BIM 360 Design Roundtable: An Open Discussion with Industry Leaders

BES323074-R

AECOM Matthew Anderle, BIM Director (B+P Americas)

AECOM Katherine Crowley, Project Coordinator

SMITHGROUP Matt Turner, BIM Technologist

AUTODESK Dan McLean, BIM 360 Implementation Consultant, Global Services

AUTODESK UNIVERSITY

About the speaker

Matthew Anderle, AECOM

Matthew Anderle is the Building Information Modeling (BIM) Director for the Buildings+Places Americas business line of AECOM. He is a BIM and technology evangelist with over 18 years of experience establishing global BIM workflows and standards around content, computational BIM, interoperability, and BIM consultation as a service. His experience spans over multiple market sectors with emphasis on large healthcare facilities, data centers, aviation, government projects, and science facilities. Mr. Anderle serves AECOM as a leader in the advancement and efficient implementation of BIM processes for a variety of project types. He manages and directs large distributed project teams to successfully implement BIM collaboration workflows, enabling global offices to work as one entity.

About the speaker

Katherine Crowley, AECOM

Katherine Crowley is a project coordinator, healthcare research associate, and publisher at AECOM. As project coordinator she works closely with project teams to align their needs with their responsibilities while acting as a single-point-of-contact for internal project communications. Ms. Crowley assists project teams to leverage the latest technology in order to deliver comprehensive design solutions in the most efficient manner possible.

About the speaker

Matt Turner, SmithGroup

Matt Turner is a BIM Technologist for SmithGroup. He has 19 years of experience. Mr. Turner guided SmithGroup’s engineering disciplines through the migration to BIM and supports distributed teams in the completion of large projects throughout the nation and around the world.

About the speaker

Dan McLean, Autodesk

Dan McLean is a BIM 360 Implementation Consultant, Global Services at Autodesk.

A Conversation About Collaboration

- Introduction
- Getting Started
- PDFs, Sets, and Markups
- Leveraging Metadata
- New Features

Team Poll

Snap QR code at right

Visit:
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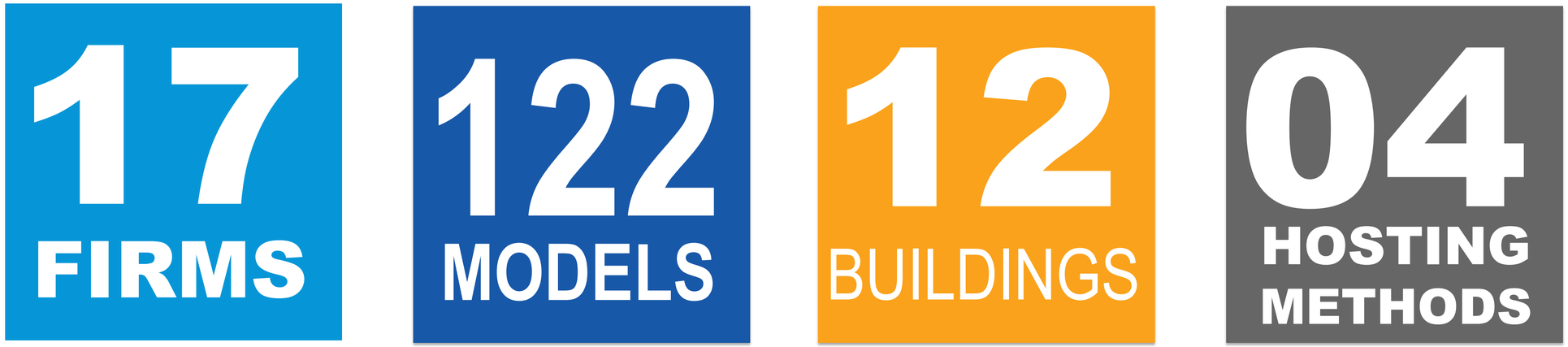
Text:
manderle777 to 22333
(once to join the poll)

Project Complexities

About the Project:
A Joint Venture Team Designing a Medical Center Campus



About the Project:
A Joint Venture Team Designing a Medical Center Campus

Each with different levels of data exchange capabilities, model hosting and experience

282 unique users including:

- Project Executives
- Discipline Leads
- Quality Managers
- Trade Specialists
- BIM Team
- Specification Writers
- Cost Estimators

A variety of file types including:

- Autodesk Revit
- Microsoft Excel
- Microsoft Word
- Adobe InDesign
- Adobe Acrobat
- Bluebeam
- Proprietary software

About the Project:
A Joint Venture Team Designing a Medical Center Campus

Model schema organized by:

CAMPUS

BUILDING

DISCIPLINE

SUB-DISCIPLINE

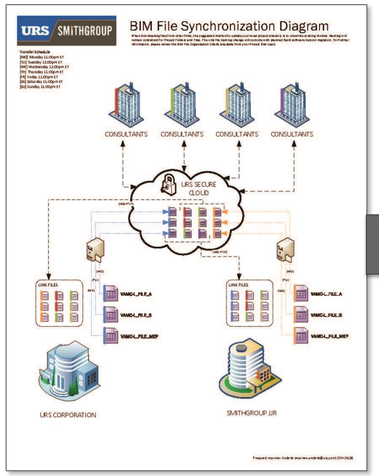
AGGREGATE MODELS

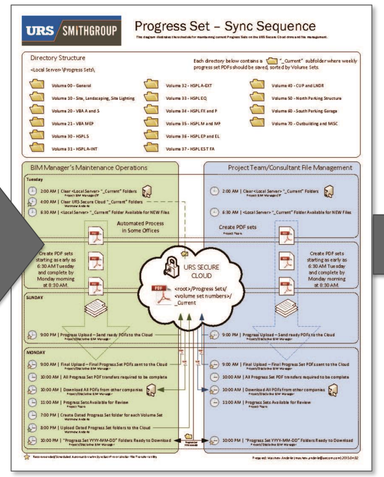
About the Project:
A Joint Venture Team Designing a Medical Center Campus

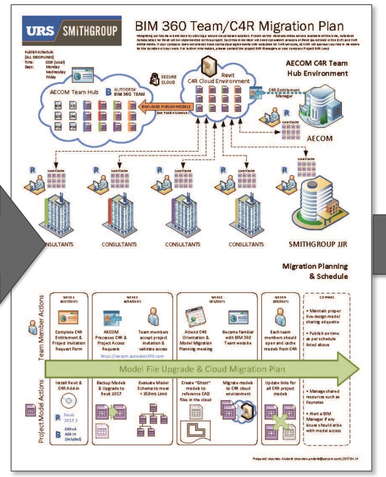
About the Project:
A Joint Venture Team Designing a Medical Center Campus

04
HOSTING METHODS

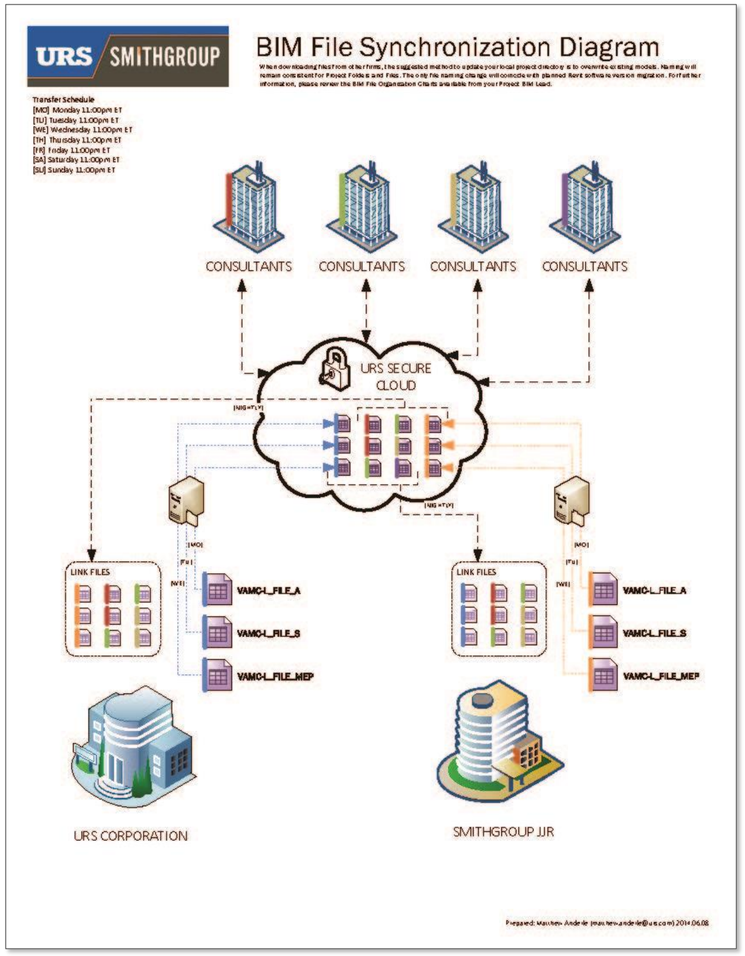
The duration of the project afforded us the opportunity to leverage several collaboration platforms which culminated in BIM 360 Design

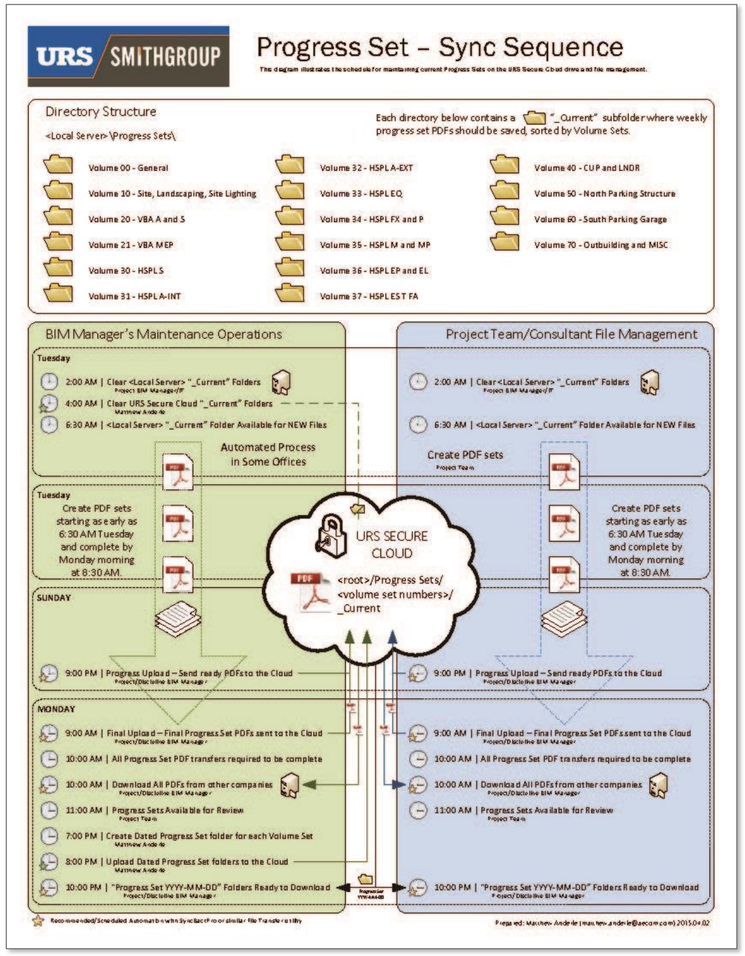


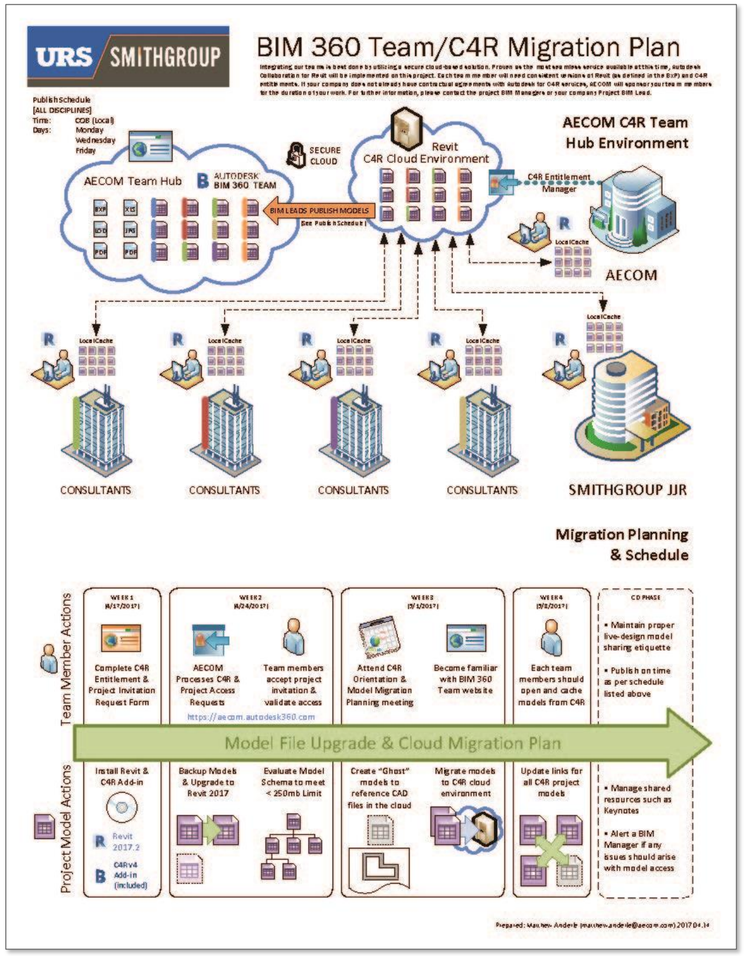




Our Migration History







Prior to BIM 360 Design the Joint Venture team used Newforma, Box.com, SyncBackPro, and BIM 360 Team Classic to collaborate

Collaboration Poll

Snap QR code at right

Visit:
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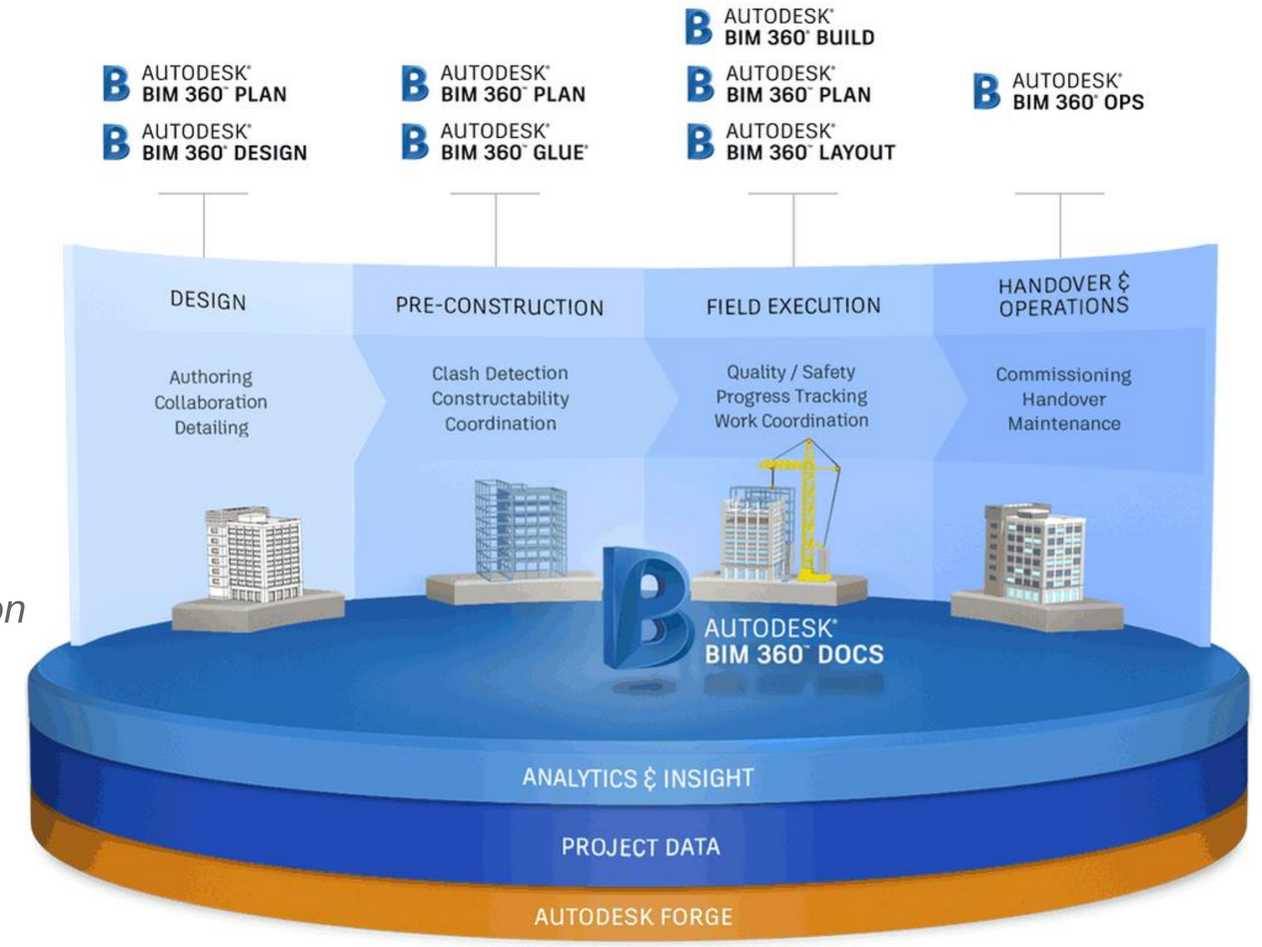
manderle777 to 22333
(once to join the poll)

BIM 360 Platform

- **Design**
  Authoring | *Collaboration* | *Detailing*
  - BIM 360 Design
  - BIM 360 Plan
- **Pre-Construction**
  Clash Detection | *Constructability* | *Coordination*
  - BIM 360 Glue
  - BIM 360 Plan
- **Field Execution**
  Quality & Safety | *Progress Tracking* | *Work Coordination*
  - BIM 360 Layout
  - BIM 360 Plan
  - BIM 360 Build
- **Handover & Operations**
  Commissioning | *Handover* | *Maintenance*
  - BIM 360 Ops



BIM 360 Design Features

SINGLE PROJECT REPOSITORY

- Unlimited storage
- Supports all files types
- Project activity log

NAVIGATION

- Lists all thumbnail views
- Version control and rollback
- Single viewer for 2D and 3D files

DELIVERABLE COORDINATION

- Reduces rework with trackable project activity
- Facilitates model exchange and deliverable coordination
- Curates sets to separate work-in-progress from shared files

ACCESS CONTROLS

- Project- and folder-level access rights
- Defines access by role, company, and/or user
- Assigns five permission levels

CHANGE VISUALIZATION

- View added, removed, or modified elements
- Understand changes in context between aggregated models in a single space
- Navigate change visualization by team, phase, building level, and more

VIEWING

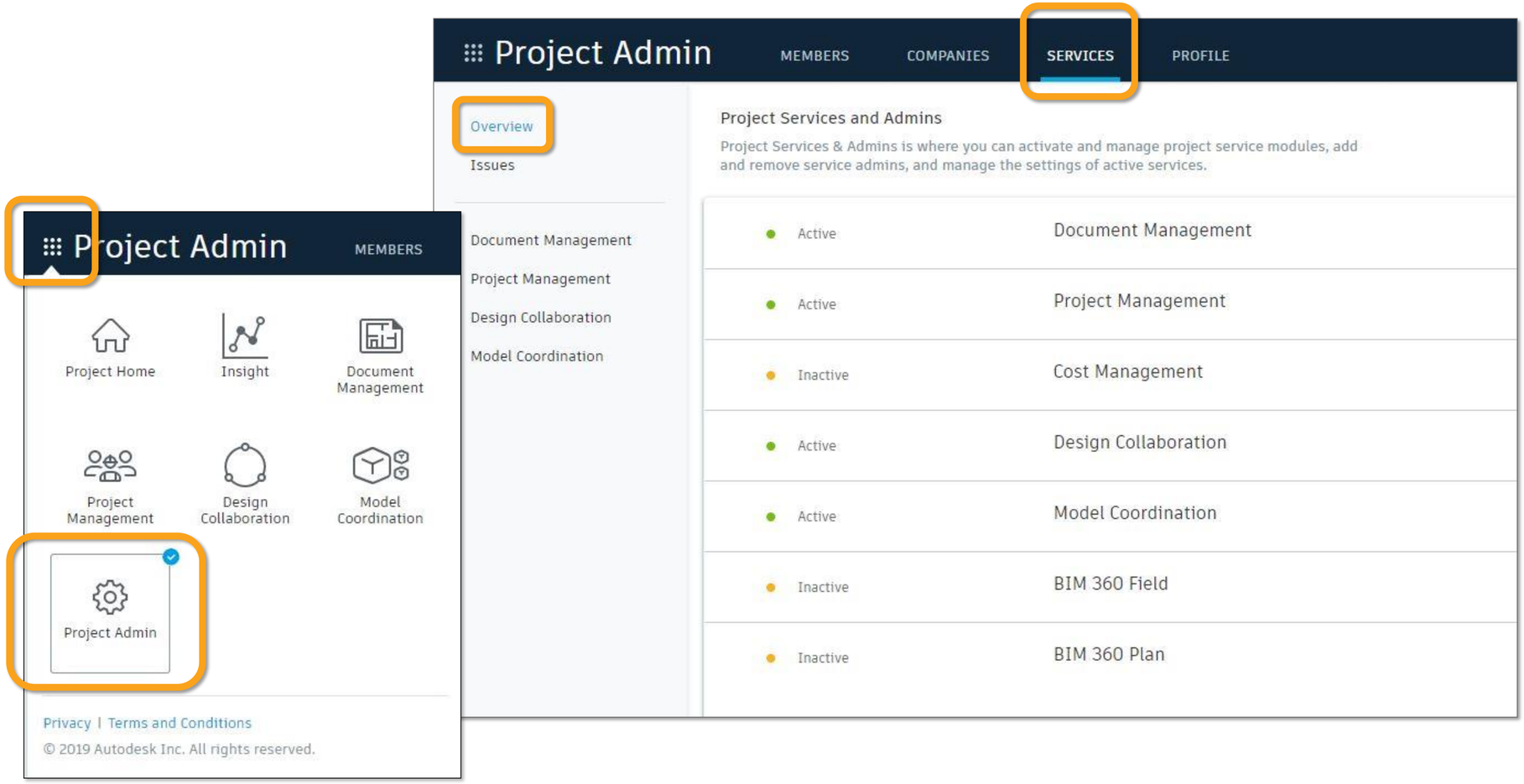
- Online and offline access on the web, phones, and tablets
- PDF and model viewer, optimized for Apple iOS
- Navigate between documents without closing viewer

Getting Started

- Project Admin
- Member Management
- Revit Model Initiation and Publish

Project Admin: BIM 360 Design Modules

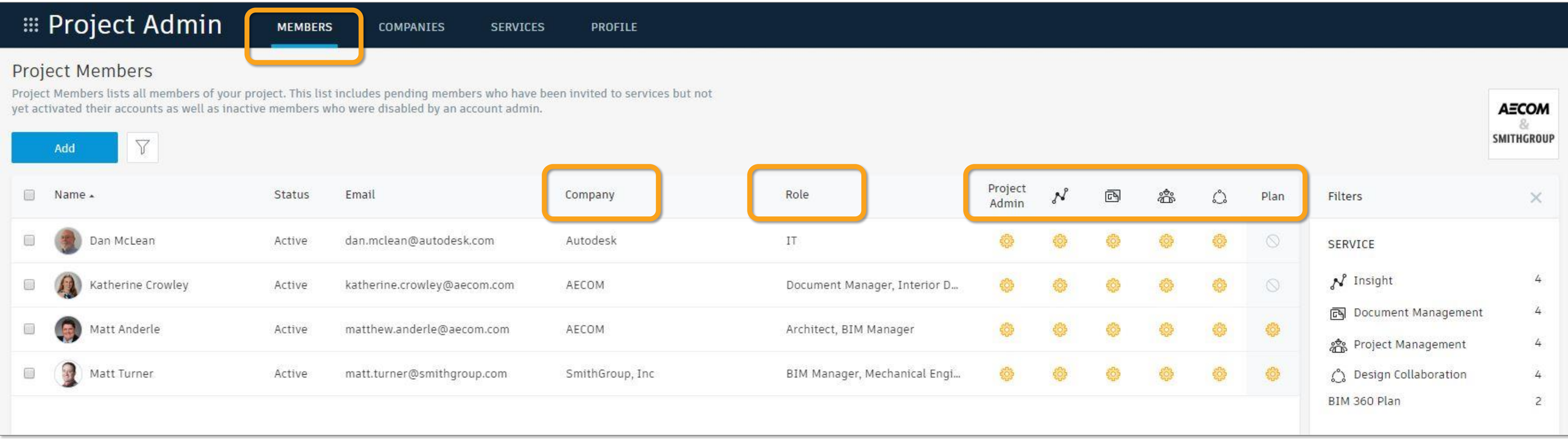
- Project Home
- Project Administration
- Document Management
- Design Collaboration
- Insight
- Glue: Model Coordination
- Field: Field Management
- Cost Management
- Project Management



Getting Started

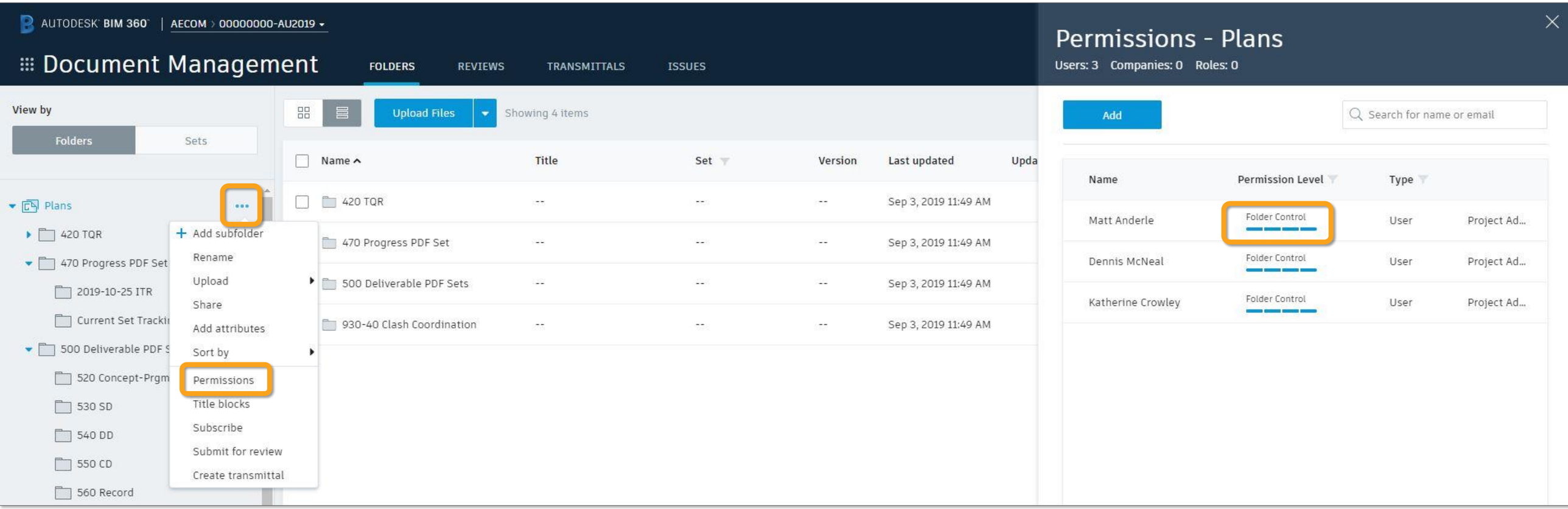
- Project Admin
- Member Management
- Revit Model Initiation and Publish

BIM 360 Member Management



- Members are assigned a Company and Role when invited to join a project
- Members can be granted access to each BIM 360 module individually
- Members inherit both a Company's and each Role's permissions, whichever is greater as applied to folders

BIM 360 Permissions Management



- Click the ellipsis […] symbol and select [Permissions] from the left-hand menu
- A fly-out window appears at the right of the screen indicating Permission Levels
- Project Administrators have Folder Control permissions by default; Companies, Roles, or Users can be added

BIM 360 Permission Levels

- **View Only:** User/role/company may view, add private markups, and create issues
  - Cannot view image files
  - Cannot use Desktop Connector
  - If view settings are not set to BIM Viewer PDFs cannot be viewed on mobile devices
- **View / Download:** User/role/company may view documents, add private markups, create issues
- **Upload Only:** User/role/company may upload documents but not see the folder contents
- **View / Download + Upload:** User/role/company may share their own documents with team members and view any other documents in that folder
- **View / Download + Upload + Edit:** User/role/company may share their own documents with team members, view and edit any other documents in that folder, and publish markups
- **Folder Control:** User/role/company may share their own documents with team members and view and edit any other documents in that folder. With folder control permission they can also carry out tasks within that folder that are usually restricted to the project administrator. This includes creating title blocks, adding project members, managing permissions, and editing set assignment. This permission level offers the greatest access to folders.

File Permissions

Action	View only	View/Download	Upload only	View/Download + Upload	View/Download + Upload + Edit	Folder Control
Upload			✓	✓	✓	✓
Open Publish log	✓	✓		✓	✓	✓
Add Title block					✓	✓
Review/Publish					✓	✓
View document	✓	✓		✓	✓	✓
Rename document					✓	✓
Copy source folder		✓		✓	✓	✓
Copy target folder			✓	✓	✓	✓
Move source folder					✓	✓
Move target folder			✓	✓	✓	✓
Delete/Restore					✓	✓
View version history	✓	✓		✓	✓	✓
Download document		✓		✓	✓	✓
Make current					✓	✓
Edit attribute value					✓	✓
Export Document log					✓	✓

Folder Permissions

Action	View only	View/Download	Upload only	View/Download + Upload	View/Download + Upload + Edit	Folder Control
Create sub-folder					✓	✓
Rename folder					✓	✓
Delete sub-folder					✓	✓
Subscribe to folder		✓		✓	✓	✓
Add permission						✓
Edit / delete permission						✓
Add new member						✓
Access Title Block page	✓	✓		✓	✓	✓
Add Title Block					✓	✓
View Title Block	✓	✓		✓	✓	✓
Edit Title Block					✓	✓
Create and add a new attribute					✓	✓
Edit the droplist options/rename					✓	✓
Hide/Show		✓		✓	✓	✓
Edit attribute value					✓	✓
Reorder columns	✓	✓		✓	✓	✓
Edit set assignment					✓	✓

Action	View only	View/Download	Upload only	View/Download + Upload	View/Download + Upload + Edit	Folder Control
Add private markup	✓	✓		✓	✓	✓
Edit private markup	✓*	✓*		✓*	✓*	✓*
Delete private markup	✓*	✓*		✓*	✓*	✓*
Add published markup					✓	✓
Edit published markup				✓*	✓*	✓
Archive published markup					✓*	✓*
View published markup	✓	✓		✓	✓	✓
Add / edit markup attachment	✓*	✓*		✓*	✓*	✓
Add hyperlink					✓	✓
View hyperlink	✓	✓		✓	✓	✓
Edit hyperlink					✓*	✓*
Delete hyperlink					✓	✓
View Issue	✓**	✓**		✓**	✓**	✓**
Create Issue	✓**	✓**		✓**	✓**	✓**
Respond to an Issue	✓**	✓**		✓**	✓**	✓**
Close an Issue	✓*	✓*		✓*	✓*	✓*
Compare (Paid Feature)	✓	✓		✓	✓	✓
Lock					✓	✓
Unlock					✓*	✓
Search	✓	✓		✓	✓	✓
Share	✓	✓		✓	✓	✓

Collaborative Task Permissions

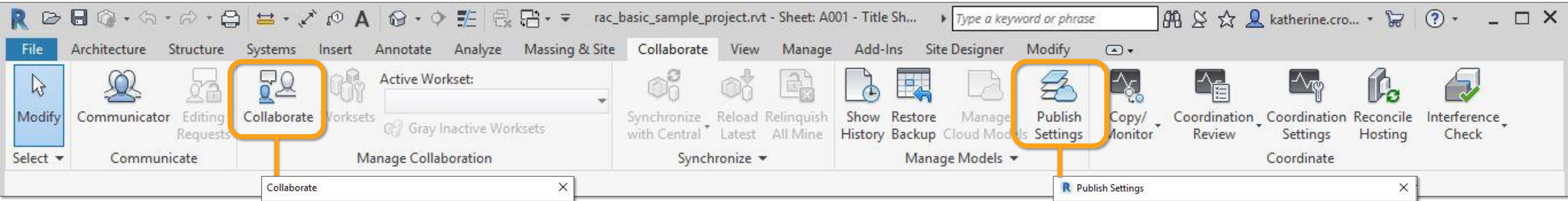
LIMITATIONS

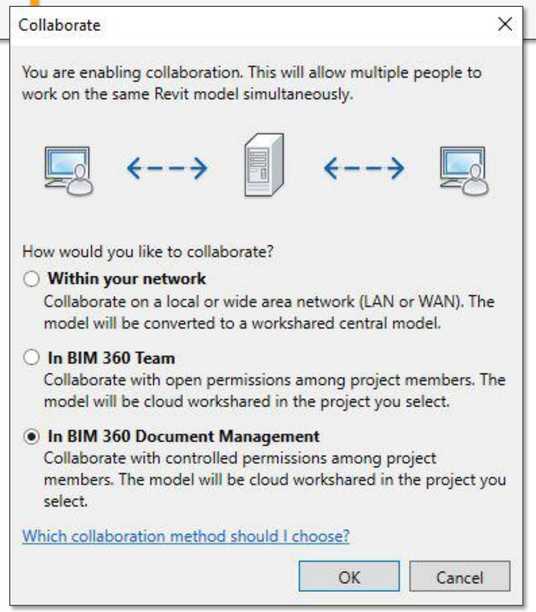
- Can only edit or delete items that they created
- Issue permissions control capabilities

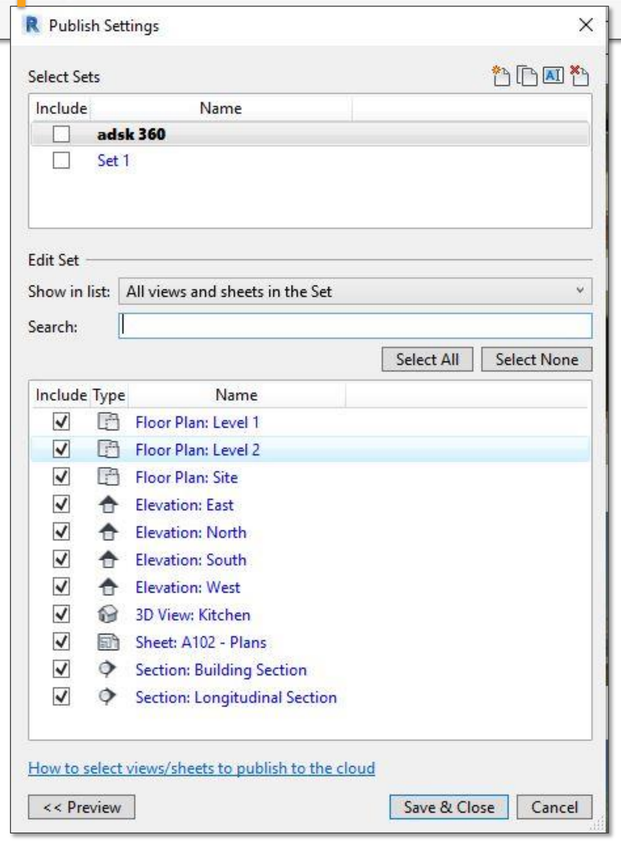
Getting Started

- Project Admin
- Member Management
- Revit Model Initiation and Publish

Revit Model Initiation and Publish Settings

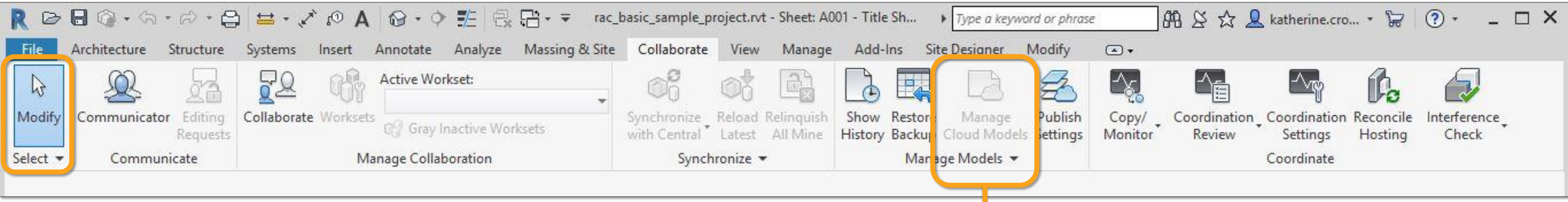


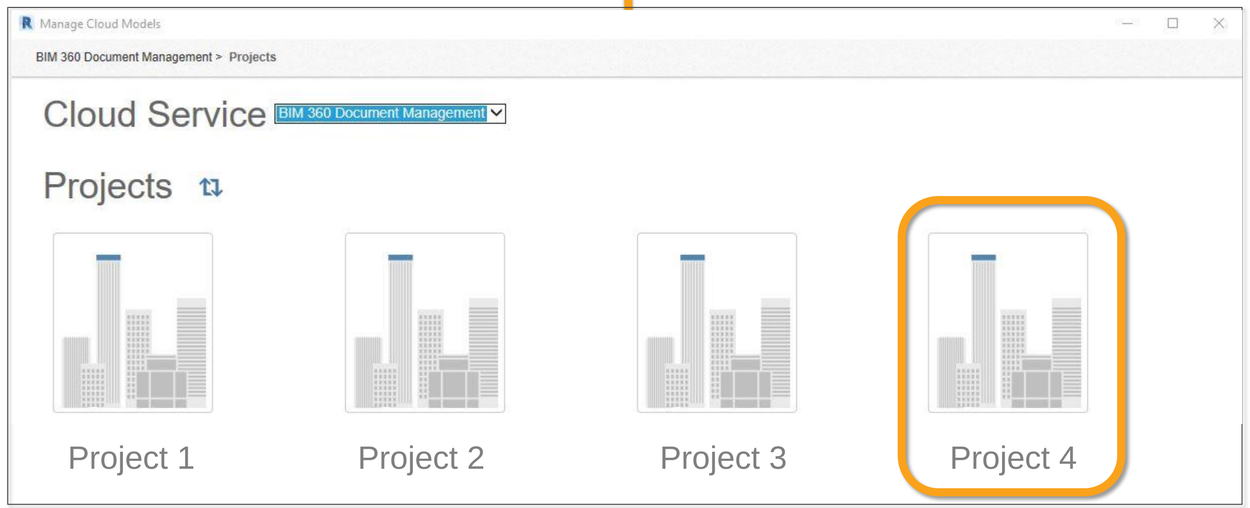




- Click [Collaborate] in the Collaborate Ribbon
- Select [In BIM 360 Document Management] in the dialog box
- Click [Publish Settings] and make appropriate selections in the dialog box

Revit Model Initiation and Publish

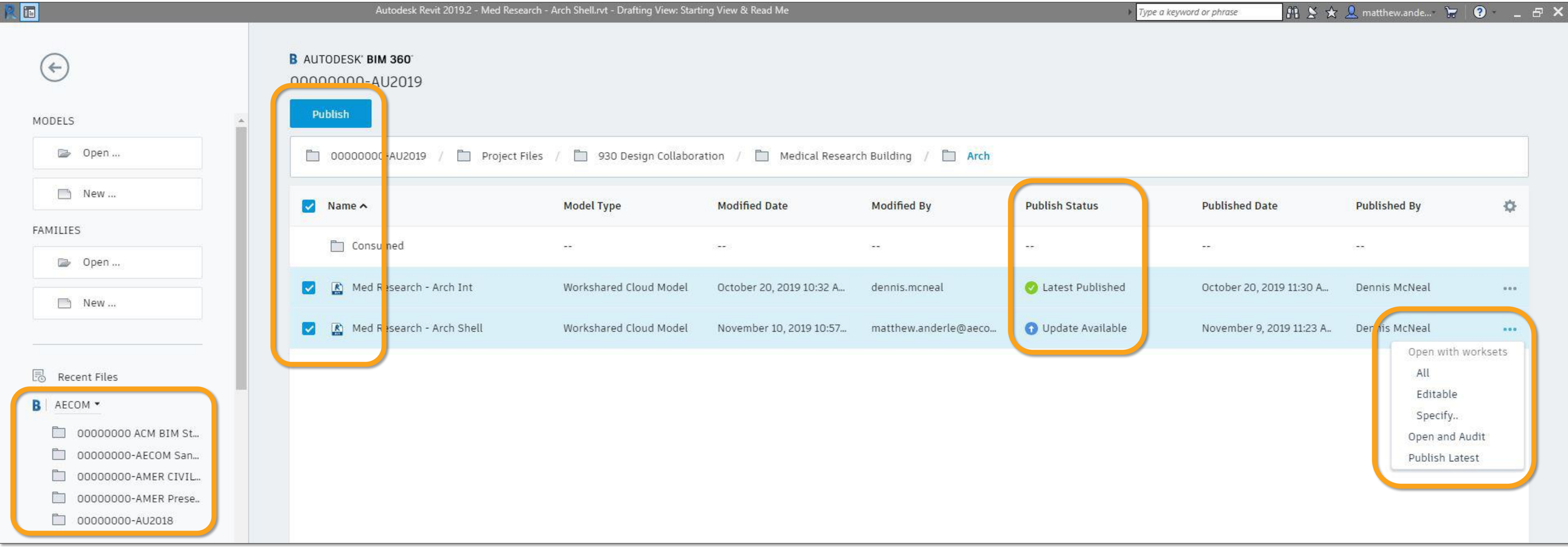




To publish the latest model:

- Click [Manage Cloud Models] to browse to a project and select models to publish

Revit Model Initiation and Publish



To publish the latest model:

- Single model: click […] and click [Publish Latest]
- Multiple models: Select each model's checkbox and click [Publish]

Workflow Poll

Snap QR code at right

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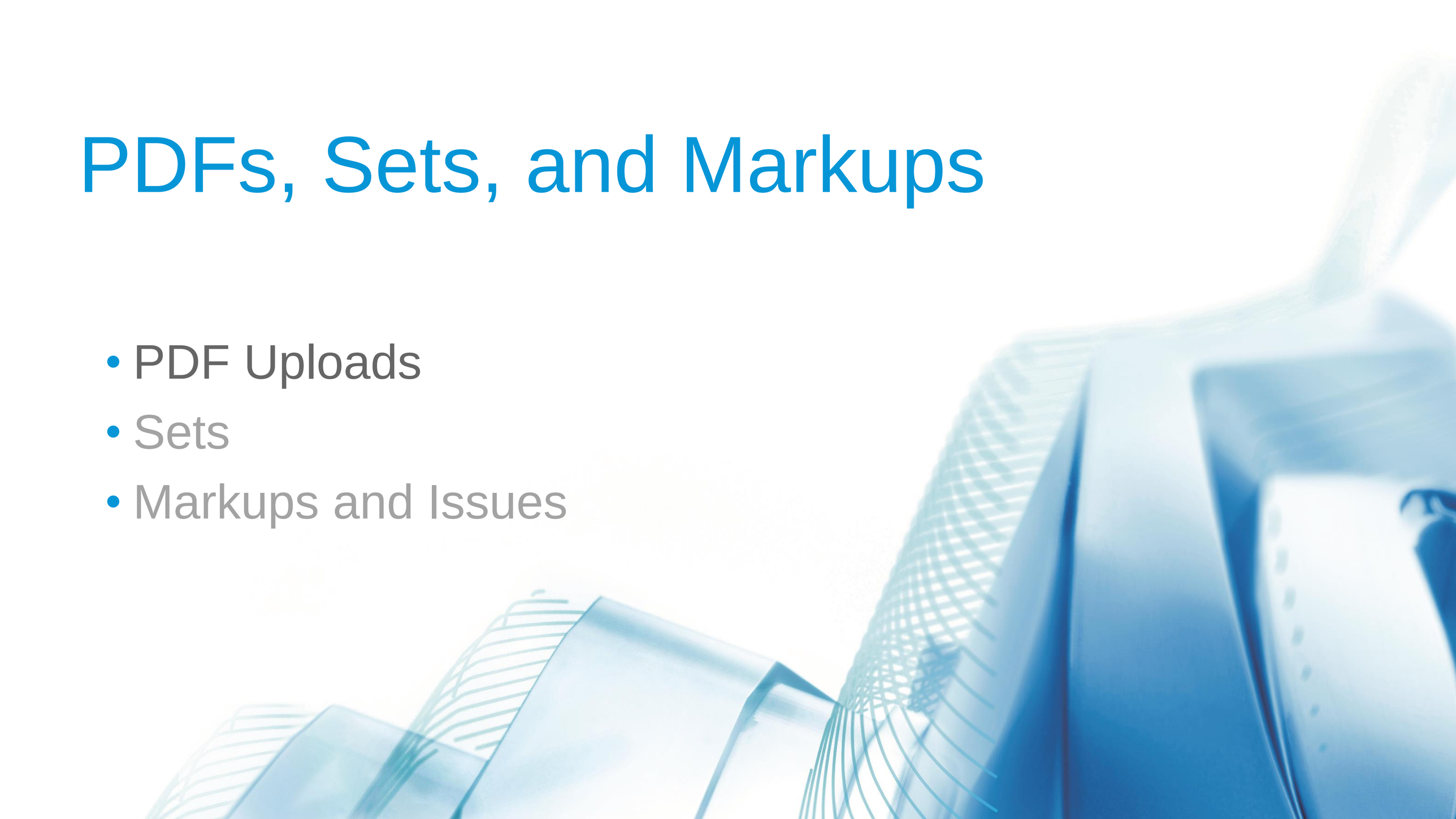
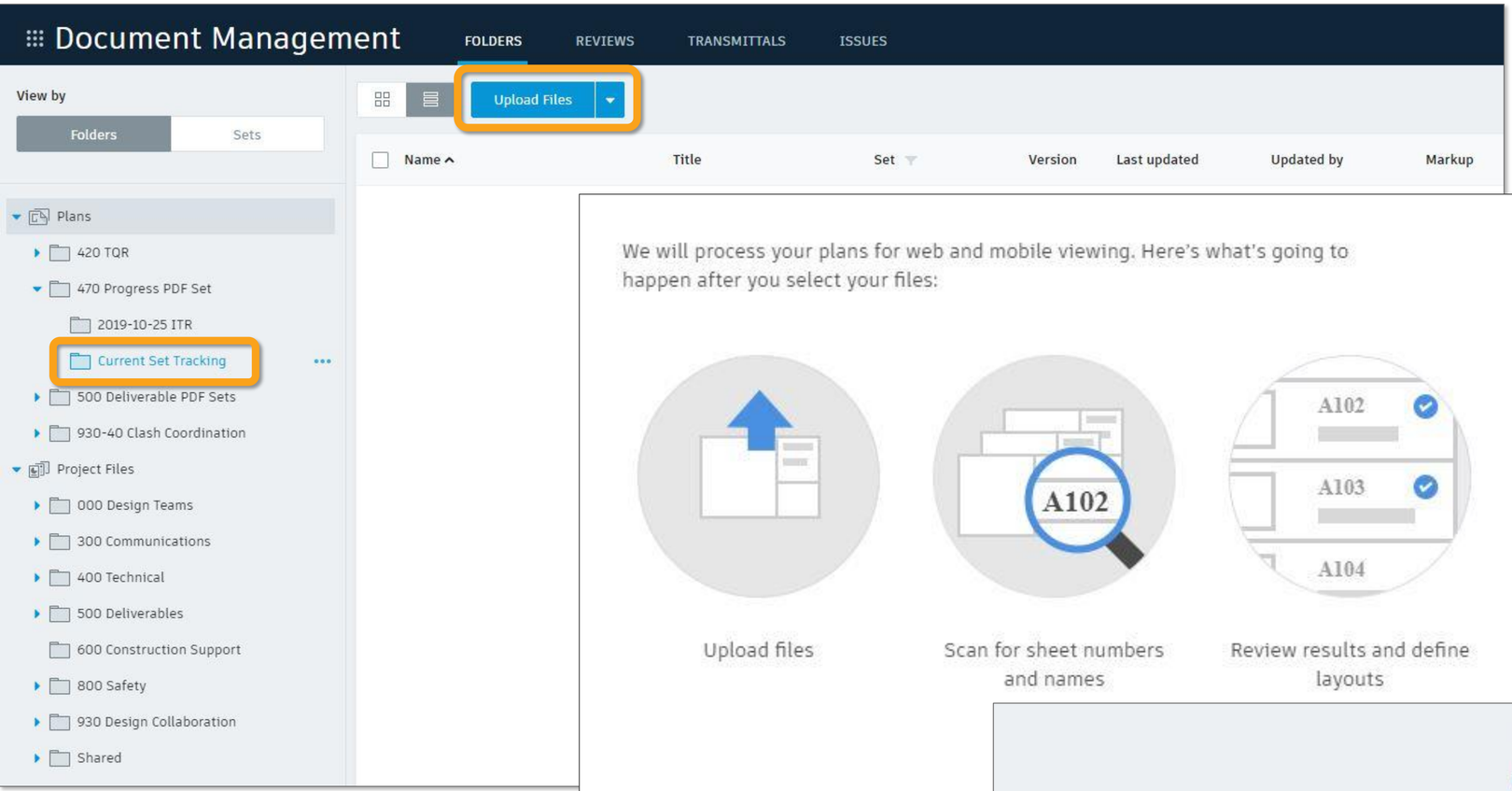
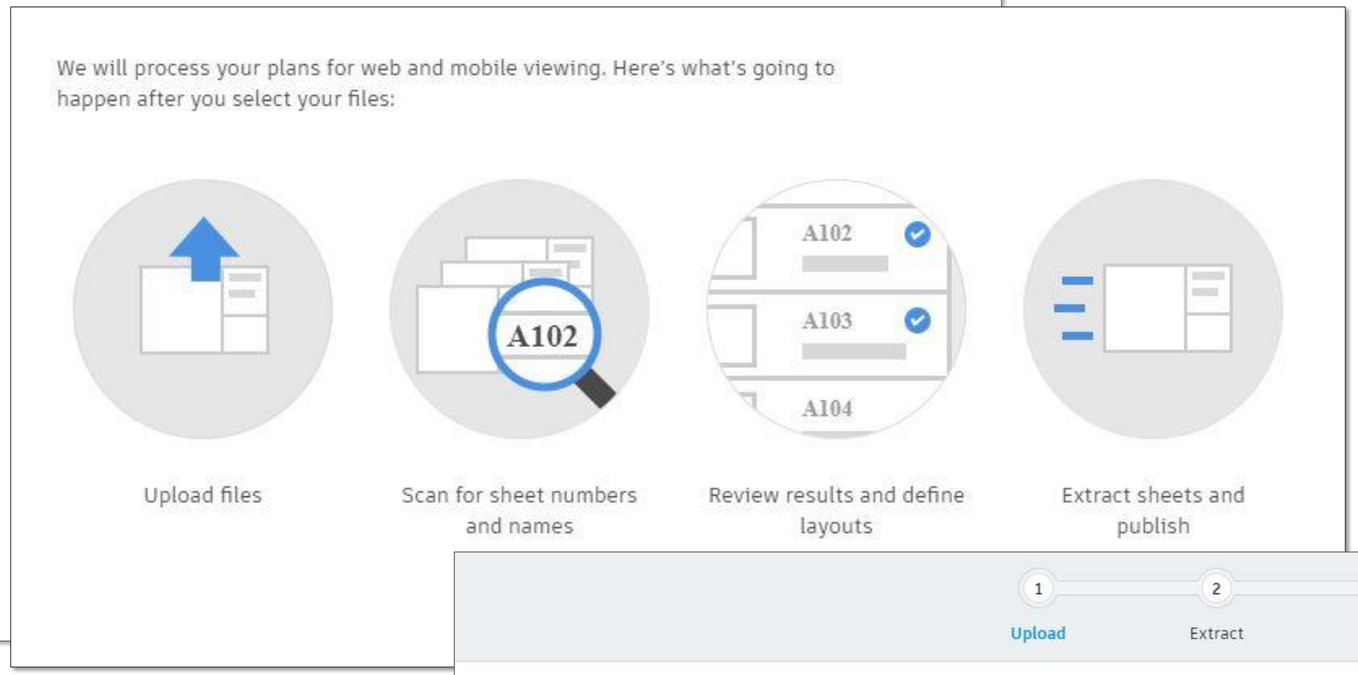
PDFs, Sets, and Markups

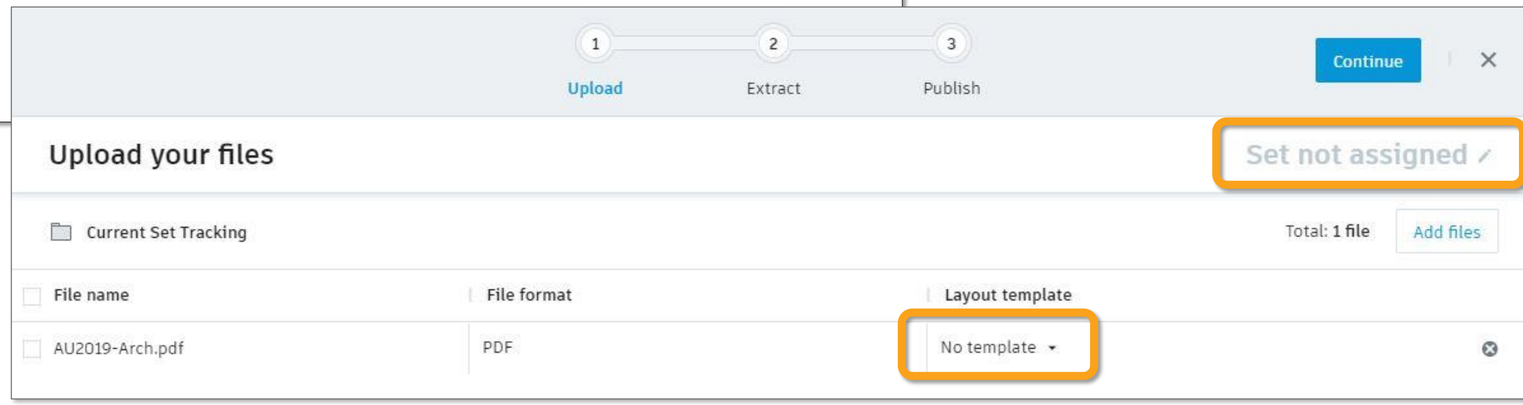
- PDF Uploads
- Sets
- Markups and Issues



PDF Uploads



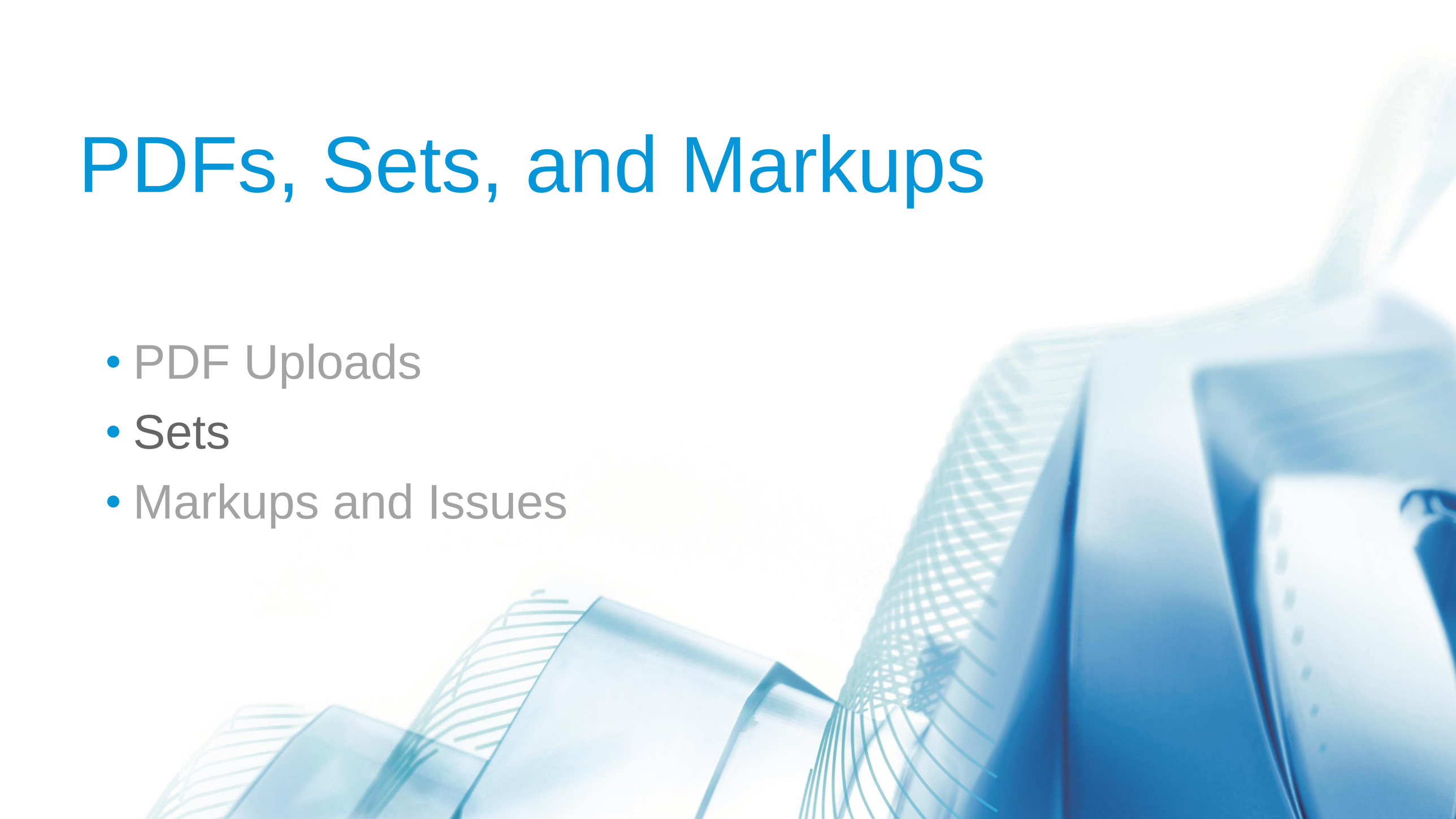




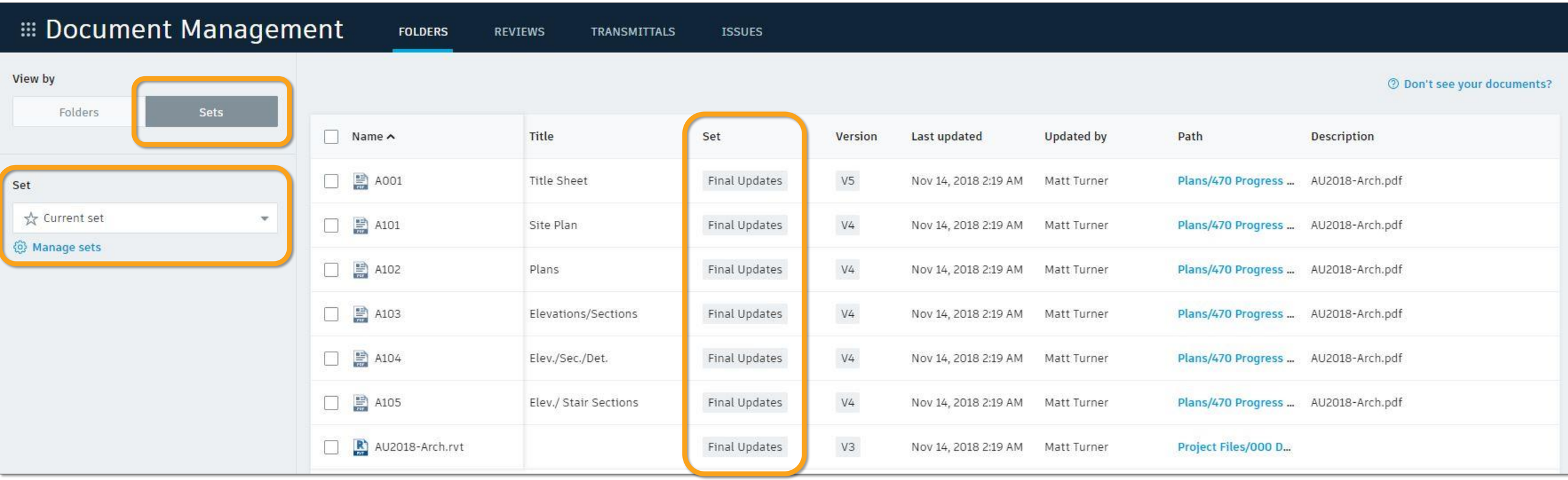
- Click [Upload Files] / drag & drop file(s)
- Apply Template
- Apply Set and Date

PDFs, Sets, and Markups

- PDF Uploads
- Sets
- Markups and Issues



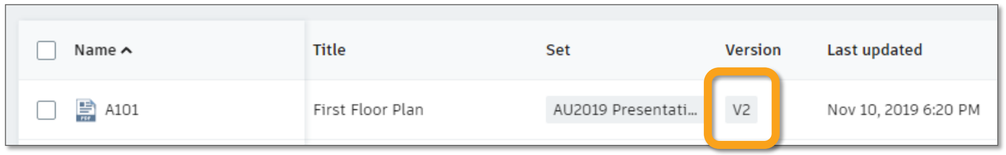
Sets



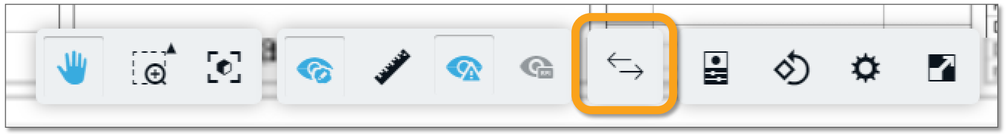
Click the [Sets] button to access all uploaded sets using the drop down menu to switch between sets

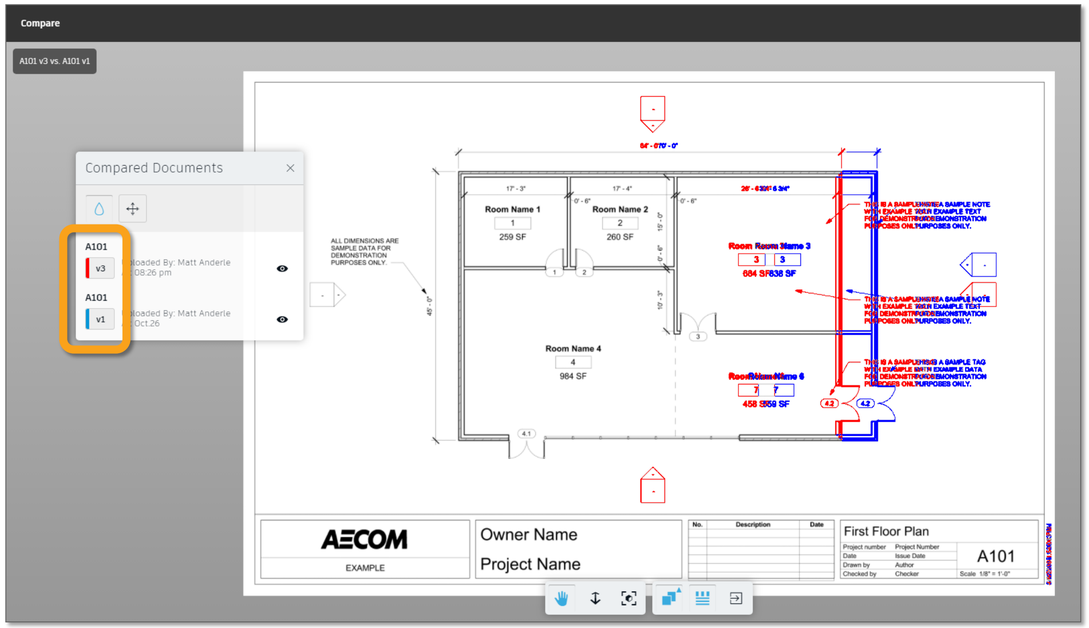
Versions and Compare Tool

Select a file with multiple versions

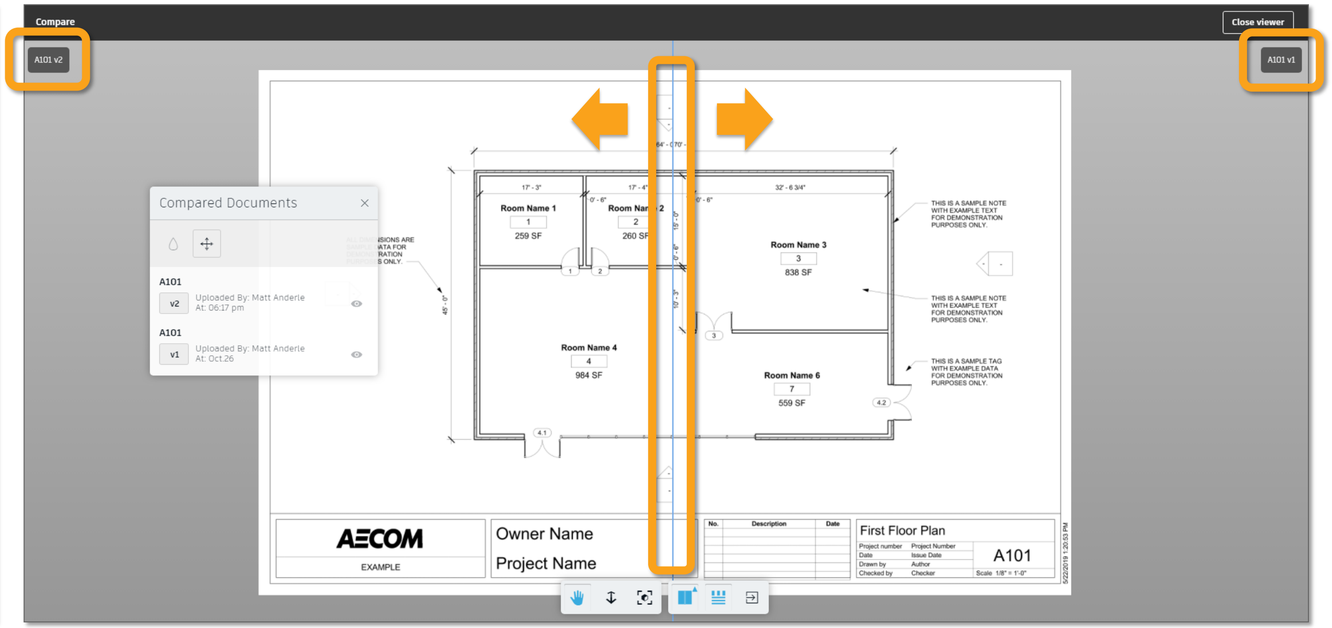


Select the [Compare] tool from the Control Tools menu





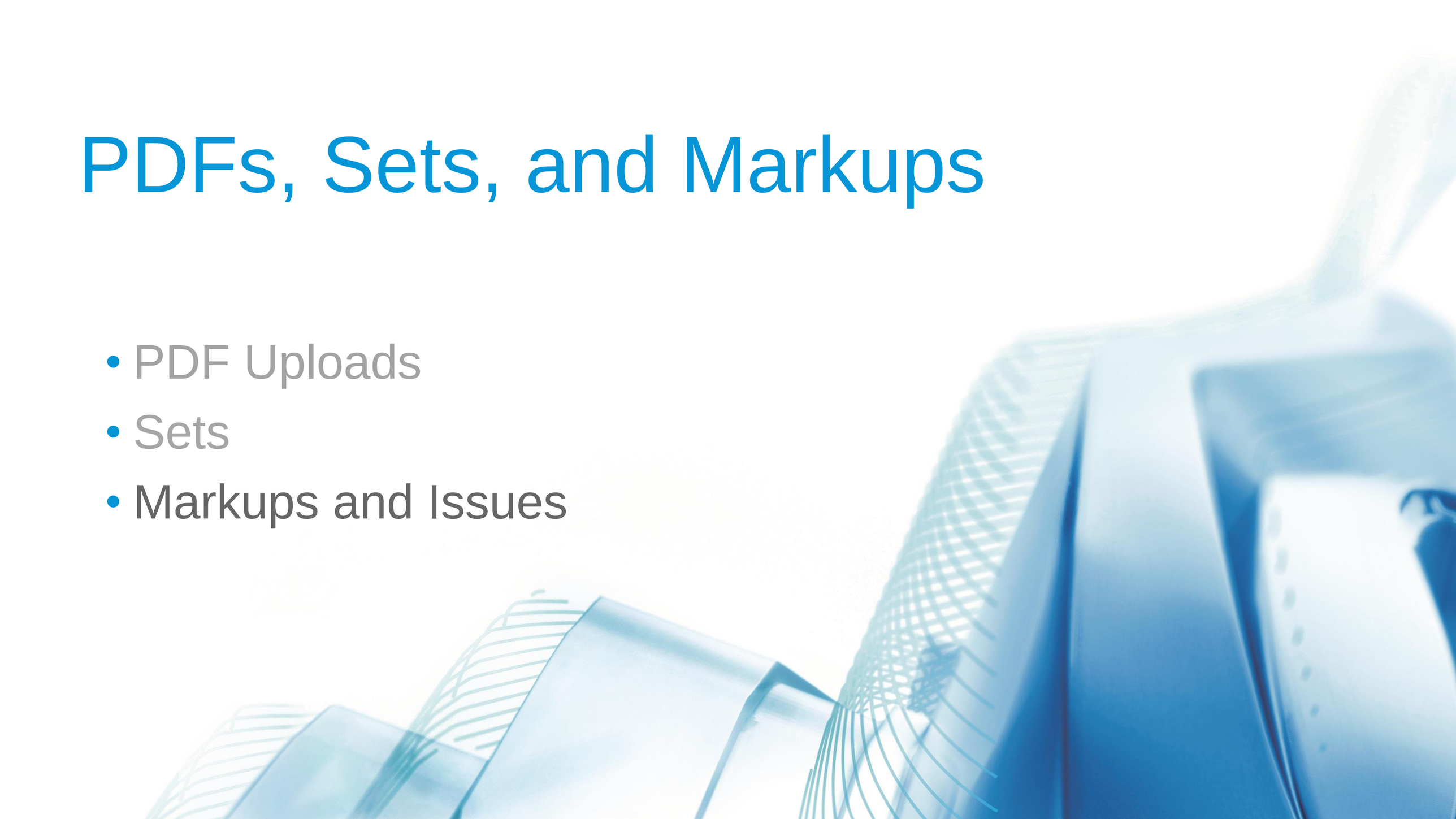
Overlay



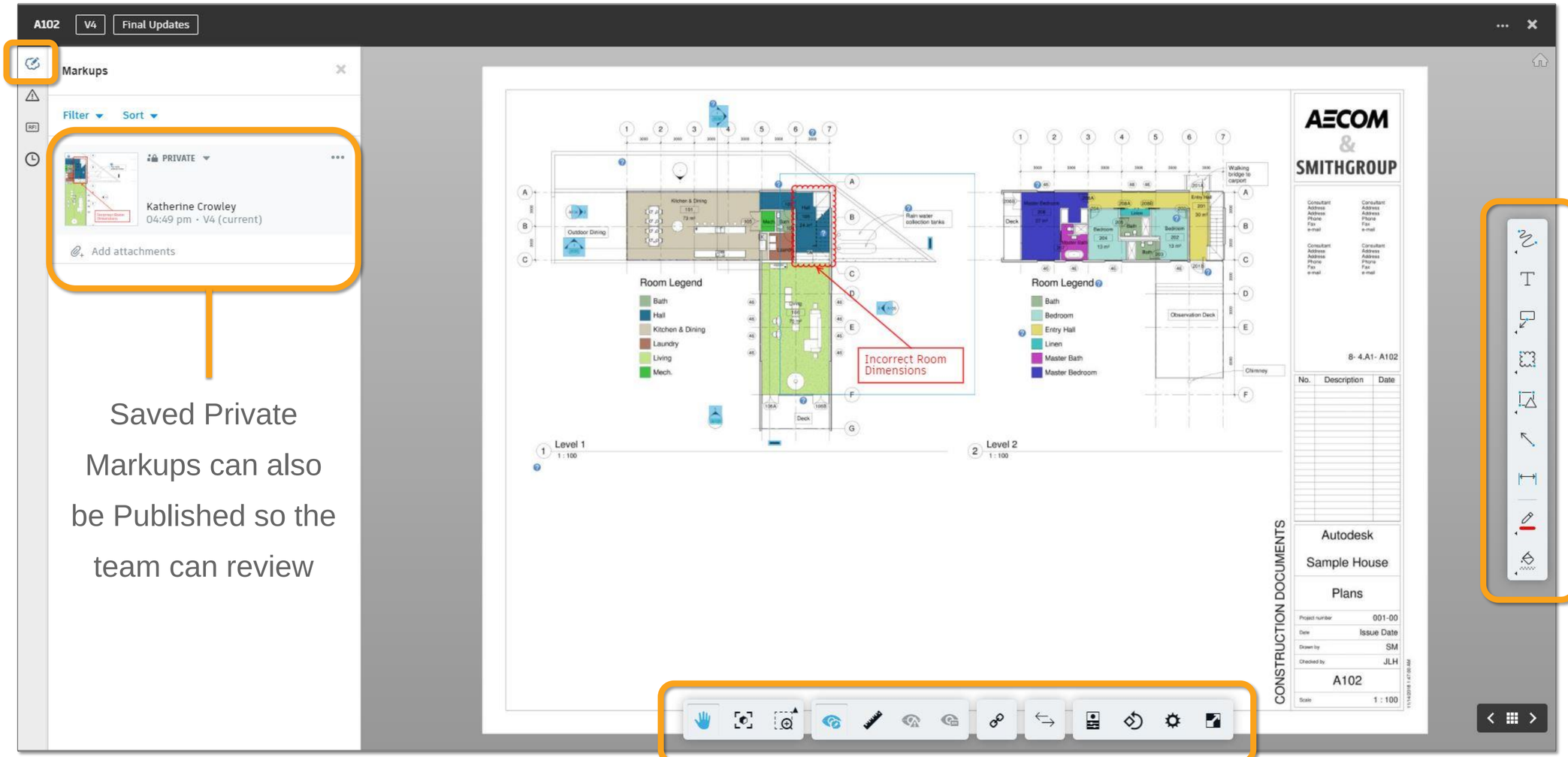
Side by Side

PDFs, Sets, and Markups

- PDF Uploads
- Sets
- Markups and Issues



Markups

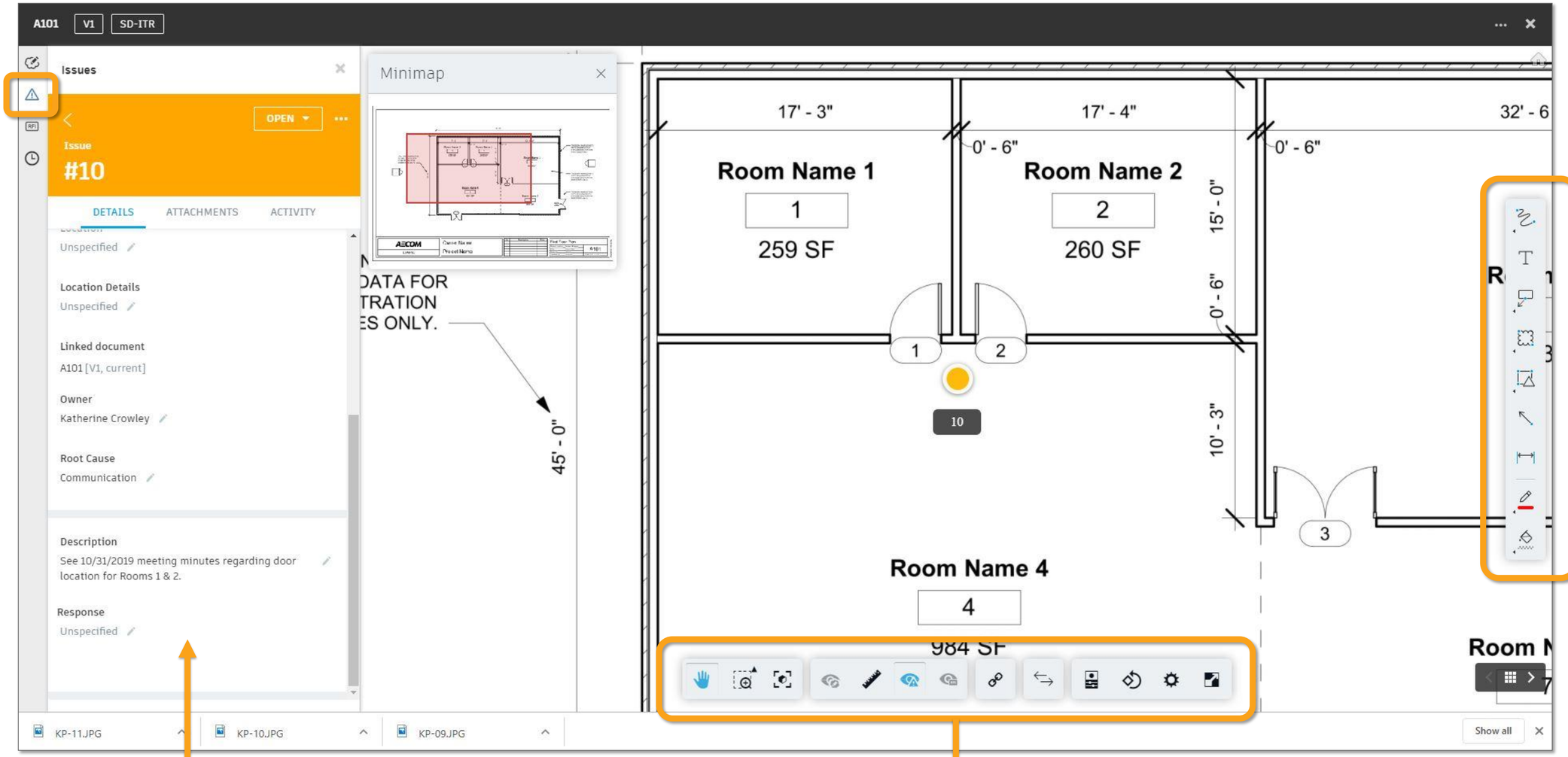


Saved Private Markups can also be Published so the team can review

Markup Tools

Control Tools

Issues



Markup Tools

Issues Pane

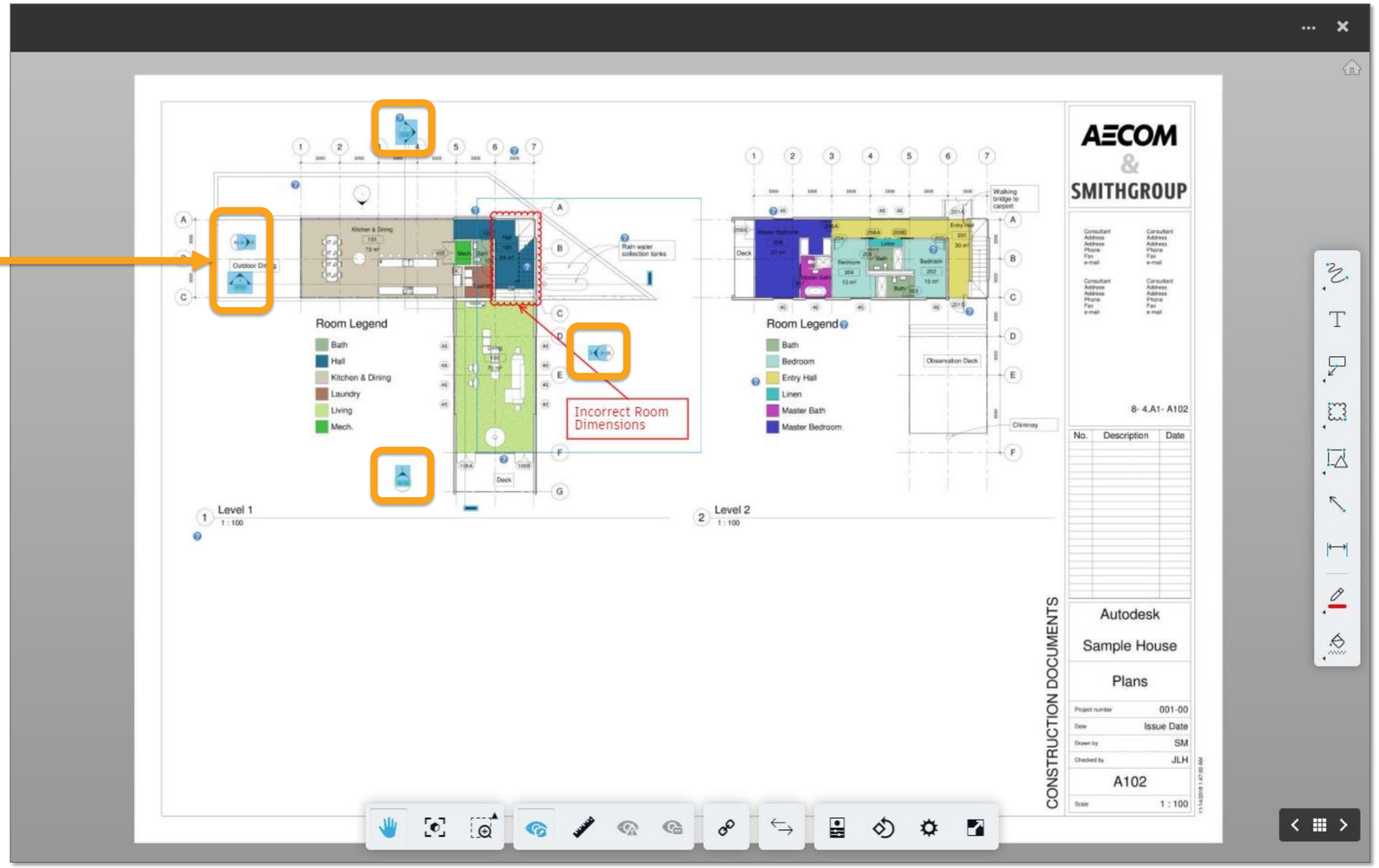
Control Tools

Leveraging Metadata

- Hyperlinking and Capturing Combined Sets
- Harvesting Metadata in BIM 360
- Viewing Model Properties in BIM 360

Hyperlinking and Capturing Combined Sets

Hyperlinks

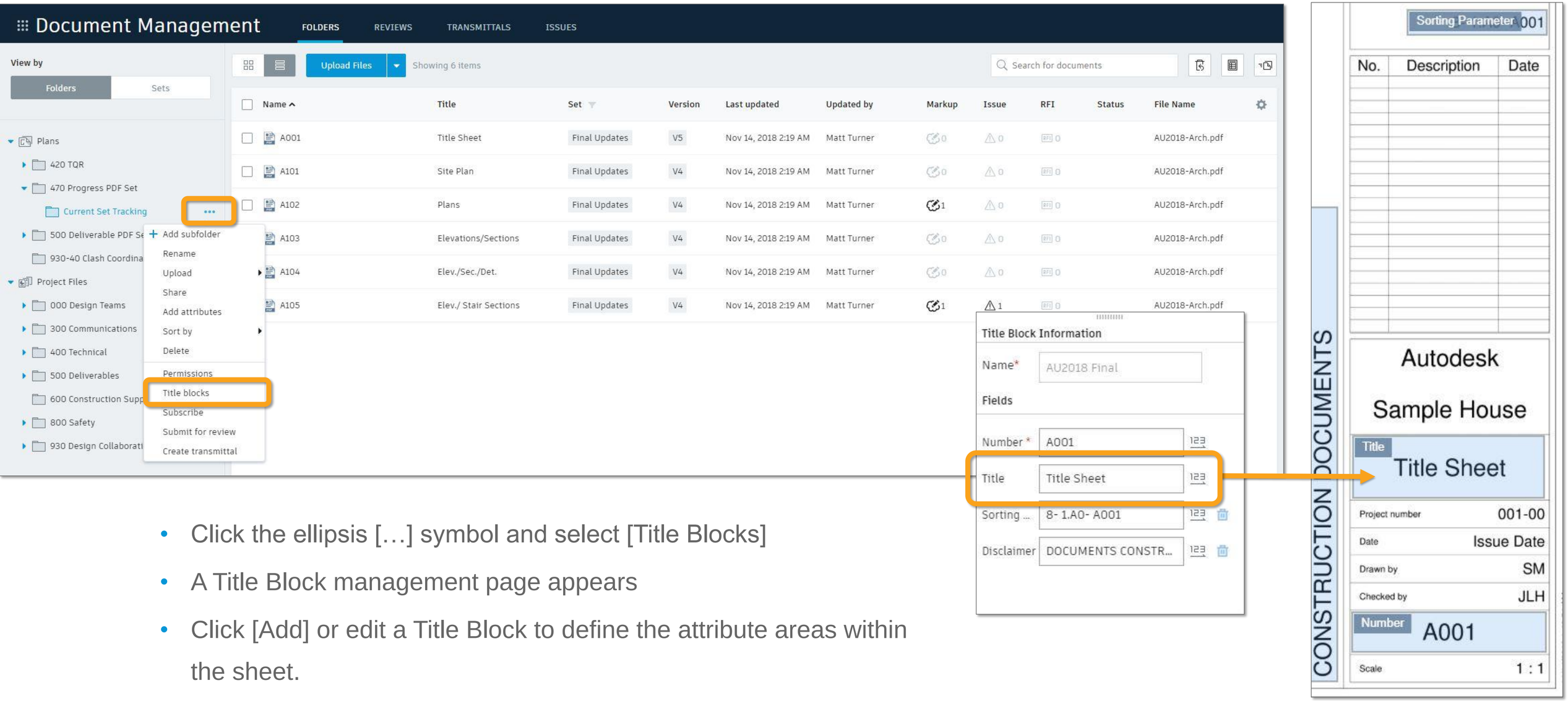


Hyperlinks are created automatically when you upload RVT, DWG, DWF 2D sheets, and raster or vector PDFs with callouts to the Plans or Shop Drawings folders

Leveraging Metadata

- Hyperlinking and Capturing Combined Sets
- Harvesting Metadata in BIM 360
- Viewing Model Properties in BIM 360

Harvesting Metadata

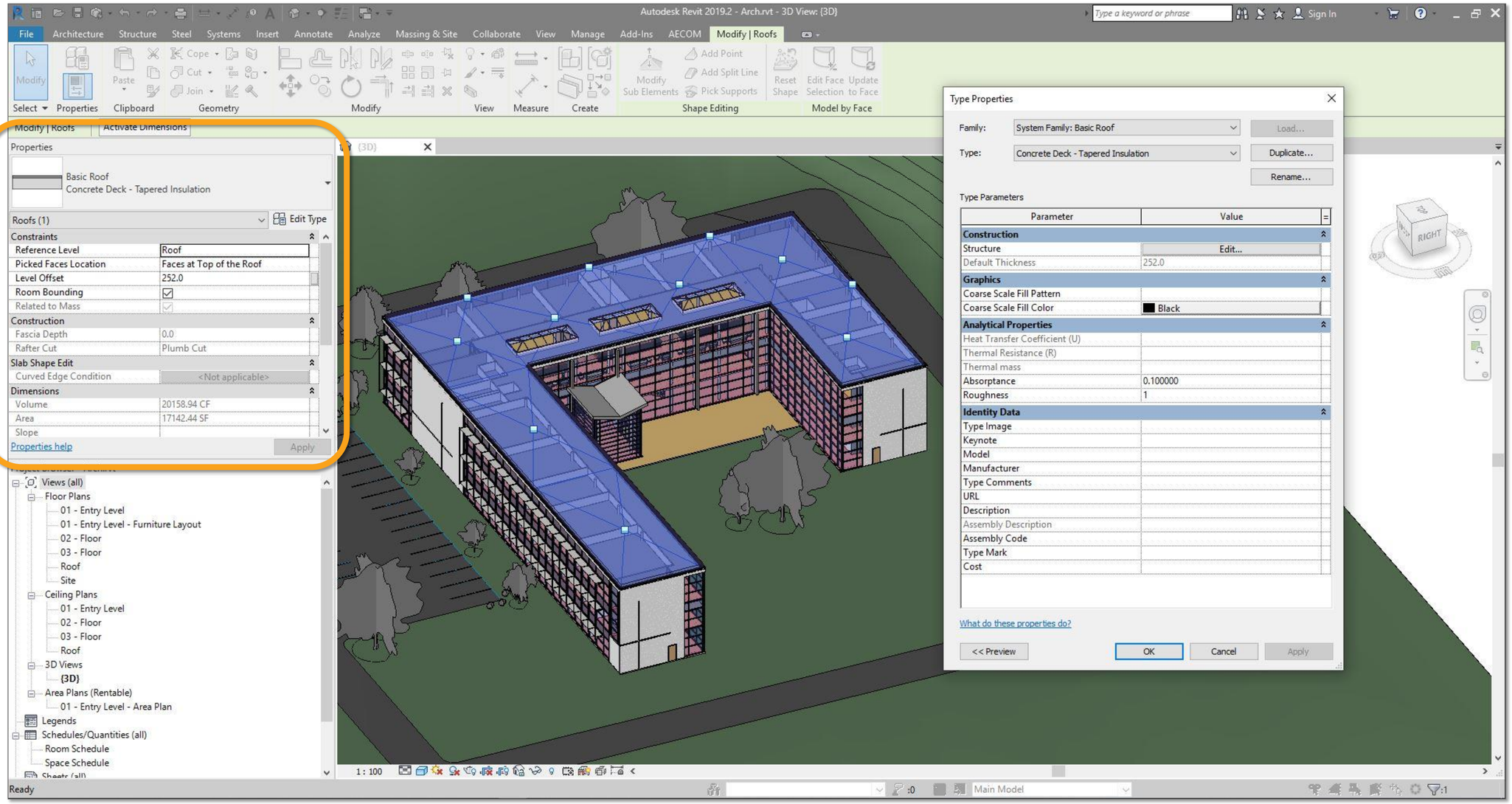


- Click the ellipsis […] symbol and select [Title Blocks]
- A Title Block management page appears
- Click [Add] or edit a Title Block to define the attribute areas within the sheet.

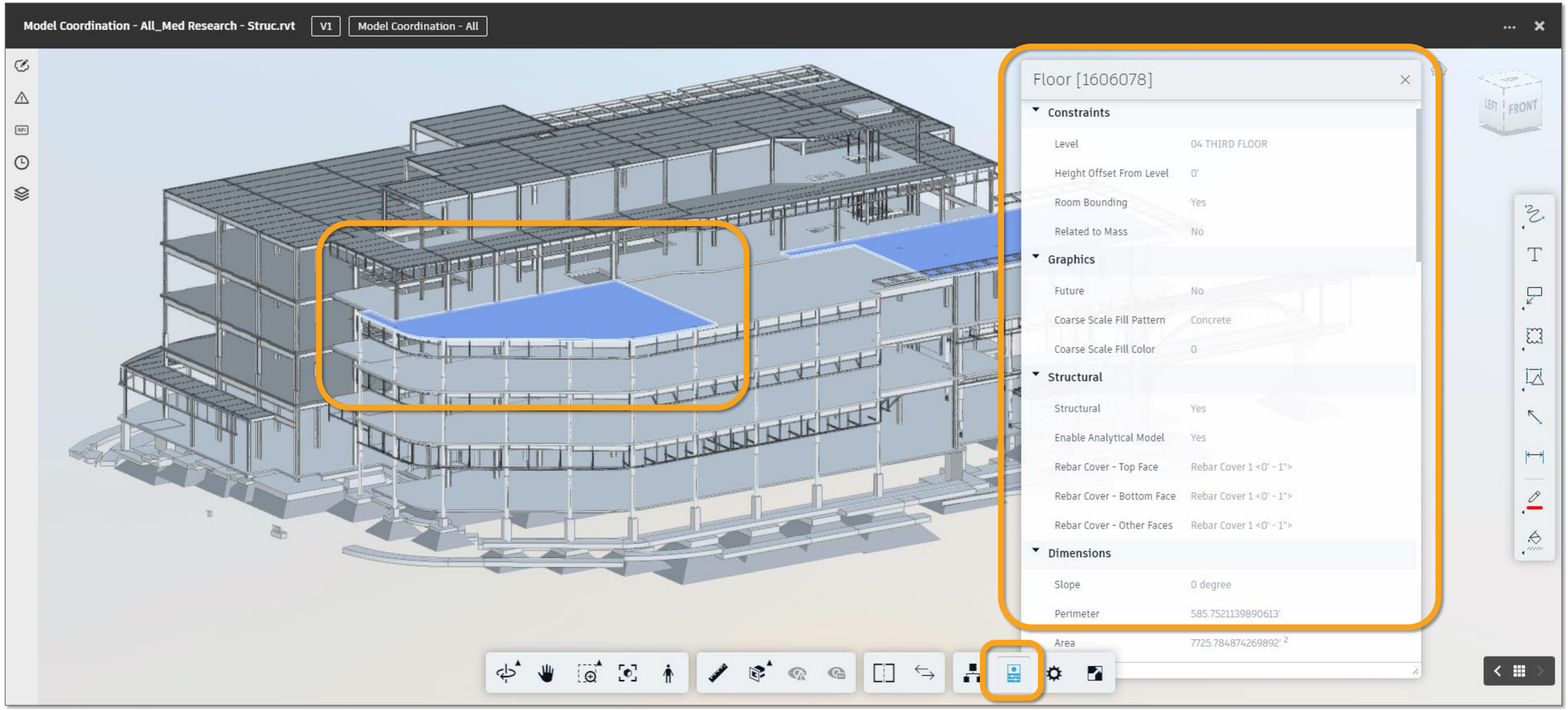
Leveraging Metadata

- Hyperlinking and Capturing Combined Sets
- Harvesting Metadata in BIM 360
- Viewing Model Properties in BIM 360

Revit Model Data



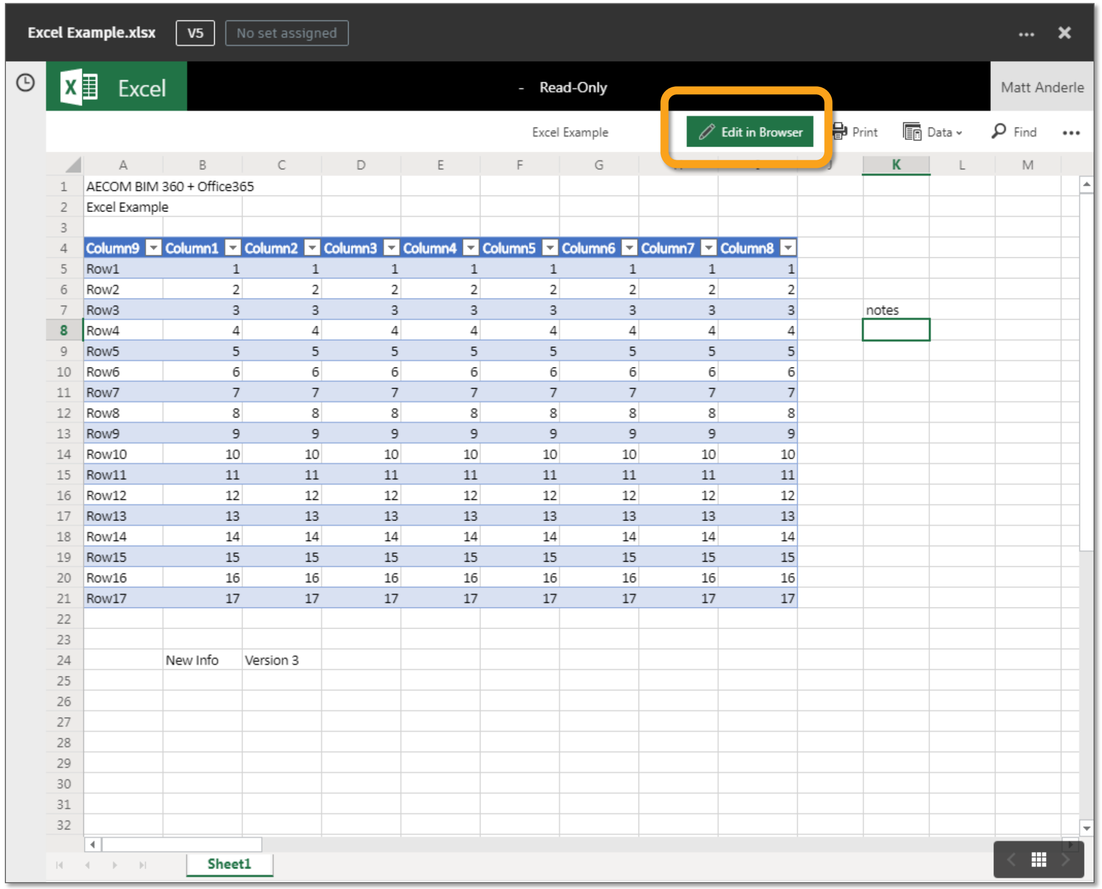
Revit Model Data in BIM 360



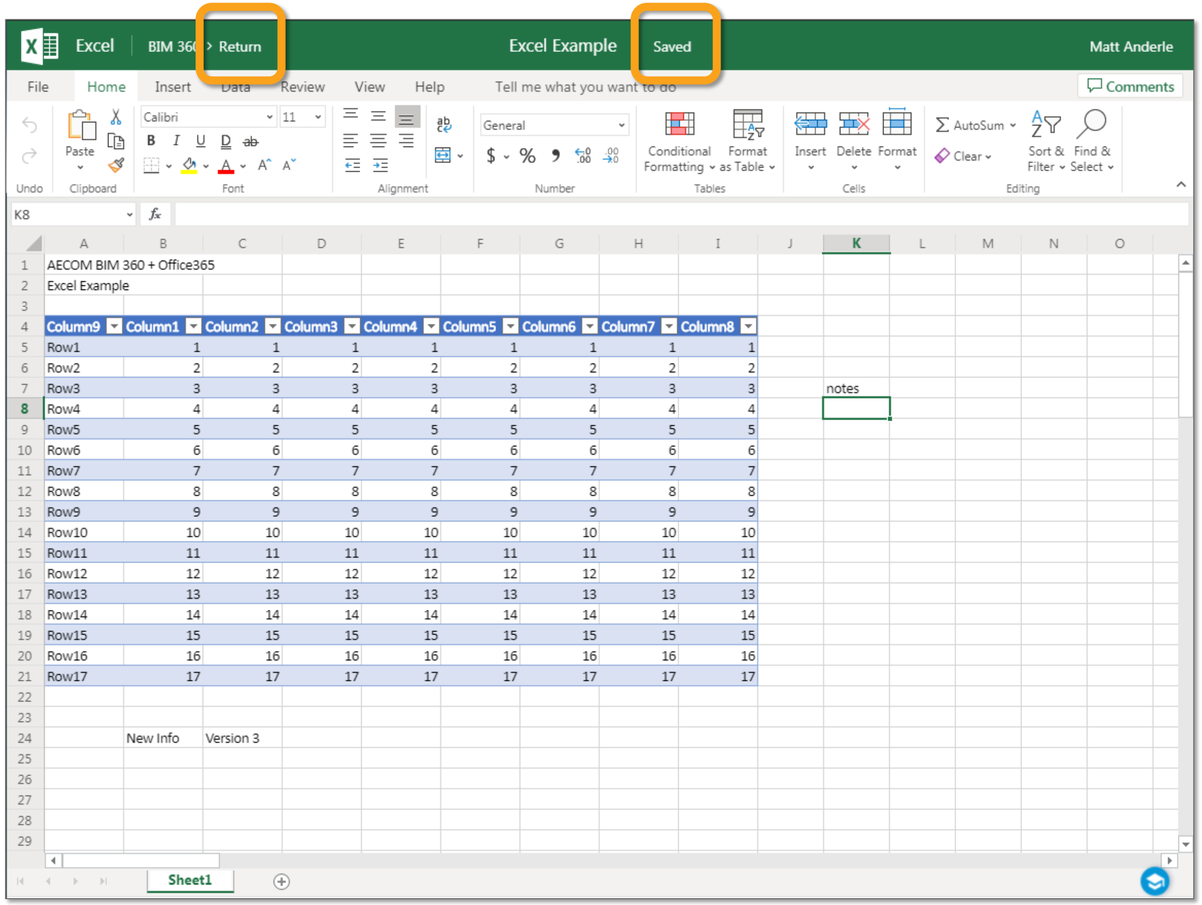
New Features

- Office 365 Integration
- Place Me

Office 365 Integration



- Open a Microsoft Office file in the BIM 360 viewer
- Click [Edit in Browser] and sign in



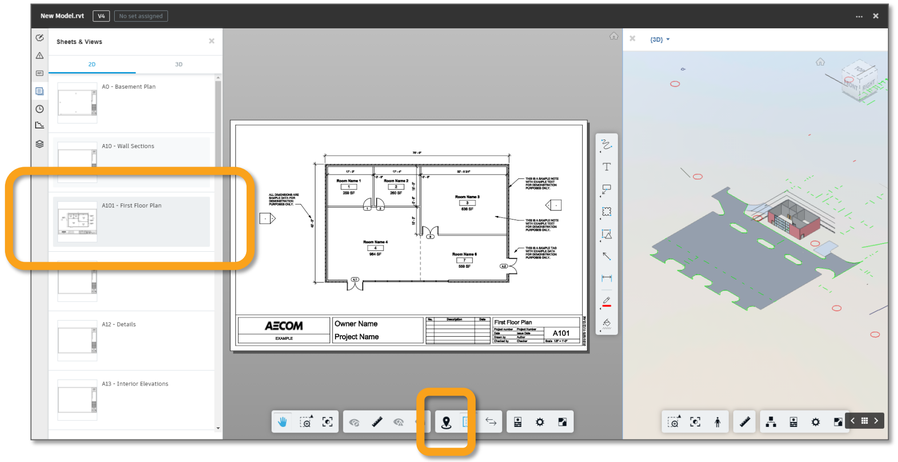
- Multiple team members can view or edit the file simultaneously
- Changes are saved automatically
- Click [Return] to close the file and return to BIM 360

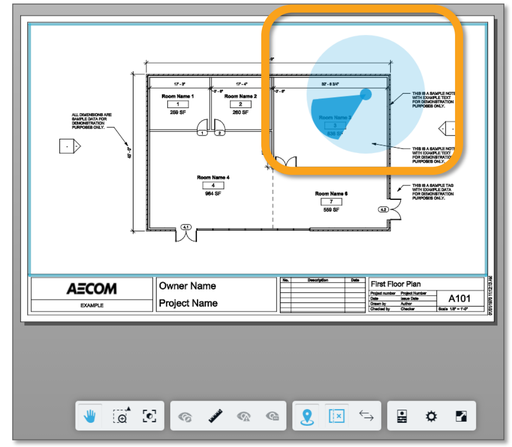
New Features

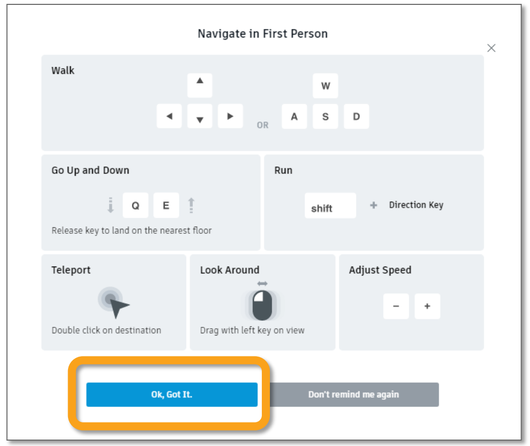
- Office 365 Integration
- Place Me

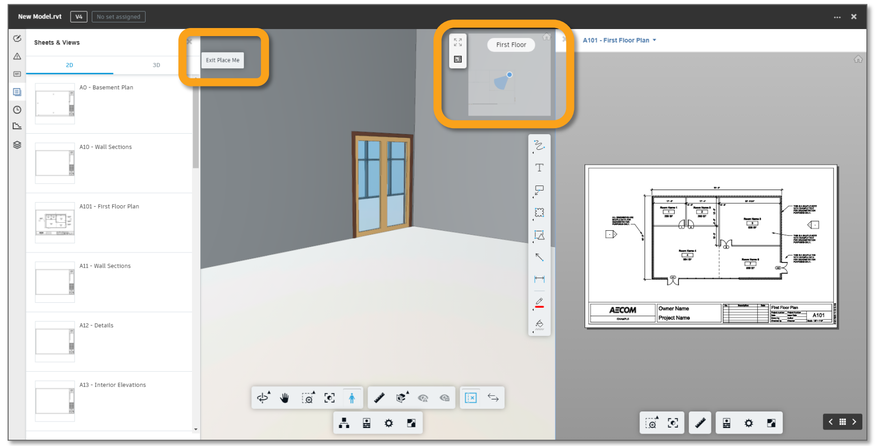
Place Me

- Open a 2D sheet from the Published Revit file
- In the Control Tools select the [Place Me] icon
- Select the location on the 2D sheet.
- Use the cursor to orient the view angle
- Review the First Person Navigation Controls
- The user is placed into the 3D model in First Person Mode









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