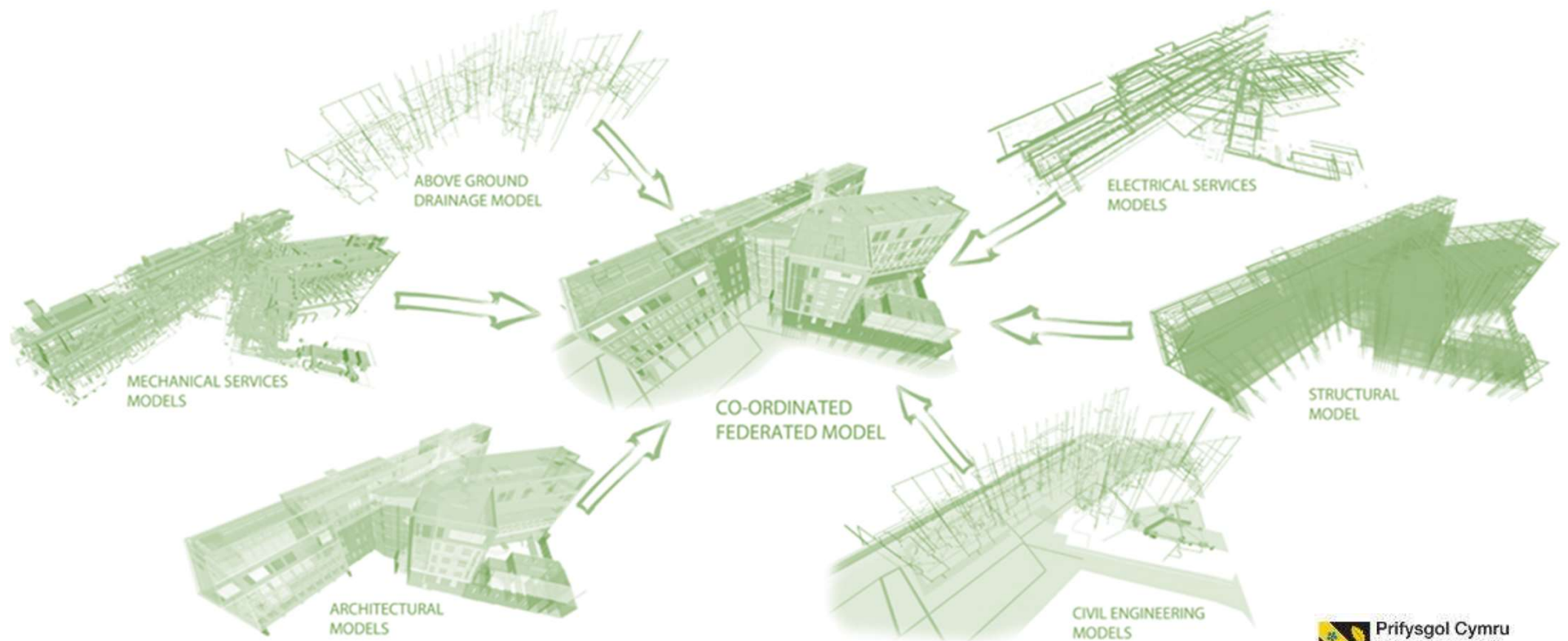


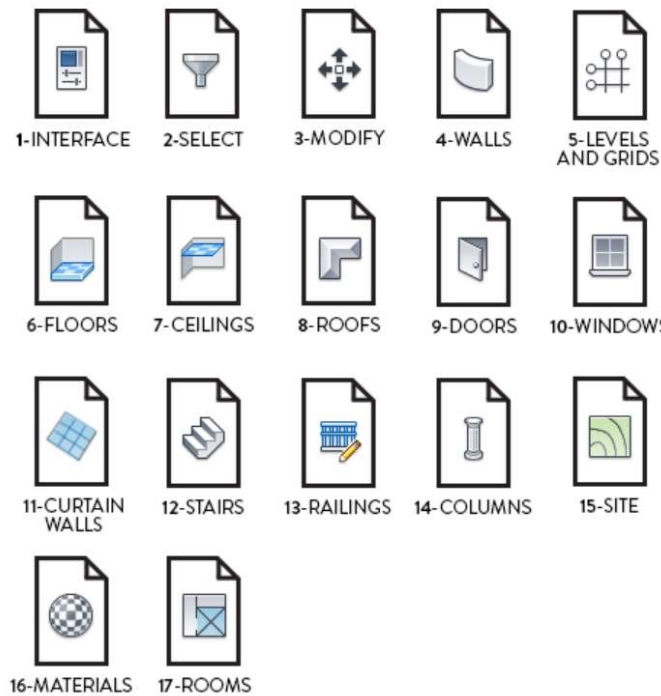
Building Information Modelling



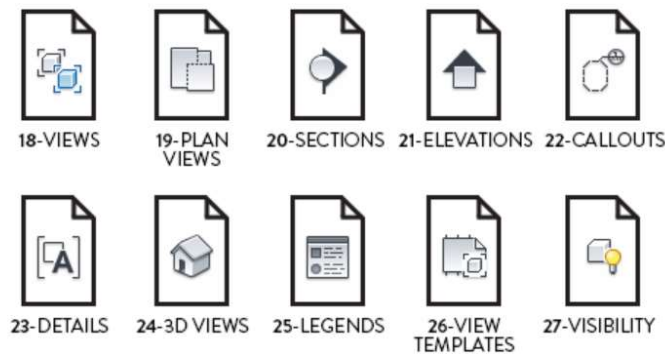
www.onecreativeenvironment.com

AUTODESK® REVIT® the basics +

PART 1: MODEL



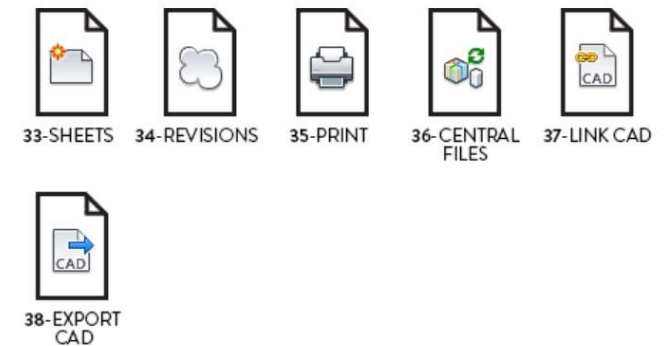
PART 2: VIEWS



PART 3: ANNOTATE



PART 4: PUBLISH AND COLLABORATE



PART 5: ADVANCED TOOLS



<https://revitpure.com/basics>

<https://academy.autodesk.com/>

PART 5: ADVANCED TOOLS



39-SCHEDULES



40-PHASES



41-WORKSETS



42-GROUPS



43-MODEL
IN-PLACE



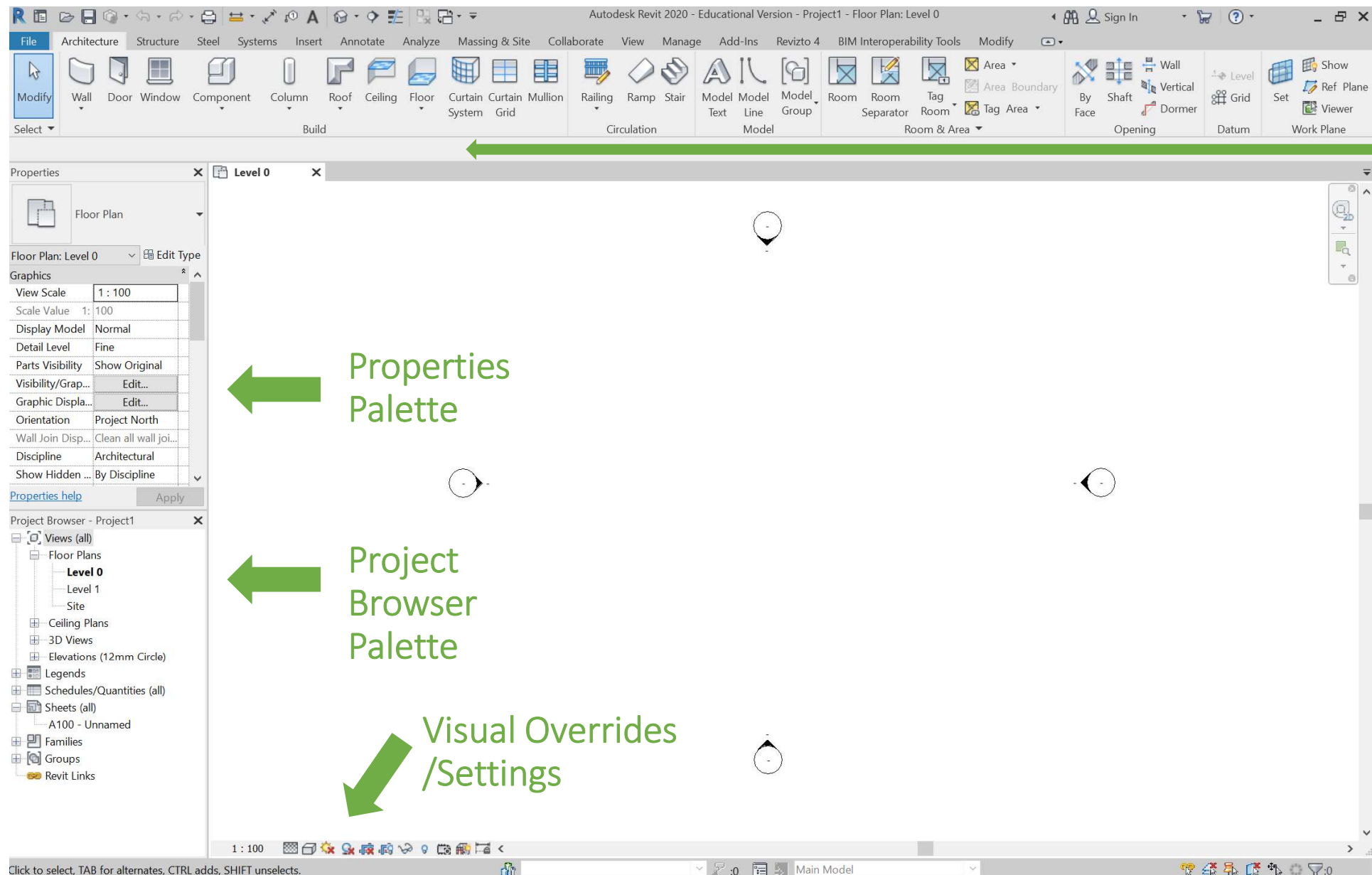
44-FAMILIES



45-DESIGN
OPTIONS



- Creating Schedules for pricing
- Phased Works
- Central Models / Worksets / Federated Models
- Families
- Advanced Modelling:
Sweeps Reveals and Model In Place
- *Collaboration and interoperability*
- *VR Visualisation*



RIBBON

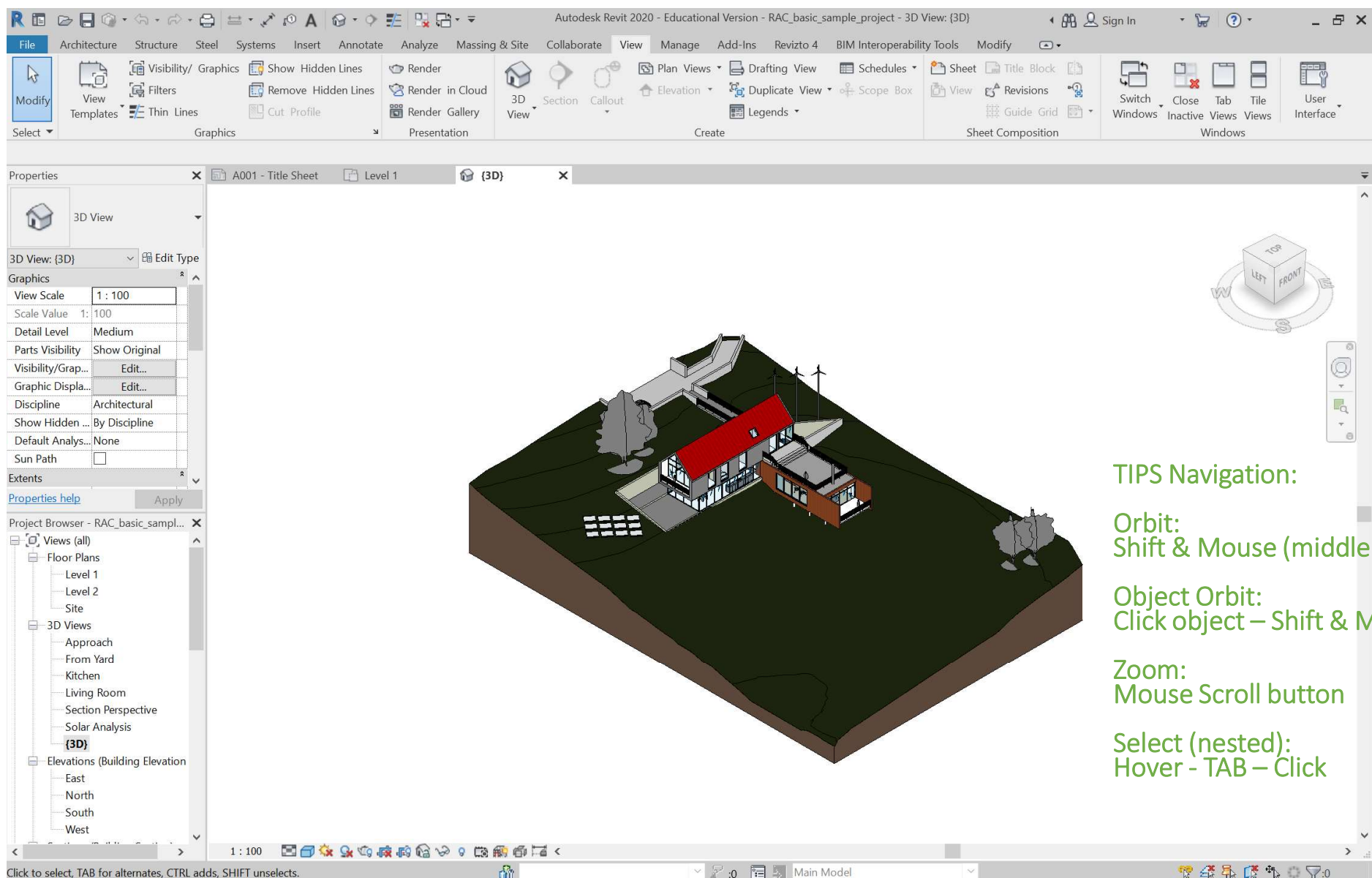
Sub options

Properties
Palette

Project
Browser
Palette

Visual Overrides
/Settings

AUTODESK®
REVIT®



1-INTERFACE



2-SELECT



3-MODIFY

TIPS Navigation:

Orbit:
Shift & Mouse (middle button)

Object Orbit:
Click object – Shift & Mouse (middle button)

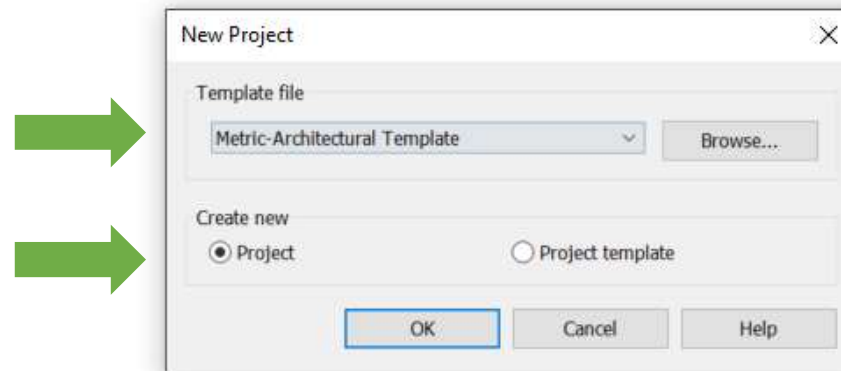
Zoom:
Mouse Scroll button

Select (nested):
Hover - TAB – Click





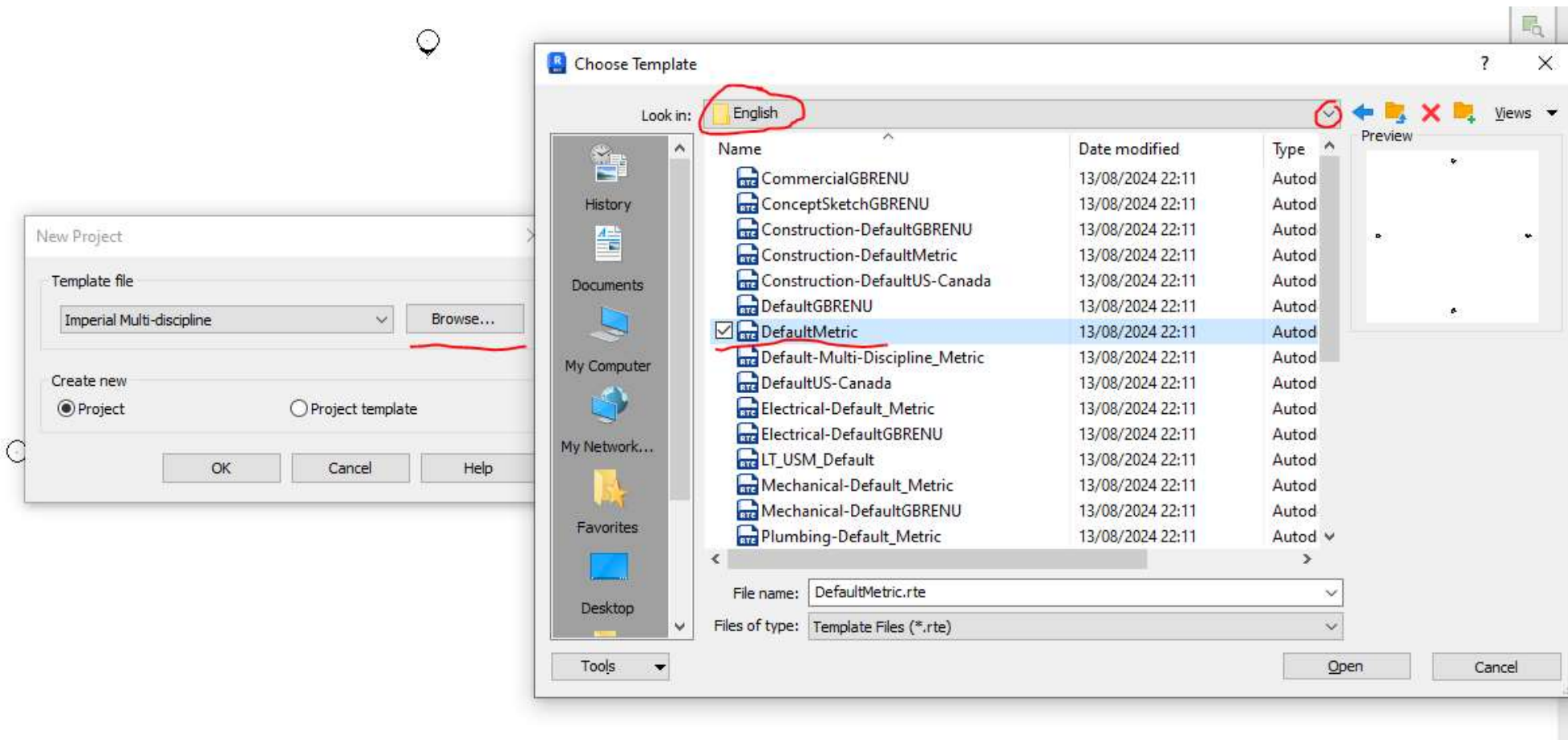
File > New > Project



Can't find the Template.

Click Browse and use the dropdown menu to select – ENGLISH (folder)

Select 'DefaultMetric.rte'



Autodesk Revit 2021 - Educational Version - Project2 - Floor Plan: Level 1

File Architecture Structure Steel Precast Systems Insert Annotate Analyze Massing & Site Collaborate View Manage Add-Ins Revit 5 Enscape™ Modify

Modify Select View Templates Visibility/ Graphics Filters Thin Lines Show Hidden Lines Remove Hidden Lines Cut Profile Render Presentation 3D View Section Callout Plan Views Elevation Drafting View Duplicate View Legends Schedules Scope Box Sheet View Title Block Revisions Guide Grid Matchline View Reference Viewports Switch Windows Close Inactive Views Tile Views User Interface

Properties Level 1

Floor Plan

Floor Plan: Level 1 Edit Type

Graphics

View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Coarse
Parts Visibility	Show Original
Visibility/Graphics O...	Edit...
Graphic Display Opti...	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline
Color Scheme Locati...	Background
Color Scheme	<none>

Properties help Apply

Project Browser - Project2

- Views (all)
 - Floor Plans
 - Level 1**
 - Level 2
 - Site
 - Ceiling Plans
 - Level 1
 - Level 2
 - Elevations (Building Elevation)
 - East
 - North
 - South
 - West
 - Legends
 - Schedules/Quantities (all)
 - Sheets (all)
 - Families
 - Groups
 - Revit Links

4-WALLS

5-LEVELS AND GRIDS

6-FLOORS

7-CEILINGS

8-ROOFS

9-DOORS

10-WINDOWS

1 : 100

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

Main Model

Set up Levels

Exercise 1

Workshop in REVIT.

Set up your levels in Elevation view.

Distance between levels of 2500mm

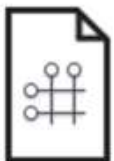
EASY?

Assume the following:

- High to Apex of roof is 5m
- Floor to ceiling height is 2.5m
- Floor slab is 300mm,
- Roof is 300mm thick
- Cill heights are 900mm
- Add Grid Lines



4-WALLS



5-LEVELS
AND GRIDS



6-FLOORS



7-CEILINGS



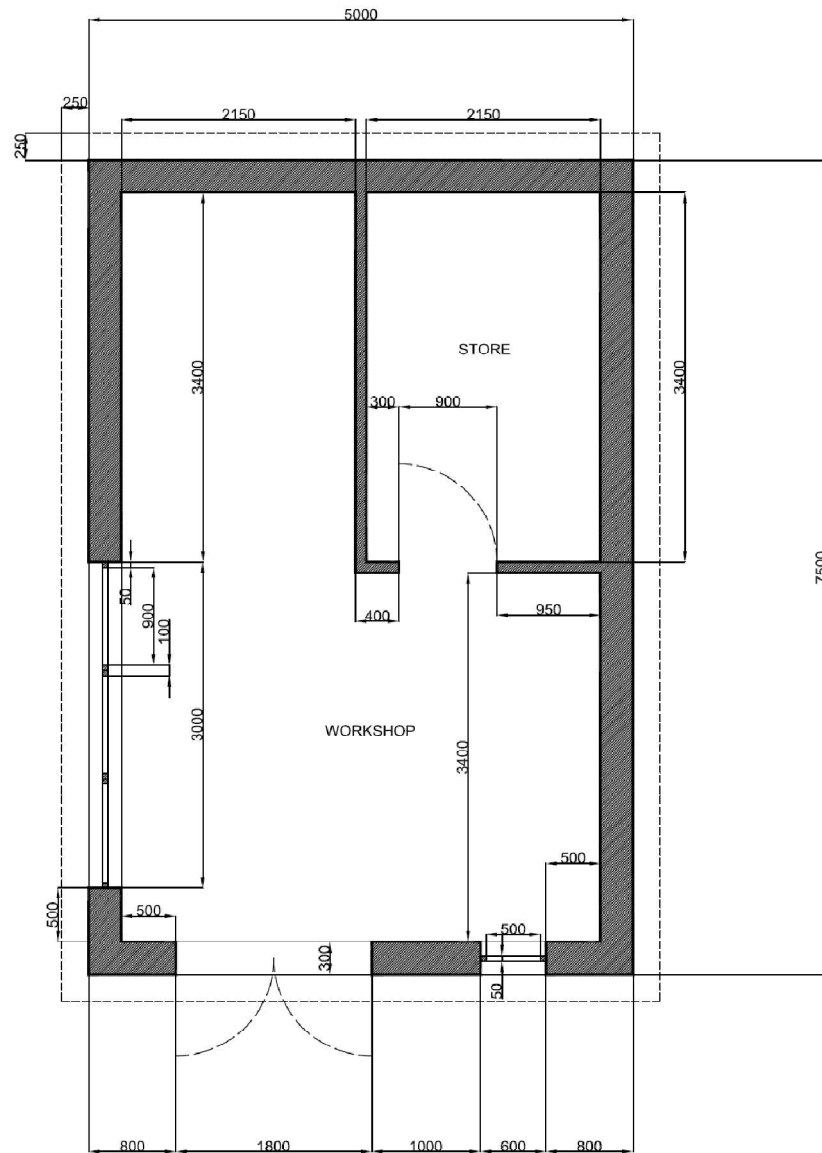
8-ROOFS



9-DOORS



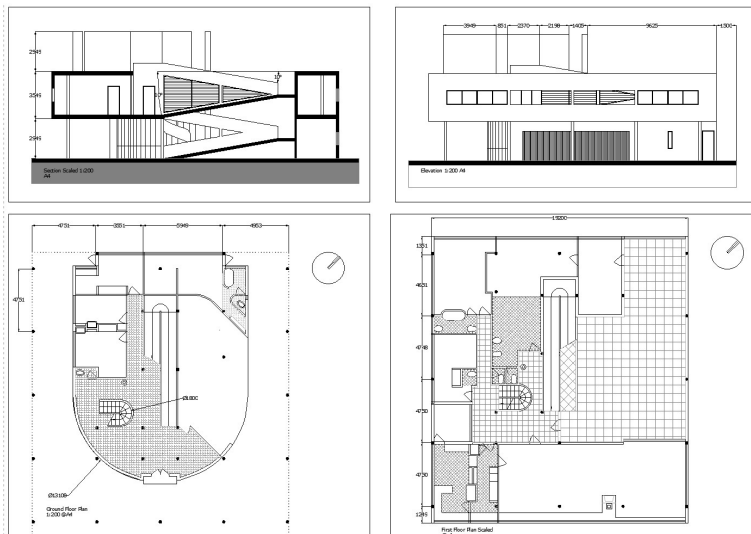
10-WINDOWS



Exercise 2

Villa Savoye – Poissy, Paris. Le Corbusier

Draw up the Revit Model from CAD files provided.



<https://youtu.be/PM5B2I2U6Ek>

Creating / Editing



Type Properties

Family: System Family: Basic Wall

Type: Wall-Ext_102Bwk-75Ins-100LBlk-12P

Load... Duplicate...

Parameter	Value
Construction	
Structure	Edit...
Wrapping at Inserts	Both
Wrapping at Ends	None
Width	290.0
Function	Exterior
Graphics	
Coarse Scale Fill Pattern	<Solid fill>
Coarse Scale Fill Color	RGB 192-192-192
Materials and Finishes	
Structural Material	Concrete Masonry Units _Low Density
Analytical Properties	
Heat Transfer Coefficient (U)	0.2359 W/(m ² ·K)
Thermal Resistance (R)	4.2386 (m ² ·K)/W
Thermal mass	27.90 kJ/K
Absorptance	0.700000

What do these properties do?

<< Preview OK Cancel Apply

Properties

Basic Wall
Wall-Ext_102Bwk-75Ins-100LBlk-12P

Walls (1) Edit Type

Constraints	
Location Line	Wall Centerline
Base Constraint	Level 0
Base Offset	0.0
Base is Attached	☐
Base Extension Distance	0.0
Top Constraint	Unconnected
Unconnected Height	8000.0
Top Offset	0.0
Top is Attached	☐
Top Extension Distance	0.0
Room Bounding	☒
Related to Mass	☐
Structural	
Structural	☐
Enable Analytical Model	☐
Structural Usage	Non-bearing
Dimensions	
Length	13700.0

Properties help Apply

It is the same process for all fabric objects.
Select an object you want to edit.
In the properties click 'Edit Type'
In the 'Type Properties' Window click 'Duplicate'
Click Edit.. tab

Family: Basic Wall
Type: Wall-Ext_102Bwk-75Ins-100LBk-12P 2
Total thickness: 290.0
Resistance (R): 4.2386 (m²·K)/W
Thermal Mass: 27.90 kJ/K

Editable
Properties

Sample Height: 6096.0



Layers					
EXTERIOR SIDE					
	Function	Material	Thickness	Wraps	Structural Material
1	Finish 1 [4]	Brick, Common	102.5	☒	☐
2	Thermal/Air Layer [3]	Fiberglass Batt	75.0	☒	☐
3	Core Boundary	Layers Above Wrap	0.0		
4	Structure [1]	Concrete Masonry Uni	100.0	☐	☒
5	Core Boundary	Layers Below Wrap	0.0		
6	Finish 2 [5]	Plaster	12.5	☒	☐

INTERIOR SIDE

Insert

Delete

Up

Down

Default Wrapping

At Inserts:

Both

At Ends:

None

Modify Vertical Structure (Section Preview only)

Modify

Merge Regions

Sweeps

Assign Layers

Split Region

Reveals

OK

Cancel

Help

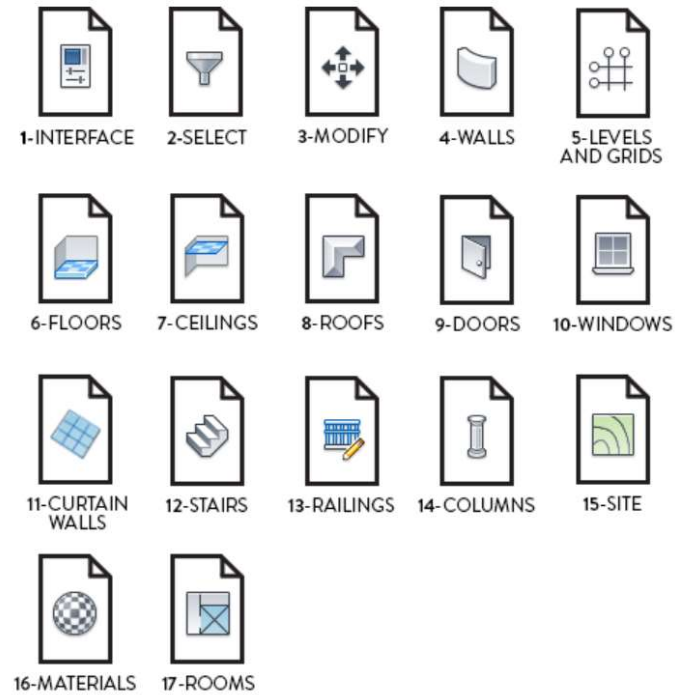
Click the preview Tab to show what the object make up in plan and section.

Click 'OK' and 'Apply' in the Type Window

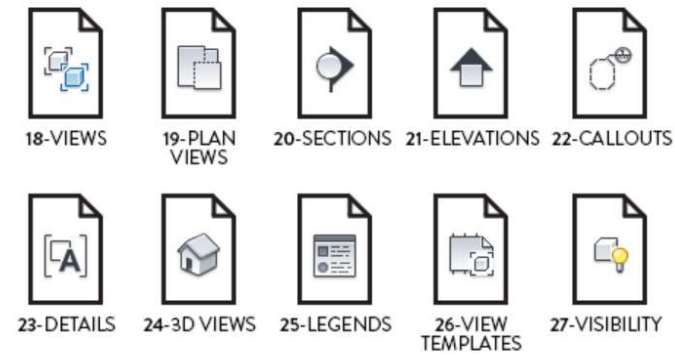
View: Floor Plan: Modify typ. ▾

Preview >>

PART 1: MODEL



PART 2: VIEWS

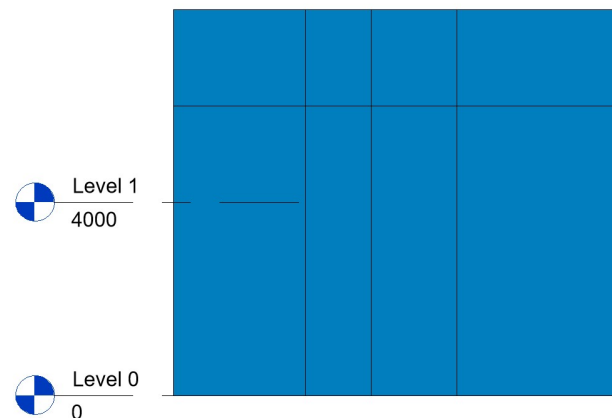
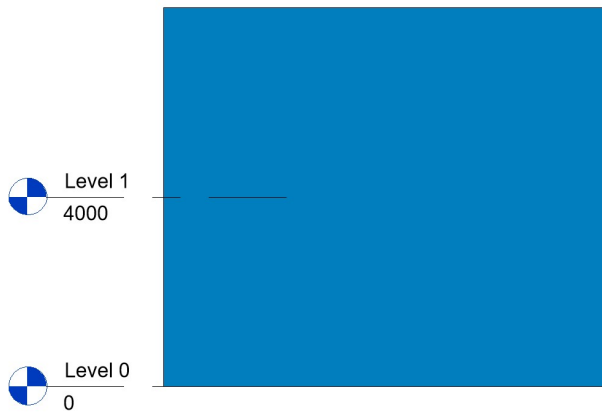




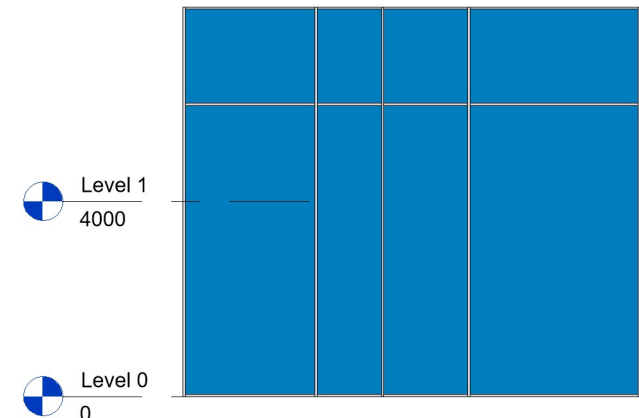
Curtain Walling – By Wall

Draw a wall to set height
(unconnected or to level)
Using Curtain Wall EMPTY

Go to elevation view – change
visibility to shaded



Add a Curtain Grid to your
curtain wall to required
horizontal and vertical
spacing.



Change grid lines to Mullions by
clicking the mullion icon.

Load appropriate Mullion families.

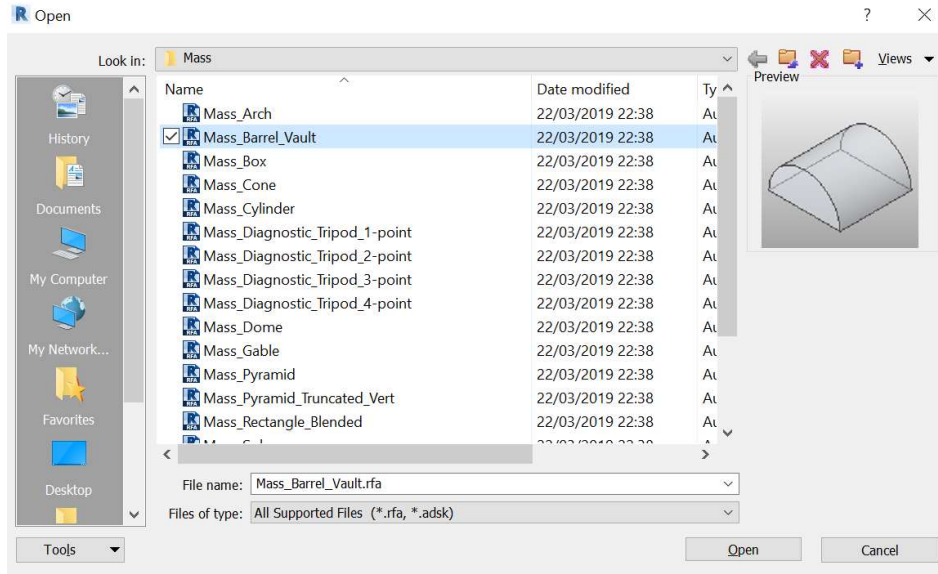


11-CURTAIN
WALLS

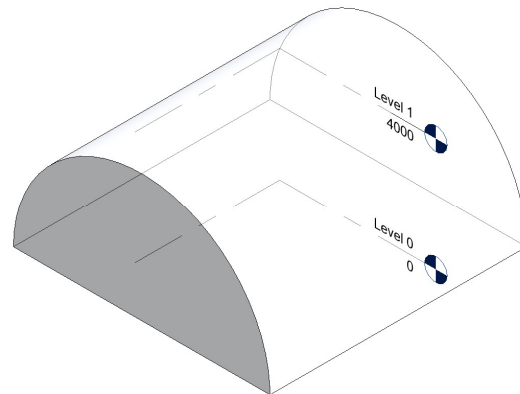


Place
Mass

Curtain System by Mass.
Under Massing & Site selected Place Mass

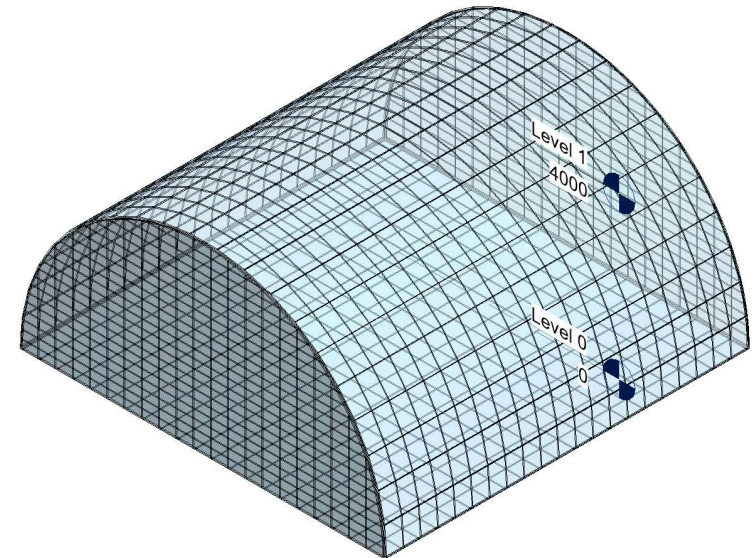


Place the Mass in the
appropriate Plan view.
Double Click the 3D view



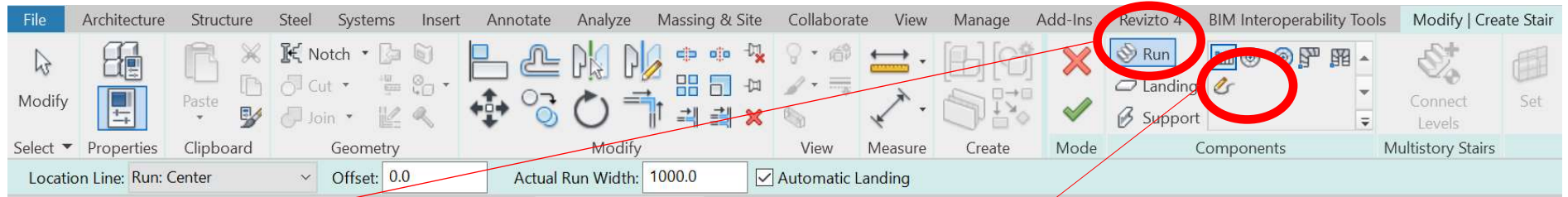
Curtain
System

Click 'Curtain System' Select all
faces of the mass. In the properties
palette change the number of grids
of the system. Once you have the
appropriate number of grids click
'Create System'





12-STAIRS



Create a Stair by Run.

Check Base level and top level in the Properties Palette. Change stair type as appropriate.

Click to start run and click to finish run once 0 risers remain.

Click the TICK



Properties

Assembled Stair
Private

Stair Edit Type

Constraints	
Base Level	Level 0
Base Offset	0.0
Top Level	Level 1
Top Offset	0.0
Desired Stair Height	2700.0

Dimensions	
Desired Number of...	16
Actual Number of ...	1
Actual Riser Height	168.8
Actual Tread Depth	250.0
Tread/Riser Start N...	1

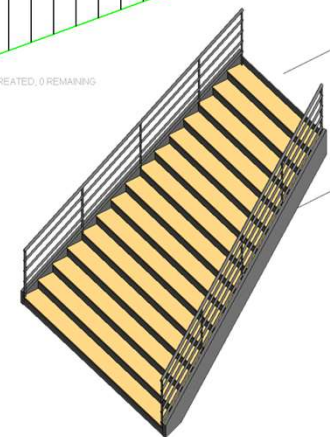
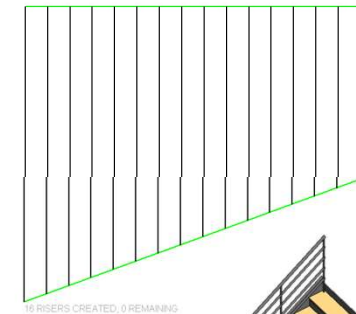
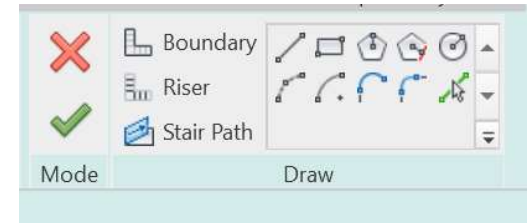
Create a Stair Sketch.

Check Base level and top level in the Properties Palette. Change stair type as appropriate.

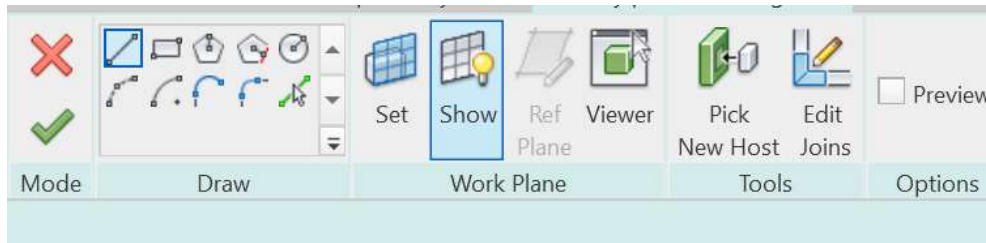
Click Boundary (green lines) and draw boundary lines.

Click Riser (black lines) and draw risers until 0 risers remain.

Note: risers must touch boundary lines.



13-RAILINGS



Properties

Railing
900mm_Pipe

Railings ▼ ⚙ Edit Type

Constraints

Base Level	Level 0
Base Offset	0.0
Offset from Path	0.0

Dimensions

Length	0.0
--------	-----

Identity Data

Image	
Comments	
Mark	

Phasing

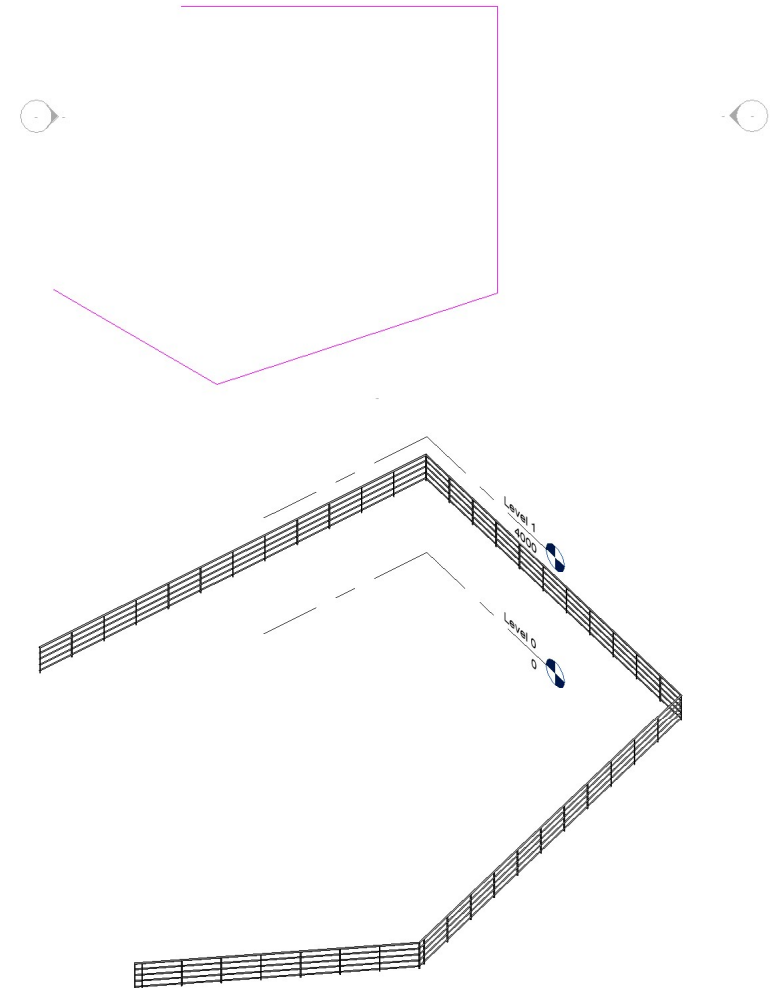
Phase Created	New Construction
---------------	------------------

Create Railings by sketching lines

Check Base level in the Properties Palette. Change railing type as appropriate.

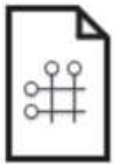
Draw a 'Chain' of lines in the sketch (magenta)

Click the TICK





14- COLUMNS



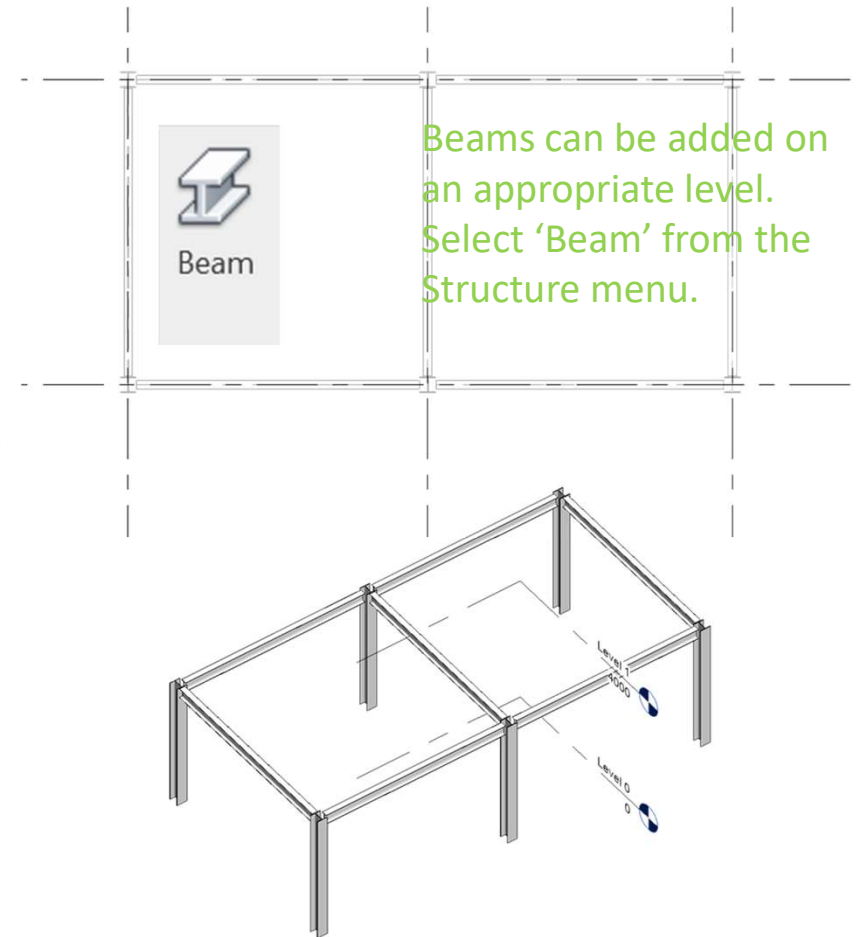
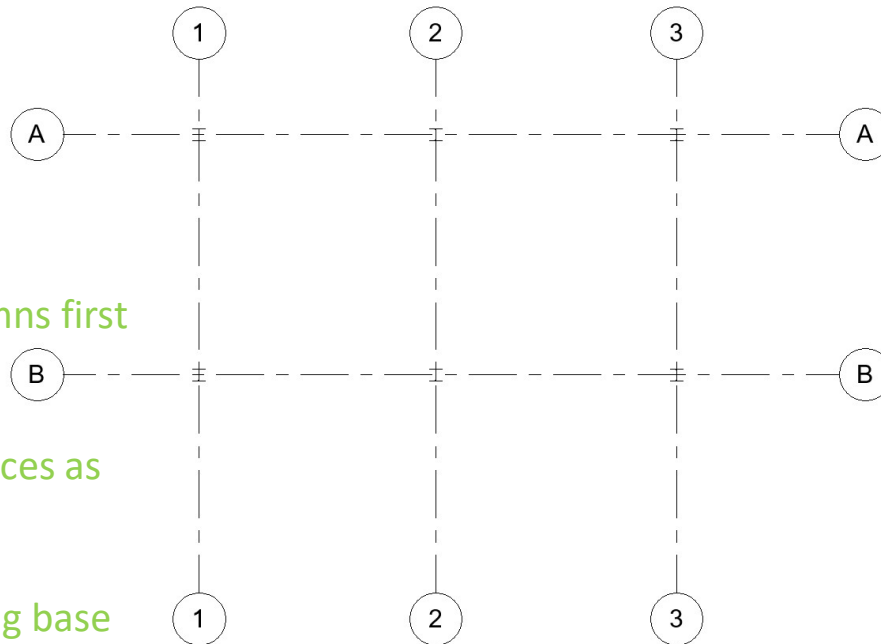
5-LEVELS AND GRIDS

Before placing Columns first
start with a GRID

Rename grid references as
appropriate.

Click Column - noting base
level in the properties palette.

In the sub menu select 'Height'
and Top Constraint (eg Level 1)



Exercise 3

Malibu beach house 2 storey, plus roof terrace

Set up your levels in Elevation view.

Distance between levels of 2700mm

Assumptions.

Concrete finish to the external walls – all other material your choice.

Framed structure with columns at 5m centres and 4m centres

Curved staircase

Curtain walling to southern view

GF: open plan living area, hall, kitchen / dining / WC

FF: 2 bedrooms with ensuite facilities

Roof: sun deck, wc / shower

Apply, room names, legends, grids. create plans, section and elevation views. 3D views.

