Use of Building Information Modeling in ICT industry
Case Study for Ambulatory Care Center

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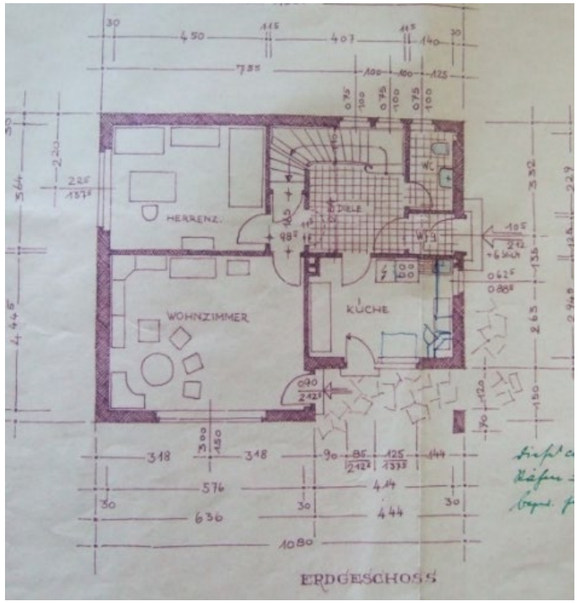
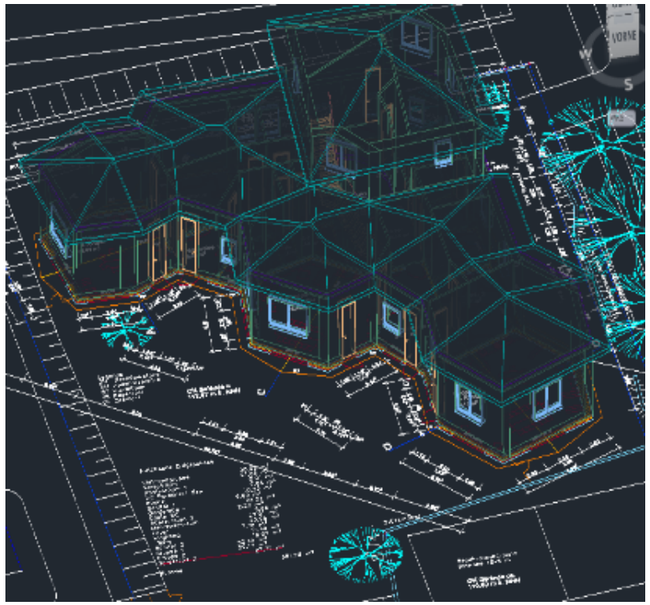
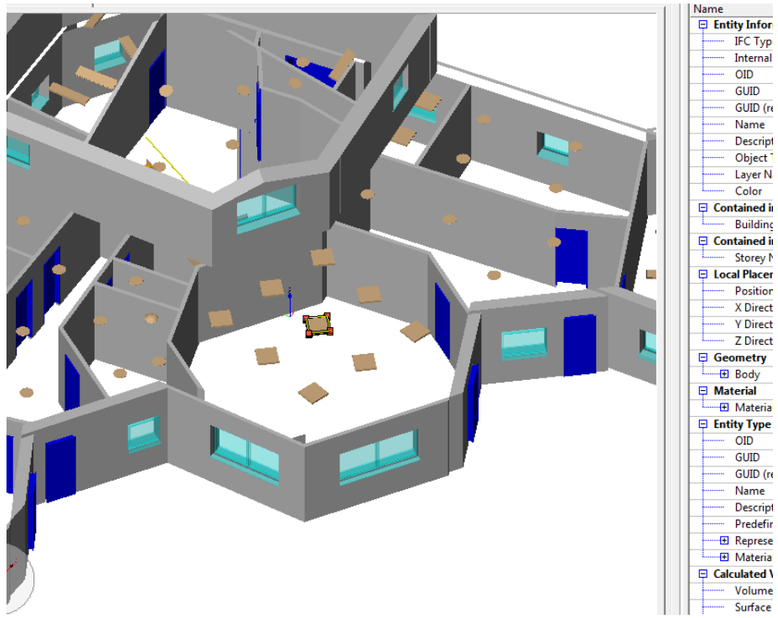
Lead Telecommunication Design Engineer

Dar-Engineering.

Building Design Tool History!





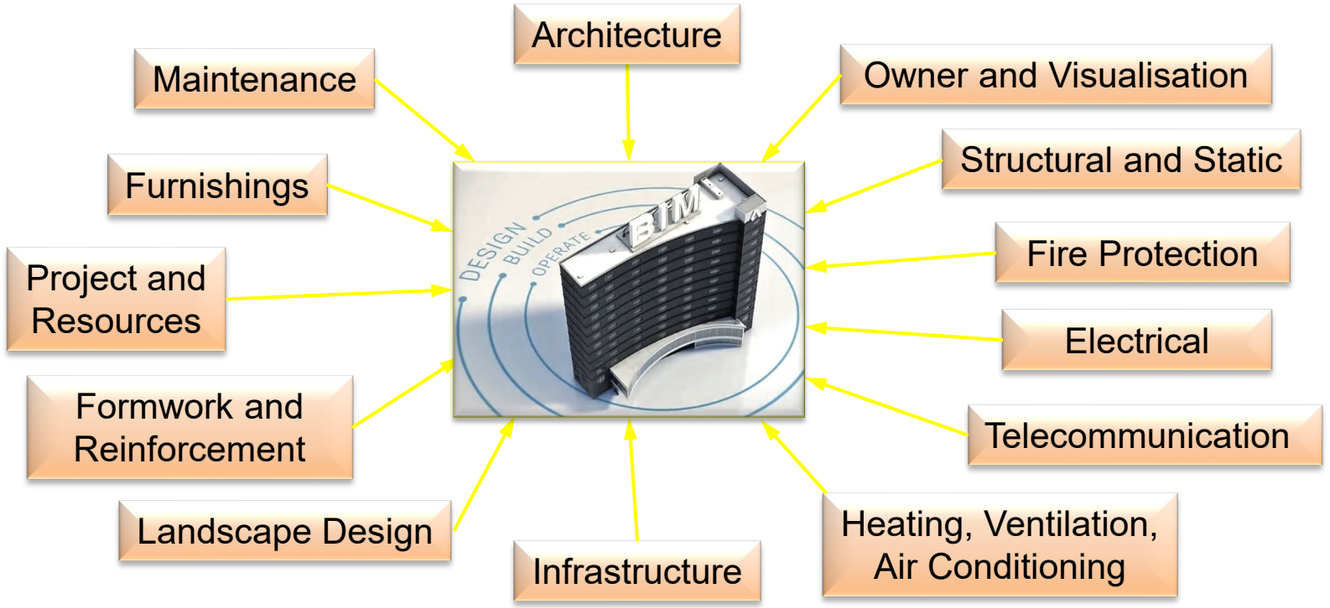


Paper → AutoCAD → BIM

What is BIM?
Building Information Modeling

- BIM is an intelligent tool in all design and construction stages.
- BIM is not just a 3D model - it is a process.
- Provides a platform for effective collaboration between stakeholders over the buildings lifecycle.

What is BIM?


Architecture
Maintenance
Owner and Visualisation
Furnishings
Structural and Static
Project and Resources
Fire Protection
Electrical
Formwork and Reinforcement
Telecommunication
Landscape Design
Heating, Ventilation, Air Conditioning
Infrastructure
DESIGN
BUILD
OPERATE
BIM

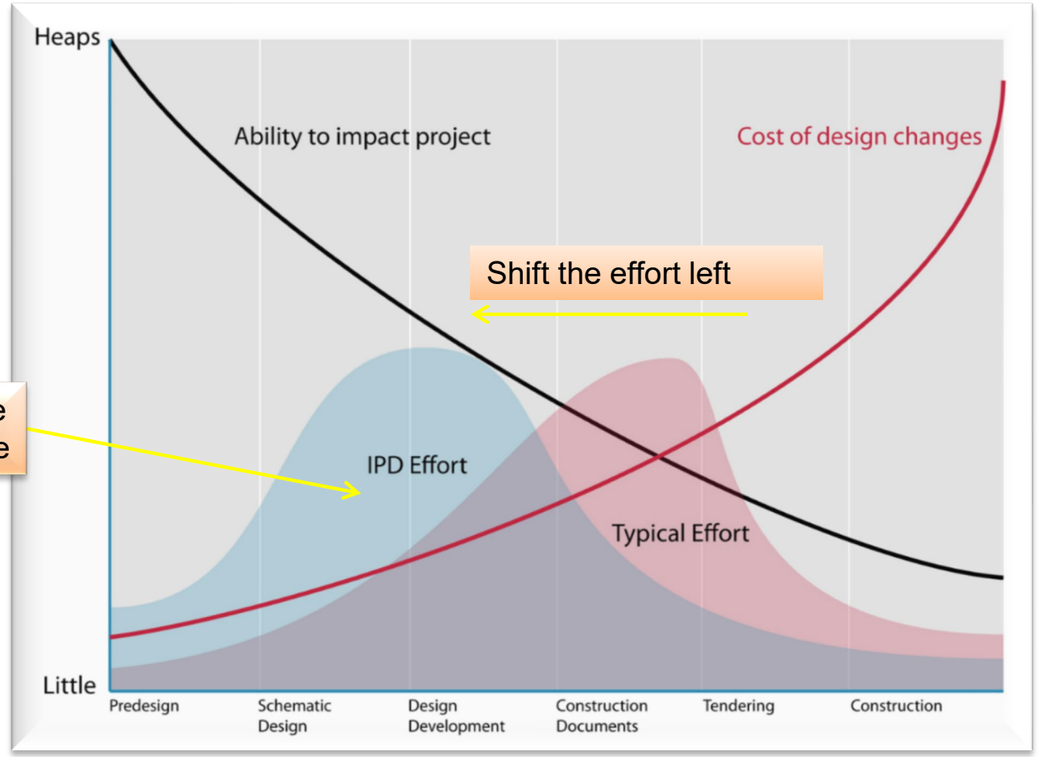
Why BIM?

- BIM will save cost with more detailed and coordinated planning.

With using BIM

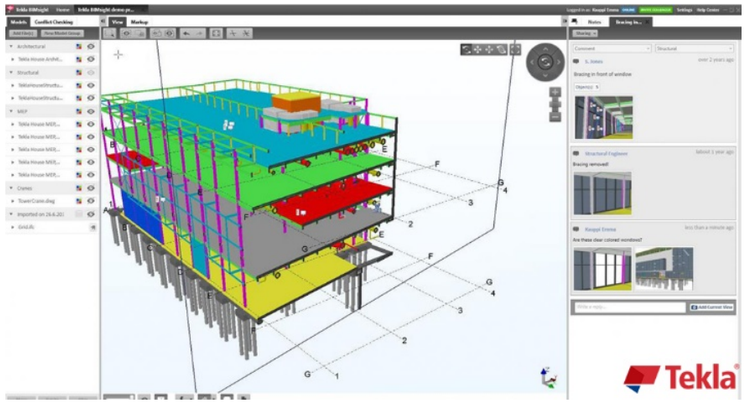
Without using BIM

BIM process adds value by moving decision here

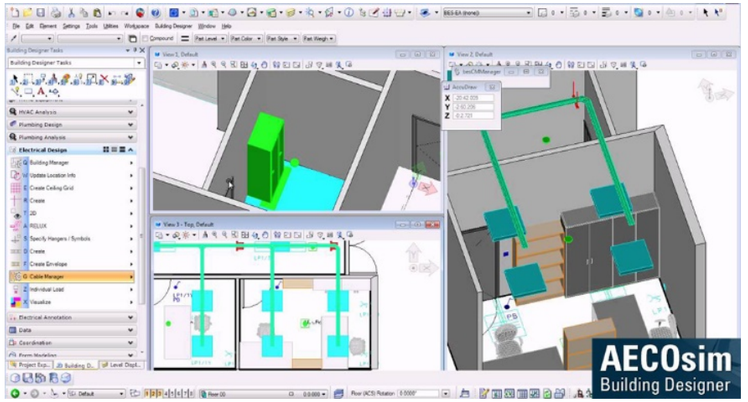


BIM Software

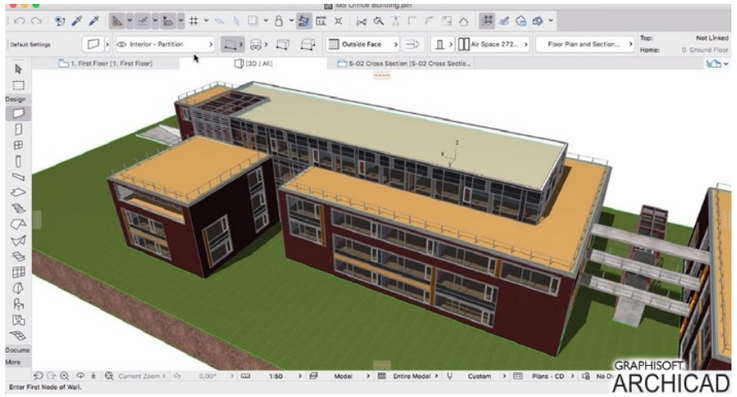
- There are many BIM software on the market such as:-



Tekla BIMsight



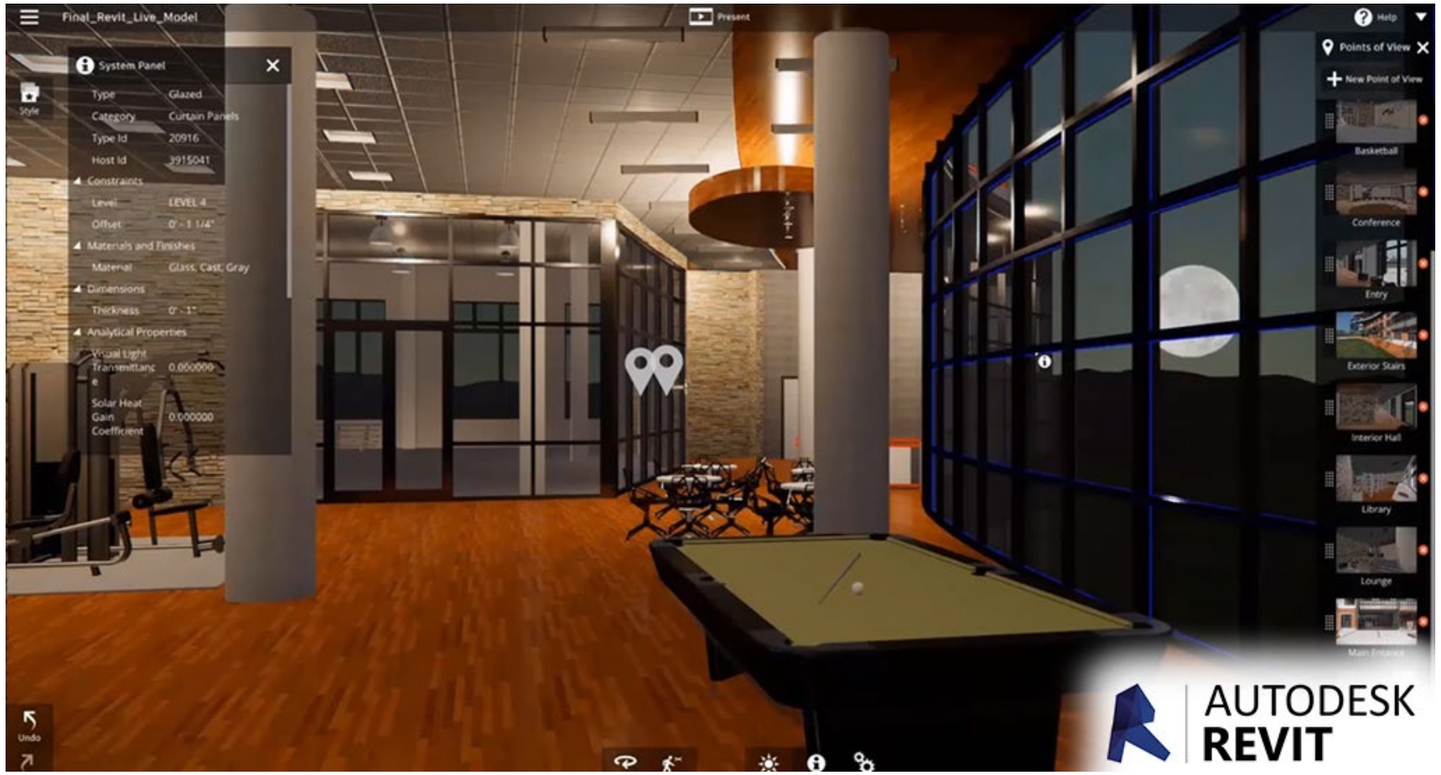
AECOsim



ARCHICAD

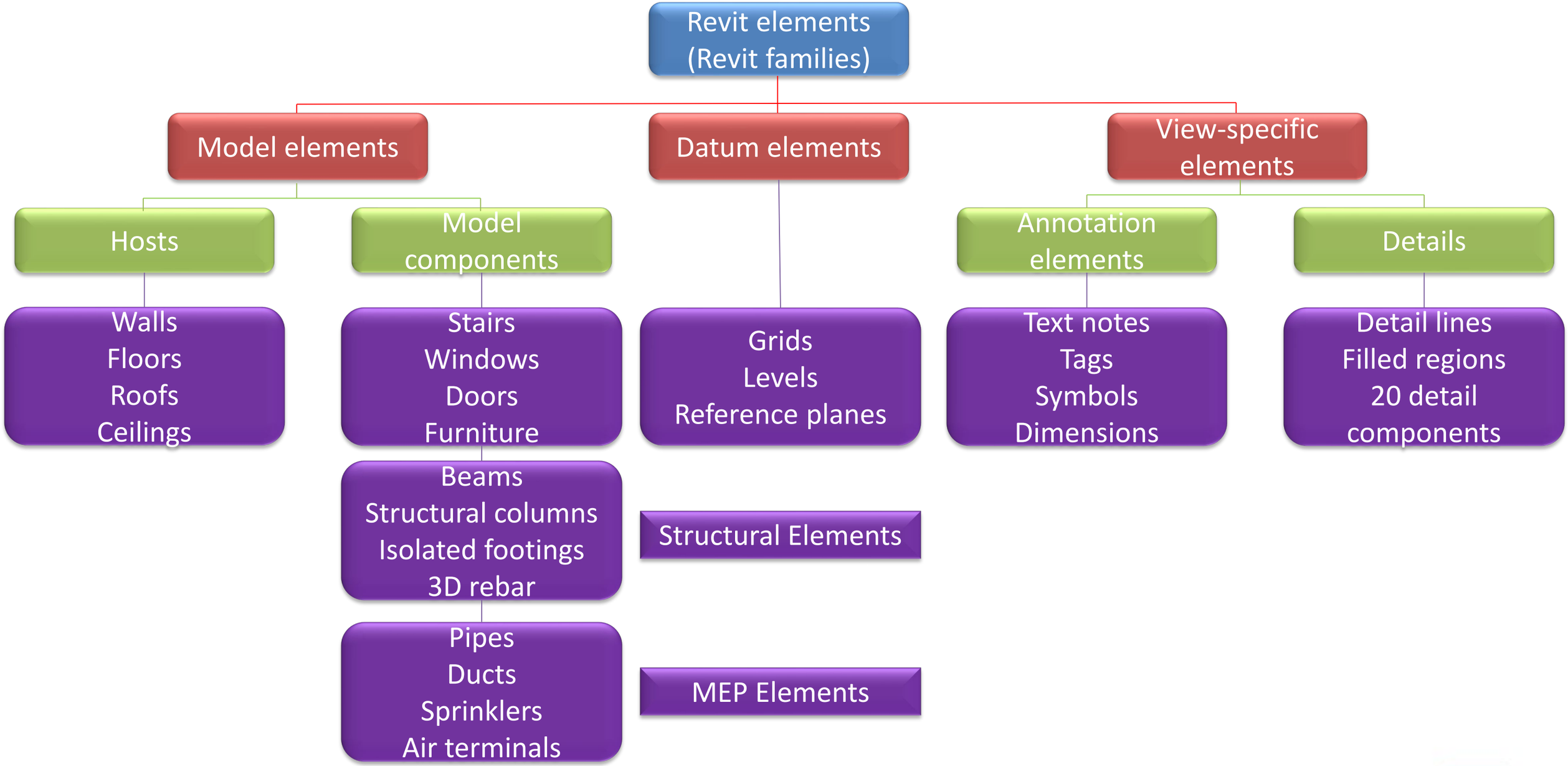
BIM software

Revit®



Revit®

- Revit create projects using elements (Families).
- Revit uses 3 types of elements (Families) in the projects.


Revit elements
(Revit families)
Model elements
Datum elements
View-specific elements
Hosts
Model components
Annotation elements
Details
Walls
Floors
Roofs
Ceilings
Stairs
Windows
Doors
Furniture
Grids
Levels
Reference planes
Text notes
Tags
Symbols
Dimensions
Detail lines
Filled regions
20 detail components
Beams
Structural columns
Isolated footings
3D rebar
Structural Elements
Pipes
Ducts
Sprinklers
Air terminals
MEP Elements

Creating a New Revit Family

- To create a new family we have to define the following:-

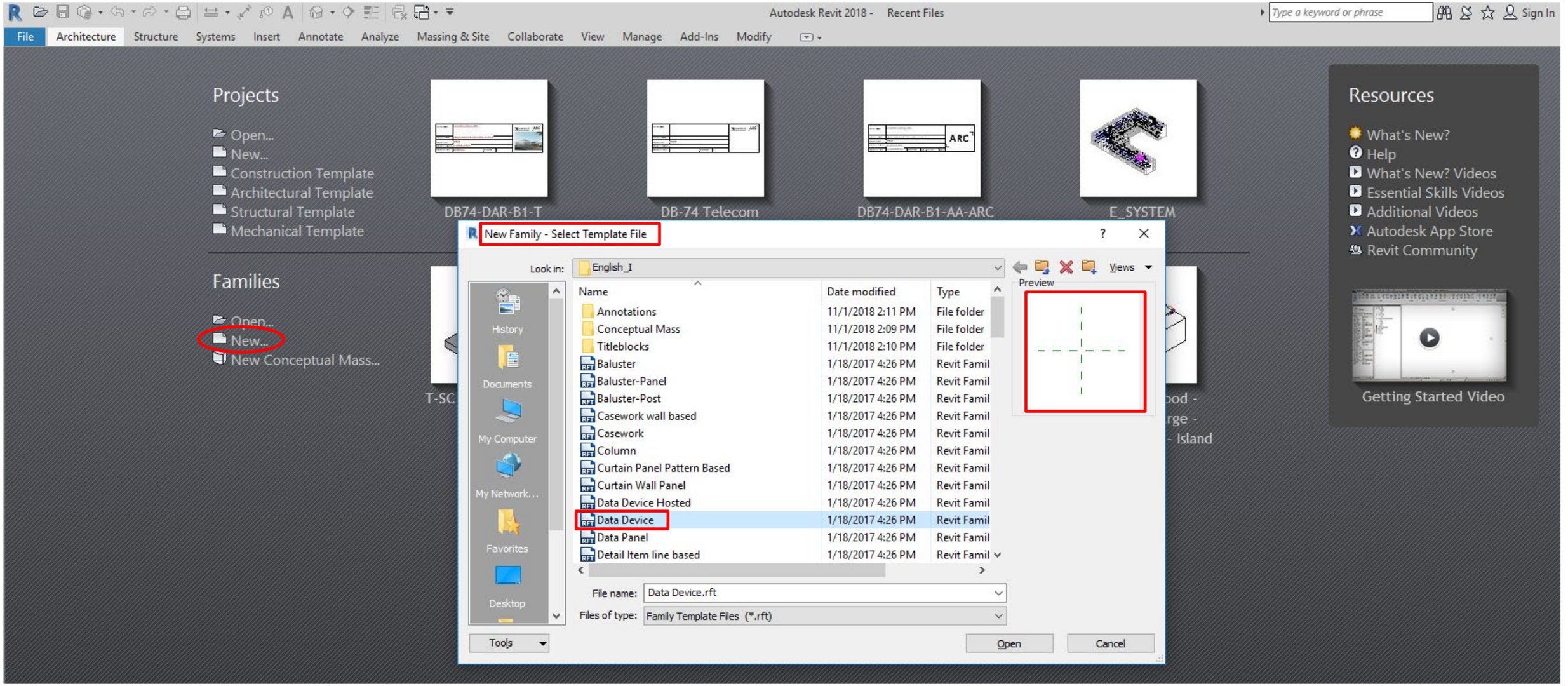
✓ Reference plans.

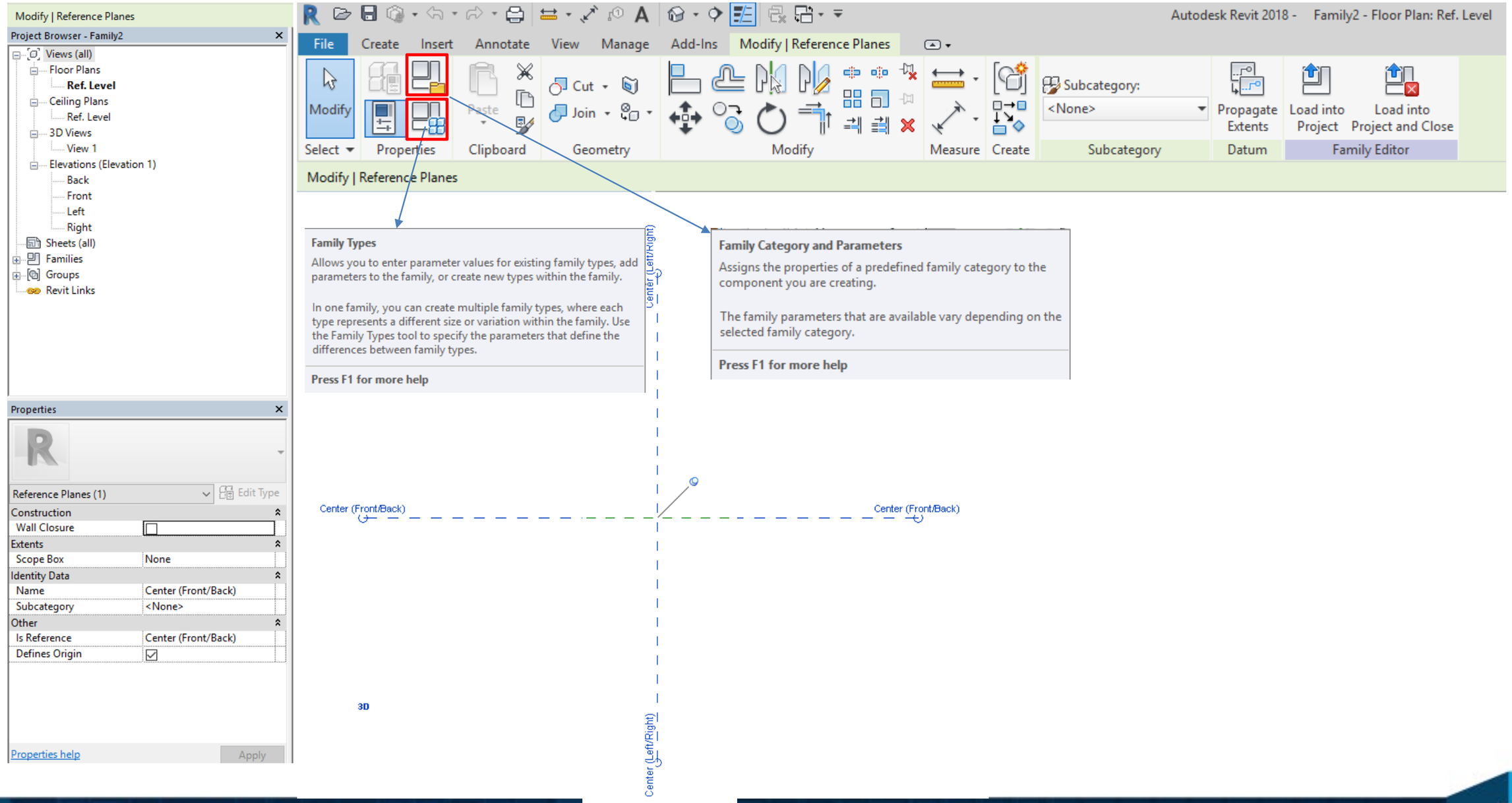
✓ Dimensions.

✓ Variable parameters.

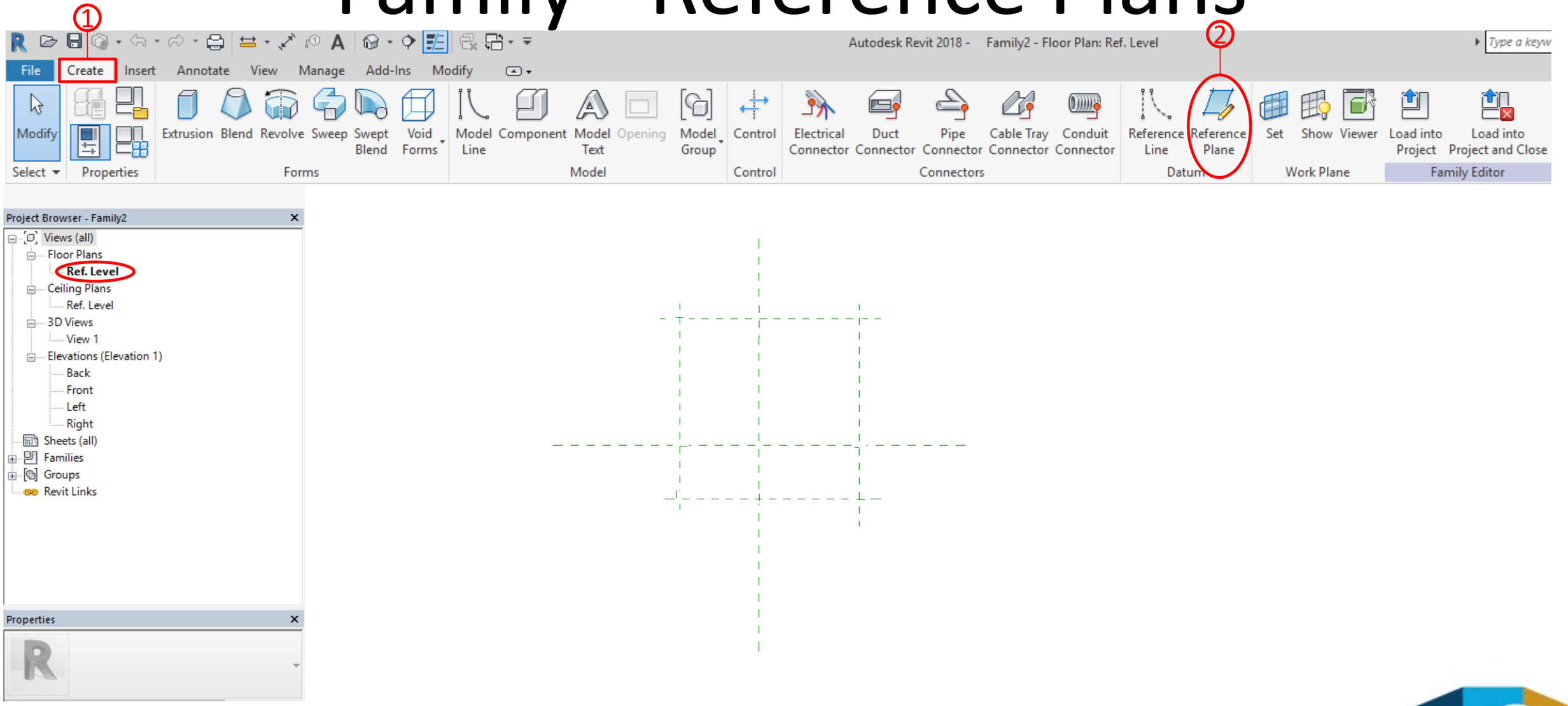
✓ Extruding geometry.

✓ Connectors.

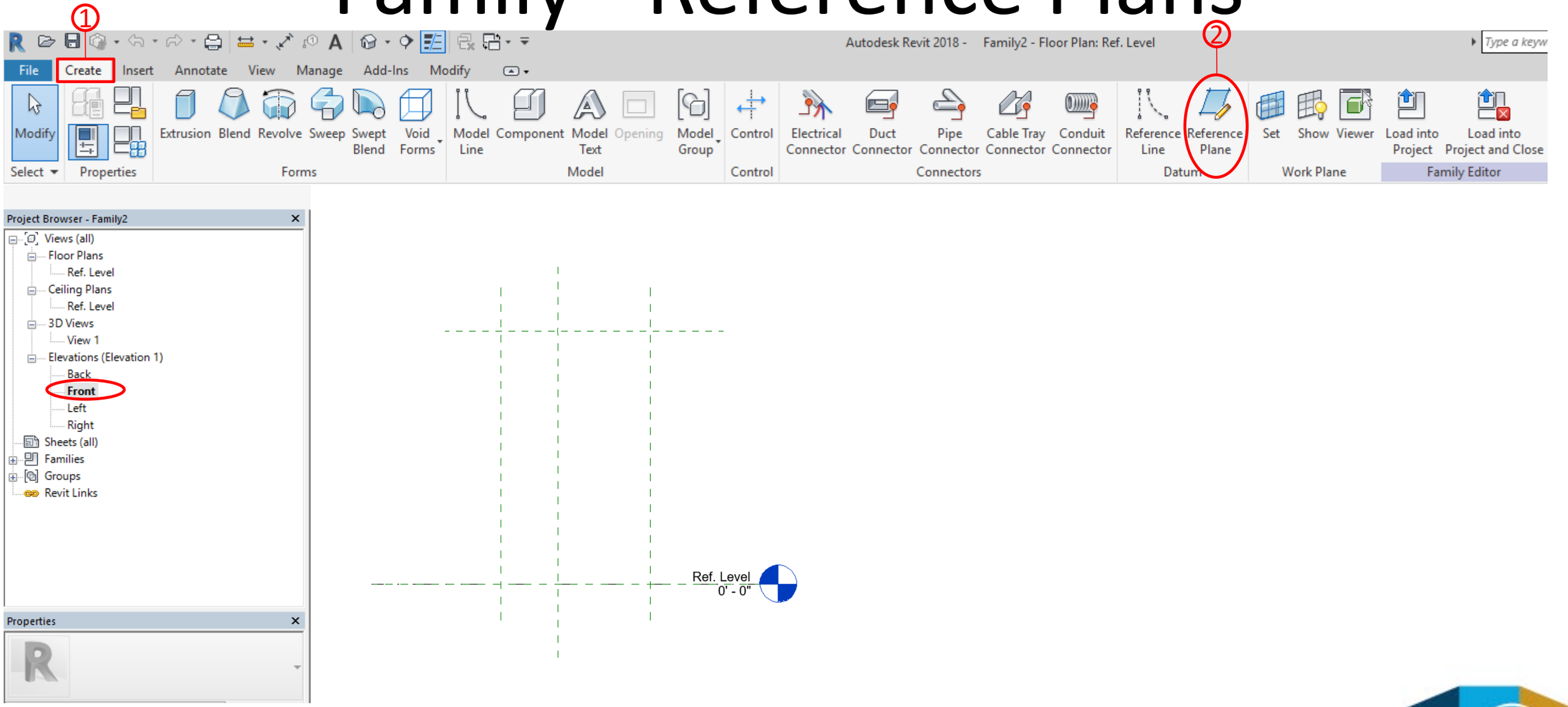

Autodesk Revit 2018 - Recent Files
Type a keyword or phrase
Sign In
File
Architecture
Structure
Systems
Insert
Annotate
Analyze
Massing & Site
Collaborate
View
Manage
Add-Ins
Modify
Projects
Open...
New...
Construction Template
Architectural Template
Structural Template
Mechanical Template
Families
Open...
New...
New Conceptual Mass...
DB74-DAR-B1-T
DB-74 Telecom
DB74-DAR-B1-AA-ARC
E_SYSTEM
Resources
What's New?
Help
What's New? Videos
Essential Skills Videos
Additional Videos
Autodesk App Store
Revit Community
Getting Started Video
New Family - Select Template File
Look in:
English_I
Views
Preview
History
Documents
My Computer
My Network...
Favorites
Desktop
Name
Date modified
Type
Annotations 11/1/2018 2:11 PM File folder
Conceptual Mass 11/1/2018 2:09 PM File folder
Titleblocks 11/1/2018 2:10 PM File folder
Baluster 1/18/2017 4:26 PM Revit Famil
Baluster-Panel 1/18/2017 4:26 PM Revit Famil
Baluster-Post 1/18/2017 4:26 PM Revit Famil
Casework wall based 1/18/2017 4:26 PM Revit Famil
Casework 1/18/2017 4:26 PM Revit Famil
Column 1/18/2017 4:26 PM Revit Famil
Curtain Panel Pattern Based 1/18/2017 4:26 PM Revit Famil
Curtain Wall Panel 1/18/2017 4:26 PM Revit Famil
Data Device Hosted 1/18/2017 4:26 PM Revit Famil
Data Device 1/18/2017 4:26 PM Revit Famil
Data Panel 1/18/2017 4:26 PM Revit Famil
Detail Item line based 1/18/2017 4:26 PM Revit Famil
File name: Data Device.rft
Files of type: Family Template Files (*.rft)
Tools
Open
Cancel


Modify | Reference Planes
Project Browser - Family2
Views (all)
Floor Plans
Ref. Level
Ceiling Plans
Ref. Level
3D Views
View 1
Elevations (Elevation 1)
Back
Front
Left
Right
Sheets (all)
Families
Groups
Revit Links
Properties
Reference Planes (1)
Edit Type
Construction
Wall Closure
Extents
Scope Box
None
Identity Data
Name
Center (Front/Back)
Subcategory
<None>
Other
Is Reference
Center (Front/Back)
Defines Origin
Properties help
Apply
Autodesk Revit 2018 - Family2 - Floor Plan: Ref. Level
File
Create
Insert
Annotate
View
Manage
Add-Ins
Modify | Reference Planes
Modify
Select
Properties
Paste
Clipboard
Cut
Join
Geometry
Modify
Measure
Create
Subcategory:
<None>
Subcategory
Propagate Extents
Load into Project
Load into Project and Close
Datum
Family Editor
Modify | Reference Planes
Family Types
Allows you to enter parameter values for existing family types, add parameters to the family, or create new types within the family.
In one family, you can create multiple family types, where each type represents a different size or variation within the family. Use the Family Types tool to specify the parameters that define the differences between family types.
Press F1 for more help
Family Category and Parameters
Assigns the properties of a predefined family category to the component you are creating.
The family parameters that are available vary depending on the selected family category.
Press F1 for more help
Center (Left/Right)
Center (Front/Back)
Center (Front/Back)
3D
Center (Left/Right)

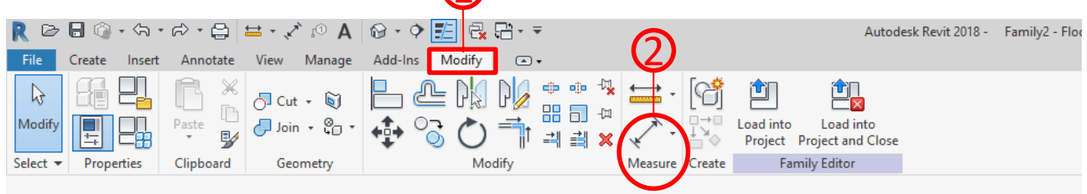
Family - Reference Plans

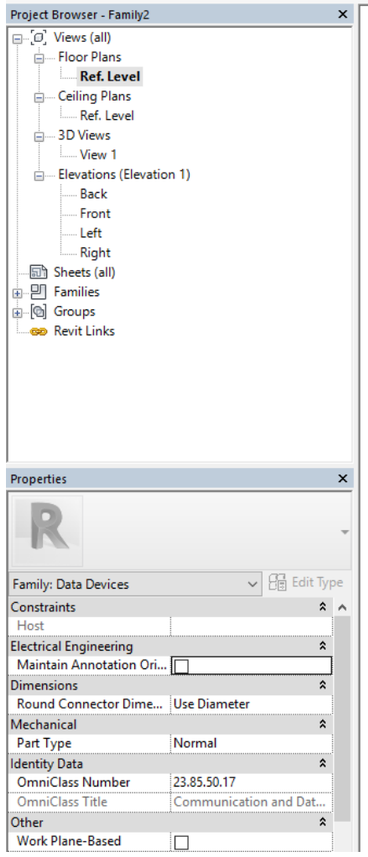


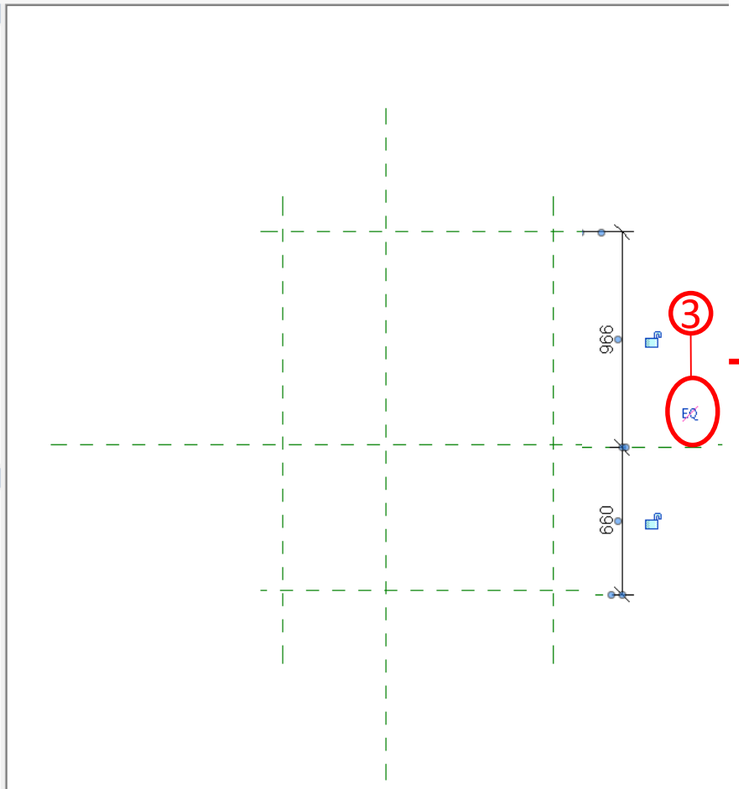
Family - Reference Plans

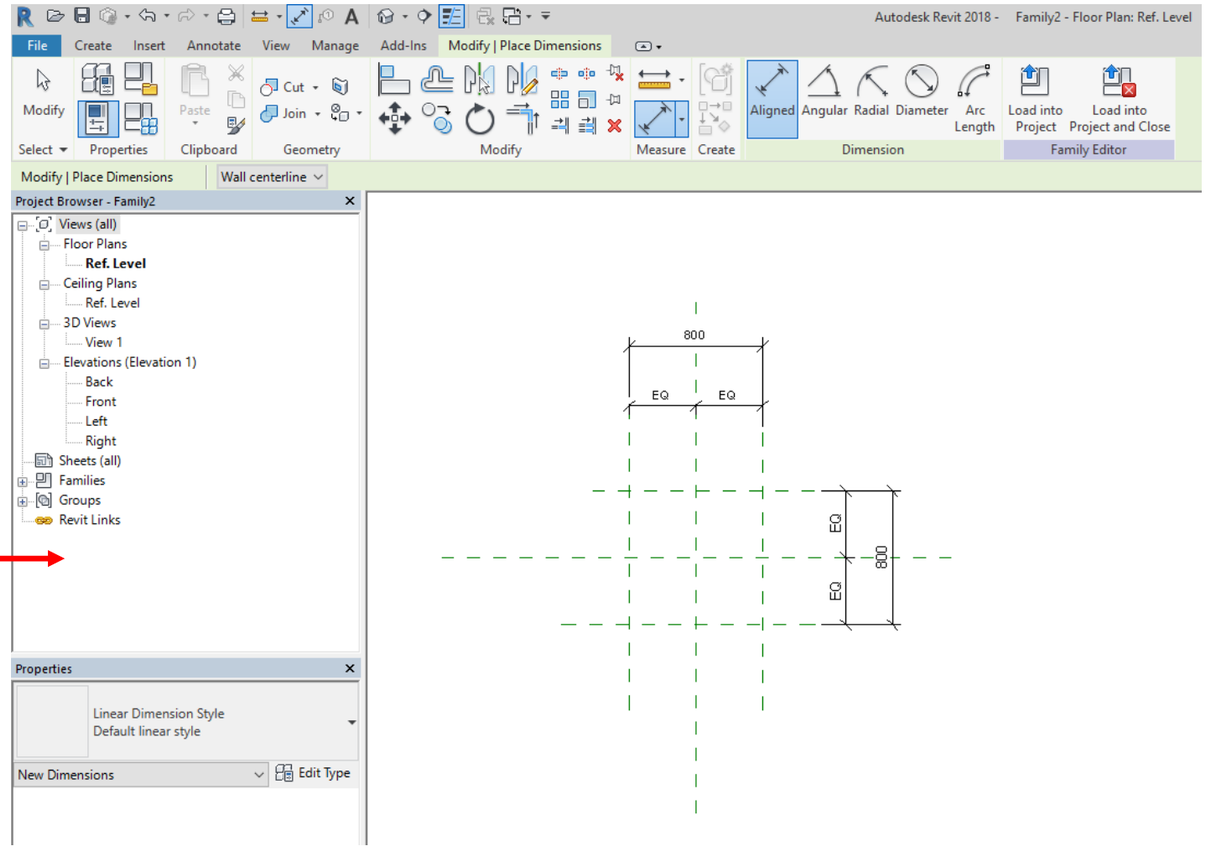


Family - Dimensions

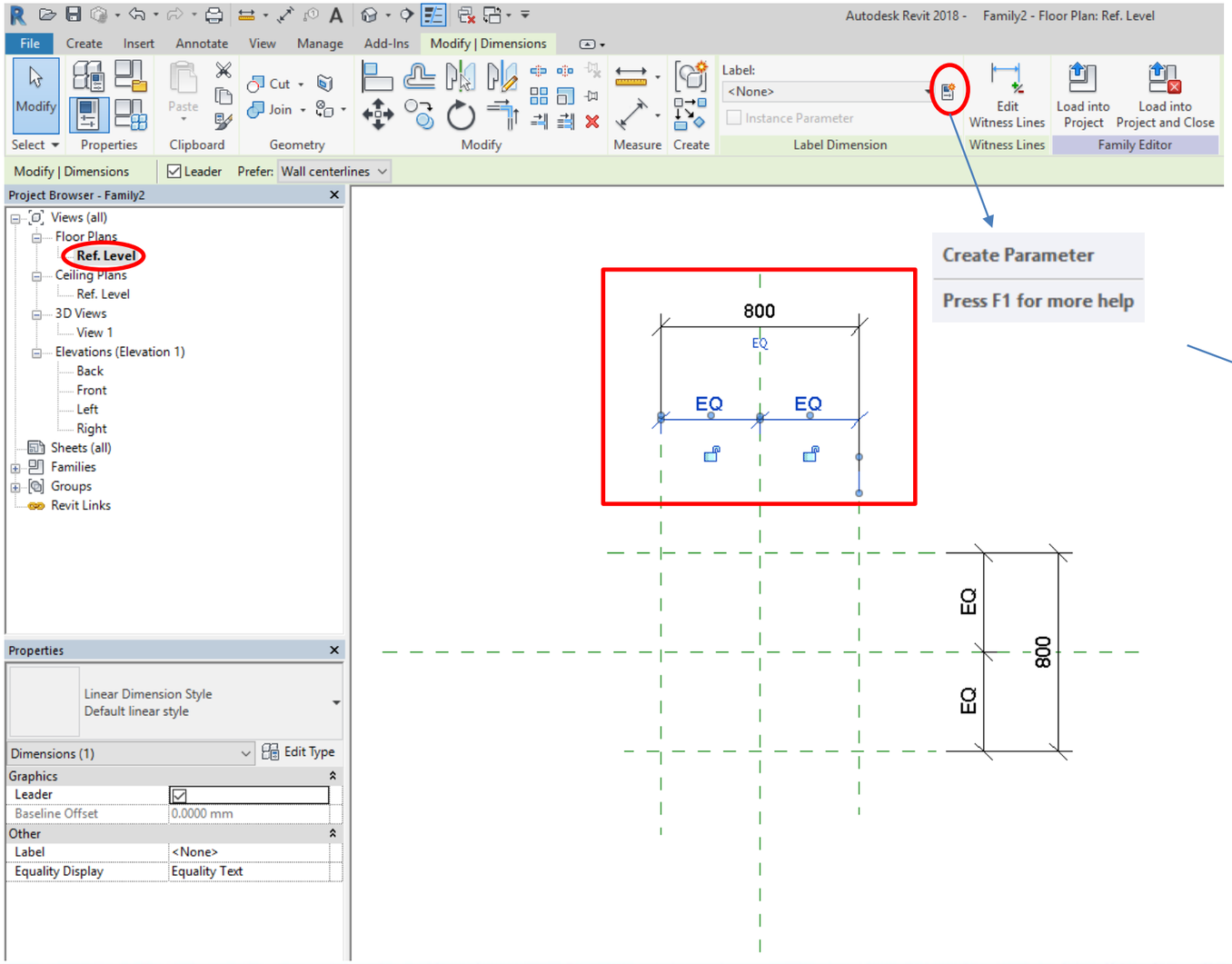


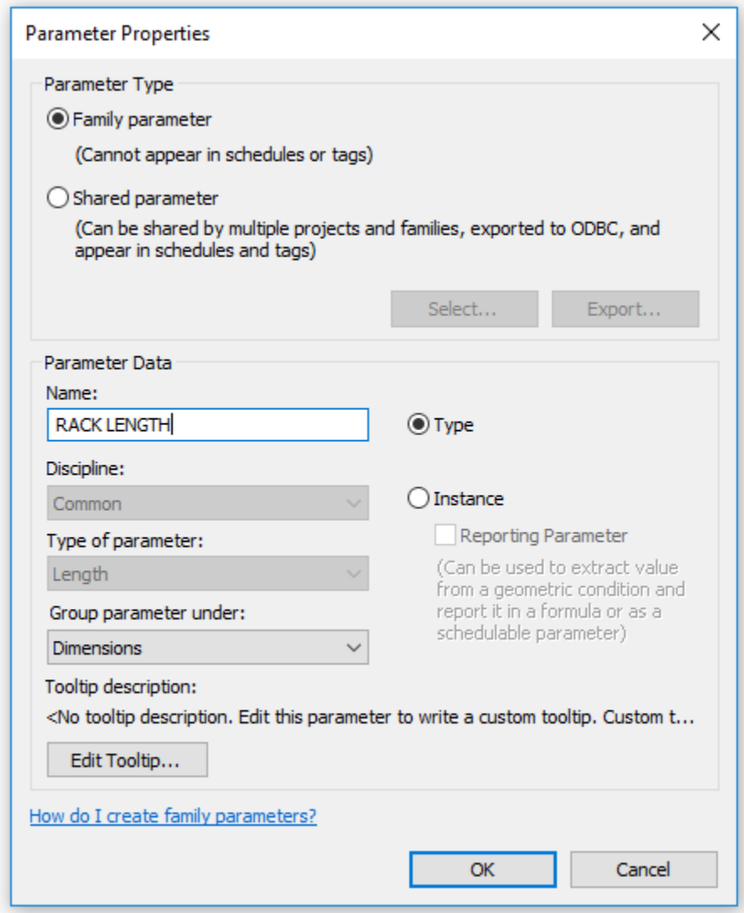




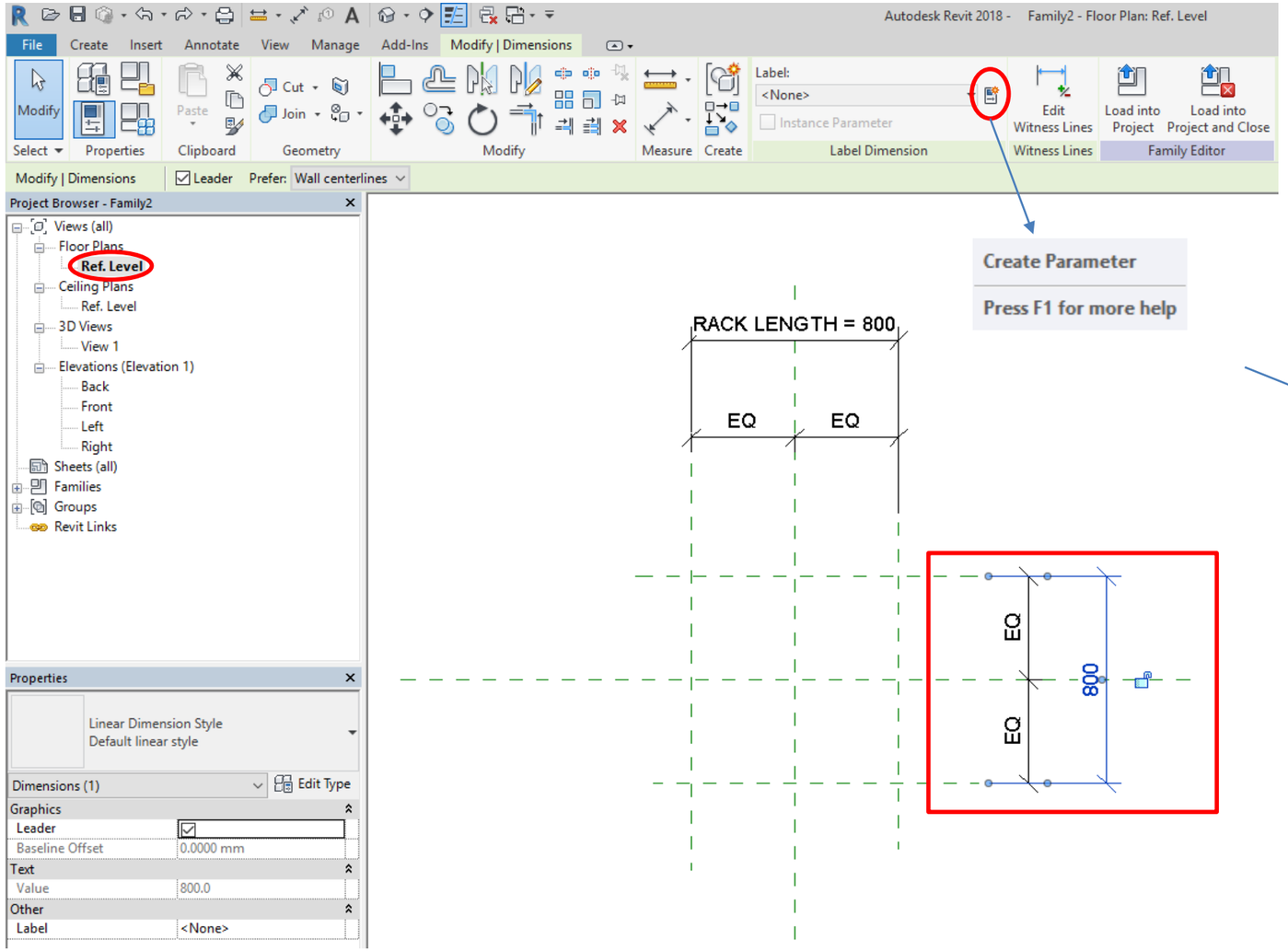


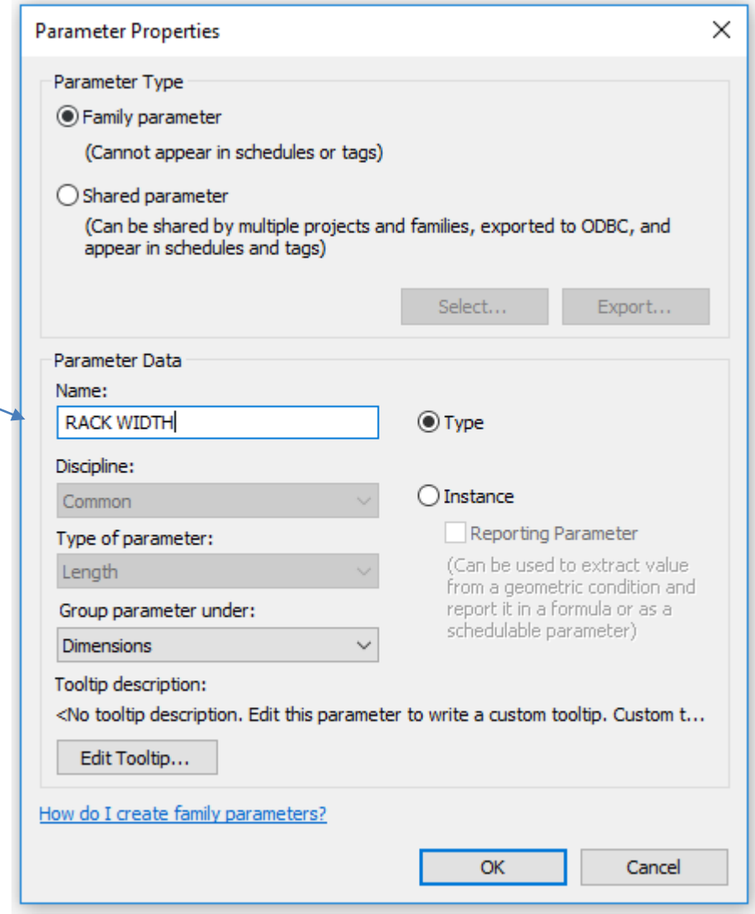
Family – Parameters (Rack Length)



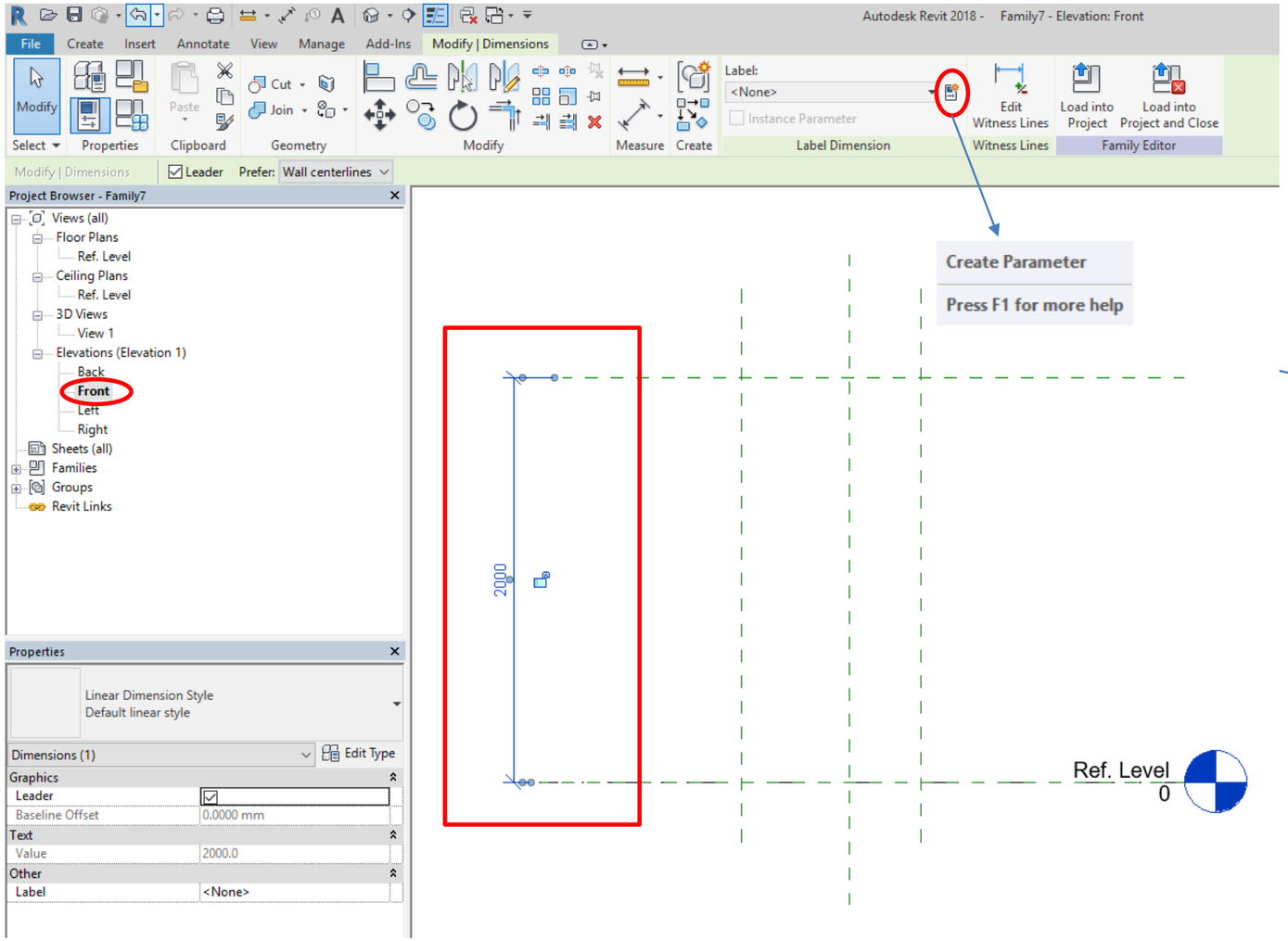


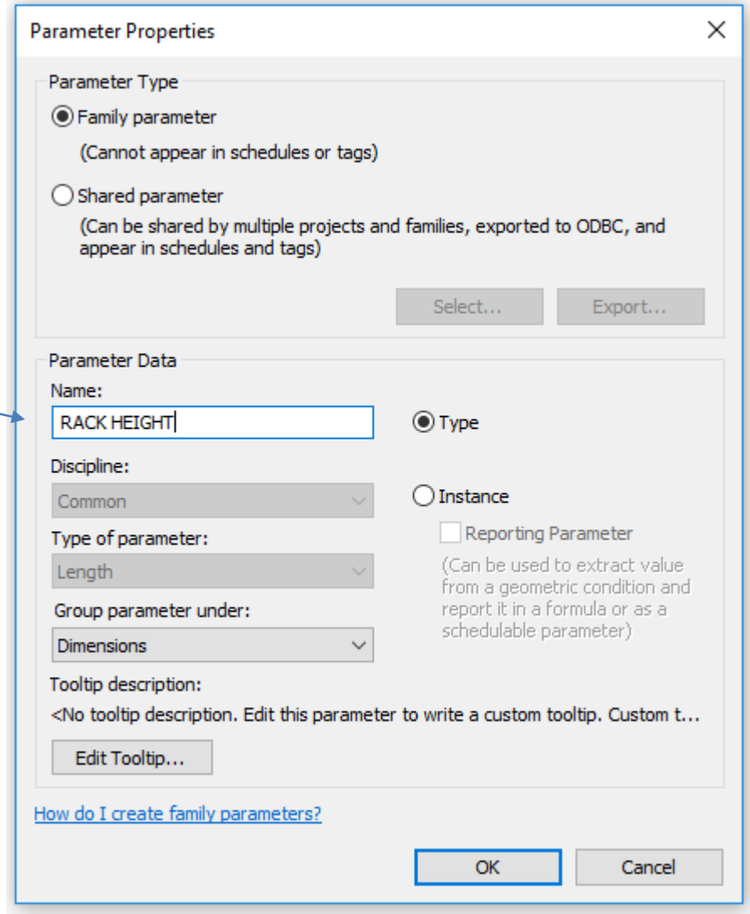
Family – Parameters (Rack Width)



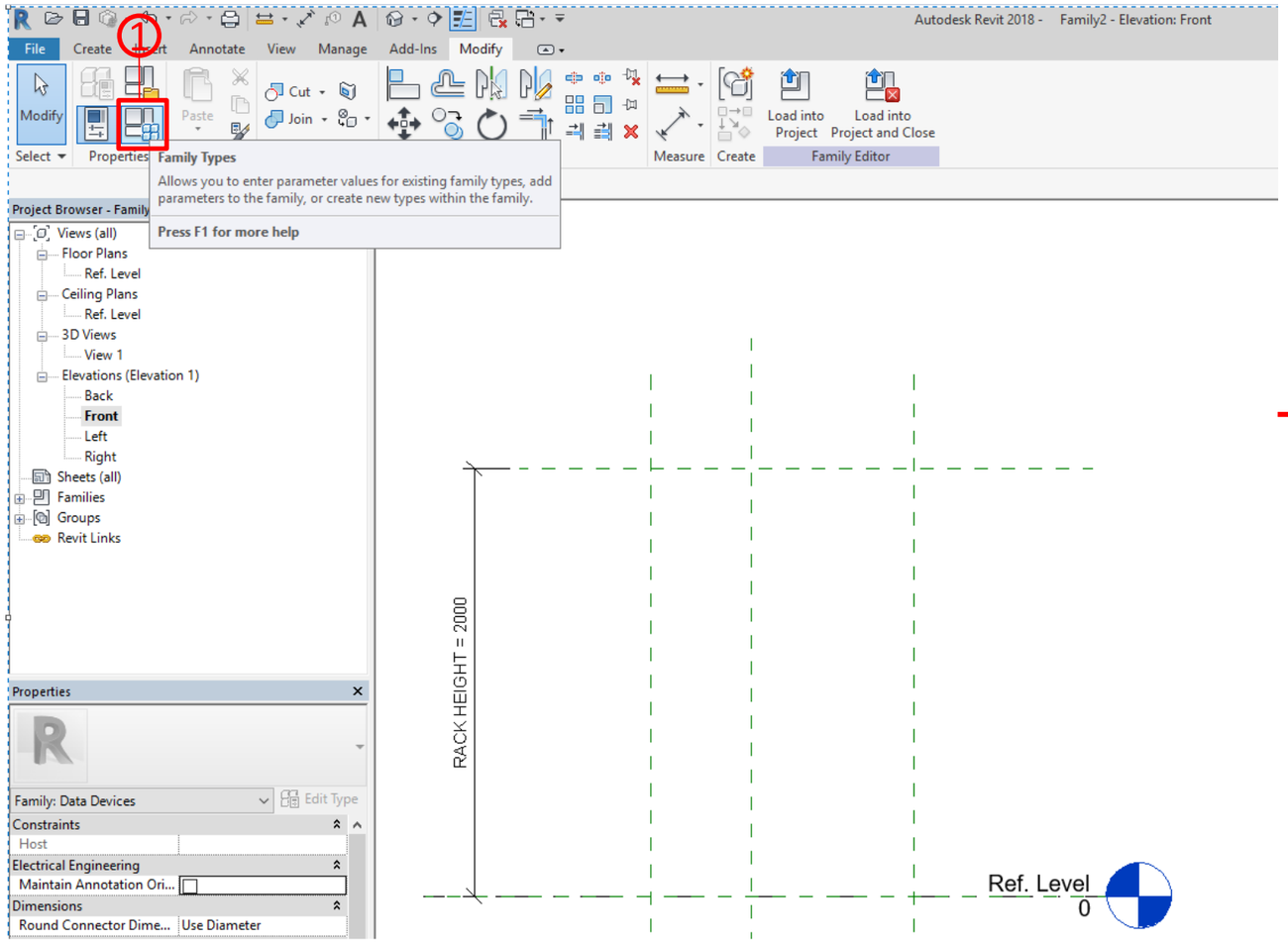


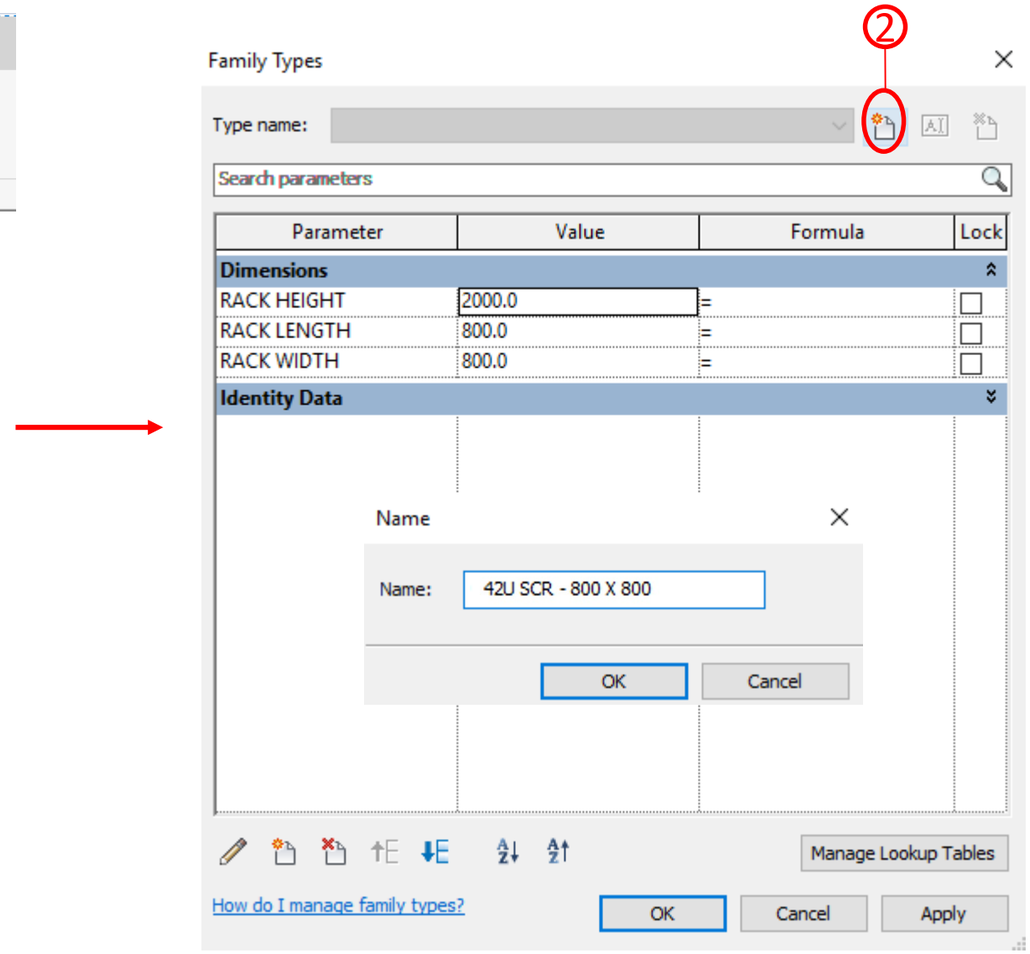
Family – Parameters (Rack Height)



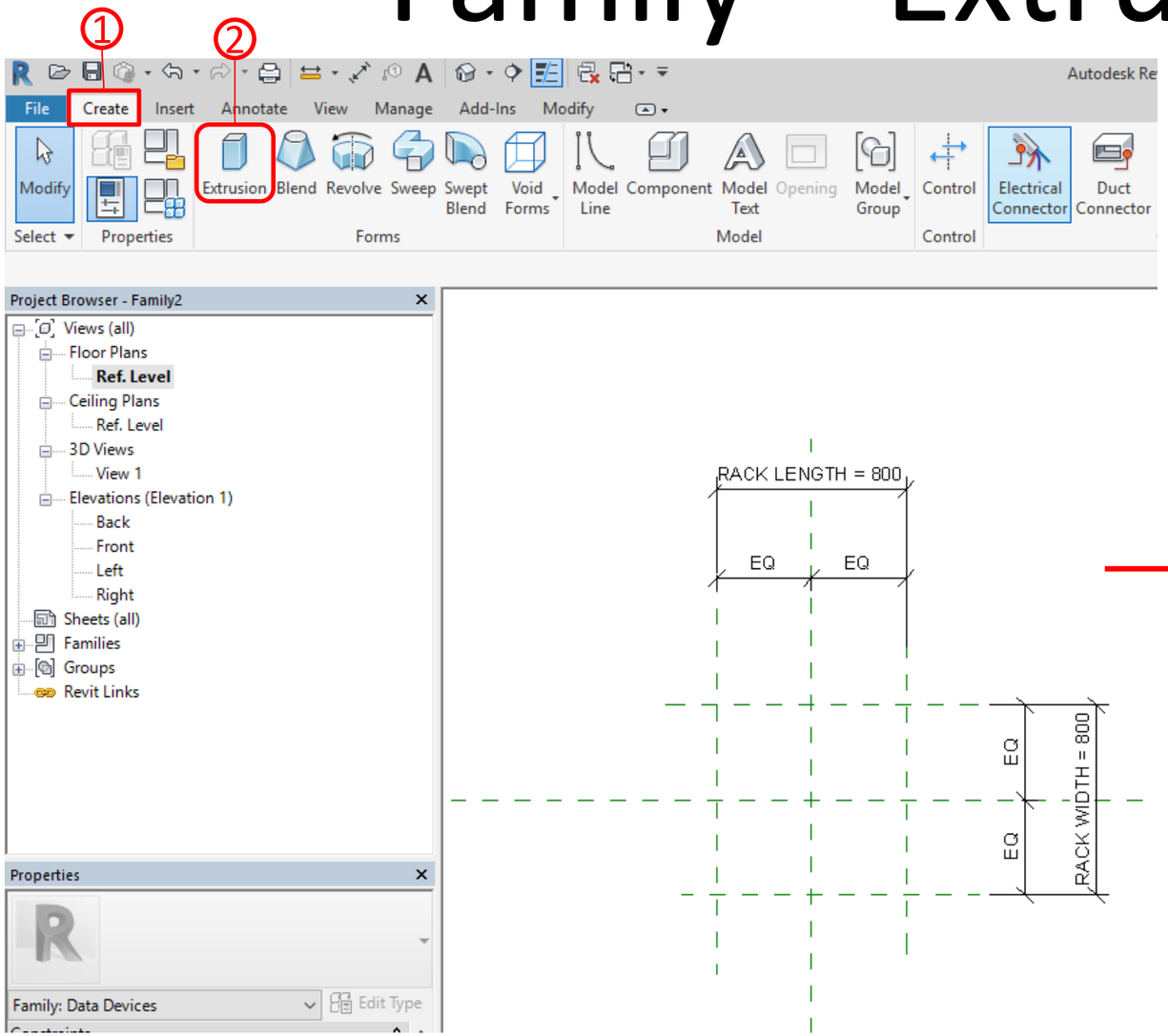


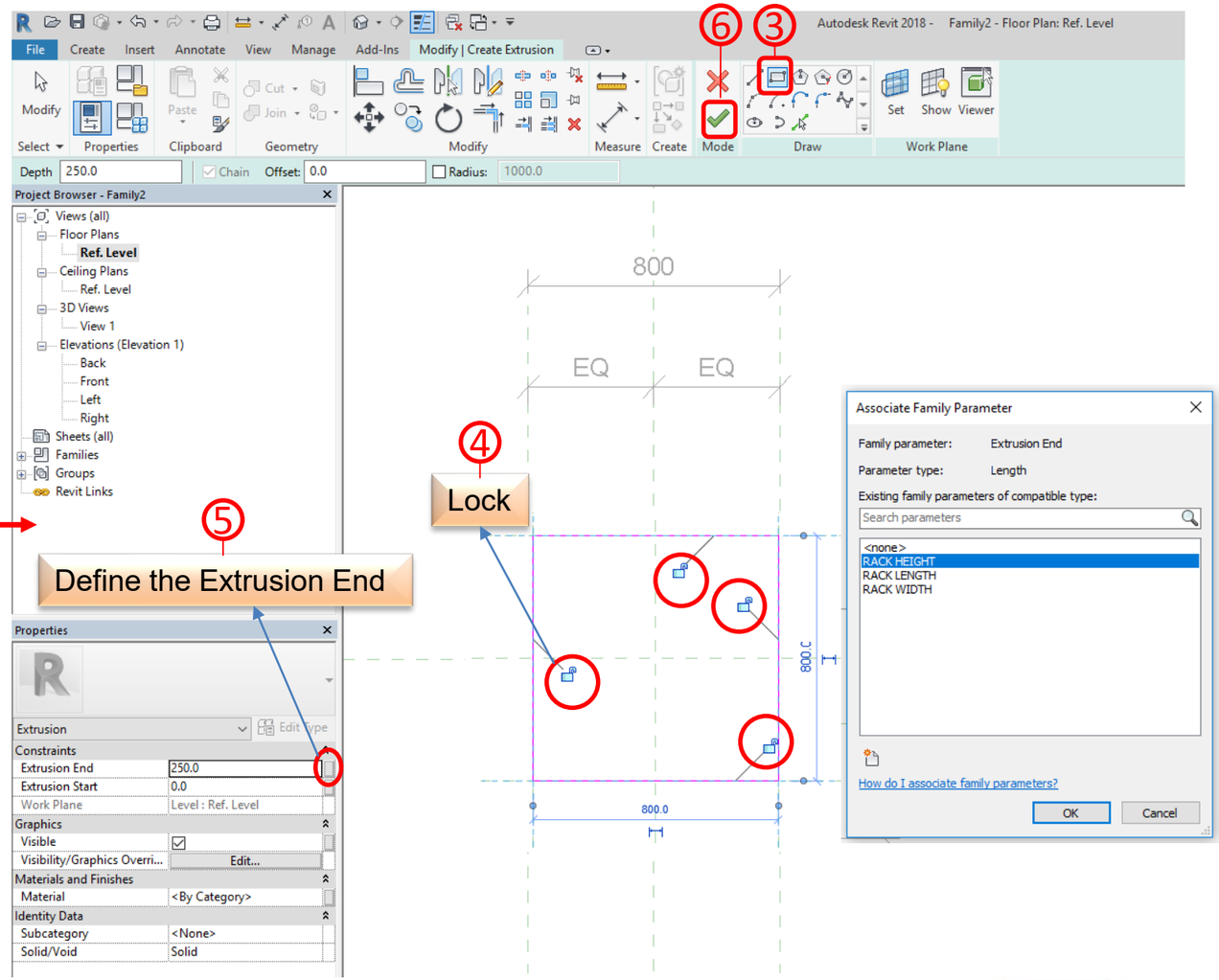
Naming the Family



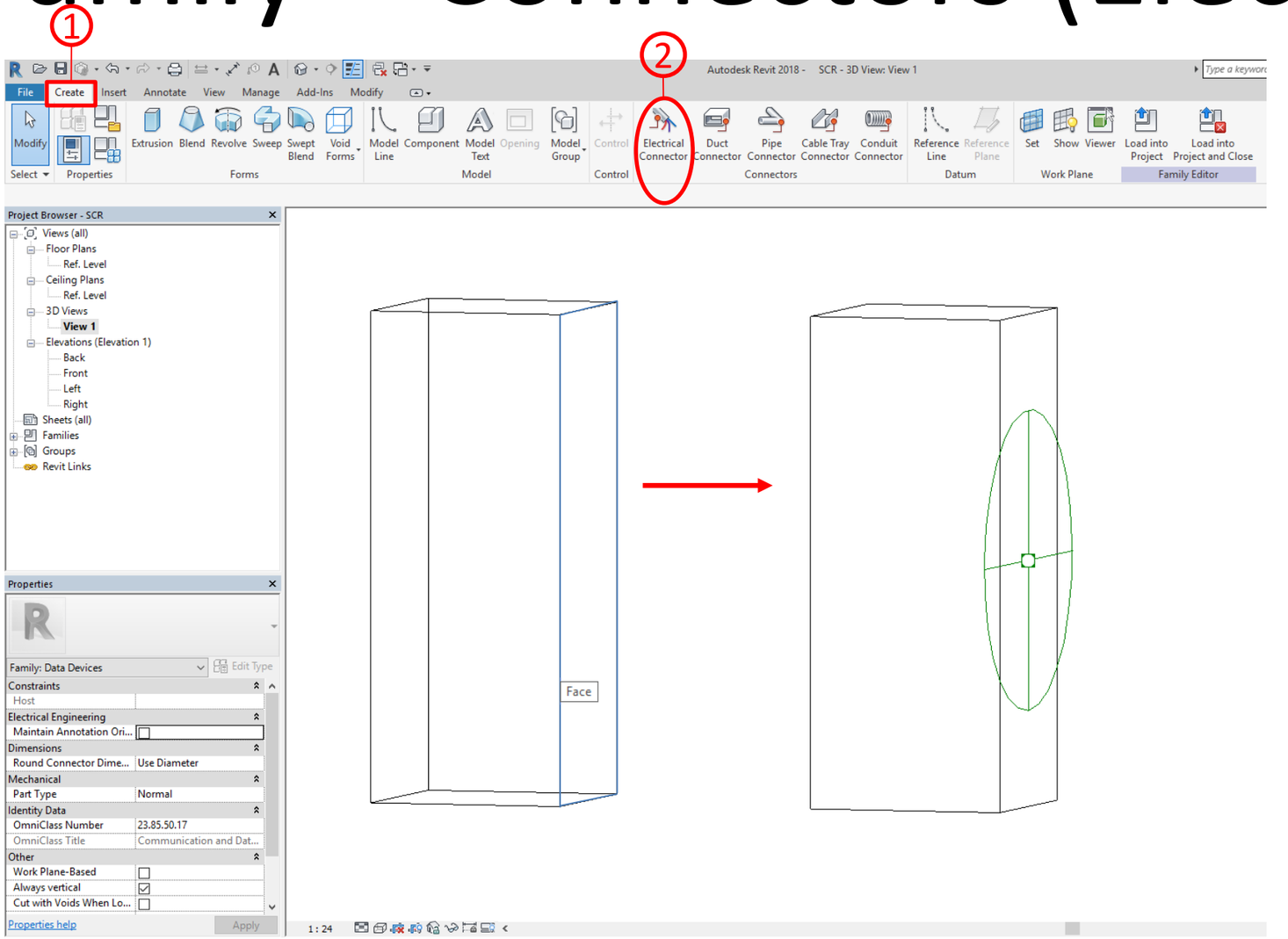


Family – Extruding Geometry

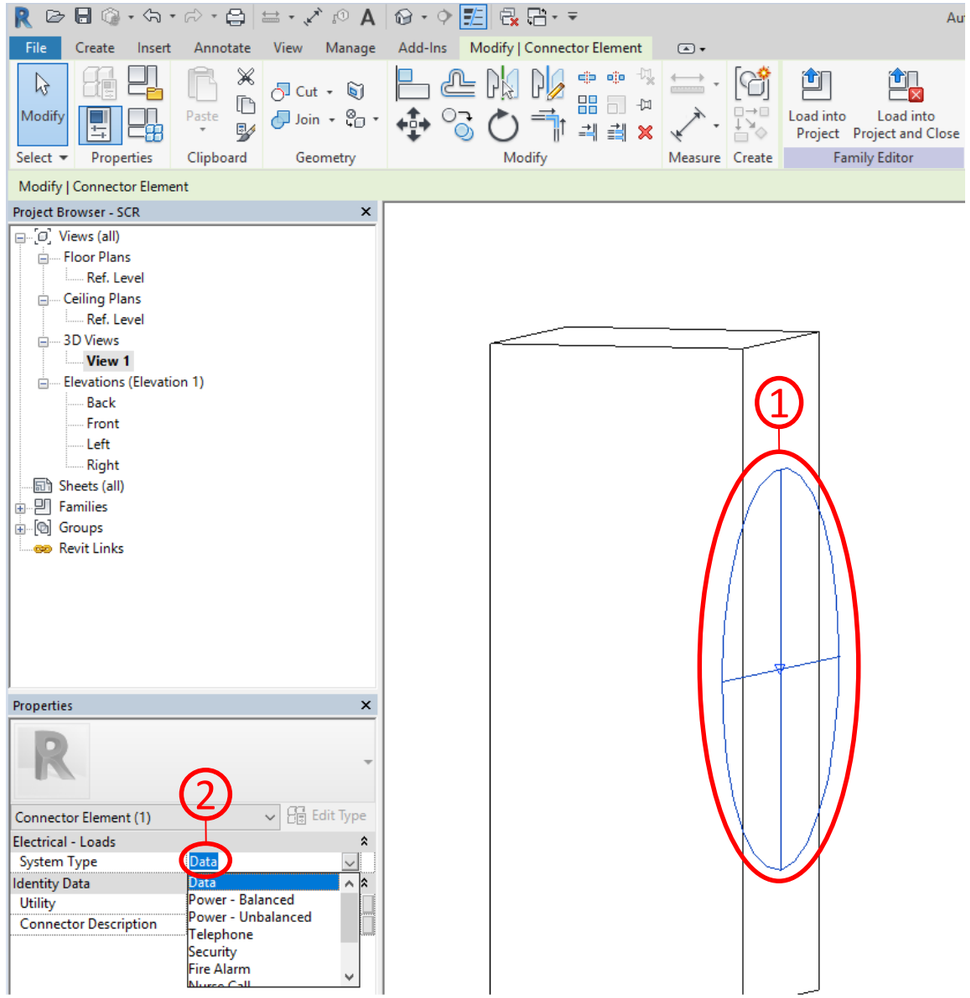




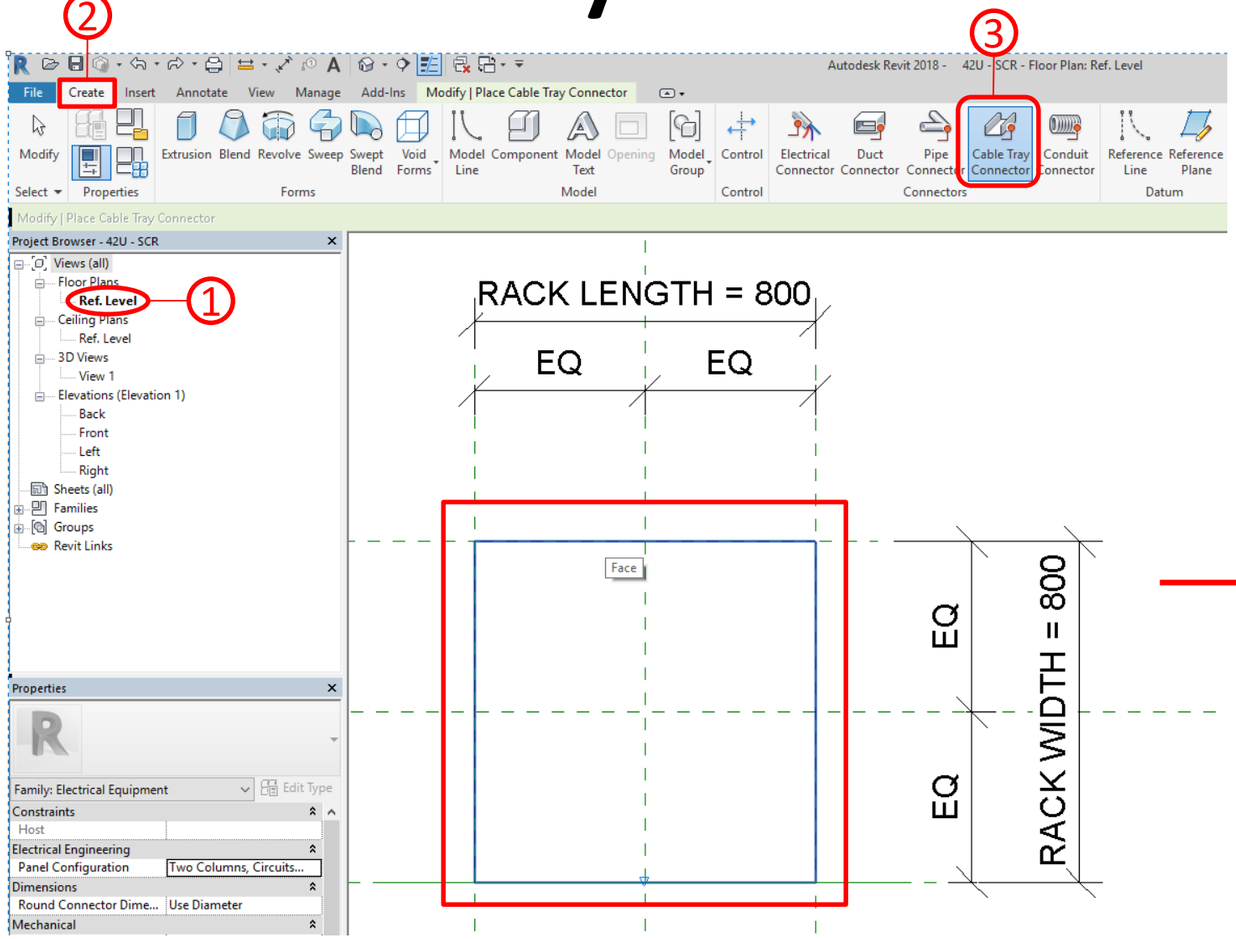
Family – Connectors (Electrical)

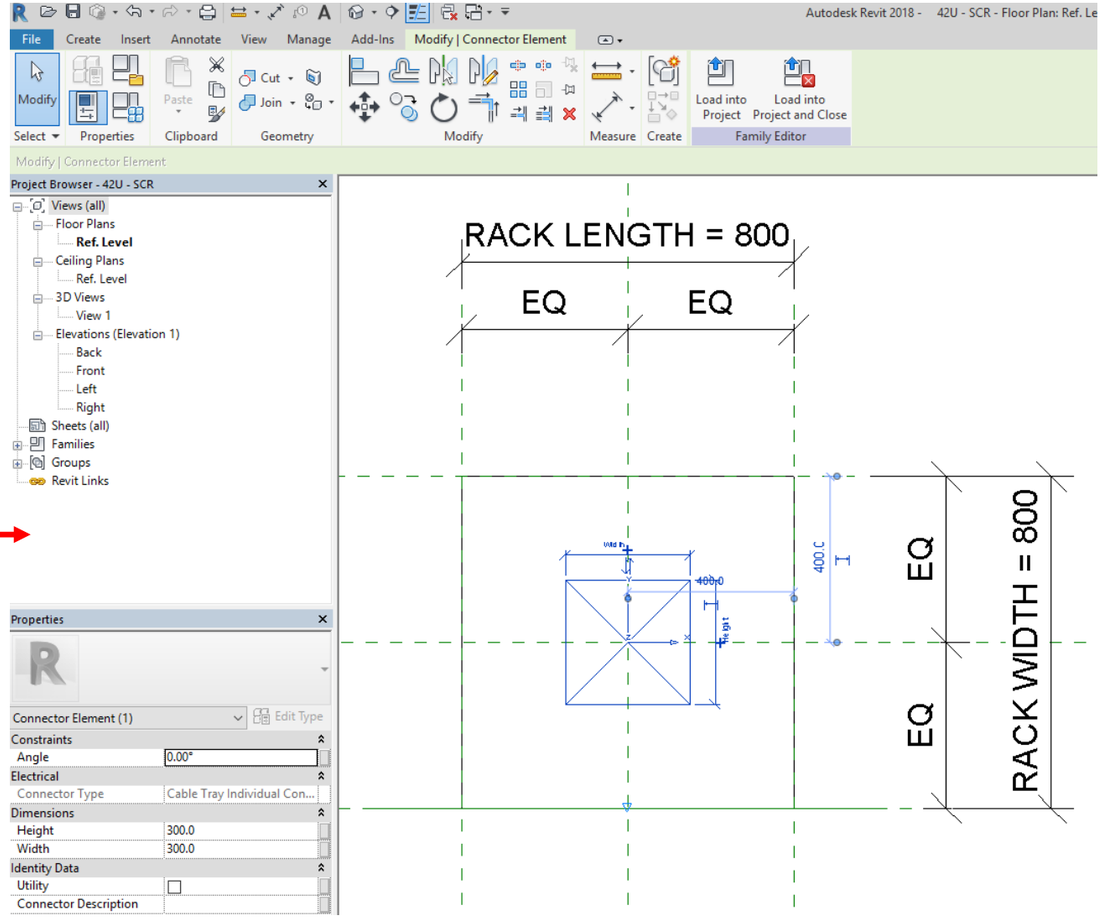


Family – Connectors (Data)

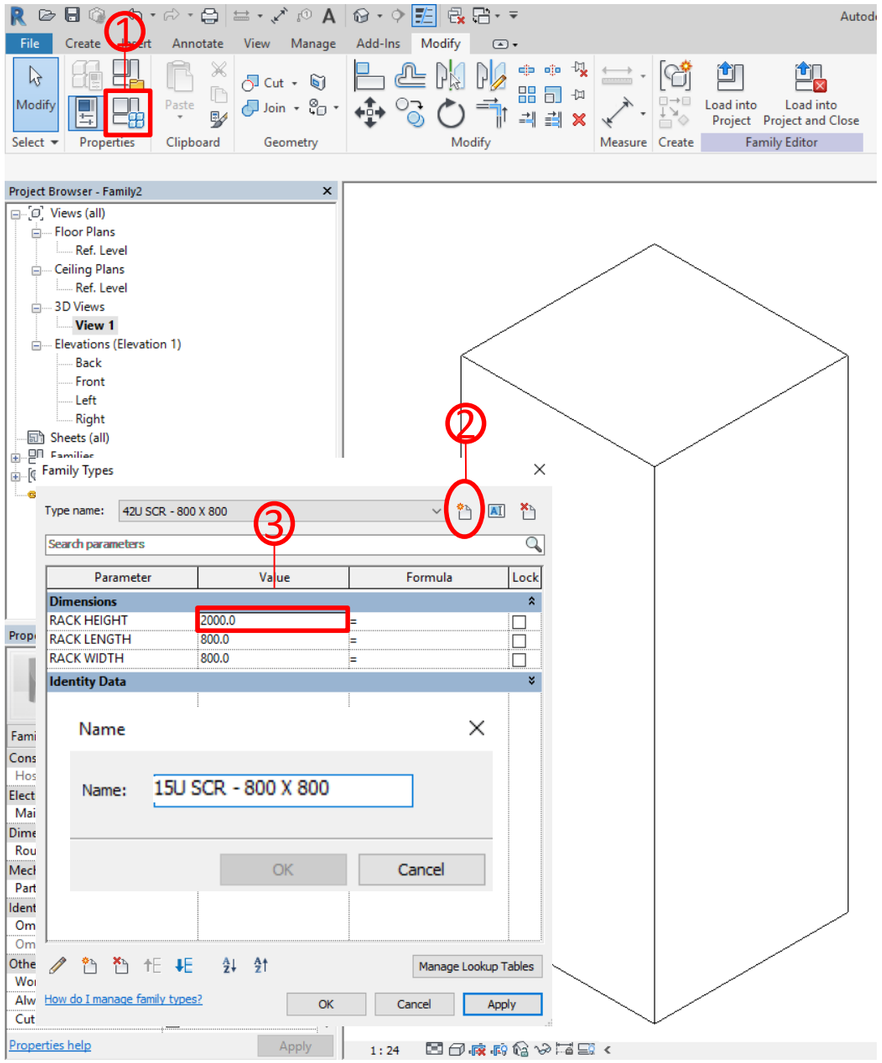


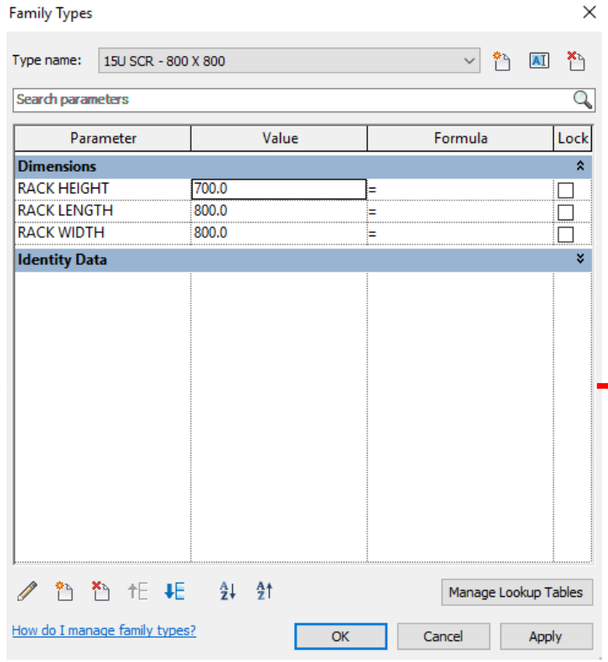
Family – Connectors (Cable tray)

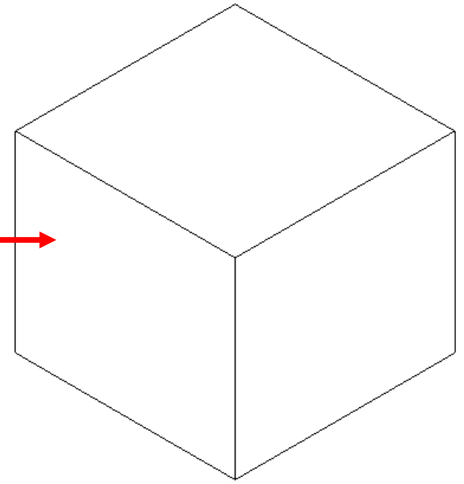




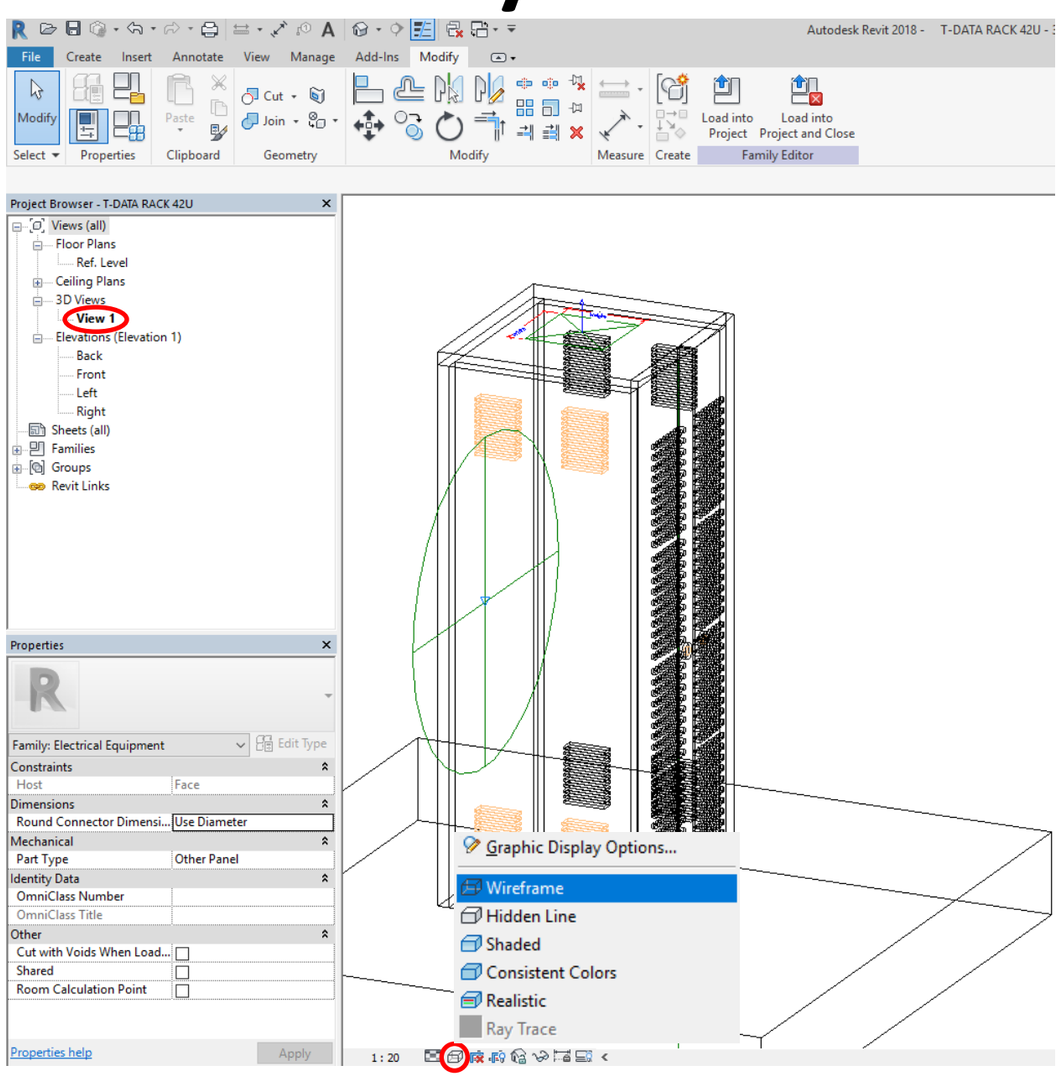
Family From Family

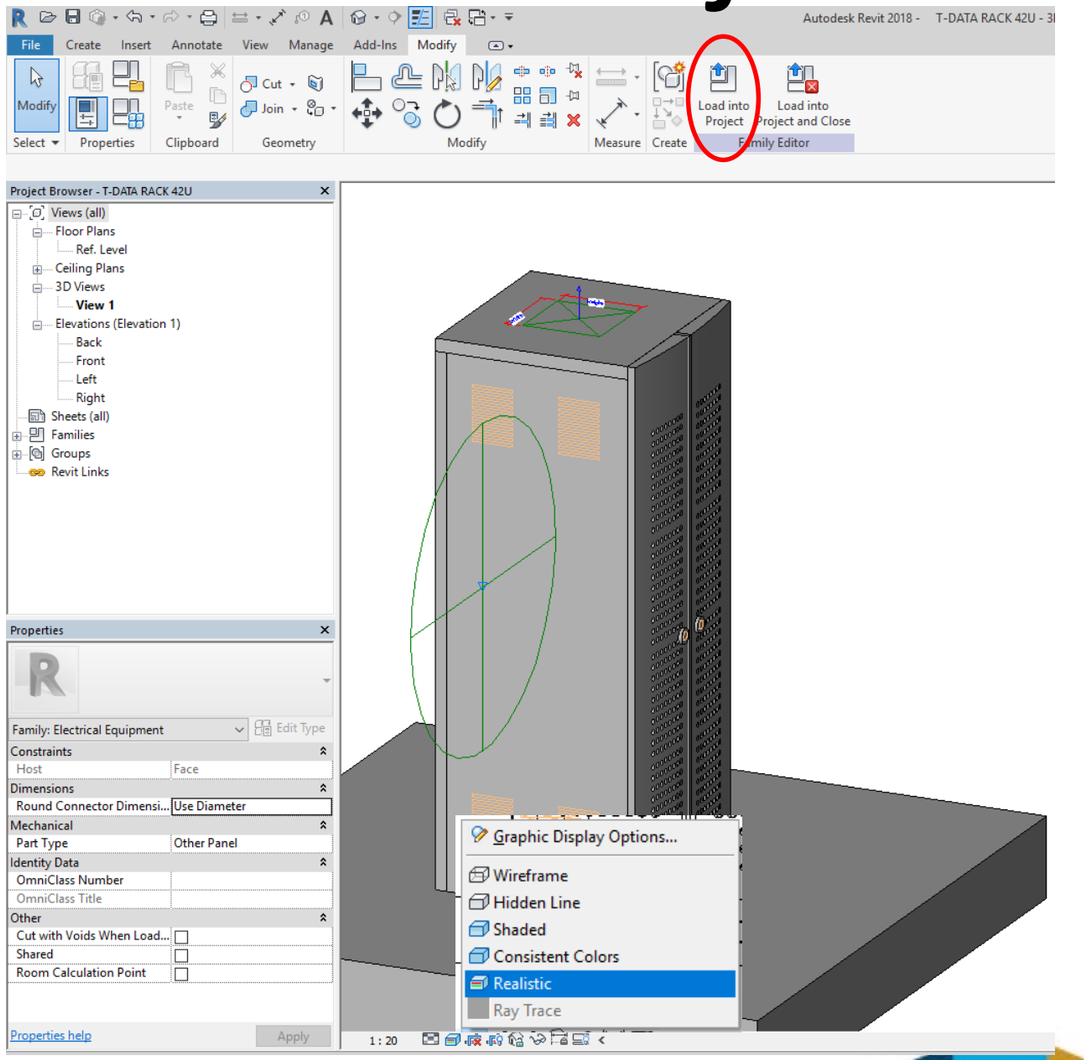




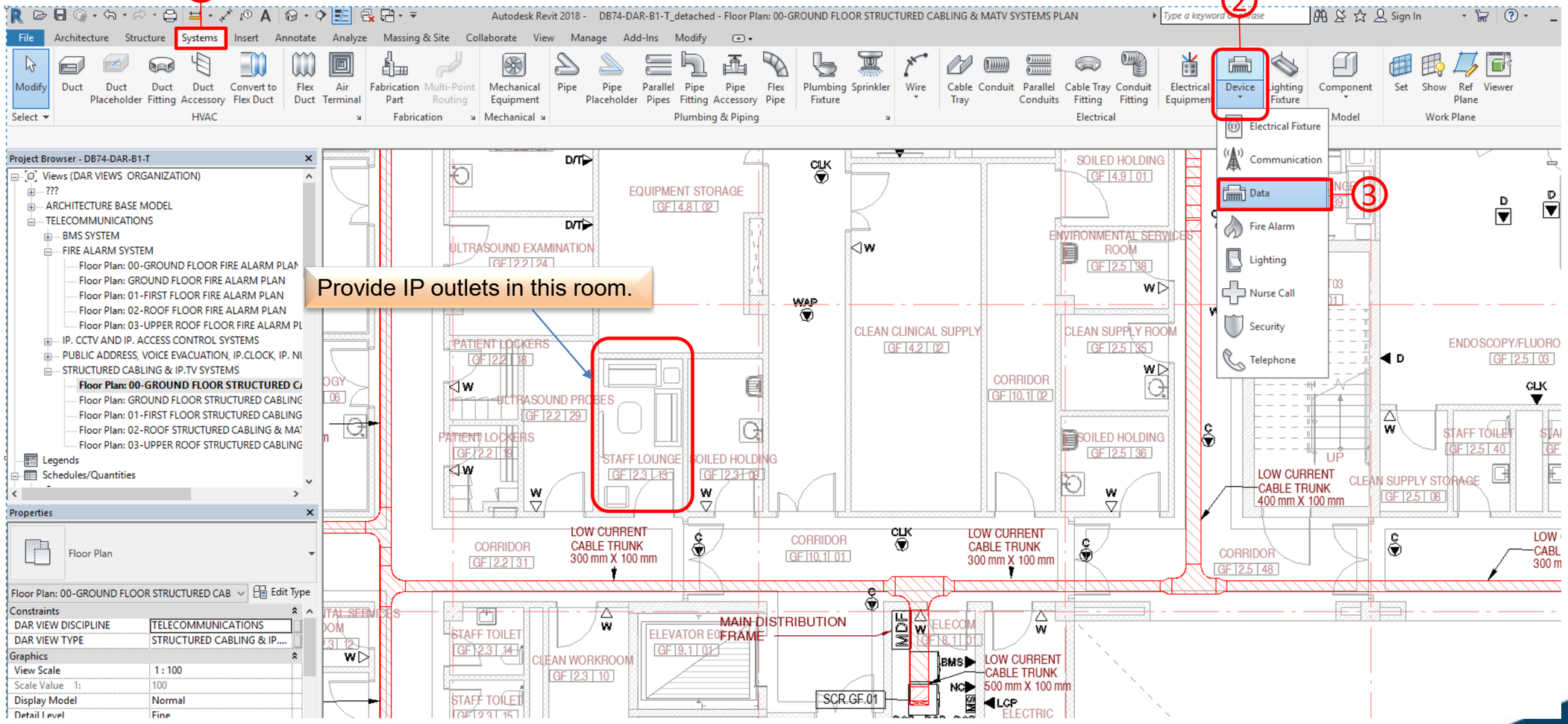


Family 3D view & Load into Project

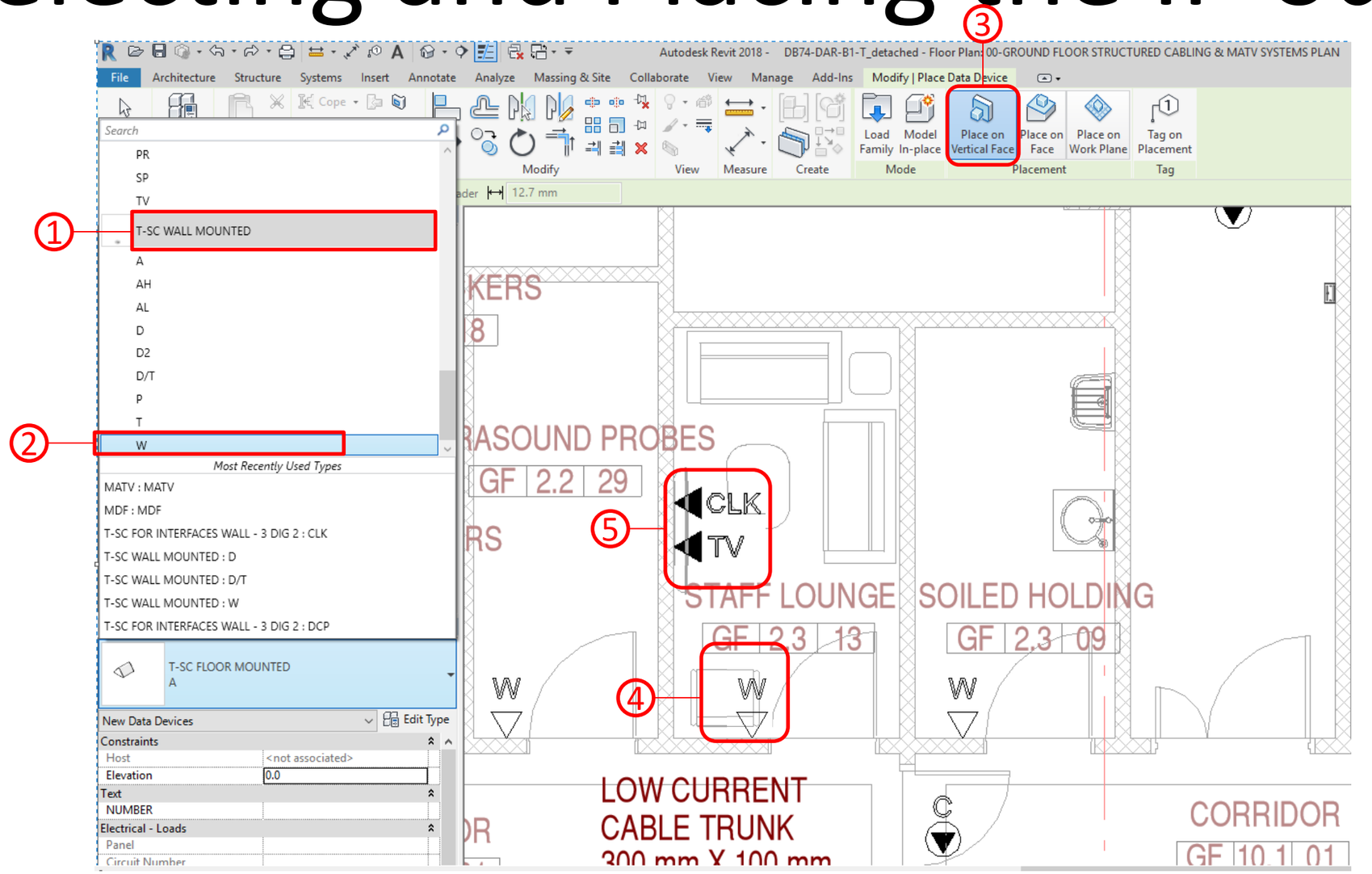




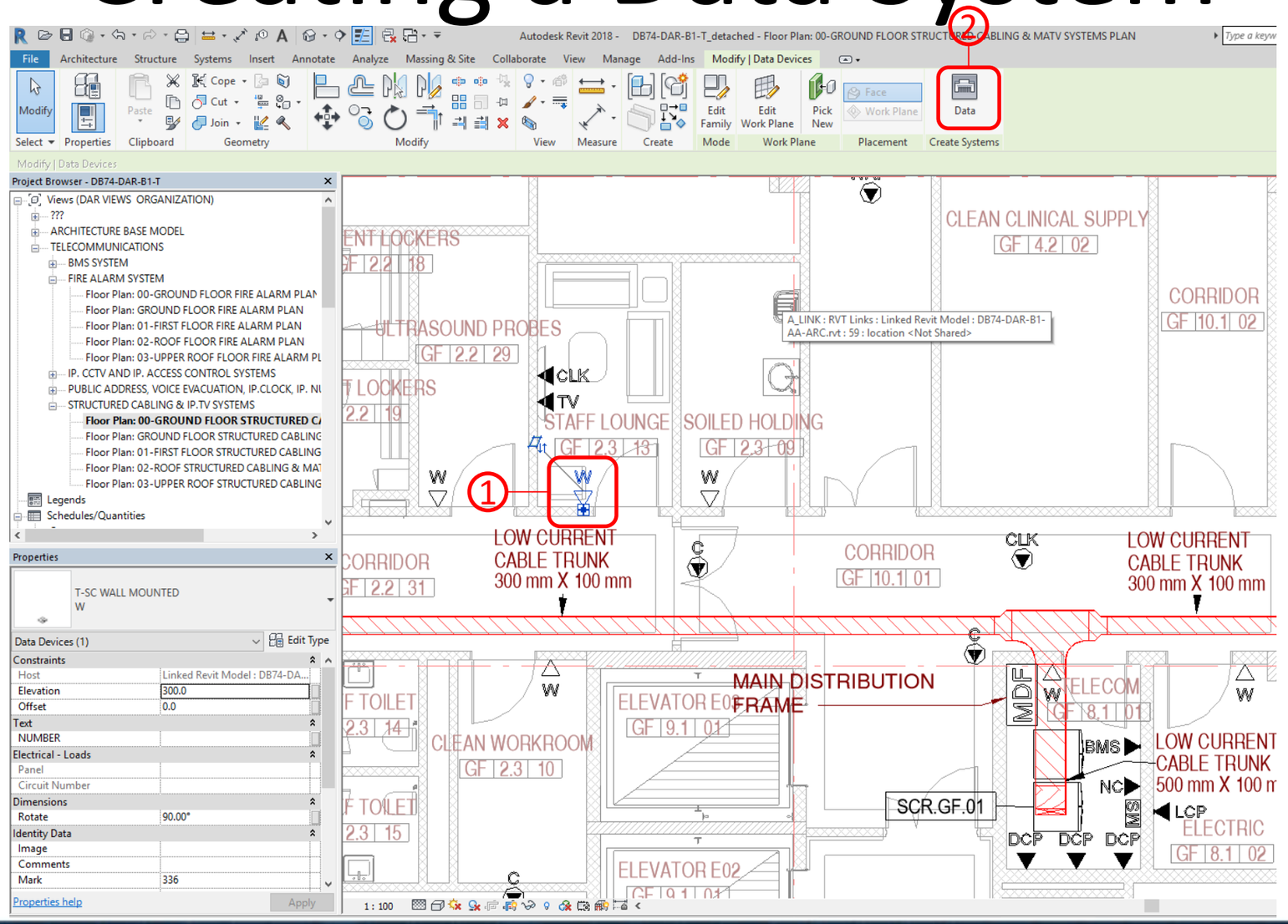
Structured Cabling Network Design For ambulatory Care Center



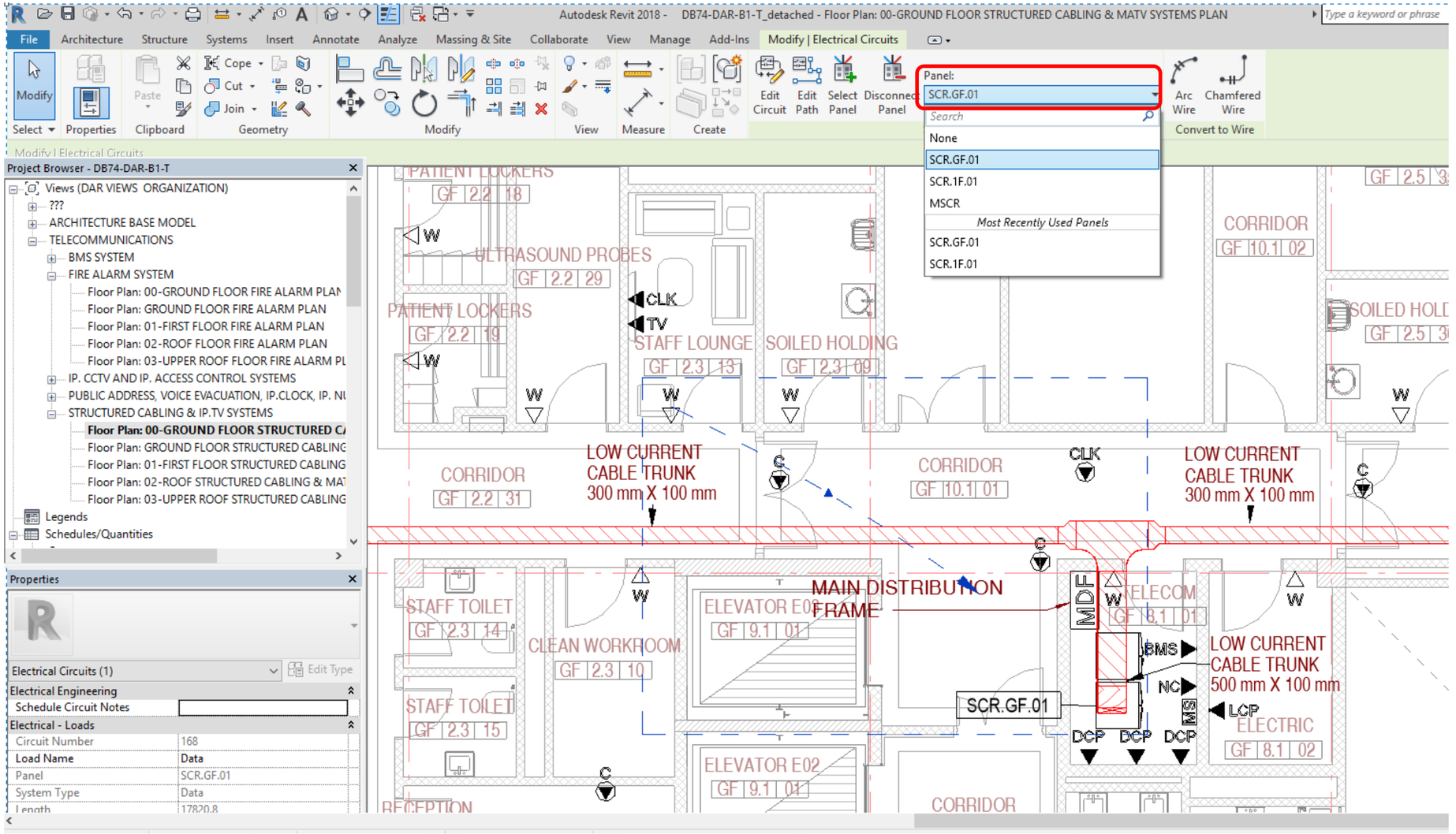
Selecting and Placing the IP outlet



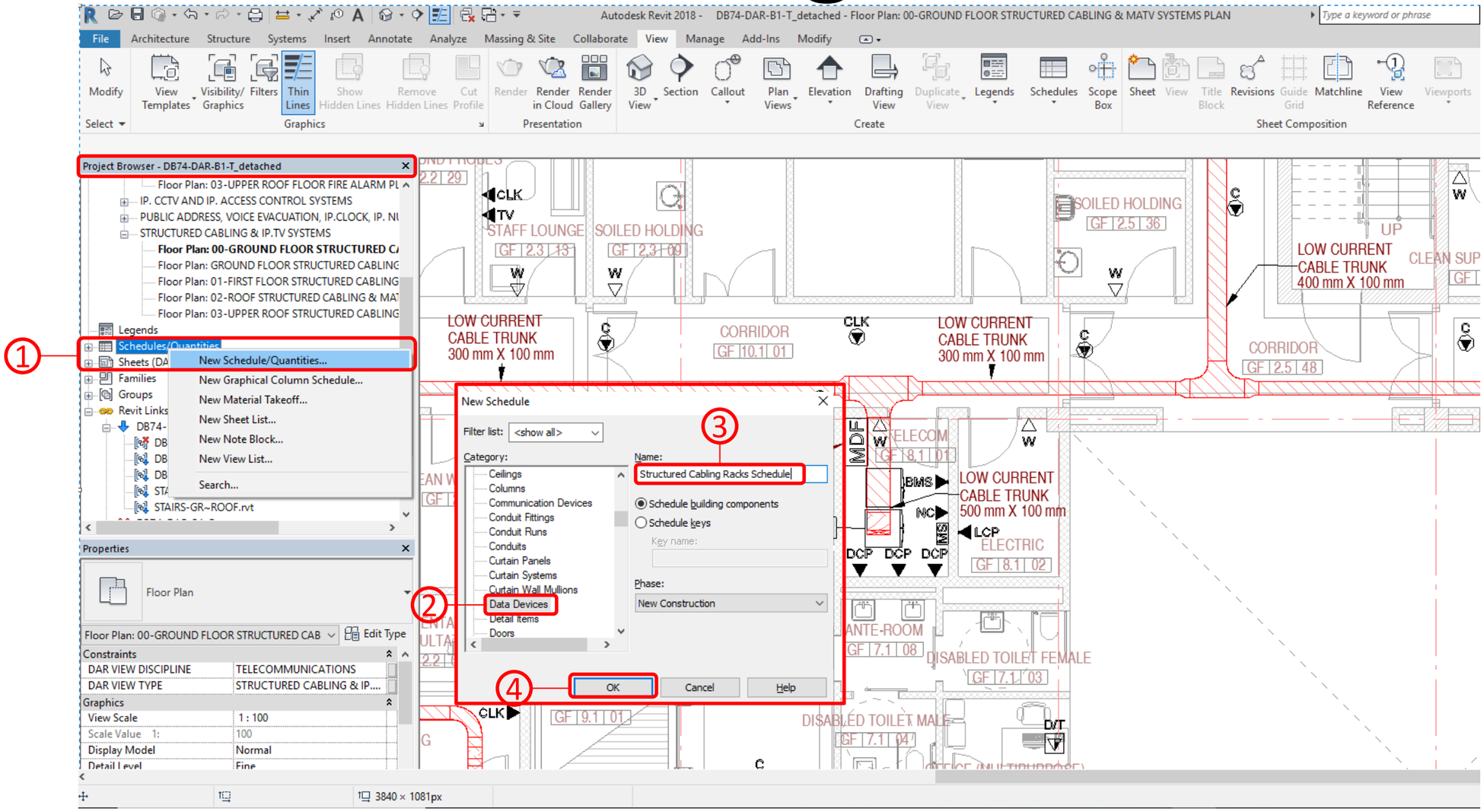
Creating a Data System



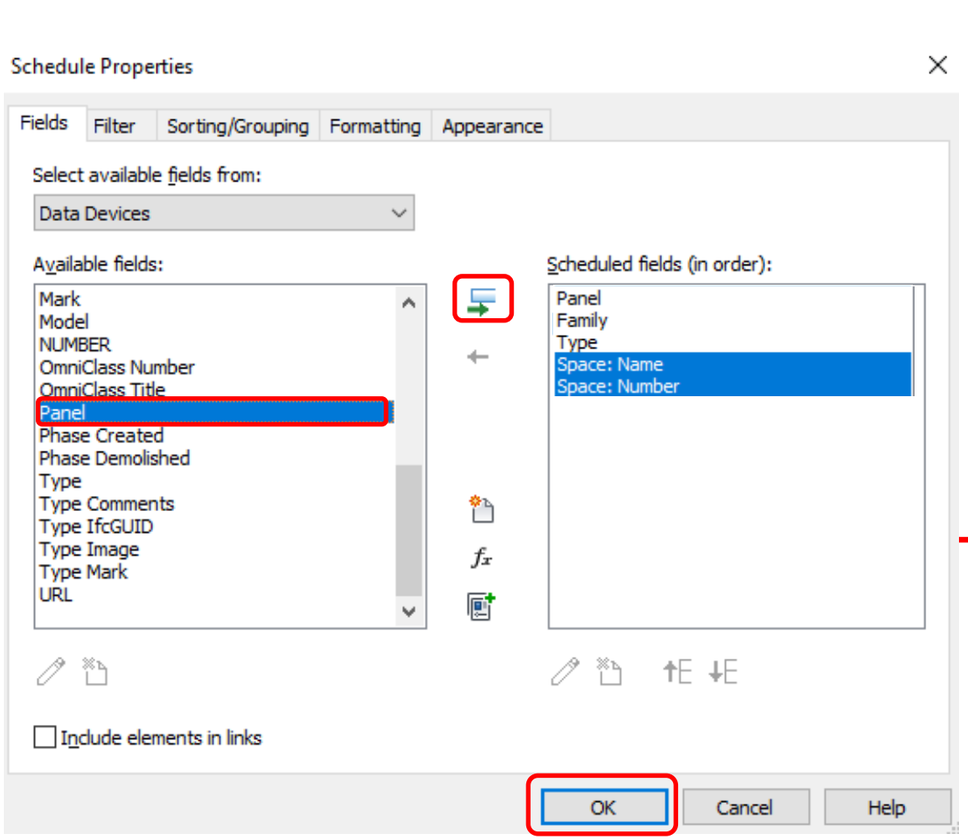
Creating the Data System

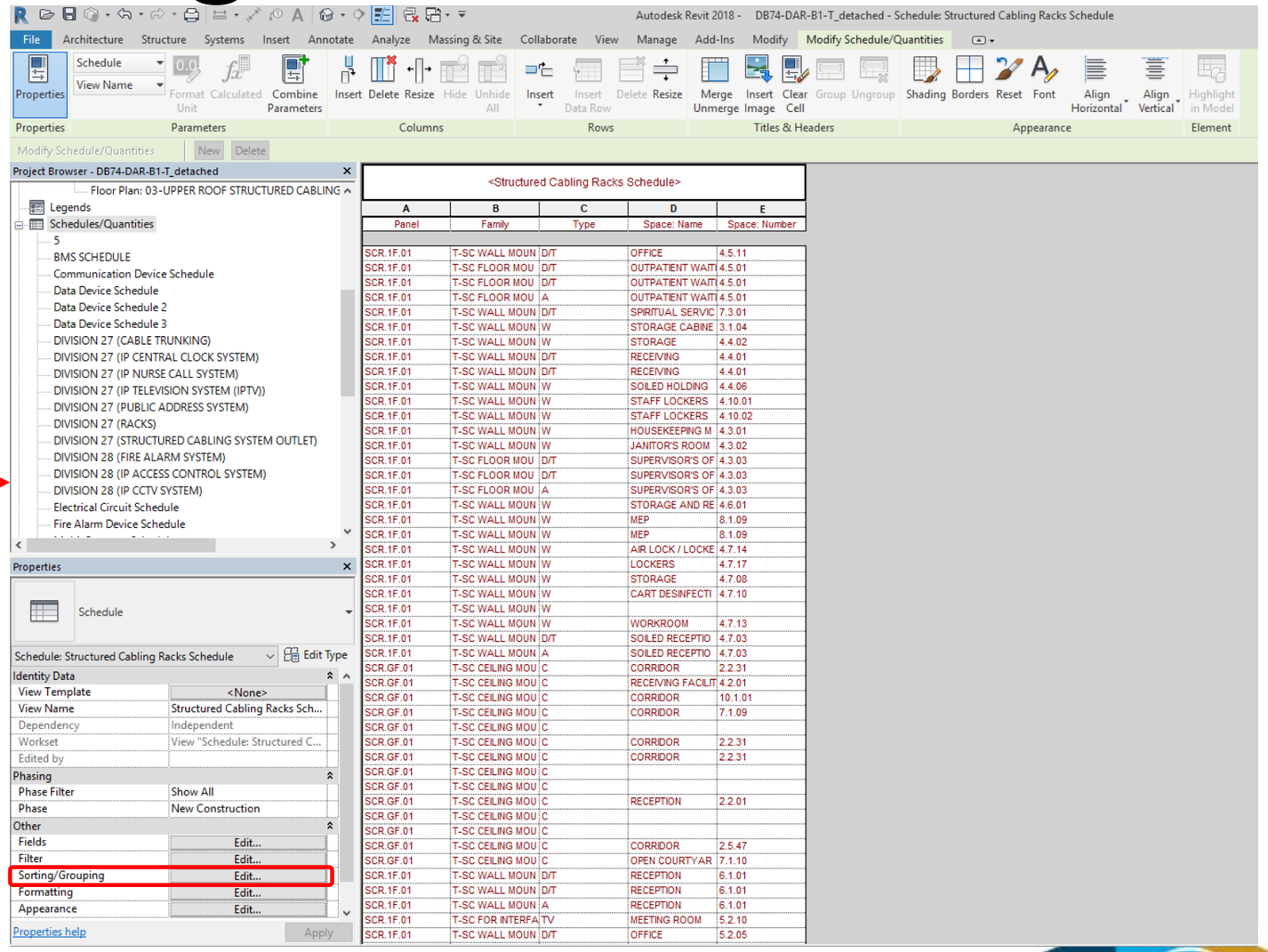


Structured Cabling Racks Schedule

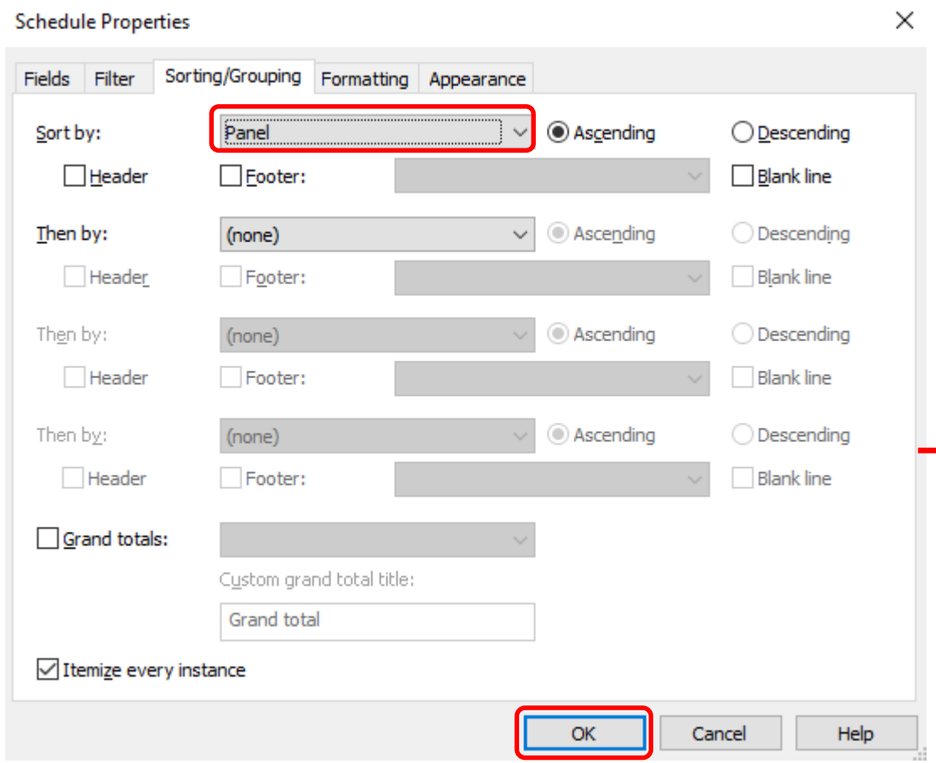


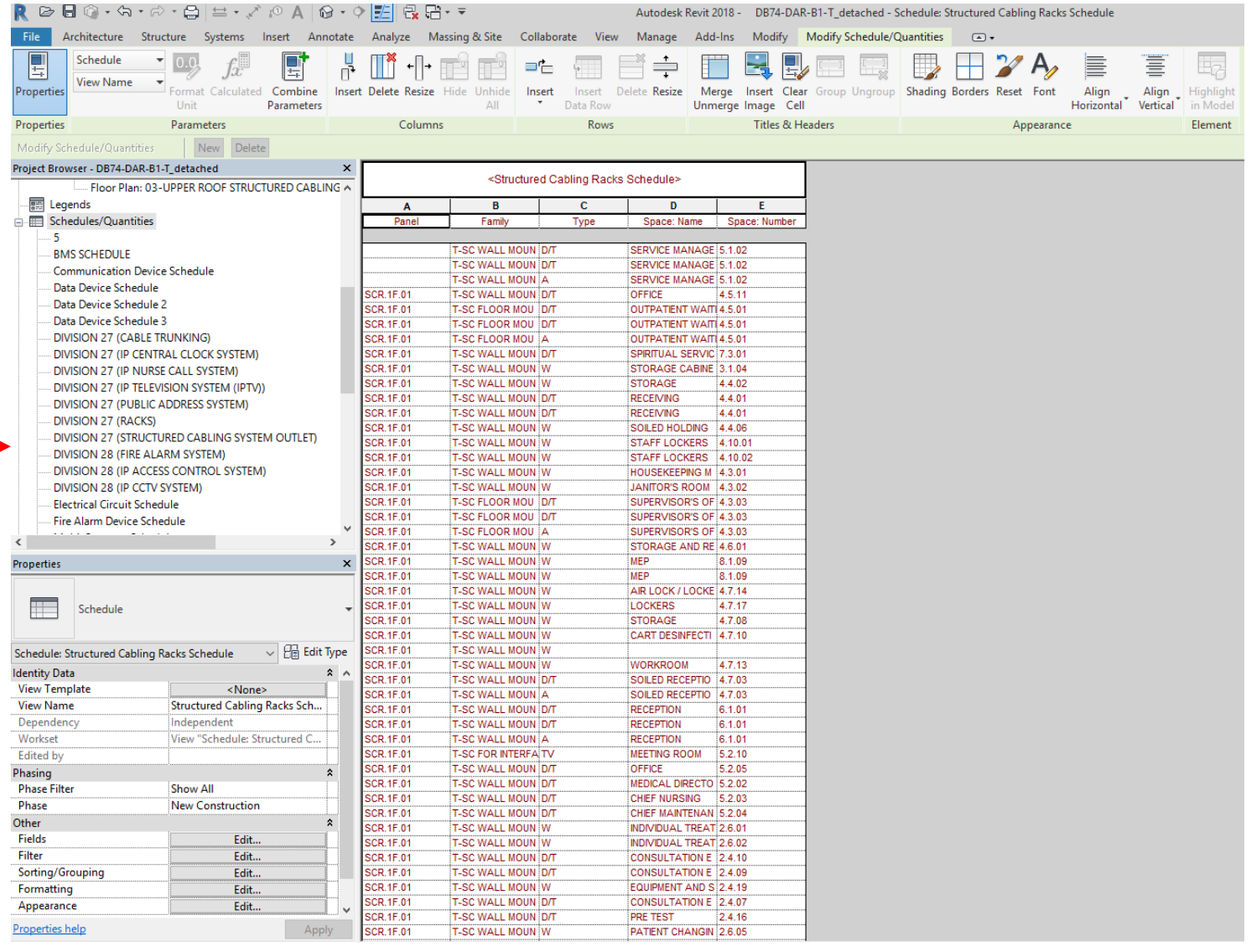
Structured Cabling Racks Schedule





Structured Cabling Racks Schedule





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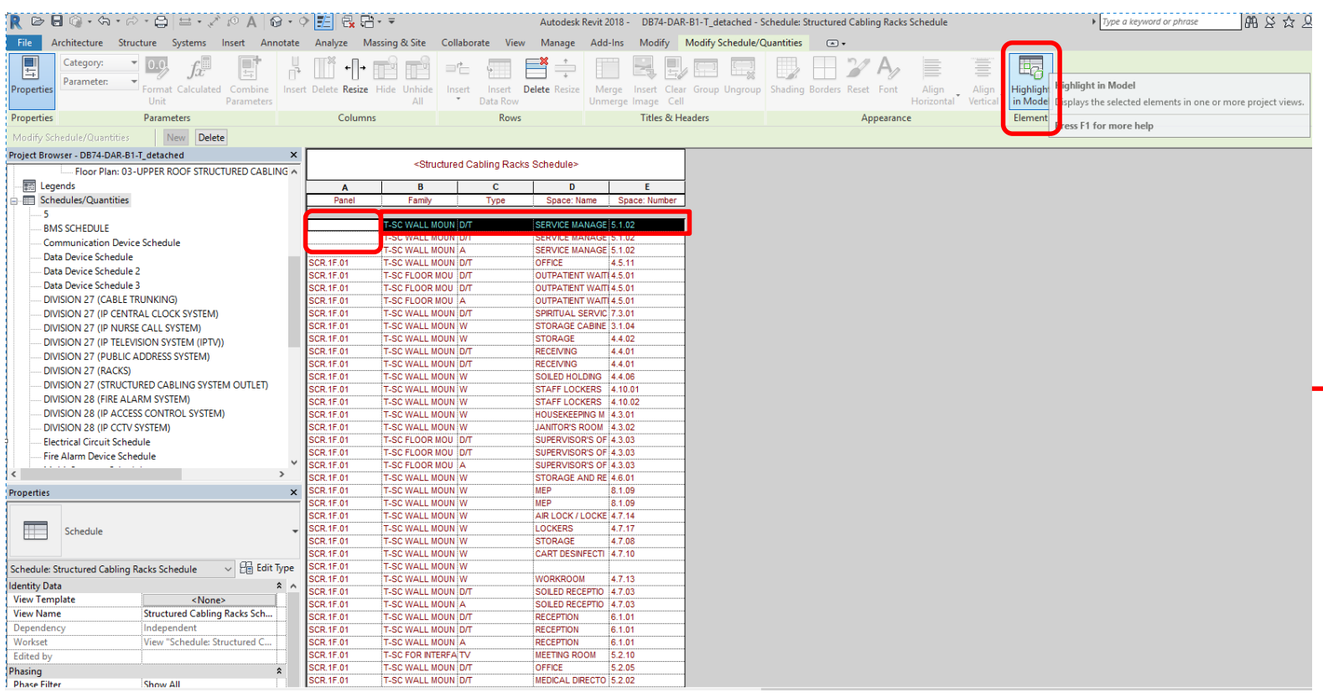

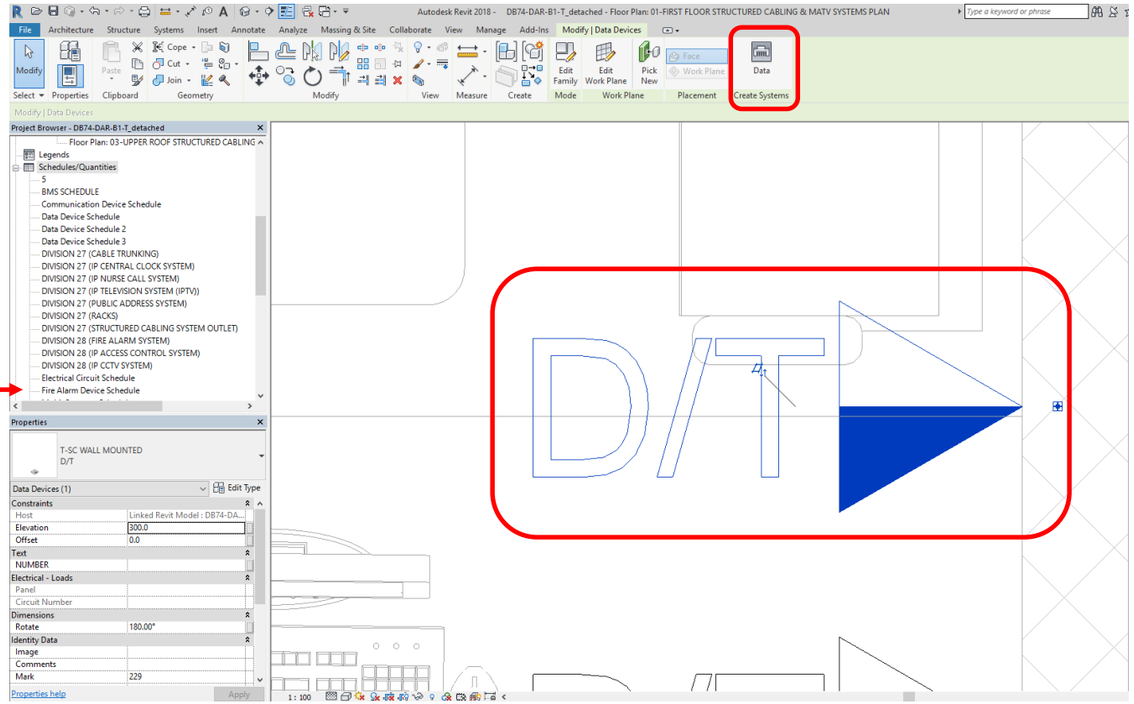

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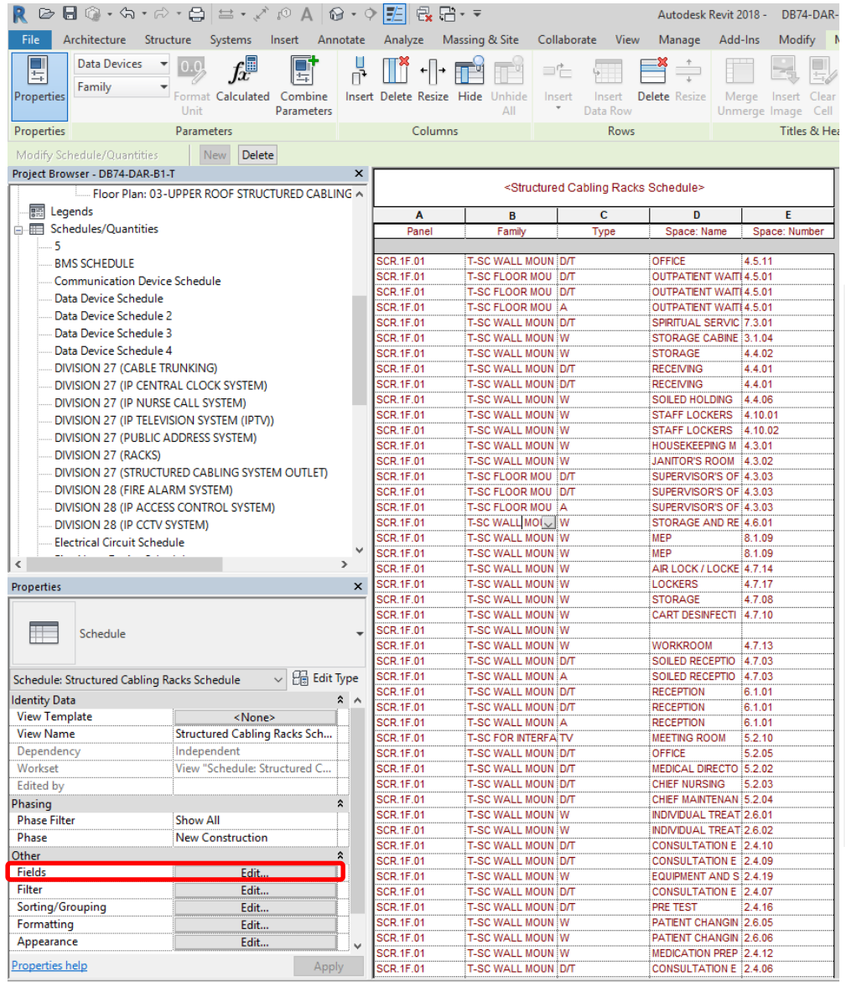

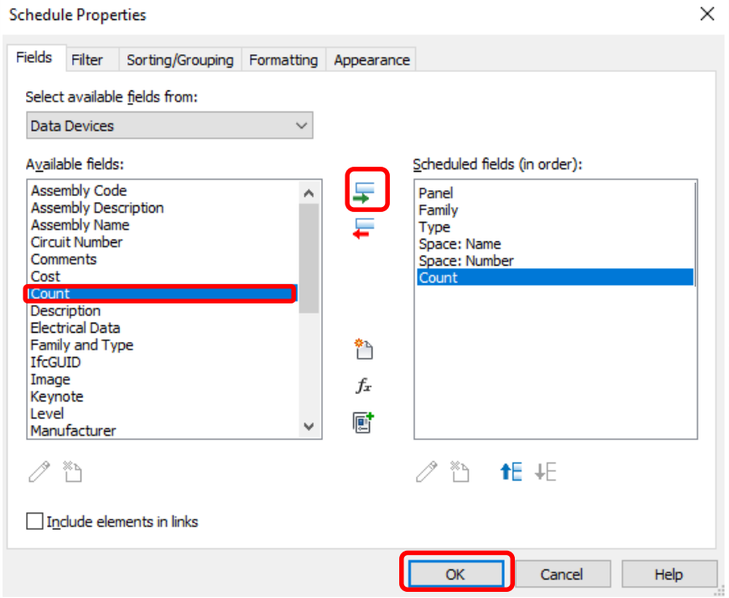

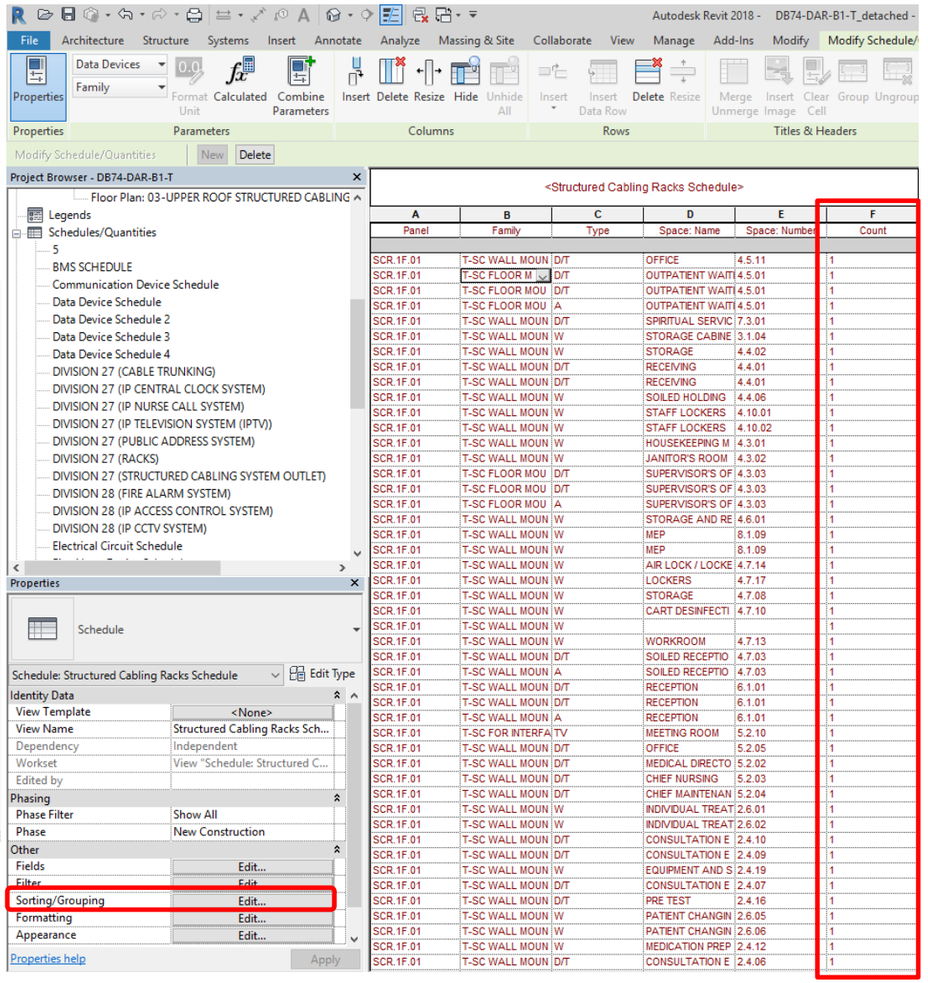

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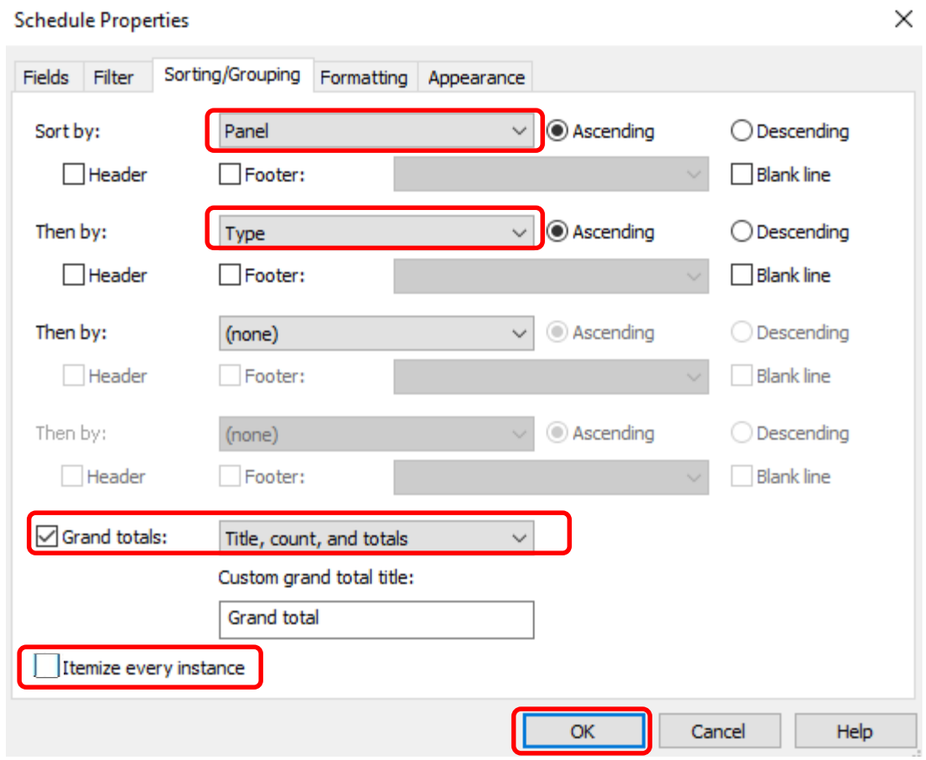

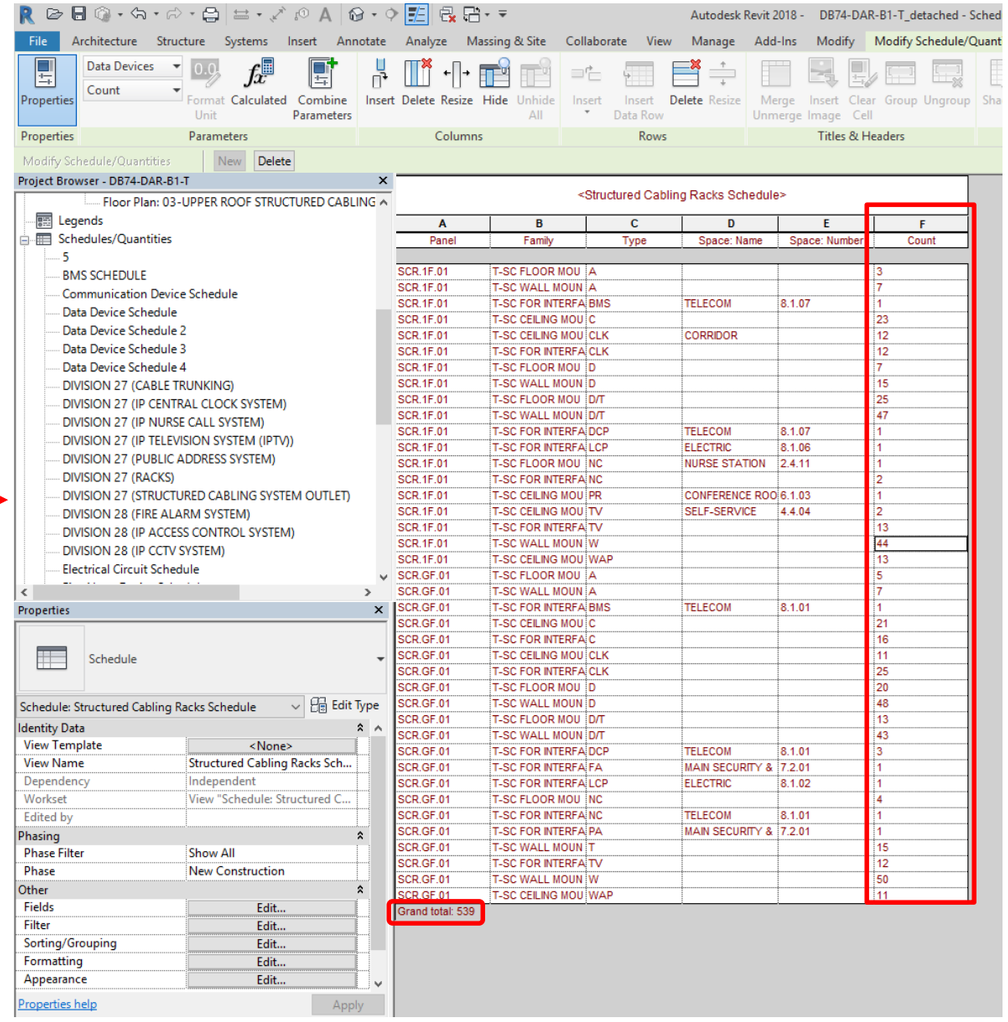

Always Remember

- The power of BIM is the Connector.
- Work on Revit as BIM intelligent tool not as AutoCAD tool.

Thank You!

For follow up questions or more information about BIM or in ICT field, Please feel free to contact me.

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