Independent Checking Unit

BIM Standards and Modelling Guidelines

for

Statutory and Building Control Submission of General Building Plan, Foundation Plan and Superstructure Plan

September 2020

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1 INTRODUCTION

Key Objective of this TechConnect Block Vote Project, is to set out:

(1) General guidelines for reference by users in preparing the following statutory plans by BIM authoring software:
   a) General Building Plan;
   b) Foundation Plan;
   c) Superstructure Plan, and
(2) Recommended good practices and procedures for reference by users who aims to minimize manual-editing works in preparing the statutory plans.

Users should note that the use of the guidelines, recommended good practices and procedures is not a mandatory requirement or a pre-requisite for statutory and building control submission of the statutory plans. Users are reminded to read in conjunction with the prevailing "Guidelines for using Building Information Modelling in General Building Plans Submission" and "Building Information Modelling Standards for Preparation of Statutory Plan Submissions" published by the Buildings Department and Construction Industry Council respectively for the general statutory submission requirements. Users should also make reference to their own in-house BIM drawing practice of their organization to avoid conflict of practice.

Good practice to create 3D model and produce 2D drawings is essential. If not following proper procedures, it will generate a lot of errors when producing 2D drawings. As a result, a lot of manual-editing works will be required to rectify the drawings. This is time consuming and not efficient. As such, this document will quantify meaning of “proper procedure”.

For avoidance of doubt, elements and information shown on the generated 2D plans/sections/elevations/schedules/details that linked up with the BIM model that would be updated automatically according to the changes of the BIM model would not be considered as manual-editing works.

Target users of this document includes building professionals who are experienced in preparation of the aforementioned submission plan. Users should possess minimum Higher Certificate in relation to building, construction or related engineering and have hands-on experience in using Revit to build BIM models to produce General Building Plan, Foundation Plan or Superstructure Plan.

2 PROJECT SCOPE

2.1 TO ACHIEVE THE KEY OBJECTIVE, THE FOLLOWING DELIVERABLES WILL BE DEVELOPED:

2.1.1 BIM Standards

The BIM standards for statutory and building control submission shall at least cover the following aspects:

d) The standard of BIM families, library components and BIM objects;
e) The essential information in BIM model, 2D plans and schedules; and
f) The standard of presentation format of 2D plans and schedules.

It explains what should be done for preparation of Building Control Submission.

2.1.2 BIM modelling guidelines

The BIM modelling guidelines shall cover the following aspects:

a) The guidelines of using the BIM model templates
b) The guidelines of building BIM models in order to meet the BIM standards

2.1.3 BIM model templates

The BIM model templates shall have the following features:

a) Naming system in the model, e.g. views, families, plans, sections, etc.;
b) Schedules that required for statutory and building control submission;
c) 2D presentation formats, e.g. annotations, dimension, fonts and font size, line type and thickness, scale, etc.;
d) Pre-set the colouring of 2D plans in accordance with the statutory and building control requirements; and
e) Preload the BIM families / library components.

2.1.4 The BIM families, library components, objects and elements

The BIM families, library components, objects and elements shall:

a) facilitate the production of 2D plans and schedules from the BIM model so as to minimise the effort for manual-editing works on 2D plans and schedules.
b) be able to handle and store custom designed parameters, e.g. FRR, material grading, loadings, etc.
c) Guidelines for creating BIM objects so as to minimize the effort for manual-editing works on 2D plans and schedules are included under BIM guidelines.

2.1.5 Plugin to check and highlight all the manual-editing works

Due to software limitation, full elimination of manual-editing works is NOT feasible. Example such as indication of slab edge above on a floor plan, or universal level difference mark. As such, a plugin is developed to facilitate both Approval

Authority and Building Professionals to locate the works easily. Plug-in Software of the proposed BIM software shall have the following functions:

a) check the linkage and consistency between the 2D plans and schedules with the 3D model
b) identify all the manual-editing workings on the 2D plans and schedules.
c) highlight the identified manual-editing works on the 2D plans and schedules.

According to the tender document of this Project, tenderers were allowed to propose any one BIM software for the development of this Project. As Autodesk Revit was proposed in all the tenders returned to ICU, therefore, the development of this Project was based on Autodesk Revit.

3 REFERENCE

- This document is in line with Guidelines for Using Building Information Modelling in General Building Plans Submission 2019 issued by Buildings Department (BD)

- This includes “BIM File Submission Requirements” and “Specification for Native File” which form the major parts of BD Guidelines. For example, required unit, measurement, colour code system, 3D model, essential views and schedules etc. adopted in this document are in line with BD Guidelines.

- Please note that HA have their own file naming convention for BIM files with specific sheet name and drawing title block. Also, HA adopt cloud instead of blue dotted line and coloring for GBP amendment. Users for HA Projects should follow the guidelines stated in relevant parts of the Housing Authority Building Information Modelling Standards and Guidelines (HABIMSG). Users for non-HA project should follow their own practice.

- It is understood that as there are software limitations on presentation format/style of BIM schedules which may not be fully aligned with the required format promulgated in the BD’s BIM guidelines. Users are reminded to exercise professional judgement when adopting the BIM based format to ensure that the essential information are cleary and logically presented to the approval authority’s satisfaction.

- The only minor deviations, are the file naming and drawing number standard. They are in line with Housing Authority Building Information Modelling Standards and Guidelines Version 2.0. Follow up will be made to study if the standard can be aligned with BD Guidelines.

- This document is in line with BIM Standards of Statutory Plan Submission issued by Construction Industry Council for sections related to Superstructure and Foundation Plan Submission. This includes “BIM model general requirements”, “BIM model submission requirements”, “statutory plan specific requirements”, and “Revit User Guide” which form the major parts of CIC BIM Standards. For example, required unit, measurement, drawings, notes and essential information of 3D model etc. adopted in this document are in line with CIC Standards.

- Approach to minimize the use of manual-editing works adopted in this document are also in line with CIC Standards. This includes concept of providing essential information for 3D model, the use of “tag” and “schedule” for automatic presentation of provided information on 2D drawings.

- The only minor deviations, are the graphic standard adopted in the template files. This includes use of line width, & format of “tag” and “schedule”. Graphic standard adopted in this project are in line with Housing Authority Building Information Modelling Standards and Guidelines Version 2.0.