

BIM NEWSLETTER

(AEC NEWS & STORIES)



HIGHLIGHTS

- **Why is the Construction Industry turning to BIM?**
- **openBIM Standards**
- **openBIM standards and the construction sector**
- **GIS and BIM integration**

WHY IS THE CONSTRUCTION INDUSTRY TURNING TO BIM?

The wind of change is sweeping through an infrastructure landscape, helping in a new era of innovation and efficiency in the AEC (Architecture, Engineering, and Construction) industry. With advancements in technology such as Building Information Modeling (BIM) rapidly becoming the standard for architects, engineers, and contractors.



Let's explore into the reasons why BIM is poised to revolutionize the construction industry:

1. **Enhanced Collaboration:** BIM facilitates seamless collaboration among various stakeholders involved in a project. Architects, engineers, contractors, and clients can work together in a coordinated manner from the design phase to construction completion.
2. **Efficient Project Management:** By creating 3D models that encompass all aspects of a building project, BIM helps in visualizing the entire project lifecycle. This leads to better decision-making and efficient project management.
3. **Cost Savings:** BIM enables better cost estimation and identification of potential clashes or issues before they arise on-site. This proactive approach not only saves time but also minimizes costly rework during construction.
4. **Sustainability and Energy Efficiency:** With BIM's ability to simulate energy performance and environmental impact early in the design phase, architects can create more sustainable buildings that are energy-efficient and environmentally friendly.
5. **Regulatory Compliance:** In a fast-evolving regulatory environment, BIM aids in ensuring compliance with building regulations and standards by providing accurate data for documentation and approvals.

It's clear that Building Information Modeling is set to play a pivotal role in shaping the future of its construction sector. The adoption of BIM not only promises increased productivity and efficiency but also sets new standards for sustainable development practices within the infrastructure industry.

openBIM Standards



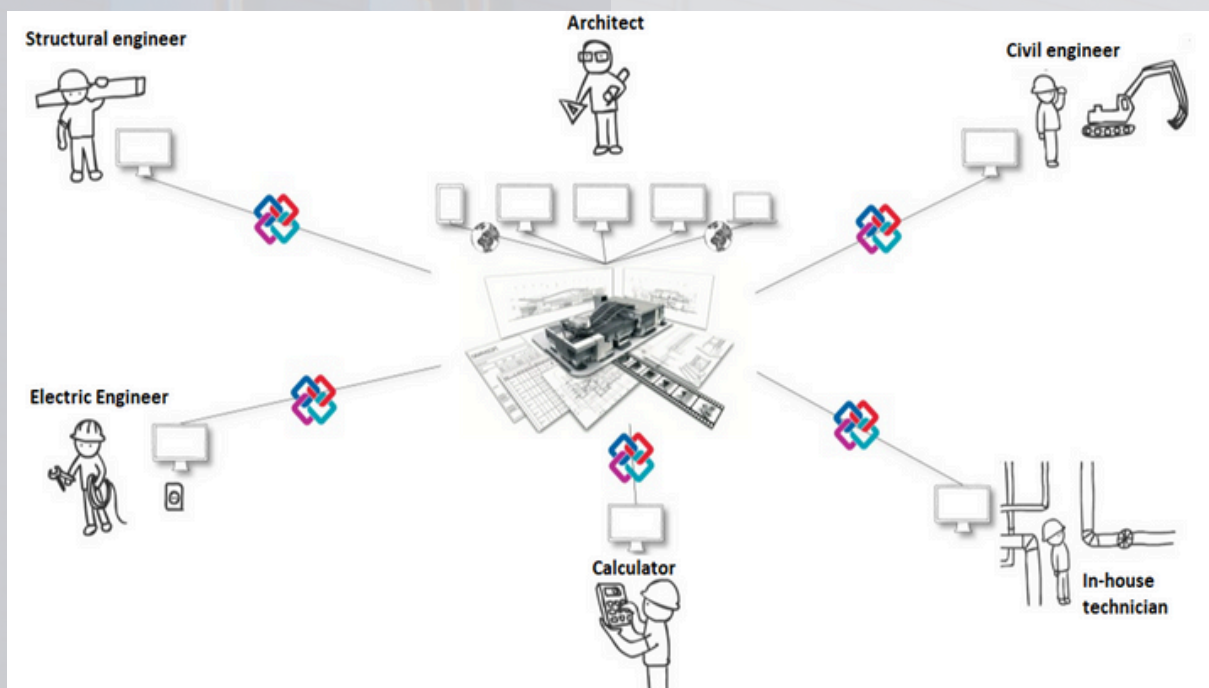
openBIM is the open version of BIM, which means it is openly accessible and usable by anyone and uses an open licence that allows for extensibility.

buildingSMART International is the not-for-profit global agency that manages the development and dissemination of openBIM standards.

openBIM extends the benefits of BIM (Building Information Modelling) by improving the accessibility, usability, management and sustainability of digital data in the built asset industry.

At its core, openBIM is a collaborative process that is vendor neutral. openBIM models can be defined as digital sharable project information that supports seamless collaboration for all project participants and facilitates interoperability to benefit projects and assets throughout their lifecycle.

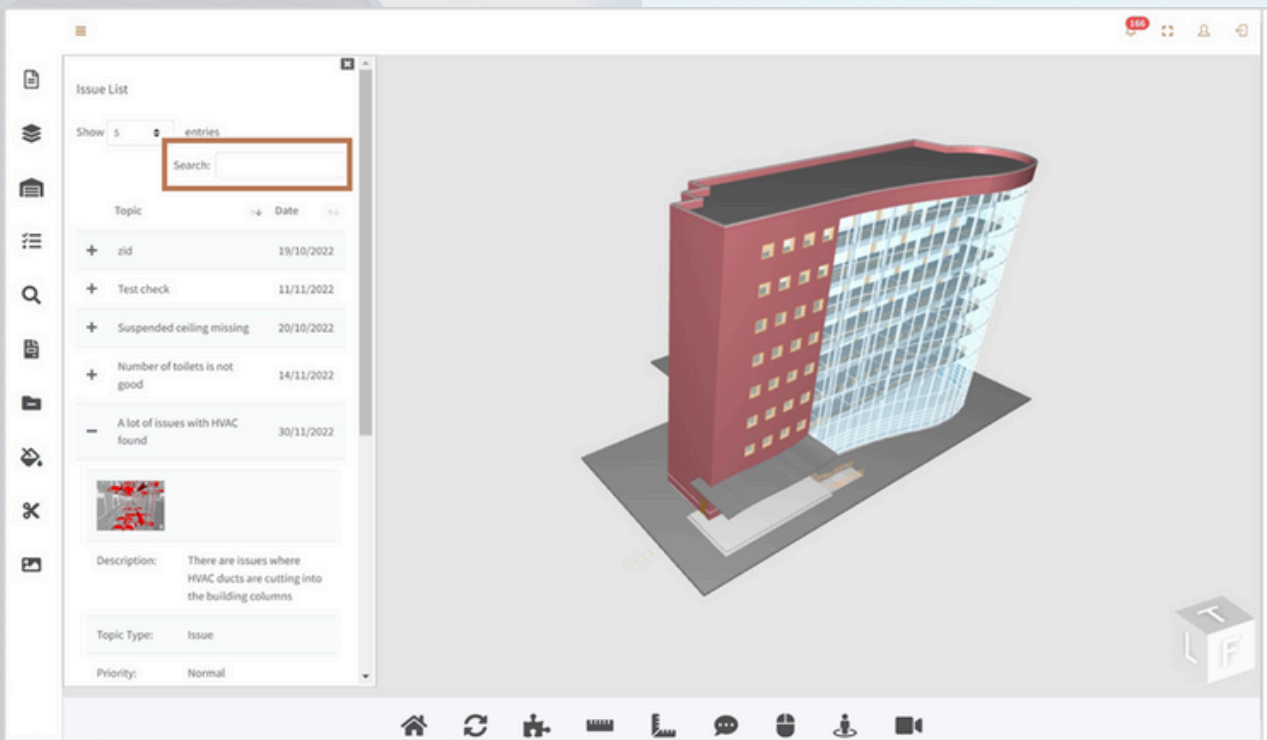
openBIM is format that allows each and every project member to access the information model without hampering the native design. It is a universal approach to collaborate with design, realize and operate buildings based on open standards like Industry Foundation Classes (IFC), BIM Collaboration Format (BCF) and others.



openBIM extends the breadth and depth of BIM deliverables by creating common alignment and language by following to international standards and commonly defined work processes.

3D BIM viewer allows users to:

- View the IFC models
- Visually inspect model issues
- Create BCF issues
- Measurement
- Clip models
- Hide/Isolate model entities



openBIM standards and the construction sector

The adoption of openBIM in the construction and infrastructure industry is reported to fulfil the requirements as in the following

1. Interoperability: openBIM allows interoperability among different software tools and platforms used in the construction and design processes. This allows different stakeholders, such as architects, engineers, contractors, controllers, regulators and facility managers, to work together seamlessly and exchange information in a standardised format.

2. Collaboration: openBIM encourages collaboration and information sharing among all parties involved in a construction project. It helps break down data silos and enables teams to work together more efficiently, reducing errors and misunderstandings.

3. Cost and Time Efficiency: openBIM can lead to cost savings and time efficiencies in construction projects. With standardised data exchange, project teams can streamline their workflows, leading to faster decision-making and reduced errors and project delays.

4. Data Continuity: openBIM ensures data continuity throughout the entire building lifecycle. Information can be used from the initial design phase through construction, operation, and maintenance, including building decommissioning. This continuity helps improve building performance and management.

5. Long-Term Sustainability: openBIM supports long-term sustainability efforts by providing access to valuable information for building operation and maintenance. This can lead to more efficient energy use, reduced maintenance costs, and improved building performance.

6. Standardisation: openBIM is based on open standards, such as Industry Foundation Classes (IFC) developed by buildingSMART, promotes a common language for data exchange. This standardisation helps ensure consistent and accurate information sharing.

7. Industry Trends: As the construction industry continues to evolve, digitalisation, automation, and information management have become more prominent. openBIM aligns with these trends by providing a framework for efficient digital collaboration and data management.

8. Global Adoption: openBIM has gained acceptance and adoption worldwide. Building professionals, software developers, and organisations recognise its benefits, making it a global standard for information modelling in the building industry.

Overall, openBIM has become an almost essential tool in the construction industry due to its capacity to enhance collaboration, data exchange, and the overall efficiency of building projects. It has the potential to transform the way buildings are designed, constructed, and managed, benefiting all stakeholders involved in the building lifecycle.

GIS and BIM integration

The Geographic Information System (GIS) is a computer-based information system designed to capture, store, retrieve, manipulate, manage, model, share, analyse and present geographically referenced digital data, including raster and vector data. The scope of GIS representation is typically the depiction of wide portions of land and cities, including themes such as buildings, roads and water networks, land cover and use, terrain, infrastructure, facilities and utilities, vegetation and any other information relevant for the specific application. GIS data (either 2D or 3D) accuracy and level of detail are comparable to traditional cartographic products.

Data are usually produced starting from the survey of what exists in the city and land, rather than coming from a design action, and a cartographic generalisation is applied to allow a suitable representation of objects to support effective analysis, relevant data retrieval as well as agile data management. It is the underlying technology for the familiar geographic services and tools we use in our mobile devices, and has many applications, supporting research and decision making.

For example, common use cases are the management of cadastral systems, of environmental information, including land cover and land use information, hydrographic information and other dynamic data (e.g. from sensors, such as pollution data, weather data, traffic data and so on). GIS support automating technical workflows such as cartographic production and image analysis; in other words, the capacity of GIS is currently being used to implement public policy decisions.

Similarly, digital building permits require GIS management to store and analyse data from the urban environment and the widest city context, while BIM does the same with data for buildings and urban infrastructure.

IFC file formats directly in ArcGIS Pro

The integration of planning and geospatial data is increasingly expected in the Construction industry. More and more common BIM and CAD formats are being used in ArcGIS to support workflows such as maintenance, inspection, operations etc.

Using ArcGIS Pro, IFC can be converted into open standard OGC Indexed 3d Scene Layer (I3S) for streaming throughout GIS experiences, retaining semantics, user attribution, and other metadata.

BIM-GIS integration is becoming increasingly important as the two kinds of data, as well as the related tools, address different needs and can provide complementary analysis and functionalities. For example, digital building regulations often refer to both kinds of information, which can equally serve a growing number of applications in the different phases of a built asset's life cycle, from design and construction to management, maintenance and demolition.

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Virtual GIS day December 4, 2024

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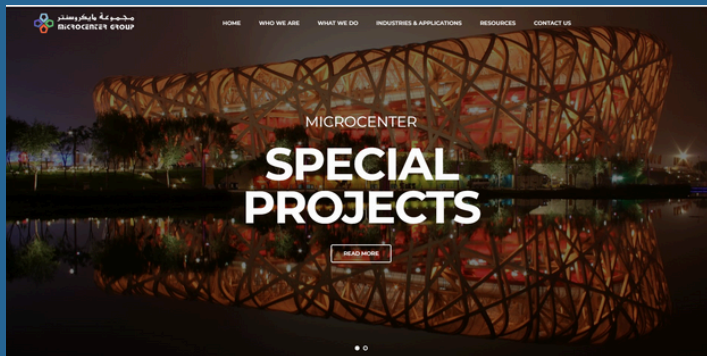
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