

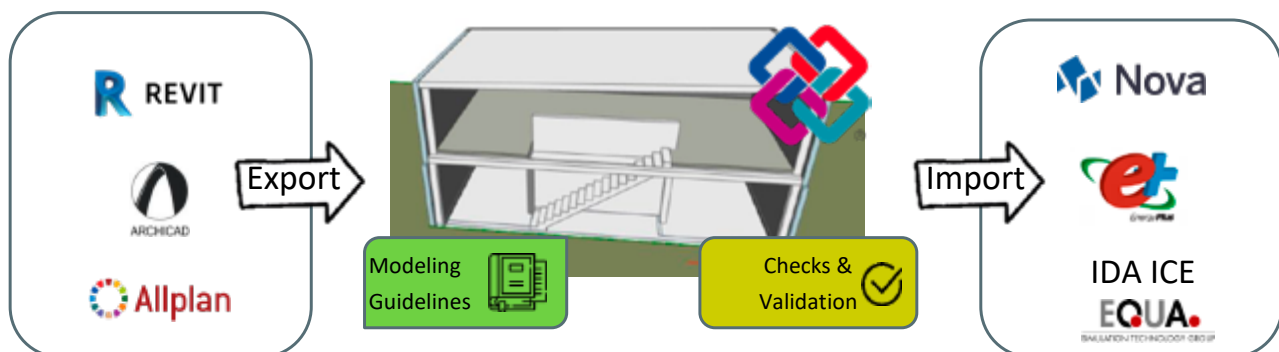
# Open BIM for Energy Efficient Buildings

## EBC ANNEX 91

The preferred approach for integrated digital planning that carries the potential for significant improvements in building energy performance is through methodologies based on building information modelling (BIM). These allow information from stakeholders such as architects, planners, modellers, contractors, and operators to be fed into the same data source, the BIM model. In the planning phase this model becomes the information hub for geometry data, thermal characteristics of building elements, and the building energy systems. The two options for BIM environments are 'closed' or 'open'. Closed BIM restricts cooperation to a limited set of software tools with little to no possibility to cooperate outside a given software environment. Open BIM is based on the internationally standardized Industry Foundation Classes Schema (ISO 16739-1:2018) and allows the interchange of modelling data between different software tools from various vendors. Along with Industry Foundation Classes Schema, there are further open buildingSMART Standards such as BIM-Collaboration Format and

### PROJECT OBJECTIVES

- 1 making energy efficiency assessment and optimization become an integral feature of open BIM,
- 2 building the foundations for open BIM processes and data models that are beneficial especially for small and medium enterprises and enable seamless cooperation of all stakeholders in a common open BIM project, and
- 3 advancing the interoperability and harmonization of open BIM processes and data models both on national and international level.



A conceptual process model for open building information modelling (BIM) for energy efficient buildings

Source: EBC Annex 91

## INTERNATIONAL ENERGY AGENCY

The International Energy Agency (IEA) was established as an autonomous body within the Organisation for Economic Co-operation and Development (OECD) in 1974, with the purpose of strengthening co-operation in the vital area of energy policy. As one element of this programme, member countries take part in various energy research, development and demonstration activities. The Energy in Buildings and Communities Programme has co-ordinated various research projects associated with energy prediction, monitoring and energy efficiency measures in both new and existing buildings. The results have provided much valuable information about the state of the art of building analysis and have led to further IEA co-ordinated research.

## EBC VISION

By 2030, near-zero primary energy use and carbon dioxide emissions solutions have been adopted in new buildings and communities, and a wide range of reliable technical solutions have been made available for the existing building stock.

## EBC MISSION

To accelerate the transformation of the built environment towards more energy efficient and sustainable buildings and communities, by the development and dissemination of knowledge and technologies through international collaborative research and innovation.

Information Delivery Specification, as well as Information Delivery Manual. This project is working with the open BIM methodology. The following project deliverables are planned:

- identification of the common BIM library scope;
- analysis of use cases and information requirements;
- developing ontologies for establishing the relationships between key concepts;
- testing and validating the BIM library;
- definition of BIM use cases for building energy performance;
- development of modelling process and guidelines;
- identification and application of pipelines and toolchains;
- case studies of use cases;
- evaluation of the common library, ontologies, and processes;
- identification of potentials and required future developments.

## Project duration

Ongoing (2023 - 2026)

## Operating Agent

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## Participating countries (provisional)

Austria, Australia, Belgium, Germany, Ireland, Italy, the Netherlands, Sweden, United Kingdom

## Further information

[www.iea-ebc.org](http://www.iea-ebc.org)