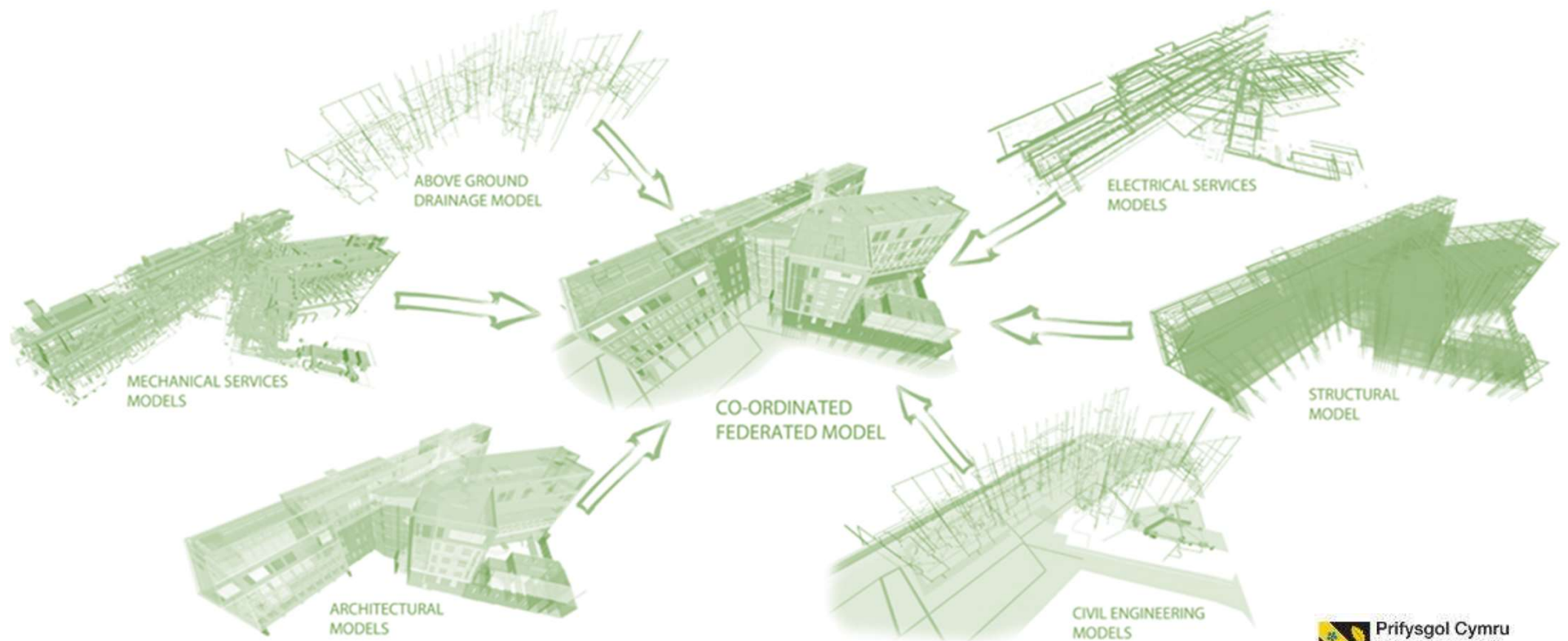


Building Information Modelling



www.onecreativeenvironment.com

Non Standard Modelling

Families, Sweeps & Reveals
In Place Mass

Exercise 5

PHASING:

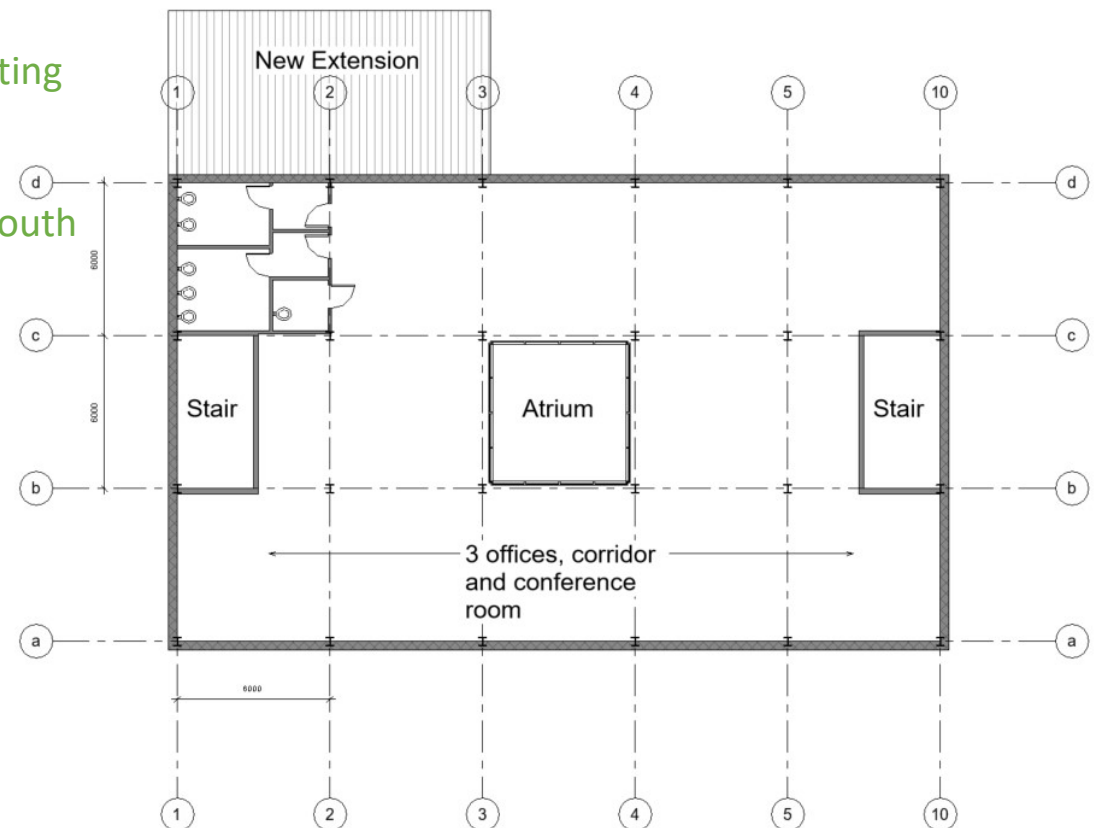
2 storey Office block refurbishment and extension.
Remove existing WC from ground and first floor to creating work open plans office space. New WCs and Kitchen /breakout facilities on both floors of the extension.
3 new offices access corridor and conference room to south elevation with conference room.

Set up your levels in Elevation view.
Distance between levels of 3500mm

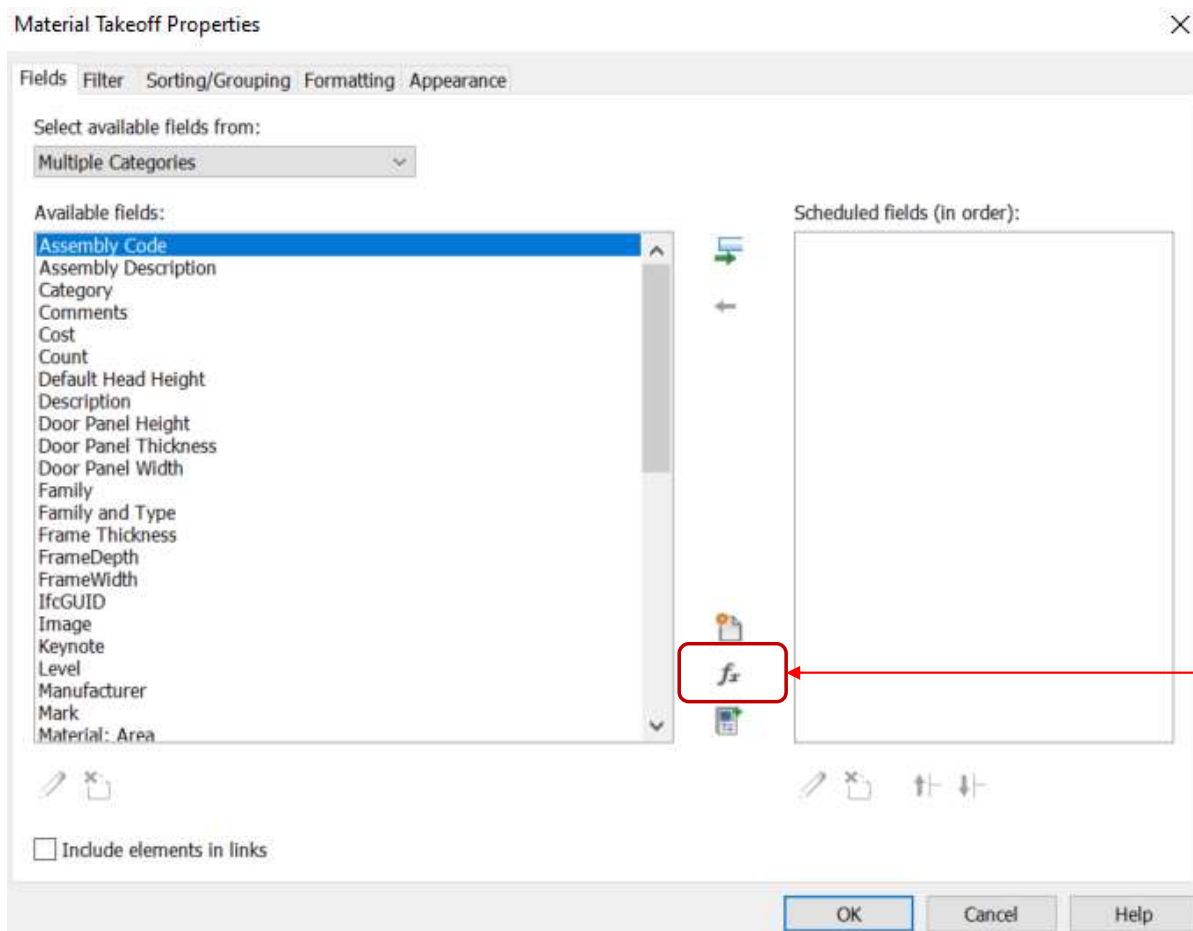
Set up Phasing (existing proposed and works plans)
Set up Grids

Assumptions:

External walls your choice.
Flat roof. External Windows distributed evenly per bay.
Framed structure with columns at 6m centres
Staircase at either end with central glazed atrium.
Apply, room names, legends, grids. create plans, section and elevation views. 3D views existing and proposed



‘Multi Category Material Takeoff’ Schedules can be produced.
Cost of materials can be applied and totals calculated.



Add fields and 'Fx' calculated formula

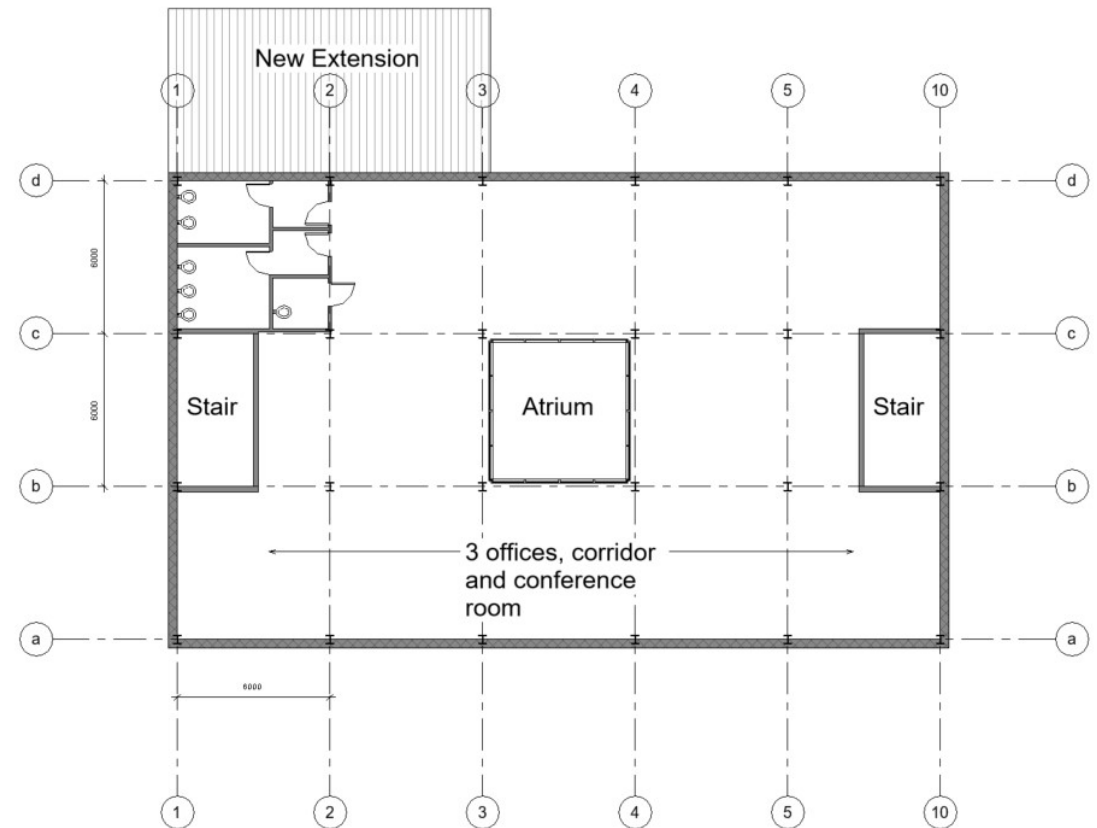
Material Area * Material Cost/1m²

Or

Material Volume * Material Cost/1m³

Exercise 5 cont...

- ADD SHEETS
- ADD GROUPS
- ADD A DOOR SCHEDULE
- ADD A MULTI CATEGORY SCHEDULE



Week 14:

- Collaboration and Revit Link Files
- Revit Basics + 'Formatting'





AUTODESK®
REVIT®

Collaboration



revizto™

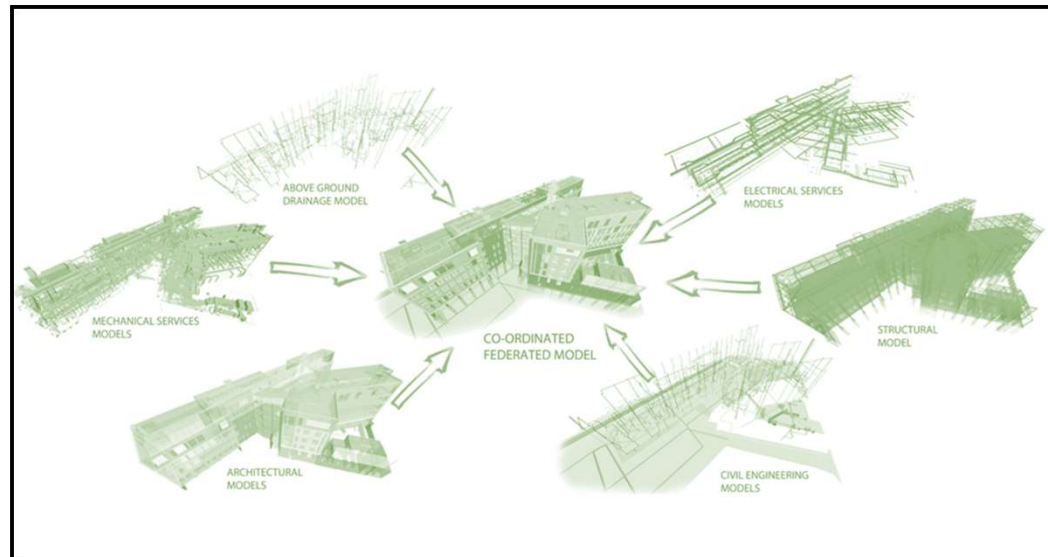


36-CENTRAL
FILES

Collaboration

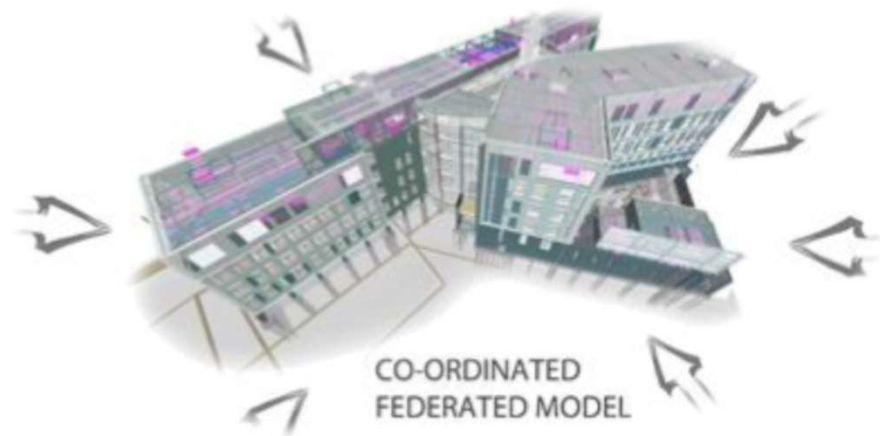


41-WORKSETS



Revit Link Files and Shared Coordinates

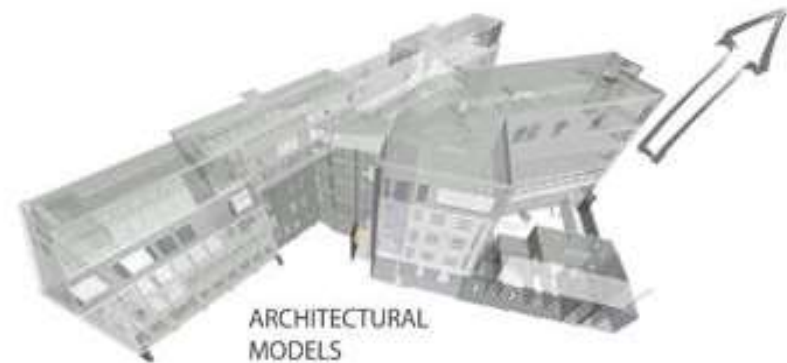
Tools such as Revizto enable a collaborative process using
2D and 3D Modelling with Intelligent Data



<https://revizto.com/en/>
<https://youtu.be/OnG3-0NqLr4>

How can we create data rich intelligent models?

Tools such as Revit enable intelligent 3D Modelling that can be linked into a BIM Process.



Remember a Revit Model alone is not BIM

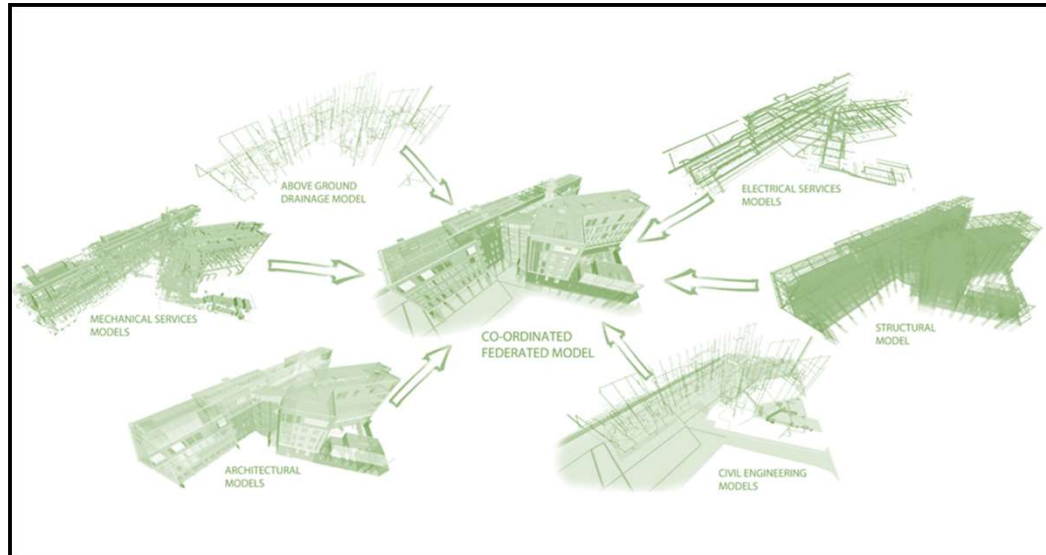


36-CENTRAL
FILES

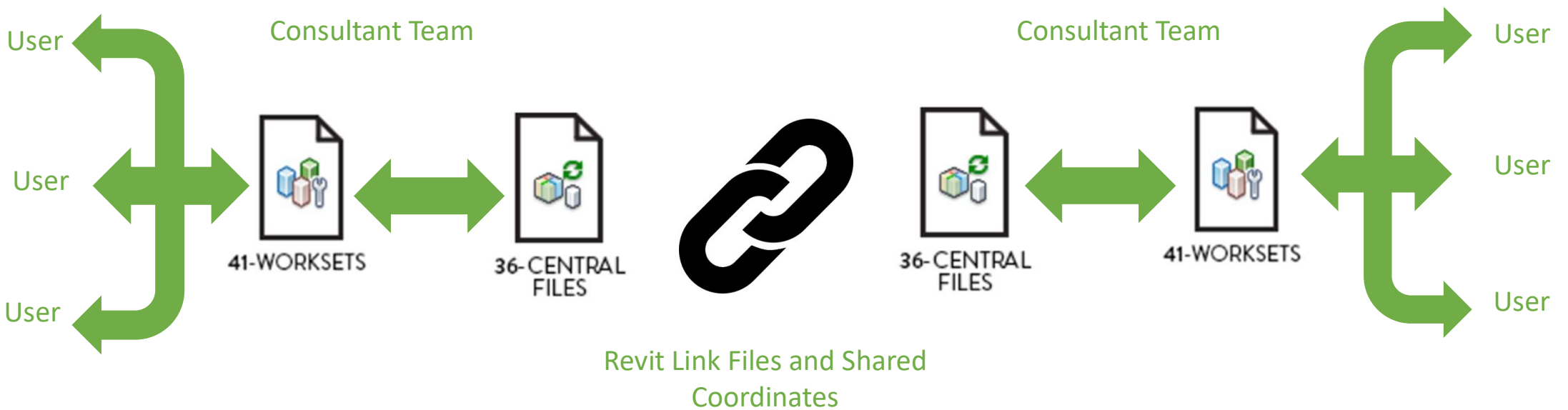
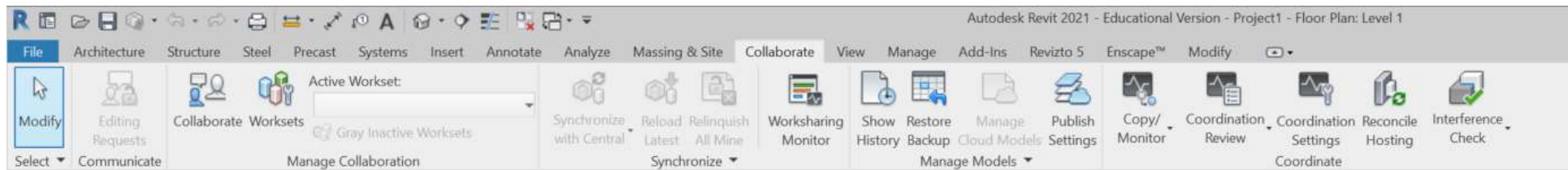
Collaboration

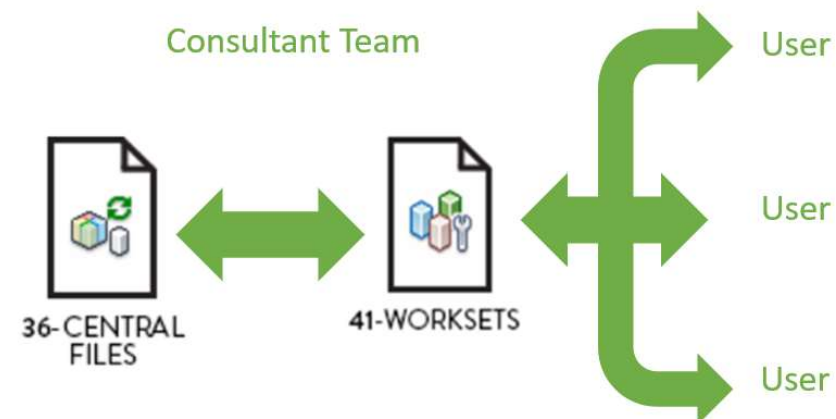
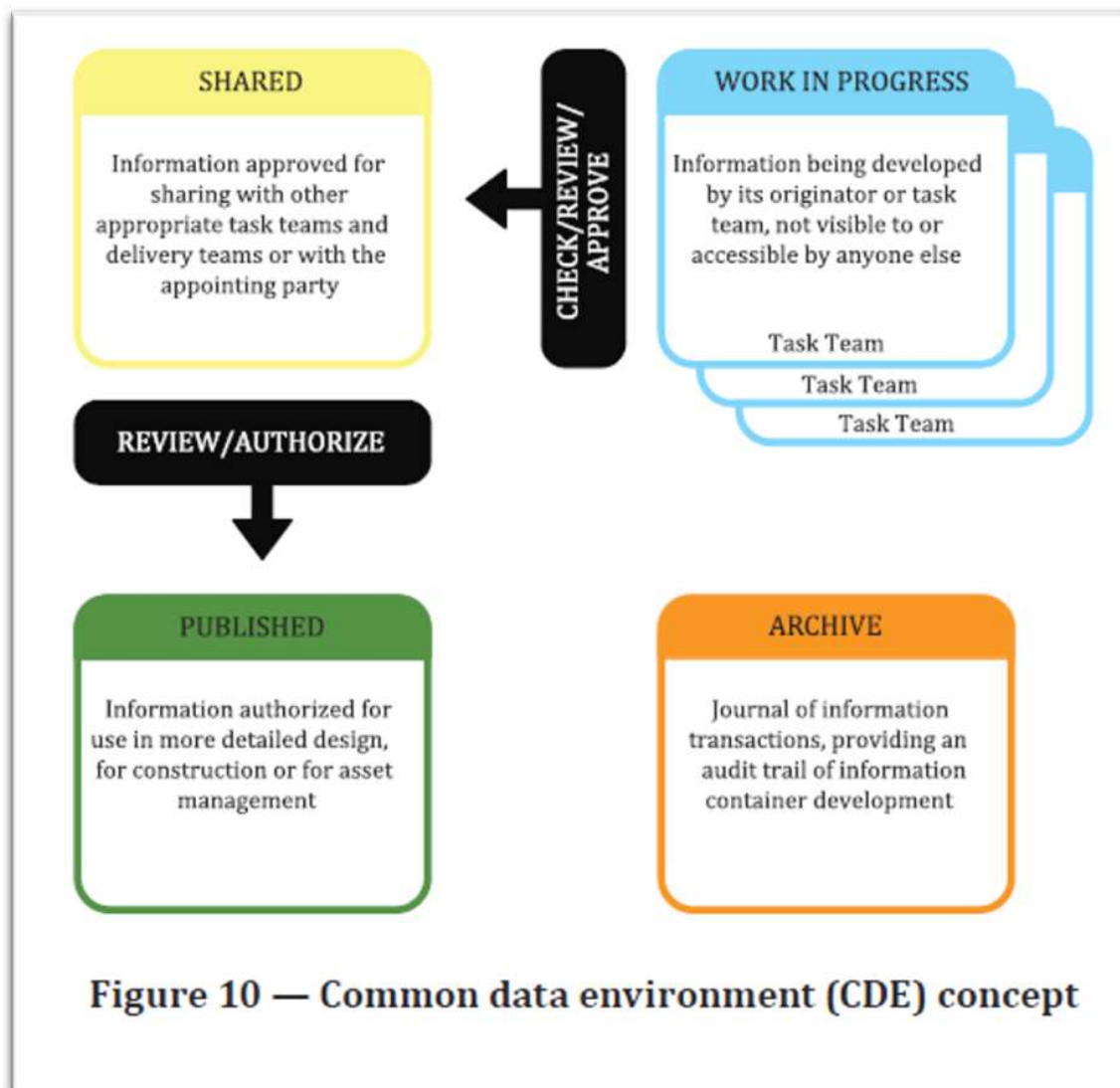


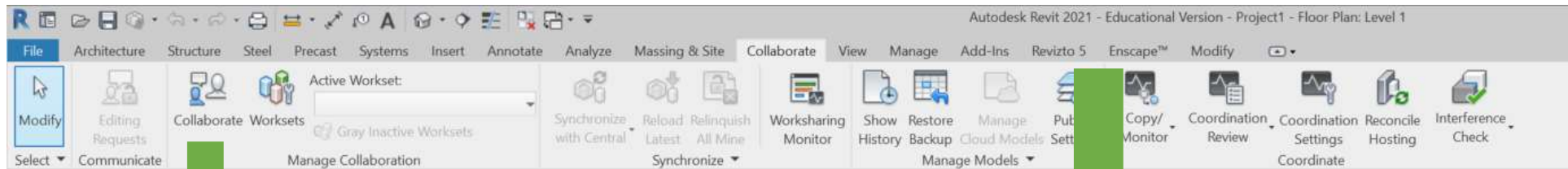
41-WORKSETS



Revit Link Files and Shared Coordinates





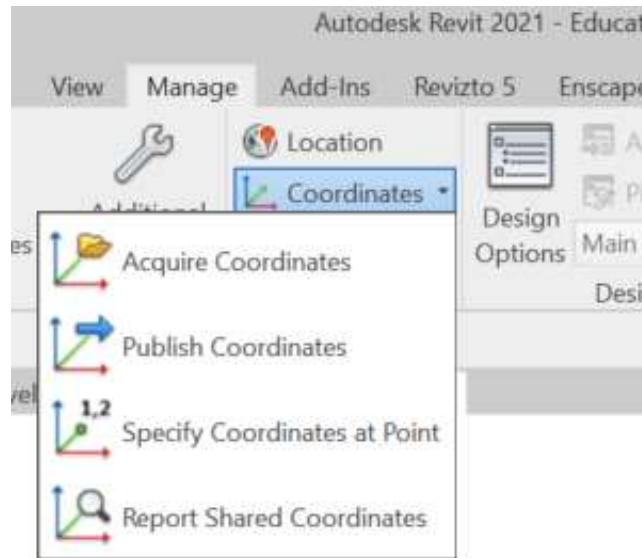


Creates a Central Model.
Server based (network)
Or
Cloud Based (BIM 360)

Plug Ins are also available
for 3rd party Collaborative
platforms. Such as Revizto



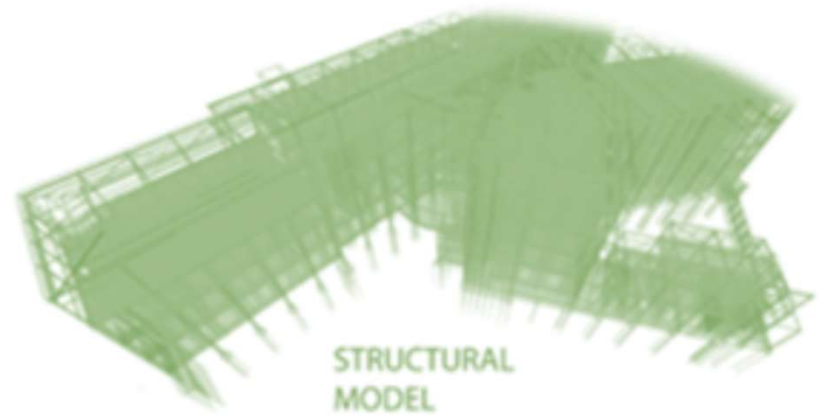
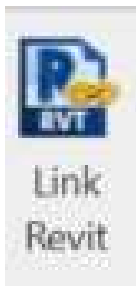
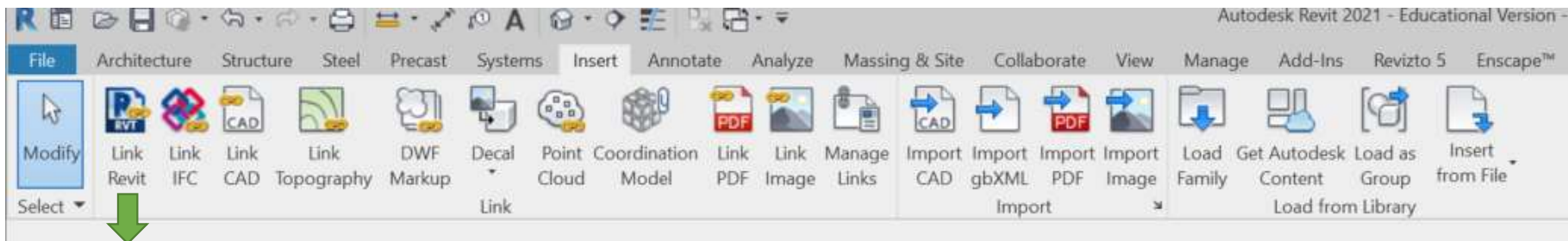
Revit Link Files and Shared Coordinates



It is important that coordinates are agreed at the outset of a Project. Revit Link files can share Coordinates



Agreed Coordinates can be specified in the BEP



Class exercise

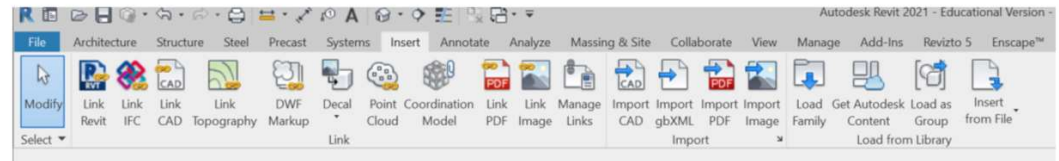
Start a New Project and use the 'Metric – Architectural Template'

- Draw a simple building with four walls a floor and roof.
- Save the Project – Arch WIP

Start a New Project and use the 'Metric – Structural Template'

- Link 'Arch WIP' to your model (internal origin to internal origin)
- Draw some columns and beams within the model
- Save the project - Structural WIP.

Open Project 'Arch WIP' and link 'Structural WIP' to the project. (internal origin to internal origin)



*The models are
now linked*

*But what about real life coordinates?
What if we have a Survey Point?*



15-SITE

True North and Project North

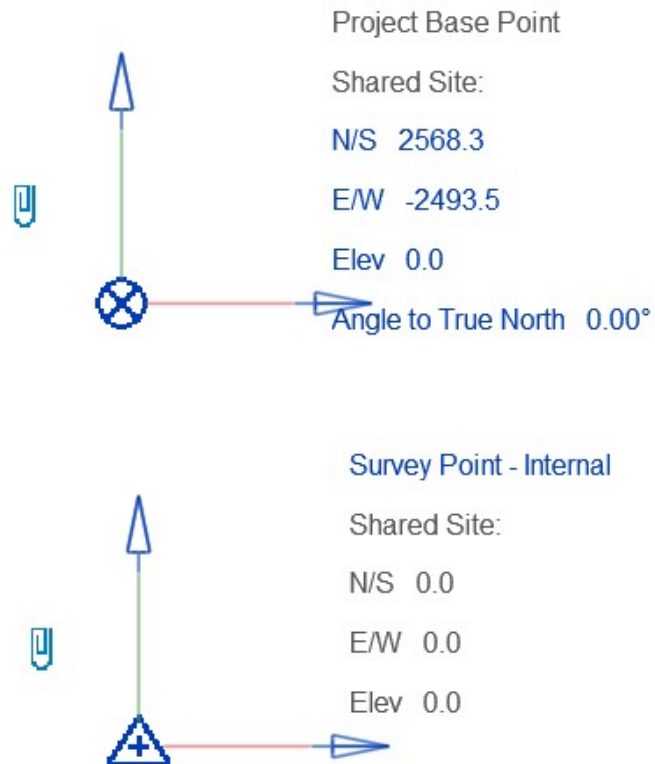


Understanding the use of the coordinate system in Revit is essential for BIM.

Shared coordinates / Project Base point from the outset enable consultants to coordinate information.

Although it helps coordination, it does not help presentation.

Revit can use True and Project North to orientate plans.





15-SITE

Properties

Floor Plan

Floor Plan: Site Edit Type

Graphics

View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Coarse
Parts Visibility	Show Original
Visibility/Graphics Ov...	Edit...
Graphic Display Opti...	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline

[Properties help](#) Apply

Properties

Floor Plan

Floor Plan: Site Edit Type

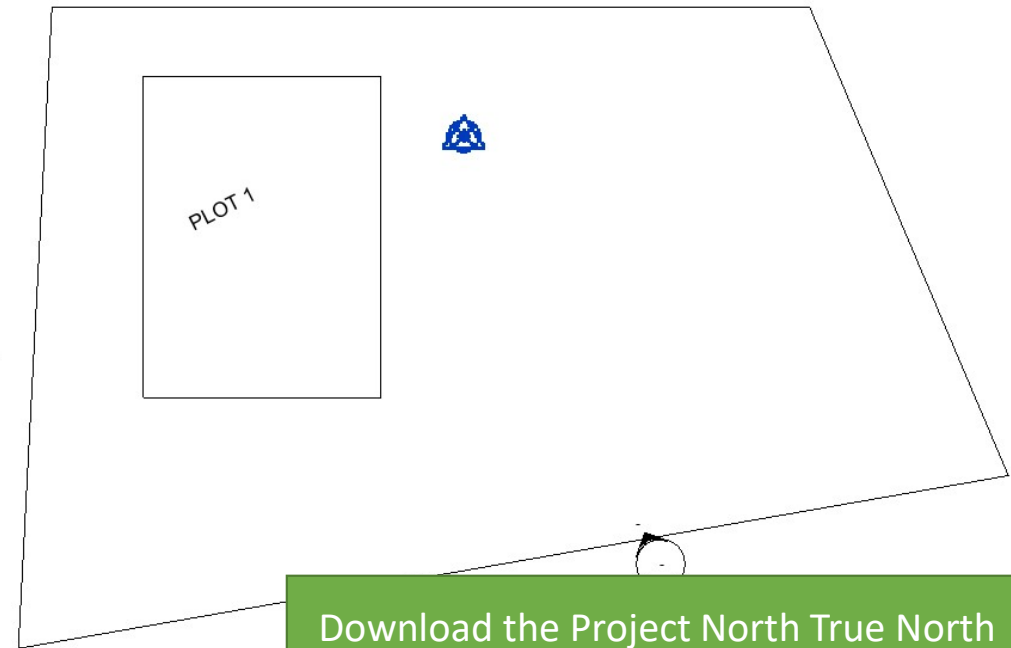
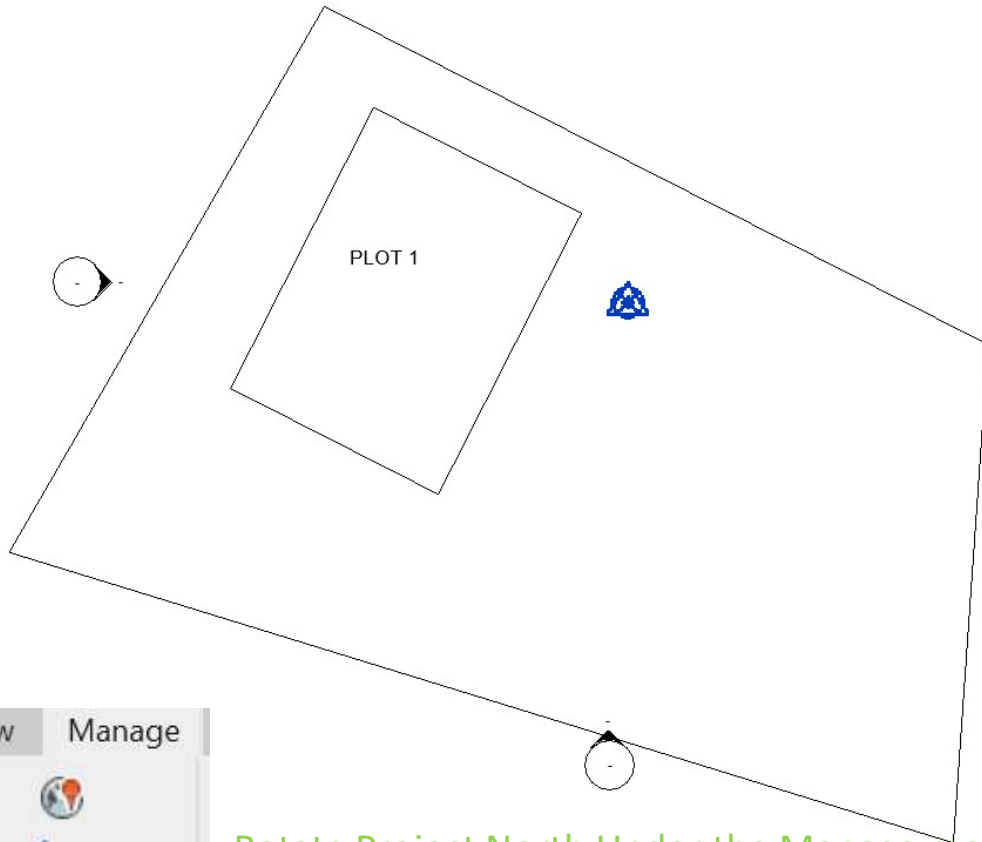
Graphics

View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Coarse
Parts Visibility	Show Original
Visibility/Graphics Ov...	Edit...
Graphic Display Opti...	Edit...
Orientation	True North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline

[Properties help](#) Apply

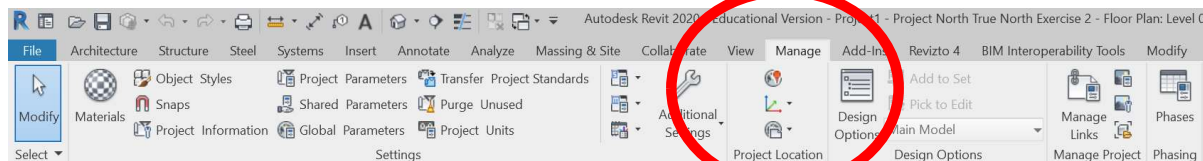
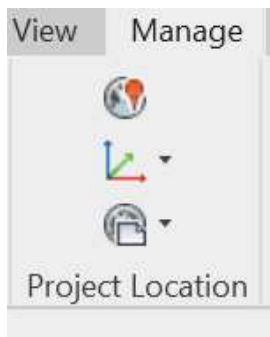
TRUE NORTH

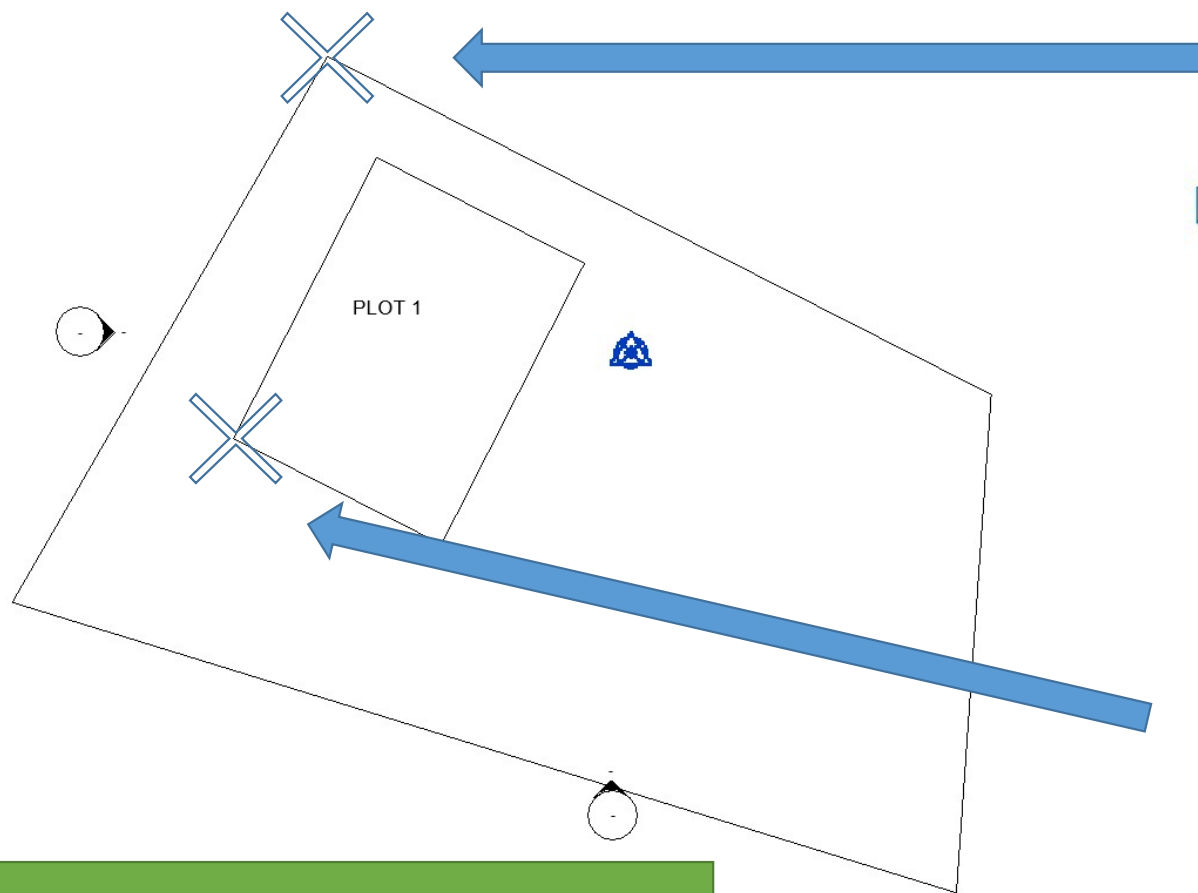
PROJECT NORTH



Rotate Project North Under the Manage menu

Download the Project North True North Exercise Projects 1 & 2 Teams Files





Relocate Project Base Point and Survey Points

Survey Point - Internal

Shared Site:

N/S 0.0

E/W 0.0

Elev 0.0

Project Base Point

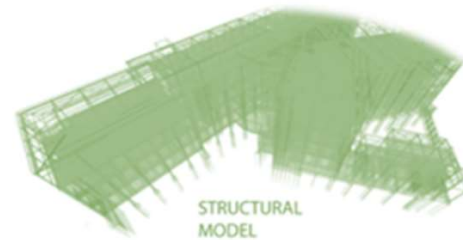
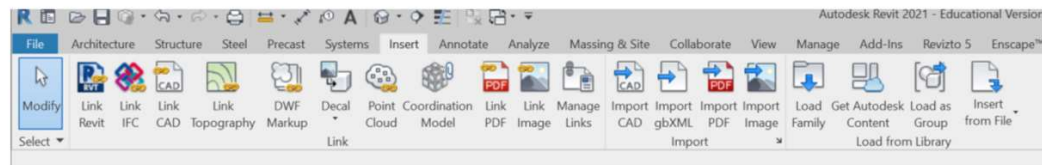
Shared Site:

N/S 2568.3

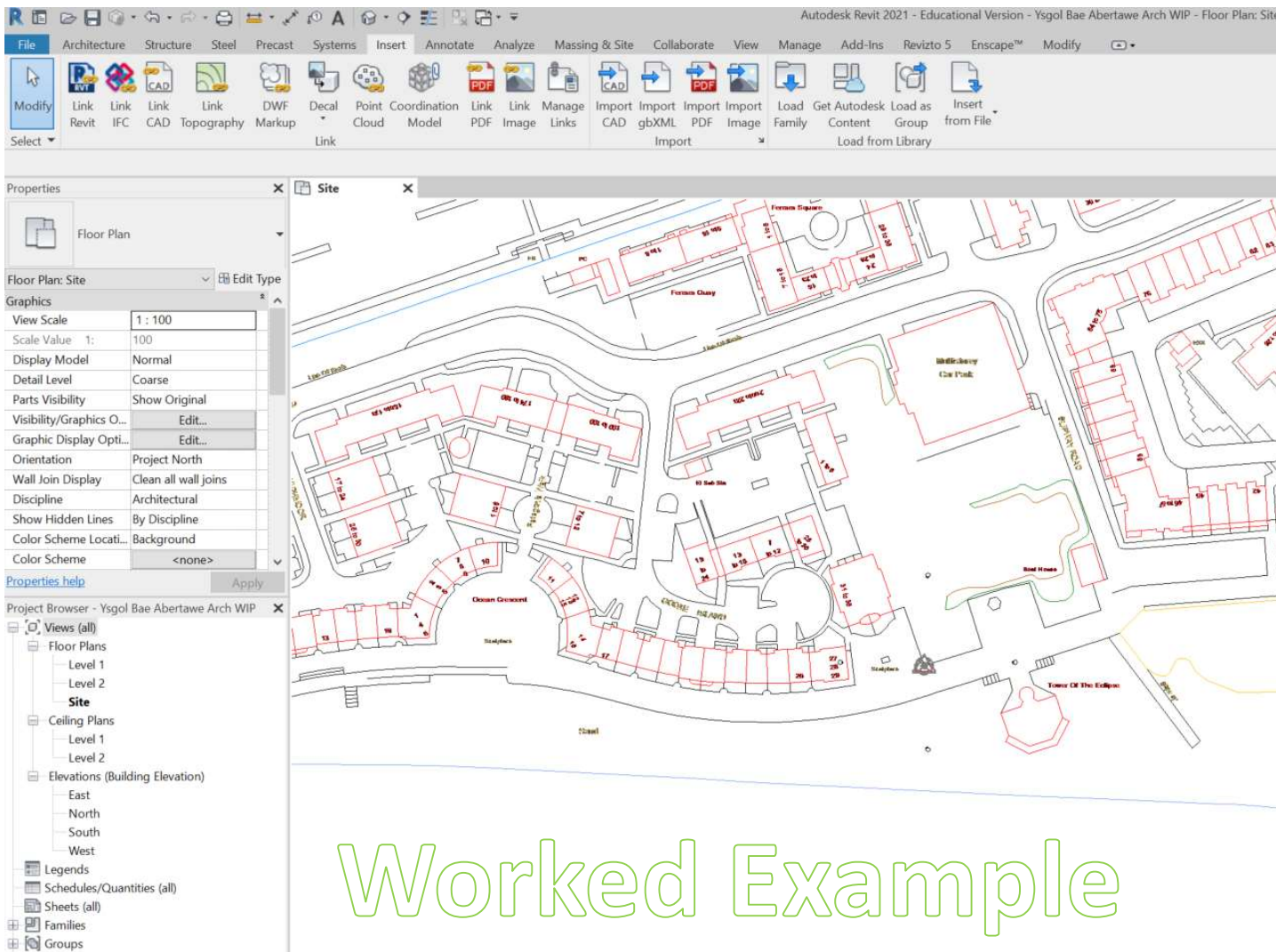
E/W -2493.5

Elev 0.0

Angle to True North 0.00°



Models can be linked and use the same Project Base Point and Survey Point



Survey Points

192364.7N
265976.9E
0 Elevation

Worked Example

the basics: plus

Formatting, Visibility



Properties

Floor Plan

Floor Plan: Level 0

Graphics

View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Fine
Parts Visibility	Show Original
Visibility/Graphics Ov...	Edit...
Graphic Display Opti...	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline

Properties help

Apply

Visibility/Graphic Overrides for Floor Plan: Level 0

Visibility Properties

Model Categories

Annotation Categories

Analytical Model Categories

Imported Categories

Filters

☒ Show model categories in this view

Filter list: <show all>

Visibility	Projection/Surface			Cut		Halftone	Detail Level
	Lines	Patterns	Transparency	Lines	Patterns		
☒ Air Terminals	Override...		Override...			☐	By View
☒ Areas						☐	By View
☒ Cable Tray Fittings						☐	By View
☒ Cable Trays						☐	By View
☒ Casework						☐	By View
☒ Ceilings						☐	By View
☒ Columns						☐	By View
☒ Communication Devices						☐	By View
☒ Conduit Fittings						☐	By View
☒ Conduits						☐	By View
☒ Curtain Panels						☐	By View
☒ Curtain Systems						☐	By View
☒ Curtain Wall Mullions						☐	By View
☒ Data Devices						☐	By View
☒ Detail Items						☐	By View
☒ Doors						☐	By View
☒ Duct Accessories						☐	By View
☒ Duct Fittings						☐	By View
☒ Duct Insulations						☐	By View

AllNoneInvertExpand All

Categories that are not overridden are drawn according to Object Style settings.

Object Styles...

Override Host Layers

☐ Cut Line Styles

Edit...

OK

Cancel

Apply

Help

If a category is unchecked, it will not be visible.

Graphic Display Options

▼ Model Display

Style: Hidden Line

☒ Show Edges

☐ Smooth lines with anti-aliasing

Transparency: 0

Silhouettes: <none>

▼ Shadows

☒ Cast Shadows

☐ Show Ambient Shadows

▼ Sketchy Lines

☐ Enable Sketchy Lines

Jitter: 0

Extension: 0

▼ Depth Cueing

☐ Show Depth

Fade Start/End Location: 0 100

Near Far

Fade Limit (%): 0

Light Dark

▼ Lighting

Scheme: Exterior: Sun only

Sun Setting: Sunlight from Top Right

Artificial Lights: Artificial Lights...

Sun: 30

Ambient Light: 0

Shadows: 50

► Photographic Exposure

▼ Background

Background: Gradient

Sky Color: RGB 189-209-208

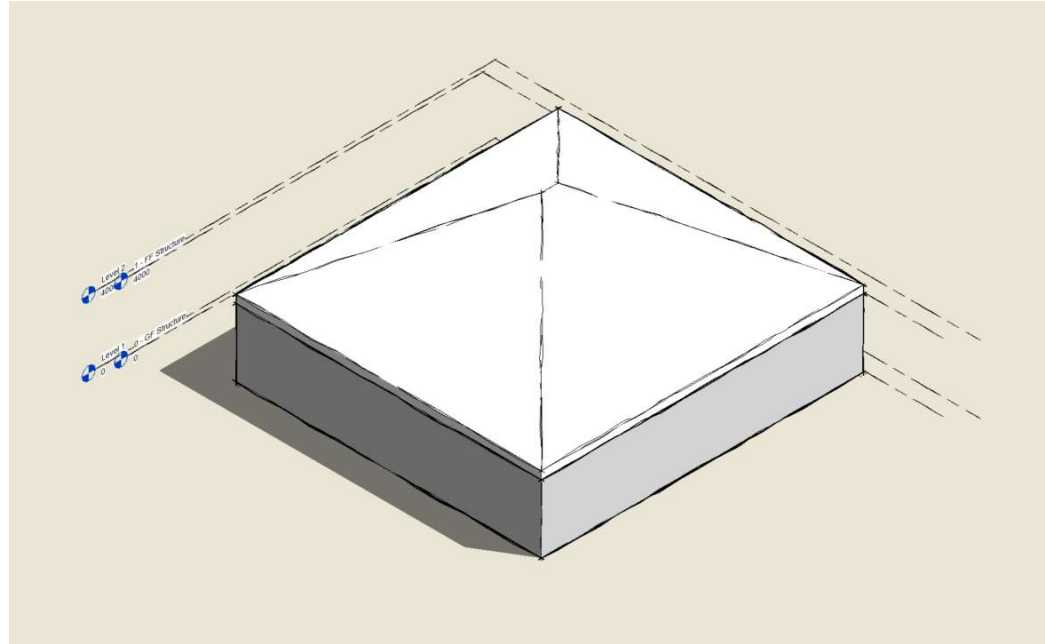
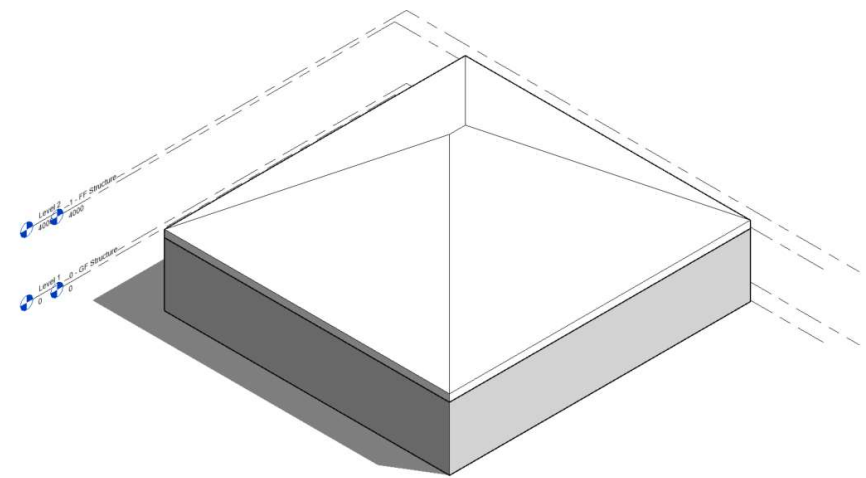
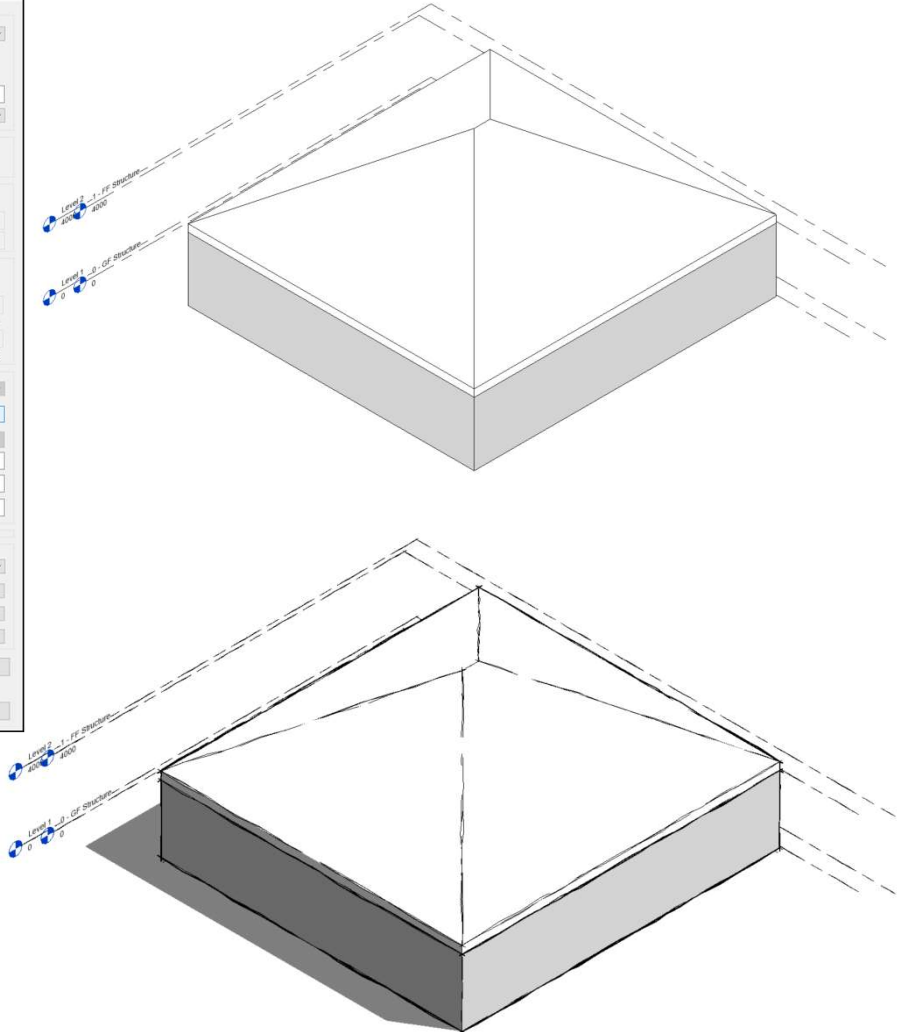
Horizon Color: RGB 242-242-242

Ground Color: RGB 173-168-155

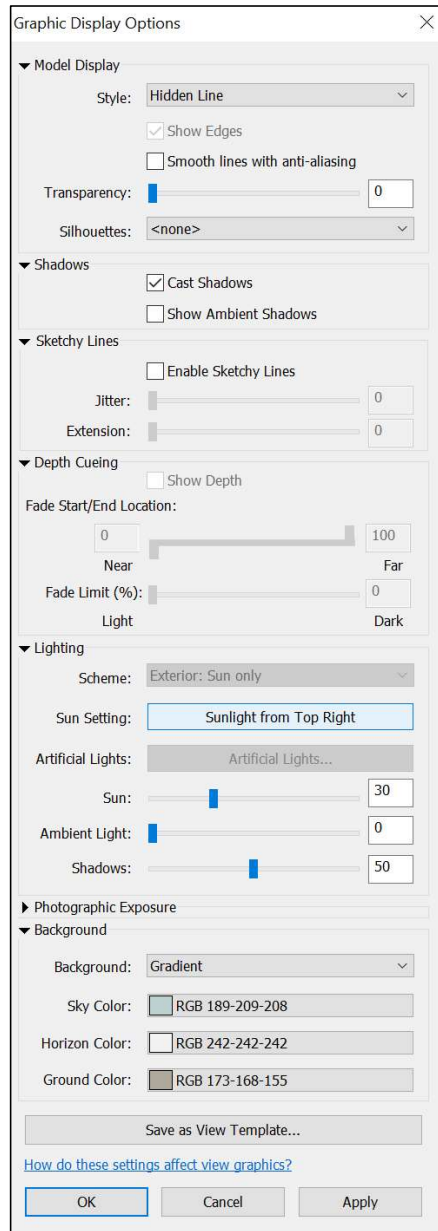
Save as View Template...

[How do these settings affect view graphics?](#)

OK Cancel Apply



Graphic display Options



Change transparency / emphasise lines

Cast shadows and add ambient shadows to view

Shows sketchy lines

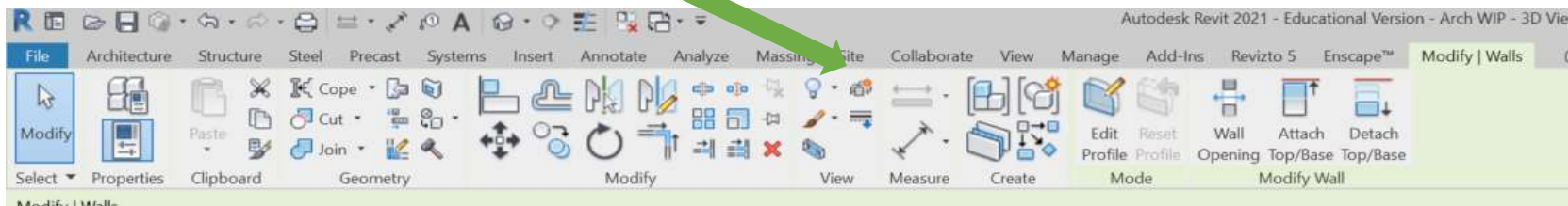
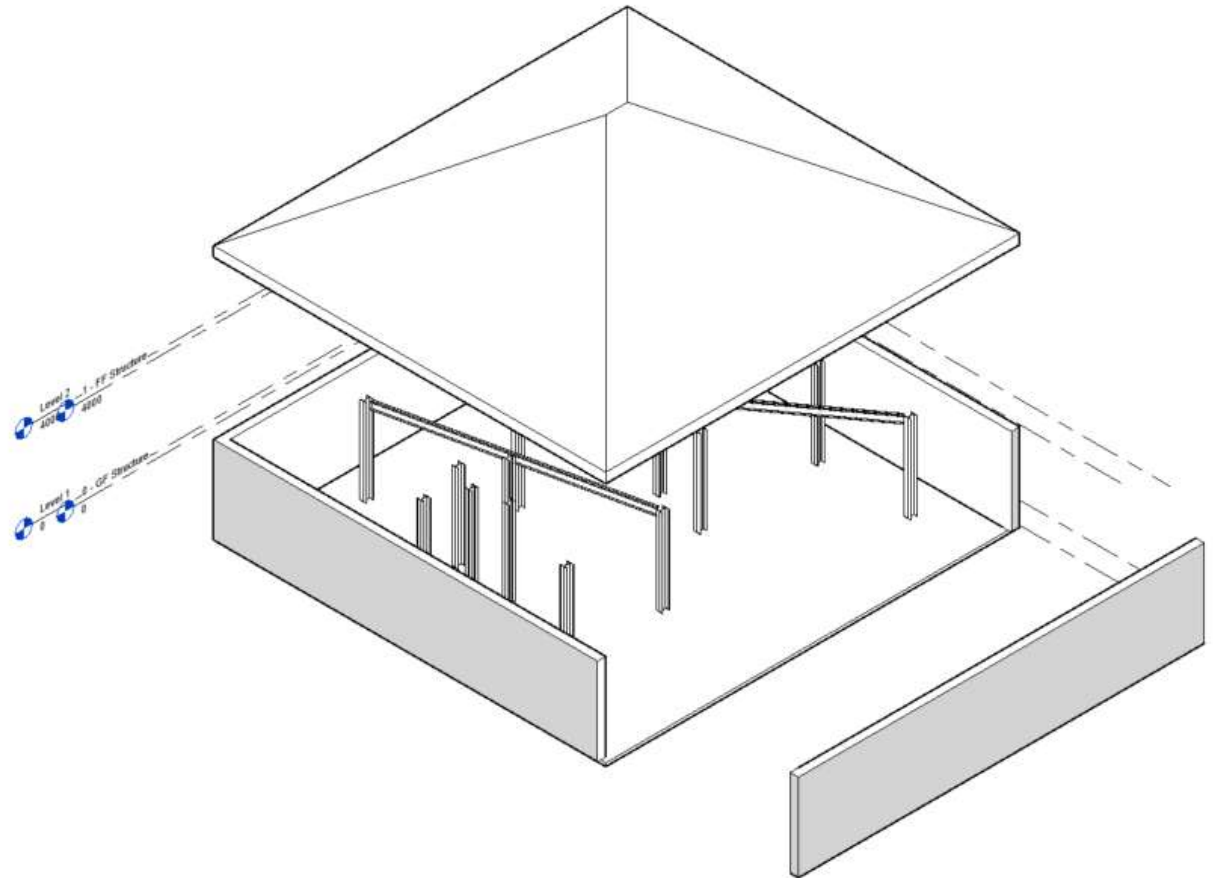
Adding Depth and Fade to view

Adjusting lighting and intensity of light

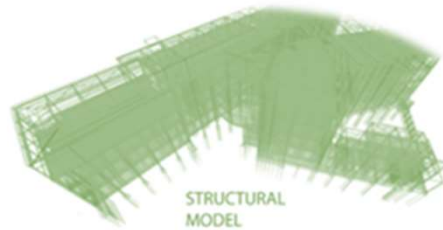
Add a generic background to view

Exploded Views

Right Click and duplicate the 3d View.
Rename 3d Exploded.
Select and element to move
When in the modify mode (ribbon goes green)
Use the Displacement tool to move an element
Move elements to show exploded view.

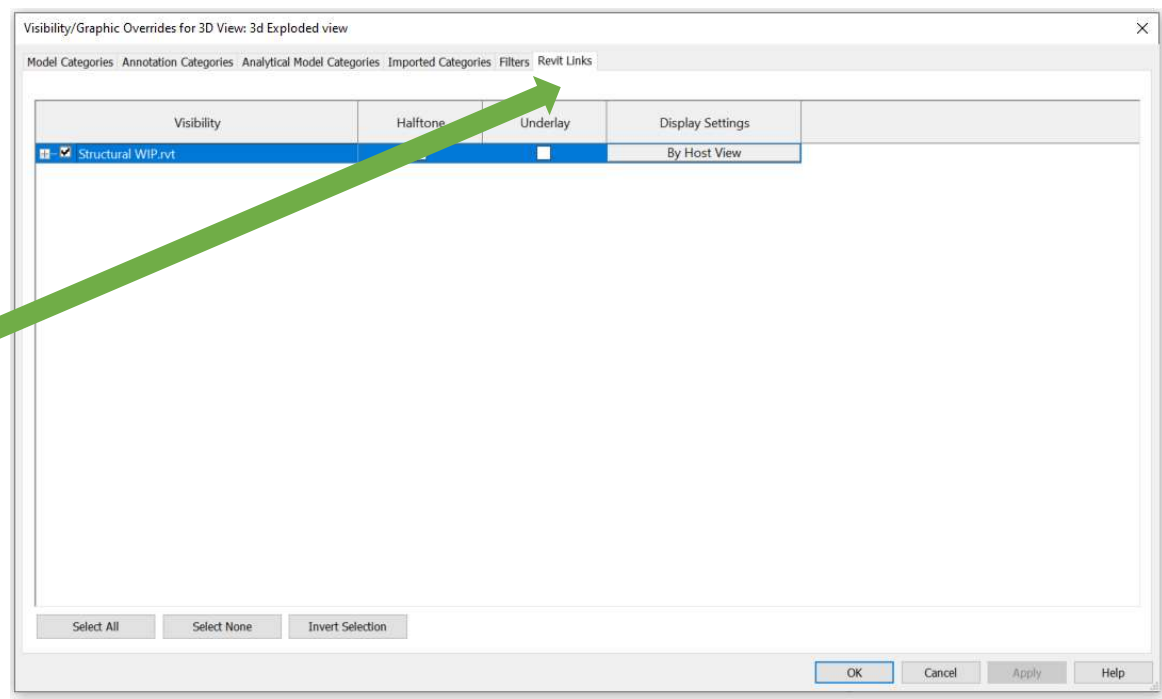
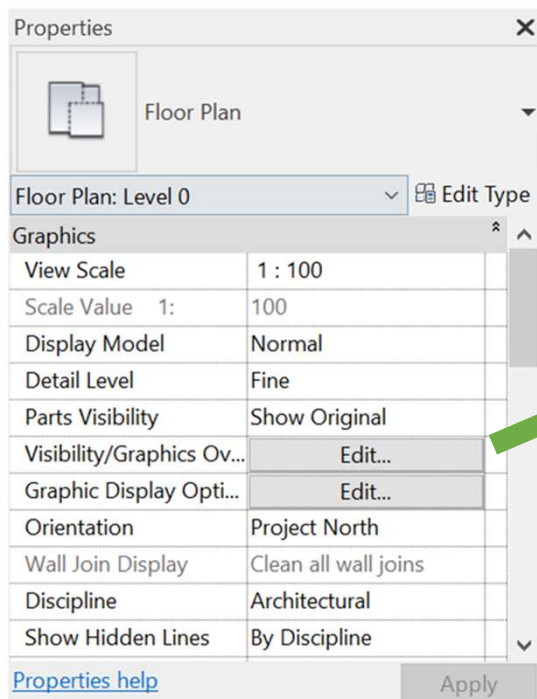


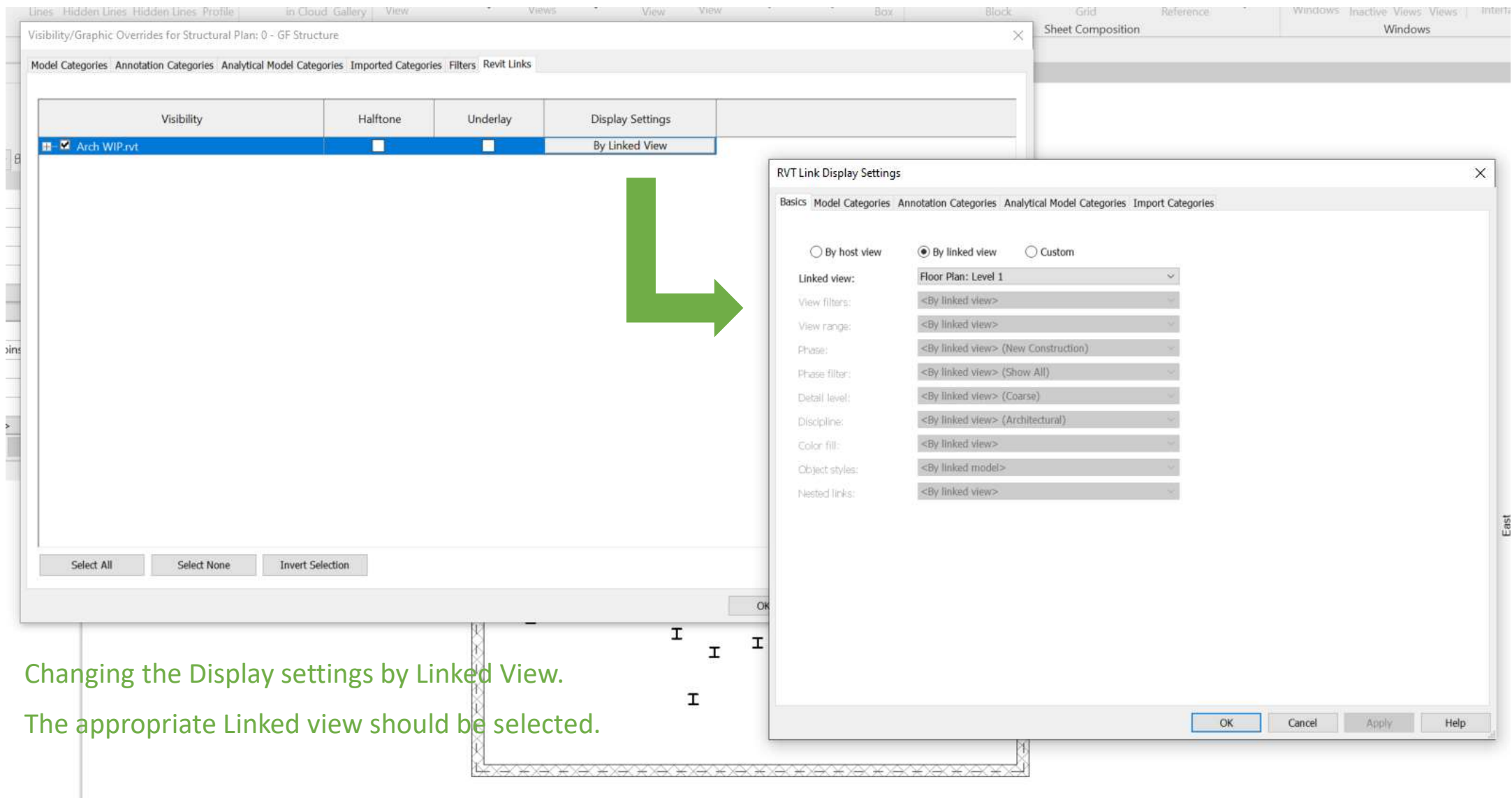
Visibility in Linked Views



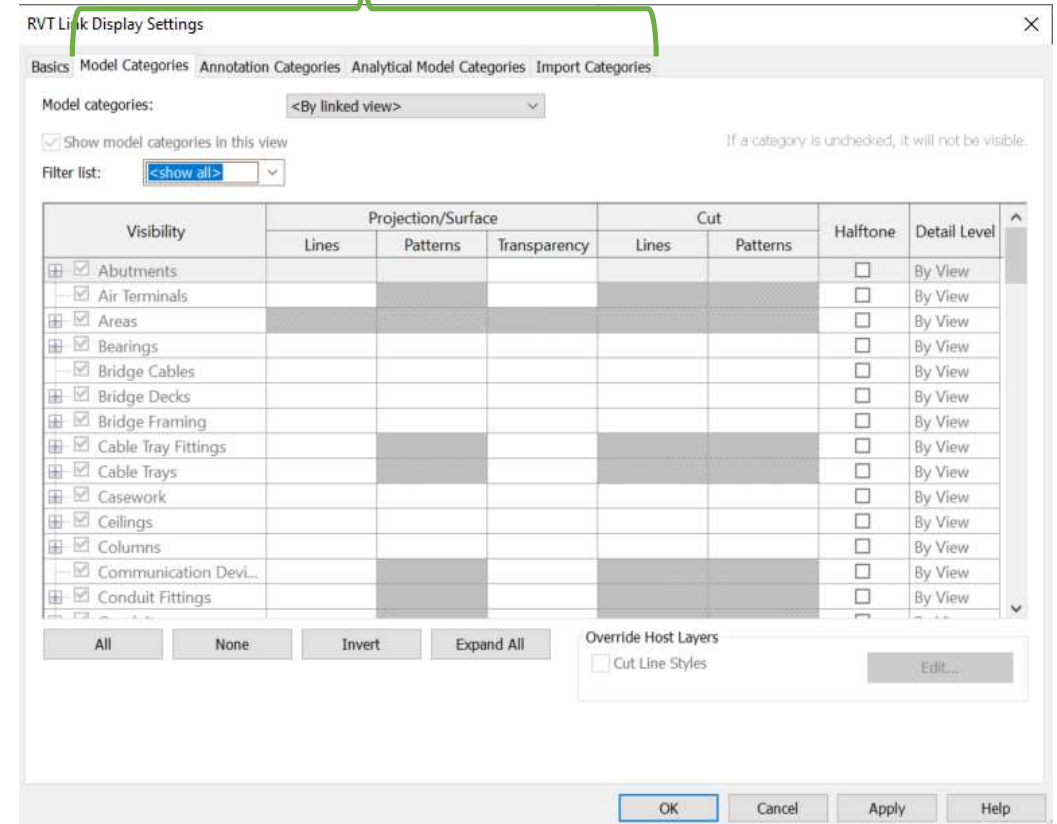
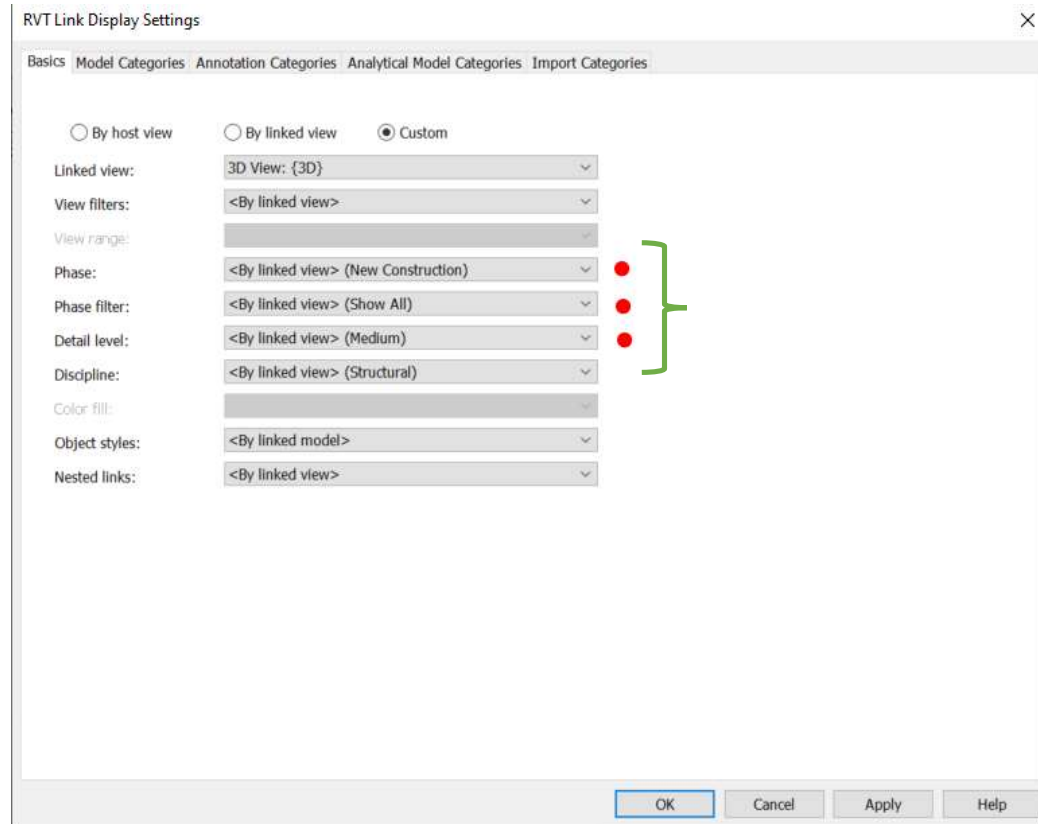
Revit applies filters to different design templates to simplify the view in the model.

For collaboration Revit Link files can be shown and customised per view. The views are shown 'by host' or 'by link'

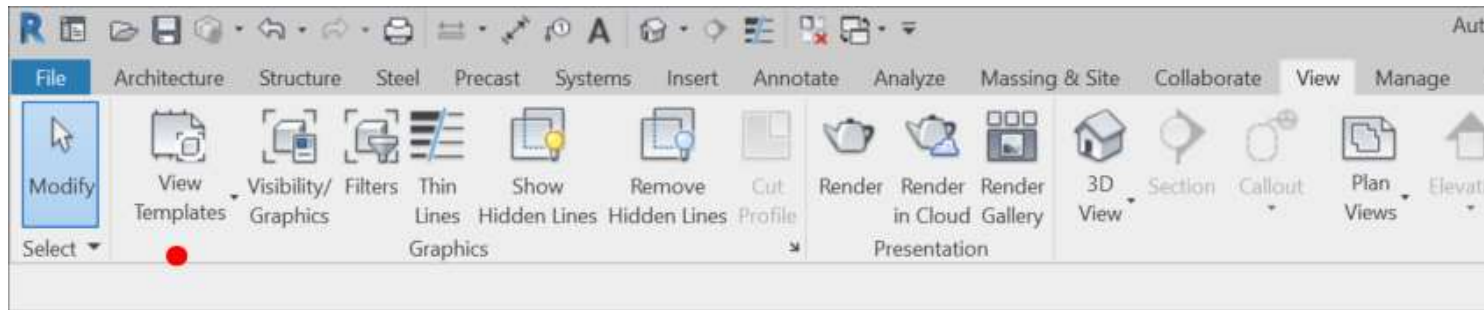




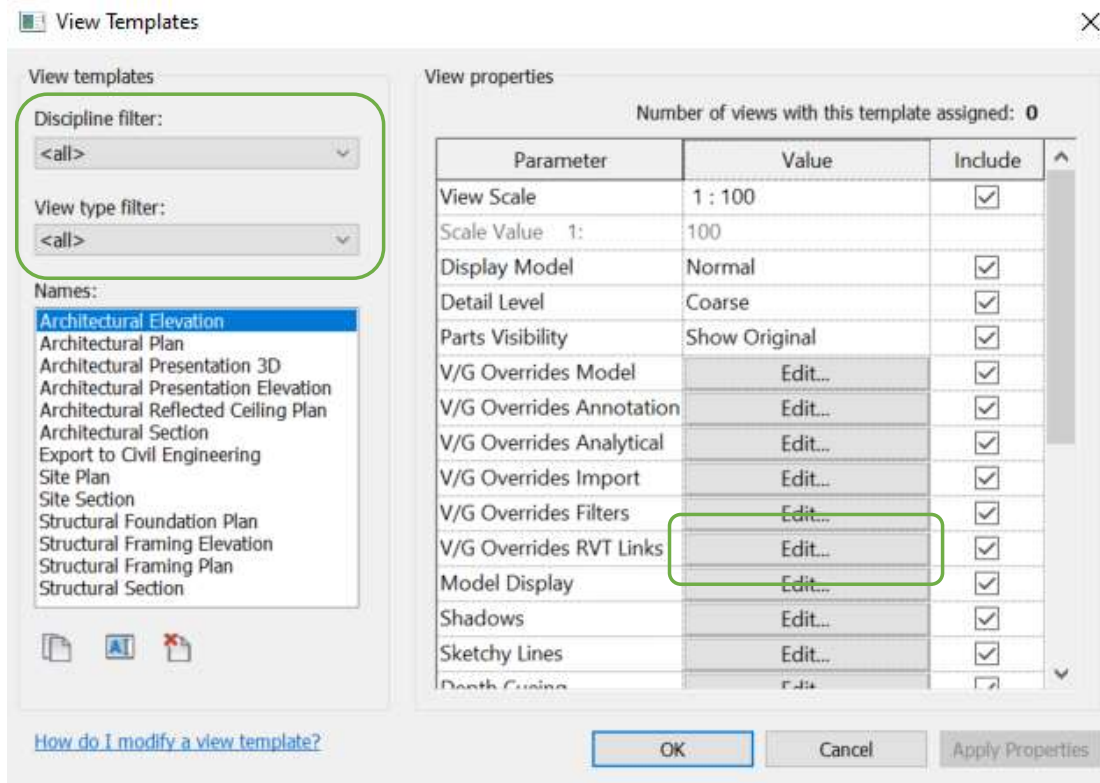
Revit allows customisation of categories within linked views



Further customisation can be applied for Phasing and Detail.



View templates >
Manage Templates



For larger more complex models View templates can be set for multiple views.

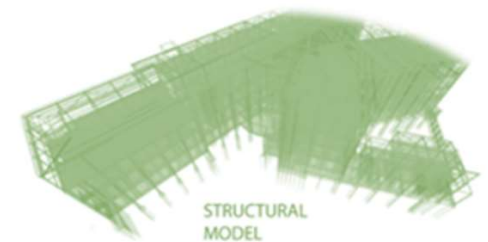
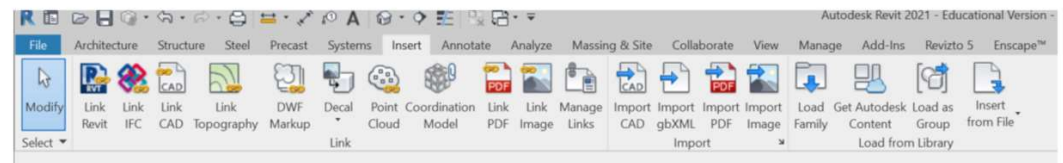
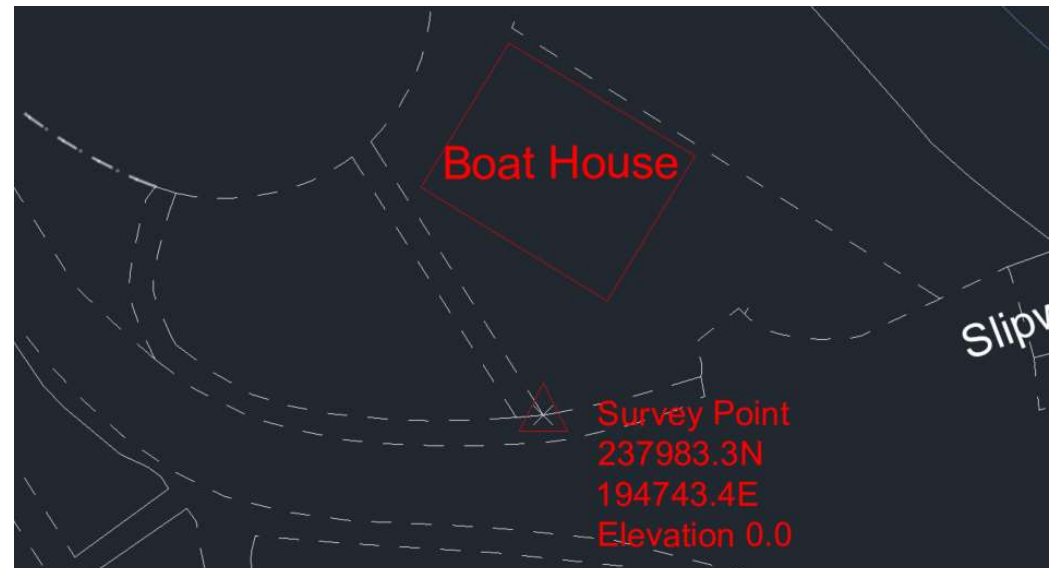
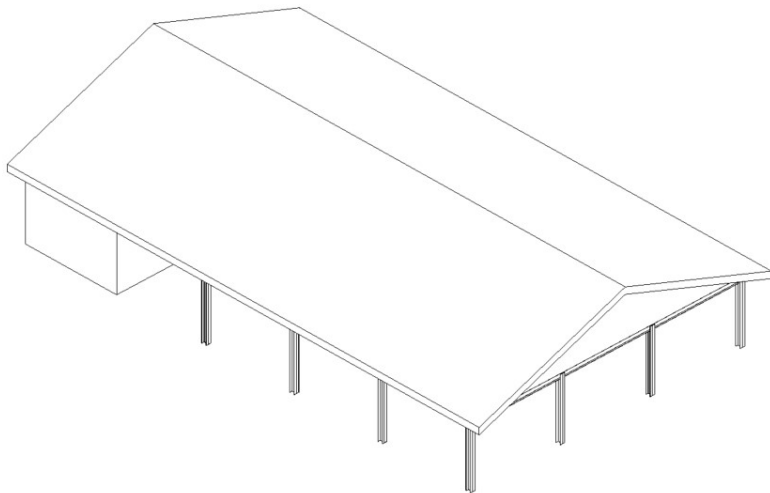
Filters can be applied per discipline or by view type. However with multiple models this can be confusing and Display Settings should be reviewed on a view by view basis.

Exercise 7

Boathouse revisited. (for some)

Create Architectural and Structural Models

Download the OSMAP from Teams and use the survey points given.





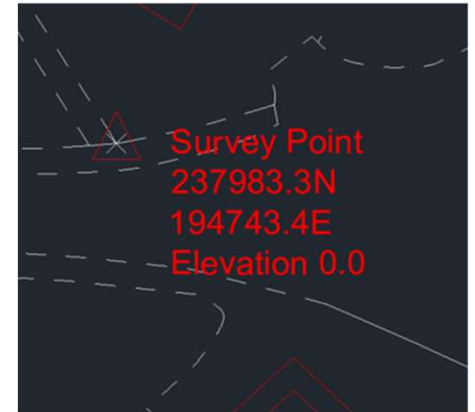
Architectural Model

- Start a new project in REVIT – ‘default metric template’
 - Set up levels
 - Set up Project Base Point and Survey Point to the given coordinates
 - Insert OSMAP in site view
 - Unpin OSMAP and relocate to the Project Base Point and Survey Point
 - Set up project north
 - Load Splash Page Titleblock
 - Load UWTSD Titleblock
- SAVE file (with appropriate naming) and Close

Structural Model

- Start a new project in Revit – ‘structural metric template’
 - Set up levels
 - Insert Revit Link file (above), by ‘internal origin to internal origin’
 - Relocate Project Base Point and Survey Point to the to match those of the Linked File
 - Load Splash Page Titleblock
 - Load UWTSD Titleblock
- SAVE File (with appropriate naming) and Close

*Reopen the Architectural model and Insert Revit Link by
‘Project base point to Project base point’



NOW START DRAWING