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Seamless Cloud Collaboration with BIM 360 Design

Aaron Vorwerk, AIA, NCARB, EIT, LEED AP BD+C
Autodesk, Inc.

Learning Objectives

- Discover the technical and process-related differences between traditional and cloud-based collaboration workflows.
- Learn how to set up and work within a cloud-hosted project environment.
- Learn about best practices for cloud-based collaboration among both internal and external stakeholders.
- Assess the potential impact and benefits of cloud-hosted collaboration for your own firm.

Description

Have you made the move to cloud-based Revit collaboration with BIM 360 Design software? Not yet? This class is for you! We'll take a look at the needs served by this cloud-hosted software, discuss the value that it brings to the table, and then dive into a live project. We'll start in Revit software, send our design data to BIM 360 software, and then move over to BIM 360 to receive that data. We'll explore the Design Collaboration module, where design teams can create, share, manage, and consume work packages with each other. Finally, we'll visit the Document Management module, where all project stakeholders have a role to play in model viewing, sharing, markups, issue creation and tracking, and more. In this fast-paced course, you should have the knowledge needed to make the decision to adopt BIM 360 Design and extend BIM (Building Information Modeling) workflows within your own firm.

Speaker



Aaron Vorwerk is a registered architect, civil/structural EIT, LEED AP BD+C, and AEC technology evangelist. He advises customers across North America on AEC project lifecycle strategies and workflows. He frequently speaks and writes on AEC-related topics. He has earned graduate degrees in architecture and engineering (M.Arch, MSCE, BSCE); has acquired 15+ years' worth of widespread experience in architecture, engineering, and construction; and has led BIM transition efforts in two design firms.

The Evolution of Revit Collaboration

Let's take a minute to consider the steps we've taken to date. It may be hard to believe, but the evolution of multi-user project collaboration in Revit is nearly two *decades* old, and it has gone through three distinct phases:

The Evolution of Revit Collaboration

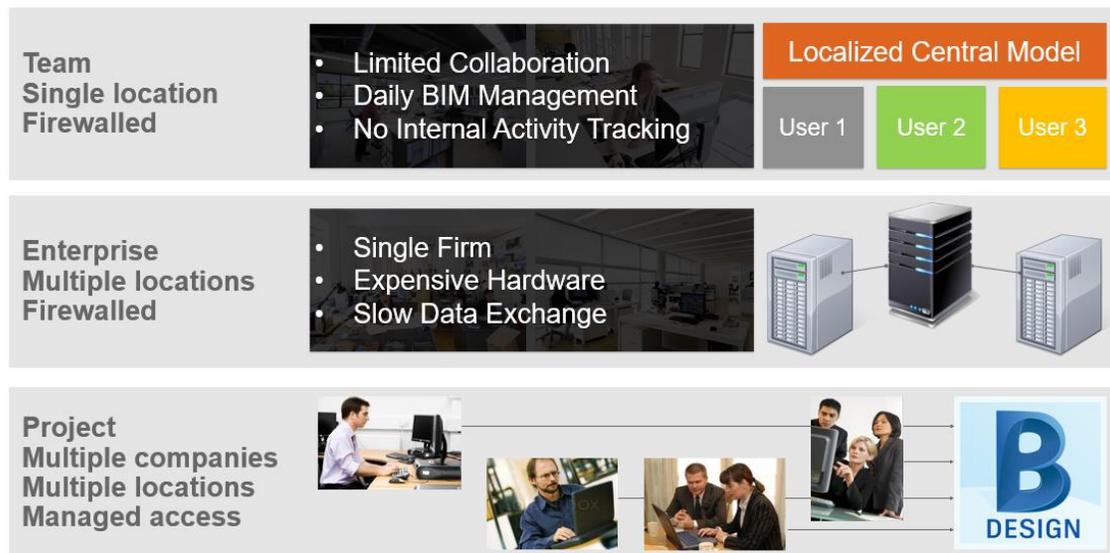


FIGURE 1: THE EVOLUTION OF REVIT COLLABORATION

Team Worksharing

While Revit has supported traditional [worksharing](#)—i.e. multiple users editing a single project file at the same time, with Revit handling the permissions and locking—since 2002, the process has its limitations. Effectively, worksharing is a single-premise solution. Users in the same location and on the same domain (i.e. working for the same company) can collaborate quite well, but this is not possible across multiple physical locations and/or across multiple domains (e.g. working from home or collaborating directly with consultants).

Enterprise Worksharing

[Revit Server](#) was introduced in 2011 to enable firms with multiple office locations to collaborate across those locations as if they were co-located. In theory, this was a great step forward. However, the technology is not without its own challenges. Revit Server software is included at no cost with Revit, but it requires a specific server configuration to function properly, and this is often quite expensive for customers that wouldn't otherwise have a spare server or virtual server and/or extra copies of a server operating system lying around. It also didn't address the desire

to collaborate with outside firms, necessitating VPN tunneling and other workarounds. Finally, even if Revit Server was configured correctly, performance would still suffer over low bandwidth and/or high latency internet connections, sometimes necessitating third-party WAN acceleration solutions at substantial additional cost. And then you get into the ongoing maintenance of the servers, files, and annual upgrades...

Project-based Worksharing

What has been lacking is a true multi-location, multi-firm BIM collaboration platform that functions in much the same way as Revit Server—but without the substantial cost of hardware and IT expertise, and without exposing firms to security risks. The rollout of Revit cloud worksharing in 2015—first via Collaboration for Revit, and then [BIM 360 Design](#)—introduced an easy-to-use approach to collaboration that worked across multiple physical locations and domains, required zero investment in hardware or IT expertise, and didn’t even require a robust internet connection for good performance! This launched the present era of cloud-based BIM collaboration with Revit.

The Evolution of Revit Collaboration

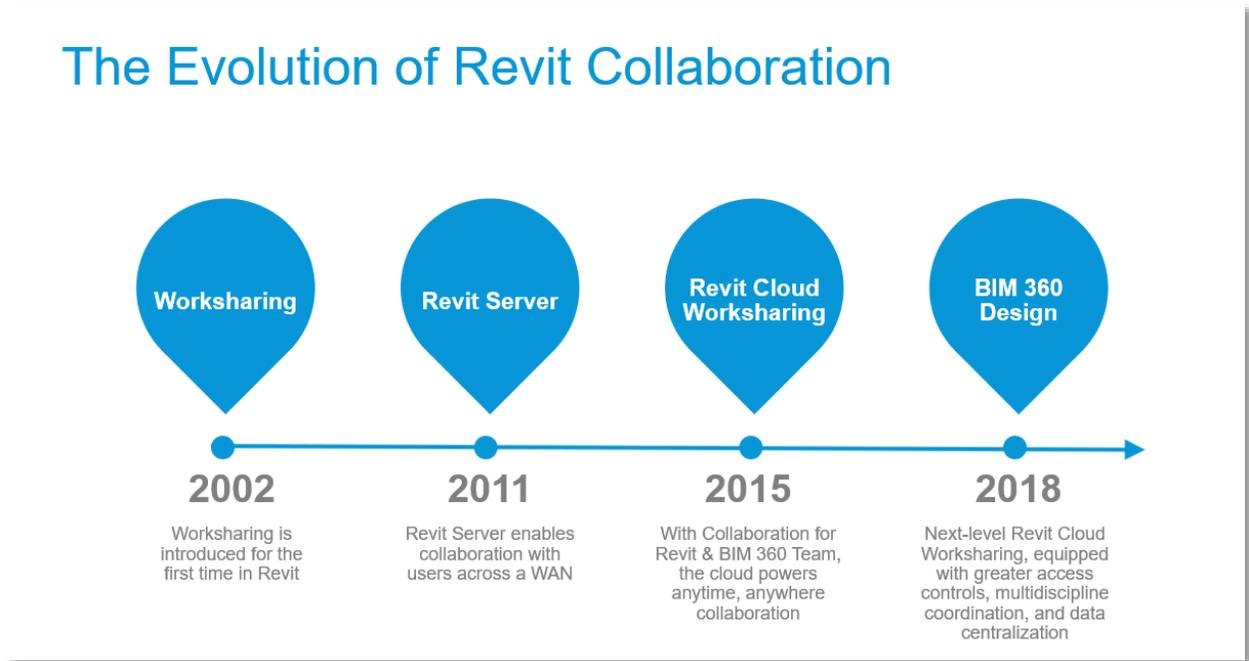


FIGURE 2: THE EVOLUTION OF REVIT COLLABORATION - A TIMELINE

Autodesk BIM 360: A Connected Platform for Project Delivery

Before we get into the specifics of BIM 360 Design, let's look at the platform that forms its foundation. Autodesk has brought together several key capabilities into a single brand, [Autodesk BIM 360](#), to support the entire AEC project lifecycle (design, build, and operate):

- Controlled (Revit) worksharing
- Deliverable coordination
- Design review
- BIM coordination
- Change visualization
- Quality management
- Construction safety
- Issue management
- RFIs and submittals

BIM 360 is our AEC cloud brand and project delivery platform. This next-generation platform removes the need for single point applications and unifies your project data. The unified BIM 360 solution aggregates the data and provides transparency to project stakeholders making everyone more accountable and improving visibility in real time.

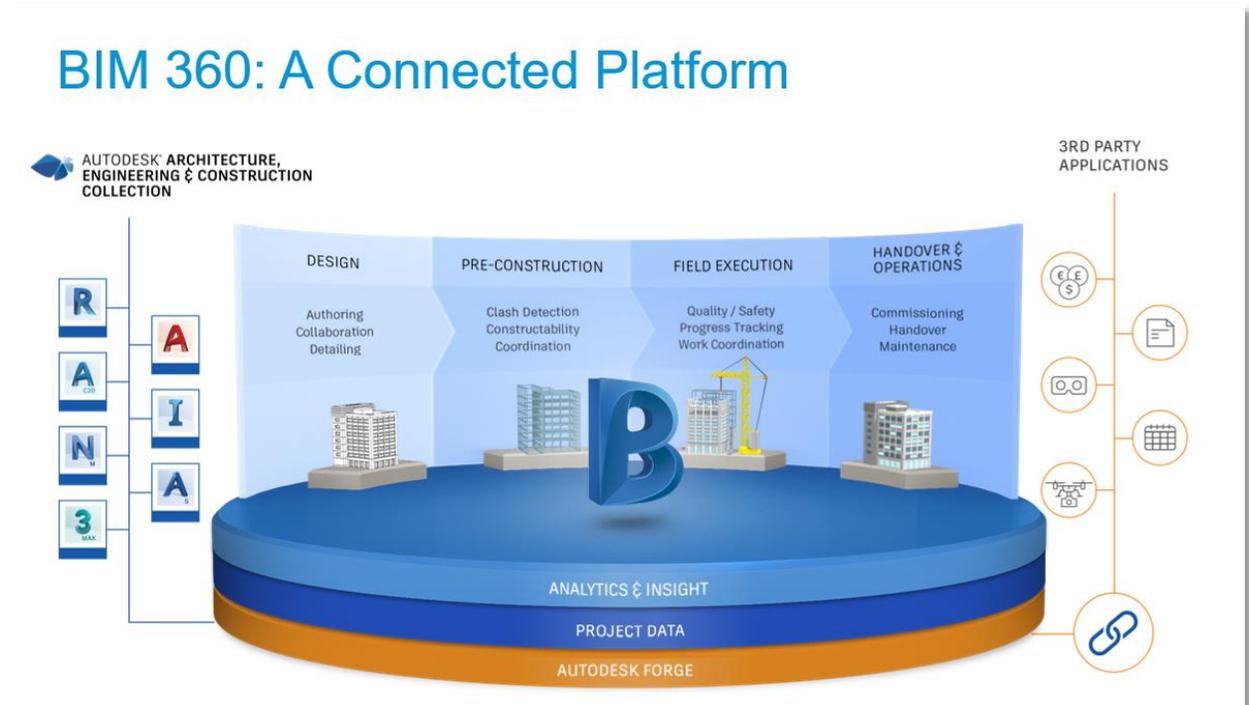


FIGURE 3: AUTODESK BIM 360

The next-generation BIM 360 portfolio currently comprises four primary product offerings, all of which are simply feature sets of this single, connected platform. The focus of this class is, of course, BIM 360 Design:

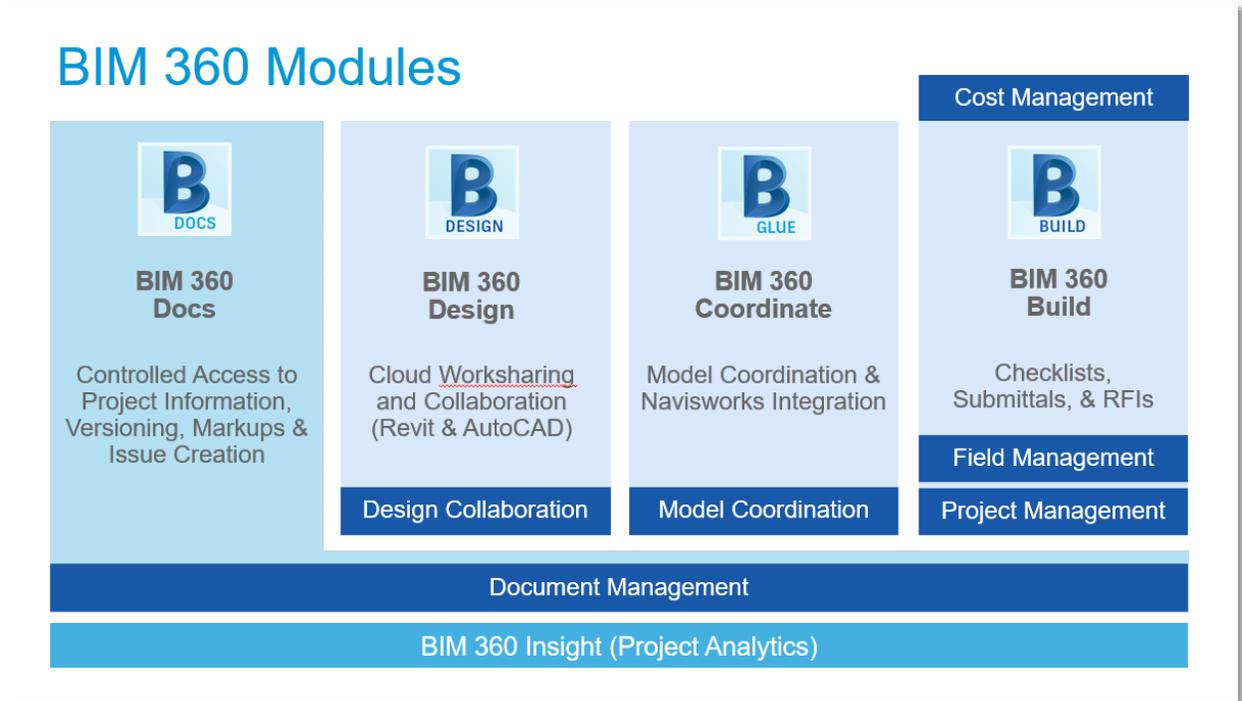


FIGURE 4: BIM 360 PLATFORM MODULES

BIM 360 Design

Autodesk [BIM 360 Design](#) is a cloud worksharing, design collaboration, and data management product for improved project delivery, built on the new BIM 360 platform. BIM 360 Design comprises the **Revit Cloud Worksharing** capabilities that you may be familiar with from Collaboration for Revit, as well as two new BIM 360 platform modules: **Document Management** and **Design Collaboration**.

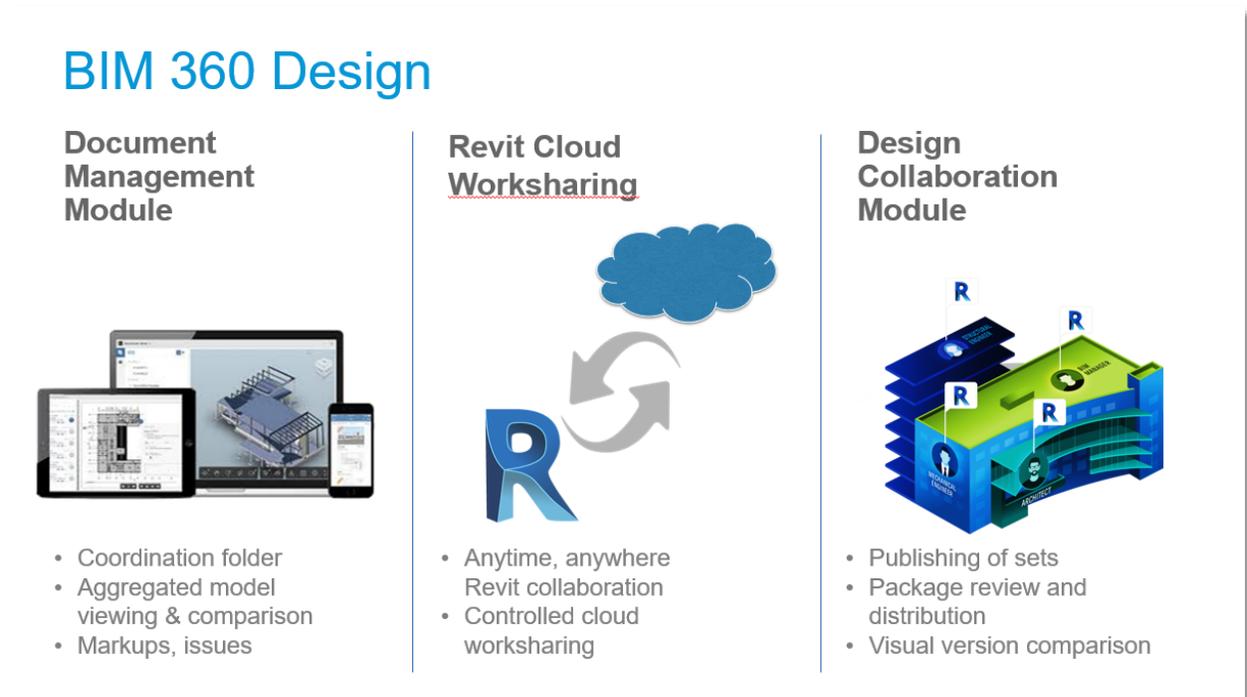


FIGURE 5: BIM 360 DESIGN

With BIM 360 Design, you can co-author multidisciplinary Revit models and access data management and collaboration functionality, e.g. 2D and 3D file viewing with markup and issue creation tools, accessible from your web browser or mobile app. **This goes far beyond simply enabling cloud-based Revit worksharing.** Additional features include:

- **Single Project Repository** (*Document Management*)
 - Unlimited storage
 - Support for all file types
 - Project activity log
- **Access Controls** (*Document Management*)
 - Project- and folder-level access rights
 - Define access by role, company, or user
 - Configure up to six permission levels
- **Navigation** (*Document Management*)

- List and thumbnail views
- Version control and rollback
- Single viewer for 2D and 3D files
- **Document Modification** (*Document Management*)
 - Create, view, assign and track project issues (*also in Design Collaboration*)
 - Add markups with thumbnail views, notifications and open/close workflows
 - Assign custom attributes and properties
- **Publishing** (*Document Management*)
 - Extract document sets from design files
 - OCR title block data for automated naming
 - Separate multi-page PDF files automatically
- **Change Visualization** (*Design Collaboration*)
 - View added, removed, or modified elements
 - Understand changes in context between aggregated models in a single space
 - Navigate change visualization by team, phase, building level and more
- **Deliverable Coordination** (*Design Collaboration*)
 - Reduce rework with trackable project activity
 - Facilitate model exchange and deliverable coordination
 - Curate sets to separate in-progress files from shareable files
- **Viewing** (*Document Management*)
 - Online and offline access on web, phone, and tablet
 - PDF and model viewers optimized for Apple iOS
 - Navigate between documents without closing viewer

Beyond Revit Worksharing

	SERVER-BASED (EX: REVIT SERVER, VDI)	BIM 360 DESIGN
Basic file sharing and data exchange	✓	✓
Worksharing within a company	✓	✓
Worksharing with multiple companies		✓
Deliverable coordination		✓
Powerful change visualization in a browser		✓
Issues and markups on mobile devices		✓
Data centralization in a single repository		✓

FIGURE 6: BEYOND REVIT WORKSHARING WITH BIM 360 DESIGN

Key Issues Addressed by BIM 360 Design

The same key issues resonate with most designers when surveyed on their opinions about the challenges to effective project collaboration: **Accessibility**, **Communication**, and **Security**. Let's take a closer look.



FIGURE 7: KEY ISSUES AFFECTING PROJECT COLLABORATION

Accessibility: Worksharing

BIM 360 Design helps you **simplify access to project collaboration**, i.e. enabling you to:

- Extend Revit worksharing to virtually any location;
- Enable secure, concurrent authoring by internal and external project teams; and
- Easily allocate resources, assigning team members as appropriate (e.g. those with relevant skill sets) to each project.

Best of all, this requires no costly IT setup or maintenance!

Accessibility: Anywhere, Anytime, Anyone

- Extend worksharing to virtually anywhere
- Enable easy and secure multi-firm concurrent authoring

Connects project teams with centralized access to BIM project data in the cloud, with no need for costly IT setup

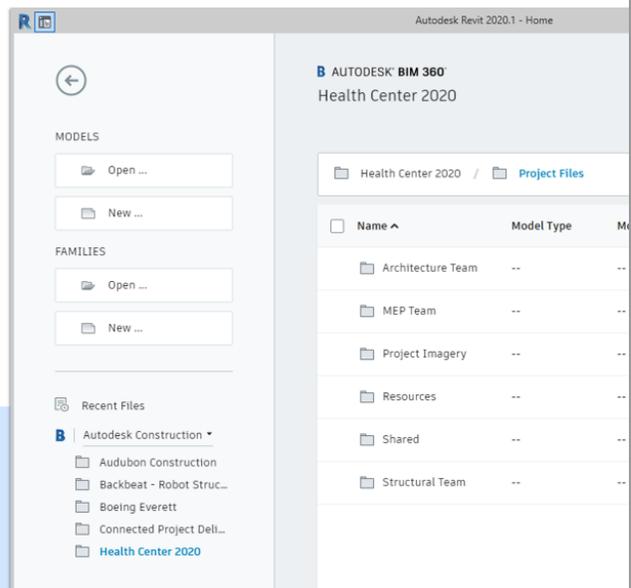


FIGURE 8: PROVIDING ACCESSIBILITY VIA CLOUD WORKSHARING

Communication: Managed Collaboration

BIM 360 Design promotes **efficient team communication**, giving you the ability to:

- Reduce rework with trackable project activity;
- Facilitate model exchange and deliverable coordination;
- Understand changes in context between aggregated models in a single space; and
- Navigate change visualization by team, phase, building level and more.

It is powerful indeed to share and consume native design data in a meaningful way, reducing or even eliminating the need to upload, download, import, or export your work. The “managed” collaboration features of BIM 360 Design directly address the most-requested feature of its predecessor, Collaboration for Revit.

Communication: Managed Collaboration

- Deliverable coordination
- Milestone tracking
- Accountability
- 2D and 3D Change visualization

Track project activity, monitor changes, and manage collaboration between teams to best suit your project needs

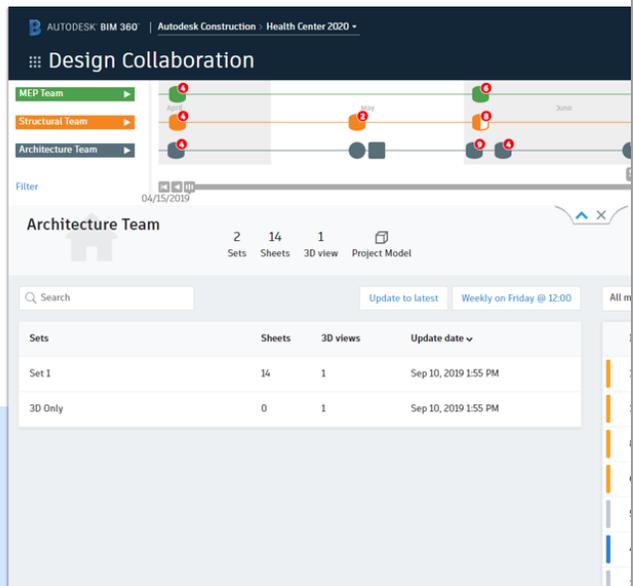


FIGURE 9: IMPROVING COMMUNICATION VIA DESIGN COLLABORATION

Communication: Issues, Markups, and More

BIM 360 Design helps you **maintain accountability** and ensure project participants stay on track with features to:

- Create private and public (published) markups on 2D or 3D documents for review, including dimensions and text;
- Create issues in context by pinning them to any 2D or 3D design location;
- Add photos, assign work with automated notifications, and track resolution to closure.

It is both useful and logical to add and manage markups and issues directly on the native files that have been published to BIM 360, rather than exporting to formats that are unable to display BIM information.

Communication: Issues, Markups, and More

- Place, assign, and track issues anywhere
- Add private or shared markups and comments
- Create review workflows
- Send transmittals

Keep your team on the same page and ensure accountability with assignable, version-aware issues and markups together with document control

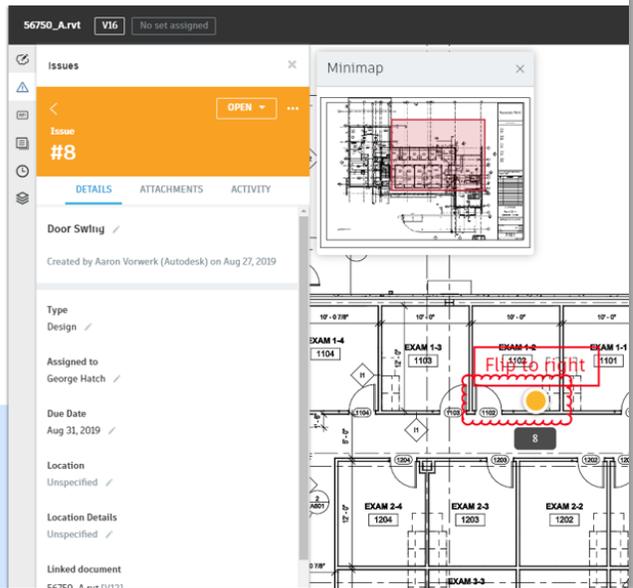


FIGURE 10: IMPROVING COMMUNICATION VIA DESIGN REVIEW

Security: Robust Access Controls

BIM 360 Design offers **powerful security** features, giving you the ability to:

- Share design data easily and flexibly with all project stakeholders;
- Restrict user access to certain folders and/or limit access according to user, role or company; and
- Maintain backups of every version of every file that is synced and/or published, with the ability to rollback or recover any data.

Security: Robust Access Controls

- Manage account and project access for internal and external users
- Up to 6 permission levels configurable by user, role or company

Control worksharing and design deliverable exchange with the assurance that the right information is in the right hands throughout your project

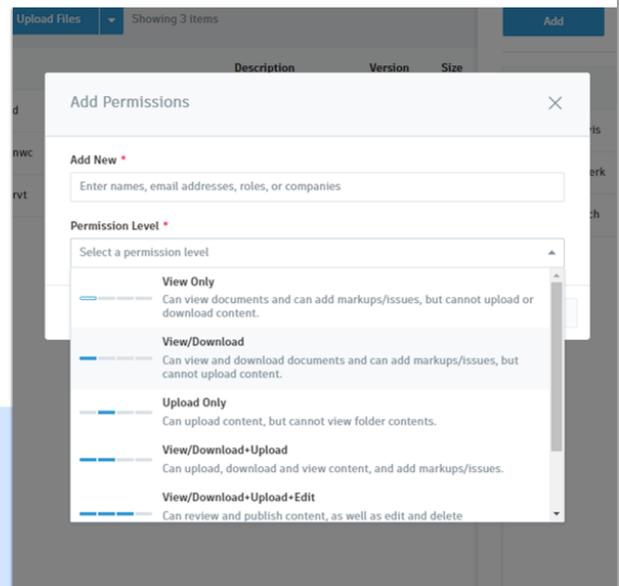


FIGURE 11: PROVING SECURITY THROUGH PERMISSIONS, ROLES, AND VERSIONING

Summary

Effective project collaboration is challenging and yet critical to improve project team efficiency and productivity. Autodesk [BIM 360 Design](#) is a cloud worksharing, design collaboration, and data management product for improved project delivery, built on the new BIM 360 platform.

BIM 360 Design comprises the Revit cloud worksharing capabilities that you may be familiar with from Collaboration for Revit, as well as two new BIM 360 platform modules: Document Management and Design Collaboration.

With BIM 360 Design, you can co-author multidisciplinary Revit models and access data management and collaboration functionality, e.g. 2D and 3D file viewing with markup and issue creation tools, accessible from your web browser or mobile app.

BIM 360 Design also directly addresses the challenges most commonly cited by design teams by (1) simplifying project accessibility, (2) improving project communication, and (3) providing robust data security.

In short, BIM 360 Design enables you to control worksharing and design deliverable exchange with the assurance that the **right information** is in the **right hands** at the **right time** throughout the project lifecycle.