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FAB463426
Revit to Inventor - BIM exchange for custom fabrication hands on Lab

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CAD/CAM Manager

Trainer & Consultant

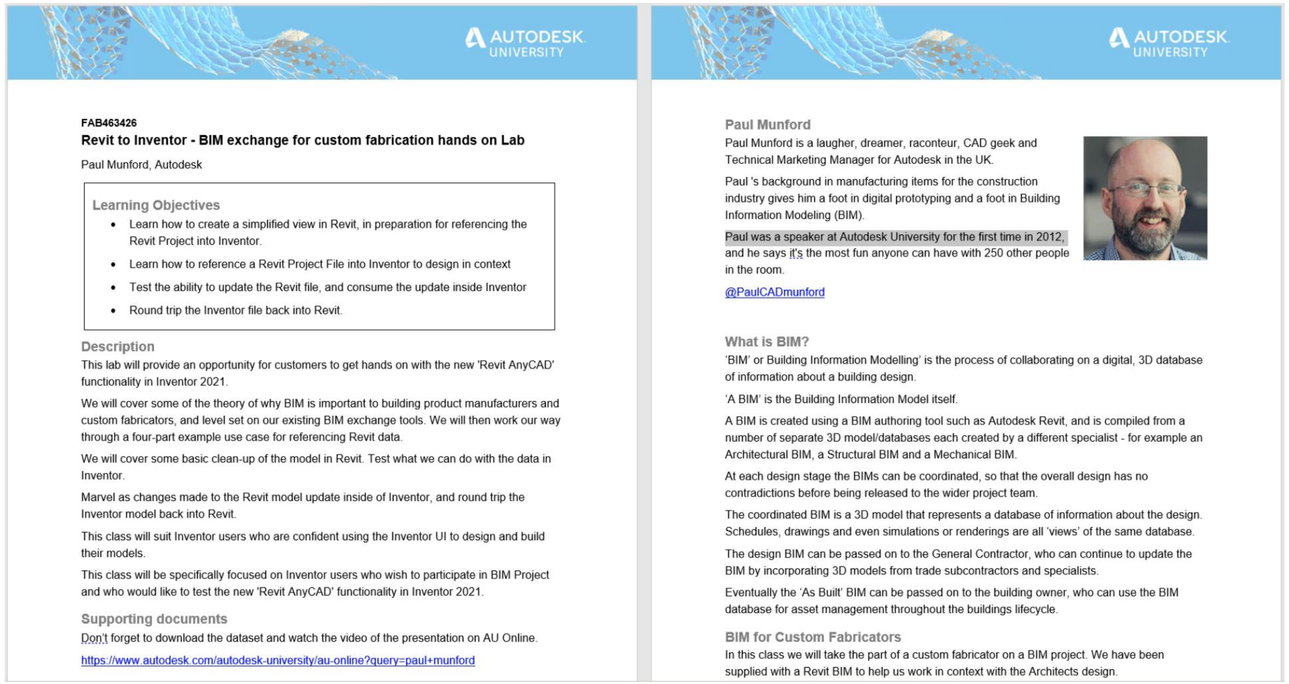
Technical Marketing Manager for Autodesk

Revit to Inventor - BIM exchange for custom fabrication hands on Lab

Learning objectives

- Learn how to create a simplified view in Revit, in preparation for referencing the Revit Project into Inventor.
- Learn how to reference a Revit Project File into Inventor to design in context
- Test the ability to update the Revit file, and consume the update inside Inventor
- Round trip the Inventor file back into Revit.

Downloads



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Paul Munford, Autodesk

Learning Objectives

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Description

This lab will provide an opportunity for customers to get hands on with the new 'Revit AnyCAD' functionality in Inventor 2021.

We will cover some of the theory of why BIM is important to building product manufacturers and custom fabricators, and level set on our existing BIM exchange tools. We will then work our way through a four-part example use case for referencing Revit data.

We will cover some basic clean-up of the model in Revit. Test what we can do with the data in Inventor.

Marvel as changes made to the Revit model update inside of Inventor, and round trip the Inventor model back into Revit.

This class will suit Inventor users who are confident using the Inventor UI to design and build their models.

This class will be specifically focused on Inventor users who wish to participate in BIM Project and who would like to test the new 'Revit AnyCAD' functionality in Inventor 2021.

Supporting documents

Don't forget to download the dataset and watch the video of the presentation on AU Online.

https://www.autodesk.com/autodesk-university/au-online?query=paul+munford

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Paul Munford

Paul Munford is a laugher, dreamer, raconteur, CAD geek and Technical Marketing Manager for Autodesk in the UK.

Paul 's background in manufacturing items for the construction industry gives him a foot in digital prototyping and a foot in Building Information Modeling (BIM).

Paul was a speaker at Autodesk University for the first time in 2012, and he says it's the most fun anyone can have with 250 other people in the room.

@PaulCADmunford

What is BIM?

'BIM' or Building Information Modelling' is the process of collaborating on a digital, 3D database of information about a building design.

'A BIM' is the Building Information Model itself.

A BIM is created using a BIM authoring tool such as Autodesk Revit, and is compiled from a number of separate 3D model/databases each created by a different specialist - for example an Architectural BIM, a Structural BIM and a Mechanical BIM.

At each design stage the BIMs can be coordinated, so that the overall design has no contradictions before being released to the wider project team.

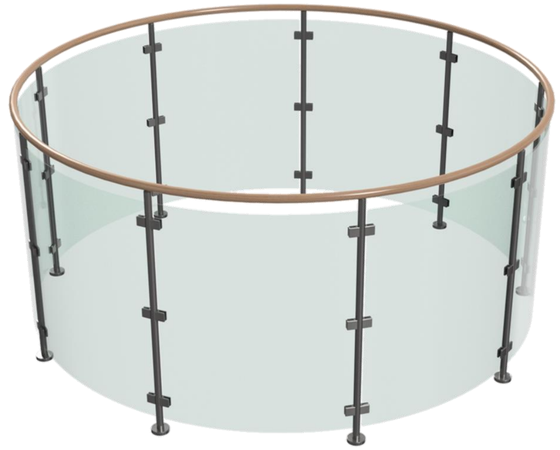
The coordinated BIM is a 3D model that represents a database of information about the design. Schedules, drawings and even simulations or renderings are all 'views' of the same database.

The design BIM can be passed on to the General Contractor, who can continue to update the BIM by incorporating 3D models from trade subcontractors and specialists.

Eventually the 'As Built' BIM can be passed on to the building owner, who can use the BIM database for asset management throughout the buildings lifecycle.

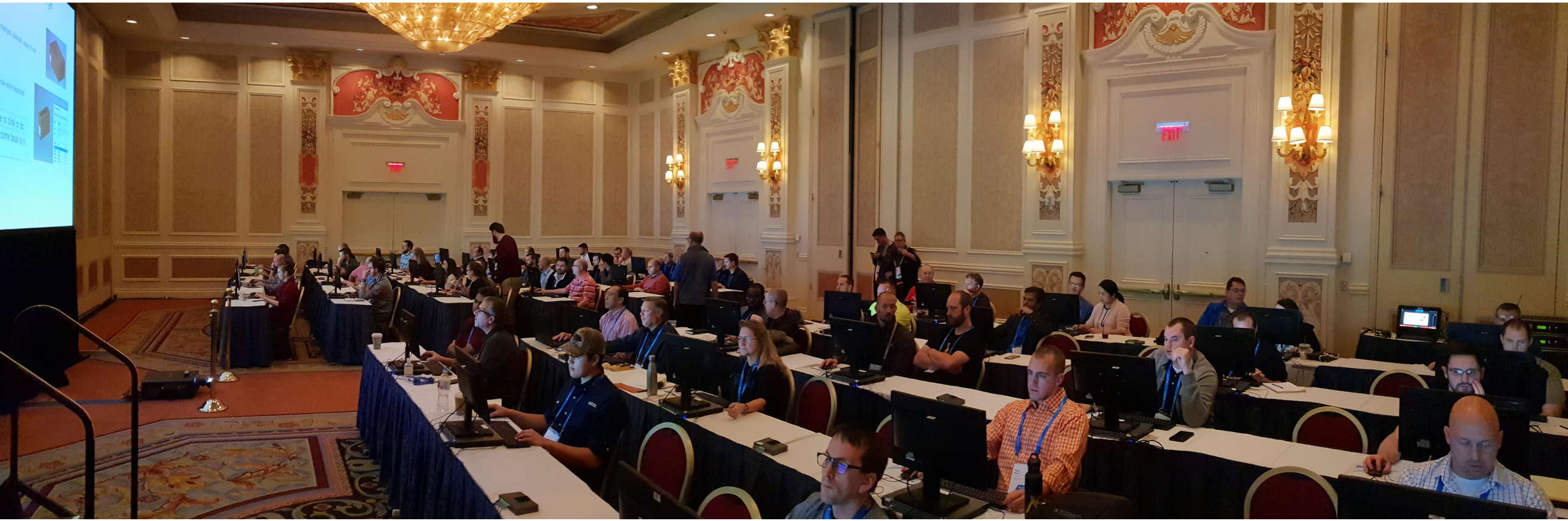
BIM for Custom Fabricators

In this class we will take the part of a custom fabricator on a BIM project. We have been supplied with a Revit BIM to help us work in context with the Architects design.



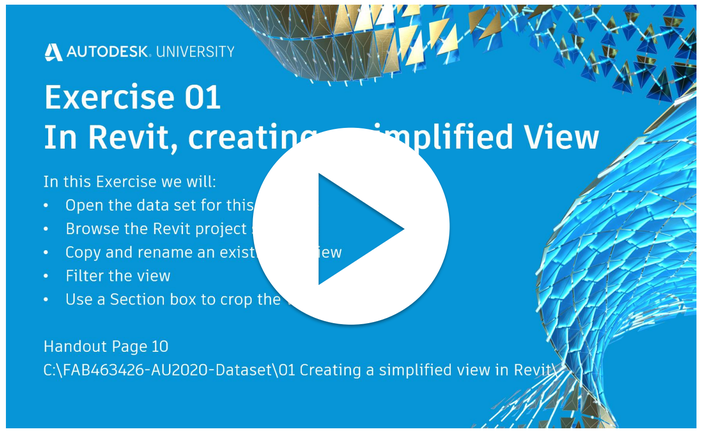
- Download the handout and dataset from the class page:
- Or use this link: http://cadso.co/FAB463426_DOWNLOAD

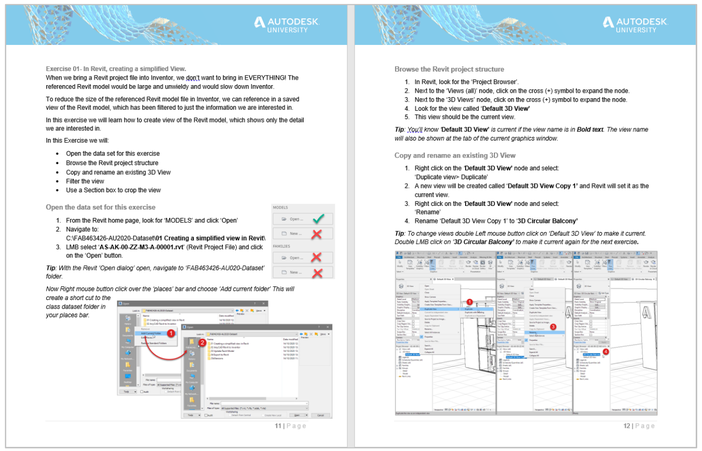
About this lab

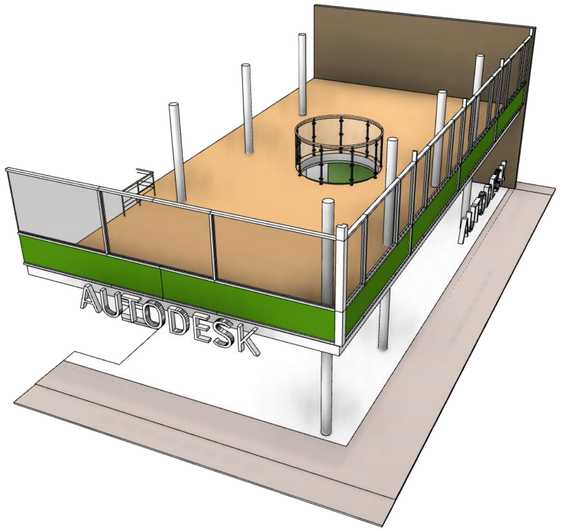


Feedback: Paul.Munford@Autodesk.com

About this lab







Watch the Demo

Read the instructions

Have a go!

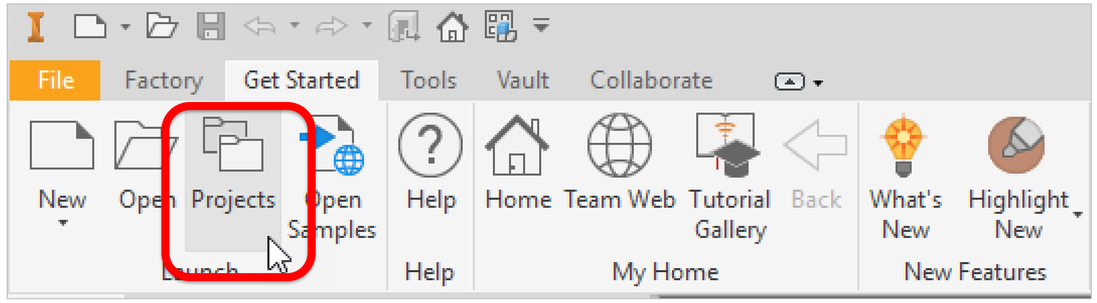
Repeat

Prerequisites

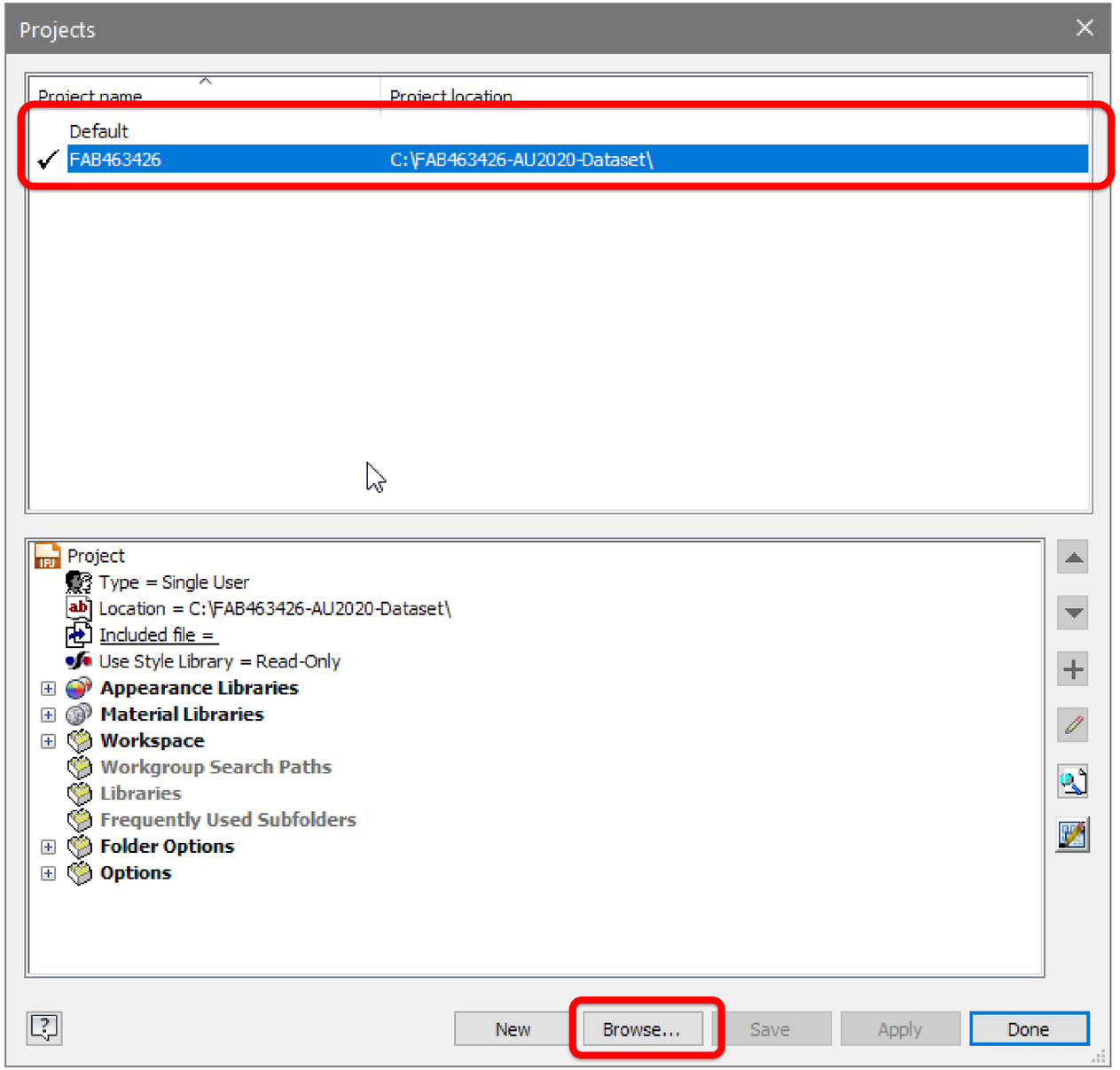
Before we begin, please check that you have the following:

- ☑ Inventor 2021 installed
- ☑ Revit 2021 Installed
- ☑ Dataset downloaded and extracted to **C:\Datasets\FAB463426**
- ☑ Handout
- ☑ This Video of the presentation (for the demonstrations)

Before we begin



C:\Datasets\FAB463426\FAB463426.ipj



Q&A

Comment (1)
Comments
PM
Please feel free to post your questions in the comments!
We have a be nice policy
Please be positive and constructive
POST

YOU HAVE A FORMATIVE ROLE IN HOW BUILDINGS ARE EXPERIENCED

62%

of general contractors cited coordination and communication between project teams to negatively impact labor productivity

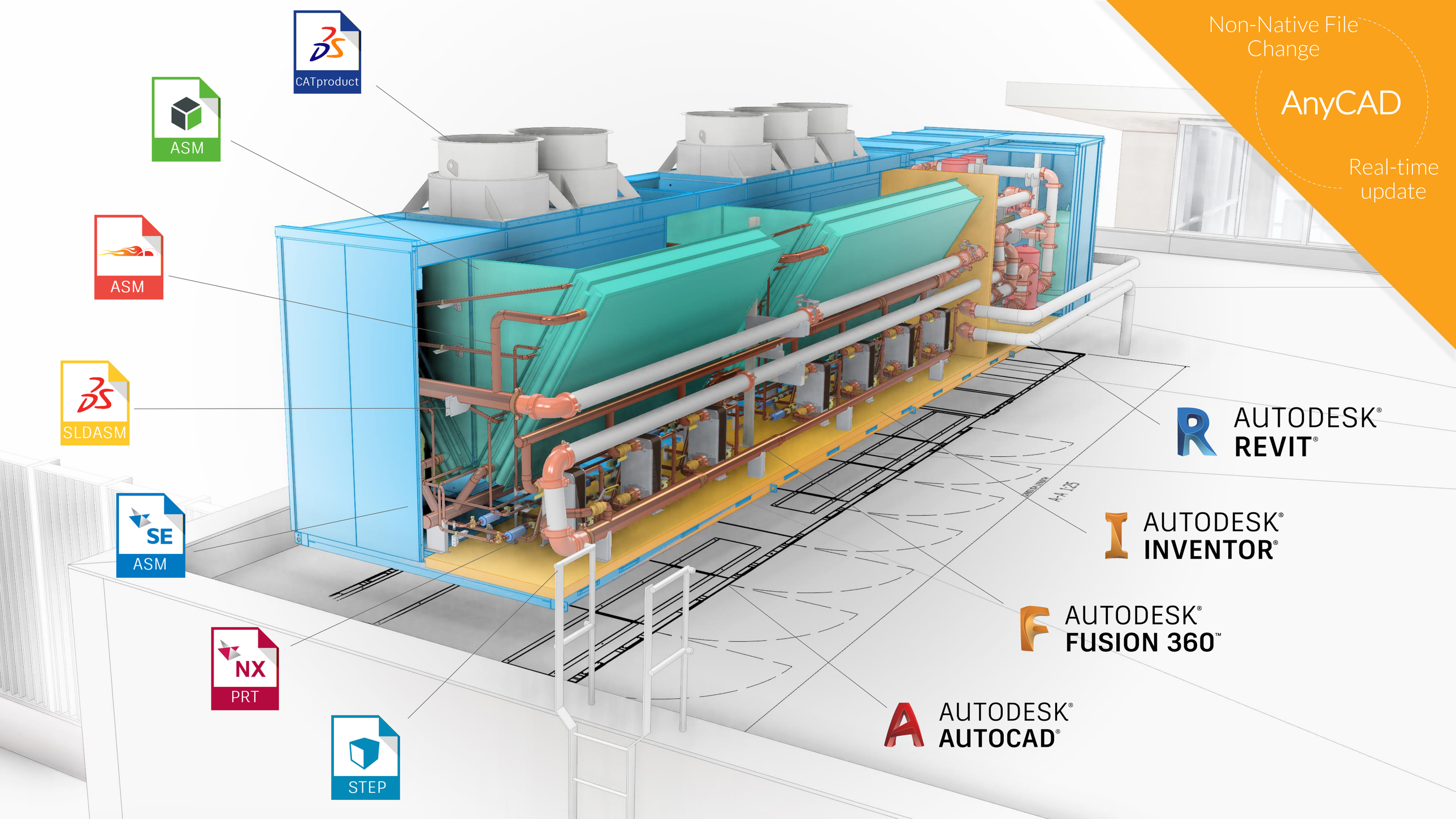
68%

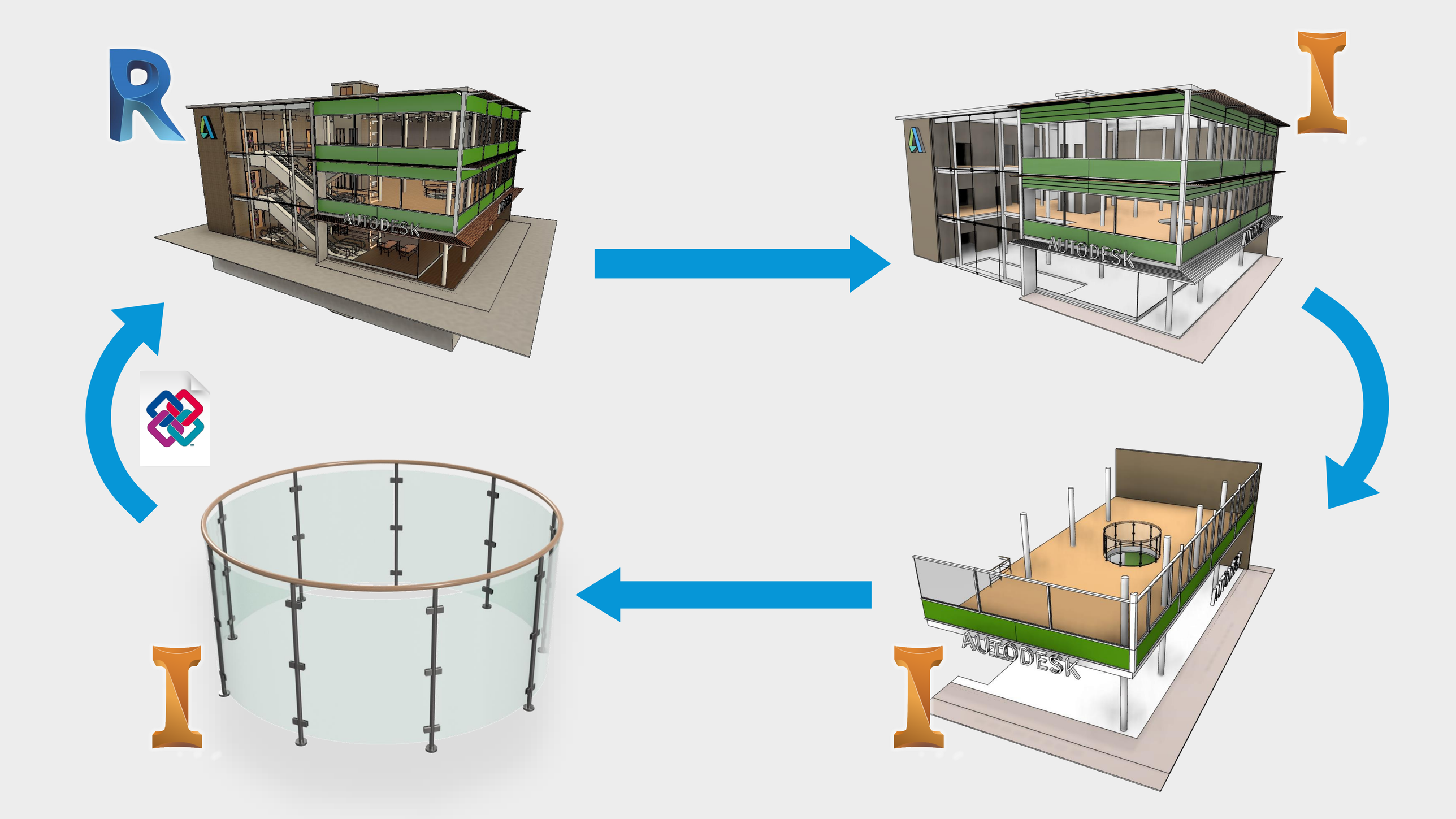
of trades cited poor schedule management to negatively impact labor productivity

61%

of general contractors cited quality of construction documents to negatively impact labor productivity

https://constructionblog.autodesk.com/construction-productivity/


Non-Native File Change
AnyCAD
Real-time update
CATproduct
ASM
ASM
SLDASM
SE
ASM
NX
PRT
STEP
AUTODESK® REVIT®
AUTODESK® INVENTOR®
AUTODESK® FUSION 360™
AUTODESK® AUTOCAD®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Exercise 01
In Revit, creating a simplified View

In this Exercise we will:

- Open the data set for this exercise
- Browse the Revit project structure
- Copy and rename an existing 3D View
- Filter the view
- Use a Section box to crop the view

Handout Page 10
C:\ Datasets\FAB463426\01 Creating a simplified view in Revit\

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Your turn!

Pause the Video and have a go.

Handout Page 10
C:\ Datasets\FAB463426\01 Creating a simplified view in Revit\

Autodesk Revit 2021.1.1 - AS-AK-00-ZZ-M3-A-00001.rvt - 3D View: 3D Circular Balcony

PaulMunford

File | Architecture | Structure | Steel | Precast | Systems | Insert | Annotate | Analyze | Massing & Site | Collaborate | View | Manage | Add-Ins | Vault | Modify

Modify | Select

View Templates | Visibility/ Graphics | Filters | Thin Lines | Show Hidden Lines | Remove Hidden Lines | Cut Profile — Graphics

Render | Render in Cloud | Render Gallery — Presentation

3D View | Section | Callout | Plan Views | Elevation | Drafting View | Duplicate View | Legends | Schedules | Scope Box — Create

Sheet | View | Title Block | Revisions | Guide Grid | Matchline | View Reference | Viewports — Sheet Composition

Switch Windows | Close Inactive | Tab Views | Tile Views — Windows

User Interface

Properties

3D View

3D View: 3D Circular Balc | Edit Type

Graphics

View Scale	1 : 50
Scale Value 1:	50
Detail Level	Medium
Parts Visibility	Show Original
Visibility/Graphi...	Edit...
Graphic Display ...	Edit...
Discipline	Coordination
Show Hidden Li...	By Discipline
Default Analysis ...	None
Sun Path	

Extents

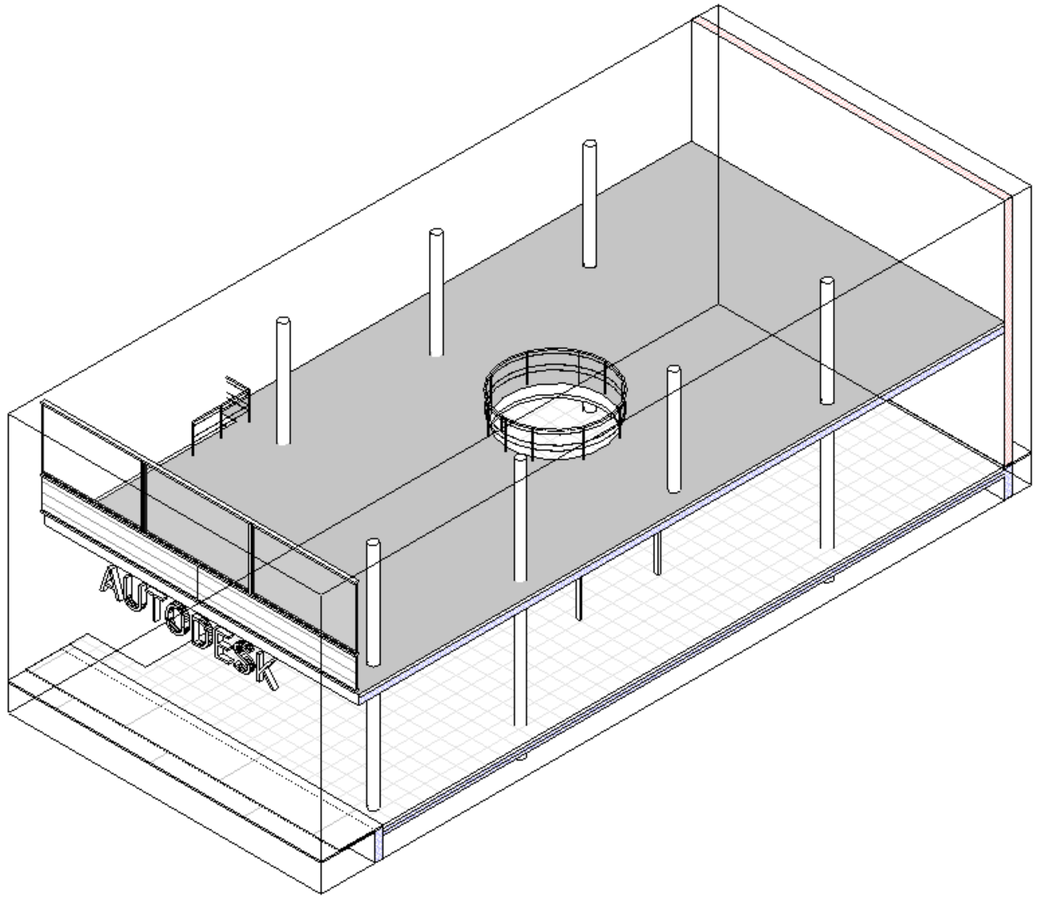
Crop View	
Crop Region Visi...	
Annotation Crop	
Far Clip Active	

Properties help | Apply

Project Browser - AS-AK-00-ZZ-M3-A-0...

- Views (all)
  - 3D Views
    - 3D Circular Balcony
    - Default 3D View
- Legends
- Schedules/Quantities (all)
- Sheets (all)
- Families
  - Analytical Links
  - Annotation Symbols
  - Cable Trays
  - Ceilings
  - Columns
  - Conduits
  - Curtain Panels
  - Curtain Systems
  - Curtain Wall Mullions
  - Detail Items
  - Doors
  - Duct Systems
  - Ducts
  - Electrical Fixtures
  - Flex Ducts

Default 3D View | 3D Circular Balcony



1 : 50

Context Menu

Main Model

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Exercise 02
‘AnyCAD’ a Revit model into Inventor

In this Exercise we will:

- Open the data set for this exercise
- Insert a 3D view of a Revit project file into our Inventor assembly
- Browse the Revit project structure,
  and change the visibility state of an element
- Insert an Inventor model, and constrain it to the Revit model.

Handout Page 19

C:\ Datasets\FAB463426\02 AnyCAD Revit to Inventor\

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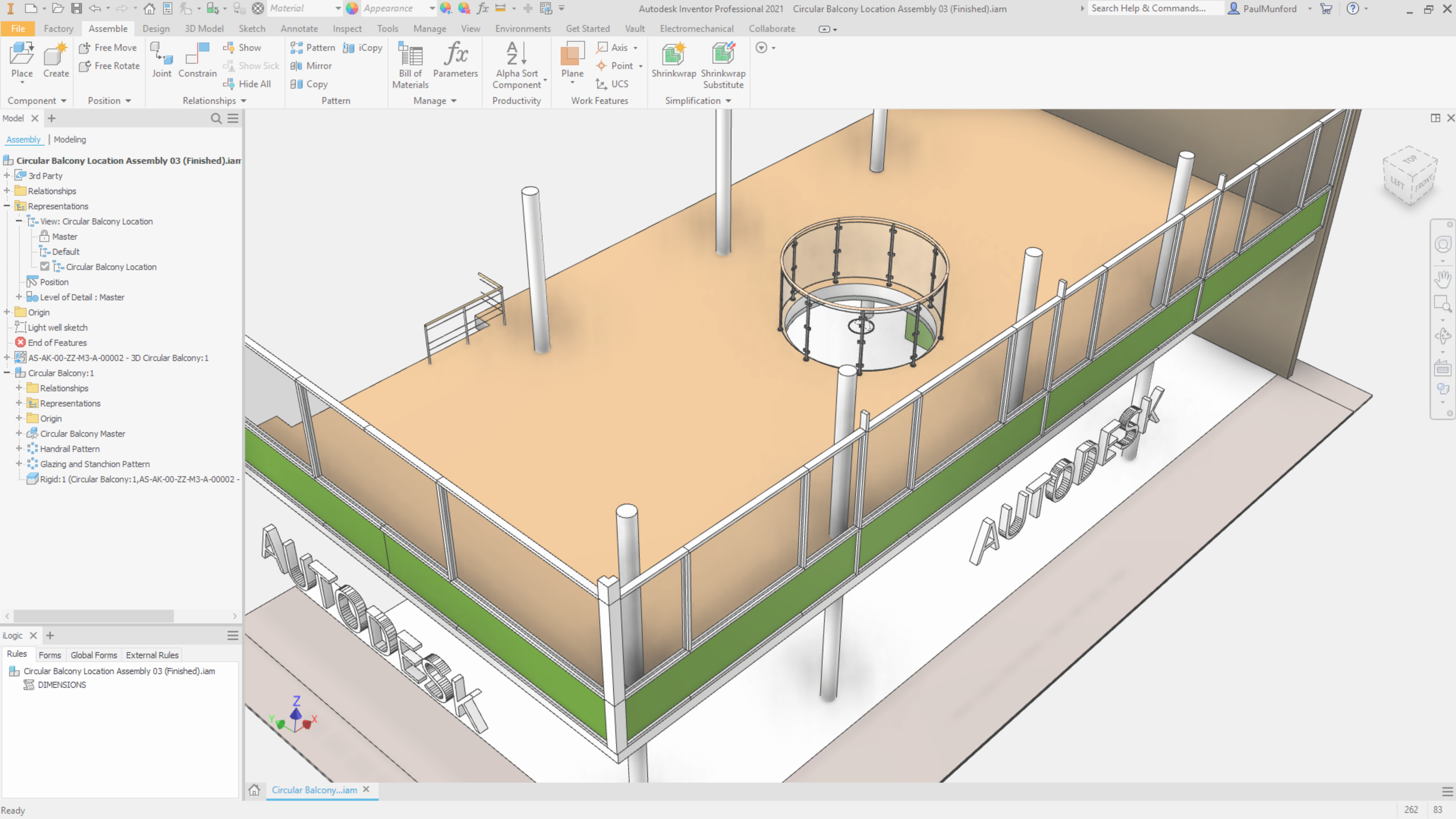
Your turn!

Pause the Video and have a go.

Handout Page 19

C:\ Datasets\FAB463426\02 AnyCAD Revit to Inventor\


Autodesk Inventor Professional 2021
Circular Balcony Location Assembly 03 (Finished).iam
Search Help & Commands...
PaulMunford
File
Factory
Assemble
Design
3D Model
Sketch
Annotate
Inspect
Tools
Manage
View
Environments
Get Started
Vault
Electromechanical
Collaborate
Place
Create
Free Move
Free Rotate
Joint
Constrain
Show
Show Sick
Hide All
Pattern
iCopy
Mirror
Copy
Bill of Materials
Parameters
Alpha Sort Component
Plane
Axis
Point
UCS
Shrinkwrap
Shrinkwrap Substitute
Component
Position
Relationships
Pattern
Manage
Productivity
Work Features
Simplification
Model
Assembly
Modeling
Circular Balcony Location Assembly 03 (Finished).iam
3rd Party
Relationships
Representations
View: Circular Balcony Location
Master
Default
Circular Balcony Location
Position
Level of Detail : Master
Origin
Light well sketch
End of Features
AS-AK-00-ZZ-M3-A-00002 - 3D Circular Balcony:1
Circular Balcony:1
Relationships
Representations
Origin
Circular Balcony Master
Handrail Pattern
Glazing and Stanchion Pattern
Rigid:1 (Circular Balcony:1,AS-AK-00-ZZ-M3-A-00002 -
iLogic
Rules
Forms
Global Forms
External Rules
Circular Balcony Location Assembly 03 (Finished).iam
DIMENSIONS
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X
Circular Balcony...iam
Ready
262
83

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Exercise 03
Update the Revit model

In this Exercise we will:

- Open the data set for this exercise In Inventor
- Open the data set for this exercise In Revit
- Edit the Revit model
- Update the Inventor model

Handout Page 28

C:\ Datasets\FAB463426\03 Update Revit Model\

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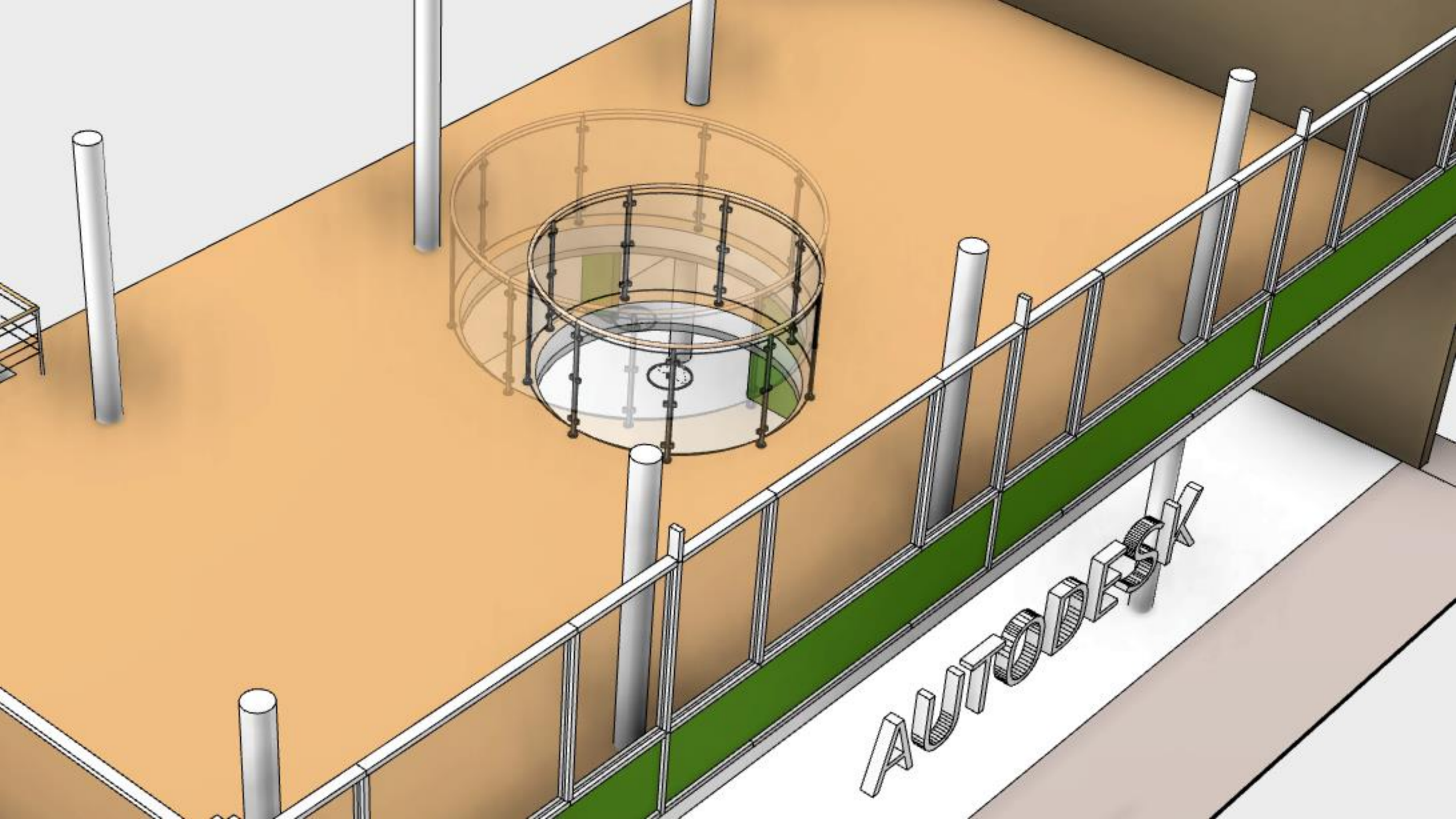
Your turn!

Pause the Video and have a go.

Handout Page 28

C:\ Datasets\FAB463426\03 Update Revit Model\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Exercise 04
Export from Inventor and Link into Revit

In this Exercise we will:

- Open the data set for this exercise In Inventor
- Create a new view
- Export the Inventor model to IFC
- Open the data set for this exercise In Revit
- Link the IFC model into Revit.

Handout Page 32

C:\ Datasets\FAB463426\03 Update Revit Model\

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Your turn!

Pause the Video and have a go.

Handout Page 32

C:\ Datasets\FAB463426\03 Update Revit Model\

Autodesk Revit 2021.1.1 - AS-AK-00-ZZ-M3-A-00004.rvt - 3D View: 3D Circular Balcony Coordination

PaulMunford

File | Architecture | Structure | Steel | Precast | Systems | Insert | Annotate | Analyze | Massing & Site | Collaborate | View | Manage | Add-Ins | Vault | Modify

Modify | Link Revit | Link IFC | Link CAD | Link Topography | DWF Markup | Decal | Point Cloud | Coordination Model | Link PDF | Link Image | Manage Links | Import CAD | Import gbXML | Import PDF | Import Image | Load Family | Load Autodesk Family | Get Autodesk Content | Load as Group | Insert from File

Select | Link | Import | Load from Library

Properties

3D View

3D View: 3D Circular Balc | Edit Type

Graphics

Detail Level	Medium
Parts Visibility	Show Original
Visibility/Graphi...	Edit...
Graphic Display ...	Edit...
Discipline	Coordination
Default Analysis ...	None
Sun Path	

Extents

Crop View	
Crop Region Visi...	
Far Clip Active	
Far Clip Offset	304800.00
Scope Box	None
Section Box	☑

Camera

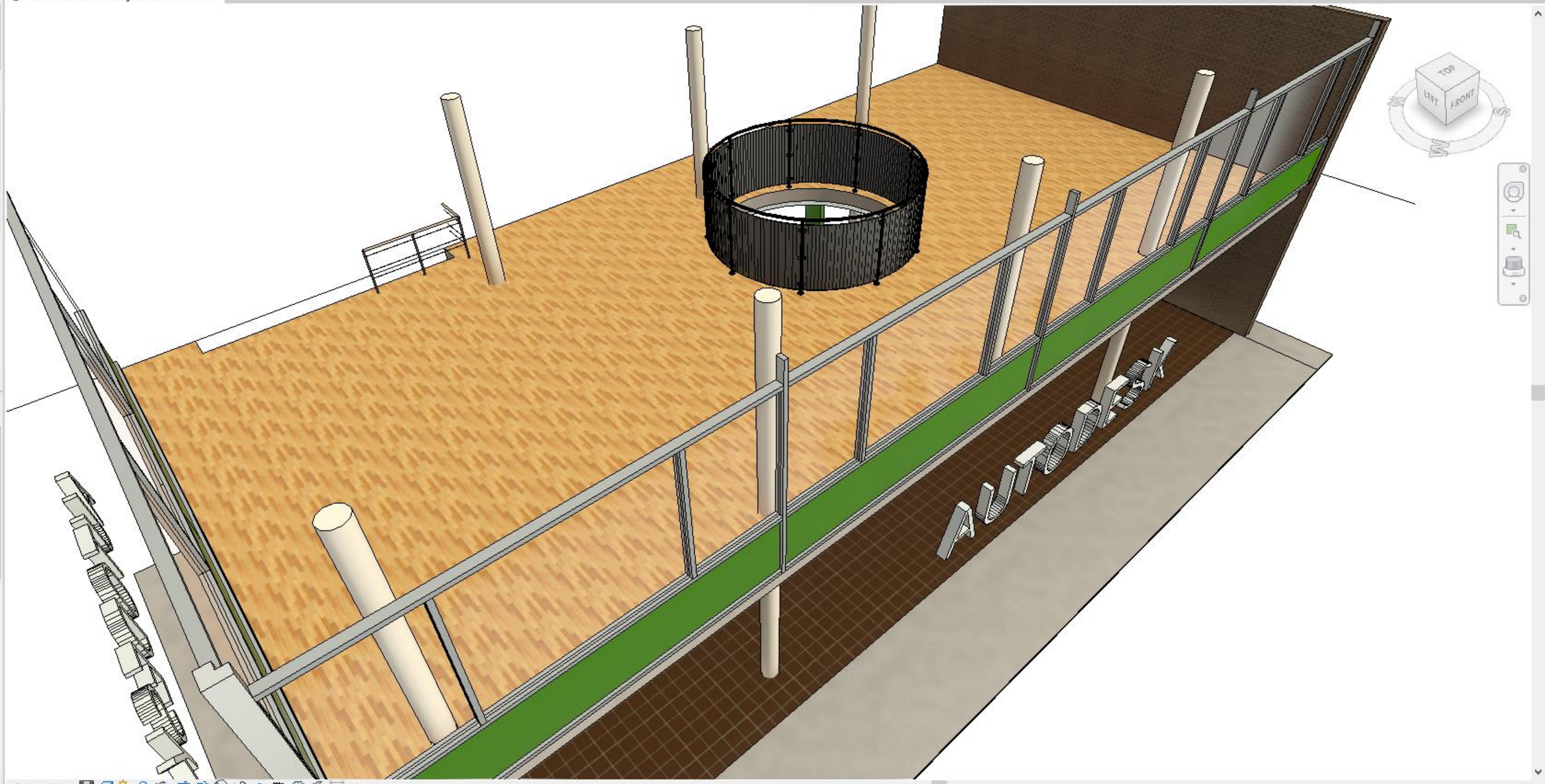
Rendering Settin... Edit

Properties help | Apply

Project Browser - AS-AK-00-ZZ-M3-A-0...

- Views (all)
  - Floor Plans
    - 01 FIRST FLOOR
  - 3D Views
    - 3D Circular Balcony
    - **3D Circular Balcony Coordina**
    - Default 3D View
- Legends
- Schedules/Quantities (all)
- Sheets (all)
- Families
  - Analytical Links
  - Annotation Symbols
  - Cable Trays
  - Ceilings
  - Columns
  - Conduits
  - Curtain Panels
  - Curtain Systems
  - Curtain Wall Mullions
  - Detail Items
  - Doors

3D Circular Balcony Coordination



Perspective

Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

Main Model

Revit to Inventor - BIM exchange for custom fabrication hands on Lab

What next?

Make sure that you watch these classes at AU2020:

‘***Anybody Can Do IT: Easily Build Revit Content in Inventor***’ *by Pete Strycharske*

‘***Looking into the Crystal Ball: The Future of Inventor***’ *by Garin Gardiner*

*Take a look in the ‘**Resources**’ section of the **handout** for more recommended AU classes, references and help.*

Revit to Inventor - BIM exchange for custom fabrication hands on Lab

Summary

- Filter and crop the view in Revit to minimise the size of the dataset we are referencing into Inventor.
- Reference the Revit Project (RVT) file into Inventor using ‘AnyCAD’.
- Design in Inventor, using the Revit project for size and location information.
- Export the design from Inventor in a BIM ready format.
- Link the Inventor design into Revit for coordination and review.

Q&A (My Turn!)

Q: What version of Inventor is required for ‘AnyCAD’ for Revit?

A: Inventor 2021. Revit 2021 files are recommended.

Q: What command references a Revit file into Inventor?

A: Place Imported CAD file.

Q: How can you find individual Revit entities in the browser?

A: Set the select filter to ‘Part’. Select an entity in the graphics window, RMB and select ‘Find in browser’.

Q: Where will you find the ‘Export Building Components’ command?

A: In the BIM Content’ Environment.

Q: What ‘BIM’ file formats can Inventor Export?

A: RFA (Revit family) and IFC (BIM neutral file format)

Please help me by recommending this class!

@PaulCADMunford

Q&A

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