

Building Information Modelling (BIM) Guide for SCCU Submissions (Version 1.0)



**Architectural 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 SCCU submissions for building projects undertaken the Architectural Services Department.

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1 Introduction

1.1 Overview

This Building Information Modelling (BIM) Guide for Statutory Compliance Checking Unit (SCCU) Submissions (hereinafter called “The Guide”) documents the specific requirements of the management and production of BIM models for SCCU submissions on building projects managed by Architectural Services Department (ArchSD). It aims at providing the general requirements and practices for the processing of BIM model and related deliverables for SCCU submissions in order to achieve the following objectives:-

- To standardize the settings and configurations of BIM model for SCCU submissions; and
- To facilitate the checking and acceptance of plans with BIM technology.

For avoidance of doubt, the general requirements on building up of unified data management structure, the settings and configurations of the BIM model should be referred to the separate ‘Building Information Modelling (BIM) Guide for Architectural Design’ issued by Architectural Branch of the ArchSD and ‘Building Information Modelling (BIM) Guide for Building Services Installation’ issued by Building Services Branch of the ArchSD.

The Guide is formulated base on recognized BIM standards, guidelines and industry practices. While BIM is under rapid development, this Guide shall be subject to regular review and update to suit the latest development of BIM.

1.2 Reference BIM Standards and Guidelines

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

- (a) BIM Harmonisation Guidelines for Works Departments (Version 1.0 – October 2021) by the Development Bureau.
- (b) CIC BIM Standards - General (Version 2.1 - December 2021) issued by Hong Kong Construction Industry Council.
- (c) CIC BIM Standards for Architecture and Structural Engineering (Version 2.1 – 2021) issued by Hong Kong Construction Industry Council
- (d) CIC BIM Standards for Mechanical, Electrical and Plumbing (Version 2 -2021) issued by Hong Kong Construction Industry Council
- (e) CIC Production of BIM Object Guide - General Requirements (Version 2 – 2021) issued by Hong Kong Construction Industry Council.
- (f) CIC BIM Dictionary (2021) issued by Hong Kong Construction Industry Council.
- (g) CIC BIM Standards for Preparation of Statutory Plan Submissions (December 2020) issued by Hong Kong Construction Industry Council.
- (h) Guidelines for Using Building Information Modelling in General Building Plans Submission 2019 issued by Buildings Department (BD).
- (i) Building Information Modelling – Asset Management (BIM-AM) Standards and Guidelines Version 2.0 issued by Electrical and Mechanical Services Department (EMSD).
- (j) Computer-Aided-Drafting Standard for Works Projects (CSWP) issued by Development Bureau of the HKSAR Government.
- (k) Building Information Modelling for General Building Plan Submission (Phase One) Consultancy

- Report, FEB 2017 by Hong Kong Construction Industry Council.
- (l) American Institute of Architects (AIA)'s G202™-2013 Project Building Information Modeling Protocol Form.
 - (m) 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.
 - (n) 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.
 - (o) 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.
 - (p) 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.
 - (q) BIM Guide for Architectural Design issued by Architectural Branch of the Architectural Services Department.
 - (r) BIM Guide for Facilities Upkeep issued by Property Services Branch of Architectural Services Department.
 - (s) BIM Guide for Cost Estimation issued by Quantity Surveying Branch of the Architectural Services Department.

1.3 Terminology

The abbreviations and terminology/ glossary shall refer the CIC BIM Dictionary (2021).

2 BIM File Submission Requirements

2.1 General

In general, drawings for statutory compliance checking should be generated from BIM models. Solely importing/ linking 2D drawings to BIM models is not acceptable. Certain 2D drawings such as architectural details, building services schematic, control logic diagrams which cannot be generated from the BIM model directly should be prepared in accordance with the CAD Standard for Works Projects (CSWP).

The BIM model submitted to SCCU should contain at least 3D model and sheet/ worksheet (i.e. page for a document set containing drawings, schedules etc.). The information shown in the sheet/ worksheet shall be identical to the plans submitted in hardcopy.

Submission information sheet at **Annex A** and the latest BIM Execution Plan (BEP), separately approved by the Director's Representative/ Supervising Officer or agreed by the project team for in-house projects, should be submitted to SCCU with the BIM models.

2.2 Model Format

The federated BIM model submitted to SCCU should be in native format. Linked files (e.g. disciplinary model) might be in native or open format.

The BIM model format adopted should be stated in the submission information sheet and tally with the approved BEP.

All lightweight, compressed or zipped file formats such as ".dwf", ".dwfx" and ".bimx" will not be accepted. Example of model format as below:-

	BIM Software	Model Format
1.	Revit	.rvt
2.	ArchiCAD	.pla

2.3 Software Version

The software version of BIM models adopted should be stated in the submission information sheet and tally with the approved BEP. Latest software version is recommended to be used.

2.4 Language

All project information and attributes of all BIM models should be in English language unless otherwise agreed with SCCU, ArchSD.

2.5 Media for Submission

The data files should be stored in a non-rewritable DVD-ROM in ISO/IEC 13346:1995 format (i.e. DVD format) unless otherwise agreed by SCCU, ArchSD. All other electronic submission media will not be accepted.

Disk cover of the DVD-ROM shall include the following information:

- (i) InForM No./ Project Code
- (ii) Type of Submission [GBP/ Drainage Plans/ Hoarding Plans/ M&R Access Plans];
- (iii) No. of Submission [1st Submission/ 1st Amendment/ 2nd Amendment/ ...];
- (iv) Date of Submission (Date should tally with cover letter/ memo for submission of plans);
- (v) No. of disk [Disk 1 of 1/ Disk 1 of 2/ Disk 1 of 3/ ...]; and
- (vi) Name of submission party [Name of Architectural Consultant/ CA1, ArchSD/ CA2, ArchSD/ ...].

Example:

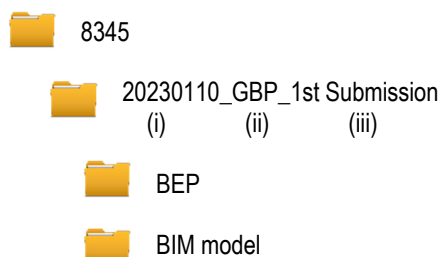


2.6 Folder Structure

BIM model and data files submitted in DVD-ROM format should be self-contained and detached from the originating server. It shall be able to be opened in any standalone computer. All linked files for the federated BIM model including disciplinary models, calculations in excel format, captures in pdf format should be stored in respective sub-folders in the DVD-ROM. The link between all linked files and the BIM main file should be appropriately connected.

All project data should be stored under corresponding InForM No./ Project Code folder in the DVD-ROM. The submission folder structures are recommended as follows:-

Folder Structure/ Example



Description

InForM No./ Project Code

- (i) Date of Submission (8 digits: YYYYMMDD)
- (ii) Type of Submission [GBP/ DRP/ HP/ MRAP]
- (iii) No. of Submission [1st Submission/ 1st Amendment/ 2nd Amendment/ ...]

Folder to store BIM model files, linked files and image etc.

2.7 File Size

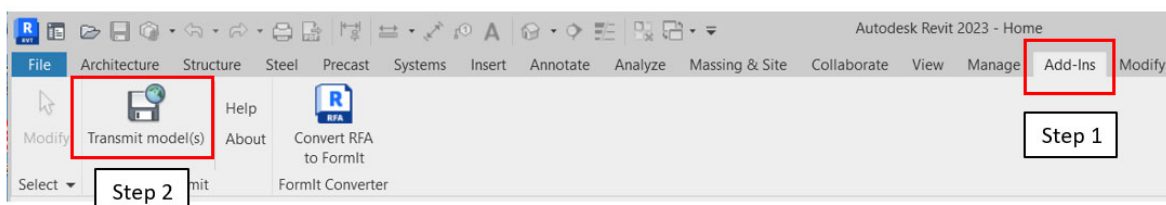
File size of each BIM model/ data file should not exceed the specified size in the ArchSD BIM Guides and/or the DEVB BIM Harmonisation Guidelines for Works Departments. In general, the maximum file size for each divided BIM model should not exceed 500Mb unless otherwise approved.

File size of each BIM model should be kept in minimum by purging unused views, BIM objects and settings before publish or submission. Only necessary information for statutory checking should be contained in the model and data files. Example as follows:-

(i) Revit

Step 1: Select “Add-Ins”

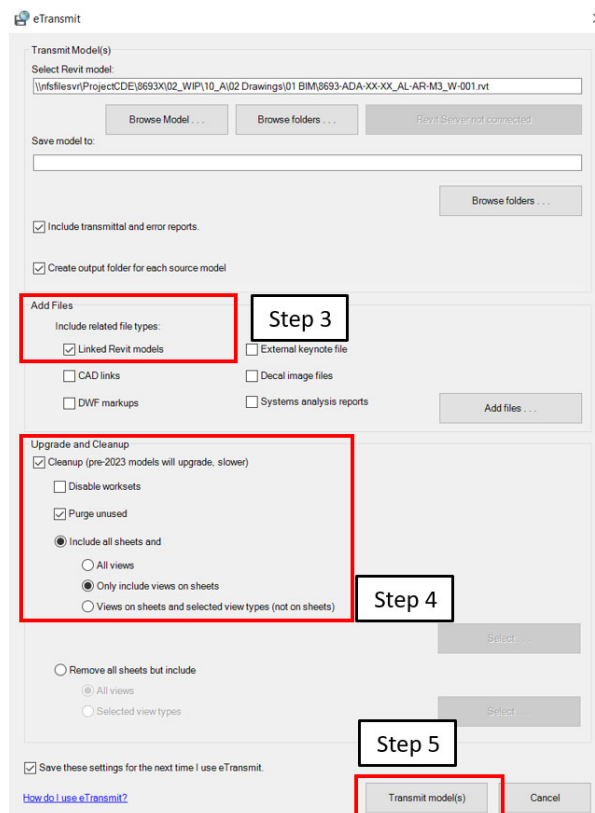
Step 2: Click “Transmit model(s)”



Step 3: Tick “Linked Revit models”

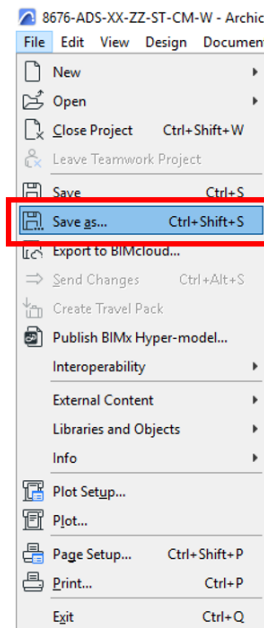
Step 4: Tick “Purge unused” and “Only include views on sheets”

Step 5: Click “Transmit model(s)”



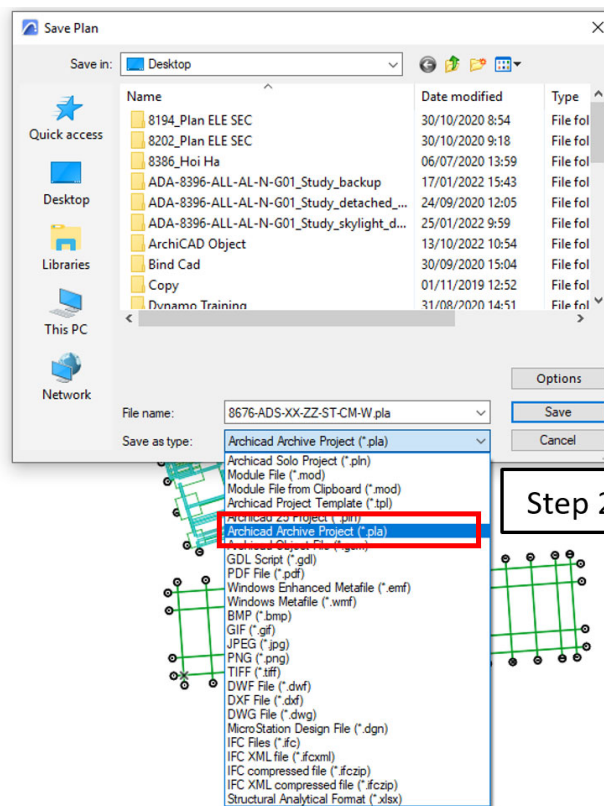
(ii) ArchiCAD

Step 1: Click “Save as...” under “File”



Step 1

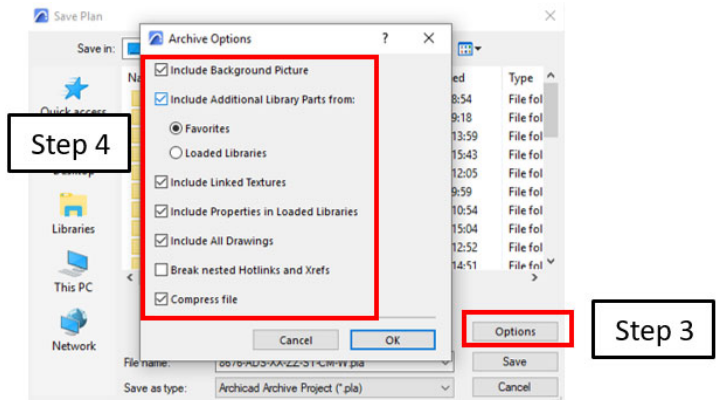
Step 2: Select “ArchiCAD Archive Project (*.pla)”



Step 2

Step 3: Click “Options”

Step 4: Tick “Include Background Picture”, “Include Additional Library Parts from: Favorites”, “Include Linked Textures”, “Include Properties in Loaded Libraries”, “Include All Drawings”, “Include All Libraries”, “Include All Drawings” & “Compress file”.



2.8 Naming Conventions

BIM models should be named in compliance with the ArchSD BIM Guides and/or the DEVB BIM Harmonisation Guidelines for Works Departments.

2.8.1 Drawing Numbering System

Drawing numbering system should refer to the ArchSD BIM Guides and Section 3.9 of the Drawing Practice Manual Second Edition

2.8.2 Sheet Naming Convention

Naming of sheet should comply with the ArchSD BIM Guides and tally with the approved BEP.

Sheet Number System of SCCU submission (SC) are recommended as follows:-

Sheet

SC001 to SC799	GBP submission
SC801 to SC899	Hoarding Plans Submission
SC901 to SC999	Maintenance and Repair Access Plans Submission

3 Modelling Requirements

3.1 Model Division

A project BIM model should be divided into separate categories and/ or building blocks depending on the nature and complexity of the project. Relationship between model files and sheet files should be clear. Files should be properly linked.







3.2 Colour Code System

3.2.1 Building material and description on floor plans

All plans, elevations and sections submitted for approval should be coloured to differentiate the building material. The preferred colour code as shown in the **Appendix A** of **PNAP ADM-9** issued by the Buildings Department should be adopted.

3.2.2 Gross Floor Area (GFA) diagrams

The following colour code should be adopted:-

Categories of GFA	Pre-defined Colour	RGB Colour System
1. Accountable domestic GFA		ORANGE 255, 164, 25
2. Accountable non-domestic GFA		RED 227, 100, 102
3. Disregarded GFA NOT subject to the overall 10% cap		
a) Concession items specified in PNAP APP-151 (other than carpark, loading and unloading areas)		PURPLE 191, 000, 255
b) Carpark, loading and unloading areas and others		WOOD 222, 184, 135
4. Disregarded GFA subject to the overall 10% cap		
a) Concession items specified in PNAP APP-151		DEEP BLUE 30, 144, 255
b) Others		LIGHT BLUE 144, 214, 236

3.3 Area Data

All area data should be extracted from the BIM model for all related calculations, e.g. calculation for UFA, UFS, GFA, MOE, Site Area, etc.

3.4 Level of Information Need (LOIN)

The LOIN required at each stage of the design, construction and as-built phases should be different to accurately portrait the work. The BIM model submitted to SCCU for statutory checking is recommended to adopt LOD-G 200-300 (graphical representation) and LOD-I 200-300 (non-graphical information).

Requirement on LOD-G and LOD-I should refer the ArchSD BIM Guides.

3.5 Unit Setting

BIM model should be modelled in metric system (International System of Units). Setting should comply with the ArchSD BIM Guides and/or the approved BEP.

3.6 Level

Naming of level is recommended to be aligned among disciplinary models, sample as shown in ***Annex B***.

3.7 Title Block

The prescribed plans generated from BIM model should contain the information as shown in ***Annex C***.

Annex A – Submission Information Sheet

Architectural Services Department		V.1	
BIM Model for SCCU Submissions Submission Information Sheet			
Project Details:			
PWP No.		InForM No.	
Consultancy Agreement No.		Contract No.	
Project Title			
Type of Plans	<input type="checkbox"/> General Building Plans <input type="checkbox"/> Drainage Plans <input type="checkbox"/> Hoarding Plans <input type="checkbox"/> Maintenance and Repair Access Plans		
Submission Date			
Architectural consultant ⁺			
No. of DVD-ROM			
BIM & Data Files:			
	Model Name	BIM Software	Version
Federated BIM Model File			
Linked BIM Model File			
Other Data File (e.g. calculation file in native format/ images in pdf format)			
⁺ The AP acting on behalf of the architectural consultant	Signature - ()	Capacity -	
		Tel. No. -	
		Date -	

⁺ For in-house projects, the architectural consultant or the AP acting on behalf of the consultant is equivalent to the relevant Chief Professional Rank Officer or, the CBSE for drainage works of which the responsibility has been transferred to the BSB.

Submission Information Sheet

First Issue Date: Jan 2023
Current Issue Date: Jan 2023

File in editable format could be downloaded in the ArchSD BIM Portal/ Consultant's Information Centre/ Contractor's Portal.

Annex B – Samples of Level Setting

Story Settings

No.	Name	Elevation	Height to Next	
12	12/F	55200	4350	<input checked="" type="checkbox"/>
11	11/F	50850	4350	<input checked="" type="checkbox"/>
10	10/F	46500	4350	<input checked="" type="checkbox"/>
9	9/F	42450	4050	<input checked="" type="checkbox"/>
8	8/F	38400	4050	<input checked="" type="checkbox"/>
7	7/F	34350	4050	<input checked="" type="checkbox"/>
6	6/F	30300	4050	<input checked="" type="checkbox"/>
5	5/F	26850	3450	<input checked="" type="checkbox"/>
4	4/F	23400	3450	<input checked="" type="checkbox"/>
3	3/F	19950	3450	<input checked="" type="checkbox"/>
2	2/F	15900	4050	<input checked="" type="checkbox"/>
1	1/F	11850	4050	<input checked="" type="checkbox"/>
0	G/F	6300	5550	<input checked="" type="checkbox"/>

Insert Above

Insert Below

Delete Story

Cancel

OK

New Floor Plan

Type

Floor Plan

Edit Type...

Select one or more levels for which you want to create new views.

1/F

2/F

3/F

4/F

5/F

G/F

G/F(CHAIR STORE 2)

GF_STAGE

MEZZANINE

ROOF

UPPER ROOF


☐ Do not duplicate existing views

OK

Cancel

Annex C – Sample of Title Block

SAMPLE TITLE / INFORMATION PANEL FOR SCCU Submission Drawings prepared by AB

NOTES			
no.	date	description	initial
REVISION			
		name	date
designed		Y.W. WAN	10-01-18
drawn		Y.Y. YEUNG	15-01-18
checked		L.K. TANG	20-01-18
Senior Architect		(K.T. CHAU)	24-01-18
Project Architect		(W.Y. WAN)	23-01-18
		name and initial	date
project no. & title			
drawing title			
drawing no.		revision	scale
CA's signature and stamp chop			
SCCU SUBMISSION			
(Name), CA/ Date :			
SCCU's official use			
office			
ARCHITECTURAL BRANCH			
 ARCHITECTURAL SERVICES DEPARTMENT			

Revision Column

Officers Concerned


Project No. & Title

Drawing Title

Drawing Number, Revision and Scale (Drawing Numbering System refer to ASD Core Manual Annex 2.5.A.10)

CA's Signature and Stamp Chop

**85mm(W) x 85mm (H) MIN.
Space for SCCU's Acceptance Stamp**

NOTES			
b	15-10-18	SCCU 2ND AMENDMENT SUBMISSION	S.A. T. CHAU P.A. Y. WAN
d	14-05-18	SCCU 1ST AMENDMENT SUBMISSION	S.A. SIGNED T. CHAU P.A. SIGNED Y. WAN
no.	date	description	initial
REVISION			
		name	date
designed		Y.W. WAN	10-01-18
drawn		Y.Y. YEUNG	15-01-18
checked		L.K. TANG	20-01-18
Senior Architect		(K.T. CHAU)	ORIGINAL SIGNED ON 24-01-18
Project Architect		(W.Y. WAN)	ORIGINAL SIGNED ON 23-01-18
		name and initial	date
project no. & title			
drawing title			
drawing no.		revision	scale
CA's signature and stamp chop			
SCCU SUBMISSION			
(Name), CA/ Date :			
SCCU's official use			
office			
ARCHITECTURAL BRANCH			
 ARCHITECTURAL SERVICES DEPARTMENT			

SAMPLE TITLE / INFORMATION PANEL for SCCU Submission Drawings prepared by BSB

NOTES:		
no.	date	description
REVISION		
designed	name	date
drawn	K.H. KWOK	04/2015
checked	C.K. LEUNG	05/2015
approved		
Chief Building Services Engineer <u>K.C. MAK</u>		
Senior Building Services Engineer <u>K.Y. HO</u>		
Project Building Services Engineer <u>M.C. YEUNG</u>		
contract no.		
file no.		
project no. & title		
drawing title		
drawing no.	scale	
CBSE's signature and stamp chop		
SCCU SUBMISSION		
(Name) , CBSE/X		
Date:		
SCCU's Official use		
office		
BUILDING SERVICES BRANCH		
 ARCHITECTURAL SERVICES DEPARTMENT		

Revision Column

Information of Officers

Contract no. & File no.

Project No. & Title

Drawing Title

Drawing Number, Revision and Scale (Drawing Numbering System refer to ASD Core Manual Annex 2.5.A.10)

CBSE's Signature and Stamp Chop

85mm(W) x 85mm (H) min.
Space for SCCU's
Acceptance Stamp



NOTES:		
no.	date	description
3	06/18	1. SCCU 2ND AMENDMENT SUBMISSION.
4	06/17	1. SCCU 1ST AMENDMENT SUBMISSION.
REVISION		
designed	name	date
drawn	K.H. KWOK	04/2015
checked	C.K. LEUNG	05/2015
approved		
Chief Building Services Engineer <u>K.C. MAK</u>		
Senior Building Services Engineer <u>K.Y. HO</u>		
Project Building Services Engineer <u>M.C. YEUNG</u>		
contract no.		
file no.		
project no. & title		
drawing title		
drawing no.	scale	
CBSE's signature and stamp chop		
SCCU SUBMISSION		
(Name) , CBSE/X		
Date:		
SCCU's Official use		
office		
BUILDING SERVICES BRANCH		
 ARCHITECTURAL SERVICES DEPARTMENT		

Figure 1 ORIGINAL DRAWING

Figure 2 REVISION DRAWING

SAMPLE TITLE / INFORMATION PANEL for SCCU Submission Drawings prepared by Consultant

NOTES

no.	date	description
REVISION		
project no. & title		
drawing title		
drawing no.		scale
Company logo		
AP's signature and stamp chop		
SCCU's official use		
<div> ARCHITECTURAL SERVICES DEPARTMENT</div>		

Revision Column

Project No. & Title

Drawing Title


Drawing Number (with revision) and Scale

Company Logo (if any)

AP's Signature and Stamp Chop

85mm(W) x 85mm (H) min.
Space for SCCU's Acceptance Stamp

NOTES

no.	date	description
REVISION		
project no. & title		
drawing title		
drawing no.		scale
Company logo		
AP's signature and stamp chop		
SCCU's official use		
<div> ARCHITECTURAL SERVICES DEPARTMENT</div>		

Revision Column

Project No. & Title

Drawing Title

Drawing Number (with revision) and Scale

Company Logo (if any)

AP's Signature and Stamp Chop

85mm(W) x 85mm (H) min.
Space for SCCU's Acceptance Stamp

Figure 1 ORIGINAL DRAWING

Figure 2 REVISION DRAWING