

DISCUSSION

In reality, building design information and system data will change with time, due to factors such as equipment replacement, thermal performance degradation, and changes in the usage of rooms or of the building itself. Currently, the K-Smart data model does not reflect these changes in information relating to the building and its systems. For future research, the K-Smart data model will be further developed to manage design information histories.

CONCLUSIONS

This paper introduced the K-Smart XML model for real-time energy performance evaluation, and presented a proof-of-concept case study. The main findings from this paper are summarized as follows.

- 1) The extended BIM-based XML data model (K-Smart XML) was able to manage building energy information in the design and operational stages. In addition, architectural information and system data in the design stage were transferred and integrated with operational data for building energy management.
- 2) The K-Smart XML model was tested in a real-time energy performance evaluation in an existing building. This approach helped to ascertain whether the building systems were properly configured and operated, through a comparison with the design intents with use of a simulation.

ACKNOWLEDGEMENTS

This work was supported by the International Collaborative Energy Technology R&D Program of the Korea Institute of Energy Technology Evaluation and Planning (KETEP) granted financial resource from the Ministry of Trade, Industry & Energy, Republic of Korea (No. 20118510010010)

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