

Guideline proposal on how to create building information models that indicate the present situation of existing houses

TAKAHASHI Satoru, Research Coordinator for Housing Information System

MAKATAYAMA Miho (Ph.D (Engineering)), Head

Housing Stock Management Division, Housing Department

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1. Foreword

At NILIM, to support the storing and utilizing of housing records^{*1}, an examination called the "Guideline on how to create building information models that indicate the present situation of existing houses (Draft, Japanese version only)" (hereafter "guideline (draft)") was coordinated, pertaining to rational methods of accumulating/managing information like detailed design, embodied materials, building methods and inspection records using information technology like BIM^{*2} etc.

2. Examination of the accumulation/utilization of housing history information

It is required to continuously implement appropriate maintenance and renovation for the life-extension of housing, and it is equally desirable that the utilization methods used to rationally accumulate/manage the housing records distributed in the various drawings, documents and data be established. Especially with existing houses, current conditions require information preparations to be rearranged from reproductions of drawings, as many documents have been lost since their construction. Because of this, we have begun initiatives in BIM, whose usage in the design phase of new projects is becoming widespread, and using 3D CAD etc. to create form models of building elements (wall, floors, roofs etc.) and using them to index the information management, we studied a method to arrange/accumulate records like materials and construction methods, techniques, and inspection/repair information etc. (Figure 1).

3. Content of the guideline (draft)

The guideline (draft) maps out a technical reference to explain the technical content to practitioners involved in the distribution and renovation of existing houses in an easy to understand manner. This volume (Chapter 1 and 2) lists the duty flow regarding information maintenance of existing houses, the concept of the consolidated building information model, creation procedures of the models using CAD, items related to data saving methods, and explanations pertaining to the diagnosis/surveys of buildings in a manner that can be understood by architectural engineers, with figures and model data examples. As well, the technical volume (Chapter 3) collects documents like detail standards when inputting



Figure 1: Conception diagram of housing records management using the building information model

form models of building elements, and reference methods of external data regarding attribute information. Furthermore, information templates and libraries etc. that can be used commonly by general CAD software are being created and collected in the reference volume.

4. Summary

The guideline (draft) is anticipated to be used as a guidebook in actual technical duties, and along with the library and database produced as experiments, is intended to be released through our homepage.

*1 A history of each household recording how the design, construction operation/maintenance was conducted, as well as drawings, specifications, a catalog of materials/machines, photos, inspection/diagnosis reports will be stored and utilized as information during reforms and purchases.

*2 Abbreviation for Building Information Modeling. Various information from the building's plan/planning, design, construction and operation/maintenance will be consolidated/managed focusing on parts and 3D models of parts, and used as shared information and consensus building method among related personnel.

(Reference)

1) Comprehensive Technology Development Projects

"Development on performance evaluation technologies for home inspection to reduce uncertainty of existing houses (2011-2014)"
<http://www.mlit.go.jp/tec/gijutu/kaihatsu/pdf/soupro011.pdf>