

COMPANY

Hong Kong Housing Authority,
HKSAR Government

PROJECT

Housing Authority's New BIM Standard
and Guideline
"Setting a New BIM Standard for Hong Kong"

LOCATION

Hong Kong

TYPE

BIM Guide

SCHEDULED TIME OF COMPLETION

July 2018

Level Up! - Housing Authority Develops New BIM Standards

"Our new HABIMSG achieves two main breakthroughs:

(a) The entire guide is centered on a "Purpose Driven BIM" approach to ensure that the "means" (i.e. modeling input) are driven by the "ends" (i.e. various BIM implementation output like statutory submissions. etc.).

(b) Most BIM Guides are either too general or too technical. The HABIMSG bridges this gap and provide comprehensive guidance for all members of a project team, from managers to technicians, to implement BIM from start to finish."

—Mr. Edmund SC Chan

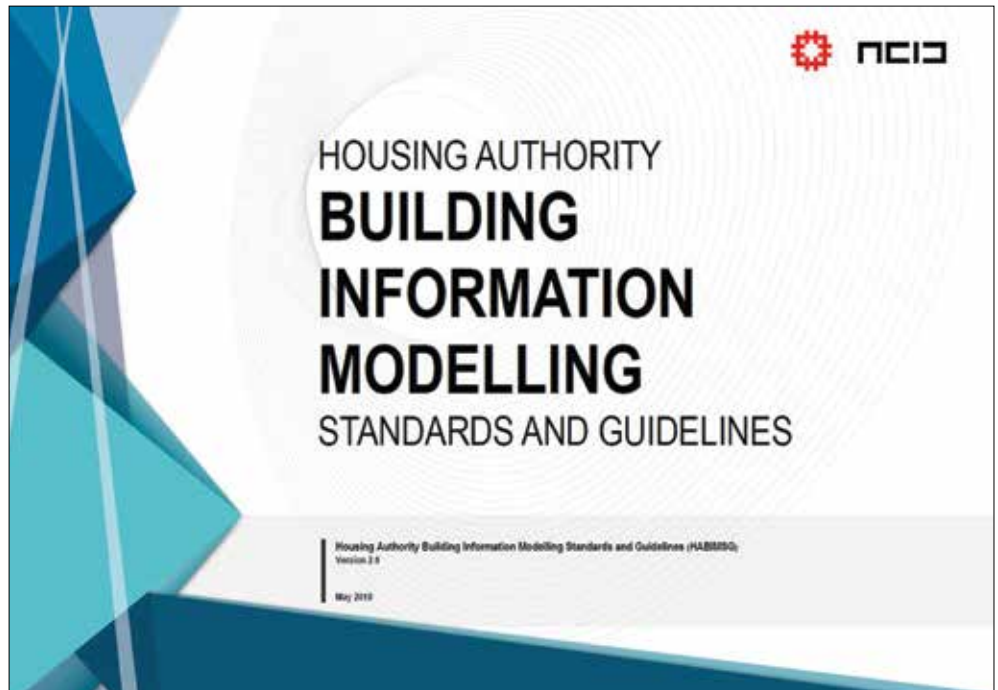
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AUTODESK PRODUCT USED

Revit



Housing Authority's Building Information Modelling Standards and Guidelines. Image courtesy of Hong Kong Housing Authority, HKSAR Government

Setting a new standard for BIM development in HK

Hong Kong's construction industry urgently needs to adopt a common and aligned set of BIM standards and guidelines. BIM implementation requires a high degree of collaboration among stakeholders and a well-coordinated BIM standard and guideline is key for the whole process. To this end, the Construction Industry Council (CIC), being the coordinator for HK's BIM development, published the CIC BIM Standards (Phase One) in 2015 as an important first step.

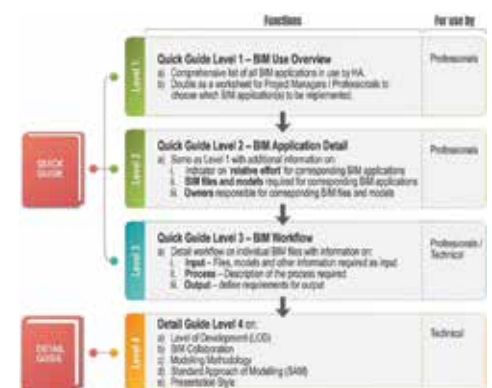
With the intention to dovetail with CIC's Phase 1 BIM Standard, the Hong Kong Housing Authority embarked on revamping its BIM Standards and Guidelines (HABIMSG) in 2016. The new HABIMSG sets to achieve the following main objectives:

(a) To revamp HABIMSG in alignment with the framework set by CIC's Phase 1 BIM Standard, whereby setting an example for other organizations to follow and hoping to create a synergistic effect for HK's BIM development.

(b) To supplement CIC's Phase 1 BIM Standard by covering a wide range of technical details, modeling and collaboration methodologies, file and folder naming conventions, resource planning and other essential information.

"Purpose Driven BIM" – A practical guide for Managers and Technicians

The new HABIMSG achieves two main breakthroughs:



The Four Hierarchical Levels of the HABIMSG. Image courtesy of Hong Kong Housing Authority, HKSAR Government

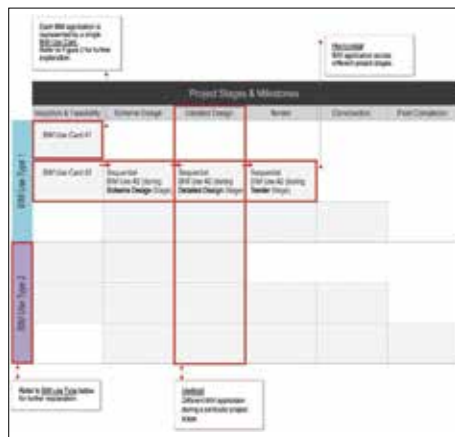
(a) The entire guide is centered on a “Purpose Driven BIM” approach to ensure that the “means” (i.e. modeling input) are driven by the “ends” (i.e. various BIM implementation output) for target-oriented results.

(b) Most BIM Guides are either too general or too technical. The HABIMSG bridges this gap and provide comprehensive guidance for all members of a project team, from managers to technicians, to implement BIM from start to finish.

A clear hierarchical structure

The HABIMSG comprises four hierarchical levels, each with a specific target user group and purpose.

These levels also represent four sequential stages of action by the project team, progressing from a broad level to a more detailed one. Working through the



Matrix of BIM Use Types and Project Timeline
Image courtesy of Hong Kong Housing Authority, HKSAR Government

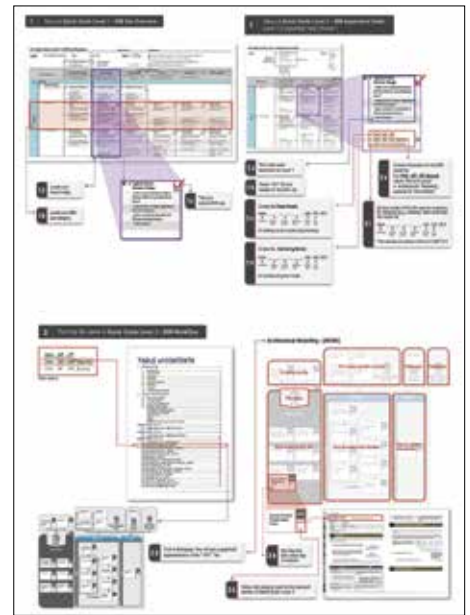
four stages will ensure that all elements of a BIM model are properly created, so they contain all necessary information to deliver defined BIM goals with minimum input in terms of time and human resources.

User-friendly, comprehensive and step-by-step

HABIMSG is a user-friendly document, with ample annotations, diagrams and graphs to facilitate understanding. Plus, HABIMSG covers a large number of BIM applications. It is comprehensive in terms of the development of each BIM element over the entire life cycle of a construction project.

Despite the vast array of BIM uses in HABIMSG, their usage is simplified with a well structured matrix and “BIM Use Cards”. BIM applications are tabled in a matrix of BIM Use types (vertically listed) against project timeline (horizontally listed).

Going down the matrix, BIM applications are arranged in categories (in the order of planning, design, analysis and simulation, cost estimation, documentation and presentation, construction planning, multi-disciplinary design collaboration, and existing condition survey and 3D scanning), to enable easy identification and selection. Each application has a series of sequentially arranged BIM Use Cards, to match relevant project stages or milestones (inception and feasibility, scheme design, detailed design, tender, construction and post-completion). Pre-defined information and recommended actions are provided on each card, to



An Example from Level 1 to Level 2 Progressing to Level 3 of HABIMSG
Image courtesy of Hong Kong Housing Authority, HKSAR Government

guide the user on to the next step.

Resource Indicator: project start made easy

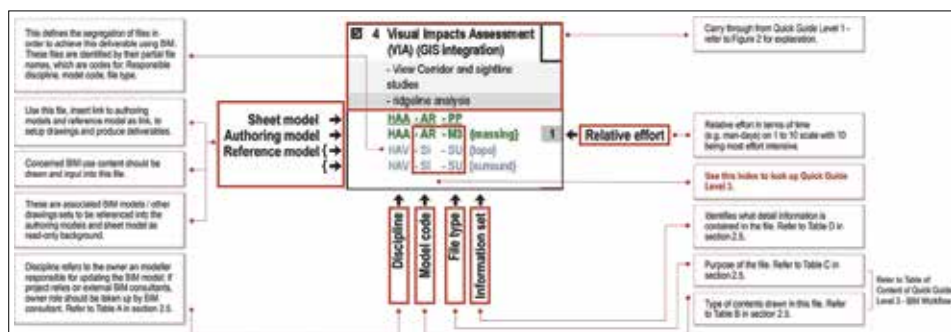
One of the best facilities offered by HABIMSG is the Resource Indicator. While BIM makes it possible to efficiently generate and holistically manage a construction project’s digital information, experience shows there must be a realistic estimation of the resources required to implement BIM for the project and carry it through the entire project life cycle.

The BIM Use Card at Quick Guide Level 2 for each BIM application indicates the relative implementation effort in terms of time (e.g. man-days) on a scale of 1 to 10. For a BIM user who is unfamiliar with a particular BIM application being considered, this helps with estimating the effort required on the basis of past experience in another, familiar BIM application.

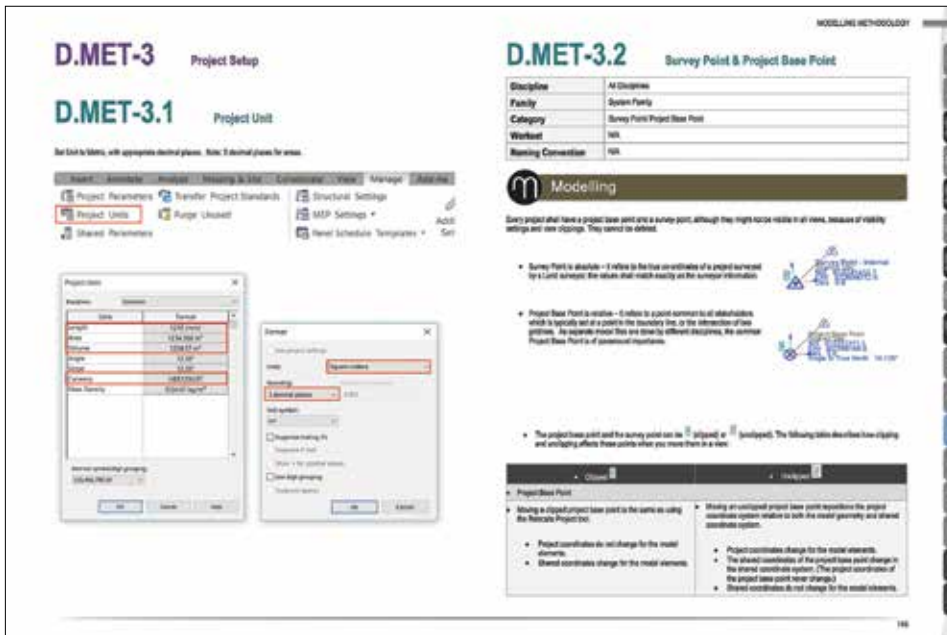
After the initial steps, the project team just needs to follow the BIM Use Cards to progress from Level 1 to Level 4, to complete each element of the BIM model and navigate through the different stages of the project.

Collaboration with clear ownership, responsibility and liability

HABIMSG sets out detailed provisions on internal collaboration (among different users within the same discipline) and cross-discipline collaboration (a



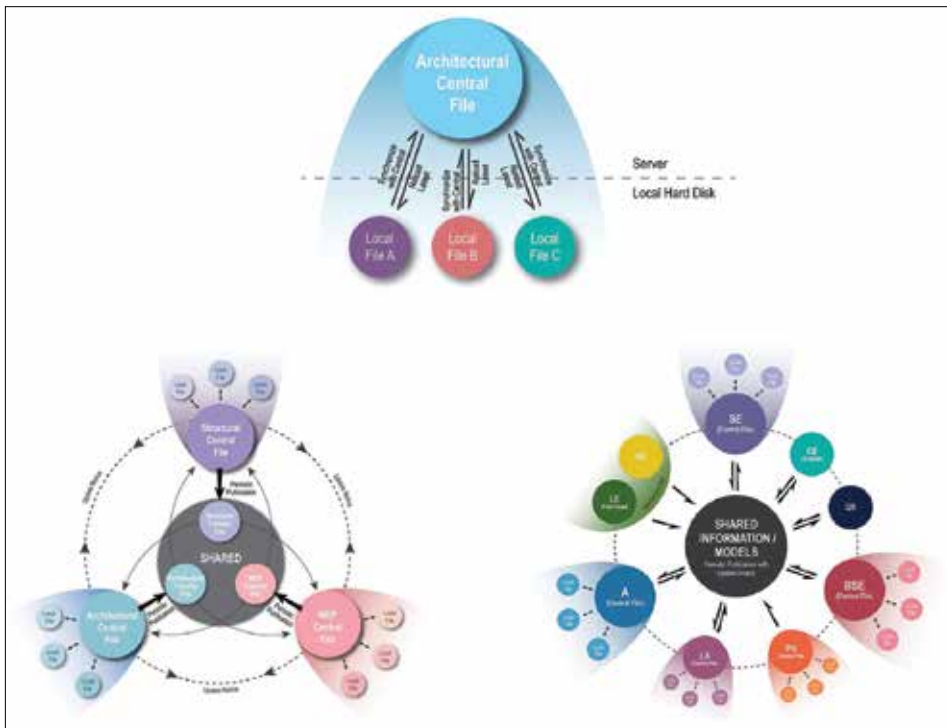
Example of a Level 2 BIM Use Card
Image courtesy of Hong Kong Housing Authority, HKSAR Government



Reaches Level 4 of HABIMSG
Image courtesy of Hong Kong Housing Authority, HKSAR Government

engineers and others involved in a project to produce good quality and consistent drawings from the model databases.

All file setting up and modelling methodologies are designed to serve the drawing production purpose. Specifically, Detail Guide Level 4 in HABIMSG provides detailed guidance on drawing sheet compilation, drawing detail and preparation for publication.



Internal Collaboration (within the Same Discipline) and External Collaboration (among All Disciplines)
Image courtesy of Hong Kong Housing Authority, HKSAR Government

work-sharing mechanism that allows multiple disciplines to work on the same project model concurrently). Any team member can obtain the latest published information from all relevant parties.

All models of various disciplines will be brought together into a single “federated model”, comprising linked but distinct component models that would not lose their identity or integrity by being linked. Furthermore, the collaboration will not be limited to the three key disciplines (architects, structural engineers and building services engineers), but all disciplines involved in a project.

Not only are the information management protocols operationally necessary, but they also give all team members a wider perspective of the process, which has the intangible benefit of encouraging active participation in BIM collaboration.

Drawing production

Although BIM is an effective and superior tool to replace traditional 2D drafting, 2D drop-off from the 3D model is still crucial in the construction industry for tendering, construction and statutory submissions. Therefore, a key principle of HABIMSG is to enable the architects,

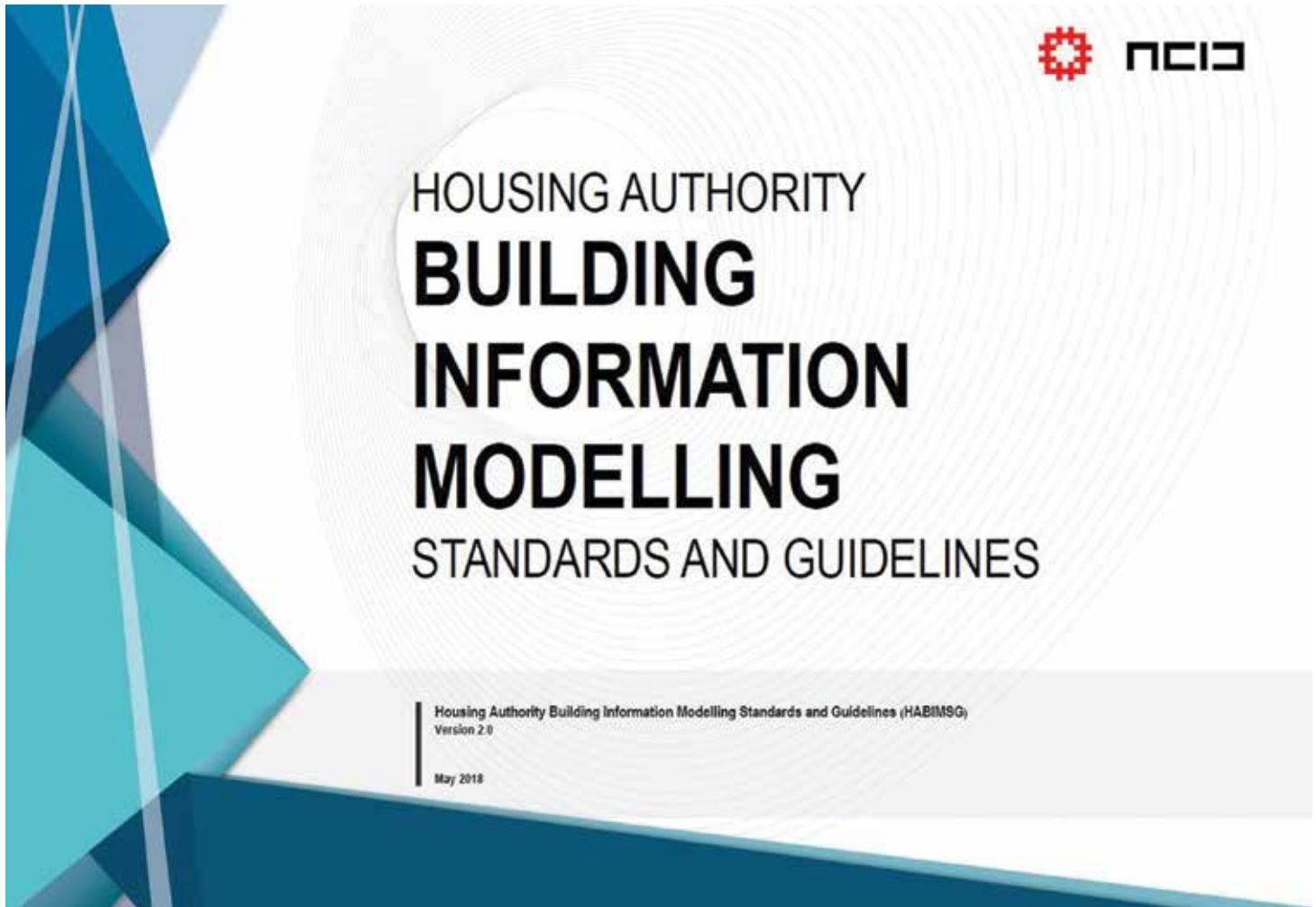
Past BIM studies as reference

HABIMSG has an Annex providing the highlights of five BIM studies conducted by HKHA, as reference material. The objective is to showcase HA’s successes, to encourage wider use of BIM in the construction industry.

Scaling the heights

The adoption of BIM in a large organisation such as the HKHA presents many challenges. Standards and Guidelines are important for effective model building, electronic file exchange, data and information compatibility, and people communication in the multi-disciplinary organisation. HABIMSG is thus an instrument that serves as the backbone of BIM collaboration.

It is hoped that the publication of the revamped HABIMSG, which aligns with the overall direction set out in the Construction Industry Council’s Phase 1 BIM Standards, will be a substantive contribution to the further development of BIM in Hong Kong.



Housing Authority's Building Information Modelling Standards and Guidelines.
Image courtesy of Hong Kong Housing Authority, HKSAR Government

About Hong Kong Housing Authority, HKSAR Government

Hong Kong Housing Authority (HA) is a statutory body established in April 1973 under the Housing Ordinance to provide subsidized public rental housing to low-income families, and to help low to middle-income families gain access to subsidised home ownership. Approximately 30% of the Hong Kong population is now living in public rental housing units. The Housing Department is the executive arm of the HA to help the Government achieve its policy objective on public housing.