HOW ARCHITECTURE FIRMS USE THE CLOUD TO MEET ALTERNATIVE PROJECT DELIVERY REQUIREMENTS

Cloud ideal for close collaboration on IPD, design-build, and joint ventures

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How architecture firms use the cloud to meet alternative project delivery requirements

Design professionals like you are delivering projects in ways that are evolving—just look at the projects you've done in recent years. Most likely, you've increased the number of projects completed using alternative project delivery requirements, such as joint ventures, design-build, and integrated project delivery (IPD). At the same time, firms are working on a growing number of international projects. They're also expanding and contracting project teams to suit workloads by including people in other offices. All of these trends pressure project teams to find easier ways to collaborate and share information outside the confines of a single office.

A survey[1] of architects published by the AIA highlights how some of these trends are taking hold in the industry. Fixed-fee projects (most alternative delivery projects are fixed fee, as are many traditional projects) account for nearly 40% of firm billings, with that number rising to more than 50% for firms with 100 or more employees. More than 30% of all firms execute or pursue international projects, and that number surges to 77% for firms with more than 50 employees. While traditional modes of delivery still account for more than 60% of the construction contract value of projects, alternative modes of delivery account for nearly 40% of contract values. Some type of design-build contract accounts for 16% of construction contract values, and that number continues to rise. Several factors have driven the shift toward these alternatives from design-bid-build delivery. The compressed project timelines and aggressive budgets so common in the economic downturn of 2009-2011 became commonplace after the economy improved. Alternative delivery methods proved well-suited to meet the requirements of lean budgets and compressed schedules because they improved project collaboration earlier in the design process.

The widespread use of Building Information Modeling (BIM) has helped to hasten the trend, with more than 70% of architects reporting[2] that they've used some form of BIM. And in the US, more than 68%[3] of owners recently surveyed require or encourage the use of BIM. That's in part because the clarity of communication that is enabled by the use of intelligent models facilitates the collaboration so essential to alternative modes of project delivery.

The increasingly widespread use of cloud technology looks poised to further accelerate the trend. A report[4] from the AIA notes that cloud technology is one of the key forces likely to drive change in the practice of architecture in the future.

Why does cloud technology enable alternative modes of project delivery? It has the potential to connect everyone on an extended project team to the latest project information. But not all forms of cloud-based collaboration are created equal. Some fail to deliver native support to the intelligent models so essential to the BIM process, making this type of cloud technology simply a tool for file exchange and management. Firms relying on alternative modes of project delivery are seeing more time and cost savings from technologies that provide a true hub for BIM-driven project activity. This whitepaper explores the role of cloud technology in alternative modes of project delivery, and highlights how three leading firms are putting this technology into practice on their projects.

DEFINED: Leading modes of alternative project delivery

Integrated Project Delivery (IPD)
This method of project delivery integrates the efforts of the design team, contractor, and owner more closely than a traditional design-bid-build process does. Reliant on BIM processes and close collaboration, IPD teams explore projects virtually before they are built, and then continue the exploration throughout construction to speed processes, reduce the risk of error, and trim costs.

Design-build
This brings the design and construction processes together under a single contract from the beginning. With these types of projects, which are often led jointly by separate architecture and construction firms, close collaboration helps to ensure success.

Joint venture
This involves a collaboration between two or more entities, such as two smaller architecture firms joining together to deliver a single large project. Again, collaboration is essential because the entities involved are jointly responsible for a quality outcome.
Any of the above can be combined in a single project. For example, a design-build project could use an IPD mode of delivery and be a joint venture.

Overcoming collaboration obstacles

Even with BIM, the path to successful project completion using these alternative modes of project delivery has not always been smooth. That's because collaboration between people working in multiple offices, across borders, and in different firms requires planning and technology infrastructure. And until recently, available infrastructure didn't support smooth information exchange—necessitating time-consuming manual coordination to avoid the risk of errors, such as working from an outdated version of a model. A recent survey[5] of industry participants found that 33% of respondents see cross-organizational online collaboration tools as potential productivity boosters.

Firms have used a variety of methods to keep extended project teams on track. Co-location is one option. Team members meet at a single location to work more closely. This might not unite the whole team, but being in the same physical place brings people from each participating entity together. The downside of co-location is cost; bringing a large team together in a single location is often quite expensive.

Whether teams rely on co-location or not, close collaboration requires some way of exchanging models. FTP sites, along with guidelines for when new files must be uploaded, have proven to be a popular option. But keeping track of the latest versions of models is challenging, as is communication, with simple questions leading to time-consuming flurries of emails and phone calls.

The cloud provides a secure, simple way to exchange information. But many cloud services lack the capabilities needed to support building models—they're just methods of sharing information. Recently, more sophisticated, industry-focused cloud solutions have come to the fore.

Many leading firms are moving away from cloud-based collaboration tools that aren't suited to leveraging design models. Instead, they're embracing cloud-based collaboration methods that support building projects—and that deliver the capabilities needed on projects with alternative project delivery requirements. We'll take a closer look at how three firms—Gensler and Corgan, Stantec, and Moriyama & Teshima Architects—are using BIM-focused cloud collaboration to fuel success on projects that rely on alternative modes of project delivery.

GENSLER AND CORGAN

Reducing costs and saving time on design-build projects

Gensler and Corgan: Reducing costs and saving time on design-build projects

The Midfield Satellite Concourse at Los Angeles International Airport will add 11 much needed, wide-body gates to the airport's international capacity. When complete, the concourse will connect to the rest of the airport via an underground walkway. The client, Los Angeles World Airports, decided that a design-build project made sense for the new addition. That's because the client wanted to use a BIM process and work closely with the designers and the contractor from the earliest stages of the project to ensure success. Turner Construction Company entered into a joint venture with the architecture firms of Gensler and Corgan to deliver the massive design-build project collaboratively.

The Revit-centered design team included people across multiple offices from both companies, along with engineering consultants from other firms. Some of the team came together at a co-location center established by the client at the airport, while others worked from their respective offices. The team faced the challenge of how to connect everyone, be they designers working on shared Revit models or the client, both to each other and the latest project information. On prior projects with far-flung teams, Gensler and Corgan had set up a dedicated server to house the files and gave everyone access. But just setting up the server had proved expensive and time-consuming. Tracking files and ensuring consistent access had drained resources. For this project, the team wanted a faster start and better BIM file access throughout the project.

Gensler and Corgan decided to try the Autodesk® BIM 360™ Design cloud-based service to keep everyone connected to the latest project information. Compared to establishing a server, setup took very little time. The team established a project site in the cloud and invited contributors to join, including client project managers, engineers, and the contractor. The team and all of these stakeholders totaled over 100 users, working with over 100 models that averaged more than 300 MB in size. People created profiles showing their roles on the project. Team members based far from the co-location office had the same access to the latest project information as onsite members had. Viewing capabilities enabled contributors to review 3D project models in the cloud from anywhere and on virtually any device without having to download the file. Version tracking kept everyone on top of changes and removed doubts about which model was the most current.

They also used BIM 360 Design to enable Revit designers in multiple locations to simultaneously work in the project's Revit models. This cloud-connected worksharing allowed the large design team consisting of 30 people to access and work in the models at the same time, which helped speed up the delivery of the design.

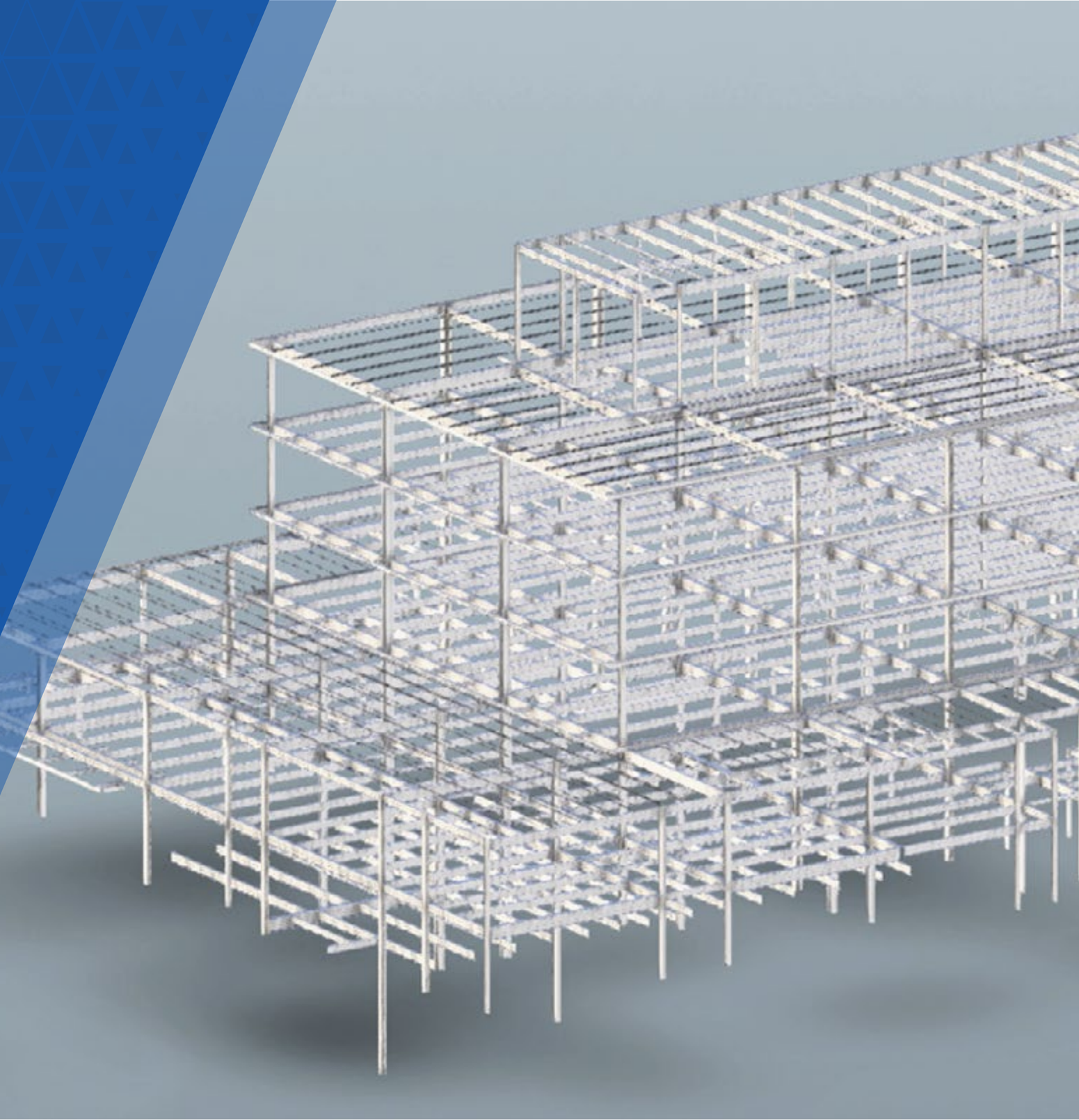
As the project progressed, the joint venture team noted significant time and cost savings along with collaboration wins. Initially, the team was able to keep the project moving forward rapidly even though the size of the co-location office started small. People were able to contribute easily without being based at the airport. This early success gave the team the confidence to maintain a smaller, less expensive co-location office, while also reducing the need for team members to travel for meetings. The multidisciplinary team could simply log onto the cloud-based project site to review each other's models and progress. For instance, the structural engineer could review the latest architectural details inside a browser and also work in the Revit models at the same time as other designers. The client—even client stakeholders with no design software knowledge—were able to review and comment on design models readily through the cloud, helping to accelerate decision making.

"We hadn't found anything prior to BIM 360 Design that enabled us to collaborate in a 3D environment. We have people in different offices from different organizations all working together as a team."

Tim Sullivan,
Senior project manager for aviation,
Gensler and Corgan

MORIYAMA & TESHIMA

Virtual co-location fuels success on joint venture



Moriyama & Teshima: Virtual co-location fuels success on joint venture

The architecture firm of Moriyama & Teshima teamed with Architecttura Inc. Architects to win the contract to design a new City Hall for Windsor, Ontario, Canada. They formed a joint venture that brought together each firm's strengths, with Moriyama & Teshima having designed several city halls and civic buildings, and Architecttura delivering its local expertise as a Windsor-based architect. Neither firm had the large IT department needed to procure and set up the infrastructure for collaboration. But they didn't have to. Instead, the firms turned to Autodesk BIM 360 Design to bridge the gap between the two firms.

According to the BIM manager for Moriyama & Teshima, the teams needed to set up a virtual co-location office to support the joint venture—which would've been prohibitively expensive without cloud-based collaboration.

"Joint venture projects are becoming more commonplace. To be successful, it's essential that you can store and share models from a centralized location."

Claudia Cozzitorto, BIM director, Moriyama & Teshima.

Working in the cloud offered all of the capabilities that the team identified as critical:

- Fast, cost-effective implementation and management
- Centralized design and communication within Revit
- Centralized file storage
- Mobile and browser-based viewing
- Ease of adding new team members, such as engineering consultants, to the project
- Support for direct communication between team members

The project administrator added new team members as the project gained momentum. During early phases of the design, Moriyama & Teshima brought a larger team to the project. They used BIM 360 Design to enable designers from multiple locations to simultaneously work live within the same Revit models and to communicate directly with each other within the project environment. They could see who was in the model and at what time they synchronized. This was helpful during the process of uploads and submissions.

As the project moved into the design documentation phase, Architecttura's team grew. The cloud-based project management site scaled to meet the need, giving the team leaders control over model access. Team members without design expertise, including client stakeholders, were able to view and markup designs– without design software, and without being able to interfere with or inadvertently alter the underlying model. This access streamlined reviews and made for more nimble collaboration and decision-making.

STANTEC

Bringing multi-office, multi-discipline teams together on a traditional design-bid-build project

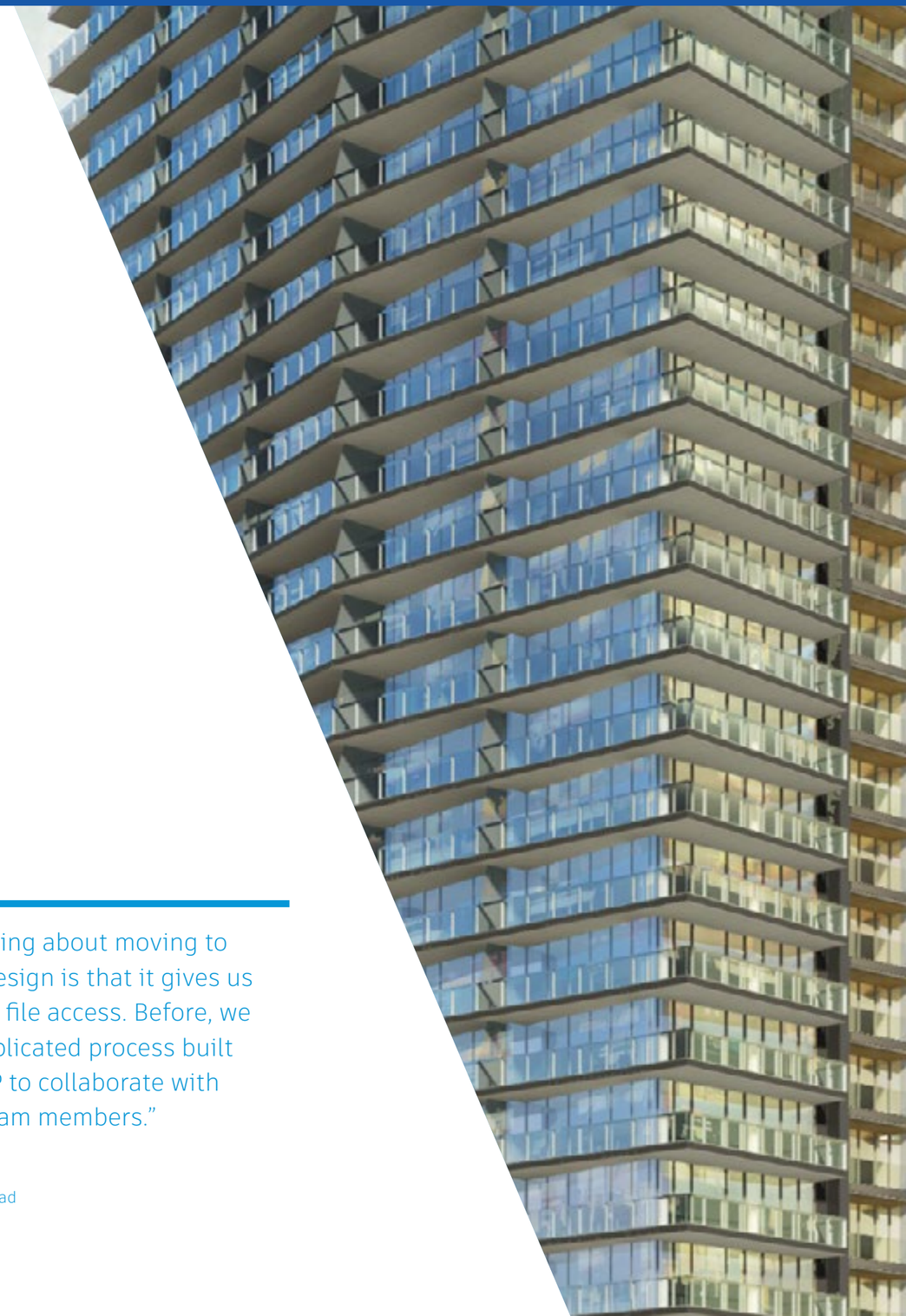
Stantec: Bringing multi-office, multi-discipline teams together on a traditional design-bid-build project

The Brentwood Mall renovation in Vancouver, British Columbia, Canada, encompasses multiple building towers over an 8-acre site. The developer tapped Stantec, the global architecture and engineering firm, to lead the design effort, with the design of multiple tower bases and a 40-story residential tower highlighting phase 2 of the project.

Though the project was a traditional design-bid-build delivery, Stantec executed it collaboratively as a multi-office, multi-discipline project. During the first phase of the project, the Stantec team had turned to a collaboration and coordination method that the firm had used on numerous similar projects. They'd set up a FTP site to share all the design files and had required regularly scheduled uploads to the site from contributors. Several team members had spent an entire day every 2 weeks coordinating designs, documenting versions, and checking that all project consultants were doing the same thing. For phase 2, Stantec decided to try cloud-based collaboration and sharing with BIM 360 Design.

The client, whose interior design team was participating in the project, proved enthusiastic. Client stakeholders liked that they'd be able to easily view and review project progress, and the interior designers could coordinate with the extended team more fluidly. Stantec saw tremendous time-saving potential in being able to sync the latest models from multiple Revit users to a central model hosted in the cloud, dropping the manual coordination necessitated by the use of the FTP site.

To get started, Stantec invited project participants to join the online project team. The team then began sharing files in the cloud. Anyone registered as a participant with appropriate access could view models and progress without downloading a file and opening it in a design application. With the syncing from Revit, it was clear to all which models were current, and it was easy to view prior versions of a model online. Stantec cites simply having the latest models in one location as the biggest time savings, but the team notes that enabling broad access to the models for review—even by stakeholders with no design experience—may have been the biggest benefit. Readily reviewable models have sped and enhanced decision making during the project.



"The nice thing about moving to BIM 360 Design is that it gives us centralized file access. Before, we had a complicated process built around FTP to collaborate with external team members."

Aubrey Tucker
Regional BIM lead
Stantec

Start collaborating in the cloud

When you consider whether to initiate a project using any type of project delivery method, you—like the firms discussed above—may be concerned about how you will unite the extended project team. But, as the Stantec, Gensler and Corgan, and Moriyama & Teshima experiences show, Autodesk BIM 360 Design make this kind of BIM collaboration a smooth process. You can get started in minutes and expand your cloud-based project site as your team expands. Nimble cloud collaboration with Autodesk BIM 360 Design will enable you to make better decisions sooner—providing the team, including the client, with online review and markup capabilities so you can:

- Enable multi-user cloud worksharing in Revit so project team members from multiple sites can co-author models using the BIM process
- Sync from Revit to BIM 360 Design to provide access models for review and viewing from any device—even if you're a project team member without design experience
- Track project activity easily—and without downloading files—so that the whole team can stay current quickly
- Manage users proactively to ensure that people are assigned the correct roles and permissions
- Support virtually all 3D and 2D file types commonly used on building design and construction projects

Take your next building design project to the cloud—whether or not it uses an alternative delivery method. Close collaboration can save time and money while reducing the risk of errors on any project.

Learn more about how BIM 360 can improve the way your projects are delivered.

LEARN MORE

LEARN MORE ABOUT THE AUTODESK SOLUTION FOR CLOUD-ENABLED BIM COLLABORATION

AUTODESK®
BIM 360® DESIGN

BIM 360 Design is a cloud worksharing and design collaboration product built for distributed, multidisciplinary teams. Co-author Revit models, control worksharing activities, and coordinate deliverable exchange across teams.

AUTODESK®
BIM 360™ DOCS

Construction document management built for project teams. Keep your team on-track with the latest construction drawings, documents, and models.

HAVE ANY QUESTIONS?
TALK TO OUR EXPERTS

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