

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 December 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

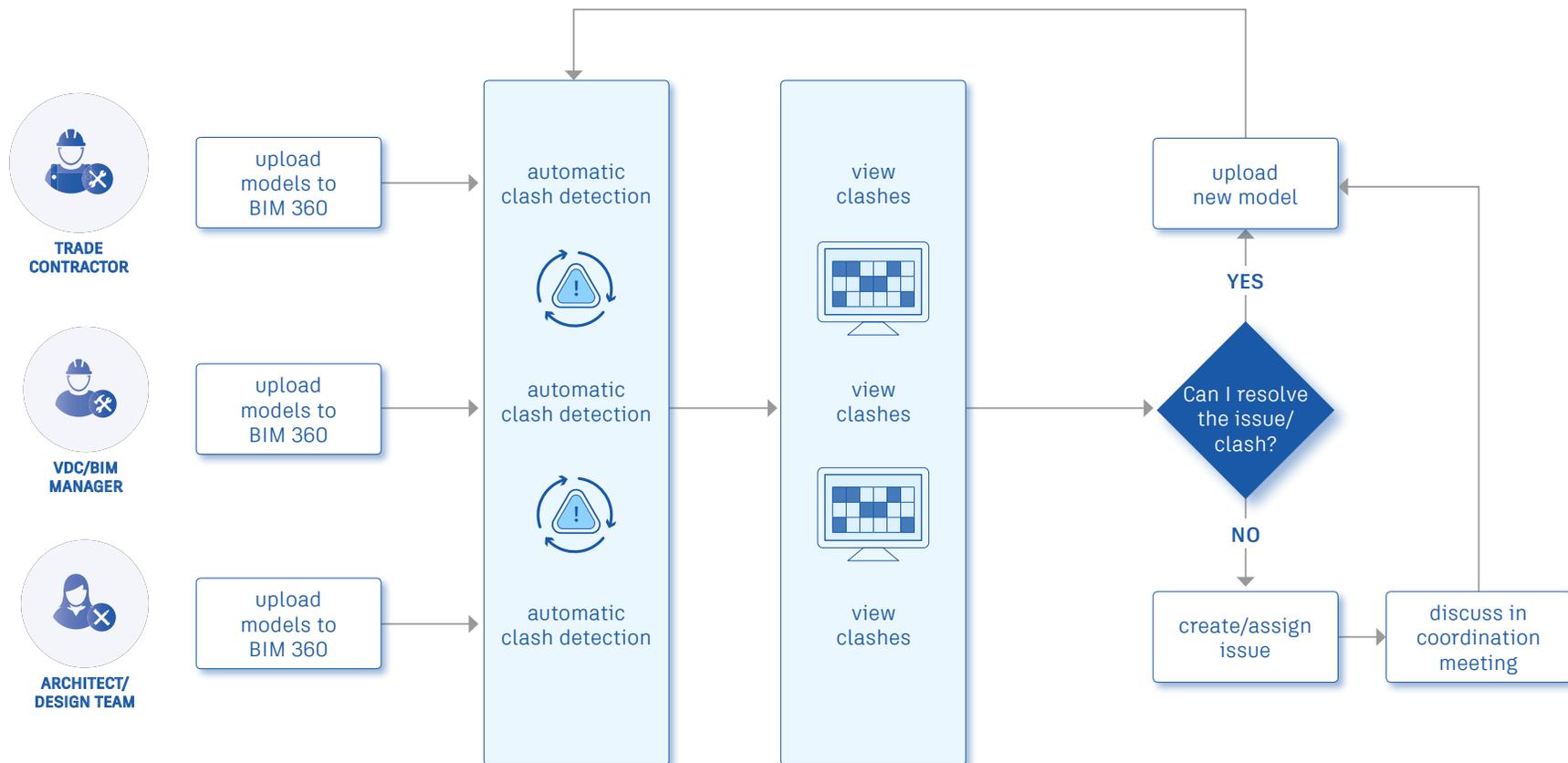
Simplify clash detection and view aggregated models using an automated workflow. The graphic below outlines the suggested model coordination workflow using BIM 360.

Why follow this workflow?

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

BIM 360 capabilities used

- Coordination spaces
- Automatic clash detection



Constructability Capabilities

Coordination Spaces

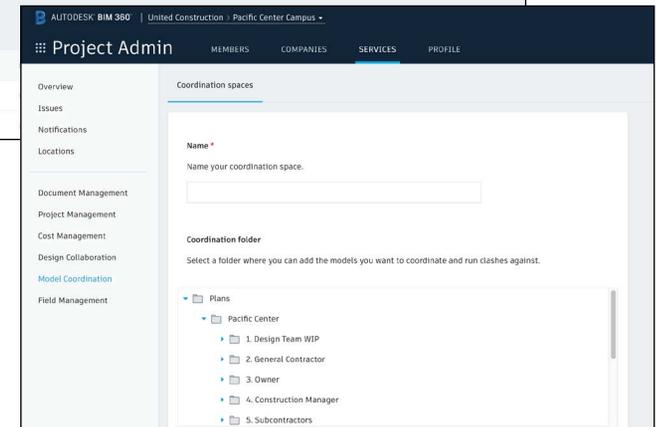
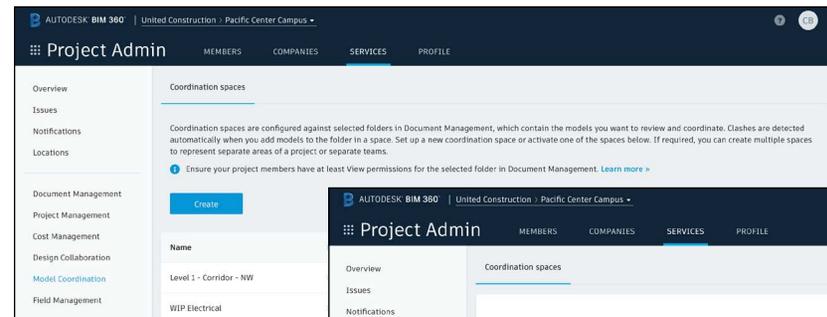
Built on a common data platform, the Model Coordination module enables multiple trade teams to review and analyze their models in the context of a unified project model. By defining a coordination space in the Document Management module, teams can create dynamic 3D views combining multi-trade models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



1

Create coordination spaces

- 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 the creation of “coordination spaces.”
- Coordination spaces are created within the Project Admin module under the Services tab, Model Coordination. Select “create” and enter a name for the coordination space and then navigate to a folder, in the Plans folder in Document Management, that you want to use for coordination.
- Models in the selected folder and any subfolders are included in the coordination space. All the models are listed alphabetically in a single, flat repository structure.



PRO TIP: Teams can set up multiple “coordination spaces” to allow for individual teams to have ‘private’ spaces as well as ‘shared’ spaces for multi-disciplined teams.

Creating Your
Coordination Space 

Coordination Spaces

2 Upload models for coordination

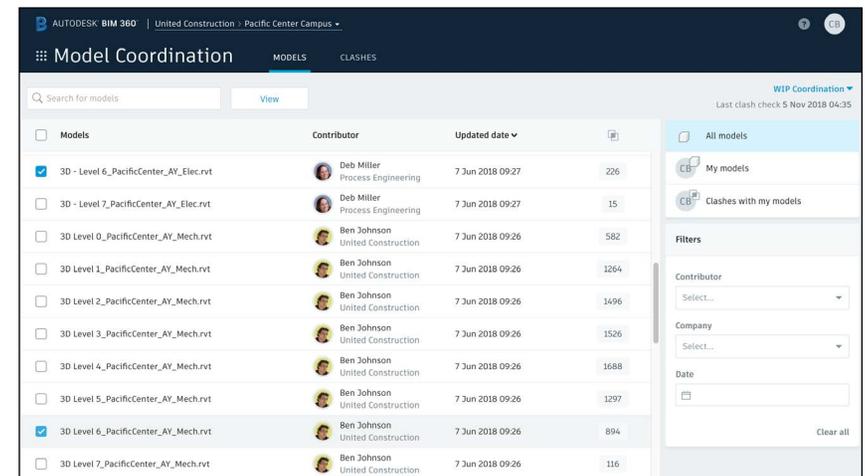
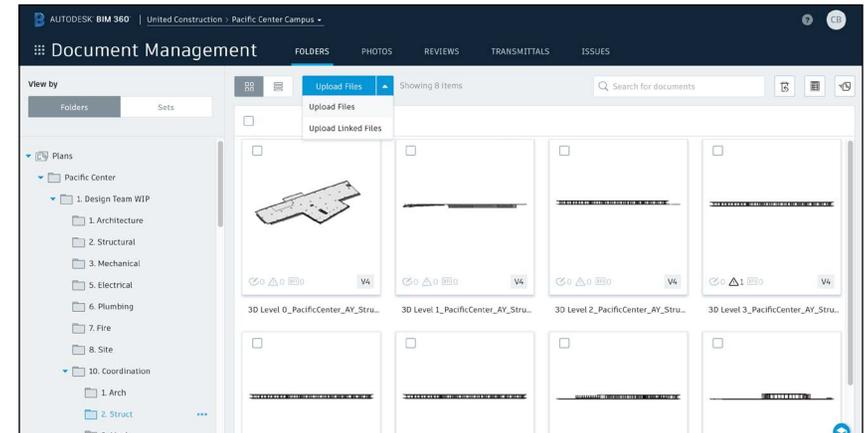
- Once the project admin sets up the coordination space(s), any 3D models uploaded to the specific coordination space folder within Document Management will be instantly available for viewing in the Model Coordination module.
- When models are uploaded to the folder they're coordinated and automatically checked for clashes.

Upload Model



3 View 3D models

- Within the Model Coordination module use the drop-down on the far right to select the coordination space you want to view. A list of the models within that space will appear, click a single model to open and view.
- Use the search feature, or the filters in the right-hand panel, to refine the model list. You can filter to see only your models, clashes with your models, or by the contributor, company, or date last updated.
- 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.

Coordination Spaces

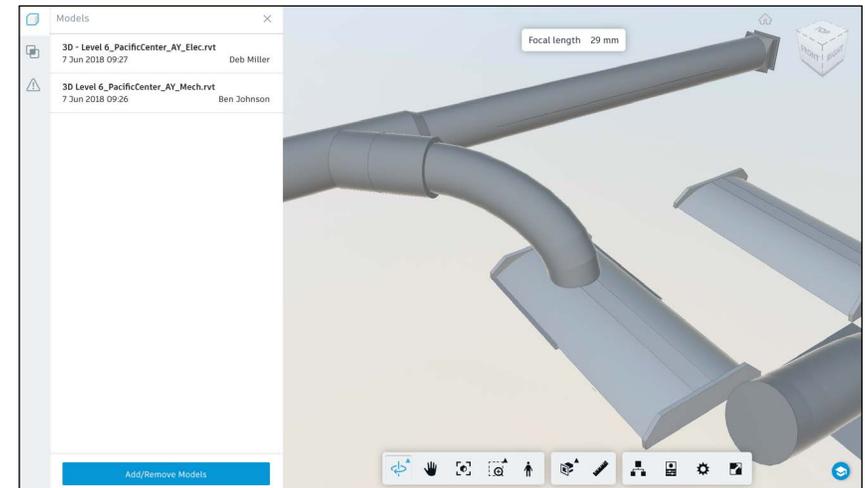
- Multi-select models and click the “View” button to open an aggregated 3D view.
- When viewing you can turn models on and off using the left panel, orbit/pan/zoom/walk, cut sections and measure and view element properties.
- Click “add/remove models” to easily adjust the models displayed in the viewer.
- Click the X in the top-right corner to exit the viewer and return to the model list.

Saved Views

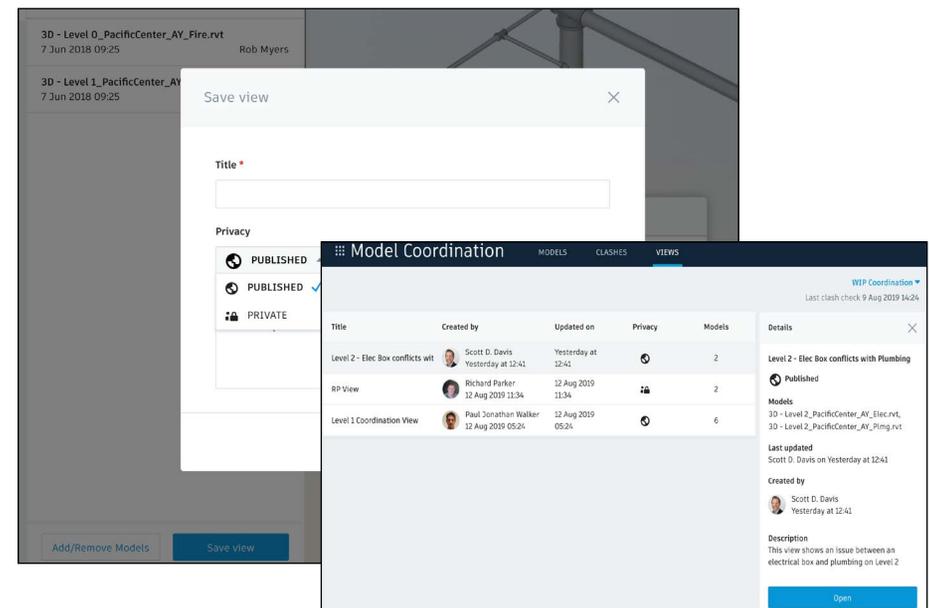
Model Coordination makes it easier to focus coordination activities on a project subset. Saved Views act as a shortcut to a group of models, typically aligning with a project location, which can be shared across project members to aid in multi-disciplinary coordination activities.

- Select the models you wish to view. In the viewing window select “save view” to save the views as a subset.
- Add a title, description and select the privacy settings (published provides access to all project members in the coordination space). Select “save view.”
- You can reference all saved views in the views tab. Select the view title to open the view or click the row to access the details box.

PRO TIP: Saved views can be modified and saved again when you open them.



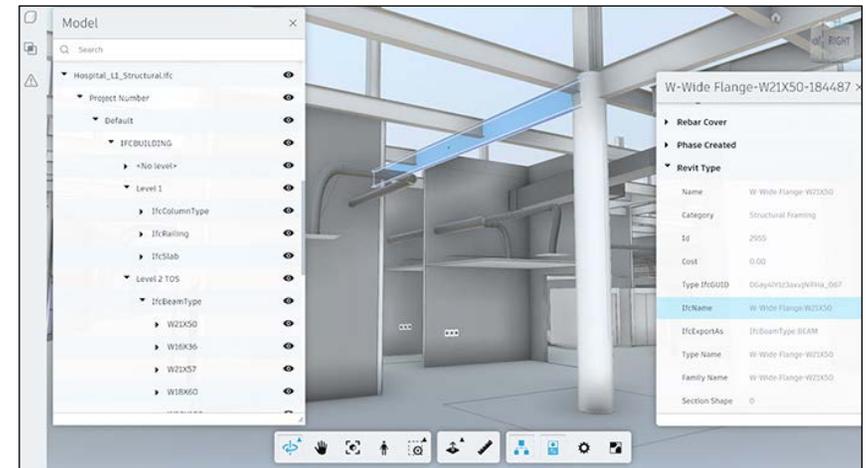
PRO TIP: Use the icons on the left side panel to switch between a list of the selected models, and the clash groups for each of the models. You can also view any issues associated with the selected models by clicking the issues icon.



Coordination Spaces

4 IFC file support

- Model Coordination supports the use of Industry Foundation Class (IFC) files as an industry standard file format.
- Users can import ArchiCad, Revit, and Tekla files in IFC format, ensuring that data from a comprehensive range of sources can be included in the integrated project model.



IFC File Support Blog



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

- In Model Coordination, click the Clashes tab to view the clash results across all models uploaded into your selected coordination space.
- The clash matrix displays the number of clashing objects between models. The primary models are listed in the vertical column and the secondary model are the horizontal rows. The number in each cell is the number of clashes between the two models.
- The color intensity of the matrix cells signifies where the most clashes exist.
- Clash groups are the number of objects in the primary model that clash with all other models in the grid.

The screenshot shows the 'Model Coordination' interface with the 'CLASHES' tab selected. It displays a clash matrix for 'Level 3'. The matrix has 7 columns and 7 rows. The columns represent primary models and the rows represent secondary models. The cells contain numerical values representing the number of clashes, with color intensity increasing as the number of clashes increases. A search bar at the top shows 'Level 3' and a filter for '8 models (42 hidden)'. A 'WIP Coordination' dropdown is visible in the top right corner.

	3D Level 3, PacificCenter_MF_Elec.rvt	3D Level 3, PacificCenter_MF_Fire.rvt	3D Level 3, PacificCenter_MF_Plumbing.rvt	3D Level 3, PacificCenter_MF_Structure.rvt	3D Level 3, PacificCenter_MF_Site.rvt	3D Level 3, PacificCenter_MF_Arch.rvt
3D Level 3, PacificCenter_MF_Elec.rvt		27	5	71	173	330
3D Level 3, PacificCenter_MF_Fire.rvt	25		9	470	199	283
3D Level 3, PacificCenter_MF_Plumbing.rvt	11	5		208	64	441
3D Level 3, PacificCenter_MF_Structure.rvt	67	517	161		103	877
3D Level 3, PacificCenter_MF_Site.rvt	4	71	7	14		182
3D Level 3, PacificCenter_MF_Arch.rvt	97	131	84	141	91	

PRO TIP: By default you're taken to the Active sub-tab, which displays a grid of all the clashes that have not yet been reviewed. The Assigned sub-tab displays a list of clashes that have been marked as an issue, and allows you to track the changes being made to resolve the clash. The Closed sub-tab displays a list of clashes that have been marked as 'Not an issue.'

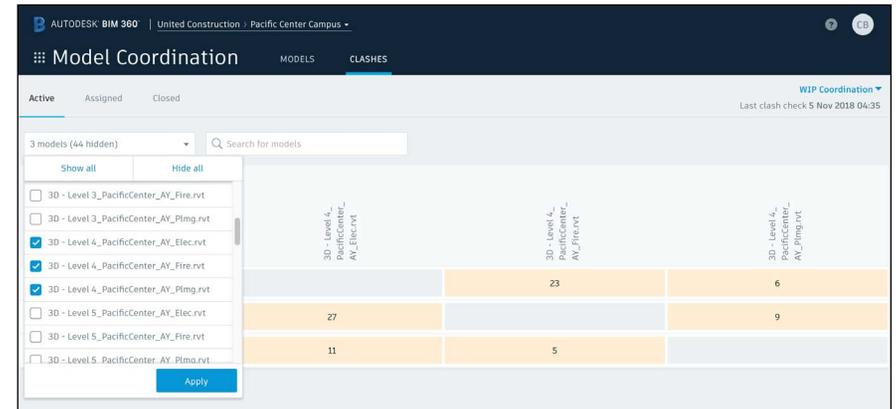
Filter Models & View Clashes ▶

Automatic Clash Detection

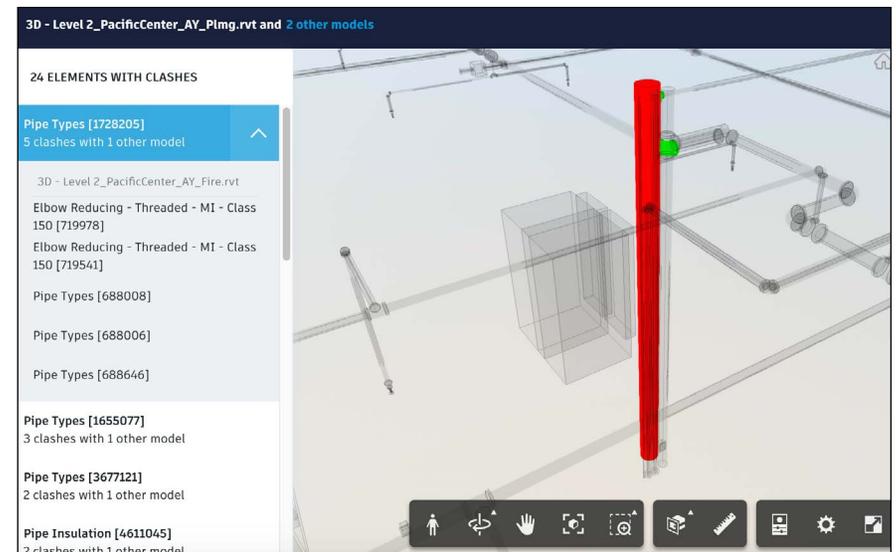
2 Group & filter clashes

- Use the left-hand drop-down list to refine the models shown on the clash grid, or use the search functionality to find a specific model.
- 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.
- Once selected the clash viewer will open. Clash groups are listed in the left-hand panel, and are prioritized by number of clashes within each group (highest number of clashes at 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’.

Coordinate Models & Run Clashes



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.

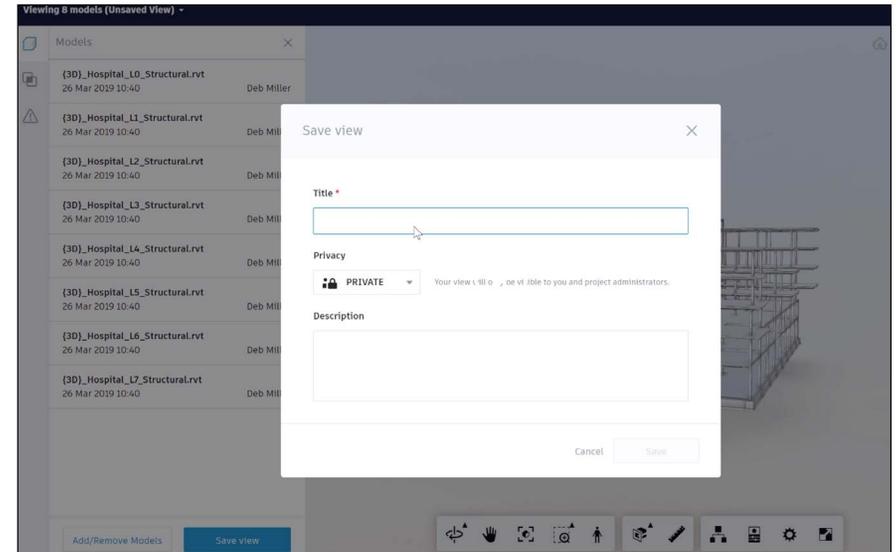


PRO TIP: Users can create groups of clashes using inherent BIM object data depending on the format type (i.e. Revit (RVT), AutoCAD (DWG) and IFC) such as System Name, Layer and Type Name.

Automatic Clash Detection

3 Clash Views tab

- The 'Views' tab in Model Coordination makes it easier to focus coordination activities on a project subset.
- 'Views' act as a shortcut to a group of models, typically aligning with a project location, which can be shared across project members to aid in multi-disciplinary coordination activities.
- In the 'Models' tab click the desired model files you want to layer / view.
- Click the blue 'View' button on the top.
- Once you are viewing all your models, you can click 'Save View' on the bottom left.
- Views can be created as a Private working view for a specific member's use, or as a Published view intended for collaboration by the wider project team.
- The 'Views' tab shows a history of all of your teams shared views.



The screenshot shows the 'Model Coordination' interface with the 'VIEWS' tab selected. The interface displays a table of saved views with columns for Title, Created by, Updated on, and Privacy. The table contains four rows of data.

Title	Created by	Updated on	Privacy
Structure - Levels 0-7	Deb Miller Today at 12:43	Today at 12:43	🔒
Electrical Levels 1-5	Edward Roy Today at 11:45	Today at 11:45	🔒
LO - Coordination	Paul Walker 25 Jul 2019 17:30	25 Jul 2019 17:30	🔒
Level 1 - All Disciplines	Paul Walker 25 Jul 2019 17:22	25 Jul 2019 17:22	🔒



Document Compare

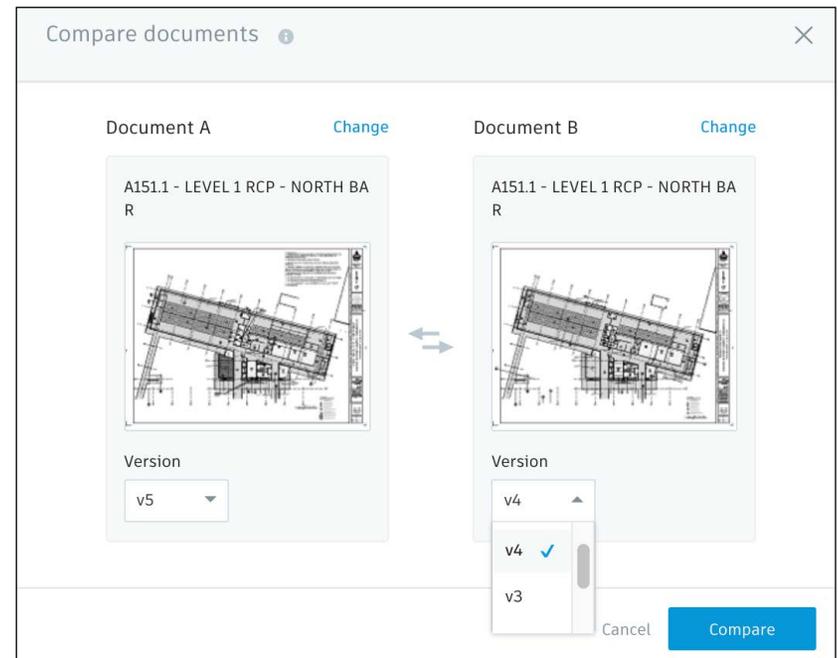
Tracking multiple iterations of documents and visualizing edits from one version to the next can be time-consuming. With the document compare and version control features built into BIM 360, teams can ensure they are viewing the latest version and quickly compare one version to the next to gain insight 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 



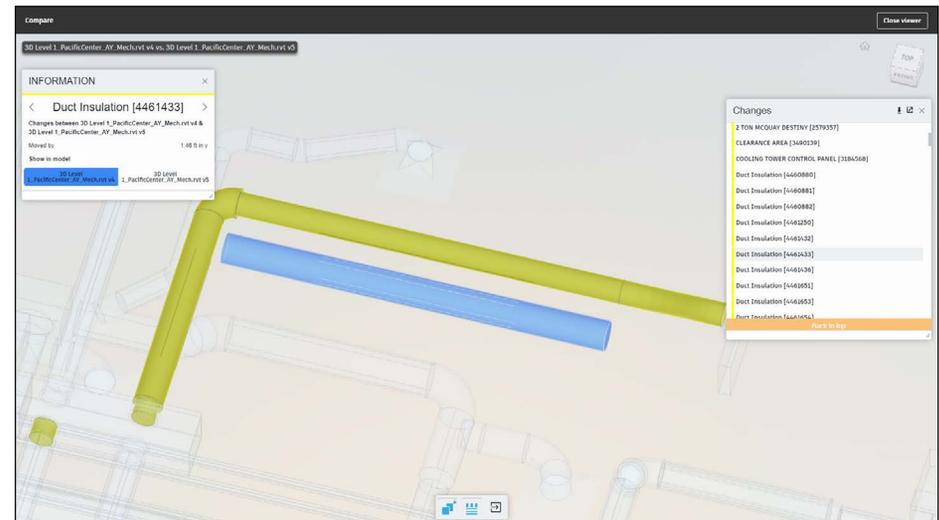
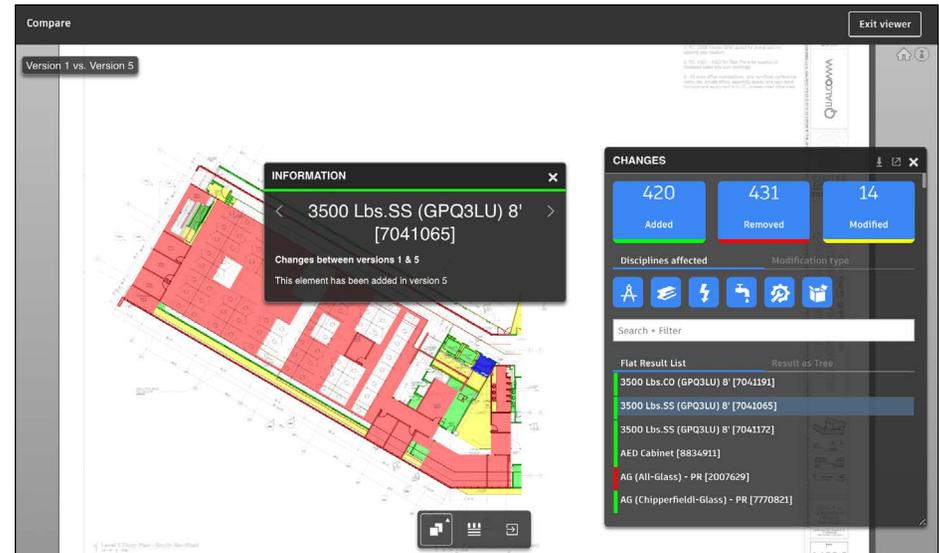
PRO TIP: With 2D compare, you can compare two versions of the same drawing or model or two entirely different drawings. For example, you could compare drawings from two different disciplines.

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

Issues are used by teams to identify and communicate areas of concern or improvement with project documents or models. The BIM 360 Issues workflow is unified into the Model Coordination module. This allows users to view issues across multiple models (i.e. clashes can be assigned to multiple models that the issue is linked to and retains the clash highlighting).

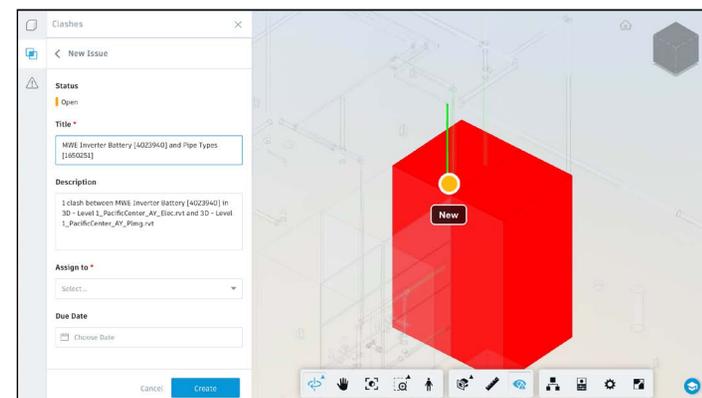
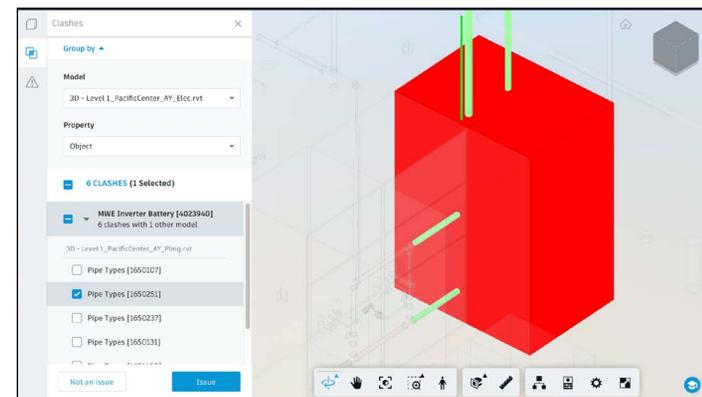


1

Creating an issue from a clash

- When you have viewed the project models and their clashes and determined that a clash or clash group requires further attention, you can create an issue from the clash.
- Click a highlighted clash in the model or click a check box next to a clash group in the left-hand panel to select it. If necessary, expand a clash group to select individual clashes.
- When the clash is selected an “Issue” button will appear, select it. Click to place the issue push pin.
- The title and description fields will automatically fill in but can be edited. Select the assignee using the drop-down list, and optionally choose a due date. Click “create.”

PRO TIP: Custom Attributes can be added to issue types or sub-types to have entries in issues beyond the default entries such as priority. [Read to find out how.](#)

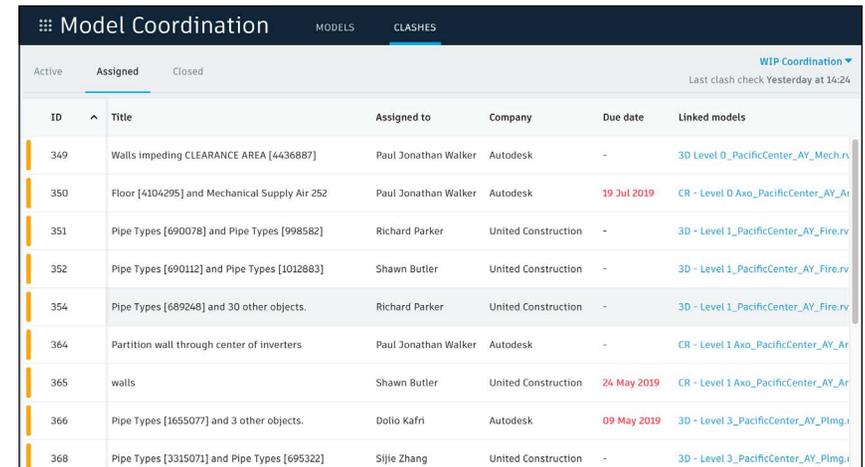


Issue Management

2

Issue assignee view & respond to issues in Model Coordination

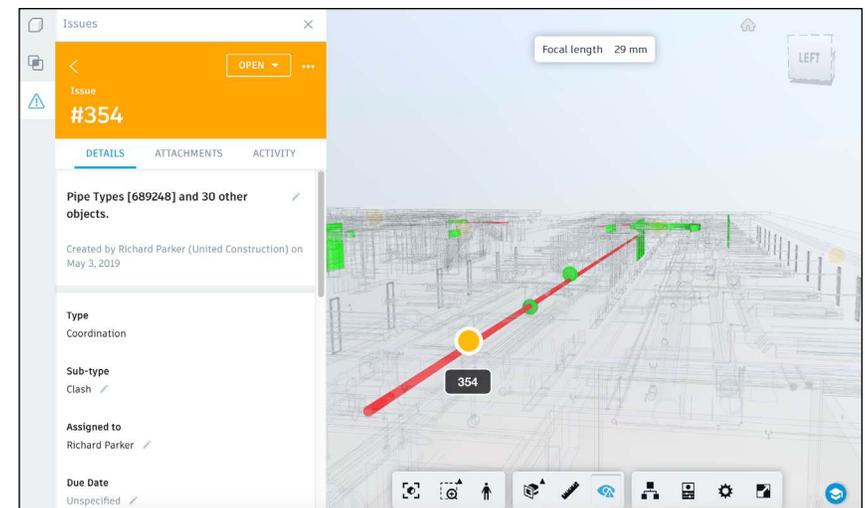
- Issues created from clashes within Model Coordination move to the “Assigned” sub-tab, and an email notification is sent to the assignee.
- Open the email notification and click Issue or view in the Assigned sub-tab. Sort the columns by issue status, ID, title, assignee, company and due date.
- Click the link in the Linked Models column to see an aggregated view of the clashing models in the viewer.
- With the viewer open use the toolbar to take measurements and inspect model properties to help you understand the issue and how to resolve it.
- In the Issues panel view the issue details including the model names, ID numbers of the clashing objects, the due date, and location.
- When you have decided what action is required to resolve the clashes, you can make changes to the affected models and upload updated versions to the coordination folder.
- Use the Attachments tab to attach documents or images to demonstrate the changes made or required.
- Use the Activity tab to add comments or @ to tag another project member and ask a question or prompt them to take action. They will receive an email notification.
- When the clashes have been resolved, use the Status drop-down list to change the issue status to Answered.



ID	Title	Assigned to	Company	Due date	Linked models
349	Walls impeding CLEARANCE AREA [4436887]	Paul Jonathan Walker	Autodesk	-	3D Level 0_PacificCenter_AY_Mech.r
350	Floor [4104295] and Mechanical Supply Air 252	Paul Jonathan Walker	Autodesk	19 Jul 2019	CR - Level 0 Axo_PacificCenter_AY_Ai
351	Pipe Types [690078] and Pipe Types [998582]	Richard Parker	United Construction	-	3D - Level 1_PacificCenter_AY_Fire.rv
352	Pipe Types [690112] and Pipe Types [1012883]	Shawn Butler	United Construction	-	3D - Level 1_PacificCenter_AY_Fire.rv
354	Pipe Types [689248] and 30 other objects.	Richard Parker	United Construction	-	3D - Level 1_PacificCenter_AY_Fire.rv
364	Partition wall through center of inverters	Paul Jonathan Walker	Autodesk	-	CR - Level 1 Axo_PacificCenter_AY_Ar
365	walls	Shawn Butler	United Construction	24 May 2019	CR - Level 1 Axo_PacificCenter_AY_Ar
366	Pipe Types [1655077] and 3 other objects.	Dolio Kafri	Autodesk	09 May 2019	3D - Level 3_PacificCenter_AY_Plmg.i
368	Pipe Types [3315071] and Pipe Types [695322]	Sijie Zhang	United Construction	-	3D - Level 3_PacificCenter_AY_Plmg.i

PRO TIP: All issues related to the models in the viewer are displayed in the Issues panel, including issues not created in Model Coordination. If you select one of these issues, the push pin is shown in the viewer, but the models are not highlighted.

Issues in Model Coordination

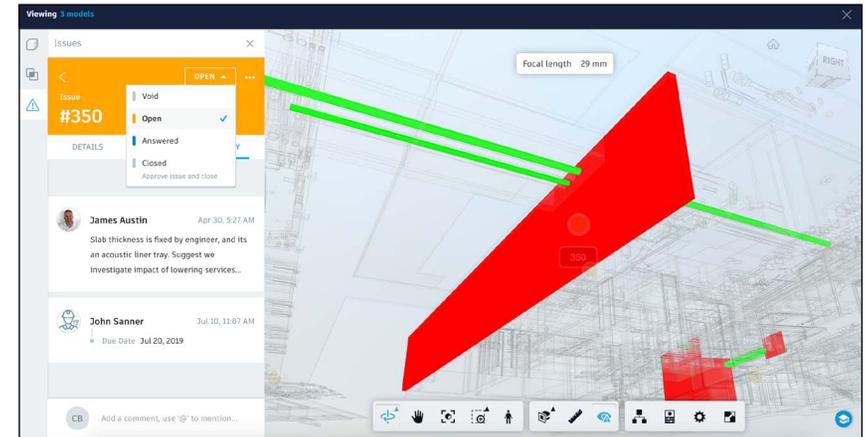


Issue Management

3

Issue owner view & respond to issues in Model Coordination

- Locate issues of interest in the Assigned sub-tab. If further action is required, you can change the status of the issue back to Open.
- Use the Details tab of the issue panel to change the assignee, use the Attachments tab to attach documents or images, use the Activity tab to add comments or @ to tag another project member.
- When you are satisfied that the required changes have been made and there is no longer a clash, change the issue status to Closed.

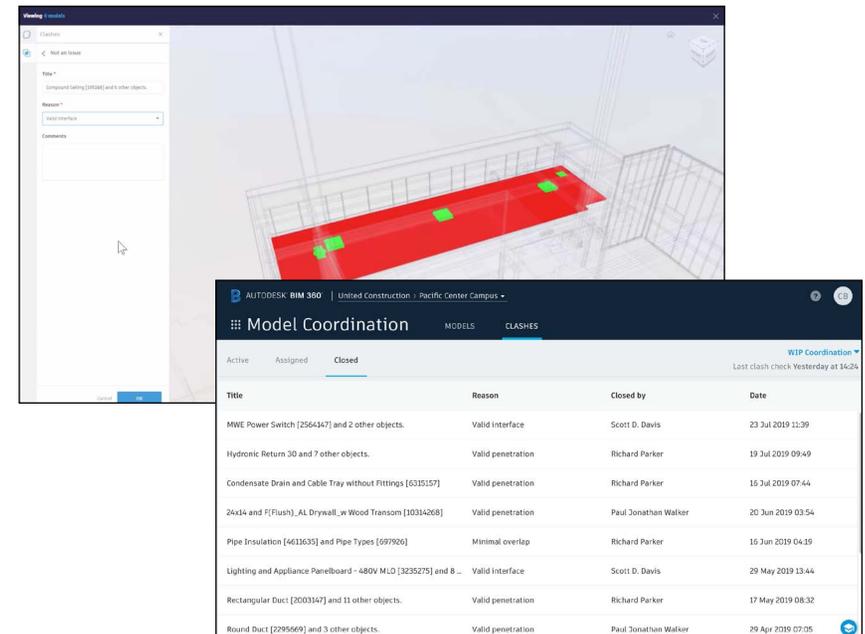


PRO TIP: Only the issue owner, or project members with Full Control, can close or void issues.

4

When a clash isn't a clash

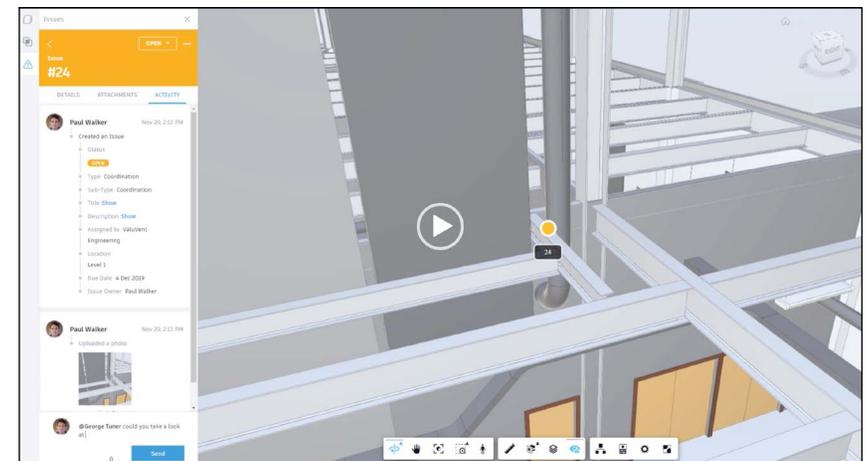
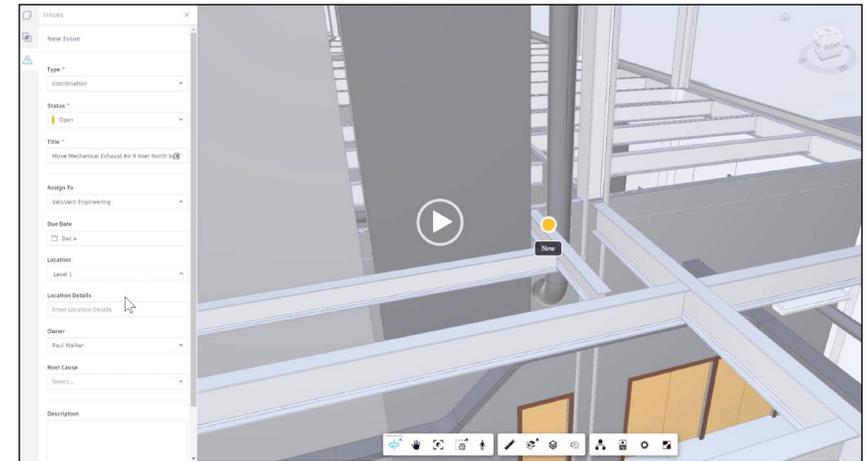
- With clashes being generated automatically some may not need to be addressed. If this is the case use the 'Not an issue' workflow.
- With the clash, or group of clashes selected click the "Not an issue" button.
- Add a title, select the reason, and include comments for further explanation before clicking "Ok."
- All clashes identified as 'Not an Issue' move to the "Closed" sub-tab and will not re-appear as further model iterations are published.



Issue Management

5 Create Issues as Observations

- Full integration with the BIM 360 Issues service, now enables Model Coordination users to capture observations as any type of issue (not only clashes) against multiple models.
- Click the 'Create Issue' button from the Issues panel to initiate the workflow. Drop a pushpin to mark the issue position in the model, choose the issue type and enter any details you wish to capture.
- As part of the Create Issue workflow, Model Coordination will automatically capture a screenshot and attach it to the created issue. This provides more context for users viewing the issue outside of Model Coordination, or in a detailed report.
- Issues can be assigned to an individual project member to action; or if a specific user is unknown, you can either choose a Role or Company.
- Assign an Issue Owner
- Specify the location of the Issue
- Share and collaborate on observation Issues with other members of the team.



Issues as Observations



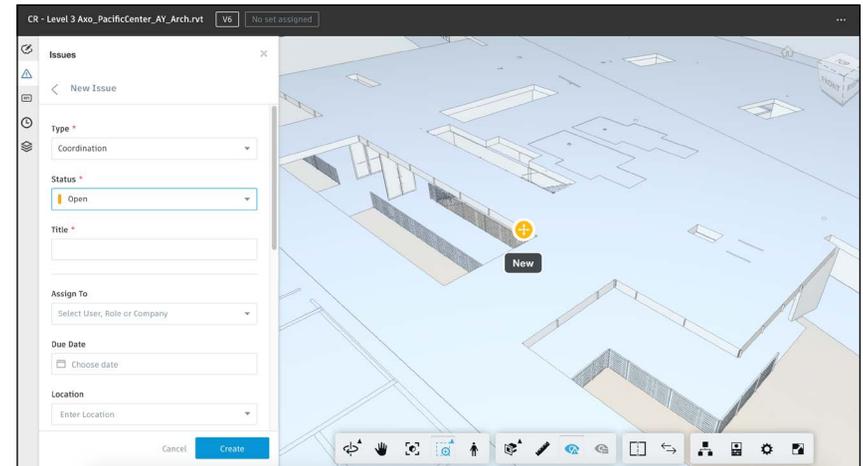
Issue Management

5

Creating document or model based issues in Document Management

- 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. Select “Create” to save.

Creating Issues

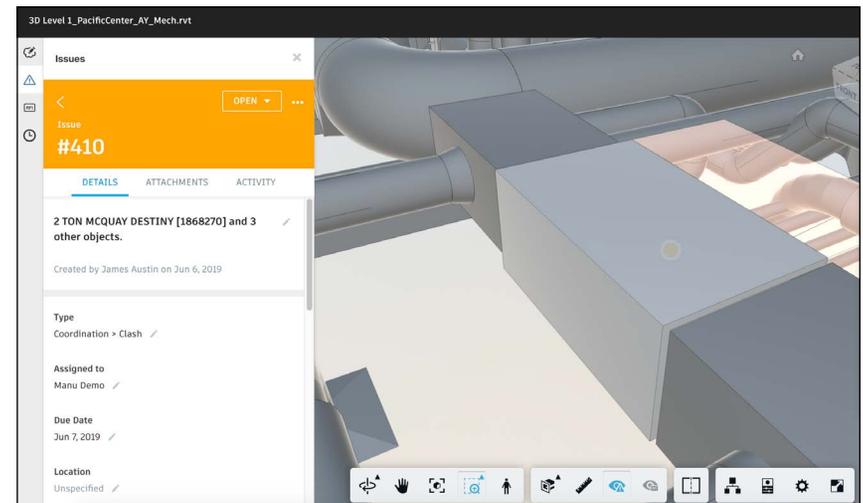


PRO TIP: Custom Attributes can be added to issue types or sub-types to have entries in issues beyond the default entries such as priority. [Read to find out how.](#)

6

Review & respond to issues in Document Management

- 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.



PRO TIP: Only the issue creator or project admin can set the issue as closed.

Issue Management

7

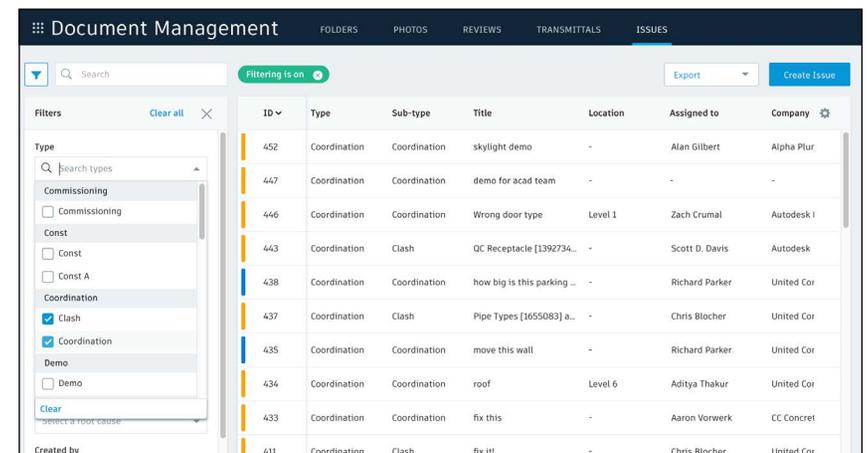
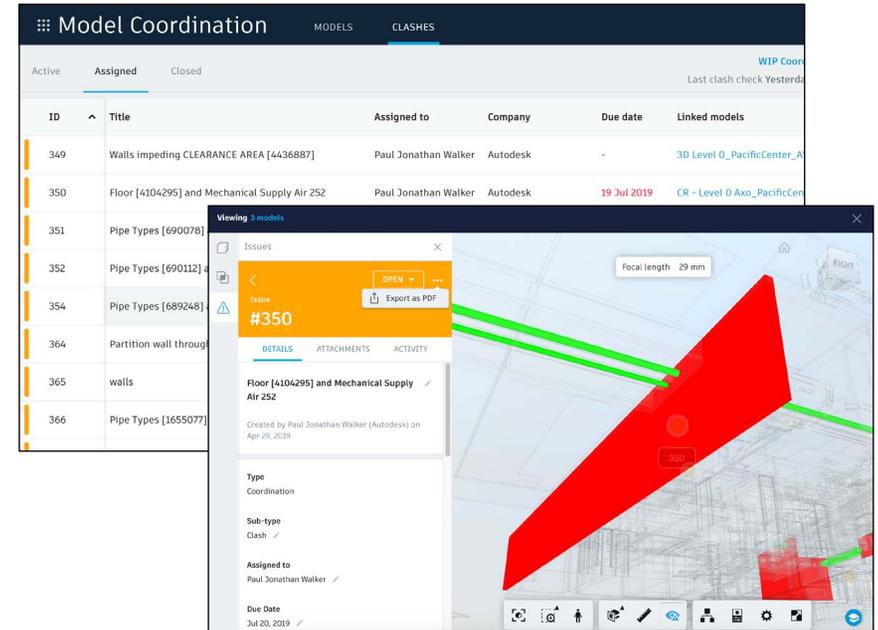
Filter/sort/export issues

In Model Coordination module:

- The Assigned sub-tab displays a list of clashes that have been marked as an issue. Sort by clicking the column header. Sort the columns by issue status, ID, title, assignee, company and due date.
- Select the linked model to open a clash and click the More menu to export the issue as a pdf.

In Document Management module:

- Select the Issues tab to display a list of all project issues.
- To filter select the filter icon and one or more criteria using the drop-down lists such as type > coordination or clash.
- 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

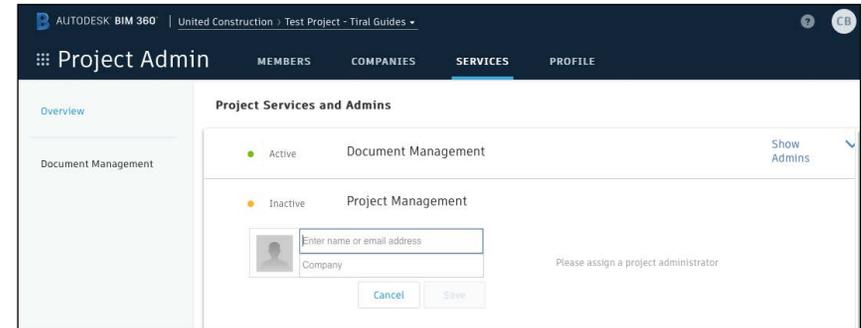
Enhance your RFI workflow and create accountability by designating responsibilities for each step of the RFI process, creating clear accountability, and efficiently moving RFIs through the cycle. From any device, teams can quickly draft a question and initiate the RFI as soon as a discrepancy is found.



1

Activate the Project Management module

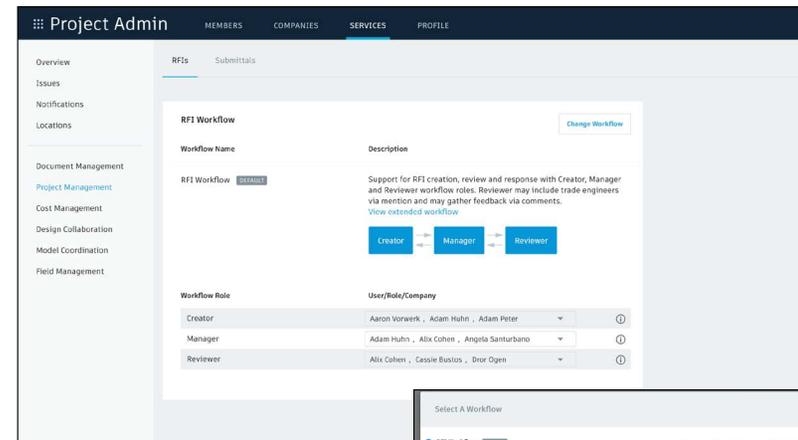
- A project admin needs to activate the Project Management module.
- Click the module selector for Project Admin, select the Services tab, and click “Overview” in the left sidebar.
- In the Project Management row select “Activate” and designate at least one project admin.



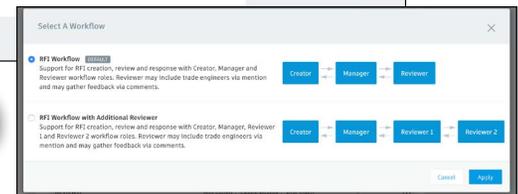
2

Setting up the RFI workflow

- In the Project Admin module, select the Services tab.
- On the left sidebar, click “Project Management” then “RFIs.”
- In the RFI workflow window select “Change Workflow” to select a workflow. The workflow determines the RFI actions for individual project users.
- With your workflow selected use the drop-downs to assign workflow roles by users, role, or company.



Set Up the RFI Workflow



RFI Management

3

Creating RFIs associated with a document or model

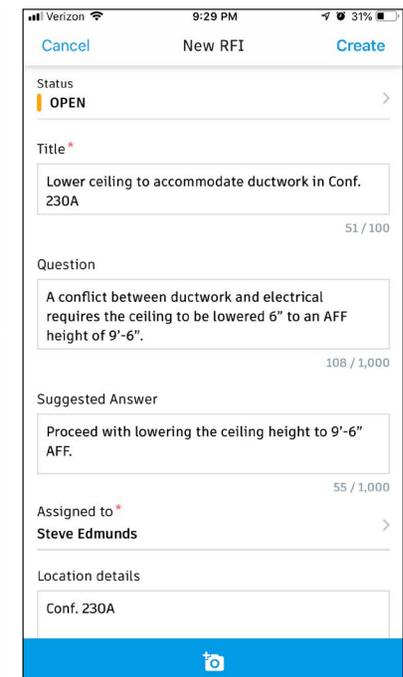
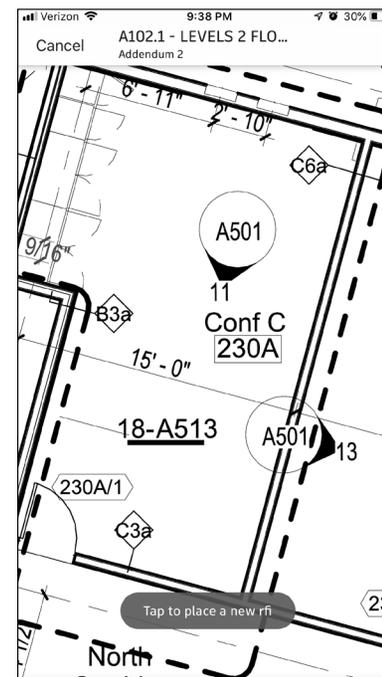
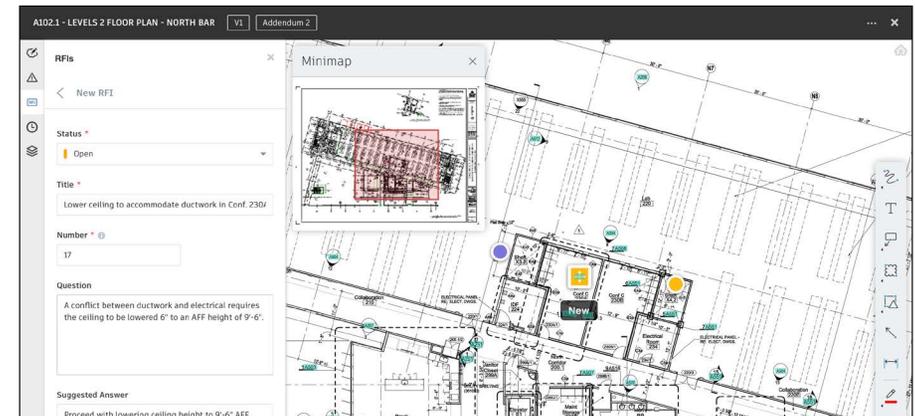
Only users, roles, or companies assigned to the RFI workflow role “Creator” or “Manager” can create an RFI.

Web:

- In the Document Management module open a document or model.
- On the left side panel select “RFI” to open the RFI panel. At the bottom of the RFI panel select “Create RFI.” Click where you want to place the RFI and an RFI push-pin will appear.
- Enter a title and complete all necessary fields such as suggested answer, location, and due date.
- When ready, if you’re a “Creator” assign it to the RFI Manager and select “Create.” The RFI status will update to Submitted.
- If you’re a “Manager” assign it to the Reviewer and select “Create.” The RFI status will update to Open.

Mobile (BIM 360 iOS app):

- In the BIM 360 app open a document or model within the Documents view. Zoom into the location you want to pin the RFI.
- Tap “RFI” on the bottom menu, you’ll be prompted to tap to place the new RFI push-pin.
- Enter a title and complete all necessary fields such as suggested answer, location, and due date. Take a photo and attach it to provide more context.
- When ready, if you’re a “Creator” assign it to the RFI Manager and select “Create.” The RFI status will update to Submitted.
- If you’re a “Manager” assign it to the Reviewer and select “Create.” The RFI status will update to Open.
- Note: when offline, you can create RFIs, and they will sync once connected back online.



Creating RFIs (web) ▶

PRO TIPS: The RFI number will not appear until the RFI is “Open.” The RFI Manager also has the ability to customize the RFI number.

RFI Management

4 Creating project-level RFIs

Project-level RFIs are RFIs not associated with a document or model.

Web:

- In the Project Management module, select the RFIs tab and click “Create RFI.”
- Enter a title and complete all necessary fields such as suggested answer, location, and due date.
- When ready, if you’re a “Creator” assign it to the RFI Manager and select “Create.” The RFI status will update to Submitted.
- If you’re a “Manager” assign it to the Reviewer and select “Create.” The RFI status will update to Open.

Mobile (BIM 360 iOS app):

- In the BIM 360 app tap the three dots on the bottom menu then “RFI.”
- In the RFI screen tap the “+”
- Enter a title and complete all necessary fields such as suggested answer, location, and due date. Take a photo and attach it to provide more context.
- When ready, if you’re a “Creator” assign it to the RFI Manager and select “Create.” The RFI status will update to Submitted.
- If you’re a “Manager” assign it to the Reviewer and select “Create.” The RFI status will update to Open.
- Note: when offline, you can create RFIs, and they will sync once connected back online.

RFI Management

5 View & edit RFIs

All users can view RFIs but only users, roles, or companies assigned to the RFI workflow role “Creator” or “Manager” can edit an RFI.

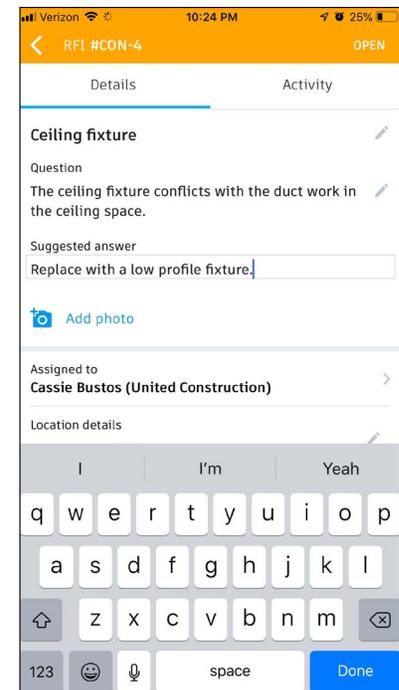
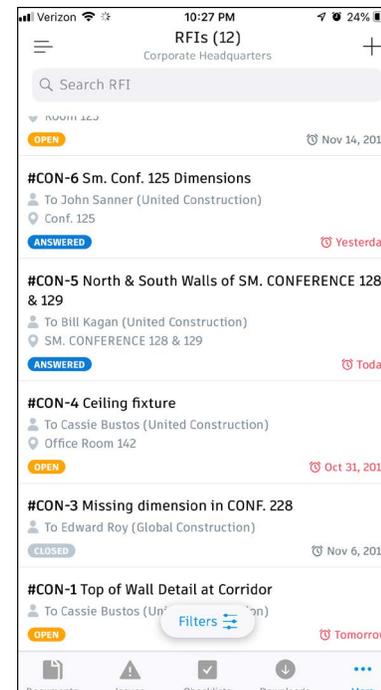
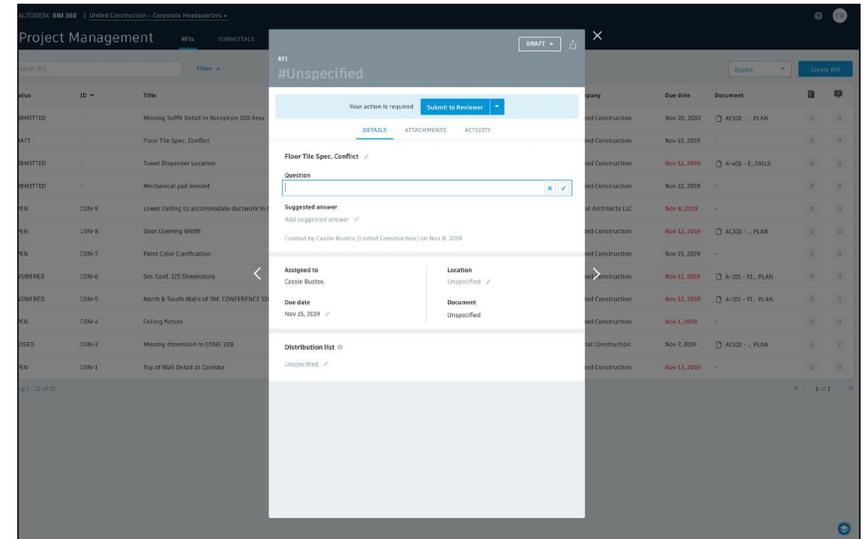
Creators can edit RFIs in the Draft state and Managers can edit both Submitted and Open RFIs.

Web:

- View all project-level RFIs in the RFIs tab. Click to open an RFI and use the pencil icon to edit any necessary fields.
- For document or model-based RFIs, 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.

Mobile (BIM 360 iOS app):

- In the BIM 360 app tap to view a list of all RFIs tap the three dots on the bottom menu then “RFI.” Tap to open an RFI and use the pencil icon to edit any necessary fields.
- When viewing a document or model tap the RFI push-pin to open the RFI details. Use the pencil icon to edit any necessary fields.



RFI Management

6 Submit to Reviewer

Only users, roles, or companies assigned to the RFI workflow role “Manager” can review Submitted RFIs and send them to the Reviewer for an official response.

- The RFI Manager immediately receives an email notifying them of the RFI.
- They can review the in-email data or access the RFI directly in BIM 360 by selecting “View RFI” at the bottom of the email.
- The Manager is responsible for reviewing and editing the RFI details and attachments to ensure it’s compliant before submitting it to the Reviewer.
- Once the RFI is ready, select “Submit to Reviewer.”
- The Manager can then customize RFI number, assign the Reviewer, Co-Reviewers, and select the due date.
- Co-reviewers can contribute information to the response through comments, but cannot add an official response.
- The RFI status will update to Open.

PRO TIP: Project Admins have permission to add a response to an RFI on behalf of a Reviewer. In the activity log, the action will reflect that the Admin “acted on behalf” of the assigned Reviewer.

Your action is required

Cassie Bustos (Autodesk) **assigned** the following RFI to you for review:

[RFI #CON-46 Lower Ceiling to accommodate ductwork in Conf. C 230C](#)

What's changed

Status DRAFT → OPEN

Assignee Cassie-Bustos-(Autodesk) → John Sanner (United Construction)

Details

Question A conflict between ductwork and electrical requires the ceiling to be lowered 6" to an AFF height of 9'-6."

Suggested answer Proceed with lowering ceiling height to 9'-6" AFF.

Status OPEN

Assigned to John Sanner (United Construction)

Due Date November 08, 2019

Linked document [A102.1 - LEVEL 2 - 4 FLOOR PLAN - NORTH BAR](#)

Location Conf. C 230C

RFI #Unspecified

Your action is required

Submit to Reviewer

DETAILS

Missing soffit detail in Reception 100 area

Question Sheet A102.1 does not include a sketch for soffits around gypsum ceiling in Reception 100 area. Please include sketch detailing the necessary soffits.

Suggested answer Add suggested answer

Created by Edward Roy (Global Construction) on Oct 31, 2019

Assigned to Ben Johnson

Location Reception 100 ceiling

Due date Nov 7, 2019

Document AC01 - FIRST FLOOR REFLECTED CEILING PLAN [v4, current]

Distribution list Bill Kagan, Edward Roy

RFI #Unspecified

RFI number * CON - 003

Reviewer * David Sanchez

Co-reviewers Paul Sanderson

Due date Nov 6

Distribution list 2 selected

Submitting to the Reviewer changes the status to OPEN

Submit

Distribution list Bill Kagan, Edward Roy

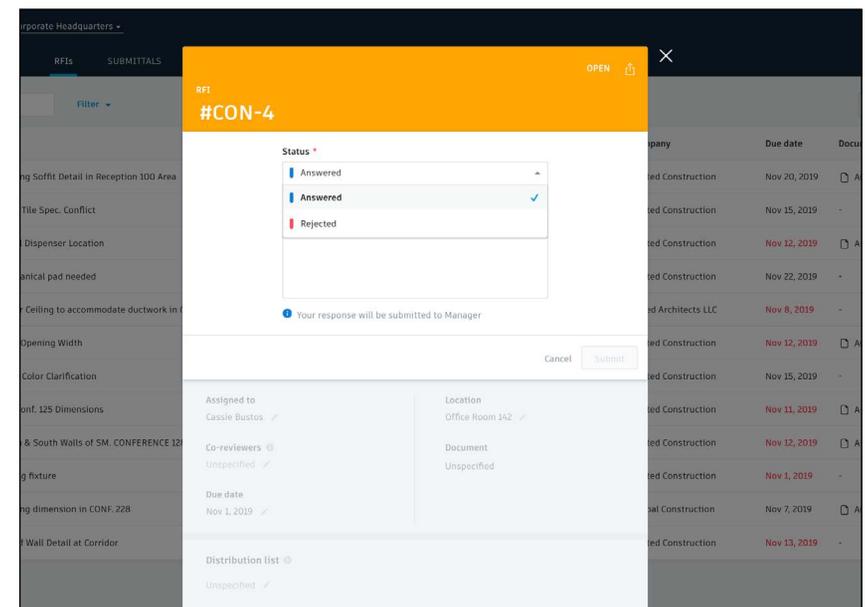
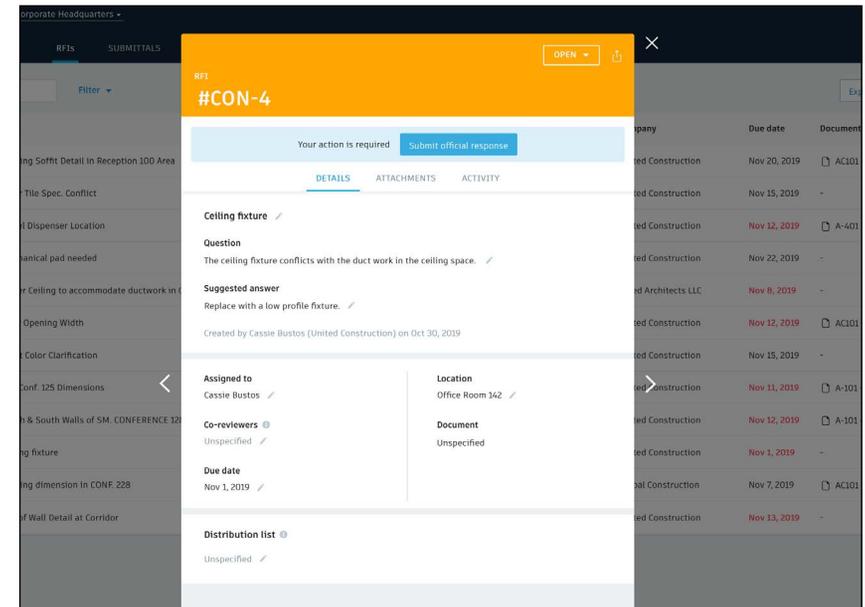
RFI Management

7 Submitting the official response

Only users, roles, or companies assigned to the RFI workflow role “Reviewer” can submit an official response.

Co-reviewers can contribute information to the response through comments, but cannot add an official response.

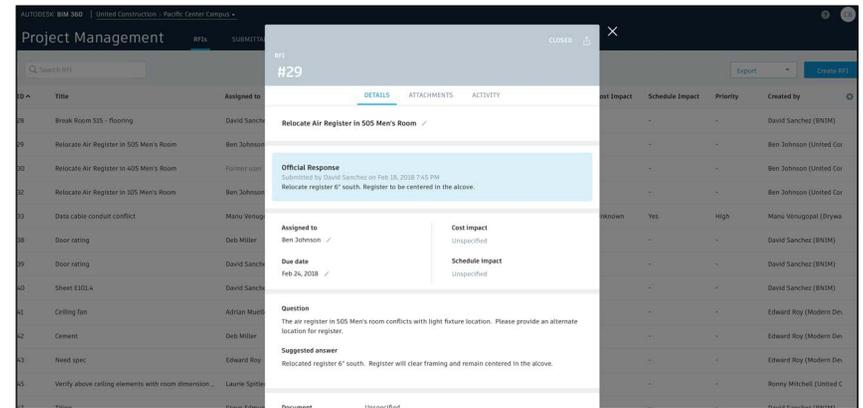
- The Reviewer and Co-Reviewers will receive an email notifying them of the RFI.
- They can review the RFI details and collaborate with others via @mentions within the Activity section.
- @mentions tracks communication and notifies individuals via email to ensure nothing slips through the cracks.
- The Reviewer can attach supporting documents within the Attachments tab. They can drag and drop from their desktop or access documents within BIM 360 Docs.
- When ready select “Submit Official Response.” Use the status drop down to select Answered, add the official response, then click “Submit.”
- If there is an issue with the RFI, the Reviewer can reject it by setting the status to Rejected.



RFI Management

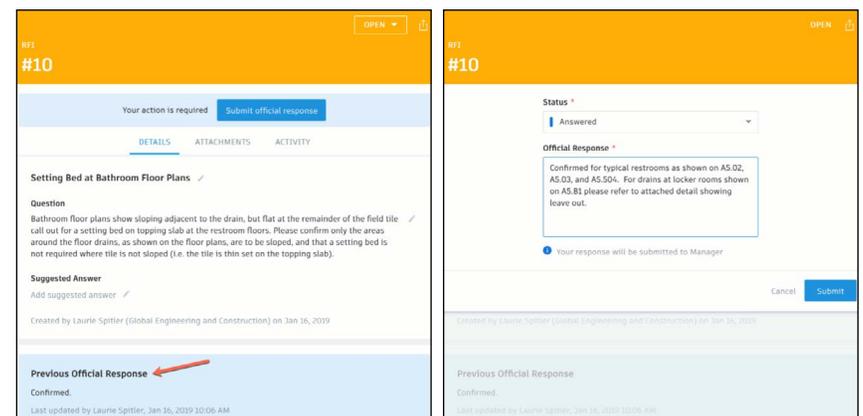
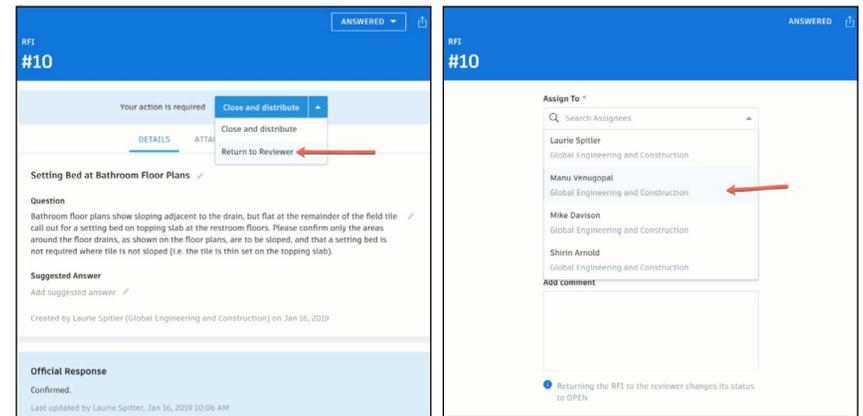
8 Distributing official response

- When the Reviewer submits the official response. The RFI Manager will be notified via email. The Manager is the only role who can close and distribute the response.
- If the answer isn't suitable, the Manager can reopen the RFI and send it back to the Reviewer
- If it is, they can select "Close and Distribute," add comments letting the team know how to proceed, and click to distribute the answered RFI to the entire project team.



9 Re-opening 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

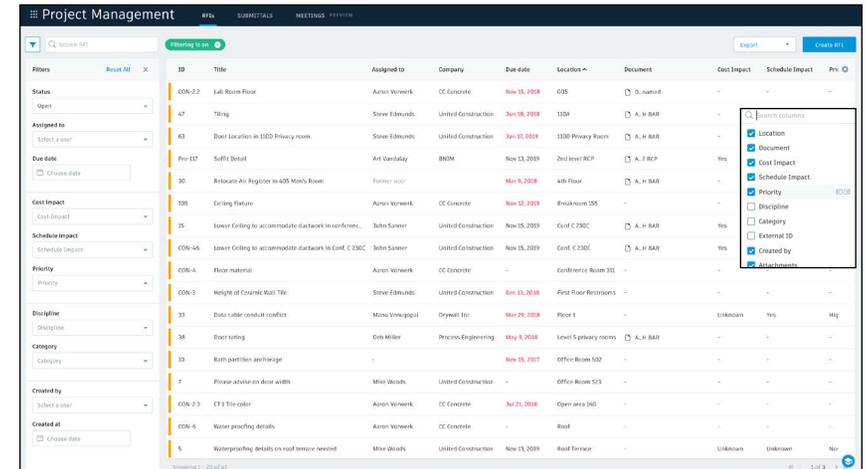
10 Filter / sort / search RFIs

Web:

- In the Project Management module select the RFI tab. Use the funnel icon to filter, sort by clicking the column headers, and customize the column view via the control icon.
- Use the search bar to search for keywords within an RFI title or question field.
- You can also filter and sort directly from a document or model-based RFI via the RFI panel.

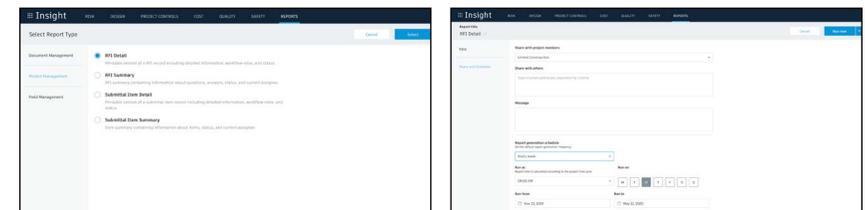
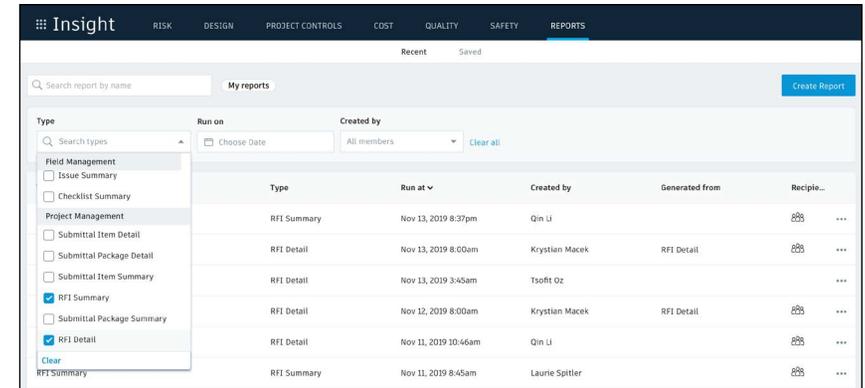
Mobile (BIM 360 iOS app):

- Open a document or model to view all RFIs associated with it. Tap on the pushpin to open the RFI details.
- When searching for a particular RFI use the search field in the RFI list view. The search functionality searches text within the RFI title, ID, question, suggested answer, and official answer.
- To filter use the filter option within the RFI list view.



11 Exporting reports

- In the Project Management module select 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 download report or share them with team members by clicking the three dot icon. You can also run and schedule reports directly from the Insight module.

Prediction & Analytics Capabilities

Prediction & Analytics

At its core, BIM 360 is built to help construction teams better visualize and take daily action to minimize project risk. Whether it is risk associated with safety, quality, or project controls, BIM 360 allows teams to streamline workflows to improve project outcomes.

The prediction and analytics ecosystem enhances the BIM 360 platform with a deeper understanding of project performance, prioritized daily activities, and instant visibility into project risk, giving teams the information they need to avoid costly mistakes and further improve risk mitigation.

1 Project Home

- Project members can see a snapshot of a real-time “to do” list as well as leverage risk prediction assistance through the Project Home module.
- Dashboard cards can be personalized depending on your project role by selecting “Customize” on the top left and clicking on the “Card Library.”
- Click any of the links to drill down and get more information on a specific item and take immediate action.
- Use the expand arrows to open the card to full screen to see more information.

PRO TIP: Interact with your projects plans or models through the Project Design card. This card allows you to markup or create and view issues from directly inside the card view and it integrates back to the original file in Document Management.

ID	Title	Type	Due Date
1	Flashing at joint	Quality	Feb 15, 2019
5	Updater meetings with new flash	Design	Feb 16, 2019
13	Please verify the dimensions and edge details for the elevator shaft...	Coordination	Feb 22, 2019
27	Missing handrails on floor 2	Safety	

[Project Home Overview](#)



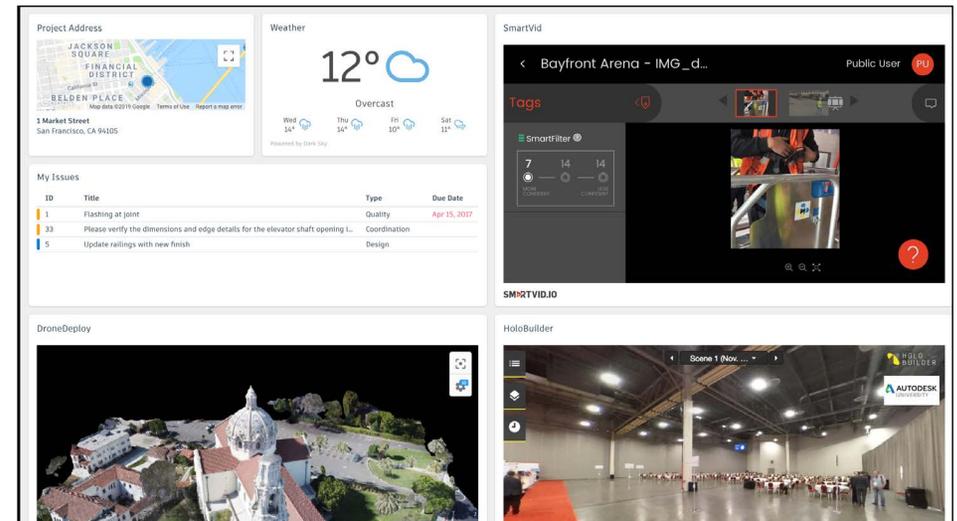
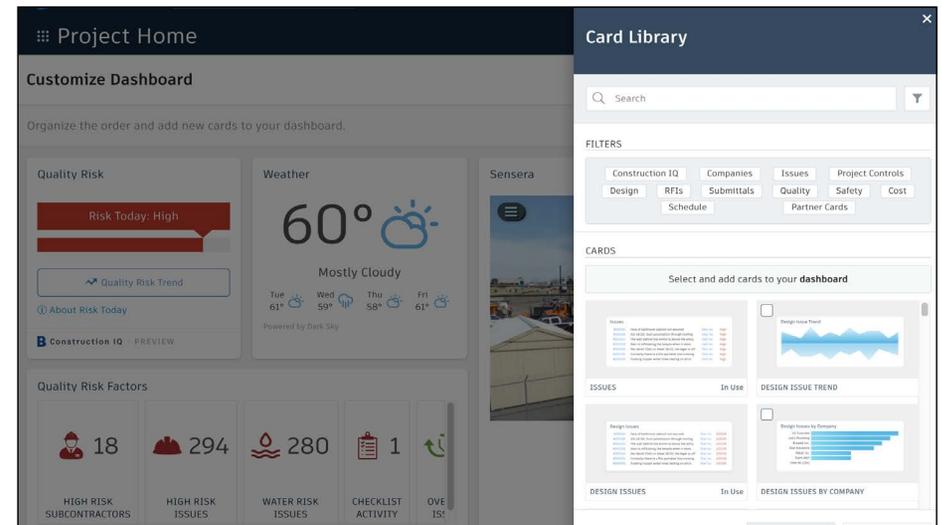
[Project Home Blog Post](#)



Prediction & Analytics

2 Card Library & Partner Cards

- The Card Library gives users the ability to show information that is personalized for them.
- Click on the “Customize” icon on the top left to see a view of the Card Library.
- Filter, view, and select cards to be added to your dashboard.
 - Filter by Partner Cards to add data from any of the selected integration partners filter for a single view of all project information.
 - To view and add Construction IQ specific cards filter by Construction IQ.



Partner Cards



Prediction & Analytics

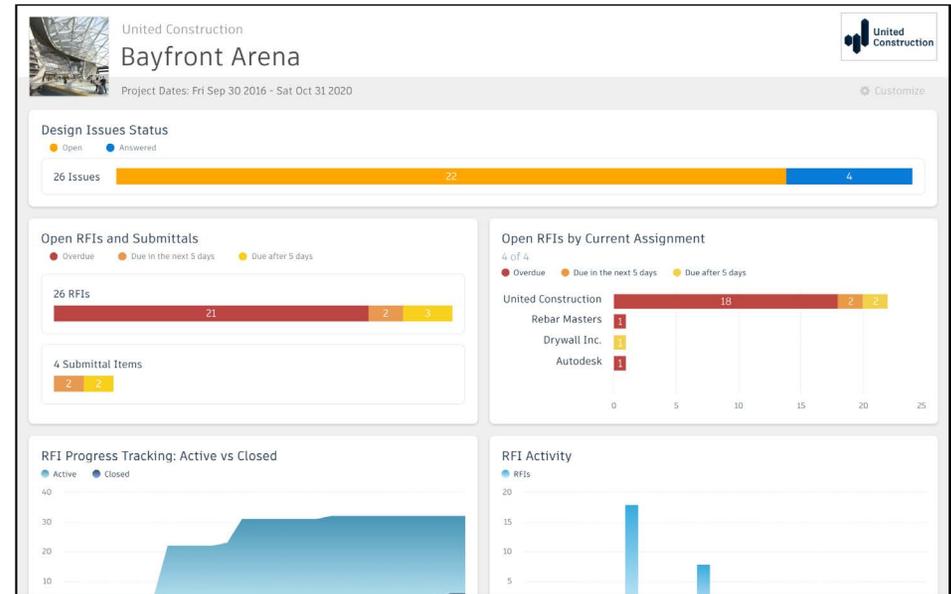
3 Quality Analytics

- BIM 360 helps predict quality related issues by visualizing high risk areas through Construction IQ and providing visibility to project data.
- Quality data is visualized on the Quality tab within the Insight module as well as through select cards in the Card Library in Project Home.
- The Risk Tab in the Insight module shows a summary of subcontractors who have the highest risk based on outstanding issues, a list of high risk issues, water related risk issues, checklist activity, and overdue Issues.
- Click on each of these quality risk factors to drill down and get more detail.

Insights Setup



Insight Blog



Insight | RISK | QUALITY | SAFETY | COST | PROJECT CONTROLS | REPORTS

Quality Risk Factors

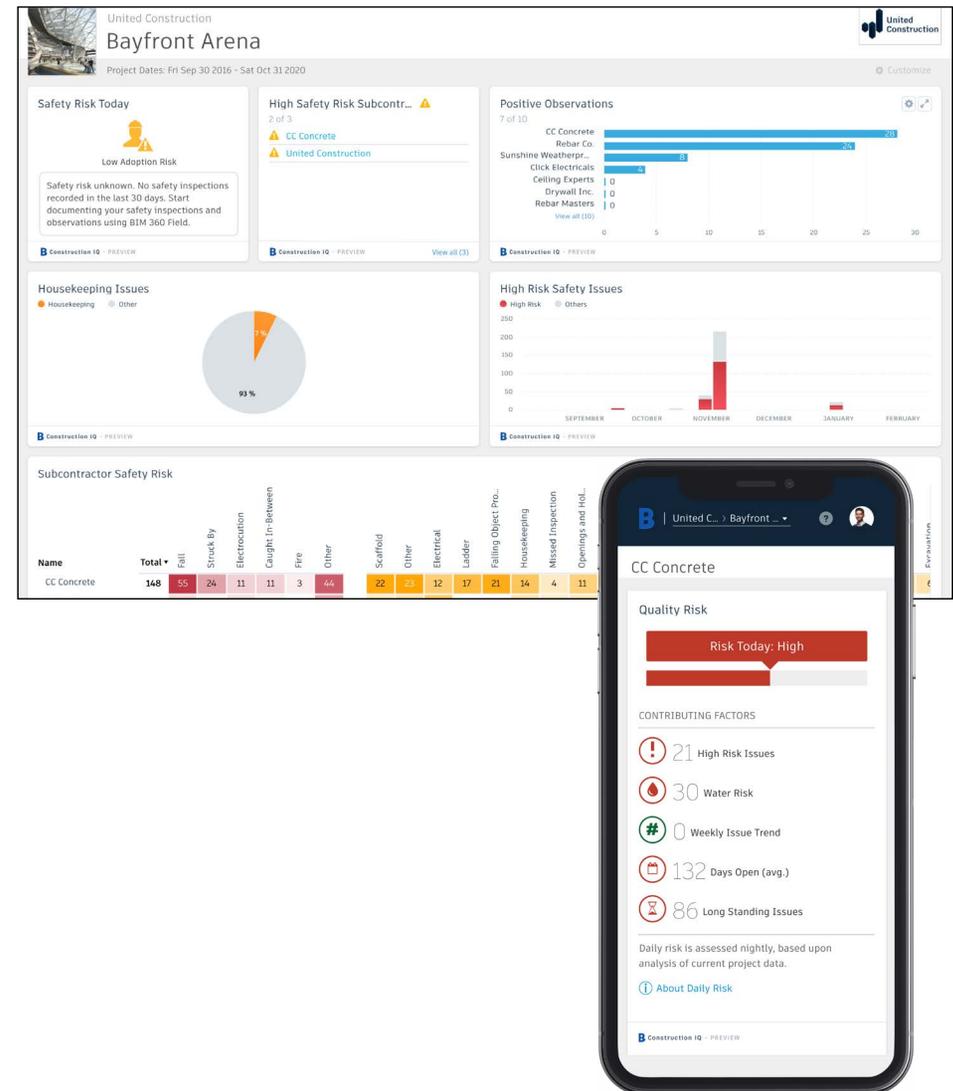
- High Risk Subcontractors: 11
- High Risk Issues: 159
- Water Risk Issues: 139
- Checklist Activity: 0
- Overdue Issues: 4

Company	Company Type	Today's Risk	High Risk Issues	Water Risk	Overdue Issues
United Constructi...	General Contractor	High	34	18	0
CC Concrete	Concrete	High	22	31	4
Star Elevators	Conveying Equipm...	High	20	8	0
Rebar Co.	Metals Structura...	High	17	19	0

Prediction & Analytics

4 Safety Analytics

- BIM 360 tracks safety related data like near misses and at-risk behaviors through logged Issues, RFIs, Checklist items, etc.
- Construction IQ analyzes this data as leading indicators and helps predict safety issues before they become serious incidents.
- Data is visualized on the Safety tab within the Insight module as well as through select cards in the Card Library in Project Home.
- Integration Partner Cards also show safety related data insights through site cameras or their own AI based technology.
- **Highlighted Safety Cards:**
 - **Houskeeping Issues** - many safety incidents can be avoided by keeping a clean jobsite.
 - **Fatal Four Safety Issues** - 60% of all construction deaths are due to one of these four issues; fall, caught between, electrocution, struck by. See jobsite Issues that fall into these categories.
 - **Subcontractor Safety Risk** - highlights subcontractors that have issues relating to the “fatal four.”
 - **Subcontractor Risk Summary** - shows subcontractors with the highest risk and drill down to see what those Issues are.



Prediction & Analytics

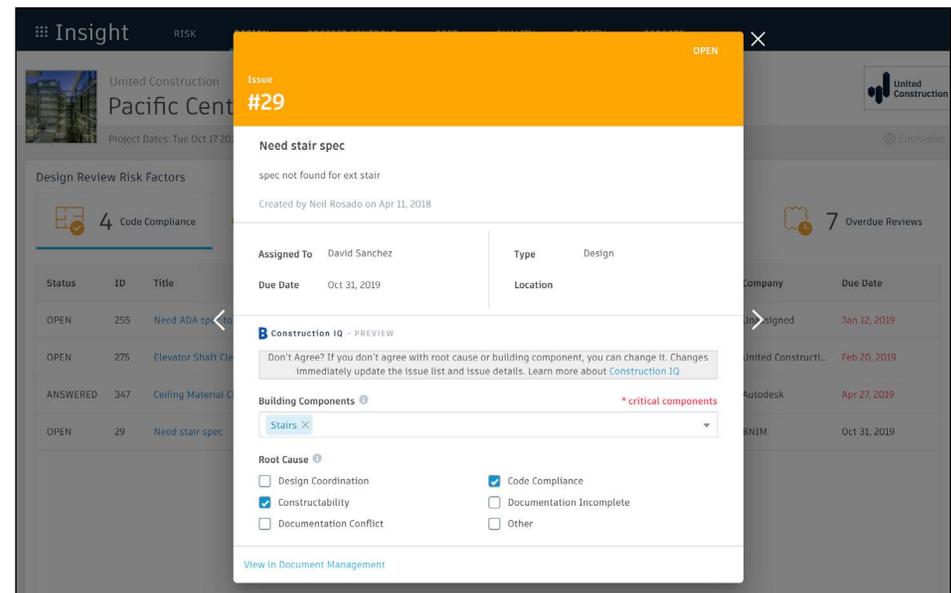
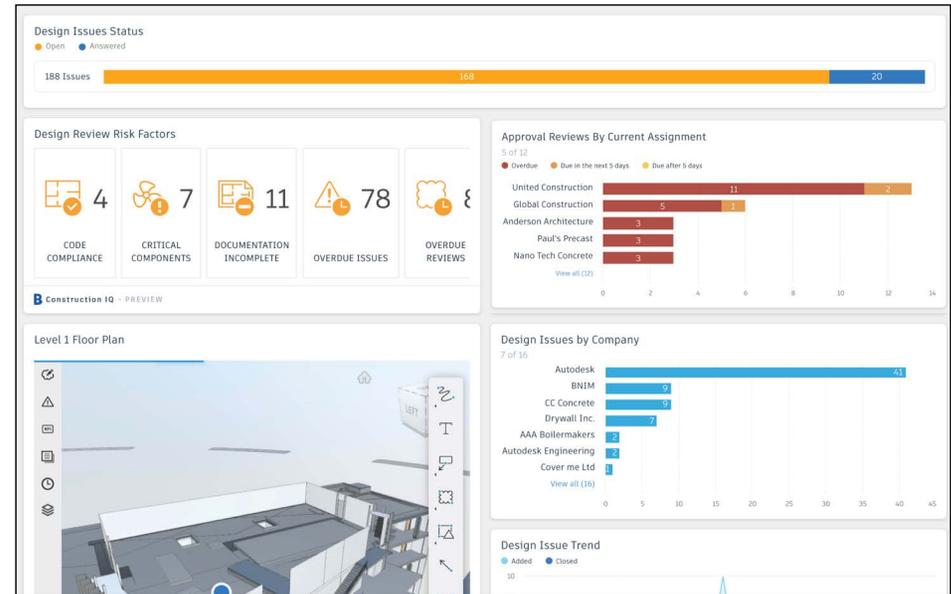
5 Design Analytics

- BIM 360 surfaces design issues through the Design tab in the Insight module
- Through this tab, users get visibility into key design issues and take immediate action to resolve.
- Design Review Risk Factor Card:
 - Powered by Construction IQ
 - Surfaces code compliance design issues
 - Identifies design issues that involve critical building components
 - Highlights documentation errors and omissions
 - Highlights overdue issues and reviews as well as who is responsible
- Approval Reviews by Current Assignment Card:
 - Highlights the status of design reviews by company

Design Risk Blog

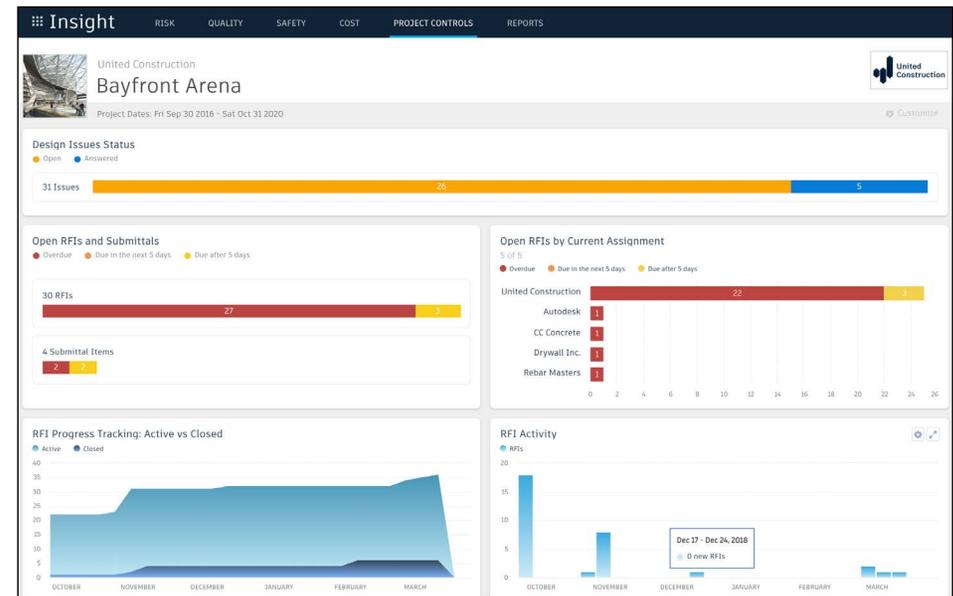


Design Risk Demo Video



6 Project Controls Analytics

- The Project Controls tab in the Insight module gives visibility into managing a projects RFIs and Submittals as well as oversight of any Design Issues.
- **Highlighted Project Control Cards:**
 - **Open RFIs and Submittals** - gives a summary of the number of overdue as well as upcoming RFIs and Submittals.
 - **Open RFIs by Current Assignment** - shows a list of subcontractors and how many overdue and upcoming RFIs they have.
 - **Design Issues** - shows a summary of open Issues that are design related as well as the number of answered Issues.
- Click on each of these cards to drill down and get more detail.



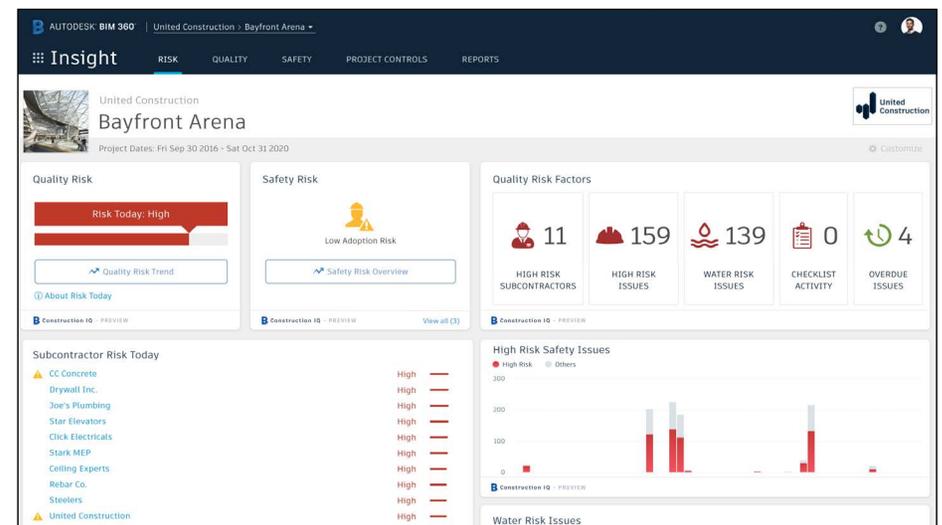
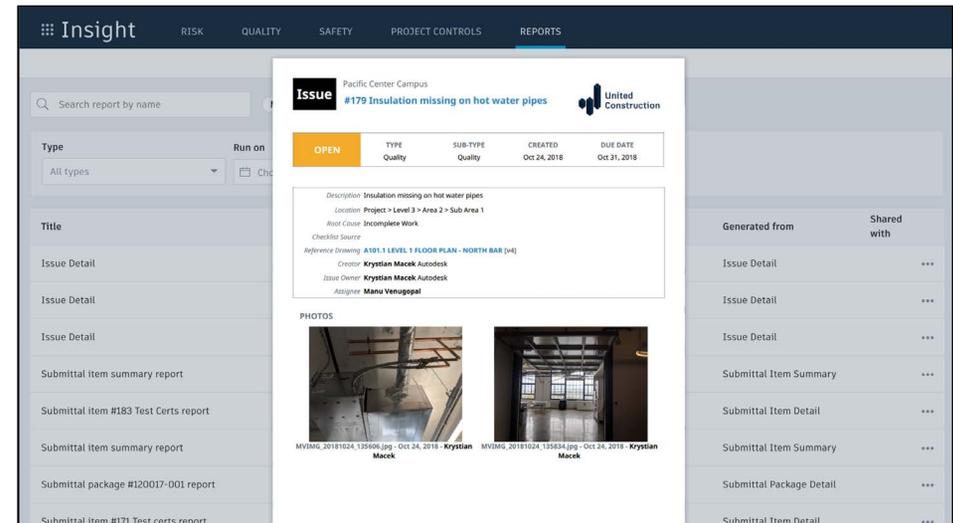
Prediction & Analytics

7 Reporting

- The Report tab within the Insight module shows an aggregated list of generated reports related to Issues, Checklists, Documents, Submittals, and RFIs.
- Filter reports based on type, date, or creator.
- Download or share reports with other team members.
- Create and schedule reports based on your filter criteria.

8 Construction IQ

- Construction IQ is a built-in machine learning and AI functionality that leverages data across the entire BIM 360 platform.
- Construction IQ sifts through millions of data points from your construction documents, issues, checklists, related meta-data and historical data, and analyzes it to identify and prioritize risks.
- Construction IQ automatically classifies items and flag issues as “High Risk.”
- “High Risk” issues are items that if left open, will likely lead to bigger more costly issues down the road.
 - EXAMPLE: if flashing was marked as missing on a window, the Issue would be flagged as “High Risk” to avoid bigger water leaking Issues.
- View Construction IQ data through the “Risk” tab within the Insight module as well as by selecting cards tagged as “Construction IQ” in the Card Library.



About Construction IQ 

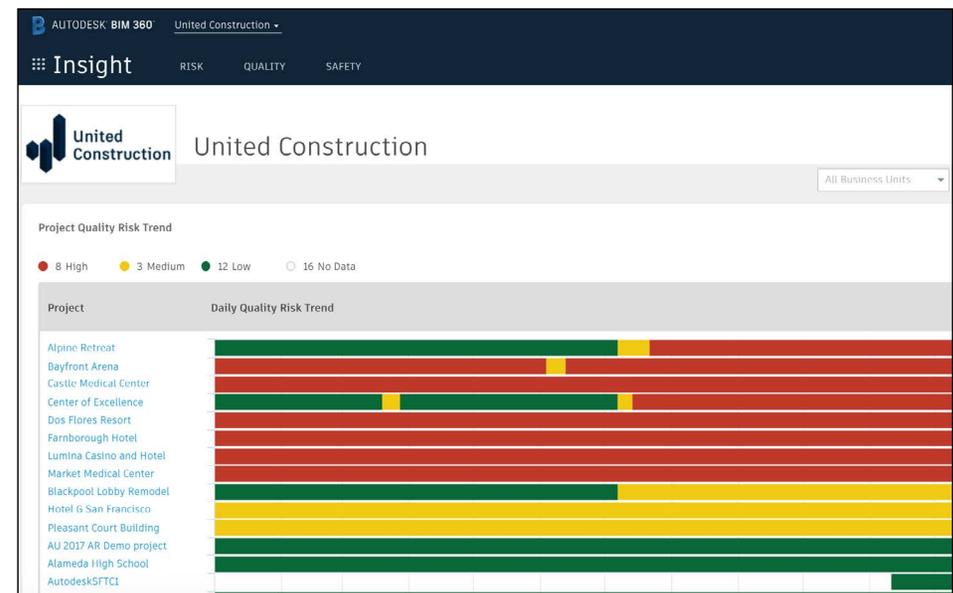
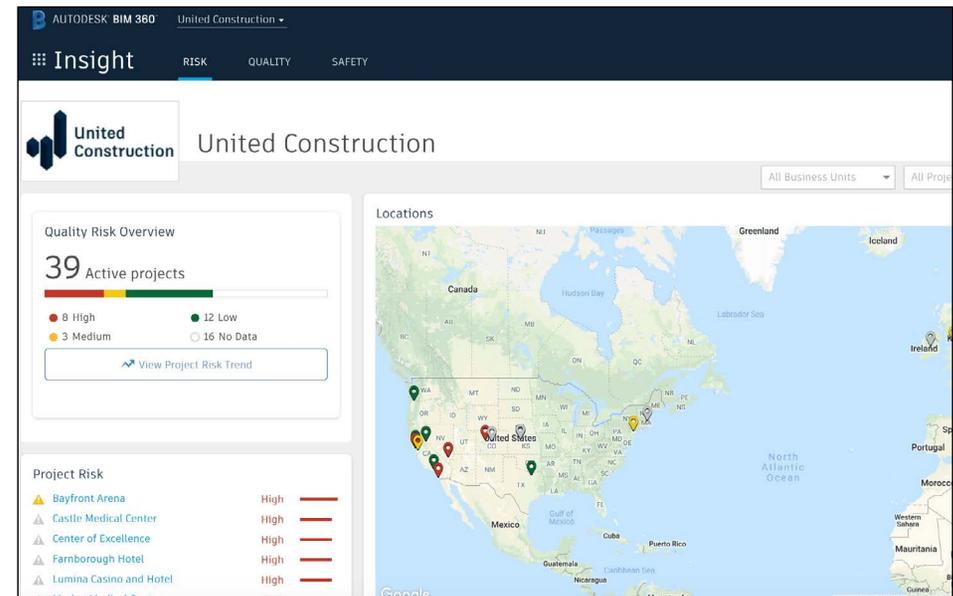
Prediction & Analytics Blog 

Prediction & Analytics

9 Executive Insight

- With the ability to view company-wide performance data across multiple project, executives and cross-project leaders can make more informed business decisions and gain visibility into overall risk assessment for current as well as future projects.
- Invite users with “executive overview” permission to access this view. This is a separate Insight view geared towards Executives and cross project leaders only.
- **View cross project health across tabs:**
 - **Risk** - shows projects with higher risk scores based on project data and Construction IQ capabilities.
 - **Quality** - overview of quality related checklist activity and conformance.
 - **Safety** - overview by project of safety related issues.

PRO TIP: Through the Risk tab in the Insight module, executives can get instant visibility into which projects have the highest risk levels each day. Assess the project risk overtime to see which projects remained in a “high risk” category over longer periods to determine which projects need executive level support.



Additional Capabilities

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 

Create Project Profile

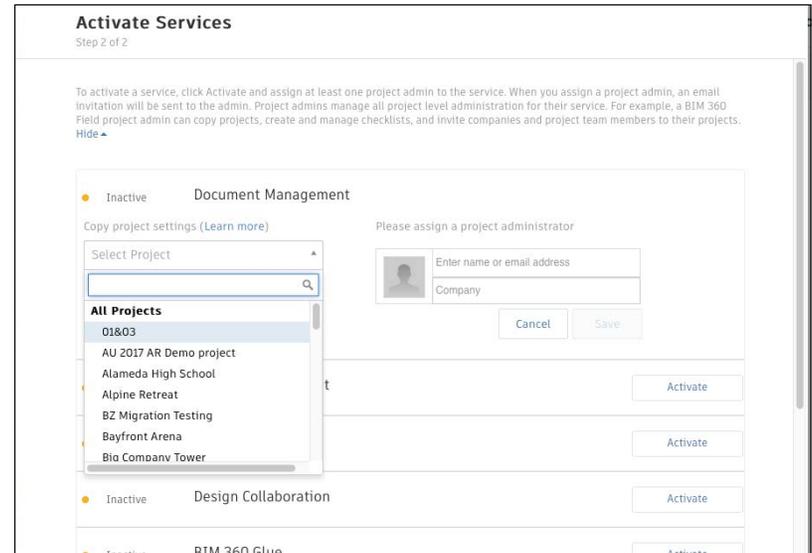
Step 1 of 2

<p>* Project Name</p> <input type="text" value="Oakwood Medical"/> <p>Project name is valid.</p>	<p>Project Image</p>  <p>Select image to upload JPEG, GIF, PNG, or BMP file (4MB max)</p> <p>Browse</p>
<p>* Project Type</p> <input type="text" value="Hospital"/>	
<p>Construction Type</p> <input type="text" value="New Construction"/>	<p>Project Address</p> <input type="text" value="560 Dockside Avenue"/>
<p>* Project Value</p> <input type="text" value="87000000"/> <input type="text" value="USD"/> <p>Project value is valid.</p>	<p>Address Line 2</p> <input type="text" value="Boston"/> <input type="text" value="Postal Code"/>
	<input type="text" value="Massachusetts"/>

Account Admin

2 Activating modules

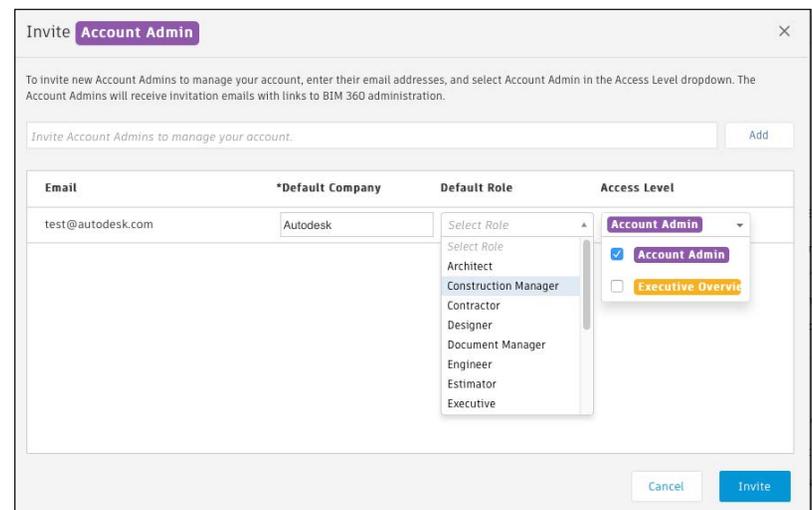
- Click “Activate” for the desired BIM 360 service.
- Assign a project admin for each service. You can add multiple admins.
- (Optional) For Document Management and Field you can copy existing project settings.
- An email invitation will be sent to the assigned project admin(s). They will need to click 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' with a 'Select' button. The main area is a table with the following columns: Name/Email, Company, Roles, and Project Admin. The table contains five rows of member information.

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

Members & Access Levels

Setup Roles

PRO TIP: You can choose from a list of preset roles or create your own custom roles as well as configure the permission and access levels by each role.

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.

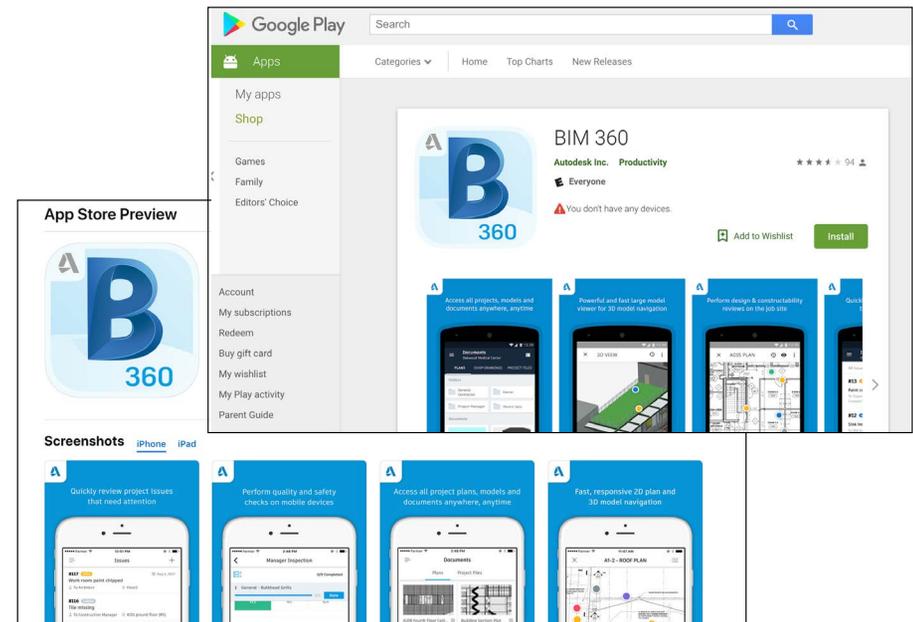


1 Download the BIM 360 app

- 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.

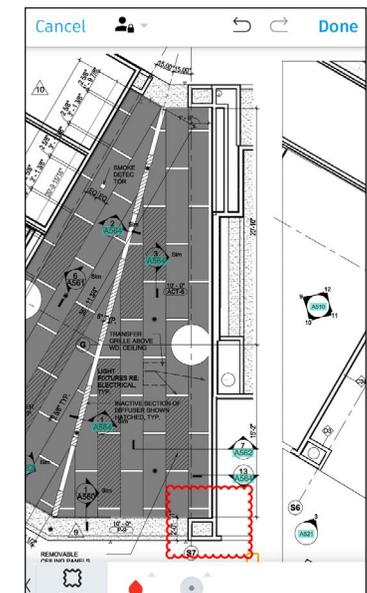
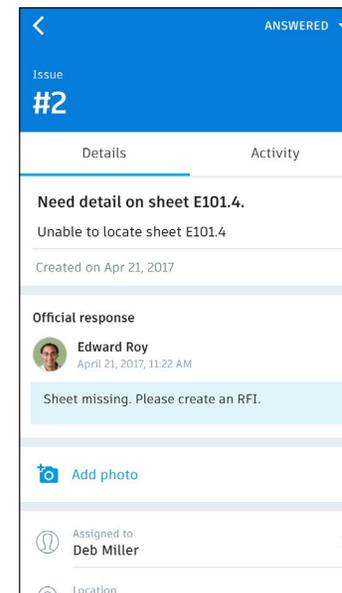
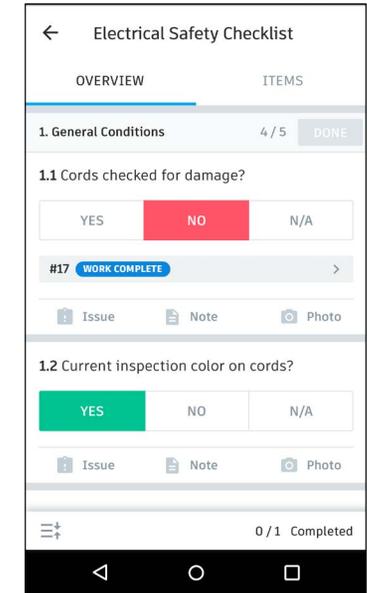
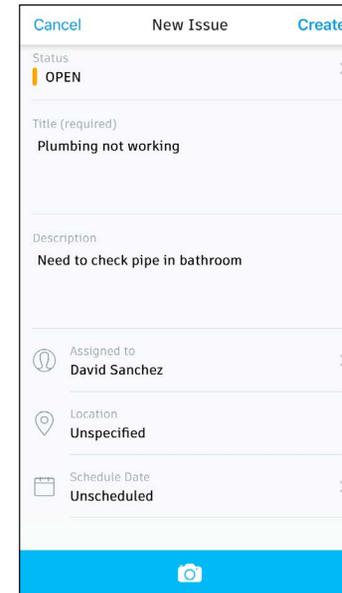
[BIM 360 Mobile Capabilities](#) 

[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.



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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