

New Autodesk Technologies Unveiled for BIM



Autodesk has unveiled several highly interesting new technologies for Building Information Modelling (BIM) at its annual user conference, Autodesk University. With these announcements and numerous other recent innovations, Autodesk continues to extend BIM value across the full lifecycle of the built environment for Architecture, Engineering and Construction (AEC) professionals in the building and infrastructure industries.

Autodesk is expanding the reach of BIM on multiple fronts – into conceptual design on one end of the spectrum and into construction on the other. Their advancements are empowering professionals to move from designing objects and simply representing their ideas in 2D and 3D to designing in context while optimising and better predicting the performance of their designs, said Amar Hanspal, Autodesk senior vice president of

Information Modeling and Platform Products. Autodesk is helping to drive higher levels of productivity into the building design, infrastructure and construction industries both in the office as well as in the field with our expanding desktop, cloud and mobile portfolio.

The announcements span all facets of the BIM process – from conceptual design all the way through construction – for both buildings and infrastructure:

- Autodesk Dynamo and Autodesk FormIt Updates – For building designers, Autodesk announced a major update for computational design with the merger of [Autodesk Dynamo](#) and [Autodesk DesignScript](#). Dynamo is an open source visual programming environment for BIM. It can be used stand-alone, or allows users to extend the parametric capabilities of Autodesk Revit software products. Autodesk DesignScript is a unique programming language, intended to help designers build and analyze complex geometric models that would be difficult to model with interactive techniques. Now both are coming together in Dynamo to deliver a clear confluence of the best of both worlds: a clean and modern UI that combines DesignScript responsiveness and visual feedback with Dynamo's tight integration with Revit.

Conceptual Design Tool

Furthermore Autodesk announced that the BIM-based conceptual design tool, Autodesk FormIt, now includes a web-based application that runs on a choice of browsers for Windows and Mac (currently available in beta at autodeskformit.com). On all platforms – including previously released iPad and Android versions – Autodesk FormIt gives architects and designers easy-to-use tools to create, collaborate and share early-stage design ideas and continue their BIM process by taking models straight into Autodesk Revit. FormIt for iPad has been updated to take advantage of iOS 7 and also includes new energy analysis features that enable users to get simple indications of potential building performance – valuable insight at the beginning of the BIM process that can reduce rework later.

Looking ahead, Autodesk demonstrated a forthcoming feature in the FormIt family of applications that supports real-time collaboration, enabling future designers to simultaneously access and collaborate on design models using their FormIt application of choice.

For more on the Dynamo and FormIt updates, please see a related blog post [here](#).

- Graitec Acquisition – Expanding its capabilities in the structural detailing stages of BIM, Autodesk also announced the close of its [acquisition](#) of Graitec's [Advance Steel](#) and [Advance Concrete](#) product lines and associated employees. Building on Autodesk's current portfolio for structural engineering, the acquired product lines offer modeling, detailing, and fabrication solutions to support BIM-based steel and reinforced concrete workflows.
- Autodesk Structural Bridge Design – For bridge designers and engineers, Autodesk recently launched [Autodesk Structural Bridge Design](#). Resulting from the August acquisition of technology assets from UK-based Bestech Systems, the new software is an important addition to the Autodesk BIM for infrastructure portfolio. Autodesk Structural Bridge Design gives engineers greater flexibility and efficiency in their small- to medium-span bridge design processes by integrating loading, analysis, and code checking in a single environment. By using this unique approach, more consistent data can be used throughout the bridge design process allowing projects to be more quickly and accurately brought to completion. For more on Structural Bridge Design, please see a related blog post [here](#).
- Azalient Technology Acquisition – Autodesk announced the acquisition of technology assets from UK-based Azalient. The acquisition helps support the evolution to BIM-based design workflows among traffic engineers and transportation planners working on roads, highways and railway projects. The acquired traffic analysis technology enables designers to simulate how people travel – whether by automobiles, busses or trains – in isolation and series. It also provides transportation customers with tools to help predict demand for new infrastructure projects, forecast how to handle future demand, and predict traffic disruptions caused during construction, with the addition of cost and benefit analysis of alternative infrastructure designs. Terms of the acquisition were not disclosed.

- Topcon Collaboration – Building upon Autodesk's existing collaboration with Topcon, the two companies are working together to further improve the integration of BIM workflows and field layout to support greater increased predictability, productivity and profitability. Autodesk is developing a new BIM 360 mobile app for iPad that further simplifies the process of precisely locating BIM coordinates on a construction site. Designed for general contractors and MEP trades, the app controls a robotic total station – as well as the new LN-100 3D positioning system from Topcon announced yesterday – that can accurately position control and layout points on the construction site, and as-built data can be fed back into the design model via BIM 360 for quality assurance.

These announcements follow numerous other major investments Autodesk has made in recent months to expand BIM for infrastructure and construction. In infrastructure, Autodesk has recently launched [Autodesk InfraWorks 360 Pro](#), Autodesk Roadway Design for InfraWorks 360 Pro, and [Autodesk Vehicle Tracking](#) (based on the acquisition of technology assets from Savoy Computing).

Construction

In construction, Autodesk [BIM 360](#), cloud-based, mobile-accessible tools for pre-construction coordination through field execution, has seen dramatic uptake in the past year. Autodesk adds about 50 new users per day for BIM 360 and has about 15,000 monthly active users, up 65 percent year-over-year.

Autodesk has gained numerous construction customers among the global top 100 firms. For example, Gilbane Building Company, a top 25 contractor and top 10 construction management firm in the US^[1], recently made a major new investment in Autodesk BIM 360 Glue and Autodesk BIM 360 Field web services thanks to the productivity gains the company sees.

BIM 360 Glue has really enabled Autodesk to improve its on-site workflow, because they can now bring a three-dimensional model into the field with Autodesk. And the quality control has gone up threefold, just by being able to walk with a model and seeing how the building is supposed to be built before it's actually constructed. So it's now possible to more effectively identify problems before they actually become problems in the field by being able to see more clearly how it's supposed to be built, and using that model to enable us to construct it correctly, said Daniel Raimer, senior project engineer and quality manager, Gilbane Building Company.

^[1] Source: ENR Top 400 Contractors: <http://enr.construction.com/toplists/Top-Contractors/001-100.asp> & ENR Top 100 Construction Management/Design Build Firms: <http://enr.construction.com/toplists/Top-CM-Risk-Firms/001-100.asp>