

Interoperability and Open Data Standards: Facilitating Seamless Collaboration and Coordination



An international architectural practice works efficiently across large, complex teams using the power of Autodesk's interoperable BIM solutions.

As AEC projects grow ever more sophisticated, with larger and more diverse project teams, fluid collaboration and communication become critically important. For Erik Giudice Architects (EGA), easily sharing information and 3D models is a key reason why the firm uses Autodesk's BIM solutions.

Recently, EGA leveraged Autodesk's support of open data standards to exchange models and data with clients and consultants on a complex, high-profile project with strict sustainability requirements.

Simple solutions to complex design challenges

As a firm based in Paris and Stockholm, communication across offices has long been a priority for EGA. The firm began using 3D programs ten years ago and soon implemented Revit as their main design tool.

The multidisciplinary office of 40 people engages in architecture, urban planning and landscape design and works on a wide range of project types including housing, office buildings, high-rise towers, mixed-use projects and institutions such as schools and other public buildings.

Their projects are often nuanced in both scale and project team, but they seek to bring a simplicity to their designs: "We have a motto that we try to follow, which is 'Simplicity': simple solutions to complex project problems, where the final result is something that feels simple, easy to understand, and balanced," says founder Erik Giudice.

Recently, the firm brought this ethos to their work on a high-profile project, the Athlete's Village, a new urban development just north of Paris for athletes and staff members of the Summer 2024 Games.

Sustainability and social integration are core goals for the project - buildings need to be designed to a passive standard, green spaces are integrated throughout, and the campus has been specifically planned so that it will continue to function after the end of the Summer Games. The area is designed to become a mixed-use eco-neighbourhood after the games, making its post-game legacy as important as its role in the games.

EGA's role was twofold: to design two buildings, and also to coordinate the individual buildings designed by 3 other architecture firms, out of the 11 total firms involved in the Athlete's Village project. The group of buildings is located around a central plaza that functions as an epicentre for the Game's athletes - with restaurants, stores, services and more.

Interoperability saves time and keeps consultants and clients engaged

With rigorous environmental requirements, and an ambitious design and construction timeline for such a large project, EGA required a common language to quickly and seamlessly communicate with the project's many engineers, architects, owners and other consultants.



Because of Revit's ability to manage multiple open file formats, including Industry Foundation Classes (IFC) and Construction Operations Building Information Exchange (COBie), it became EGA's tool of choice for design collaboration and coordination across platforms.

"The tools that Autodesk has developed are very efficient in terms of interoperability and the capacity of integrating data from different software," explains Giudice.

Feedback and coordination across the team using the open file formats was effective and expeditious, saving time and enabling the entire team to meet an aggressive schedule and deliver a well-balanced, cohesive design.

At the same time, it was also important to have clear lines of communication with others outside of the team. "BIM tools are really at the centre of the collaboration with the client and also with other stakeholders such as the city or other partners from the start of the project to the end of the project," Giudice says.

By sharing BIM models, EGA gave clients access to more hands-on information about financial and environmental issues early on and throughout the project.

In fact, submitting BIM models to the project's developers and planning office was a requirement for the Athlete's Village project. The client wanted to have a single, coordinated model that would combine the work of all 11 architects so that they could study the carbon footprint of the whole area, as well as economic aspects of the project.



A single, coordinated model enables seamless design processes across teams

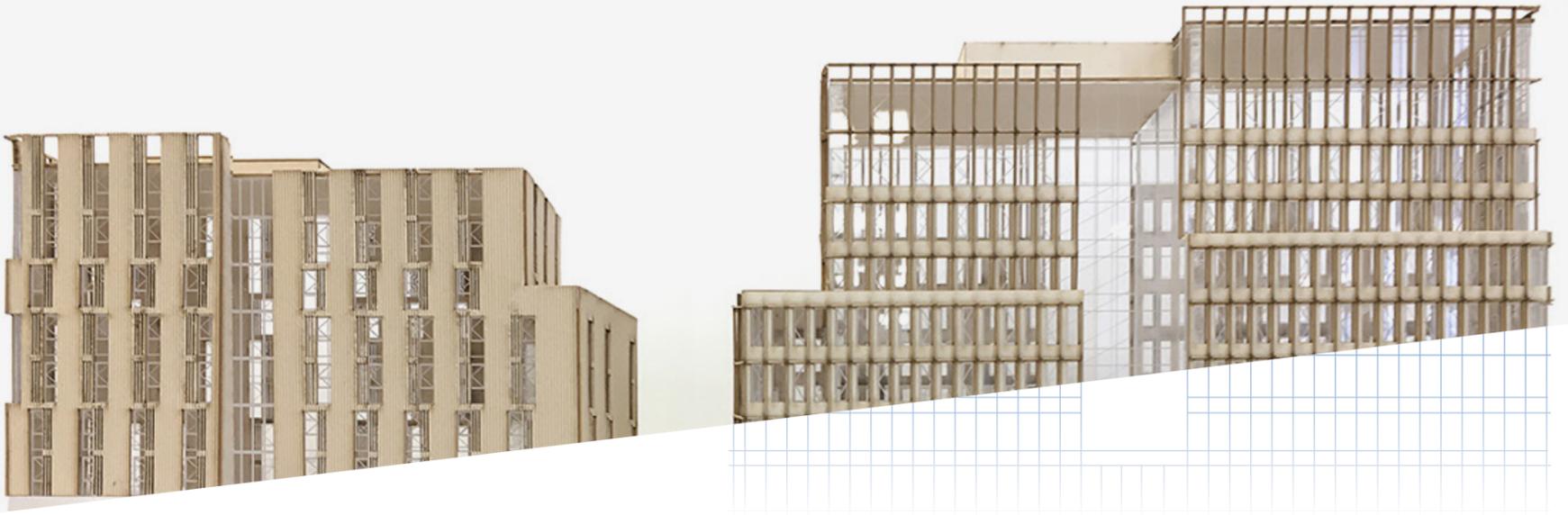


Open file formats support data sharing between software

"The tools that Autodesk has developed are very efficient in terms of interoperability and the capacity of integrating data from different software"



Image courtesy of Pichet-Legendre



Using BIM from design to production to construction

For EGA, using BIM starts in the earliest phases of a project, when they use plug-ins in Revit to create simulations that test different aspects, including energy usage, carbon footprint, structural efficiency, daylight and a project's impact on the environment.

The firm also relies on open file formats to facilitate the prefabrication and production of some building components. For example, one of the buildings in the Athlete's Village is being produced offsite using a modular system of prefabricated components in massive timber; each room is fabricated in the factory and then delivered and mounted on site.

By using IFC, the builder and the manufacturer were able to successfully and efficiently employ EGA's original model designed with Revit for their own detailed production and delivery, using their own tools to control CNC machines.

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Interoperability with BIM is the way of the future

EGA also believes that this is the way of the future - using a single model to communicate with all stakeholders, regardless of their interests and concerns. And further, that once built, this same model will become an invaluable resource for the building owner, informing operations and maintenance during the building's entire lifecycle.

Digital Twins - where a digital model replicates the physical object, building, or site - is something that Giudice finds very logical. In fact, he believes it will possibly be mandatory in the near future.

EGA is increasingly seeing these types of requirements from clients and other entities, including to submit projects in BIM and other government mandates, especially in the Nordics and the rest of Europe. Giudice notes that several countries in Europe are looking into reviewing building permits in BIM, and many international competitions require a BIM model as part of the submission.

Moving forward, the firm sees the use of BIM tools as a means to stay competitive, win more business, and create meaningful, collaborative projects.

“We understand that the way that we communicate information is a key factor in the success of the project, since the building processes are getting shorter and we need to be more efficient in all the different steps of the project,” says Giudice. “In other words, we need to all be able to speak the same language in order to be efficient together.”



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