

**B** AUTODESK®  
BIM 360™

# Constructability

# Introduction

Start every job with the entire team not just on the same page, but on the right page. Publish, view, mark up and share comments with a single application for design review. With automated clash detection, identify and resolve constructability issues before they become problems in the field. A streamlined constructability review process increases quality and helps keep the project on time and on budget!

The following guide introduces the BIM 360 suggested constructability workflow and gives context to the different capabilities built into the product, including step-by-step starter guides.

## Autodesk BIM 360

BIM 360 improves the process of construction by supporting informed decision making throughout the project lifecycle. It does this by centralizing all project data in a single data repository and connecting project stakeholders and workflows—from design to construction to operations, from the field to the office and back.

Visit [BIM 360 Site](#)



*Please note that the capabilities outlined in this guide are reflective as of February 2019 and will continue to undergo improvements. Additionally, some capabilities are only available in certain countries. For more information on product updates and capabilities please visit the [BIM 360 Product Release Notes](#).*





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# Suggested Workflow

# Model Coordination Workflow

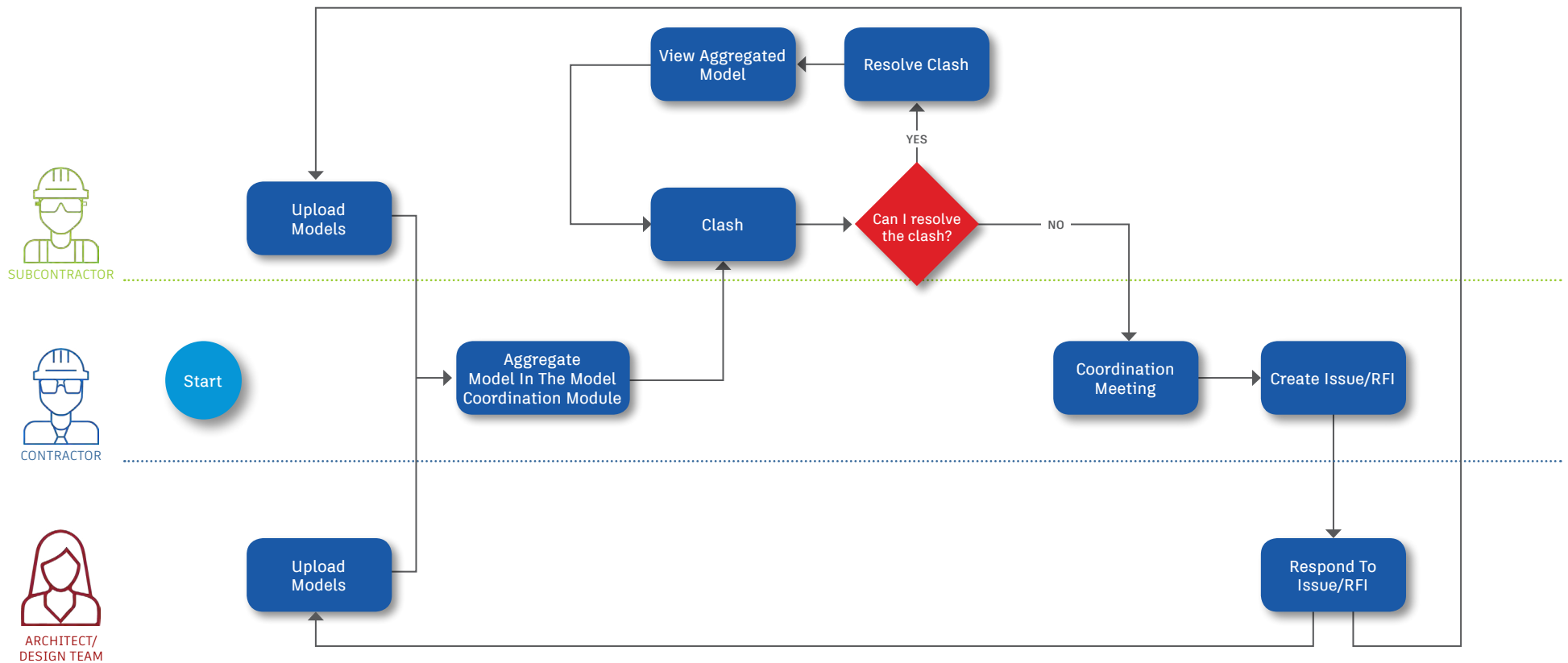
Simplify clash detection and view aggregated models using an automated workflow. The graphic below outlines the suggested model coordination workflow using BIM 360.

## Why follow this workflow?

- Automate clash detections
- Easily sort and filter clashes
- View and share models across multiple disciplines

## BIM 360 capabilities used

- 3D model access
- Automatic clash detection



# Constructability Capabilities

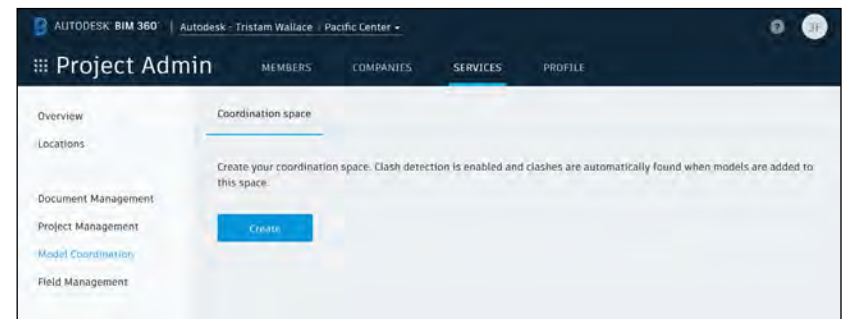
# 3D Model Access

Built on a common data platform, the Model Coordination module enables multiple trade teams to review and analyze their models in the context of a unified project model. By defining a coordination space in the Document Management module, teams can create dynamic 3D views combining multi-trade models and review automatic clash detection results. With simple navigation tools, 3D model access gives the whole team visibility into coordination decisions and impacts.

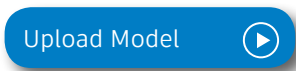


## 1 Upload 3D models

- In order to utilize the appropriate revisions of design and fabrication models, the Model Coordination module must be configured to work with content within a relevant folder in the Document Management module. This requires a “coordination space” to be identified.
- Once the project admin sets up this space, any 3D models uploaded to the Document Management folder will be instantly available for viewing in the Model Coordination module.
- When models are uploaded, clashes are automatically detected and the results are available in the Model Coordination module.



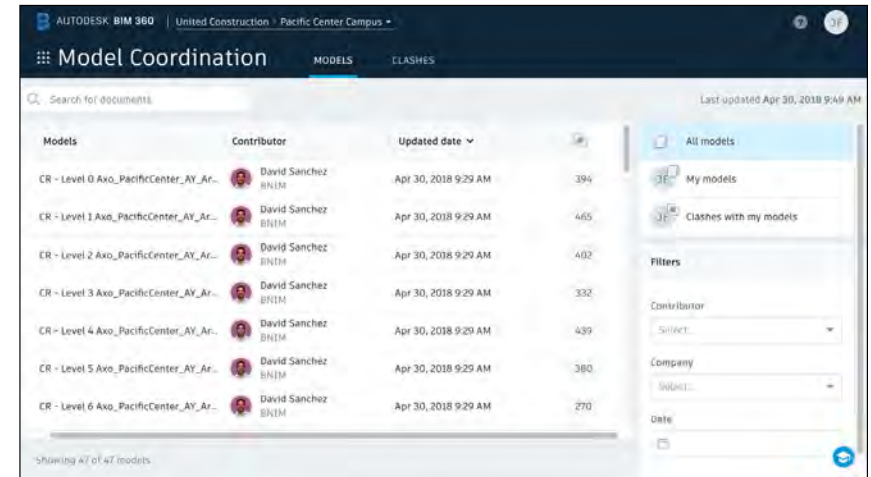
PRO TIP: Any subfolders below your chosen folder will be automatically included in your coordination space.



# 3D Model Access

## 2 View 3D models

- Open the Model Coordination module to view a list of the uploaded 3D models.
- Click on a single model to open and view.
- Search and sort models, view “My Models” or filter by contributor, company, or date.
- Multi-select models and click the “View” button to open an aggregated 3D view.
- In this view you can turn models on and off using the left panel, orbit/pan/zoom/walk, cut sections and measure and view element properties.
- The right-hand column on the Models tab shows the number of objects within each model that clash with the other listed models. Select this number and the multi-model view will load, displaying the associated clashes for review.



PRO TIP: Filter the Models tab to limit the models you want to review, and the clash number will auto-adjust to that context.

PRO TIP: When you organize models, best practice is to structure data by floor and then by discipline. For very large models, it is useful to structure more granularly, such as by wing or project phase, providing greater flexibility when creating aggregate views.



# Automatic Clash Detection

Clash detection runs automatically against model changes, providing ongoing visibility of constructability issues before they become problems in the field. Model Coordination enables proactive engagement of multi-disciplinary teams, helping to optimize design and fabrication models to reduce surprises and waste during construction. With the ability to search and filter model views, drill down into specific clash interferences, and automatically group clashes, the entire project team and stakeholders can understand any issues without waiting for weekly coordination meetings.



## 1 Review clash matrix

- Open the Clashes tab in the Model Coordination module to review the clash results across all models uploaded into the document management coordination space.
- The row header advises the number of objects (within that primary model) that clash with other models in the matrix. Each cell across the row shows how many of those (primary model) objects clash with the intersecting (secondary) mode).
- The color intensity of the matrix cells signifies where the most clashes exist.

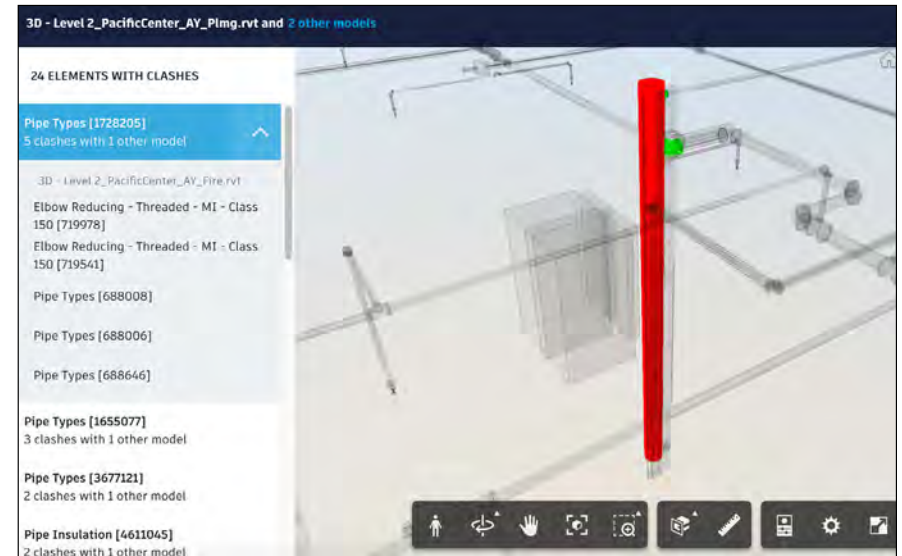
	3D - Level 1_PacificCenter_...	3D - Level 1_Pact_Center_...	3D - Level 2_PacificCenter_...	3D - Level 2_PacificCenter_...	3D - Level 2_Pact_Center_...	3D - Level 3_PacificCenter_...	3D - Level 3_Pact_Center_...	3D - Level 4_PacificCenter_...	3D - Level 4_Pact_Center_...	3D - Level 5_PacificCenter_...	3D - Level 5_PacificCenter_...	3D - Level 6_PacificCenter_...
3D - Level 1_PacificCenter_AY_Fire.rvt 724 clash groups		20										
3D - Level 1_PacificCenter_AY_Pimg.rvt 661 clash groups		17			19							
3D - Level 2_PacificCenter_AY_Elec.rvt 113 clash groups				6								
3D - Level 2_PacificCenter_AY_Fire.rvt 826 clash groups				14			6					
3D - Level 2_PacificCenter_AY_Pimg.rvt		19	15	9			62					

Filter Models & View Clashes

# Automatic Clash Detection

## 2 Group & filter clashes

- Use the search and filter on the top left-hand side of the Clashes tab to narrow your focus to the area you are coordinating, such as a level. Hide all and select the models from the list you wish to view.
- Read the matrix across each row, and clashes are automatically grouped by objects in the model in the left-hand column (row header).
- Click on a cell number to open the intersecting model pair and review those associated clash groups.
- Click on a model in the left-hand column to open all models visible in the matrix (respecting any filters applied) and review those associated clash groups.
- In the clash viewer, clash groups are listed in the left-hand panel, and are prioritized by number of clashes within each group (highest number of clashes as the top).
- Expand any of the clash groups to see the individual clashing objects.
- View details of any individual clashing object by clicking the “Properties” button in the toolbar, and selecting each object in the viewer.
- When you have viewed the models and their clashes, and determined that a clash or clash group does not require any further attention, you can mark it as ‘Not an Issue’.



PRO TIP: Search and filter models within the clash matrix (using model naming conventions) to focus review on a specific location. Click on the row header to open and view all models and clashes within that context.

Coordinate Models & Run Clashes 

# Document Compare

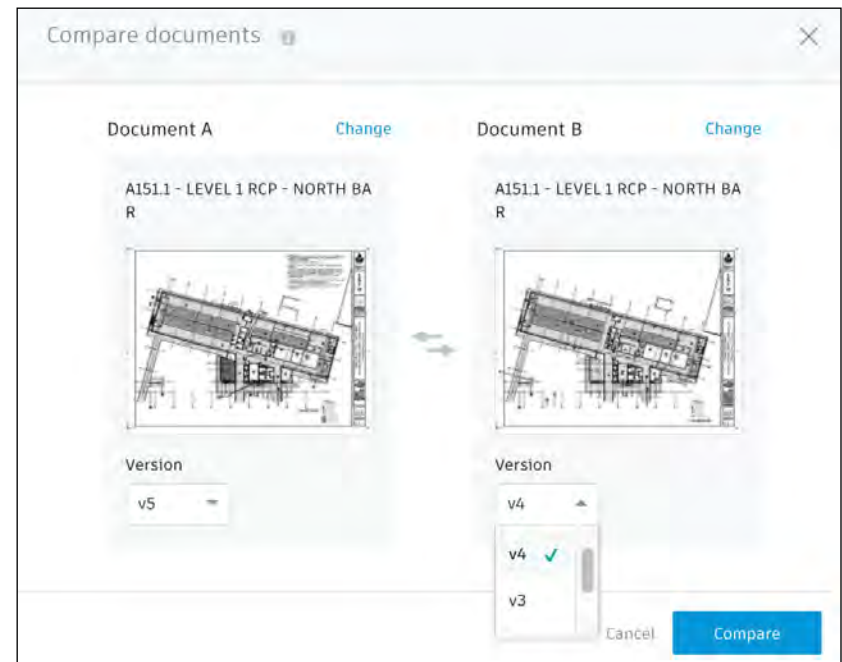
Tracking multiple iterations of documents and visualizing edits from one version to the next can be time-consuming. With the document compare and version control features built into BIM 360, teams can ensure they are viewing the latest version and quickly compare one version to the next to gain insight into how changes impact scope, schedule, and budget. The ability to instantly conceptualize changes helps ensure teams are all on the same page, maximizing time and minimizing rework.



## 1 Compare 2D drawings

- Once you are viewing a drawing, click the “Compare” icon in the toolbar at the bottom.
- Use the version drop-down list to select the two versions you want to compare and click “Compare.”
- By default, drawings are overlaid on top of one another with differences shown in blue and red.
- To compare side by side, click the “Overlay” icon, change the view to “Side-by-Side,” and drag the slider bar to see difference.

Compare 2D Drawings 



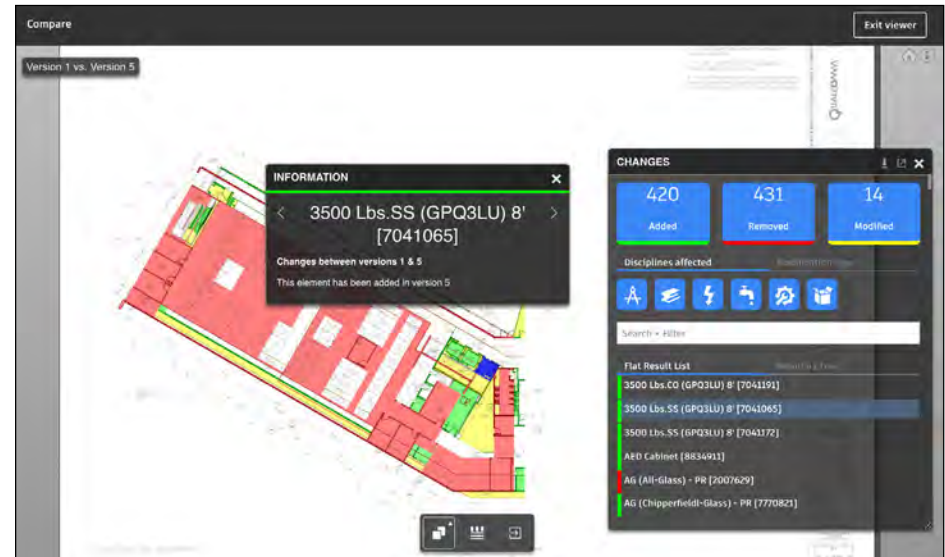
PRO TIP: With 2D compare, you can compare two versions of the same drawing or model or two entirely different drawings. For example, you could compare drawings from two different disciplines.

# Document Compare

## 2 Compare Revit files—2D & 3D

- When comparing Revit files, you can view object-level information, like what has been added (green), removed (red), or modified (yellow).
- Turn on or off different filters to view specified changes.
- Select specific version changes to get more details behind the change.

Compare 3D Drawings 





# Issue Management

Don't let problems slow you down. The ability to create, assign, track, and respond to issues on any device is critical to making sure your project is completed on time and on budget. Put context around the issue resolution by dropping pins on designs, adding photos in the field, and collaborating on comment threads. With a central view of all project issues, tracking status and analyzing root causes has never been easier.

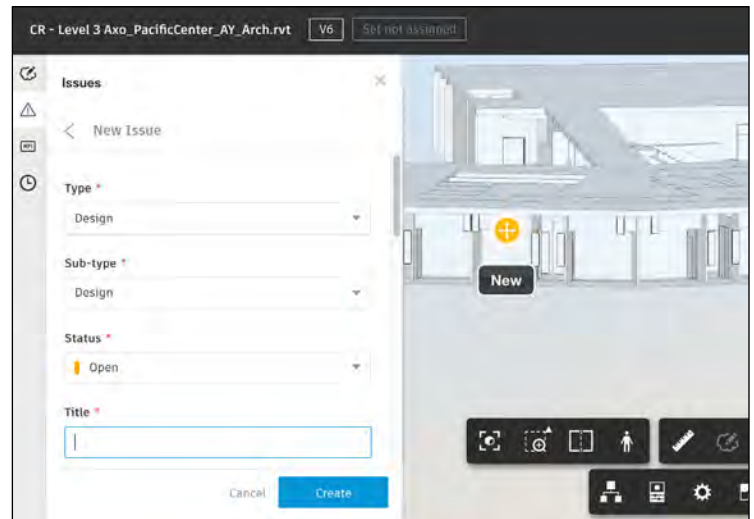


## 1

### Creating document or model based issues

- In the Document Management module, open a 2D document or 3D model and select the Issue icon on the left sidebar.
- In the Issue panel, select “Create Issue” and click where you want to place the issue. An issue push-pin will appear.
- Enter a title and complete all desired fields including Issue Type, Sub-type, Location, and Root Cause. NOTE: Custom attributes are also available if configured through Project Admin
- Select “Create” to save.

PRO TIP: All Issues are unified meaning the same Issue added via the Document Management module can also be viewed in Field Management.



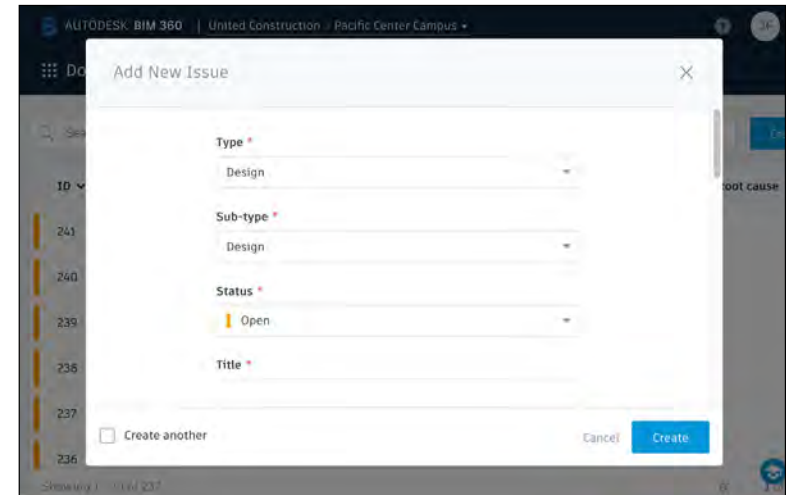
Working with Issues 

Creating Issues 

# Issue Management

## 2 Creating project-level issues

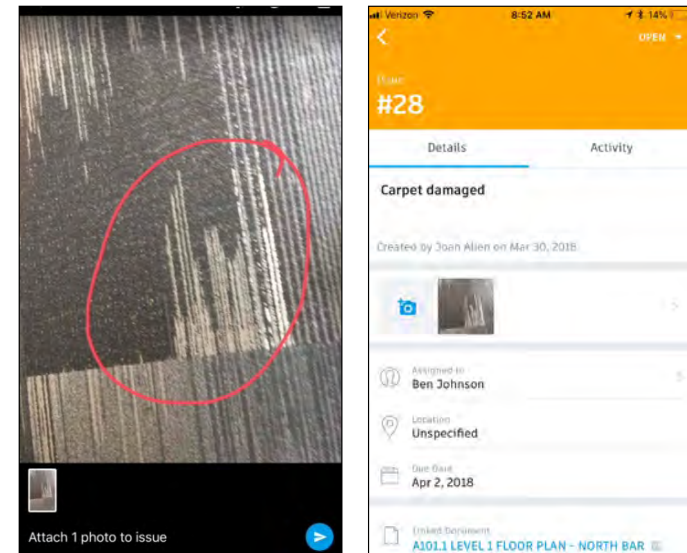
- Project-level issues are issues not associated with a specific drawing or model.
- In the Document Management module, select the Issues tab to display a list of all project issues.
- Click the blue “Create Issue” button
- Once the “Create Issue” box pops up, enter a title and complete all necessary fields.
- By default, the status will be set to Draft. When ready to assign, set to Open. Select “Create” to save.



PRO TIP: You can create and assign document based issues from your mobile device on or offline.

## 3 Add photo to issues

- Tap “Issue” then “Docs Issue.”
- Select the issue to open and tap “Add photo” to take or select a photo from your photo library.
- Add markups to the photo to provide more context.
- Tap the arrow to attach the photo to the issue.



Working with  
Issues on iOS



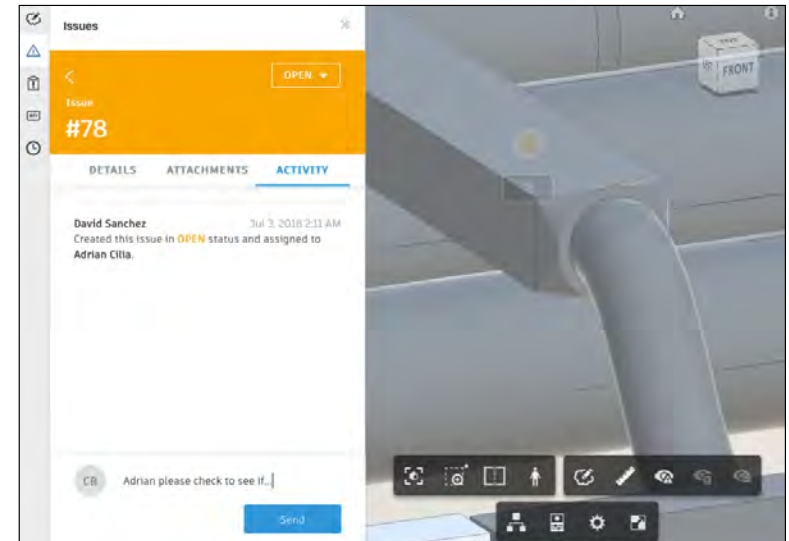
Working with  
Issues on Android



# Issue Management

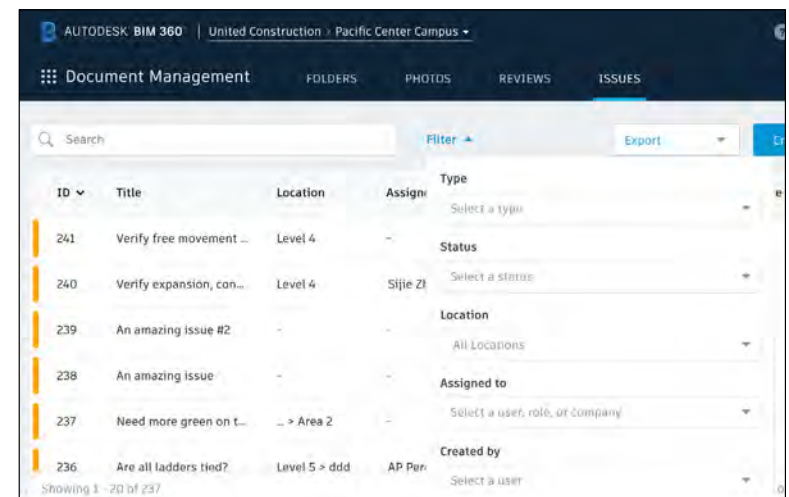
## 4 Review & responding to issues

- If you're the assignee, open the email notification and select "View the Issue."
- Or within the Document Management module, select the Issues tab and search for the issue.
- Once in the issues panel, select "Activity" and respond to the issue using the comment box.
- For document- or model-based issues, click the link under "Document" to view the associated documents.
- Only the issue creator or project admin can set the issue as closed.



## 5 Filter/sort/export issues

- In the Document Management module, select the Issues tab to display a list of all project issues.
- To filter select one or more criteria using the filter drop-down lists.
- To sort, click the column headers.
- To export, select the "Export" drop-down lists.
- Use the "Search" bar to do a keyword search.
- On your mobile device, you can filter document-based issues by status, assignee, or due date.



PRO TIP: You can filter, sort, and export directly from a 2D document or 3D model via the Issues panel.

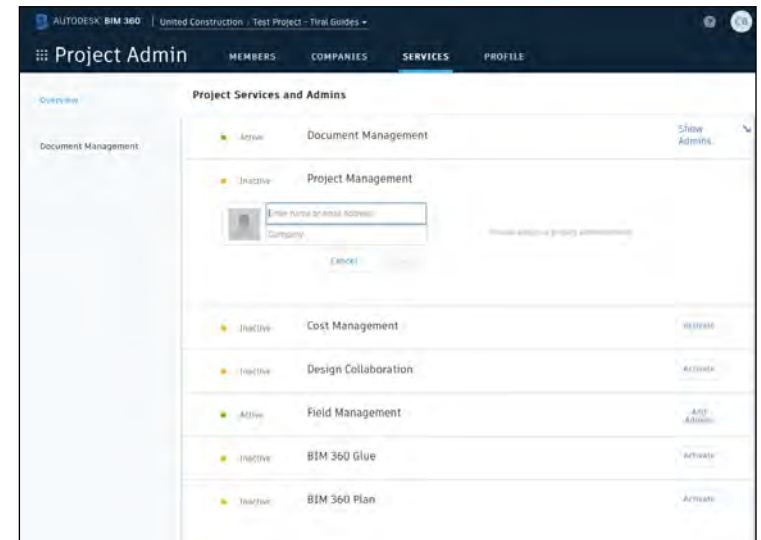
# RFI Management

Enhance your RFI workflow by automatically posting RFIs to 2D documents and 3D models. Create accountability by designating “roles” to keep the process moving. Initiate requests and manage reviews and approvals from any device. And by publishing and storing this information in a single cloud-based repository, you can maintain a full audit trail.



## 1 Activate the Project Management module

- A project admin needs to activate the Project Management module.
- Click the module selector for Project Admin, select the Services tab, and click “Overview” in the left sidebar.
- In the Project Management row select “Activate” and designate at least one project admin.



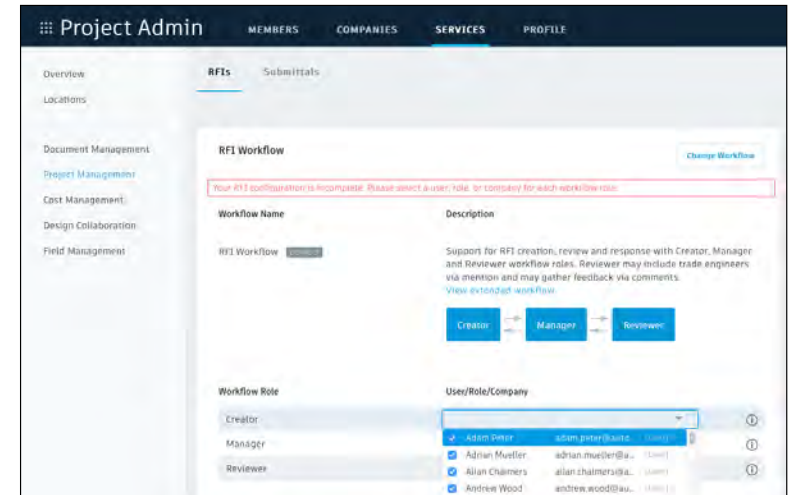


# RFI Management

## 2 Setting up the RFI workflow

- In the Project Admin module, select the Services tab.
- On the left sidebar, click “Project Management” then “RFIs.”
- Click “Change Workflow” to select an RFI workflow. The workflow determines the RFI actions for individual project users.
- Click the drop-down list to assign user/role/company for each workflow role in order to start using RFIs.

PRO TIP: You can create a project-level RFI and then associate it to a document or model by using the “Linked Documents” option.



Set Up the RFI Workflow

## 3 Creating RFIs associated with a document or model

- In the Document Management module, click to open a 2D document or 3D model.
- In the RFI panel, select “Create RFI.” Click where you want to place the RFI and an RFI pushpin will appear.
- Enter a title and complete all necessary fields. By default, the RFI status will be set to Draft. When ready to assign, set to Open.
- Note: Any members selected as a co-reviewer can add comments, markups, and attachments. Those chosen for the distribution list will be aware of the RFI but are not expected to comment.



Creating RFIs

# RFI Management

## 4 Creating project-level RFIs

- Project-level RFIs are RFIs not associated with a document or model.
- In the Project Management module, select the RFIs tab and click “Create RFI.”
- Once the “Add New RFI” box opens, enter a title and complete all necessary fields. By default, the RFI status will be set to Draft. When ready to assign, set to Open.
- Note: A member selected as a co-reviewer can add comments, markups, and attachments. Those chosen for the distribution list will be aware of the RFI but are not expected to comment.

PRO TIP: You can create a project-level RFI and then associate it to a document or model by using the “Linked Documents” option.

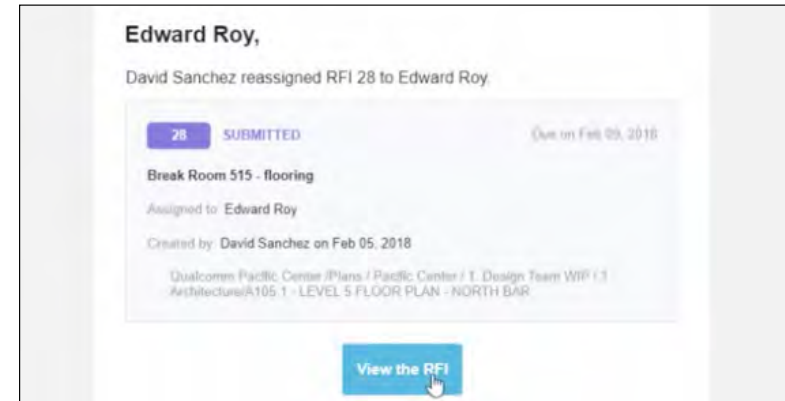
## 5 View/edit/submit RFIs

- View all project-level RFIs in the RFIs tab. Click to open the RFI and use the pencil icon to edit any necessary fields.
- For document or model-based RFIs, under “Details” click the document hyperlinks to open the associated document. Or when viewing a document or model use the RFI panel to navigate to the RFIs.

# RFI Management

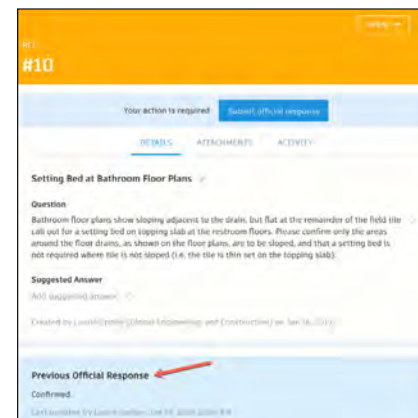
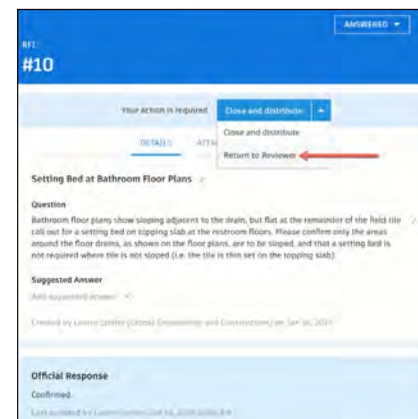
## 6 Review & respond to RFIs

- Depending on where you are in the RFI workflow, the relevant assignee will receive an email notification.
- Open the email and select “View the RFI.” You will be directed to the RFI and associated documents.
- The reviewer can add additional co-reviewers, comment, attach documents, and submit the official response.
- You can also review and respond to RFIs using the RFIs tab within the Project Management module.
- The RFI manager will review the response and set it to closed.



## 7 Re-open answered RFI

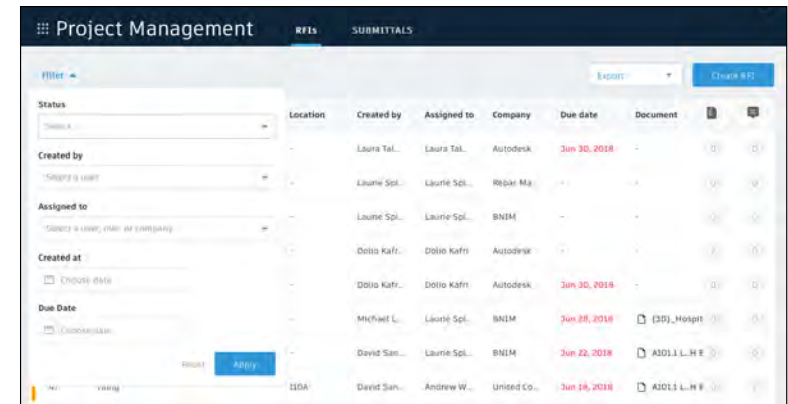
- Re-open RFI is intended as an administrative override to revert an RFI to the Reviewer's court if the answer is incomplete in some way. It is not intended to act as a revision process.
- When an RFI Manager receives a response that is incomplete, they have the option to Return to Reviewer. Use the drop down to select “Return to Reviewer.”
- Select who to assign the RFI to. The Reviewer will see the RFI back in their court, and will be able to view the previous official response and select “submit official response” to send a new response to the Manager.



# RFI Management

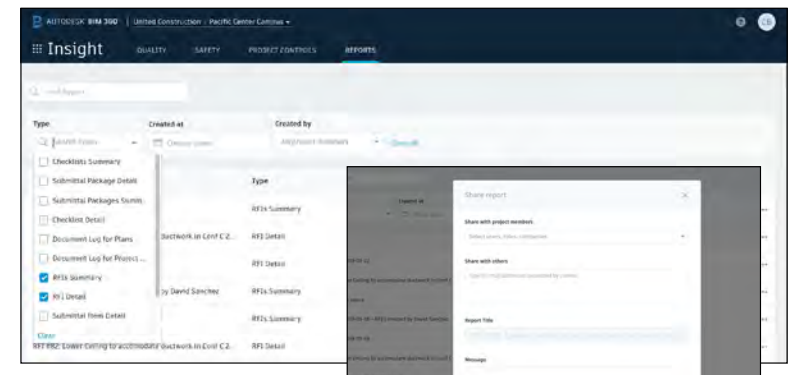
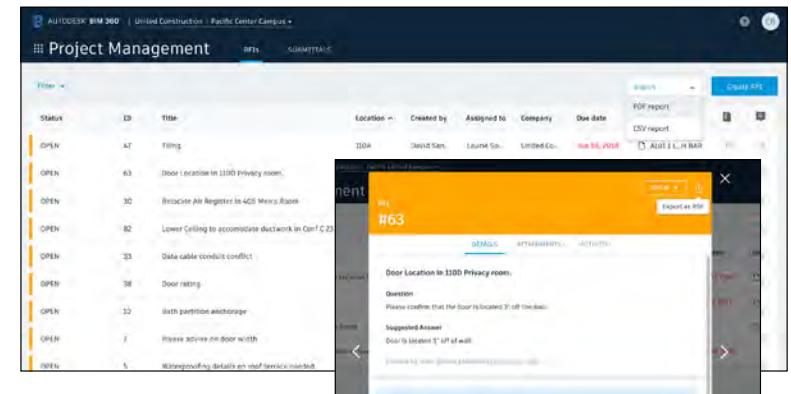
## 8 Filter and sort

- On a mobile device, tap “RFI” then use the filter option to filter by status, assignee, or due date.
- On a computer select the Project Management module then the RFIs tab to filter with the drop-down lists or sort by clicking the column headers.
- You can also filter and sort directly from a document or model-based RFI via the RFI panel.



## 9 Exporting reports

- On a computer select the Project Management module then the RFIs tab.
- To export a summary report of all RFIs click the “Export” drop down list. You can optionally edit the report title and add a message. Select “Create Report” and the report will be emailed to you.
- To export a detail report of an individual RFI select to open the RFI. Then click the folder icon in the top right corner. The report will be emailed to you.
- You can also export directly from a document or model-based RFI via the RFI panel.



**PRO TIP:** Use the reports tab in the Insight module to access all exported summary and detailed RFI reports. You can filter the reports by type, creation date, and creator in order to quickly find the report you need.

You can download the report or share it with team members by clicking the three dot icon.



# Additional Capabilities

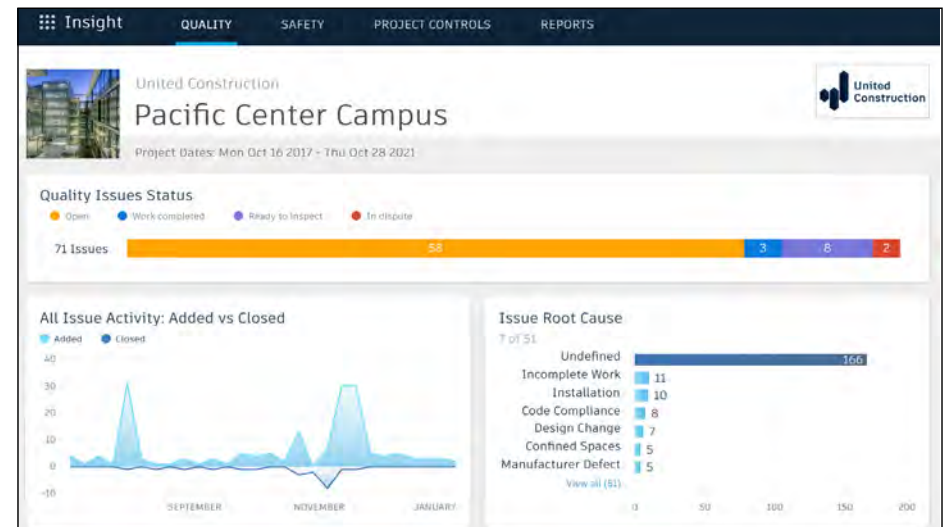
# Insight & Reporting

Having the right information at your fingertips is key to making better business decisions. With the Insight module, teams have visibility into high-level issues that might be holding up project schedules and driving up costs. By quickly seeing where issues are happening and putting the right steps in place to solve problems, teams can prioritize next steps and drive quality control needs to help ensure projects are successful.



## 1 Insight module

- Click on the Insight module from the module picker.
- There are multiple tabs for different analytics views:
  - Quality
  - Safety
  - Project Controls
- The Reports tab shows a list of exported reports related to Issues, Checklists, Documents, Submittals, and RFIs
- Use the settings gear icon to change the date range of the view.
- Use the expand arrows to get a more detailed view and metrics.



Insights Setup

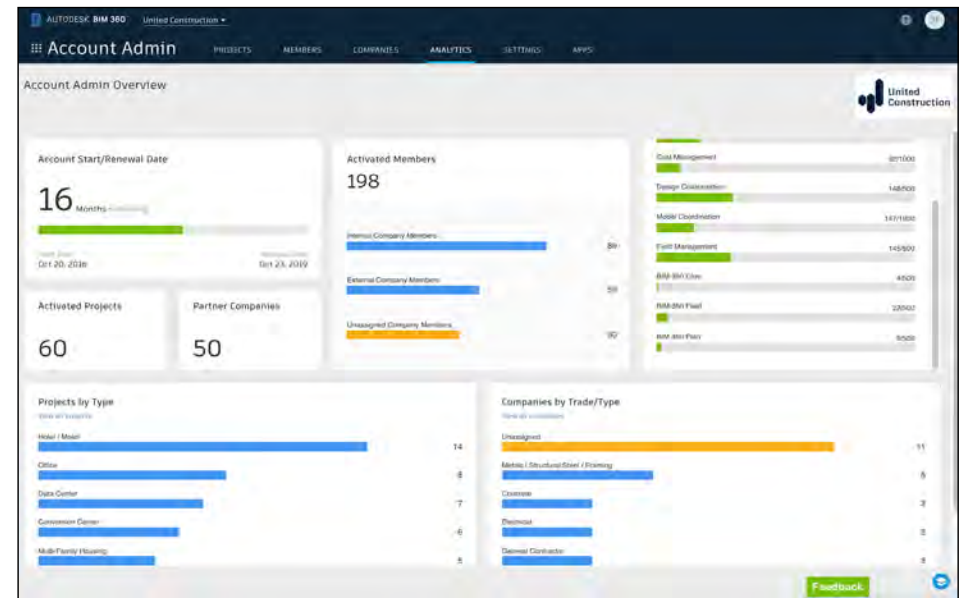


Insight Blog



## 2 Account analytics

- Click the Account Admin module in the module selector tool.
  - This option will only appear if you have admin privileges.
- Click “Analytics” to see insights on member activations, linked companies, and account information.
- Click the Members tab to see insights, member usage, and status.



Account Admin



# Project Home

Project Home is a new way of interacting with BIM 360 that gives users a single view into their entire project, with access to important, relevant, and actionable information from across BIM 360 and even some third-party services. It provides a unified experience with at-a-glance insights about the entire project, all in one place. This enables teams to quickly evaluate areas that require attention and put the necessary action in place.



## 1

### Dashboard Card Library

- Dashboard cards can be personalized by selecting “Customize” on the top left and clicking on the “Card Library”
- The Card Library gives users the ability to show information that is personalized for them including cards with data from integration partners, giving a more holistic view of the project.
- Click any of the links to drill down and get more information on a specific item.
- Use the expand arrows to open the card to full screen and minimize it.

**Project Home**  
United Construction  
Pacific Center Campus  
Project Dates: Mon Oct 16 2017 - Thu Oct 28 2021

**Project Address**  
JACKSON SQUARE  
FINANCIAL DISTRICT  
SAN FRANCISCO, CA  
1 Market street  
San Francisco, CA 94105

**Weather**  
60°  
Partly Cloudy Day  
Powered by Dark Sky

**Field Issues**

ID	Title	Due Date
5	Insulation missing	Nov 3, 2017
4	Insulation missing	Nov 4, 2017
7	Drywall defect	Nov 10, 2017
6	Drywall Defect	Nov 15, 2017
10	Issue draft	Nov 20, 2017

5 of 19 Open Issues | view all (19)

**Checklists**

Title	Location	Scheduled
Above Ceiling Inspection		Nov 4, 2017
First Floor Inspection		Nov 5, 2017
Ceiling Inspection		Nov 16, 2017
Pre-drywall Inspection		Nov 18, 2017
Above Ceiling Inspection		Dec 1, 2017

5 of 46 Open Checklists | view all (46)

**RFIs**

ID	Title	Due Date
10	Bath partition anchorage	Nov 15, 2017
3	Floor specifications needed	Nov 15, 2017
14	Ceiling failure	Nov 16, 2017
2	Wall type at exhibit storage	Nov 16, 2017
1	Mechanical pad needed	Nov 17, 2017

5 of 36 Open RFIs | view all (36)

[Project Home Overview](#)

[Project Home Blog Post](#)

# Mobile Access

Construction doesn't happen behind a desk. Teams need access to project documents and project management tools anytime, anywhere. With the BIM 360 mobile app, teams can execute construction quality and safety workflows, including creating or editing checklists, viewing RFIs, adding or tracking issues, and managing or creating drawing markups, directly from an Android or iOS device.

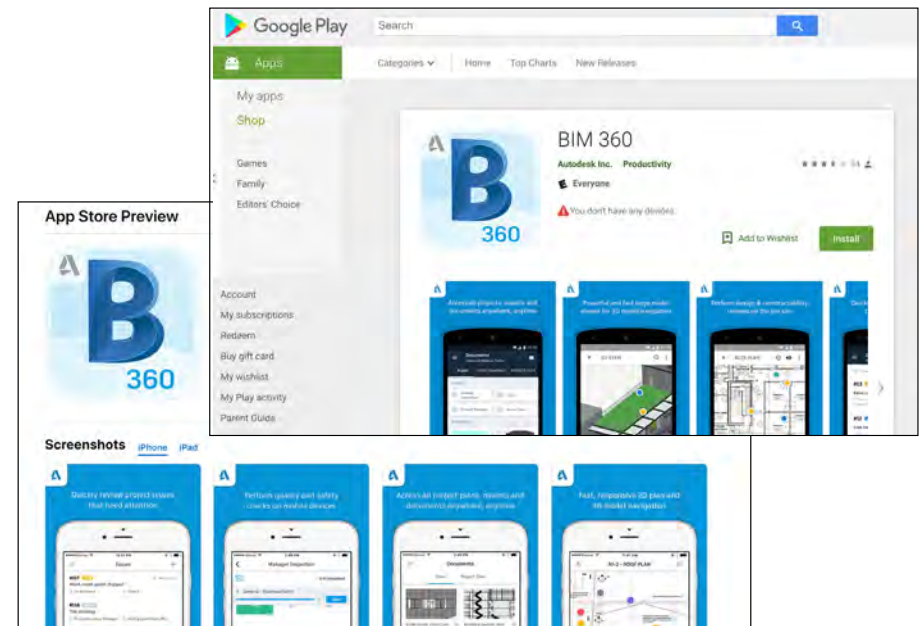


## 1 Download the BIM 360 app

- Go to the App store or Google Play store on your mobile device to download the BIM 360 app.
- The BIM 360 mobile app works with all other modules, including Document Management.

Get the iOS App 

Get the Android App 



PRO TIP: Stay up to date on mobile capabilities through the Autodesk Knowledge Network.



# Mobile Access

## 2 Mobile workflows

- Several workflow capabilities can be accomplished using the BIM 360 mobile apps, including Checklists, Issue Management, RFI Tracking, Daily Logs, and Markups.
- To see the differences in workflow capabilities for the BIM 360 and BIM 360 Docs apps, click the “BIM 360 Mobile Capabilities” link below.

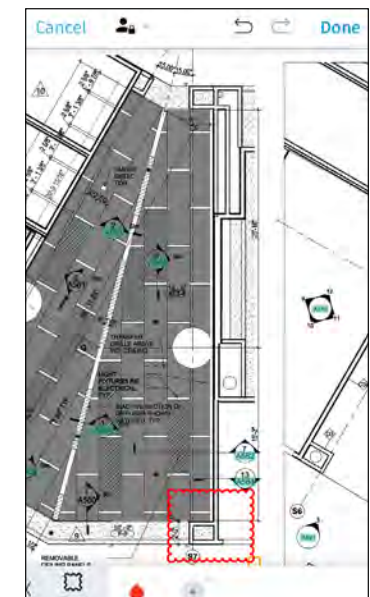
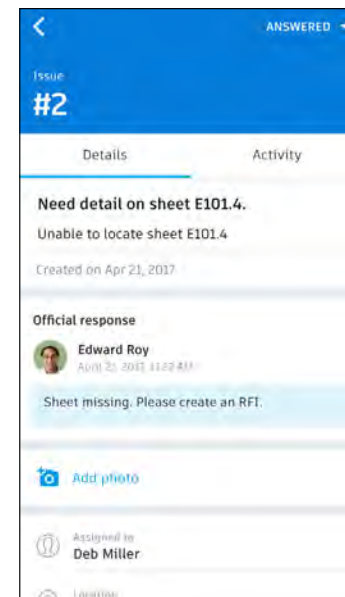
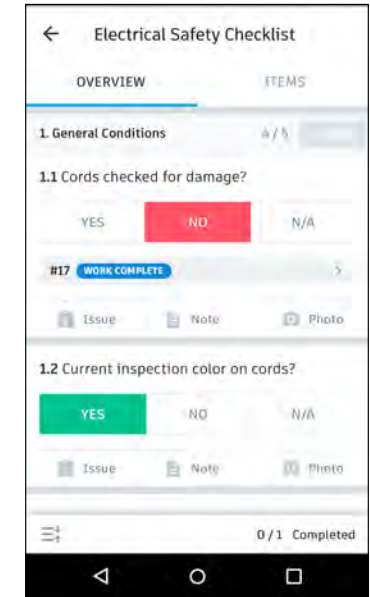
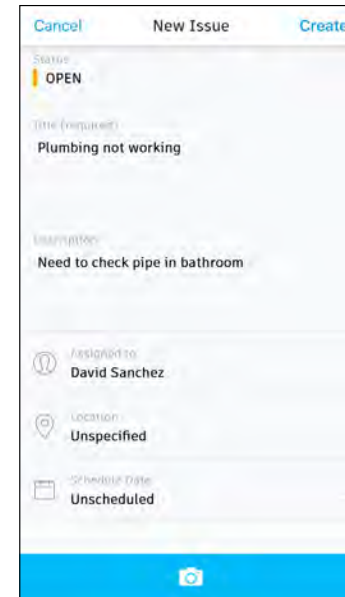
[BIM 360 Mobile Capabilities](#) 

[About the iOS App](#) 

[About the Android App](#) 

## 3 Offline sync

- Teams are able to work on-site without Internet access.
- Teams can also download individual documents and add markups and comments when working offline. Once back online, all changes will be synced back to the cloud.



# Account Admin

With the project administration tools in BIM 360, you can rest assured that your project information is in the right hands. Project admins can easily invite team members to the project and define their access levels on a project-by-project basis with a simple click. BIM 360 has two levels of administration to ensure security and control across your projects: Account admins and project admins. Only account admins can create new projects and assign additional account admins and project admins. Project admins can add and remove members, set permissions, and adjust project details.




## 1

### Create a project

- In the Account Admin module, select the Projects tab and click “Add.”
- Enter project information and click “Save & Continue.”

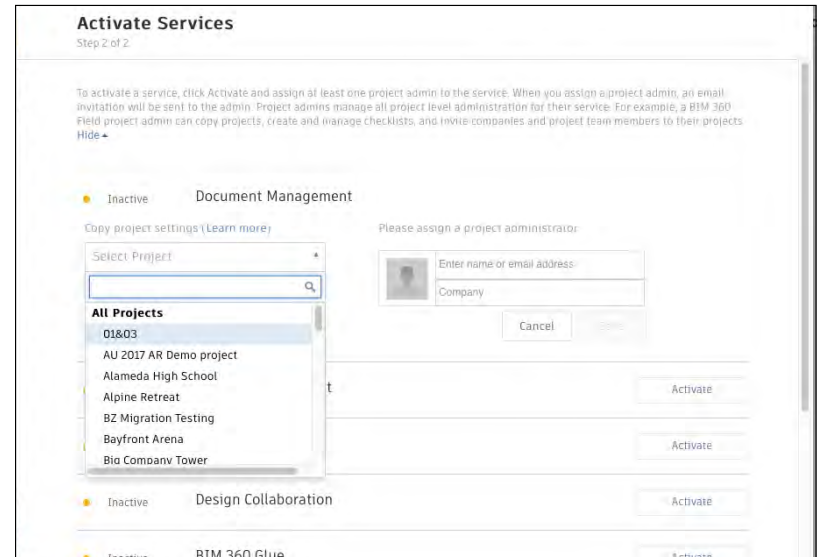
Getting Started Guide 

Create a Project 

# Account Admin

## 2 Activating modules

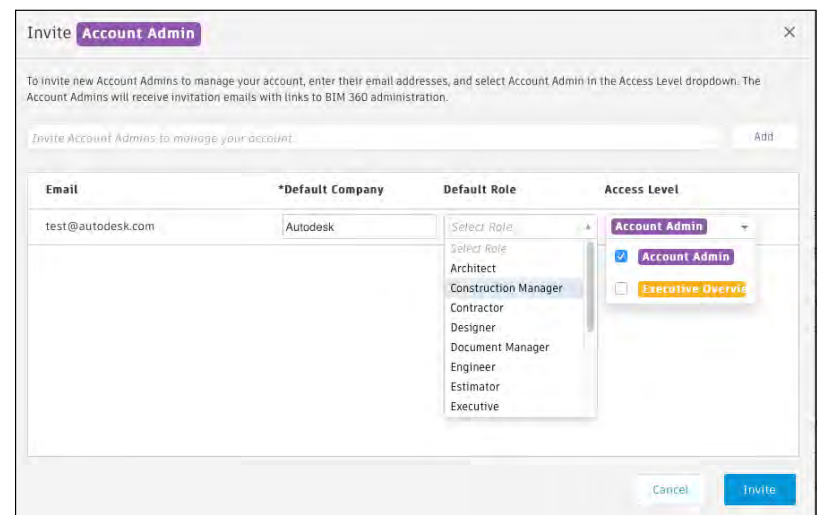
- Click “Activate” for the desired BIM 360 service.
- Assign a project admin for each service. You can add multiple admins.
- (Optional) For Document Management and Field you can copy existing project settings.
- An email invitation will be sent to the assigned project admin(s). They will need to click the link to join the project.
- Click “Finish.”



PRO TIP: You have to activate Document Management first, before you can activate other next-gen services.

## 3 Add members to directory

- In the Account Admin module select the Members tab and click “Add.”
- To add an individual member, select “Add People to the Member Directory.”
- To add an account admin, select “Invite Account Admins.”
- To import members from a list, select “Import Members by Spreadsheet.” For a first-time import, download and complete the member list template.

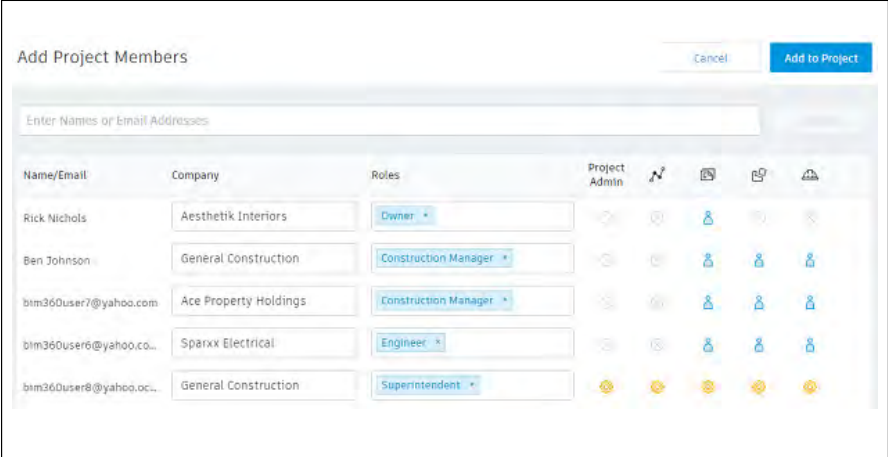


PRO TIP: You can change the default company and role later if necessary.

# Account Admin

## 4 Adding members to a project & assigning access levels

- In the Project Admin module, select the Members tab.
- Click “Add” and use the search bar to search the member directory.
- When you find the member, select them and click “Select.”
- Add their company and role. Note: Role determines their access level to all BIM 360 services.
- Click the icon(s) to overwrite the access level granted by their project role.
- Click “Add to Project.”
- Update existing access levels by clicking the grayed out icon(s).



The screenshot shows the 'Add Project Members' interface. At the top right, there are 'Cancel' and 'Add to Project' buttons. Below is a search bar labeled 'Enter Names or Email Addresses'. The main area is a table with the following columns: Name/Email, Company, Roles, and Project Admin. The Project Admin column contains icons representing different access levels: a person icon (active), a person icon with a slash (disabled), and a person icon with a lock (locked).

Name/Email	Company	Roles	Project Admin
Rick Nichols	Aesthetic Interiors	Owner	[Person icon]
Ben Johnson	General Construction	Construction Manager	[Person icon]
bim360user7@yahoo.com	Ace Property Holdings	Construction Manager	[Person icon]
bim360user6@yahoo.co...	Sparxx Electrical	Engineer	[Person icon]
bim360user8@yahoo.oc...	General Construction	Superintendent	[Person icon]

Members & Access Levels 

# Integration Partners

Get the most out of construction technology by integrating the software you already use with BIM 360. Built on an open and secure API platform, BIM 360 enables users to easily integrate with various other construction softwares, including drone technology, estimating and bid management, as well as safety management tools.



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