided into separate discipline and/or building blocks depending on the nature and complexity of the project. For projects with large site footprint where several building blocks existed, the model may be further divided into several zones for more efficient handling of models. The model could be divided by blocks, phases, floors or trades, etc. The Model Division list shall be provided in the BIM Execution Plan (BEP). Once divided, the series of individual models are much easier to manage than one large file. For example:

Example: For project with a single building block:

Model Name	Building	Category
1233-ADS-XX-ZZ-ST-CM_N	Government Offices	Structural Framing
5240-ADS-XX-ZZ-SF-M3_T	Government Offices	Site Formation

Example: For project with 3 separated building blocks:

Model Name	Building	Category
5578-ADS-BK1-ZZ-ST-CM_N	Government Offices Block 1	Structural Framing
5578-ADS-BK2-ZZ-ST-CM_N	Government Offices Block 2	Structural Framing
5578-ADS-BK3-ZZ-ST-CM_N	Government Offices Block 3	Structural Framing

A combined model for structural should be used for delivering the models. The subdivision scheme for modelling zone and level shall be agreed with all disciplines at the outset and defined the details in the BEP.

Under special circumstances, a single BIM model may be acceptable depending on the nature and complexity of project. The BIM Execution Plan shall state the model division strategy (by discipline or building blocks, etc.). File sizes of each divided BIM model shall be kept in minimum by purging of unused views, BIM objects and settings before publish or submission. In general, the maximum file size for each divided BIM model including combined model should not exceed 500Mb unless otherwise approved, and the maximum BIM object file size should be kept at the minimum, preferably under 5MB. The modelling practices for all divided BIM models shall be consistent so that they could be combined into federated model together with models of other disciplines in common software platform tools.

2.4 Information Exchange Formats

To facilitate information exchange, a BIM Data Repository (BIM DR) serves to host native BIM models and shareable BIM models. For the shareable BIM format, IFC v4 will be used. Building Information Modelling Harmonisation Guidelines for Works Departments shall be referred to when preparing the BIM models in native and open format and object for sharing with others.

2.5 General Naming Convention

The role of the Local Annex of ISO 19650-2:2018 is to clarify its implementation within a country or local region, but it should not preclude international cooperation and agreement. ISO 19650-2:2018 (5.1.7.a)

states: 'The project's Common Data Environment shall enable each information container to have a unique ID, based upon an agreed and documented convention fields separated by a delimiter'.

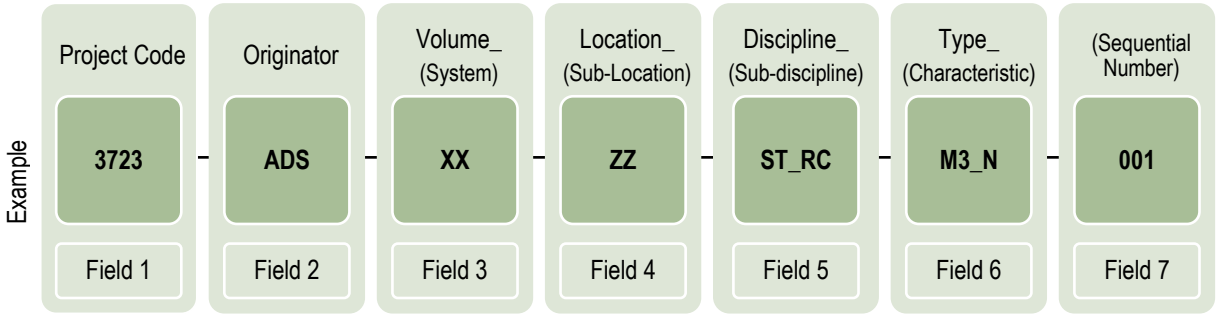
The following delimiters are to be used:

a) For a delimiter between Main Fields the Hyphen (-) or Minus character using Unicode Reference U+002D shall be used;
b) Where a delimiter is required between Main Fields and Sub-Fields if Sub-Field is required, then the Underscore (_) character using Unicode reference U+0332 shall be used; and
c) Special symbols and invalid characters (including: ~ " # % & * : < > ? / \ { | } .) shall not be used within information container IDs.

ISO 19650-2:2018 (5.1.7.b) states: 'The project's common data environment shall enable each field to be assigned a value from an agreed and documented codification standard'. In Hong Kong, the codification for each field for file identification should be defined from the following codifications.

2.5.1 Model File Naming

For model file naming, the following format shall be adopted which aligned with the Hong Kong 'Local Annex' of ISO 19650-2:2018 in Annex 1 of the CIC BIM Standards General:



(Optional Sub-Field): Supplement or adopt according to Project setting.

Field	Description and Format	
Field 1 (4~8 characters)	**Project Code** A unique identifier for identification of the project: InForM or contract number (e.g. 7781)	
Field 2 (3 characters) (All Uppercase)	**Originator** A unique identifier based on Agent Responsible Code (ARC) of the CAD Standard for Works Projects to indicate the model's responsible authoring party: **"ADS"** for structural discipline of ArchSD	
Field 3 (2~6 characters excluding underscore "_") (All Uppercase)	**Volume (2~3 Characters)** A unique identifier to indicate specific geospatial zone or volume of the project (if required). The following generic codes should apply: (default=**XX**) **ZZ** – All volumes/systems; and **XX** – No volume/system applicable	**System (Optional) (2~3 Characters)** An optional identifier to indicate a collection of interconnected model elements across main disciplines under a system (if required).

Field	Description and Format	
Field 4 (2~6 characters excluding underscore "_") (All Uppercase)	**Location (2~4 Characters)** A unique identifier to indicate specific location for geospatial coordination. The following generic codes should apply: (default=**ZZ**) **ZZ** – Multiple level/locations; and **XX** – No level/location applicable	**Sub-Location (Optional) (1~2 Characters)** An optional identifier to indicate a sub-location (e.g. level) within the same location.
Field 5 (2~4 characters excluding underscore "_") (All Uppercase)	**Discipline (2 Characters)** An identifier for each primary discipline to facilitate appearance settings and information filtering for interdepartmental coordination. The standard code "**ST**" should be applied for Structural discipline. "**SF"** should be applied for Site Formation. "**ZZ**" should be applied for multiple disciplines for combined models.	**Sub-Discipline (Optional) (2 Characters)** An optional identifier to indicate the sub-discipline (trade). Commonly used coding as follows: **GI** – Ground Investigation **FD** – Foundation **PC** – Pile Cap **PW** – Planter Wall **RC** – Reinforced Concrete **RW** – Retaining Structure **SS** – Structural Steel **SU** – Superstructure
Field 6 (2~3 characters excluding underscore "_") (All Uppercase)	**Type (2 Characters)** An identifier to indicate the information held within the container. Commonly used type identifier as follows: **CM** – Combined Model **DR** – 2D Drawing **M3** – 3D Model File	**Characteristic (Optional) (1 Character)** An optional identifier to indicate the model's characteristic. Commonly used codes as follows: **E** – Existing, to remain **T** – Temporary Works **N** – New Works **A** – As-built **M** – Maintenance or record **D** – Demolition **W** – All Works (combination of above works)
Field 7 (Optional) (3 numeric)	**Sequential number** An optional identifier to be assigned when it is necessary to further distinguish the model from the others.	

The maximum total length of model names is 43 characters, including delimiters and information dividers but excluding file extension. Note: A metadata text file including the software version should be provided for data exchange and collaboration.

Example:

Description	Model File Name
Project InForM number: *1233*; Originator: *ArchSD-Structural*; Volume: *not applicable*; Location: *Non-specific location*; Discipline: *Structural discipline*; Type/ Characteristic: *3D model for new works*	1233-ADS-XX-ZZ-ST-M3_N.xxx
Project InForM number: *5578*; Originator: *ArchSD-Structural*; Volume: *Block A*; Location: *Non-specific location*; Discipline: *Structural discipline*; Type/ Characteristic: *Combined model for new works*	5578-ADS-BKA-ZZ-ST-CM_N.xxx
Project InForM number: *5240*; Originator: *ArchSD-Structural*; Volume: *not applicable*; Location: *Non-specific location*; Discipline: *Site Formation with Ground Investigation discipline*; Type/ Characteristic: *3D model for new works*	5240-ADS -XX-ZZ-SF_GI-M3_T.xxx

Description	Model File Name
Project InForM number: *1234*; Originator: *ArchSD-Structural*; Volume: *not applicable*; Location: *Non-specific location*; Discipline: *Federated model with all disciplines*; Type/ Characteristic: *Combined model*	1234-ADS-XX-ZZ-ZZ-CM.xxx

Remark: ".xxx" – file name extension

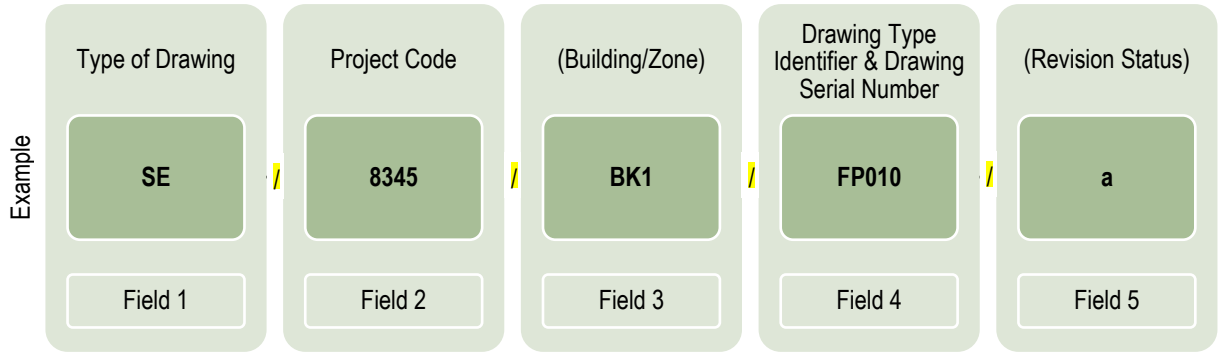
2.5.2 View Naming

View naming in BIM models shall clearly identify the type, location, and purpose of each view and stated in the BEP. The naming convention shall include:

1. Type of View (e.g., Plan, Section, 3D View).
2. Location (e.g., specific floor: LG – Lower Ground, GF – Ground Floor).
3. Additional Descriptions (e.g., Staircase ST-01).

2.5.3 Drawing Number Naming

Drawing number naming refers to the naming of the drawings. The naming system aligned with Section 4.1 of the CAD manual for ArchSD Projects.



(Optional Field): Supplement or adopt according to Project setting.

Field	Description and Format
Field 1 (2 characters)	**Type of Drawing** **SE** – Structural drawing
Field 2 (4-5 characters - numeric)	**Project Code** A unique identifier for identification of the project: InForM (e.g. 7781)
(Field 3) (Max. 5 characters)	**(Building/ Zone)** A project may consist of more than one building or one site. To identify different buildings of the same project, an optional field for building number is devised. This will be a serial number of maximum 5 numeric, or 2 alphas + 3 numeric, or 3 numeric + 2 alphas. The alphas shall be upper case letters. The identification for the field will be controlled by the corresponding Project Team Leader.

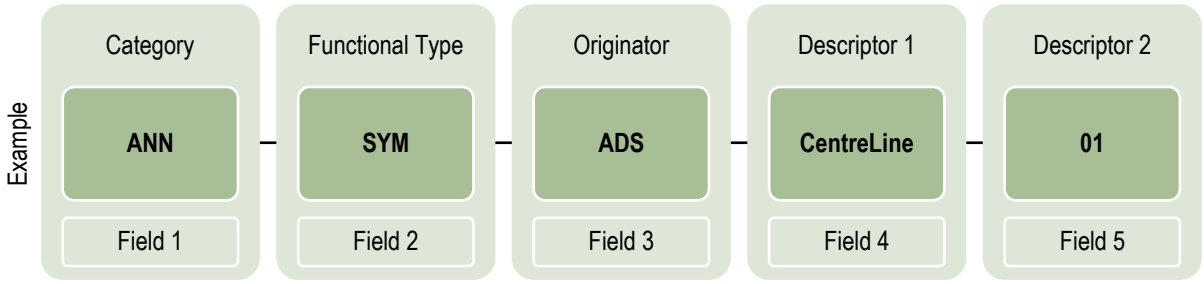
Field	Description and Format
Field 4 (5 characters - 2 alphas + 3 numeric)	**Drawing Type Identifier & Drawing Serial Number** This field indicates the type of drawings and the number of drawings issued. The first two alphas are used to identify the type of drawings (refer Section 3.3 of the CAD Manual for ArchSD Projects for the lists of the identifiers for Structural drawings). The remaining 3 numeric digits serve to indicate sequence of the drawing numbers.
Field 5 (1-2 characters)	**Revision Status** This field applies only when there are revisions to the drawing. Alpha (lower case letter) such as 'a', 'b', 'c', 'd', 'e', etc. is used to signify the changes/ amendments as a suffix to the entire drawing number.

The following table provides some examples of drawing number naming:

Drawing Name	Drawing Number
First Floor Plan	SE/4235/FP002
Foundation Plan	SE/8345/FN010a
Section	SE/8345/SE010

2.5.4 Object File Naming

Format and Field



Requirements of each Field

	Requirements
Field 1 (3 characters) (All Uppercase)	**Category of Object / Element** Commonly used coding as follows: **ANN** – Annotation **FLO** – Slab, Floor **STA** – Stair **SCL** – Structural Column **SCO** – Structural Steel Connection **SFN** – Structural Foundation **SBM** – Structural Beam **STF** – Structural Steel Stiffener **STR** – Structural Steel Truss **SRB** – Structural Rebar **GMD** – Generic Model **MAS** – Conceptual Massing (for Massing & Site Object) **WAL** – Wall
Field 2 (3 characters) (All Uppercase)	**Functional Type under previous category** Commonly used coding as follows: **SYM** – Symbol (under ANN) **DTL** – Detail item (under ANN) **TAG** – Annotation tag (under ANN) **TBK** – Title Block (under ANN) **LIN** – Links / Stirrup (under SRB) **LON** – Longitudinal Rebar (under SRB) When Field 2 is not necessary to describe at the second level, three underscores (___) should be used.
Field 3 (3 characters) (All Uppercase)	**Originator** A unique identifier based on Agent Responsible Code (ARC) of the CAD Standard for Works Projects to indicate the model's responsible authoring party: **"ADS"** for structural discipline of ArchSD

	Requirements
Field 4 (1~15 characters) (Capitalized case)	**Descriptor 1** Descriptor contains information about primary use and material when applicable. Capital letters should be used for first letter of each word (e.g. CrankedBeam, BasePlate). All-capital short forms should be used to indicate materials when applicable. An underscore (_) should be used to separate the short form and the following word (e.g. CONC_Kerb). If descriptor is blank, three nos. of underscores (___) should be used.
Field 5 (2 characters)	**Descriptor 2** A 2-digit sequential number (e.g. 01 to 99) to distinguish different types that cannot be sufficiently identified by preceding fields. (e.g. SBM-___-ADS-CON_Crank-01). If descriptor is blank, two nos. of underscores (__) should be used.

The file name length of BIM objects shall be 30 characters maximum, including delimiters but excluding the file extension.

Example:

Object File Name	Description
ANN-SYM-ADS-CentreLine-01.xxx	Annotation Symbol item-Centre line
ANN-TBK-ADS-B1V-01.xxx	B1 size title block (vertical)
SFN-___-ADS-Rect_PileCap_3P-01.xxx	Rectangular foundation with 3 piles
SBM-___-ADS-TaperedT_Beam-01.xxx	Steel tapered T-section beam
SCO-___-ADS-BracingTie_Conn-01.xxx	Steel connection of bracing
SRB-LON-ADS-21-01.xxx	Structural longitudinal rebar in Shape Codes 21

Remark: ".xxx" – file name extension

2.5.5 BIM Attributes Naming

Project Attributes and Shared Attributes shall be stated in the BIM Execution Plan (BEP) under BIM Data.

3 BIM Uses

3.1 General

The scope of BIM Uses in public works projects shall be according to the Development Bureau (DEVB) Technical Circular (Works) No. 1/2025 and the current version of CIC BIM Standards - General. The following sections describe the general requirements and acceptable deliverables for various BIM Uses to facilitate structural engineering design.

3.2 Design Authoring

The process of using BIM software to create and develop a Building Information Model of a project which includes a database of properties, quantities, means and methods, costs and schedules. Project team shall use the authoring tools to produce plan, section, and details as far as practicable.

3.3 Design Reviews

A process for stakeholders to view a model, images from the models or animated walk-throughs of a project, provide feedback and validate numerous design aspects such as meeting client requirements ad previewing spaces and layouts in 3D. The reviewer can check structural arrangement, layout, spaces, etc. There are numerous ways for carrying out design review process. Apart from regular workshop or meeting to review the federated BIM model by project team, some other examples are animated walk-throughs in BIM software platform, virtual mock up BIM software platform and virtual mock-up using reality technology, etc. where project team may consider to plan and specify if appropriate.

3.4 Engineering Analysis

A process which uses the BIM model to analysis and assess design options to facilitate the provision of effective engineering solution. Where engineering analysis related to structural designs is considered appropriate in the building project, the method and principle of analysis should be agreed by the project team.

3.5 Digital Fabrication

The use of models to facilitate the fabrication of modular construction units including those for MiC, DfMA, prefabrication of BS/MEP installations; and other construction materials or assemblies such as sheet metal fabrication, structural steel fabrication and pipe cutting. The models can also be used for prototyping with 3D printers as part of a design intent review process.

3.6 Cost Estimation

Accurate Quantity-Take-Off (QTO) may be extracted from models and used by quantity surveyors to develop cost estimates for a project. The quantity surveyors shall extract the data from the models provided by the architects and engineers. For the general requirements, guidelines and practice for QTO by BIM models, refer to the current version of BIM Guide for Cost Estimation by Quantity Surveying Branch.

3.7 As-built Modelling

The process of preparing an accurate record of the physical conditions and assets of a project. The As-Built model should contain information relating to the architectural elements with links to operation, maintenance, and asset data. Additional information and data for equipment and space planning may be included. For the deliverables to be provided for As-built Model, refer to the current version of BIM Guide for Facilities Upkeep by Property Services Branch.

3.8 Drawing Generation (Drawing Production)

Drawing Generation is a process of using BIM to produce 2D drawings, which shall be adopted in both design stage and construction stage. By setting various drawing views (layout or section) in the BIM software tools, drawing sheets could be automatically generated base on the BIM model information.

As far as it is practicable to generate 2D drawings from the BIM authoring software directly, non-BIM authoring software should not be used to generate drawings. The 2D drawings generated from BIM model shall meet the department's standards but does not need to follow the CAD Standard for Works Projects (CSWP).

On the other hand, it is acceptable that reinforcement details are not generated directly from the BIM model. These 2D drawings shall be prepared in accordance with the CAD Standard for Works Projects (CSWP). The BIM Execution Plan shall incorporate a BIM model and 2D drawing registration list to distinctly identify those 2D drawings that are generated from the BIM models as well as those that are not.

The detailing of 2D drawings generated from BIM shall be suitable for use as tender drawings.

3.9 3D Control and Planning

It is applicable for project requiring the adoption of Digital Works Supervision System in according to DEVB Technical Circular (Works) No.2/2023 that digital setting-out, construction checking, etc. as appropriate by means of 3D laser scanners, robotic total stations, etc. shall be adopted as far as practicable.

4 Modelling Requirements

4.1 Coordinate System

The orientation of a BIM model shall be defined and coordinated with all disciplines as follows when the project is located in Hong Kong:

(a) Easting and Northing shall refer to Hong Kong 1980 Grid System (HK1980 Grid); and
(b) Elevation shall refer to the Hong Kong Principal Datum (HKPD).

If a model is produced in a local coordinate system due to software functionality or limitations, the BIM coordinator or modeller shall be responsible for providing clear instruction and documentation as to the origin x, y, z and bearing translations accompanying their BIM submission. Software specific setting on coordinate system should be defined in BEP.

Where Project North is created, it should only be used for identified sheet view and not used for any model coordination.

4.2 Linking to Architectural, Building Services and Landscape Models

The general rules for model linking are as follows:

(a) The coordinates of the architectural and/or building services models should be checked before linking. Same coordinates should be adopted for models to be linked.
(b) Do not link to model under working (WIP).
(c) The linked model should be a detached copy of the central model.

4.3 Language

Unless specifically required by the BEP, all project information and attributes should be in the English language.

4.4 Unit of Measurement

BIM model should be modelled in metric system (International System of Units or SI Units). All of the BIM elements shall be modelled in consistent units, for example, in millimetres (mm) for buildings and angles (e.g.: degrees/radians measured clockwise or counter-clockwise).

Project Units shall be set as below:

Units	Format
Length	mm in 3 decimal places
Area	m^2 in 3 decimal places
Volume	m^3 in 3 decimal places
Angle	degree in 3 decimal places
Slope	degree in 3 decimal places
Mass Density	Kg/m^3 in 2 decimal places

4.5 Date Format

Date format should follow ISO 8601 Data elements and interchange formats -Information interchange - Representation of dates and times as follow:

Year				Month		Date	
Y	Y	Y	Y	M	M	D	D

4.6 Scope of Modelling

Modelling shall be carried out at each stage of the project and level of information need (LOIN) of the elements produced at each stage will be specified in the BEP.

The structural engineer may produce a structural BIM Model with both actual member sizes and positions.

The building or feature elements shall be created using the appropriate tools (Wall tool, Slab tool, etc.). If the features of the BIM authoring tool are not sufficient for modelling the element, the required building elements shall be created using other appropriate objects. In that case, define the "Type" of the element correctly.

A Structural BIM may include all load-bearing concrete, wood and steel structures. Building Elements shall be modelled separately for each storey or floor level.

2D drawings or standard details may be used to complement the BIM Model when the elements are smaller than the agreed size in BEP, e.g.: Joint sealant smaller than 50mm do not need to be modelled. 2D drawings with standard hatching and annotations may also be used for loading plans. The details level shall follow the Clause 4.11 that agreed and stated in the BEP.

4.7 Sheet/Layout/Drawing Management

For consistent drawing sheet management and searching convenience in the BIM authoring software, Sheet Number/Layout ID/Drawing Name and Sheet Name should be inputted as follows:

Information in BIM authoring software	Input
Sheet Number/Layout ID/Drawing Name	Field 4 of the drawing number, please refer to Clause 2.5.3 on drawing number naming convention.
Sheet Name/Layout Name/Drawing Title	Drawing Title

Information on drawings title block should be extracted from property/attribute of the BIM model. Manual input is not recommended.

4.8 Presentation Style

The presentation style in 2D drawing presentation and the colour code, project information and view setting in 3D model view for presentation should be standardised and follow the recommendations in Appendix A. The recommended colour code and line style should be applied for design, construction and as-built models.

4.9 Customized Object Library for Structural Engineering

When a new object is created in a project, details of the new object shall be recorded using the template as attached in Appendix B. To minimise information loss during conversion, the appropriate category type for the BIM objects shall be defined. The use of generic model for BIM object authoring should be minimised as far as practicable.

4.10 Export Setup

For exporting from BIM Model to 2D drawing format, settings are as follows.

4.10.1 Layers-Model categories

The layer settings for all structural elements should comply with the structural discipline requirement in CAD Manual for ArchSD Projects.

4.10.2 Layers-Annotation categories

The layer settings for annotation related to structural elements should comply with the structural discipline requirement in CAD Manual for ArchSD Projects.

4.10.3 Layers-Others

The layer settings for others (e.g. Grid, Level,Viewport, etc) should comply with the structural discipline requirement in CAD Manual for ArchSD Projects.

4.10.4 Colours

The colours should export as Index colour (255 colours).

4.10.5 Units & Coordinates

The 2D drawing unit should be millimeter and the coordinate system basis should refer to project internal.

4.11 Level of Information Need (LOIN)

The following Level of Graphics (LOD-G) and Level of information (LOD-I), based on the notations defined in CIC BIM Standards for Architecture and Structural Engineering Model excluding non-graphical information and reinforcement details, unless otherwise specified, should apply.

Model Element	OmniClass	Level of Information Need (LOIN)							
		WS1* & WS2		WS3		WS4		WS5	
		LOD-G	LOD-I	LOD-G	LOD-I	LOD-G	LOD-I	LOD-G	LOD-I
Foundations (piles, pile caps, tie/ground beams & footings)	23-13 29 00	100	N/A	200	200	300	300	400#	400#
Diaphragm walls, retaining walls	23-11 17 13	100	N/A	200	200	300	300	400#	400#
Excavation & lateral stability systems	23-11 11 00	100	N/A	200	200	300	300	400#	400#
Beams	23-13 35 11 13 13	100	N/A	200	200	300	300	400#	400#
Columns, posts, hangers	23-13 35 11 13 11	100	N/A	200	200	300	300	400#	400#
Walls	23-13 35 21	100	N/A	200	200	300	300	400#	400#
Slabs, floors, ramps, roofs	23-13 35 11 13	100	N/A	200	200	300	300	400#	400#
Transfer Structure (transfer plate, truss)	23-13 35 19 01	100	N/A	200	200	300	300	400#	400#
Stairs (steps, risers, threads, landings)	23-17 23 17	100	N/A	200	200	300	300	400#	400#

Model Element	OmniClass	Level of Information Need (LOIN)							
		WS1* & WS2		WS3		WS4		WS5	
		LOD-G	LOD-I	LOD-G	LOD-I	LOD-G	LOD-I	LOD-G	LOD-I
Bracing	23-13 35 15 11	100	N/A	200	200	300	300	400#	400#
Temporary works, temporary structures, platforms	23-23 25 00	100	N/A	200	200	300	300	400#	400#
Tunnel Structure (Tunnel Box, Subway, Utilities Tunnel)	23-39 13 00	100	N/A	200	200	300	300	400#	400#

Note: WS1 - Inception / Feasibility
WS2 - Outline Proposals / Sketch Design
WS3 - Detail Design
WS4 - Documentation / Tendering
WS5 - Construction Supervision
* A BIM model with detailed information may not be required at the early stage of a project or has little reference value at subsequent stages, and it is normally not required in the stage of preparing Technical Feasibility Statement (TFS).

Some practitioners may not be ready to build BIM Objects for rebar, therefore 2D representation of rebar is also acceptable.

4.11.1 Level of Graphics (LOD-G)

LOD-G is the description of graphical information in a model element. The recommended LOD-G for Structural Model is listed as follows:

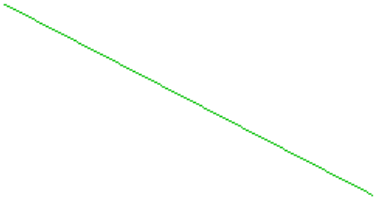
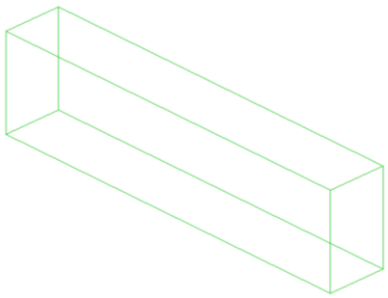
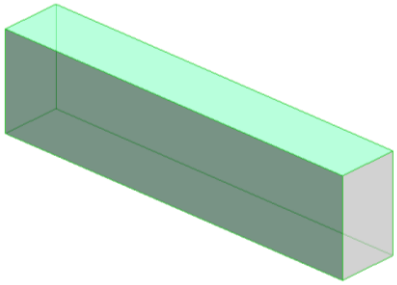
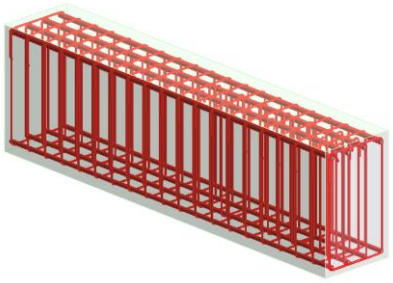
LOD-G	Minimum Acceptable Criteria
100	The Model Element is graphically represented within the Model by a symbol or other generic representation or rough 3D shape.
200	The Model Element is graphically represented within the Model as a generic system, object, or assembly with approximate quantities, assumed size, shape, location, and orientation. The assumed required spaces for access and maintenance shall be indicated. Model element is graphically represented as assumed sized/shape of equipment.
300	The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. The model shall include details of the required spaces for handling installation, operation and maintenance needs and the interface details for checking and coordination with other models/objects. The model element should easily be recognized without further clarification.
400#	The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity, and orientation with detailing for fabrication, assembly, and installation.

For LOD-G 100 to 400, non-graphic information and data may also be attached to the Model Elements.

Examples of the minimum object geometry shapes (images) and the corresponding object information for structural elements at different LOD-Gs are illustrated as follows:

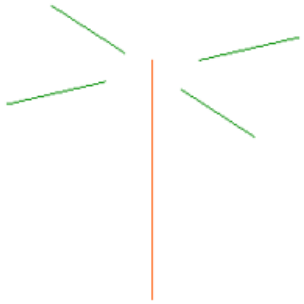
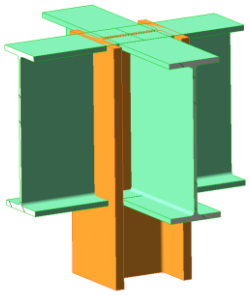
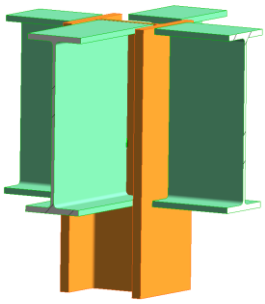
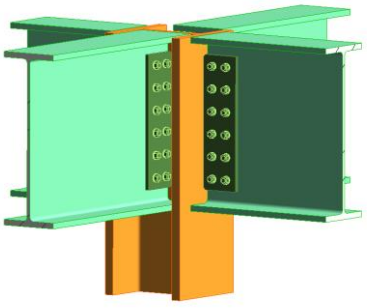
Some practitioners may not be ready to build BIM Objects for rebar, therefore 2D representation of rebar is also acceptable.

Example of Object Geometry Image for RC structure:

LOD-G	Description	Example Image
100	**Pre Design** Symbolic line.	
200	**Schematic Design** Overall shape. Element modelling to include the type of structural concrete system and approximate geometry (e.g. depth) of structural elements.	
300	**Design Development** Overall shape. Specific sizes and locations of main structural members modelled per defined structural grid with correct orientation, slope and elevation. All sloping surfaces included in model element.	
400#	**Construction Stage** Overall shape. Specific sizes and locations of main structural members modelled per defined structural grid with correct orientation, slope and elevation. All sloping surfaces included in camber, chamfer, etc. For rebar models, bar size, bar shape shall be modelled.	

Some practitioners may not be ready to build BIM Objects for rebar, therefore 2D representation of rebar is also acceptable.

Example of Object Geometry Image for steel structure:

LOD-G	Description	Example Image
100	**Pre Design** Symbolic line.	
200	**Schematic Design** Overall shape. Element modelling to include the type of structural concrete system and approximate geometry (e.g. depth) of structural elements.	
300	**Design Development** Specific locations of connection modelled per defined hosted structural steel member.	
400	**Construction Stage** Specific locations of connection modelled per defined hosted structural steel member. Steel connection shall be included but not limited to: bolts, washers, nuts, etc. All assembly elements with specific size and setting out.	

4.11.2 Level of Information (LOD-I)

LOD-I is the description of non-graphical information in a model element. The recommended LOD-I for Structural Model is listed as follows:

Model Element	Explanatory Note	LOD-I		
		200	300	400#
Footings & Pile caps	- Parametric object indexed / categorised as 'Structural Foundation' with full geometry of footing and rebar details* - Top level of footings and pile caps should be modelled to structural floor level - Rebar should be modelled with all required details for statutory plan submission	- Object mark	- Concrete grade	- Rebar material grade
Piles	- Parametric object indexed / categorised as 'Structural Foundation' with full geometry of pile shaft, bell-out, sleeve, pile section, shaft diameter of grout in soil, shaft diameter of grout in rock (if any) - Top of pile should be modelled to 'Cut-off Level' - Bottom of pile should be modelled to 'Tentative Bottom Level' - Rebar should be modelled with all required details for statutory plan submission	- Object mark	- Concrete grade - Steel grade	- Rebar material grade
Beams (Reinforced Concrete)	- Parametric object indexed / categorised as 'Structural Framing' - Structural beams should be modelled to the full structural size of its width and depth - Rebar should be modelled with all required details for statutory plan submission	- Object mark	- Concrete grade - Slope / curve element - Water retaining structure - Tapered element	- Rebar material grade - Tendon number / profile / type, specification, prestress force if applicable

Model Element	Explanatory Note	LOD-I		
		200	300	400#
Beams (Structural Steel)	- Parametric object indexed / categorised as 'Structural Framing' - Structural steel beams should be modelled to the full structural size of the width, depth and thickness of flange/web	- Object mark - Type mark	- Slope / curve element - Water retaining structure - Tapered element - Steel grade - Section Physical Properties (e.g. second moment of area, radius of gyration etc.)	- Steel Connection Properties
Columns, posts, hangers (Reinforced Concrete)	- Parametric object indexed / categorised as 'Structural Column' with tally for framing plan. - Structural column should be modelled to the full structural size of its width, depth and height - Rebar should be modelled with all required details for statutory plan submission	- Object mark	- Concrete grade - Water retaining structure	- Rebar material grade
Columns, posts, hangers (Structural Steel)	- Parametric object indexed / categorised as 'Structural Column' with tally for framing plan. - Structural steel column should be modelled to the full structural size of width, depth, height and thickness of flange / web	- Object mark - Type mark	- Water retaining structure - Steel grade - Section Physical Properties (e.g. second moment of area, radius of gyration etc.)	- Steel Connection Properties

Model Element	Explanatory Note	LOD-I		
		200	300	400#
Walls	- Parametric object indexed/categorised as 'Wall' with identifier for 'Structural' with tally for framing plan - Structural wall should be modelled to the full structural size of its thickness, length and height - Rebar should be modelled with sufficient details for the statutory plan submission	- Object mark	- Concrete grade - Curve element - Water retaining structure	- Rebar material grade
Slabs, floors, ramps, roofs	- Parametric object indexed / categorised as 'Structural Slab' with tally for framing plan - Top level of slab should be modelled to structural floor level - Thickness of slab should only be the thickness of the cast in situ part - Rebar should be modelled with sufficient details for the statutory plan submission	- Object mark	- Concrete grade - Slope / curve element - Water retaining structure	- Rebar material grade / layer - Tendon number / profile / type, specification, prestress force if applicable
Stairs (steps, risers, threads, landings)	- Parametric object indexed / categorised as 'Stair' with tally for framing plan - Top level of landing and flight should be modelled to the structural floor level of the item - Rebar should be modelled with sufficient details for the statutory plan submission	- Object mark	- Concrete grade	- Rebar material grade

Some practitioners may not be ready to build BIM Objects for rebar, therefore 2D representation of rebar is also acceptable.

4.12 BIM Object Sheet

The BIM object shall contain 3D components of geometry and 2D components of symbols and tag/label/annotations. All of these contents are intended for production of presentation drawings, statutory/authorities submission drawings, and tender/construction drawings. In addition, the BIM object shall be capable of being scheduled in the project environment with correct information. The production of drawings and schedules shall follow industry practice and requirements of the project and client.

The BIM object shall be provided together with a comprehensive cover sheet to convince clients, receivers and users that the BIM object is complete and satisfies all requirements and functions for drawing production.

The BIM object cover sheet shall contain the items shown in the Appendix B.

4.13 Requirements of Elements Modelling

4.13.1 Creation of Wall & Column

All walls and columns shall be modelled for each floor and level to level.

4.13.2 Creation of Beam & Slab

All beams and slabs shall be modelled for individual span.

4.13.3 Large Spanning Continuous Elements

Model elements spanning over one level (e.g. walls spanning over 1 story high) or across buildings (e.g. floor plates spanning between buildings through connection bridges) should be split into separate model elements.

4.13.4 Connectivity of Structural Elements

Structural elements should be connected with each other. For examples, connection between structural vertical supports (i.e. column or wall) and foundation (i.e. pile cap or footing).

4.13.5 Base Reference

The base reference of object should be properly set according to the respective floor/ level.

4.13.6 Categories of elements

Undefined category of elements should be avoided and minimised. When the undefined categories cannot be eliminated, the categories of elements should be documented in the BEP.

4.13.7 Overlapping Elements

Overlapping elements should be avoided and minimised. When overlapping elements cannot be eliminated, the overlapping elements, the reason and associated attribute for filtering should be documented in the BEP.

4.13.8 Complex Geometry

Modelling method of complex geometries shall be documented in the BEP. For examples, two-way curves and non-uniform rational basis spline surfaces.

4.14 Control of Object Mark / 2D Annotation Requirements

Annotation information such as 2D symbols, dimensions and annotation text shall be extracted from the Model and linked to the 3D model as much as practical. Any change in the Model will automatically trigger the change in these annotations.

4.15 Control of Dimension

All dimensions shall be presented in true length, otherwise it shall be stated in the BEP.

5 Data Requirement

5.1 Data Format of Structural Modelling for Cost Estimation and Facilities Upkeep

The requirements of BIM file coding, naming convention, model presentation style (colour code, line type, line weight, etc.) and unit of measurement of the cost estimation model or as-built BIM model should make reference to the current version of BIM Guide for Cost Estimation issued by Quantity Surveying Branch or BIM Guide for Facilities Upkeep issued by Property Services Branch respectively.

5.2 Data-driven BIM object requirements

A Data-driven BIM Object contains BIM Object with graphical presentation of the geometry, 'Graphical Information' in relation to the colour, shape and size of geometry, and 'Non-graphical Information' not related to the geometry.

Non-graphical Information is the information or attribute values with no link/control to the colour, shape and size of the geometry. Non-graphical Information covers many types of information from material specifications to physical properties, or simply the label of an object and hyperlink. If the detailed shape of an object is not needed in the early stages of a project, or only at a low Level of Development (LOD) requirements, objects that are not modelled with the geometry can be described by Non-graphical Information.

Details of Data-driven BIM Object requirements shall follow to the Clause 4.11.2.

Appendix A – Presentation Style

Level Head Style

Specific properties of level should be set as below:

Attribute	Value
Line Weight	1
Colour	RBG 127-127-127
Line Pattern	ADS-CentreLine
Information to be included	Name & Elevation of Level
Text Height	2 mm

Grid Style

Specific properties of grid should be set as below:

Attribute	Value
Line Weight	1
Colour	RBG 127-127-127
Line Pattern	ADS-CentreLine
Information to be included	Name of Grid
Text Height	5 mm

Line weight

Basically, 8 numbers of Model Line Weights should be set in SEB's project as shown below:

Line Weight	Purpose
0.13	Grid
0.18	Dimension, Drawing symbols in varies sizes (thin) and Hatching
0.25	Drawing sheet outline, Symbol insertion, Member outline and hidden outline
0.35	Member sectional outline, Drawing symbols in varies sizes (medium) and Steelwork outline in framing
0.50	Drawing symbols in varies sizes (thick)
0.70	Site boundary line
1.00	For layer imported from AutoCAD drawing in CSWP format
2.00	For layer imported from AutoCAD drawing in CSWP format

Line Pattern

3 types of line pattern will be created, i.e. Hidden, Hidden_R and Centre line.

Example of settings about ADS-Hidden, ADS-Hidden_R and ADS-CentreLine are shown below:

a) ADS-Hidden

	Type	Value
1	Dash	2.5 mm
2	Space	1.25 mm

b) ADS-Hidden_R

	Type	Value
1	Dash	7.5 mm
2	Space	3.75 mm

c) ADS-CentreLine

	Type	Value
1	Dash	12.5 mm
2	Space	2.5 mm
3	Dash	2.5 mm
4	Space	2.5 mm

Line Style

The line styles are suggested to be created for objects shown in 2D Structural Drawing:

Name of Line Style	Drawing Element	Line Weight	Line Colour	RGB Reference	Line Pattern
ADS020__	Grid line	0.13		101-101-101	Centre Line
ADS030__	Dimension and leader	0.18		103-165-082	Solid
ADS050__	Block and symbol insertion	0.25		127-063-063	Solid
ADS0501_	Drawing symbols in varies sizes (thin)	0.18		165-145-082	Solid
ADS0502_	Drawing symbols in varies sizes (medium)	0.35		165-082-103	Solid
ADS0503_	Drawing symbols in varies sizes (thick)	0.5		145-165-082	Solid
ADS060__	Hatching	0.13		101-101-101	Solid
ADS070__	Revision cloud	0.18		165-145-082	Solid
ADS071__	Revision cloud for SCU comment	0.18		165-145-082	Solid
ADS080__	Construction line and red-lining (do not print)	0.25		255-000-000	Solid
ADS280__	Concrete outline	0.25		124-082-165	Solid
ADS280_B	Concrete horizontal member shown on plan	0.25		000-255-191	Hidden
ADS280_C	Concrete vertical member shown on plan	0.35		165-124-000	Solid
ADS280_CH	Concrete vertical member shown on plan	0.35		165-124-000	Hidden
ADS280_H	Concrete hidden outline	0.25		000-124-165	Hidden
ADS280_S	Concrete sectional outline	0.35		255-127-223	Solid
ADS291__	Reinforcement	0.5		191-255-000	Solid
ADS291_H	Reinforcement hidden line	0.5		191-255-000	Hidden_R
ADS291_T	Reinforcement leader	0.25		127-159-255	Solid
ADS291_L	Reinforcement hidden leader	0.25		127-159-255	Hidden
ADS292__	Steelwork outline	0.35		159-255-127	Solid
ADS292_B	Steelwork horizontal member	0.35		082-165-165	Solid
ADS292_C	Steelwork vertical member	0.35		255-255-127	Solid
ADS294__	Steelwork details outline	0.25		127-255-159	Solid
ADS294_H	Steelwork details hidden outline	0.25		127-191-255	Hidden
ADS294_S	Steelwork details sectional outline	0.35		255-000-255	Solid
ADS2941_	Steelwork details welding elevation	0.35		159-127-255	Solid
ADS2941S	Steelwork details welding section	0.35		255-127-191	Solid
ADS2942_	Steelwork details bolt	0.25		191-255-127	Solid
ADS2943_	Steelwork details hole	0.25		063-255-000	Solid

Arrowhead Style for Text and Dimension Settings

Arrowhead may be set as below:

a) For leader of Text

Attribute	Value
Style	Arrow
Arrow Width Angle	19°
Tick Size	2 mm

b) For dimension

Attribute	Value
Style	Diagonal
Tick Size	2 mm

Text Assignment and Style

All text shall be assigned as per the following table:

Type Name	Height	Font Name	Width Factor	Colour	RGB Ref.
ADS-2.00-ArialNarrow	2.00 mm	Arial Narrow	1.0		000-127-255
ADS-2.50-ArialNarrow	2.50 mm	Arial Narrow	1.0		217-000-217
ADS-3.50-ArialNarrow	3.50 mm	Arial Narrow	1.0		233-079-000
ADS-5.00-ArialNarrow	5.00 mm	Arial Narrow	1.0		000-159-063
ADS-3.00-MingLiU-Chinese	3.00 mm	MingLiU (細明體)	1.0		000-000-000
ADS-3.75-MingLiU-Chinese	3.75 mm	MingLiU (細明體)	1.0		000-000-000
ADS-5.25-MingLiU-Chinese	5.25 mm	MingLiU (細明體)	1.0		000-000-000

The line weight for all leader of text should be set as 3.

Text sizes are recommended for the following typical applications:

Application	English	Chinese
	Height	Height
Titles, numbering	5.00 mm	5.25 mm
	3.50 mm*	3.75 mm*
Names of rooms, key descriptions	3.50 mm	3.75 mm
	2.50 mm	3.00 mm
Dimensions, notes, descriptions	2.00 mm	3.00 mm

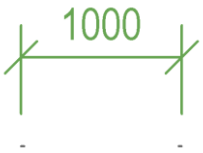
* Recommended for A3 and A4 size drawings only.

Dimensioning Style

For dimensioning style, settings for angular, radial and diameter are similar to linear dimension style as below table:

Attribute	Value
Tick Mark	Arrowhead style for Dimension to be applied
Line Weight	2
Tick Mark Line Weight	2
Witness Line Gap to Element	2.0 mm
Witness Line Extension	2.0 mm
Centreline Symbol	None (Duplicate dimension type if need)
Colour	RGB 103-165-082
Width Factor	1.0
Text Size	2.0 mm
Text Offset	0.45 mm
Text Font	Arial Narrow
Units Format	No decimal

Example:



Fill patterns

One custom fill pattern for Drafting should be added as below.

Line angle	45°
Line spacing	0.625 mm
Pattern	Parallel lines

Filled region

Two filled region should be set as below:

Type	Fill Pattern
Filled region for Weld Section	Solid fill for drafting
Filled region for Fillet Weld	Fill pattern added as above

Revision Cloud

The numbering of revision should be alphanumeric and the arc length of cloud should be 10.

Phasing

Graphic setting of phasing for existing status should be halftone where applicable.

Object style (Layer Coding System) on 2D Drawing

Object style in BIM should be set according to Layer Coding System in *CAD Manual for ArchSD Projects*, some major principles are show below:

Model objects

Model Object	Line Weight (Outline)	Line Weight (Cut Plane)	Line Colour	RGB Reference
Slabs, Floors	0.25	0.35		255-127-255
Ramps	0.25	0.35		000-191-000
Stairs (steps, risers, threads, landings)	0.25	0.35		239-063-031
Structural Columns, posts, hangers	0.35#	0.35		255-095-015
Structural Steel Connections	0.25	0.35		079-127-063
Structural Foundations (piles, pile caps & footings)	0.25	0.35		127-079-255
Structural Beams	0.25	0.35		000-191-000
Structural Rebars	0.50	0.50		255-000-000
Structural Steel Trusses	0.25	0.35		047-207-127
Walls	0.35#	0.35		127-000-255

#Line weight to be set to 0.25 for elements shown on Section View.

Annotation Objects

Some annotation objects (e.g. Callout, Grid, Level Head, Revision Cloud, Section Line & Mark and Title Block) can be defined in object style and should be refer to Layer Coding System in *CAD Manual for ArchSD Projects*. Details are shown below:

Annotation Object	Line Weight	Line Colour	RGB Reference	Line Pattern
Callout Symbols	0.35		165-082-103	Solid
Grid Lines & Heads	0.13		127-127-127	Solid
Floor Level Symbols	0.35		000-000-255	Solid
Revision Clouds	0.18		165-145-082	Solid
Section Lines	0.35		145-165-082	Solid
Section Marks	0.35		000-000-000	Solid
Span Direction Symbols & Spot Elevation Symbols	0.35		165-082-103	Solid
Stair Tread/Riser Numbers	0.13		165-082-103	Solid
Title Blocks	0.25		063-127-127	Solid

Imported Objects

An example for imported layers from 2D Structural Drawing in CSWP format to BIM Model:

Layer name	Line Weight	Line Colour	RGB Reference	Line Pattern
ADS010__	0.25		063-127-127	Solid
ADS020__	0.13		101-101-101	Centre Line
ADS030__	0.18		103-165-082	Solid
ADS050__	0.25		127-063-063	Solid
ADS060__	0.13		101-101-101	Solid
ADS070__	0.18		165-145-082	Solid
ADS071__	0.18		165-145-082	Solid
ADS080__	0.25		255-000-000	Solid
ADS280__	0.25		124-082-165	Solid
ADS280_B	0.25		000-255-191	Hidden
ADS280_C	0.35		165-124-000	Solid
ADS280_H	0.25		000-124-165	Hidden
ADS280_S	0.35		255-127-223	Solid
ADS291__	0.50		191-255-000	Solid
ADS291_T	0.25		127-159-255	Solid
ADS292__	0.35		159-255-127	Solid
ADS292_B	0.35		082-165-165	Solid
ADS292_C	0.35		255-255-127	Solid
ADS294__	0.25		127-255-159	Solid
ADS294_H	0.25		127-191-255	Hidden
ADS294_S	0.35		255-000-255	Solid
ADS294_T	0.25		255-191-000	Solid
ADS0501_	0.18		165-145-082	Solid
ADS0502_	0.35		165-082-103	Solid
ADS0503_	0.50		145-165-082	Solid
ADS2941_	0.35		159-127-255	Solid
ADS2941S	0.35		255-127-191	Solid
ADS2942_	0.25		191-255-127	Solid
ADS2943_	0.25		063-255-000	Solid
ADS04011	0.25		255-223-127	Solid
ADS04012	0.25		223-255-127	Solid
ADS04013	0.35		255-127-159	Solid
ADS04014	0.50		255-255-000	Solid
ADS04015	0.70		165-082-000	Solid
ADS04016	1.00		255-159-127	Solid
ADS04017	2.00		124-165-000	Solid
ADS04021	0.25		255-223-127	Solid
ADS04022	0.25		223-255-127	Solid
ADS04023	0.35		255-127-159	Solid
ADS04024	0.50		255-255-000	Solid
ADS04025	0.70		165-082-000	Solid
ADS04026	1.00		255-159-127	Solid
ADS04027	2.00		124-165-000	Solid

3D colour scheme
A colour scheme for 3D views:

Model Object	Colour	RGB reference	Pattern	Transparency
Slabs		143-143-079	Solid Fill	5%
Ramps		000-111-000	Solid Fill	5%
Stairs (steps, risers, threads, landings)		063-191-191	Solid Fill	-
Structural Columns, posts, hangers		255-159-047	Solid Fill	-
Structural Steel Connections		079-127-063	Solid Fill	-
Structural Foundations (piles, pile caps & footings)		175-143-239	Solid Fill	-
Structural Beams		127-233-175	Solid Fill	-
Structural Rebars		255-255-000	Solid Fill	-
Walls		047-047-159	Solid Fill	5%

Project Information

Project Information can be identified as two types of attribute, i.e. project attributes and shared attributes. Most of them would be shown on sheets/title block.

Project Attributes

Project attributes as shown below should be added in a project. These values will be updated on all title block once they are changed.

Attribute	Discipline	Type	Group	Position in Title Block
sContract_No	Common	Text	General	M
sFile_No	Common	Text	General	N
sInform_No	Common	Text	General	Q
Project Number	(*Default Project Attribute*)			O
Project Name	(*Default Project Attribute*)			P

Remark: position refer to the example of title block on Appendix A - page 10

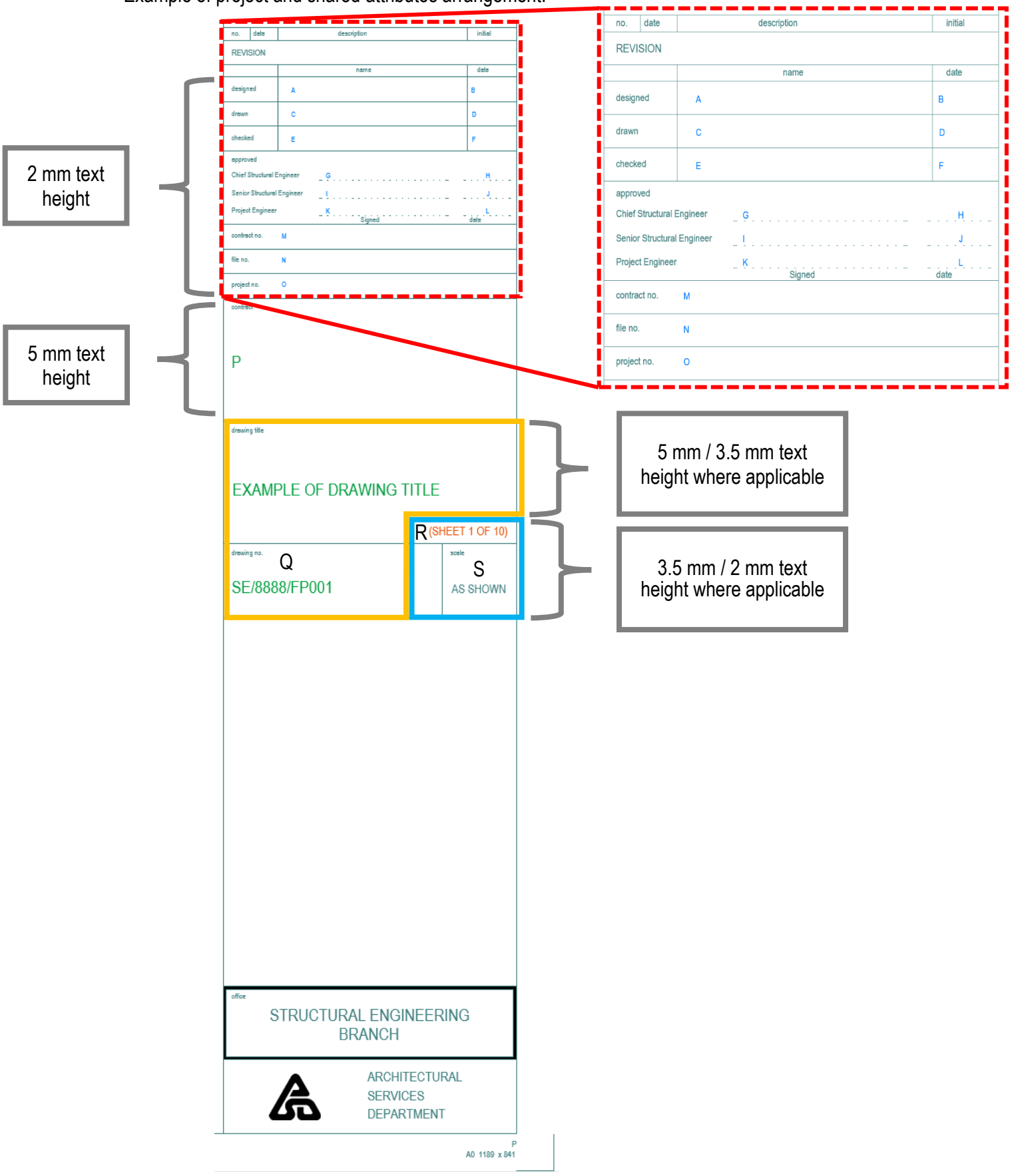
Shared Attributes

Shared attributes should be defined in a project according to the project details show on title block. The display control of shared attributes is different from project attributes. It should be changed one by one on title block/sheet properties. Examples are shown below:

Attribute	Discipline	Type	Group	Position in Title Block
sDate_Checked	Common	Text	General	F
sDate_Designed	Common	Text	General	B
sDate_Drawn	Common	Text	General	D
sDate_Signed_CSE	Common	Text	General	H
sDate_Signed_PSE	Common	Text	General	L
sDate_Signed_SSE	Common	Text	General	J
sDWG_Title_Suffix	Common	Text	General	R
sName_Checked	Common	Text	General	E
sName_CSE	Common	Text	General	G
sName_Designed	Common	Text	General	A
sName_Drawn	Common	Text	General	C
sName_PSE	Common	Text	General	K
sName_SSE	Common	Text	General	I
sScalerow1	Common	Text	General	S
sScalerow2	Common	Text	General	
sScalerow3	Common	Text	General	

Remark: position refer to the example of title block on Appendix A - Page 10.

Example of project and shared attributes arrangement.



View Setting

View should be created and applied on specific views.

Plan

Scale	1:100
Detail level	Coarse
Visual Style	Hidden Line

Section

Scale	1:50
Detail level	Coarse
Visual Style	Hidden Line

Detail

Scale	1:20/1:10/1:5
Detail level	Fine
Visual Style	Hidden Line

Site Location Plan

Scale	1:1000
Detail level	Coarse
Visual Style	Hidden Line

3D view

Scale	1:100
Detail level	Fine
Visual Style	Shaded

Remark: self-defined view setting may be applied for specific purpose.

Appendix B – BIM Object Sheet for recording details of new objects

The BIM object shall contain 3D component of geometry, 2D component of symbol and **tag/label/annotation**. All of these contents are intended for drawing production of presentation drawing, statutory submission drawing and tender/construction drawing. In addition, the BIM object shall be able to schedule in project environment with proper information. The drawing production and schedule production shall follow industry practice and the requirement of project.

Comprehensive BIM object sheet shall be provided after completion of object creation. It enables clients, administrators and users of the BIM object to easily identify the properties, functions and outputs of the BIM object in drawing production.

The BIM object sheet shall contain following items:

Item	**Description**
1. 3D Geometry	- Views to be shown in the sheet (plan view, front and side elevation view, 3D view) - (2D symbolic items do not show in this part)
2. Property/Attribute	- Property/Attribute set and value
3. 2D – Symbol	- 2D symbolic item for drawing production
4. 2D – Tag/Label/ Annotation	- 2D symbolic item for drawing production
5. Drawing Production	- Plan view and elevation view for presentation purpose - Plan view and elevation view for statutory/authority submission purpose - Plan view and elevation view for tender/construction purpose
6. Schedule Production	- Schedule with appropriate property/attribute

Sample BIM Object Sheet:

Architectural Services Department
BIM OBJECT SHEET

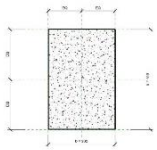
VERSION	For Office Use
Revit 2024	
DATE: 09-2024	
REVISION: -	

INPUT

BIM OBJECT FILENAME	CATEGORY	LOD-G	LOD-I
SCL-___-ADS-CON_Reg-24.rfa	Structural Column	300	300

3D GEOMETRY

PLAN



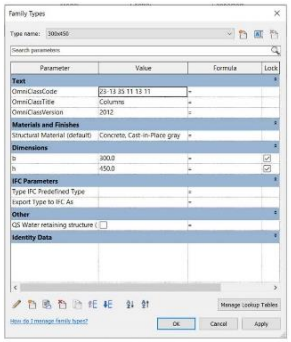
FRONT ELEVATION

SIDE/ SECTION ELEVATION

3D

PARAMETER

PROPERTY/ PARAMETER



2D SYMBOL

N/A

2D TAG/ LABEL/ ANNOTATION

ANN-TAG-ADS-Column-24

G99	ADS-Mark	G99	ADS-Mark_FQDVC
G99 (1000x1000) (dddxwww)	ADS-Mark_DifferentSize	G99 (1000x1000) (dddxwww)	ADS-Mark_DifferentSize_Double
G99 (1000x1000)	ADS-Mark_Size	G99 (1000x1000)	ADS-Mark_Size_Double
G99 (UNDER)	ADS-Mark_Under	G99 (UNDER)	ADS-Mark_Under_Double

Remarks	-

PAGE 1

OUTPUT

SHEET VIEW PLAN	SHEET VIEW ELEVATION	
		PRESENTATION DRAWING
N/A	N/A	STATUTORY AUTHORITIES SUBMISSION/DRAWING
Same as presentation drawing	Same as presentation drawing	TENDER/ CONSTRUCTION DRAWING
N/A		SCHEDULE IN DRAWING

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