BIM360 Design Collaboration: Everything You Need to Know

Vince Naviello
VDC Manager

Matt Edwards
Director of VDC
About the Speakers

Matt Edwards
- 16 years working in BIM/VDC
- Electrical background
- Director of VDC at CRB
- Leads company’s VDC initiatives

Vince Naviello
- 10 years in the AEC industry
- Structural background
- BIM Coordinator in 2014
- Currently Northeast VDC Manager at CRB
Overview

• Understand BIM360 concepts
• How to apply the concepts
• Everything you need to know
  o Project setup
  o Project execution
BIM360

- Document Management
- Design Collaboration (C4R)
- Coordinate (Glue)
- Build (Field)
Collaboration for Revit

- Up to Revit 2018.3
- Co-author Revit Models
- BIM360 Team
- Open Source Environment
- Real-time Updates
BIM360 Design Collaboration

- Document Management
- Teams
- Folder Permissions
- Publish/Share & Consume
- Model Explore
- Issue Integration

> 2018.3
Workflow Strategies
Workflow 1: Live Link Without Teams

- Least controlled
- Live linked models
- No folder restrictions
- Open source environment
- No teams
- No Design Collaboration features
Workflow 2: Live Link With Teams

• More controlled
• Live linked models
• Team folders
• Cross-team folder permissions
• Design Collaboration features
Workflow 3: Link to Published/Packaged Models

- Even more controlled
- No live linking
- Team and shared folders
- Links update via team’s publish & share
- No cross-team folder access
Workflow 4: Link to Consumed Models

- Most controlled
- No live linking
- Team and consumed folders
- Publish ➔ Share ➔ Consume
- No additional permissions required
Team Folder Creation Summary

What folders get generated with a team?

1. Team folder
2. Consumed folder
3. Shared folder
Choosing the Best Workflow
The Options

• Any workflow can apply
• Influencers
  o Project type
  o Schedule
  o Stakeholders
  o Intellectual property
• Document in BEP!
The Project

- CRB: lead design and Construction Manager
- Design-build/design-assist
- External design partners
- Design Collaboration pilot
The Team

- Team 1: CRB
- Team 2: Mechanical Trade
- Team 3: Plumbing Trade
- Team 4: Structural Engineer
- Team 5: Interior Designer
The Workflow
Project Setup
Account Administration

• Add Account Administrators
Account Administration

- Add Account Administrators
Account Administration

- Add Account Administrators
- Add Companies
Account Administration

- Add Account Administrators
- Add Companies
- Manage Member Directory
Account Administration

• Add Account Administrators
• Add Companies
• Manage Member Directory
• Licensing
  o BYOS
  o 2 Step Process
Creating the Project

• Establish Project
Creating the Project

- Establish Project
- Activate Document Management
Creating the Project

- Establish Project
- Activate Document Management
- Activate Design Collaboration
Creating the Project

• Establish Project
• Activate Document Management
• Activate Design Collaboration
• Project Profile
Develop Folder Structure

- Plans vs. Project Files
Develop Folder Structure

- Plans vs. Project Files
- Team folder breakdown
Develop Folder Structure

- Plans vs. Project Files
- Team folder breakdown
- Supporting Revit data
  - CAD links
  - Keynote files
  - Shared parameters
Develop Folder Structure

- Plans vs. Project Files
- Team folder breakdown
- Supporting Revit data
  - CAD links
  - Keynote files
  - Shared parameters
- Desktop Connector
Create Teams

• Option 1: From scratch
Create Teams

- Option 1: From scratch
- Option 2: From predefined Docs folders
Create Teams

• Option 1: From scratch
• Option 2: From predefined Docs folders
• Option 3: From workshared models
Create Teams

- Option 1: From scratch
- Option 2: From predefined Docs folders
- Option 3: From workshared models
- Results
  - Consumed & Shared folders
Add Team Members
Folder Permissions

• Document Management vs. Design Collaboration
• Assign by company or role
• Team access considerations
  o Author Revit models
  o View linked models
  o Publish and share packages
  o Administrators
<table>
<thead>
<tr>
<th>Permission Type</th>
<th>Document Management Definition</th>
<th>Revit Model Access</th>
<th>Revit Link Visibility</th>
<th>Desktop Connector Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload Only</td>
<td>User can upload documents but cannot see contents within folder</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>View Only</td>
<td>User can view documents and create private markups and issues</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>View/Download</td>
<td>User can view documents and create private markups and issues</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>View/Download + Upload</td>
<td>User can perform all the above plus upload documents to folder</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>View/Download + Upload + Edit</td>
<td>User can share their own documents with team members, view and edit any other documents and publish markups</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Folder Control</td>
<td>User has all access listed above plus typical project admin tasks such as adding project members and managing permissions</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
## Design Collaboration Folder Permissions

<table>
<thead>
<tr>
<th>Permission Type</th>
<th>Design Collaboration Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom</td>
<td>Permissions have been defined elsewhere (Document Management)</td>
</tr>
<tr>
<td>View Only</td>
<td>User can view the team’s work in progress folders</td>
</tr>
<tr>
<td>View + Edit</td>
<td>User can publish Revit models, create packages and consume models</td>
</tr>
<tr>
<td>View + Edit + Share</td>
<td>User has all ‘View + Edit’ permissions plus ability to share packages with other teams</td>
</tr>
<tr>
<td>View + Edit + Share + Control</td>
<td>User has all permissions above plus the ability to share contents of a package to Docs and schedule regular publishes of a package</td>
</tr>
</tbody>
</table>
## Permission Equivalencies

<table>
<thead>
<tr>
<th>Docs Permission</th>
<th>Equivalent Design Collaboration Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload Only</td>
<td>Custom</td>
</tr>
<tr>
<td>View Only</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download + Upload</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download + Upload + Edit</td>
<td>View + Edit</td>
</tr>
<tr>
<td>Folder Control</td>
<td>View + Edit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Design Collaboration Permission</th>
<th>Equivalent Docs Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom (Cannot be defined here)</td>
<td>N/A</td>
</tr>
<tr>
<td>View Only</td>
<td>View/Download</td>
</tr>
<tr>
<td>View + Edit</td>
<td>View/Download + Upload + Edit</td>
</tr>
<tr>
<td>View + Edit + Share</td>
<td>View/Download + Upload + Edit</td>
</tr>
<tr>
<td>View + Edit + Share + Control</td>
<td>Folder Control</td>
</tr>
</tbody>
</table>
## Assign Permissions

- The Revit accessors

<table>
<thead>
<tr>
<th>Permission Type</th>
<th>Document Management Definition</th>
<th>Revit Model Access</th>
<th>Revit Link Visibility</th>
<th>Desktop Connector Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload Only</td>
<td>User can upload documents but cannot see contents within folder</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>View Only</td>
<td>User can view documents and create private markups and issues</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>View/Download</td>
<td>User can view documents and create private markups and issues</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>View/Download + Upload</td>
<td>User can perform all the above plus upload documents to folder</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>View/Download + Upload + Edit</td>
<td>User can share their own documents with team members, view and edit any other documents and publish markups</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Folder Control</td>
<td>User has all access listed above plus typical project admin tasks such as adding project members and managing permissions</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Assign Permissions

• The Revit accessors

<table>
<thead>
<tr>
<th>Docs Permission</th>
<th>Equivalent Design Collaboration Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload Only</td>
<td>Custom</td>
</tr>
<tr>
<td>View Only</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download + Upload</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download + Upload + Edit</td>
<td>View + Edit</td>
</tr>
<tr>
<td>Folder Control</td>
<td>View + Edit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permission Type</th>
<th>Design Collaboration Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom</td>
<td>Permissions have been defined elsewhere (Document Management)</td>
</tr>
<tr>
<td>View Only</td>
<td>User can view the team’s work in progress folders</td>
</tr>
<tr>
<td>View + Edit</td>
<td>User can publish Revit models, create packages and consume models</td>
</tr>
<tr>
<td>View + Edit + Share</td>
<td>User has all ‘View + Edit’ permissions plus ability to share packages with other teams</td>
</tr>
<tr>
<td>View + Edit + Share + Control</td>
<td>User has all permissions above plus the ability to share contents of a package to Docs and schedule regular publishes of a package</td>
</tr>
</tbody>
</table>
Assign Permissions

- The Revit accessors

<table>
<thead>
<tr>
<th>Docs Permission</th>
<th>Equivalent Design Collaboration Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload Only</td>
<td>Custom</td>
</tr>
<tr>
<td>View Only</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download + Upload</td>
<td>View Only</td>
</tr>
<tr>
<td>View/Download + Upload + Edit</td>
<td>View + Edit</td>
</tr>
<tr>
<td>Folder Control</td>
<td>View + Edit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permission Type</th>
<th>Design Collaboration Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom</td>
<td>Permissions have been defined elsewhere (Document Management)</td>
</tr>
<tr>
<td>View Only</td>
<td>User can view the team’s work in progress folders</td>
</tr>
<tr>
<td>View + Edit</td>
<td>User can publish Revit models, create packages and consume models</td>
</tr>
<tr>
<td><strong>View + Edit + Share</strong></td>
<td><strong>User has all 'View + Edit' permissions plus ability to share packages with other teams</strong></td>
</tr>
<tr>
<td>View + Edit + Share + Control</td>
<td>User has all permissions above plus the ability to share contents of a package to Docs and schedule regular publishes of a package</td>
</tr>
</tbody>
</table>
Assign Permissions

- The Revit accessors
  - ‘View + Edit + Share’
Assign Permissions

- The Revit accessors
  - ‘View + Edit + Share’
- The live-linkers

<table>
<thead>
<tr>
<th>Permission Type</th>
<th>Document Management Definition</th>
<th>Revit Model Access</th>
<th>Revit Link Visibility</th>
<th>Desktop Connector Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upload Only</td>
<td>User can upload documents but cannot see contents within folder</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>View Only</td>
<td>User can view documents and create private markups and issues</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>View/Download</td>
<td>User can view documents and create private markups and issues</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>View/Download + Upload</td>
<td>User can perform all the above plus upload documents to folder</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>View/Download + Upload + Edit</td>
<td>User can share their own documents with team members, view and edit any other documents and publish markups</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Folder Control</td>
<td>User has all access listed above plus typical project admin tasks such as adding project members and managing permissions</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permission Type</th>
<th>Design Collaboration Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom</td>
<td>Permissions have been defined elsewhere (Document Management)</td>
</tr>
<tr>
<td>View Only</td>
<td>User can view the team’s work in progress folders</td>
</tr>
<tr>
<td>View + Edit</td>
<td>User can publish Revit models, create packages and consume models</td>
</tr>
<tr>
<td>View + Edit + Share</td>
<td>User has all ‘View + Edit’ permissions plus ability to share packages with other teams</td>
</tr>
<tr>
<td>View + Edit + Share + Control</td>
<td>User has all permissions above plus the ability to share contents of a package to Docs and schedule regular publishes of a package</td>
</tr>
</tbody>
</table>
Assign Permissions

- The Revit accessors
  - ‘View + Edit + Share’
- The live-linkers
  - ‘View/Download’
Assign Permissions

- The Revit accessors
  - ‘View + Edit + Share’
- The live-linkers
  - ‘View/Download’
- The consumers
  - No further action
Initiate Worksharing

You are enabling collaboration. This will allow multiple people to work on the same Revit model simultaneously.

How would you like to collaborate?

- **Within your network**
  Collaborate on a local or wide area network (LAN or WAN). The model will be converted to a workshared central model.

- **In BIM 360 Document Management**
  Collaborate with controlled permissions among project members. The model will be cloud workshared in the project you select.

Which collaboration method should I choose?

[OK] [Cancel]
Initiate Worksharing
Project Execution
Access BIM360 Models in Revit
Publish Models

- Create package set
Publish Models

- Create package set
- 3 publishing options
  - ‘Manage Cloud Models’
Publish Models

- Create package set
- 3 publishing options
  - ‘Manage Cloud Models’
  - Revit home screen
Publish Models

- Create package set
- 3 publishing options
  - ‘Manage Cloud Models’
  - Revit home screen
  - Design Collaboration
    - Update to latest
    - Schedule publish
Project Timeline

- Interior Designer
- Mechanical Trade
- Plumbing Trade
- Structural Engineer
- CRB
Project Timeline

Design Collaboration

CRB
2 Sets 11 Sheets 1 3D view Project Model

1

Design Collaboration

Shared
CRB

Filter
10/14/2019

2

CRB
2 Sets 11 Sheets 1 3D view Project Model
Package is available but has not been consumed
1) Package from another team has been consumed

2) Package was made available by one’s own team
Published model

118377_LAB_ARCH.rvt
118377_LAB_ELEC.rvt
Clustered combination of scenarios
Create a Package
## Consume a Package

![Document Management Interface](image)

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Version</th>
<th>Size</th>
<th>Last updated</th>
<th>Updated by</th>
<th>Markup</th>
<th>Issue</th>
<th>Status</th>
<th>Set</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Links</em></td>
<td></td>
<td></td>
<td></td>
<td>Oct 10, 2019 12:28 PM</td>
<td>Vincent Naviello</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Support Files</em></td>
<td></td>
<td></td>
<td></td>
<td>Oct 10, 2019 12:28 PM</td>
<td>Vincent Naviello</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRB</td>
<td></td>
<td></td>
<td></td>
<td>Oct 10, 2019 12:16 PM</td>
<td>Vincent Naviello</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior Designers</td>
<td></td>
<td></td>
<td></td>
<td>Oct 14, 2019 9:36 PM</td>
<td>Vincent Naviello</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Trade</td>
<td></td>
<td></td>
<td></td>
<td>Oct 10, 2019 12:28 PM</td>
<td>Vincent Naviello</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plumbing Trade</td>
<td></td>
<td></td>
<td></td>
<td>Oct 10, 2019 12:16 PM</td>
<td>Vincent Naviello</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Engineer</td>
<td></td>
<td></td>
<td></td>
<td>Oct 10, 2019 12:28 PM</td>
<td>Vincent Naviello</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Share/Consume Notifications
Model Viewer
Issues

- Now supported beyond Docs
Issues

- Now supported beyond Docs
- Permissions
### Document Management

#### Folders

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Version</th>
<th>Size</th>
<th>Last updated</th>
<th>Updated by</th>
<th>Markup</th>
<th>Issue</th>
<th>Status</th>
<th>Set</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>_Links</code></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Oct 10, 2019 12:28 PM</td>
<td>Vincent Nariello</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><code>_Support Files</code></td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Oct 10, 2019 12:28 PM</td>
<td>Vincent Nariello</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>CRB</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Oct 10, 2019 7:16 PM</td>
<td>Vincent Nariello</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Interior Designers</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Oct 14, 2019 9:36 PM</td>
<td>Vincent Nariello</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Mechanical Trade</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Oct 10, 2019 12:28 PM</td>
<td>Vincent Nariello</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Plumbing Trade</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Oct 10, 2019 7:16 PM</td>
<td>Vincent Nariello</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Structural Engineer</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>Oct 10, 2019 12:28 PM</td>
<td>Vincent Nariello</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
Show Changes

- Individual elements
- Excel export
Recap

• BIM360 concepts and definitions
• Know your options!
• Document the workflow
• Project setup & execution
• August 2019 updates
• Stay up to date: BIM360 Release Notes