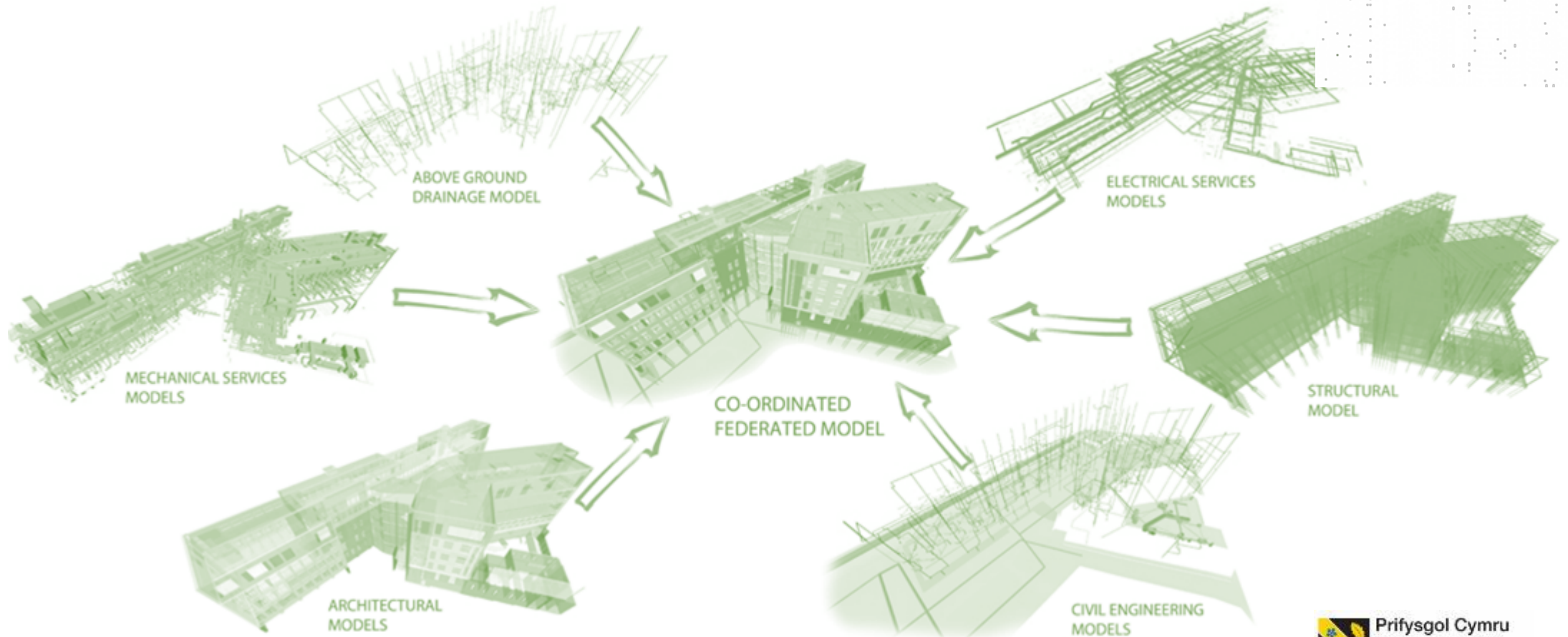


Building Information Modelling

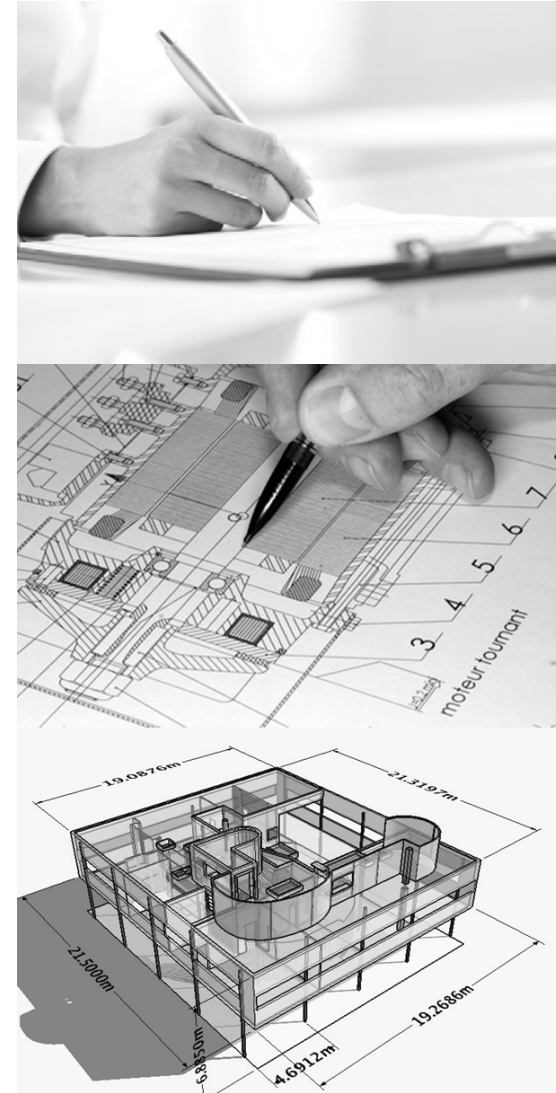
NEW



www.onecreativeenvironment.com

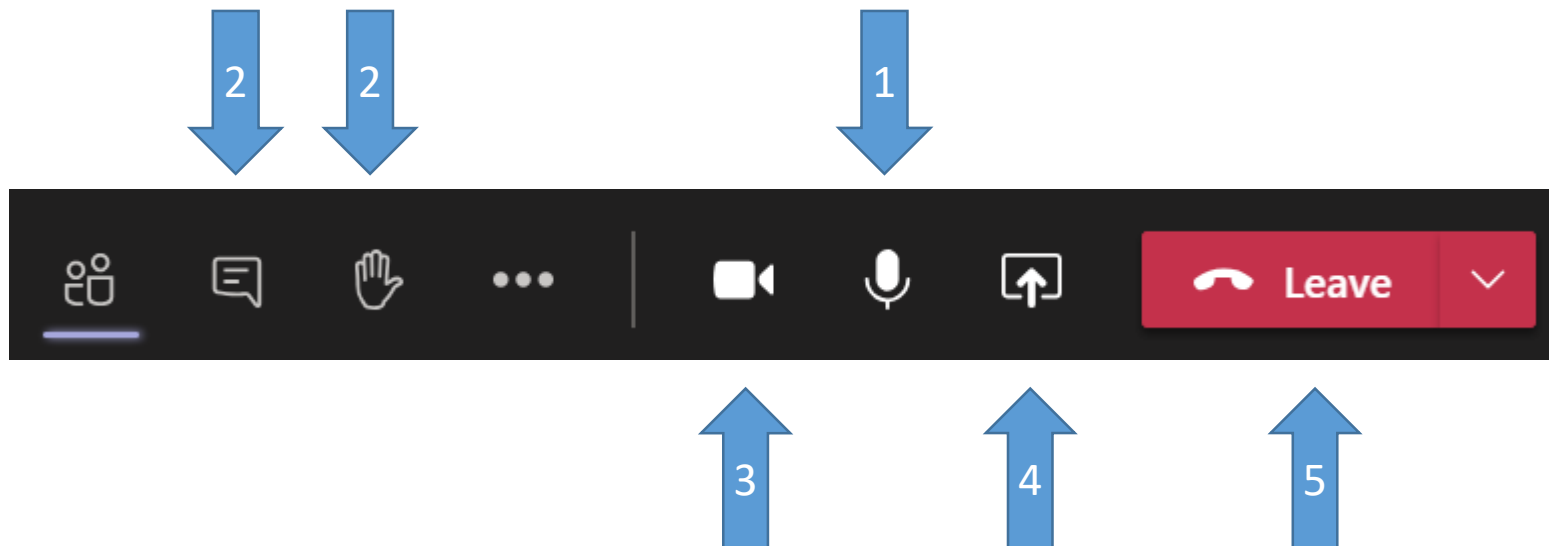
Week 2:

- BIM – key documentation
- Revit Basics 



MS TEAMS HOUSEKEEPING

1. Mute your Microphone
2. Use Chat to Ask Questions or Put your hand Up
3. If you have a poor connection switch off Camera
4. I may ask you to share your screen.
5. When the lecture ends please hang up



< >

Activity

Chat

Teams

Assignments

Calendar

Calls

Files

...

< All teams



ACBA 5010 BIM 2020-21_GRP

...

General

Wk 01

Wk 02

Wk 03

Wk 04

Wk 05

Wk 06

Wk 07

Wk 08

Wk 09

Search



General

Posts

Files

Class Notebook

Assignments

Grades

+

+ New

↑ Upload

↻ Sync

🔗 Copy link

🔗 Open in SharePoint

General >

Class Materials

	Name	Modified	Modified By
	Assignments	A few seconds ago	Gavin Traylor
	L4 Revision Videos	January 12	Gavin Traylor
	 Lecture Notes	A few seconds ago	Gavin Traylor

Moodle - Reading List

← → ↺ 🔒 https://moodle.uwtsd.ac.uk/course/view.php?id=8122

Home My Modules Moodle Archives English (en)

BIM (ACBA5010)

Home > My modules > ACBA5010

Announcements

ExLibris
Leganto Online Resource List

☐ Open all ☒ Close all

Instructions: Clicking on the section name will show / hide the section.

1

Module

W ACBA5010

2

Assessment Briefs 2020/2021

3

Turnitin Submission Links 2020/21

BIM (ACBA 5010)

DRAFT ACBA5010 (2020-20) 12 items in 2 sections

LIST SENT NEW SECTION ADD ITEMS +

Essential reading (8)

Material which is an essential part of the course and students are expected to draw on as a core part of their learning. Must be available from the library and should be available online.

- book BIM handbook : a guide to building information modeling for owners, managers designers, engineers, and contractors**
Eastman, Charles M., 2nd ed., Chichester; Hoboken, N.J. : Wiley , 2011., Total Pages xiv, 626 p. :
Essential
Complete Available at Y Fforwm Main Collection : 690.028 BIM
- WEBSITE Little Book of BIM 2020**
BSI, BSI, 2020
British Standard Institution - Guide to BIM documentation. Essential for all students
Essential
Complete Check availability >
- WEBSITE NBS BIM Library**
NBS, NBS, NA
NBS BIM Library of BIM Objects
Essential
Sent Check availability >
- book Building information modeling for dummies**
Mordue, Stefan., Philp, David.; Swaddle, Paul., Chichester, England ; John Wiley & Sons Ltd, 2016., Total Pages 1 online resource (356 p.)
Essential
Complete Check availability >
- book BIM and construction management : proven tools, methods, and workflows**
Gardner, Paul.; Brookfield, Susan; McCall, Peter.; Gardiner, Andrew.; Gardiner, Peter.; 2019. Total Pages 1 online resource (356 p.)

Suggested Reading List

Francis Ching (2015) *Architectural Graphics*

BSi (2019) *The Little Book of BIM*

BSi (2019) *Introduction to the New International Standard ISO 19650*

Eastman C, Teicholz P, Sacks R and Liston K (2011)
BIM Handbook: A Guide to BIM for Owners, Managers, Designers, Engineers & Contractors. Hoboken: John Wiley & Sons Inc.

Mordue S Swaddle P and Philp D (2015). *Building Information Modelling for Dummies*. Chichester: John Wiley & Sons Ltd.

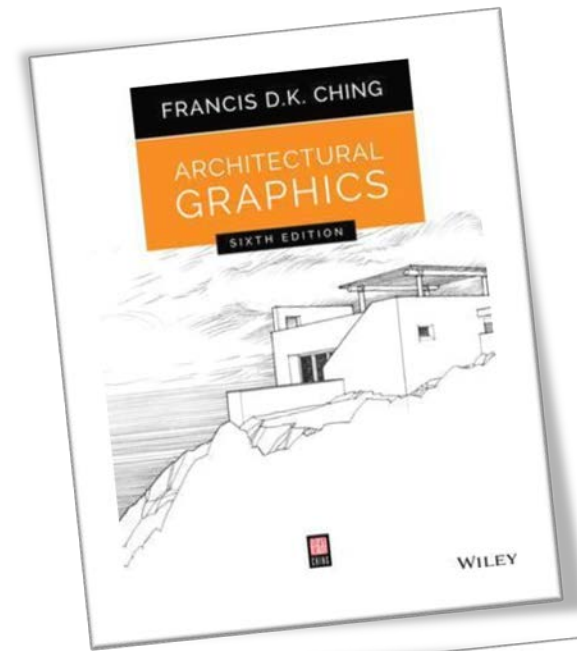
NBS National BIM Library

The BIM HUB: BIM Journal

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

Revit Tutorials - Youtube.

<https://bimblog.house/> Dan Rossiter (BSi)



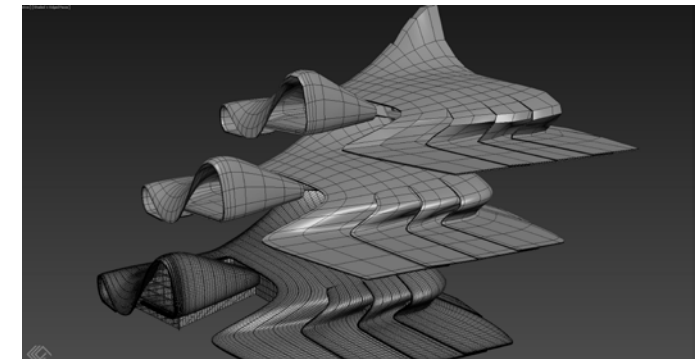
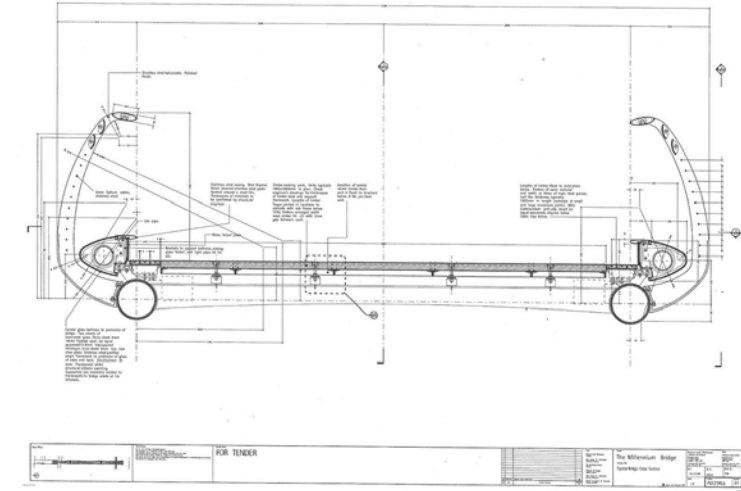
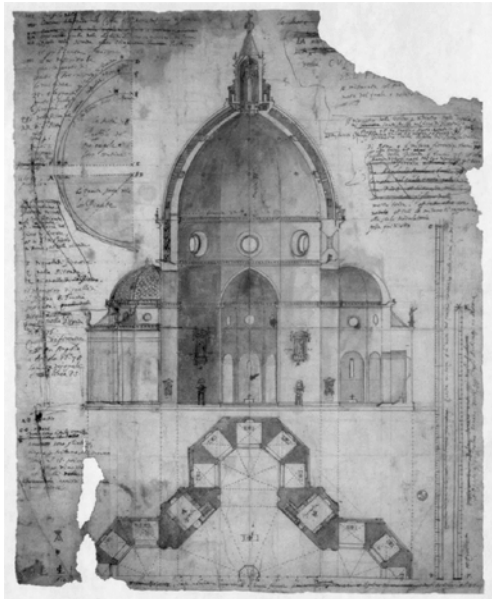
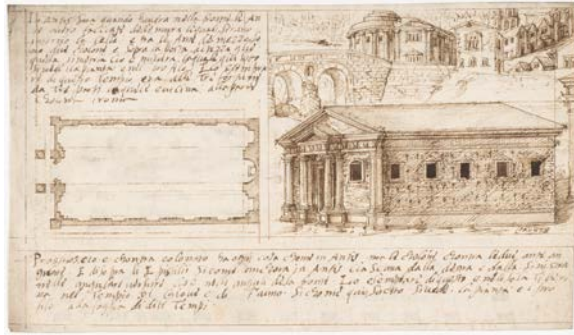
Key BIM Standards, ISO and PAS – refer to 'Little Book of BIM' guide

Why do we draw?

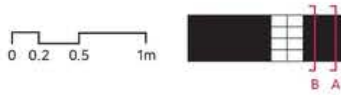
Cave Paintings Argentina



A picture is worth a thousand words

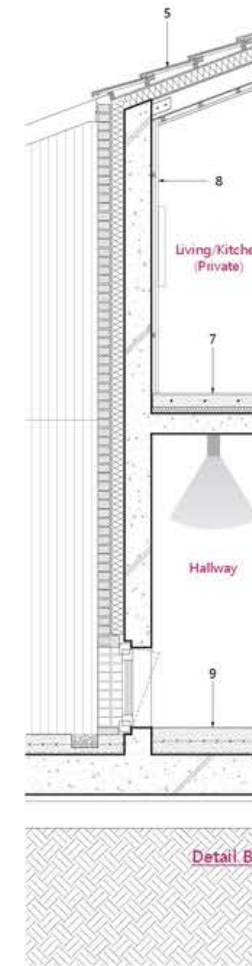
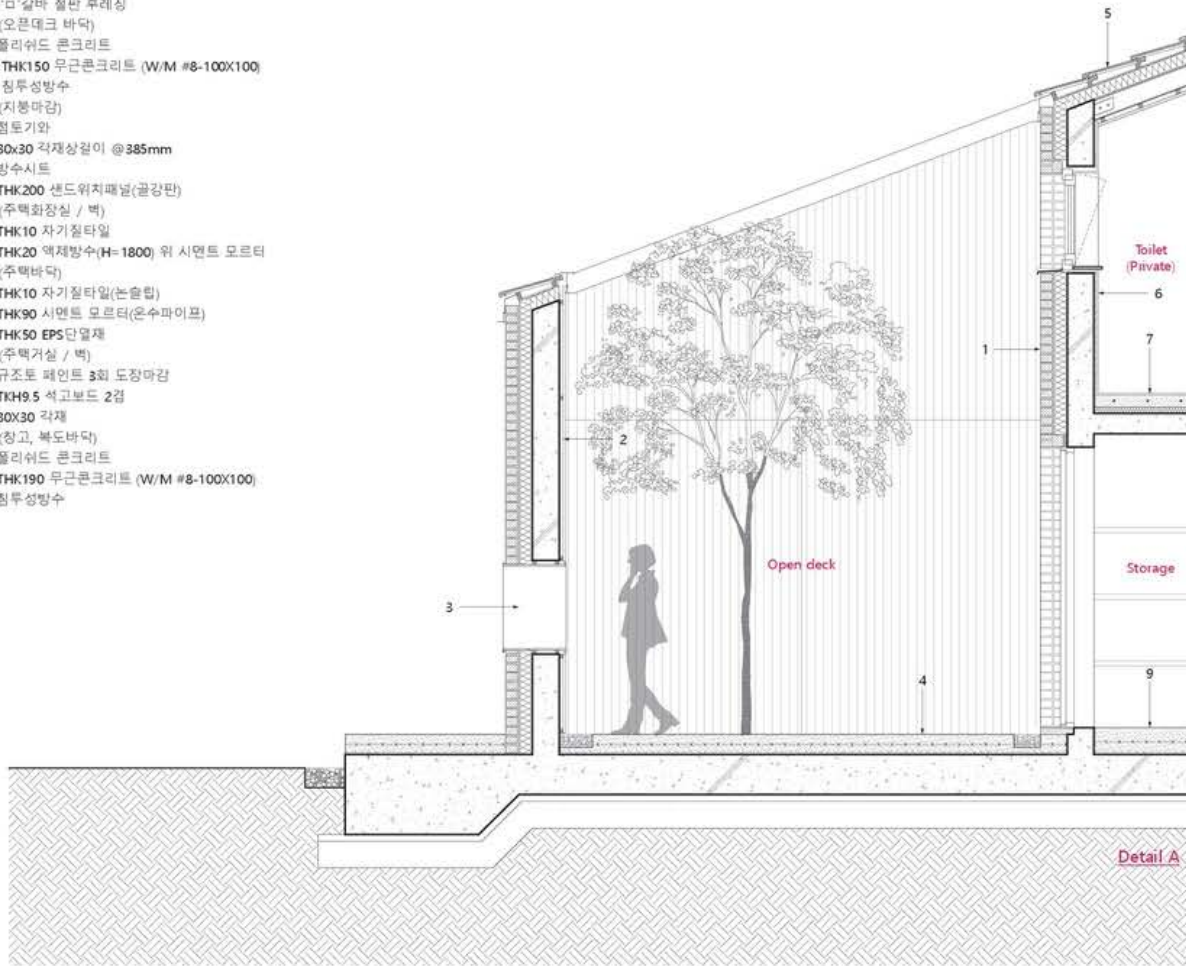


How do we draw within the Construction Industry?



detail A, B

- 1 (외장재)
57X90X230 전벽돌 0.5B쌓기
THK120 단열재
- 2 (오픈데크_벽)
열차우목재 마감
THK9.5 합판 1겹
30X30 각파이프 @600
- 3 (따창마감)
플라스틱
· 10'갈바 철판 후레싱
- 4 (오픈데크 바닥)
폴리우레드 콘크리트
THK150 무근콘크리트 (W/M #8-100X100)
침투성방수
- 5 (지붕마감)
점토기와
30x30 각재상철이 @385mm
방수시트
THK200 샌드위치패널(골강판)
- 6 (주벽화장실 / 벽)
THK10 자기질타일
THK20 액체방수(H=1800) 위 시멘트 모르타
- 7 (주벽바닥)
THK10 자기질타일(눈솔림)
THK90 시멘트 모르타(운수파이프)
THK50 EPS 단열재
- 8 (주벽거실 / 벽)
규조토 페인트 3회 도장마감
THK9.5 석고보드 2겹
30X30 각재
- 9 (창고, 복도바닥)
폴리우레드 콘크리트
THK190 무근콘크리트 (W/M #8-100X100)
침투성방수



Drawings prepared in the Construction Industry

Must:

- Convey a message
- Read with understanding
- Demonstrate Knowledge
- Convey Ideas
- Explain a Narrative / Story

Industry conventions assist in the legibility of drawn information.

Typical CAD packages



AUTODESK
AUTOCAD
2020

GRAPHISOFT
ARCHICAD



VECTORWORKS®
A NEMETSCHEK COMPANY



Rhinoceros®



AUTODESK
CIVIL3D



SketchUp



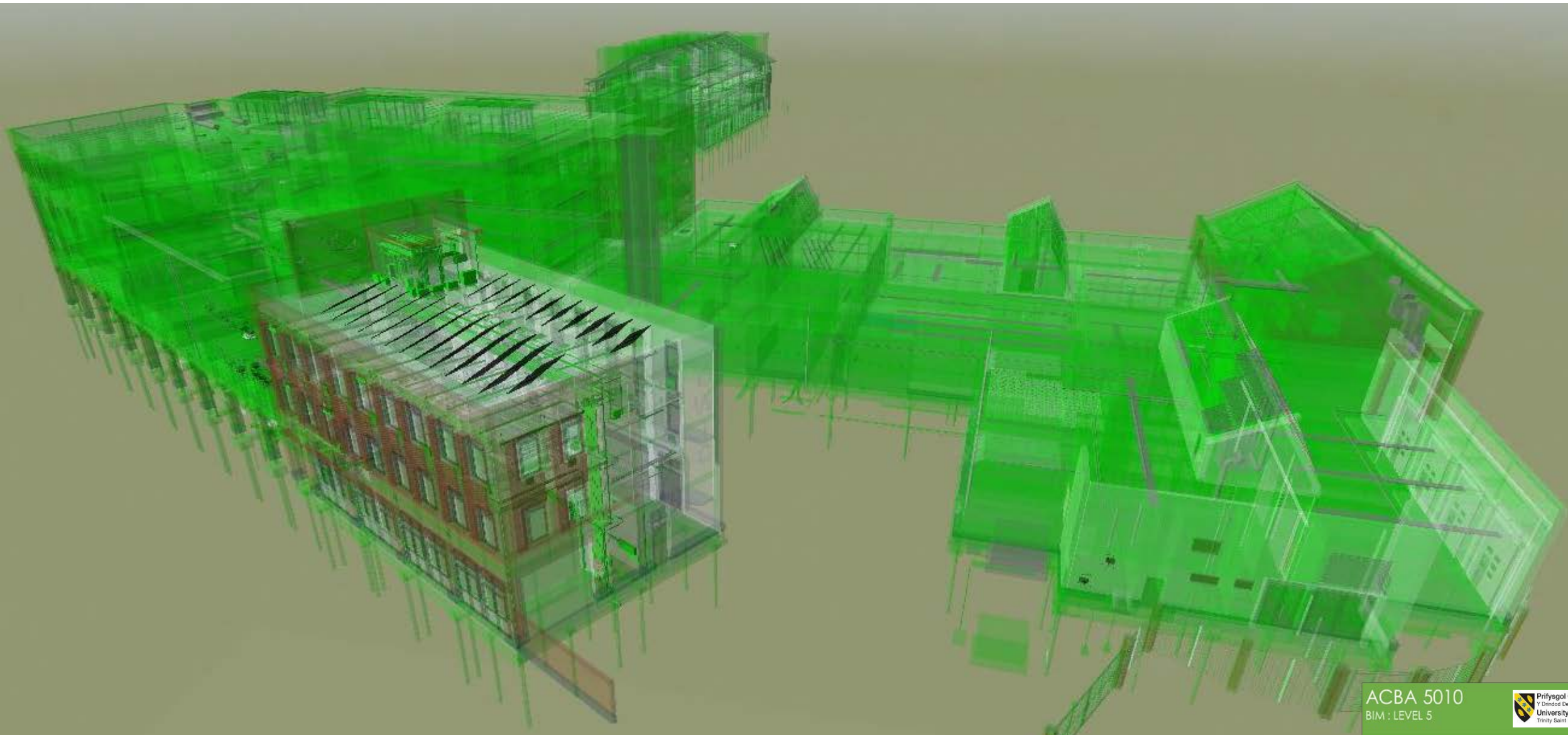
AUTODESK®
REVIT®

Is this enough?

How can we improve the way
we communicate?

BIM?

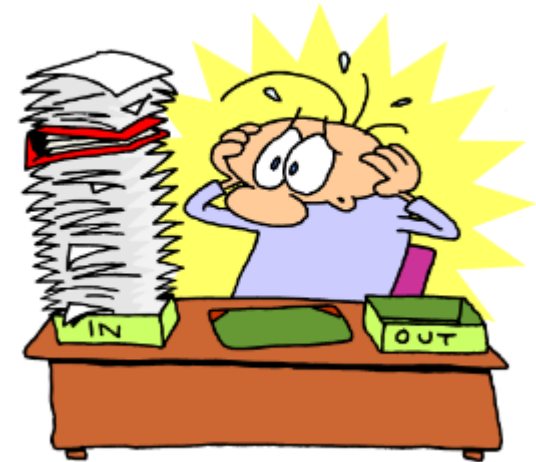
An Introduction to BIM



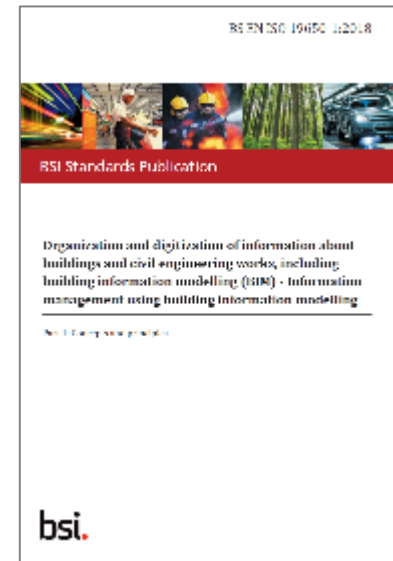
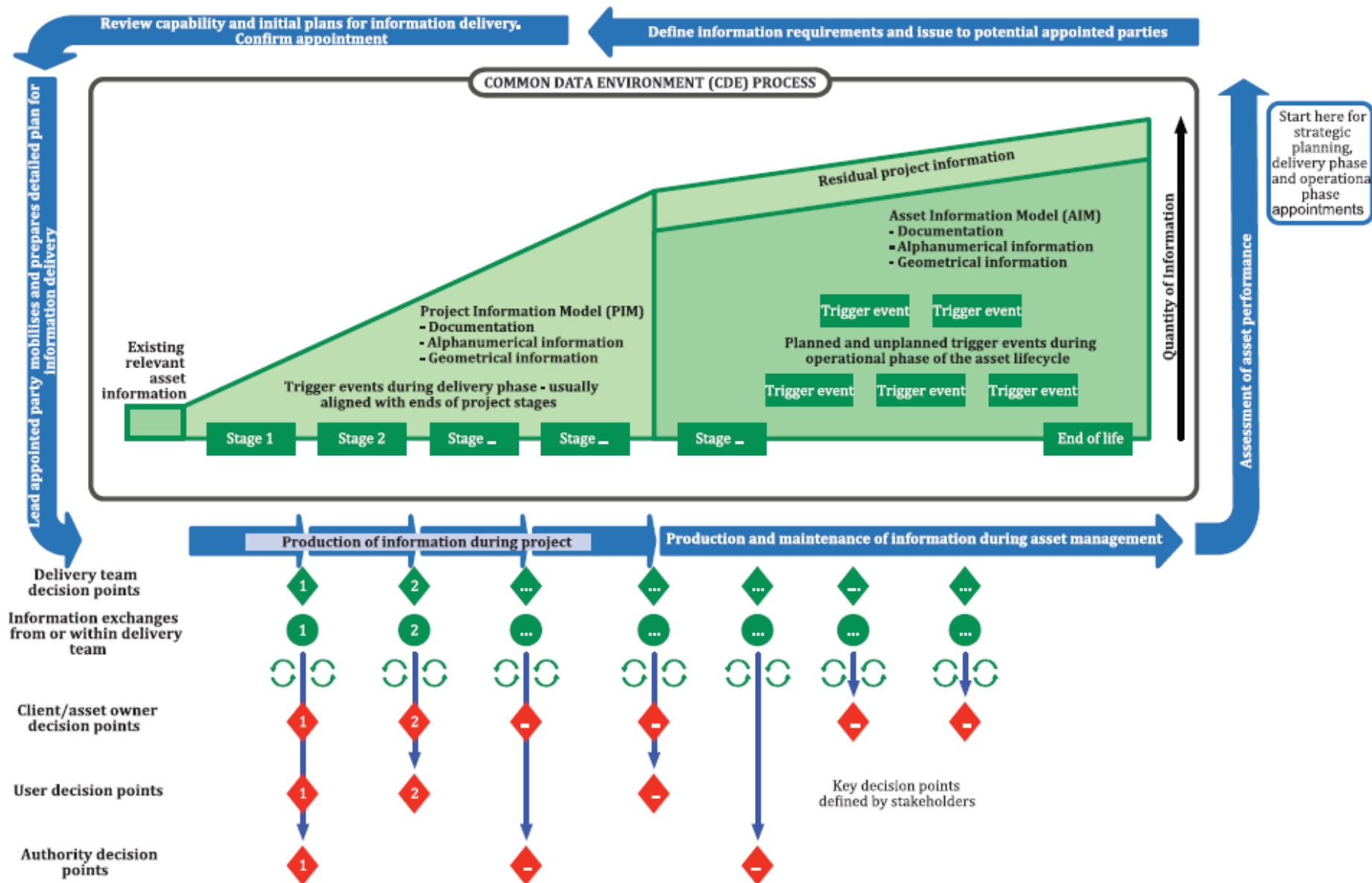
Building Information Modelling

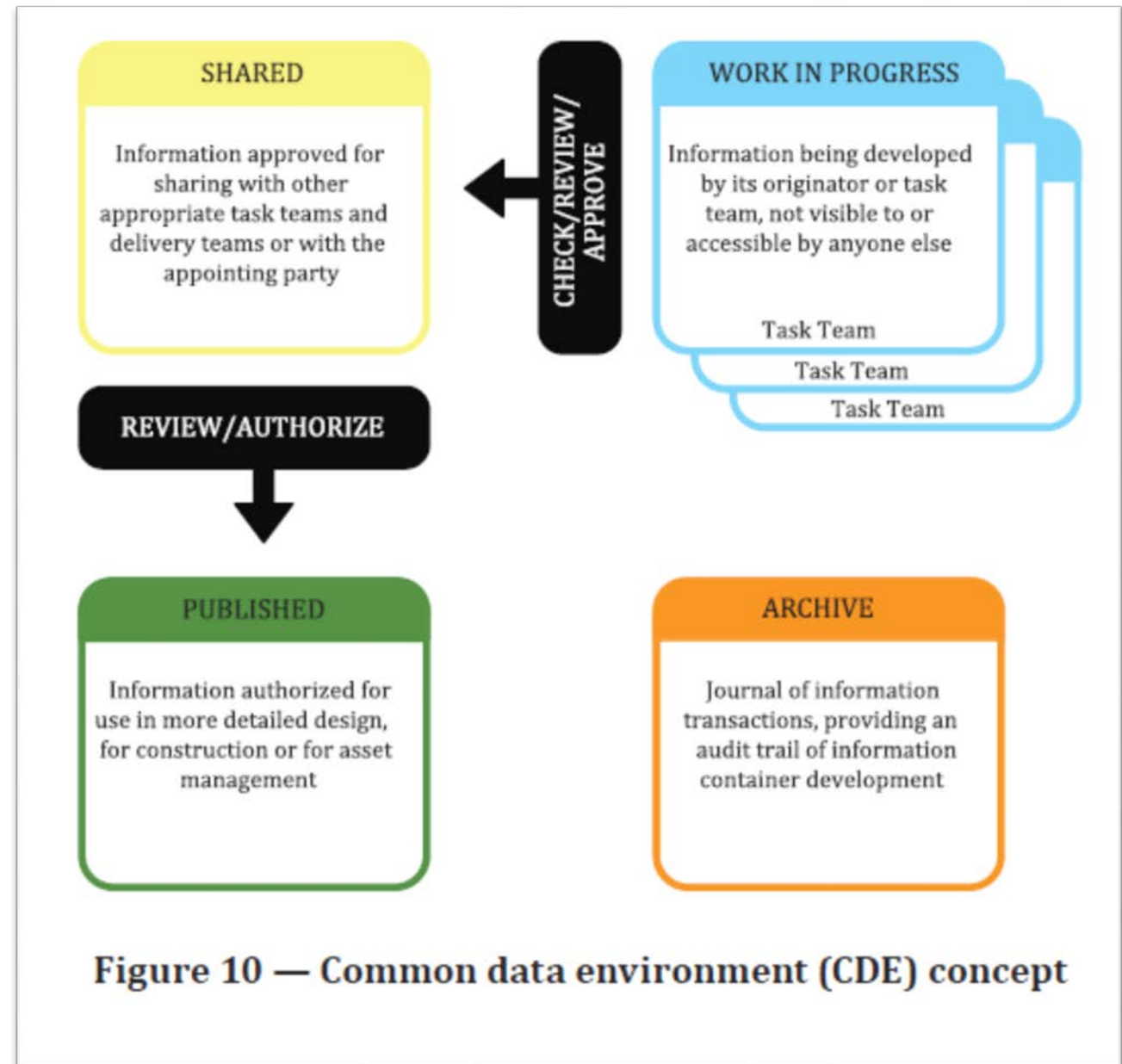
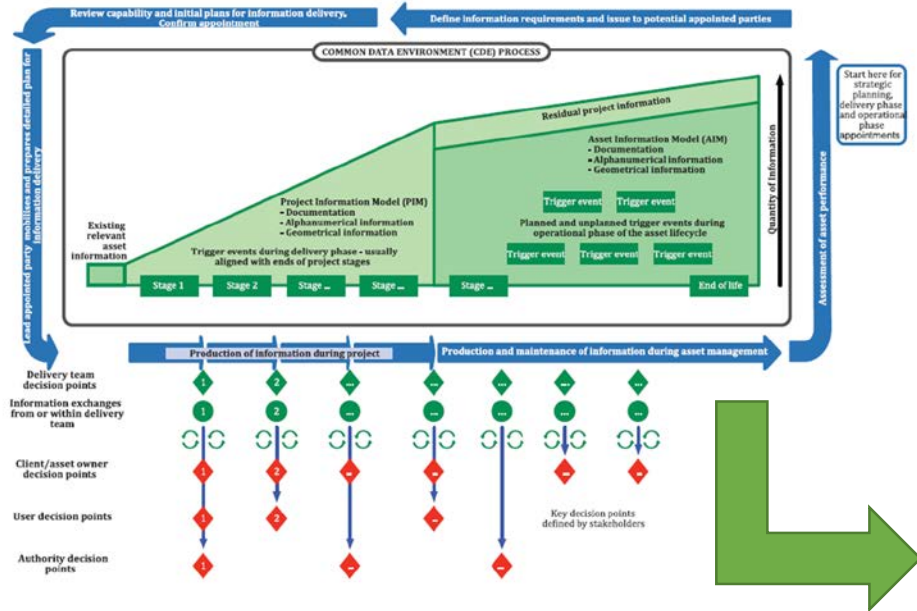
What it really means is a PROCESS of.....

Better Information Management



BIM Process Diagram





Conventions

UNIVERSITY OF WALES TRINITY SAINT DAVID

BIM NAMING CONVENTION GUIDE: All files: Models, Drawings & Documents

THE CODE	Project	Originator	Zone	Level	Type	Role	Number	Description*	Suitability*	Revision*
CODE LENGTH	2-6 Characters	3 - 6 Characters	1-2 Characters	2 Characters	2 Characters	1 Character Only	4 Characters	6-8 Characters	2 Characters	Single Character
DESCRIPTION	A single common project identifier that is recognizably distinct from any individual organization's internal job number.	The company that produced the data.	Use XX as the default. Only use Zones if project requires. This is then defined by the chosen Model segregation. There should be at least one 'zone' per role. EG. Arch Model, Mech Model, Struct Model, etc.	The level the data refers to: ZZ – Multi Level XX – No Level GF - Ground Flr 01 – First Flr 02 – Second Flr Etc. Mezzanines M1 M2 Etc. All levels below ground floor prefix 'B' B1 B2 Etc.	This is simply the type or form of data eg: For Files: AF Animation File CM Combined Model DR 2D Drawing M2 2D model M3 3D model MR Model rendering VS Visualization For Documents: BQ Bill of Quants CA Calculations CO Correspondence CP Cost Plan DB Database FN File Note HS Health & Safety IE Information Exchange MI Minutes / Action Notes	A Architect / Architectural B Building Surveyor C Civil Engineer D Drainage Engineer E Electrical Engineer F Facilities Manager G Geographical Surveyor H Heating & Ventilation Designer I Interior Designer K Client L Landscape Architect M Mechanical Engineer P Public Health Engineer Q Quantity Surveyor S Structural Engineer T Planner W Contractor X Subcontractor Y Specialist Designer Z General	This is a 4 digit code denoting drawing grouping and number. It consists of a 1 digit Drawing Group plus the 3 digit individual drawing no: Eg. 1001 Where 1 at the beginning is the drawing group and the 3 latter digits are sequential numbers.	Drawing / Model description ie. GAPLAN SITE GEO MOD SECTION SCHEMAT BREEAM FINISHES etc.	This is for the 2 digit suitability code that indicates and governs the development stages of information and documents throughout the BIM process.	The revision number of the drawing. eg: A, B, C etc
NOTES	Use the 4 digit Company project numerics here - NB. NUMBER ONLY For Student Projects MODULE CODE ie 4005	NB. A specific unique identifier for each organisation should be defined upon them joining the project ie. Use company initials	NB. A more complex project may need to be divided into several diff zones. If so the Zone Strategy should be agreed at beginning of project	IE. Roof plan would be multi level.	MS Method Statement PP Presentation PR Programme RD Room Data Sheet RI Request for Information RP Report SA Schedule of Accommodation SH Schedule SN Snagging List SP Specification SU Survey		Drawings Groups are as follows: 0 - General 1 - Substructure 2 - Superstructure 3 - Openings 4 - Finishes 5 - Piped & ducted services 6 - Electrical 7 - Fixtures & Fittings (Fixed) 8 - Loose Furniture 9 - External Works	There is no specific standard for description but avoid long, unweildy descriptions as this will affect your ability to file in Windows	Please refer to opposite tabled from BS1192:2007 issue sheet for the appropriate suitability status codes.	
EXAMPLE	4005	UWSTD	XX	ZZ	DR	A	1001	GEO MOD	S1	A
* = Optional add ons within schema that we as UWTSD have chosen to include. NB. There are other optional fields in the schema that we have opted to leave out ie: Classification (uniclass codes) Guide authored by G Traylor, UWTSD, October 2019. Based on BS 1192:2007 + A2:2016 & BS 1192-2:2013										

UNIVERSITY OF WALES TRINITY SAINT DAVID									
BIM NAMING CONVENTION GUIDE: All files: Models, Drawings & Documents									
THE CODE	Project	Originator	Zone	Level	Type	Role	Number	Description*	Suitability*
CODE LENGTH	2-6 Characters	3-6 Characters	2-2 Characters	2 Characters	2 Characters	1 Character Only	4 Characters	6-6 Characters	2 Characters
DESCRIPTION	A single common project identifier that is recognizably distinct from any individual organization's internal job number.	The company that produced the data.	Use XX as the default. Only use Zones if project requires. This is then defined by the chosen Model Integration. There should be at least one "zone" per role. (Eg. Arch Model, Mech Model, Struct Model, etc.	The level the data refers to: ZZ - Multi Level XX - No Level 01 - Ground Flr 02 - First Flr 03 - Second Flr Etc. Mezzanines M1 M2 Etc. All levels below ground floor prefix 'B' B1 B2 Etc. If Roof plan would be multi level.	This is simply the type or form of data eg: For Files: AF Animation File CM Combined Model DR 2D Drawing M2 2D model M3 2D model MR Model rendering VS Visualization For Documents: BQ Bill of Quants CA Calculations CO Correspondence CP Cost Plan DB Database FN File Note HS Health & Safety IE Information Exchange MI Minutes / Action Notes MS Method Statement PP Presentation PR Programme RD Room Data Sheet RI Request for Information RP Report SA Schedule of Accommodation SH Schedule SN Snagging List SP Specification SU Survey	A Architect / Architectural B Building Surveyor C Civil Engineer D Drainage Engineer E Electrical Engineer F Facilities Manager G Geographical Surveyor H Heating & Ventilation Designer I Interior Designer K Client L Landscape Architect M Mechanical Engineer P Public Health Engineer Q Quantity Surveyor S Structural Engineer T Planner W Contractor X Subcontractor Y Specialist Designer Z General	This is a 4 digit code denoting drawing grouping and number. It consists of a 1 digit Drawing Group plus the 3 digit individual drawing no: Eg: 1001 Where 1 at the beginning is the drawing group and the 3 latter digits are sequential numbers.	GARAN SITE GEO MOD SECTION SCHEMAT BREEAM FINISHES etc. There is no specific standard for description but avoid long, unwieldy descriptions as this will affect your ability to file in Windows	This is for the 2 digit suitability code that indicates and governs the development stages of information and documents throughout the BIM process. Derived from issue suitability
NOTES	Use the 4 digit Company project numerics here - NB. NUMBER ONLY for Student Projects MODULE CODE ie 4005	NB. A specific unique identifier for each organisation should be defined upon them joining the project ie. Use company initials	NB. A more complex project may need to be divided into several diff zones. If so the Zone Strategy should be agreed at beginning of project						
EXAMPLE	4005	UNSTD	XX	ZZ	DR	A	1001	GEO MOD	A
* Optional add ons within schema that we as UNSTD have chosen to include. NB: There are other optional fields in the schema that we have opted to leave out ie: Classification (uniclass codes)									



Conventions: Working in a Common Data Environment CDE

Status	Description
Work in Progress	
S0	Initial status or WIP Master document index of file identifiers uploaded into the extranet.
Shared (Non-Contractual)	
S1	Suitable for Co-ordination The file is available to be „shared“ and used by other disciplines as a background for their information.
S2	Suitable for Information
S3	Suitable for Internal Review & Comment
S4	Suitable for Construction Approval
S5	Suitable for Manufacture
S6	Suitable for PIM Authorization (Information Exchanges 1-3)
S7	Suitable for AIM Authorization (Information Exchange 6)
D1	Suitable for Costing
D2	Suitable for Tender
D3	Suitable for Contractor Design
D4	Suitable for Manufacture/Procurement
AM	As Maintained
Published Documentation (Contractual)	
A	Suitable for Construction
B	Partially signed-off: For Construction with minor comments from the Client. All minor comments should be indicated by the insertion of a cloud and a statement of “in abeyance” until the comment is resolved, then resubmitted for full authorization.
AB	As-Built Handover documentation, PDF, native models, COBie etc.

Tools

Drawing, Modelling and Specifications



Clash Detection, Virtual Build



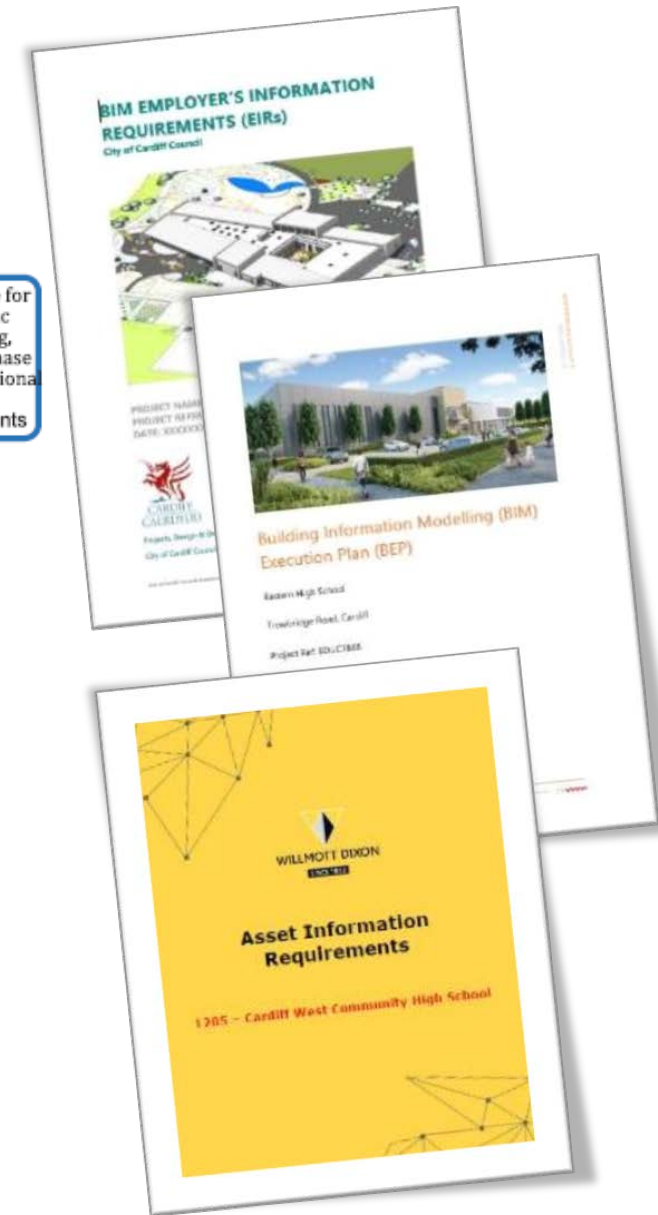
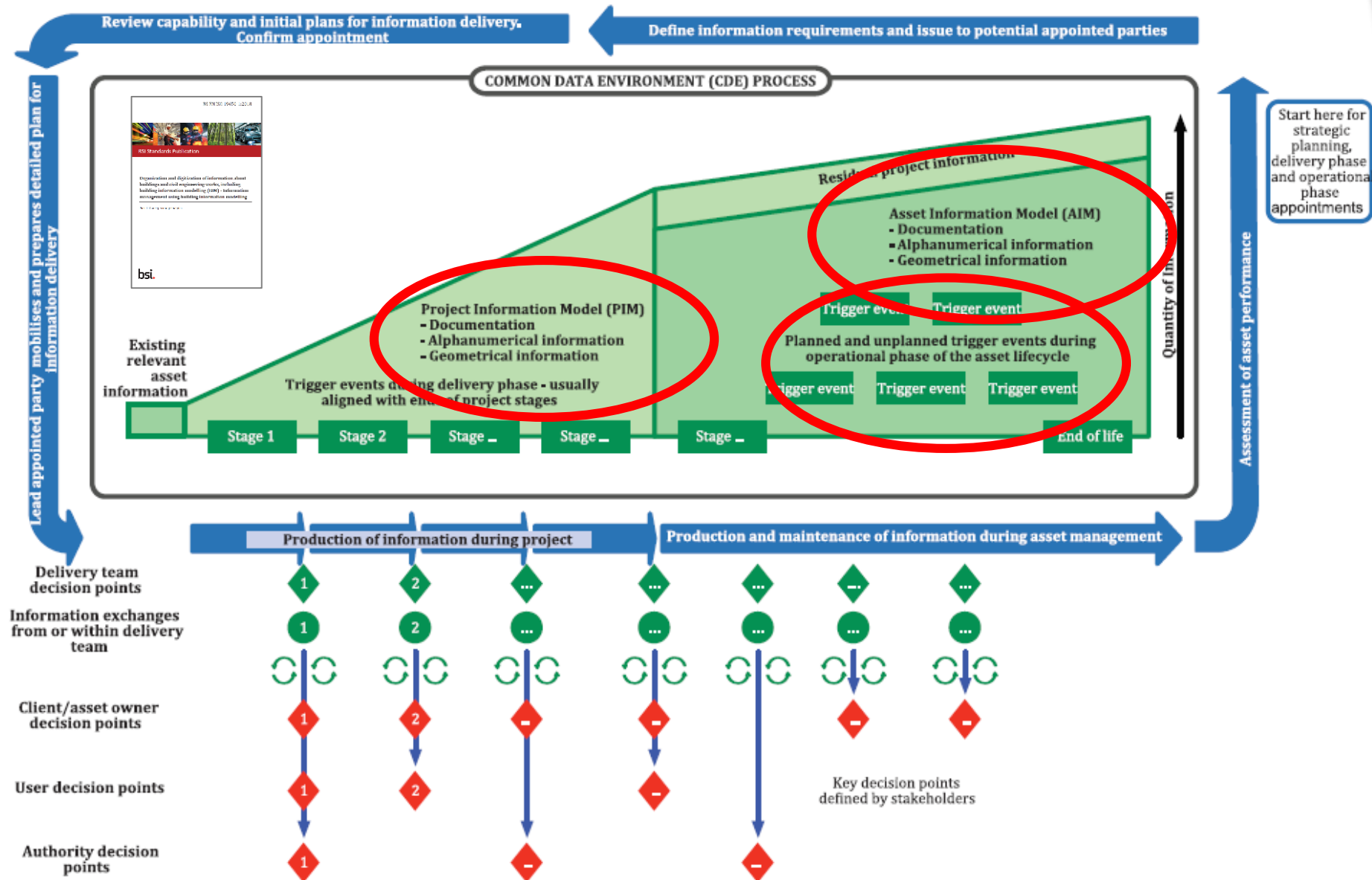
Collaboration and CDE Platforms



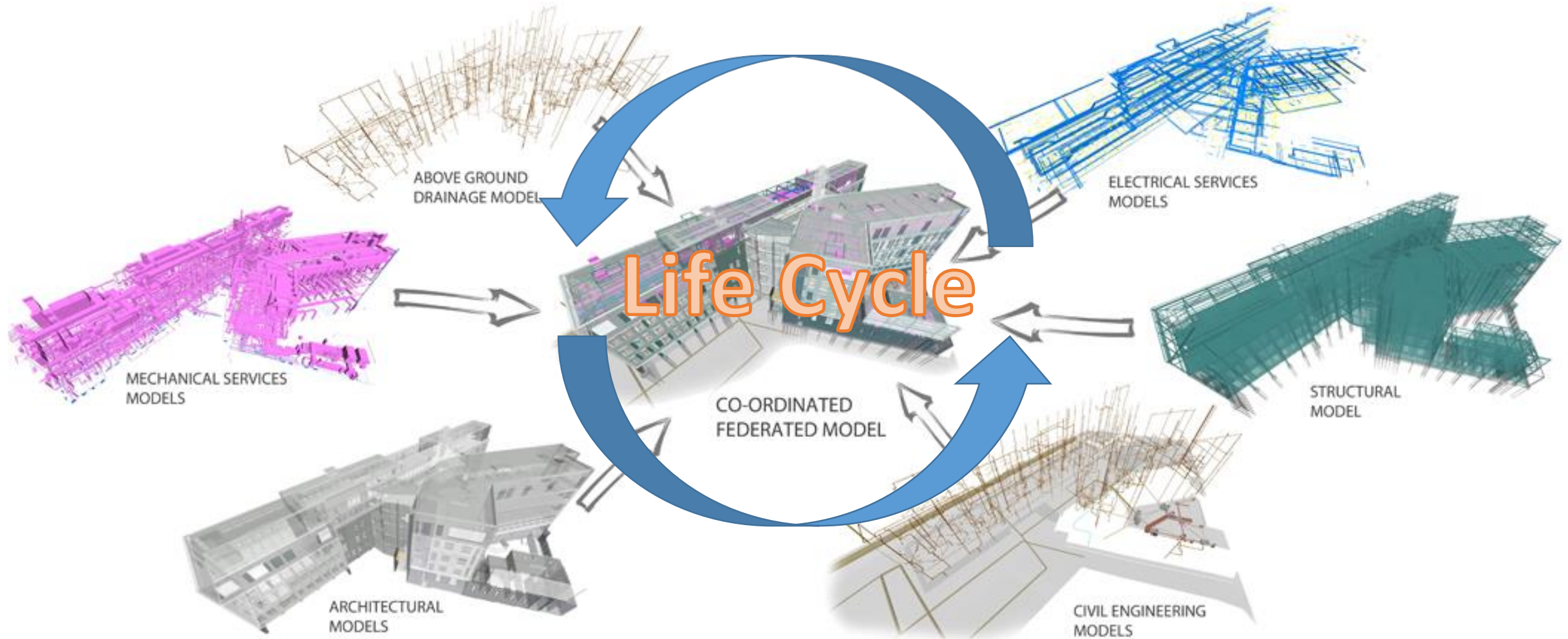
CAFM and CObie Outputs



BIM Process Diagram



Building Information Modelling



How does this work in Industry?

<https://www.thenbs.com/knowledge/what-is-building-information-modelling-bim>

What is BIM videos - NBS

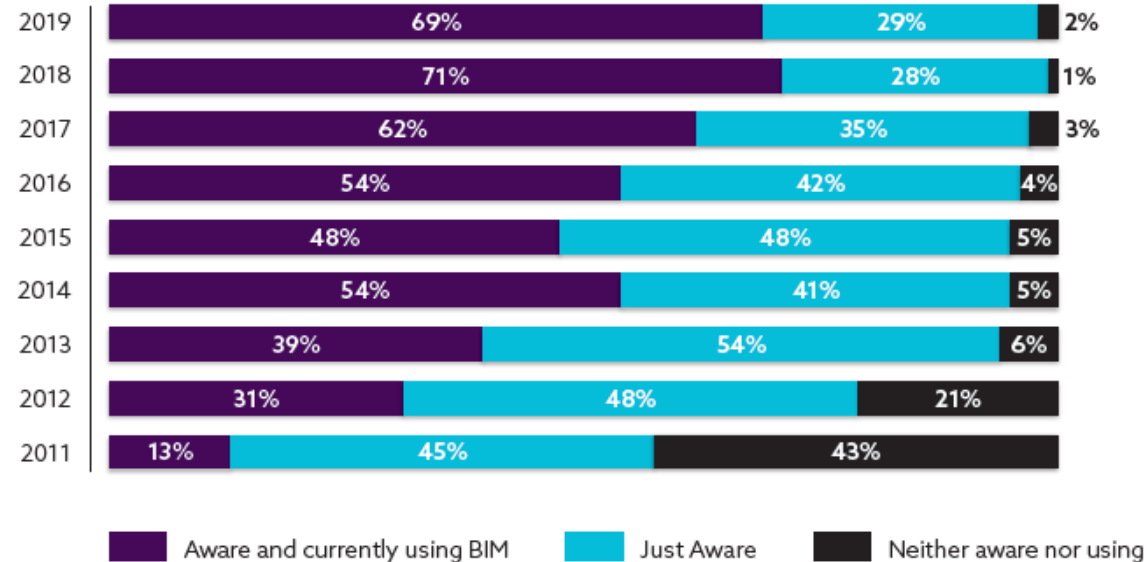
How is this working within Industry?

BIM Adoption 2019



■ Aware and using | **69%**
■ Just aware | **29%**
■ Unaware | **2%**

BIM Adoption over time



Note: The way we calculated BIM adoption in 2018 was slightly different to this year.
The figure for 2018 shown here is calculated the same way as this year's figure and those prior to 2018.

'So, is BIM now common practice in the industry? In the analysis of this year's findings we consider the extent to which BIM usage in the UK has become embedded in design practice. We look at where BIM is yet to be adopted and what the impediments are to it being universally used and beneficial to the industry as a whole. Each year, the survey that underpins this report is publicized by a number of professional bodies and institutes so that a range of industry perspectives is represented. We are extremely grateful to those organizations for collaborating with us to facilitate the participation of so many construction professionals in this research. Almost a thousand (988) construction industry professionals completed this year's survey: more than participated in last year's survey. Engagement with BIM remains high and we thank all those taking the time to give their views.'

Use of BIM

Almost all respondents know about BIM: only 2% said that they were not aware of it, and less than 1% weren't sure. Of the 98% that were aware¹, just under three quarters (73%) said that their organization had adopted BIM for projects they've been involved with.'

<https://www.thenbs.com/knowledge/national-bim-report-2019>



Wk 02 Posts Files Notes Fill | ACBA 5010 BIM 1 more +

ACBA 5010 BIM

Quiz to test your knowledge of BIM

Hi Gavin, when you submit this form, the owner will be able to see your name and email address.

1. BIM is a software that allows you to develop 3D designs from inception to completion and beyond.
(2 Points)

☐ True

☐ False

2. The new BSi BIM standards are:
(2 Points)

☐ European ISO Standards

☐ UK BS ISO Standards

BIM – Quiz

10 questions





EIR

Exchange Information Requirements

BEP

BIM Execution Plan

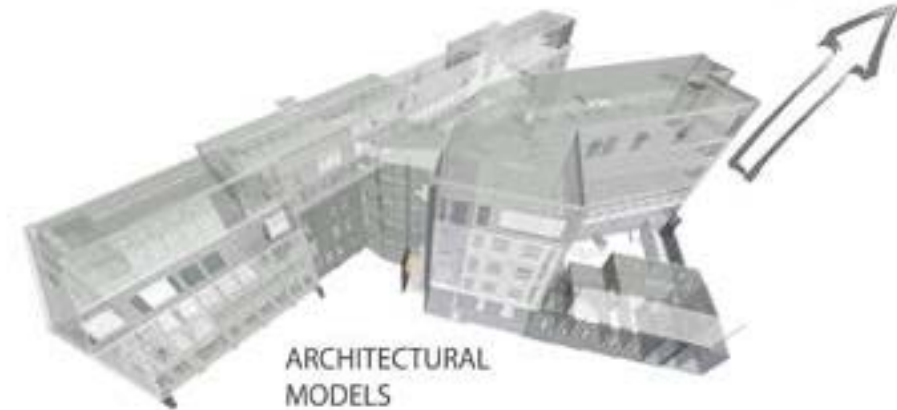
AIR

Asset Information Requirements



How can we create data rich intelligent models?

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

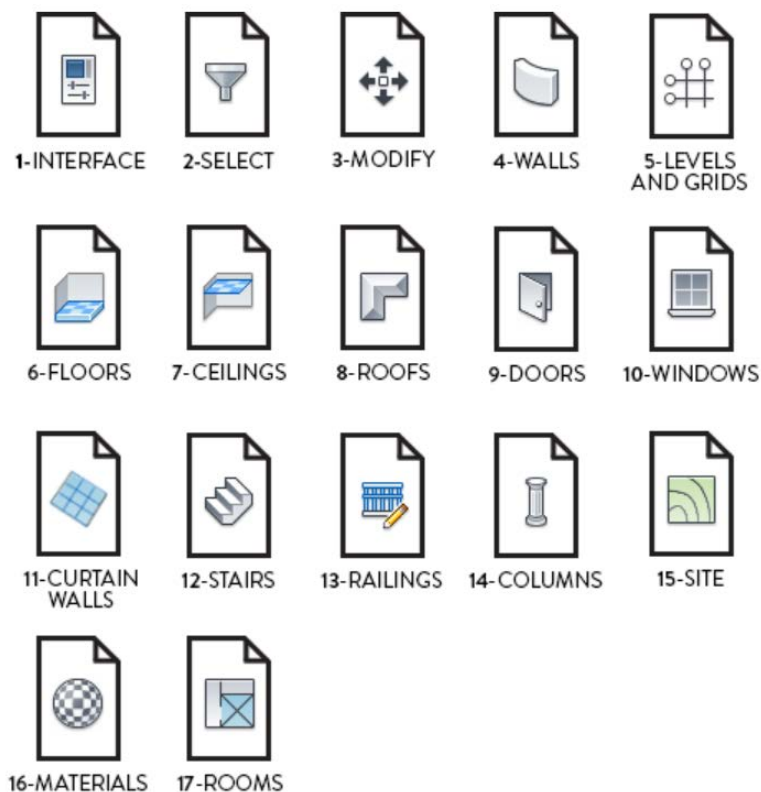


Remember a Revit Model alone is not BIM

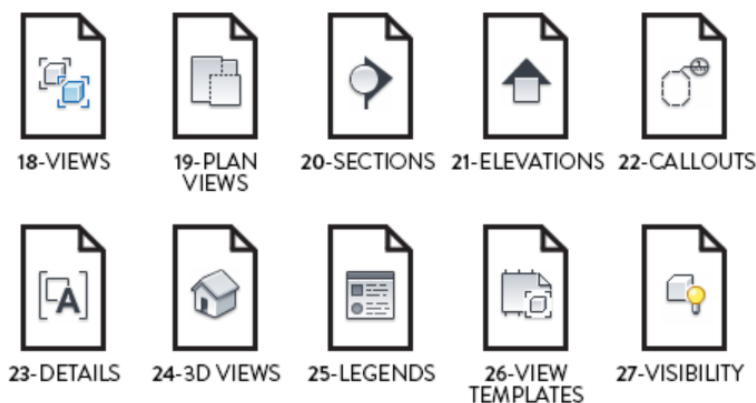


https://www.autodesk.com/education/edu-software/overview?_ga=2.119678017.834319708.1600961686-1615692111.1593105833&sorting=featured&page=1

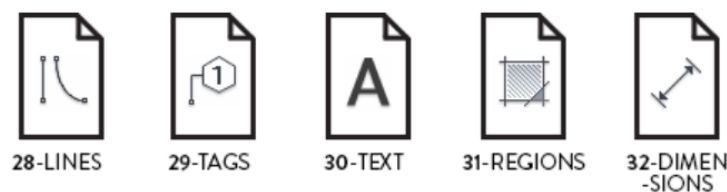
PART 1: MODEL



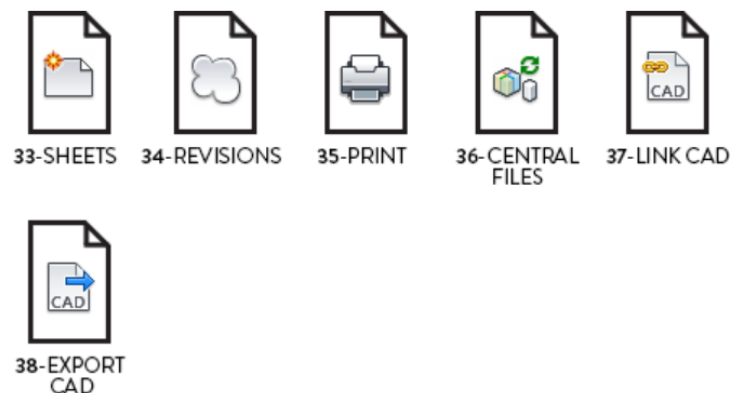
PART 2: VIEWS



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

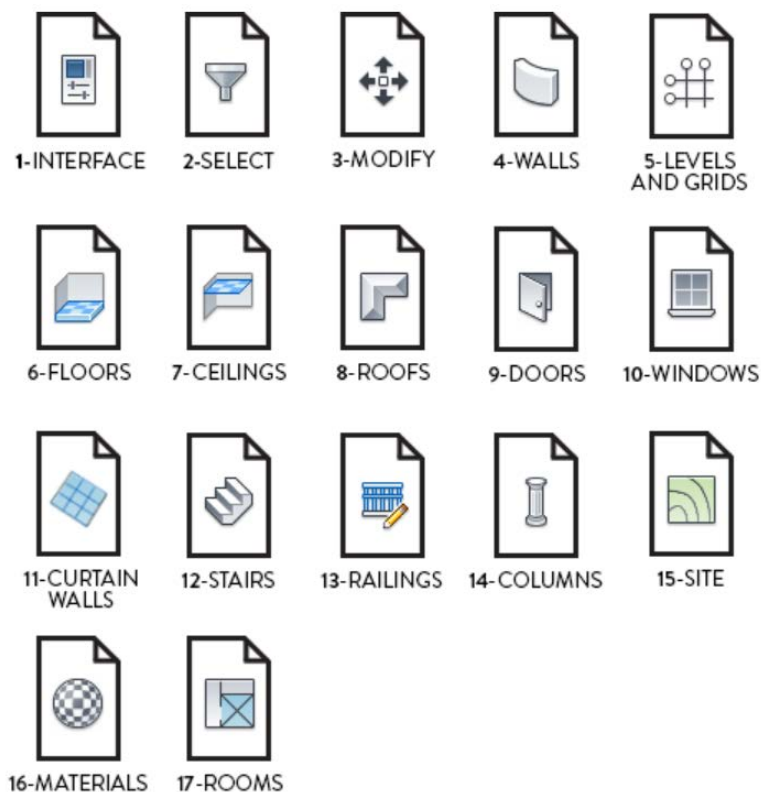


45-DESIGN
OPTIONS

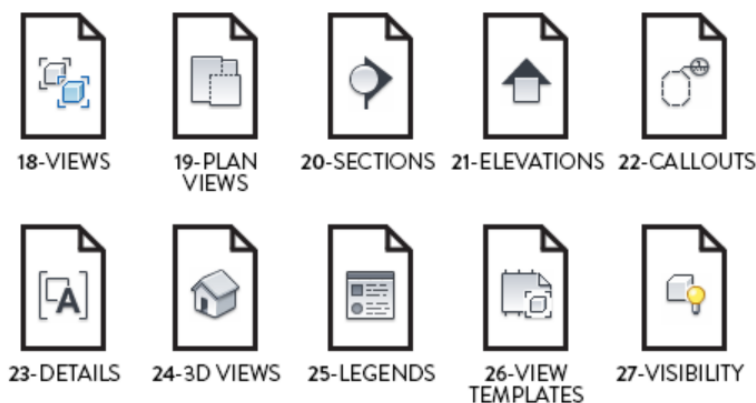


- Creating Schedules for pricing
- Phased Works
- Central Models / Worksets / Federated Models
- Families
- Advanced Modelling:
Sweeps Reveals and Model In Place
- *Collaboration and interoperability*
- *VR Visualisation*

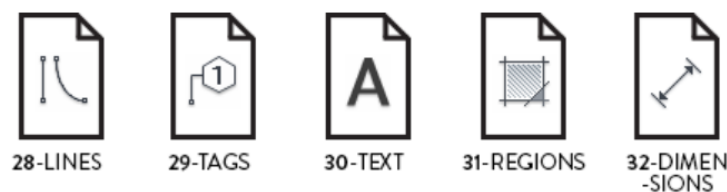
PART 1: MODEL



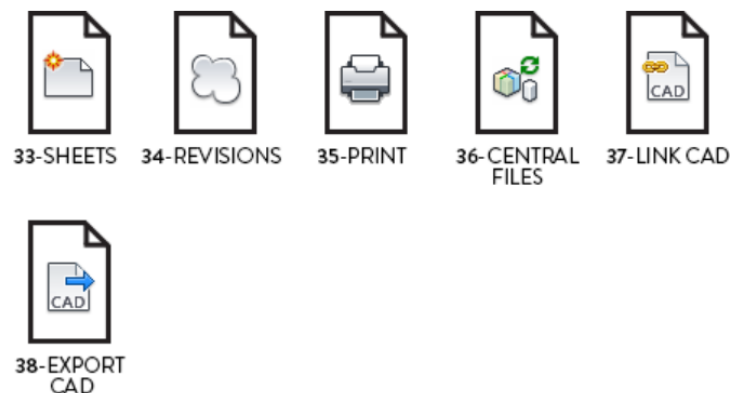
PART 2: VIEWS



PART 3: ANNOTATE



PART 4: PUBLISH AND COLLABORATE

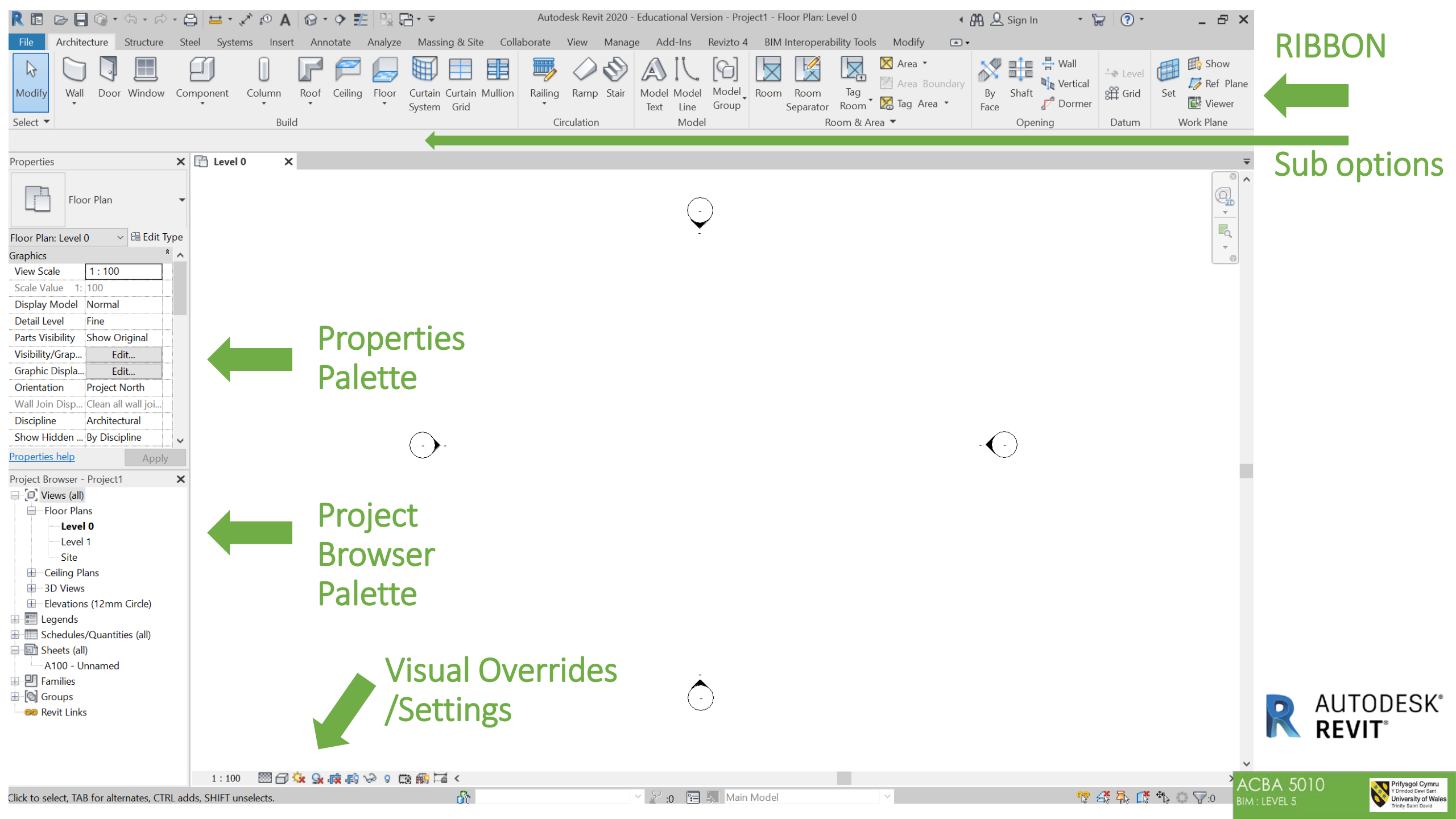


PART 5: ADVANCED TOOLS



<https://revitpure.com/basics>

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



RIBBON

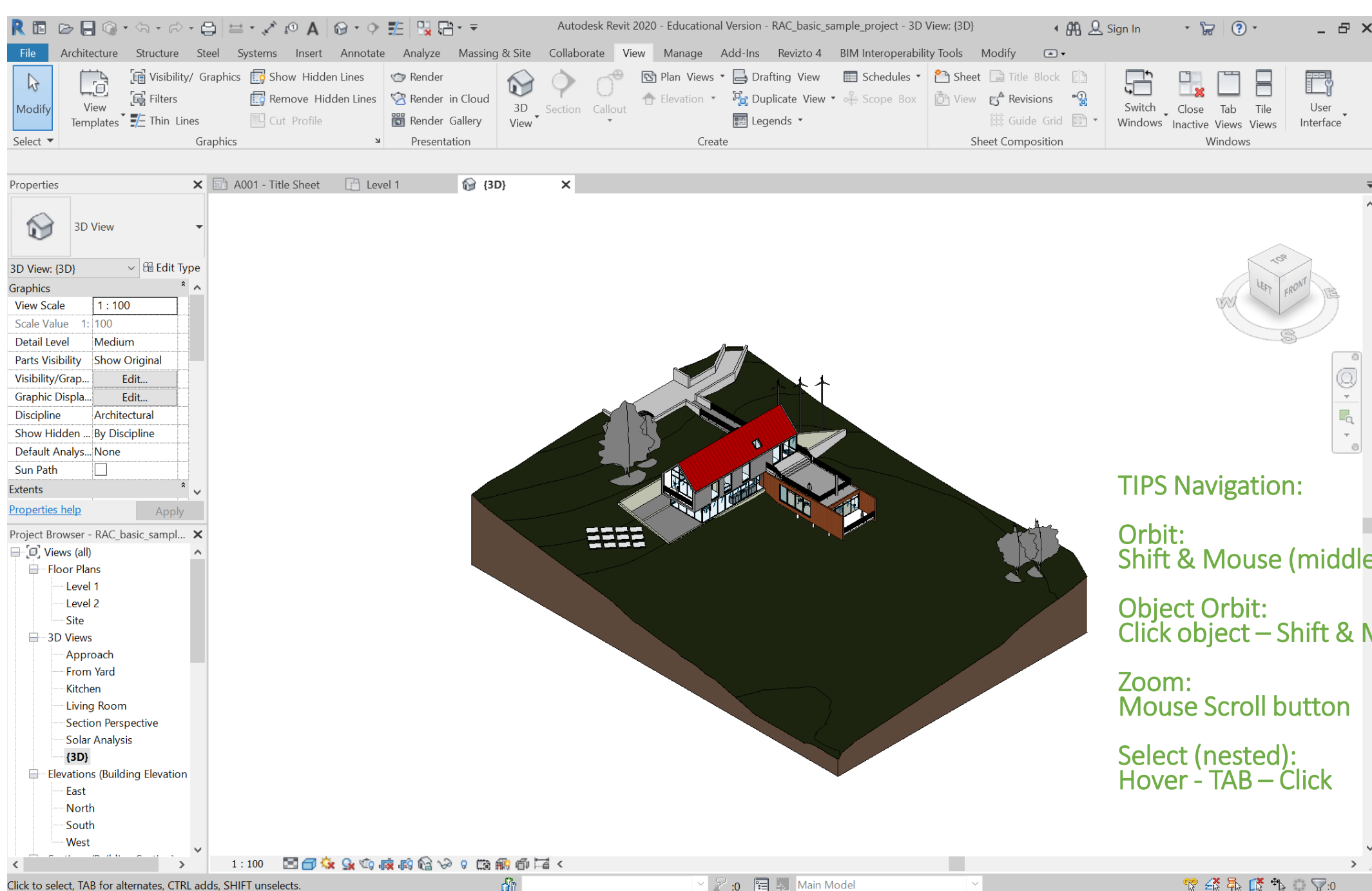
Sub options

Properties
Palette

Project
Browser
Palette

Visual Overrides
/Settings





1-INTERFACE



2-SELECT



3-MODIFY

TIPS Navigation:

Orbit:
Shift & Mouse (middle button)

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

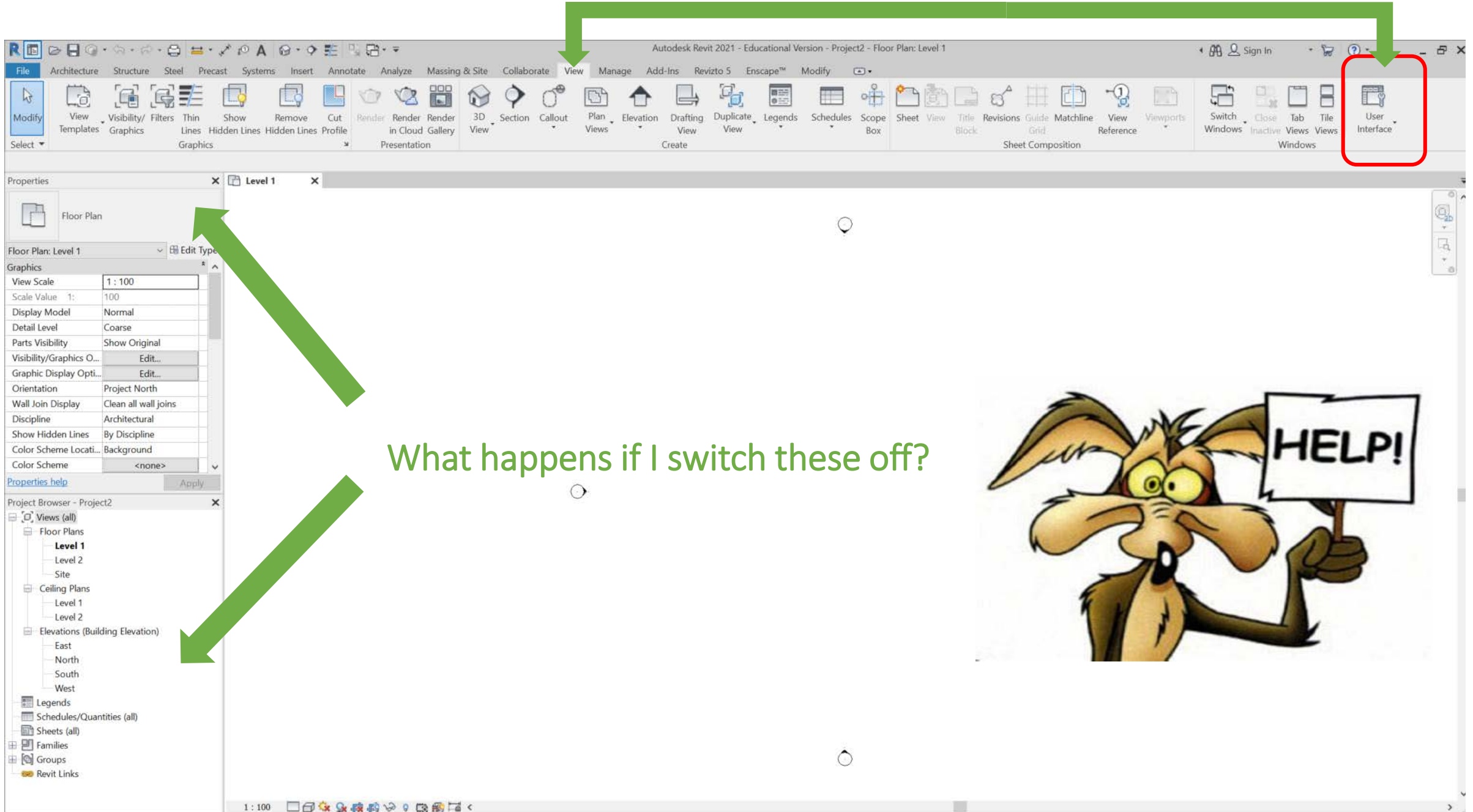
Zoom:
Mouse Scroll button

Select (nested):
Hover - TAB – Click

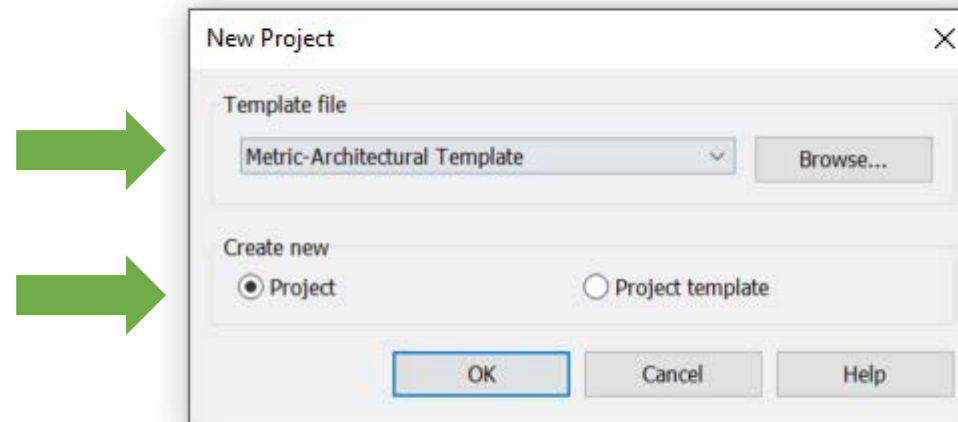
AUTODESK®
REVIT®

ACBA 5010
BIM : LEVEL 5

Prifysgol Cymru
University of Wales
Trinity Saint David



File > New > Project



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

Properties

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

Main Model

Set up Levels

Exercise 1

Workshop in REVIT.

Set up your levels in Elevation view.

Distance between levels of 2500mm

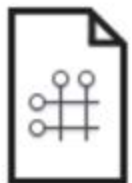
EASY?

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



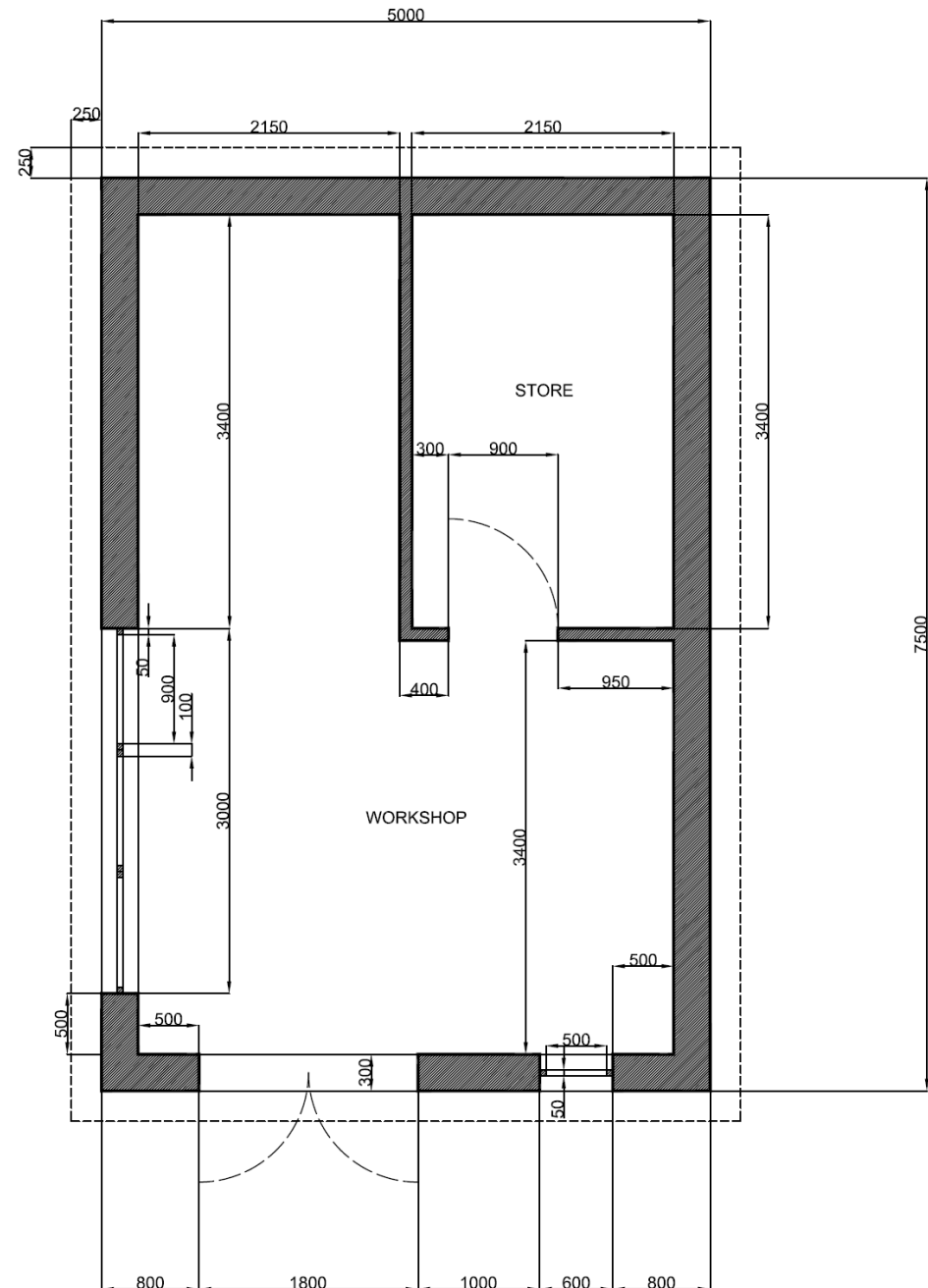
8-ROOFS



9-DOORS



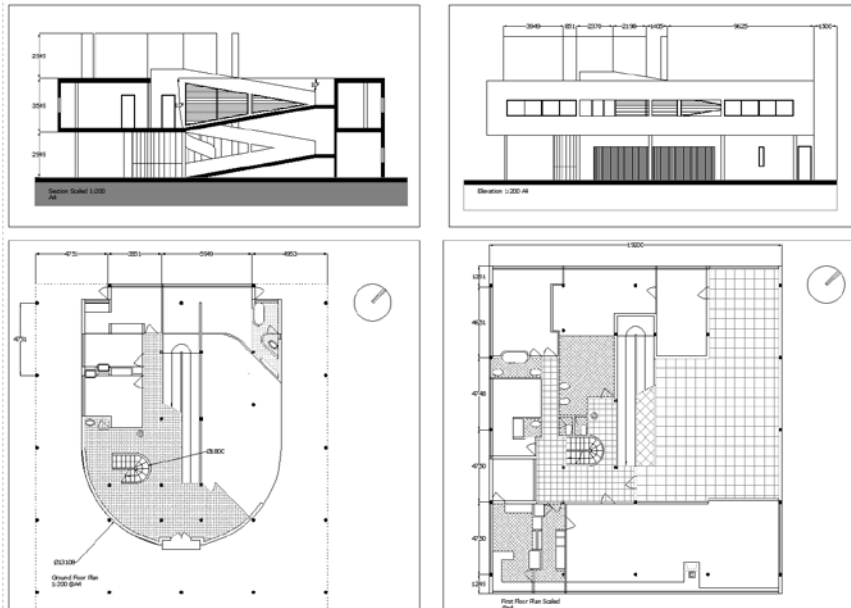
10-WINDOWS



Exercise 2

Villa Savoye – Poissy, Paris. Le Corbusier

Draw up the Revit Model from CAD files provided.



<https://youtu.be/PM5B2I2U6Ek>

Creating /Editing



4-WALLS



6-FLOORS



8-ROOFS



9-DOORS



10-WINDOWS



Type Properties

Family: System Family: Basic Wall

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

LOAD...
Duplicate...

Type Parameters

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/(m²·K)
Thermal Resistance (R)	4.2386 (m²·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



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

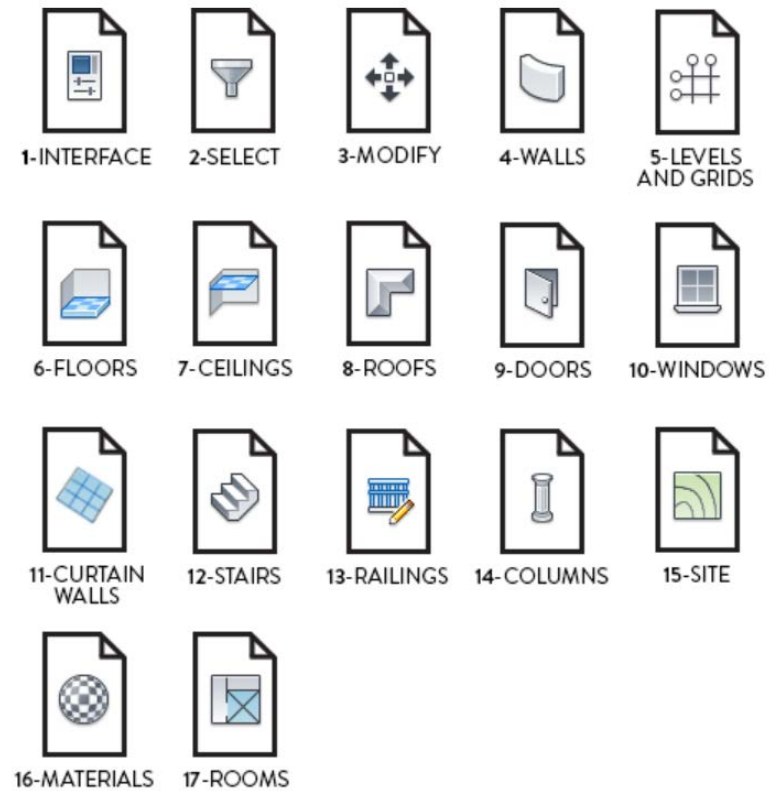
Click the preview Tab to
show what the object make
up in plan and section.

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

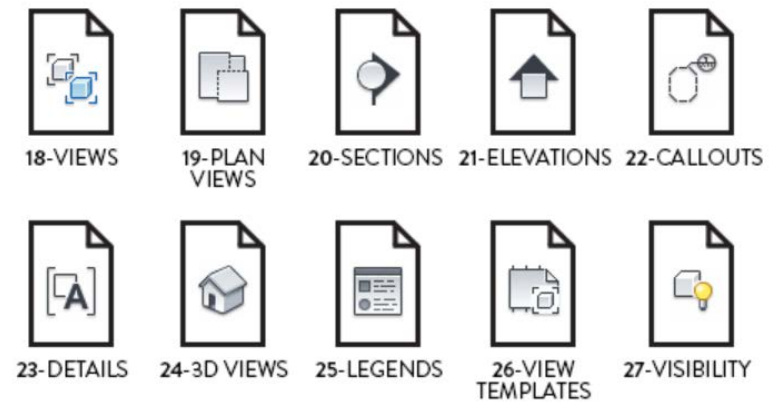
View: Floor Plan: Modify typ

Preview >>

PART 1: MODEL



PART 2: VIEWS

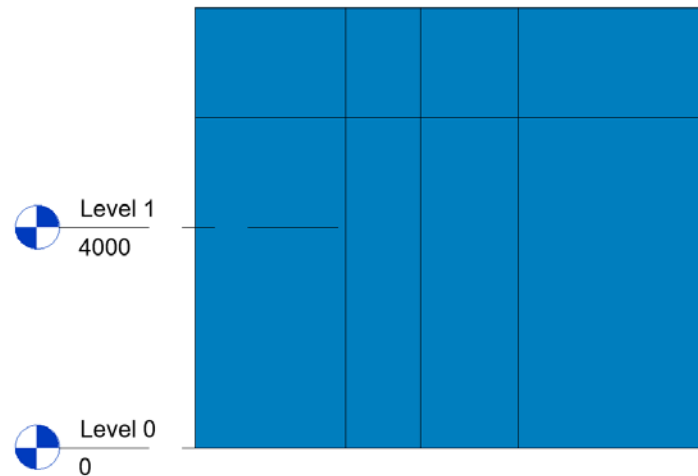
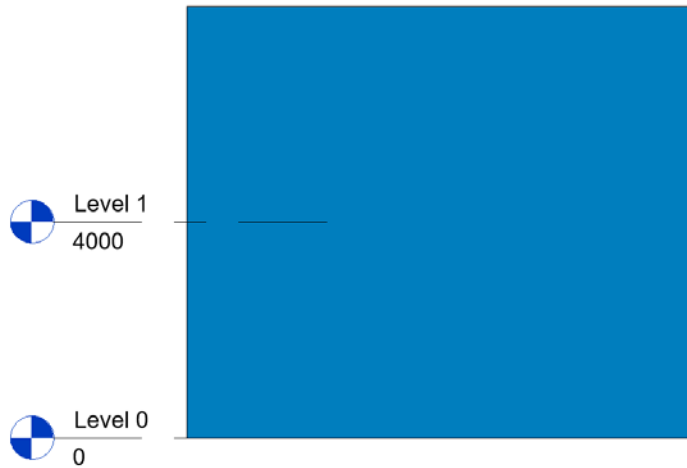




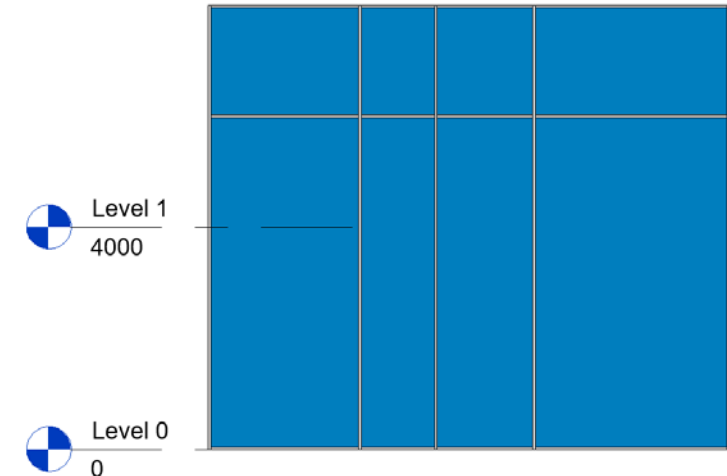
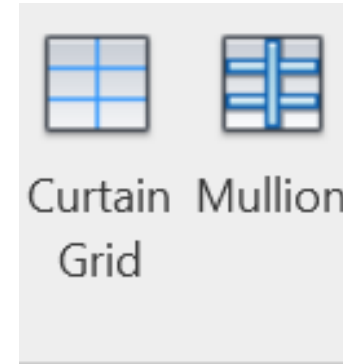
Curtain Walling – By Wall

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

Go to elevation view – change
visibility to shaded

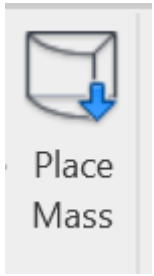


Add a Curtain Grid to your
curtain wall to required
horizontal and vertical
spacing.

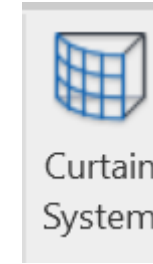
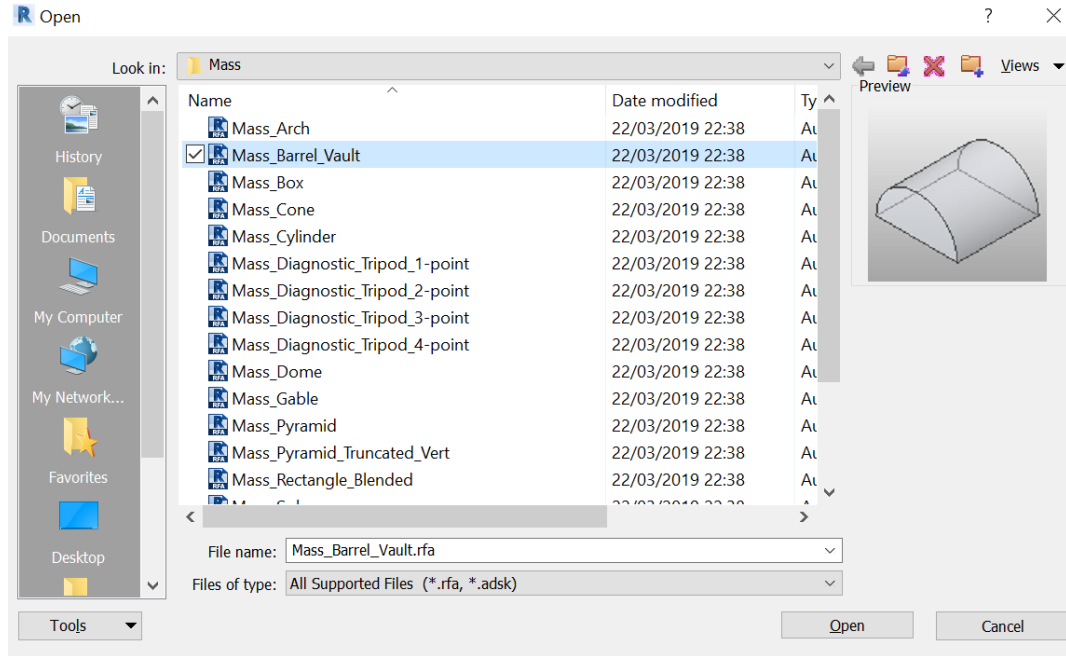


Change grid lines to Mullions by
clicking the mullion icon.

Load appropriate Mullion families.

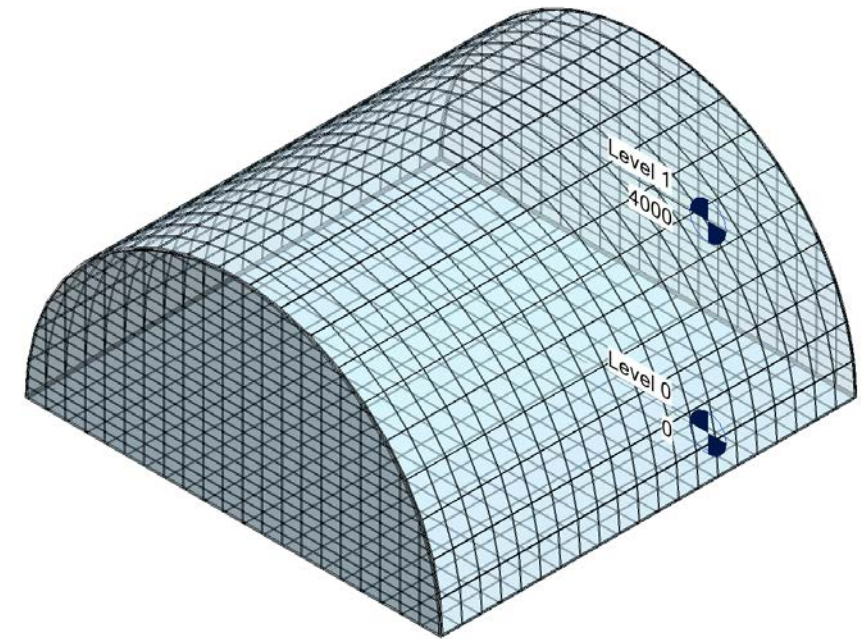
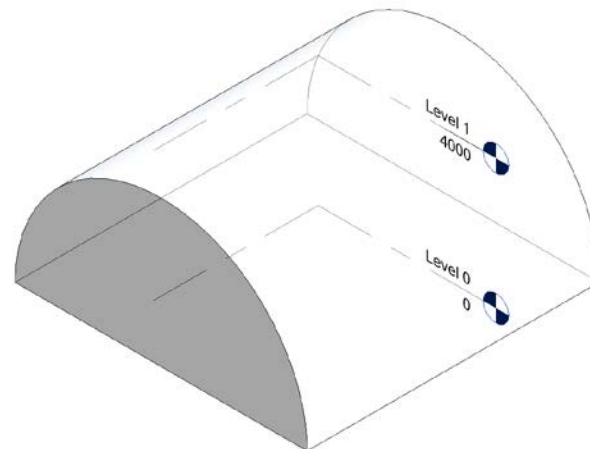


Curtain System by Mass. Under Massing & Site selected Place Mass



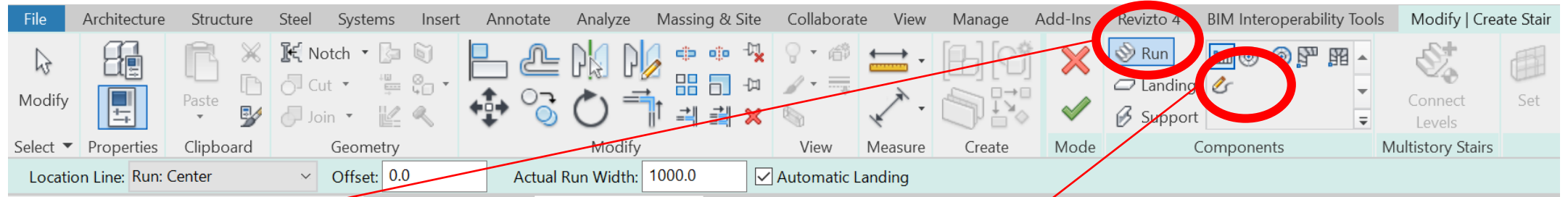
Click 'Curtain System' Select all faces of the mass. In the properties palette change the number of grids of the system. Once you have the appropriate number of grids click 'Create System'

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





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

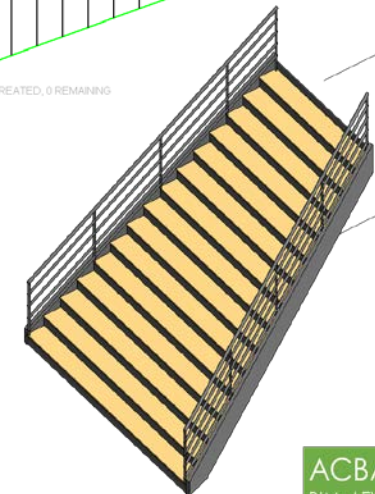
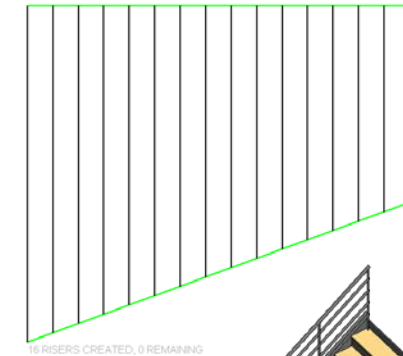
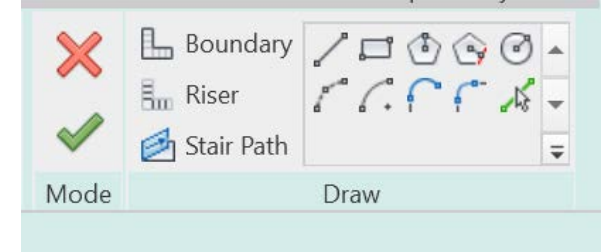
Create a Stair Sketch.

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

Click Boundary (green lines) and draw boundary lines.

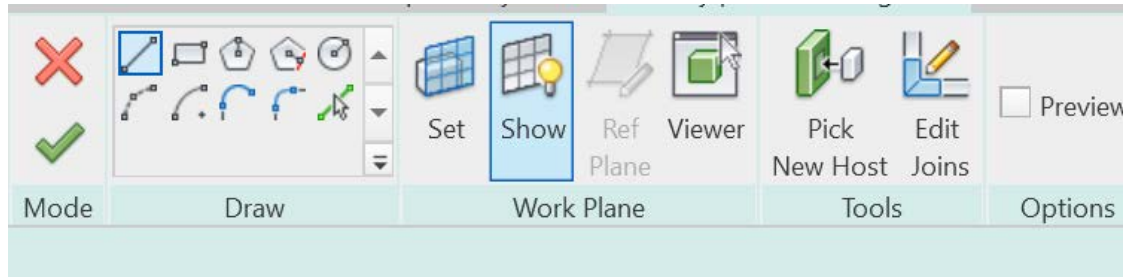
Click Riser (black lines) and draw risers until 0 risers remain.

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

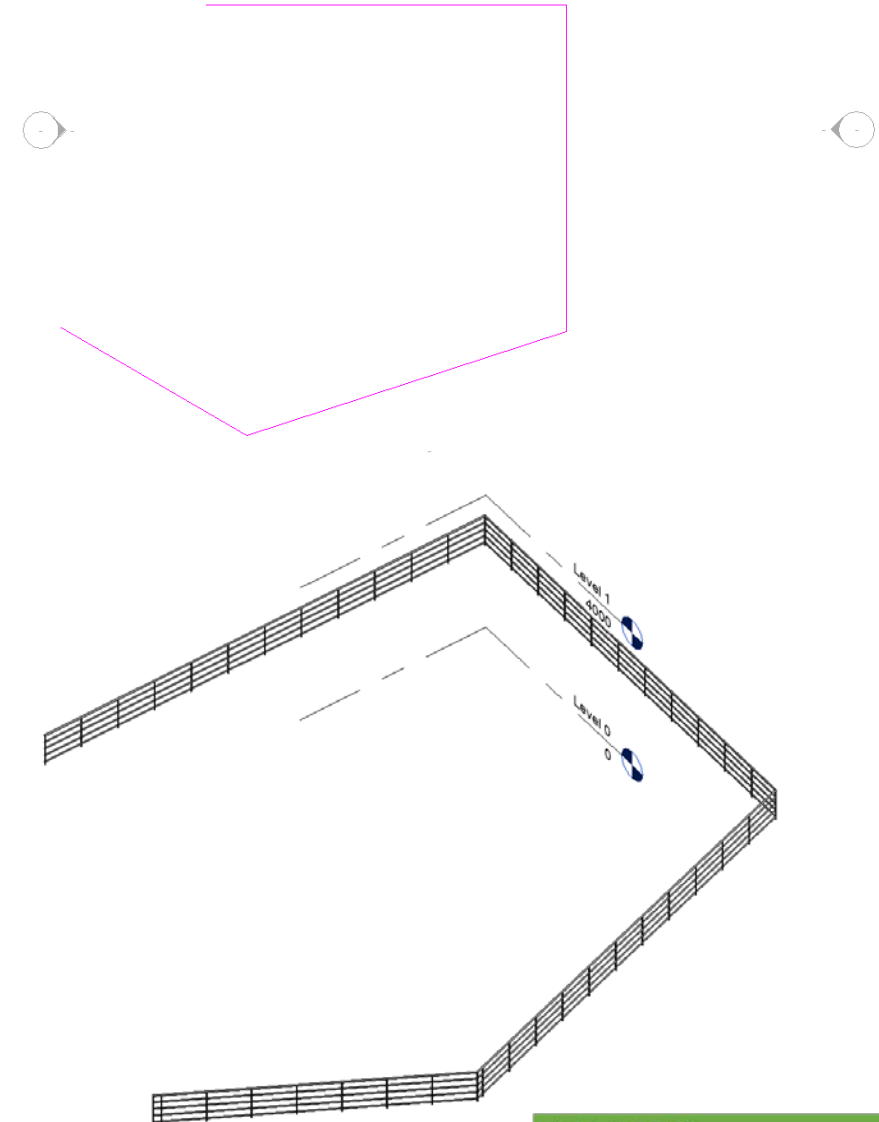
Phase Created	New Construction
---------------	------------------

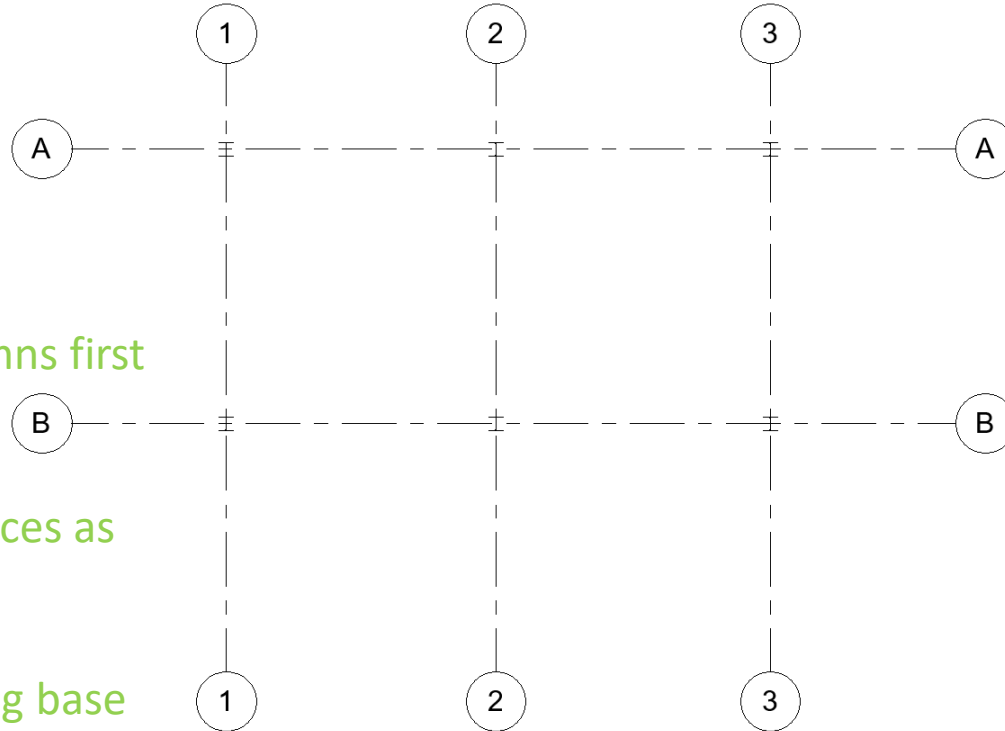
Create Railings by sketching lines

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

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

Click the TICK



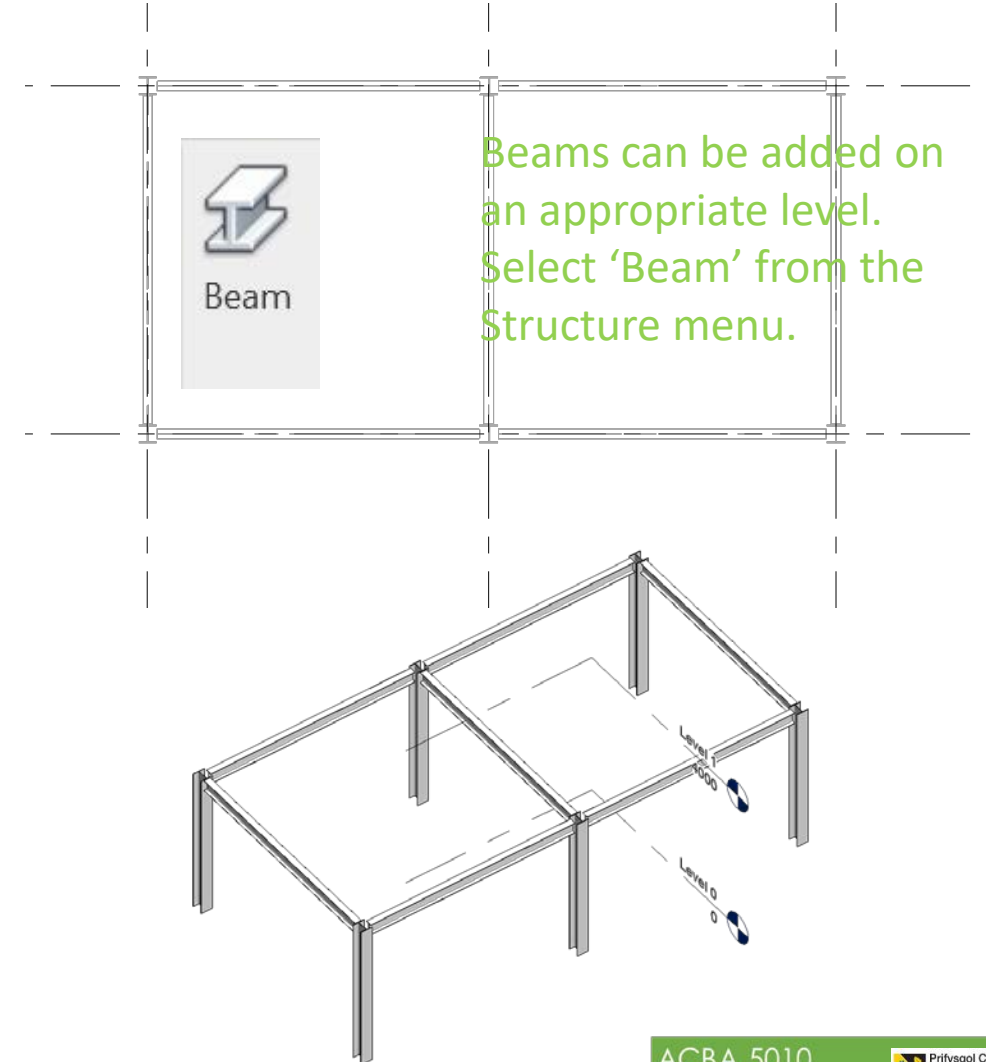


Before placing Columns first start with a GRID

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)

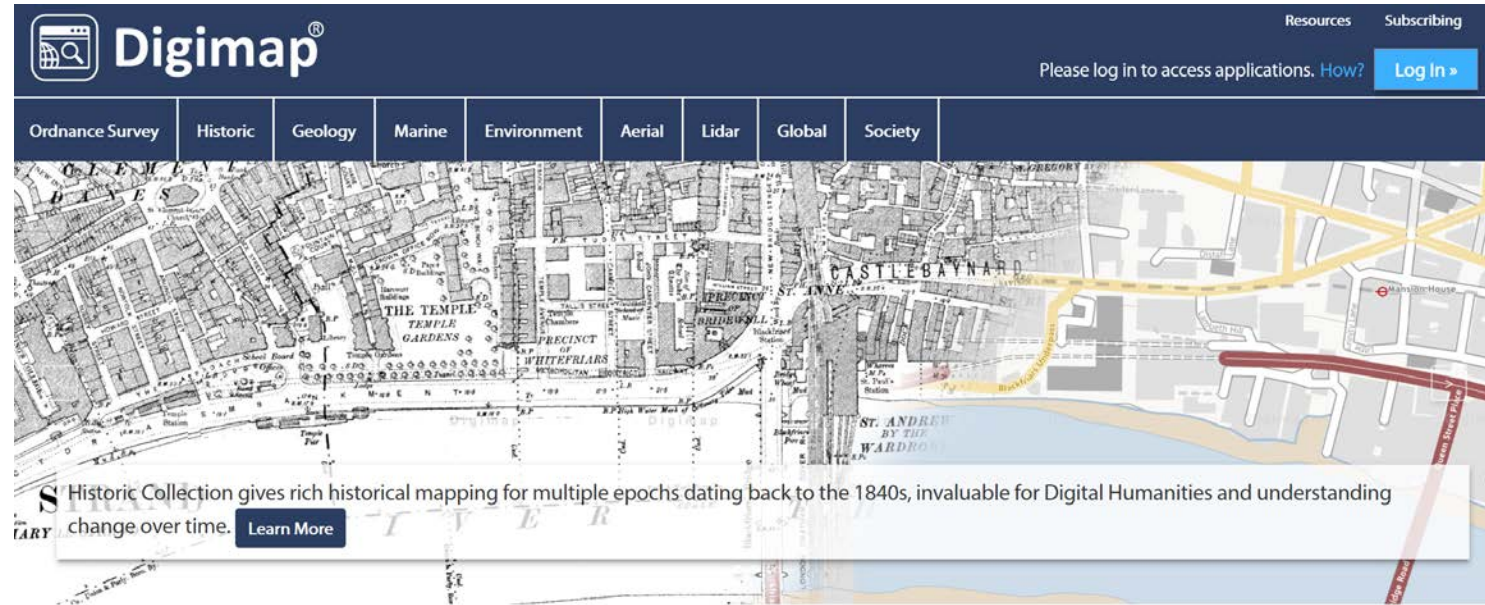


Topographical Surface – Use of Digimap



15-SITE

<https://digimap.edina.ac.uk>



What is Digimap?

Digimap is an online map and data delivery service, available by subscription to UK Higher and Further Education establishments. Operated by EDINA at the University of Edinburgh, Digimap offers a number of data collections, including Ordnance Survey, historical, geological, LiDAR and marine maps and spatial data.

What are we offering?

Digimap offers access to a range of datasets for the purposes of education and research. Create or interrogate a map online by selecting an appropriate base map, adding annotations and customising the content, use measurement and query tools to learn more about any study area. Download the raw spatial data in a wide range of formats for use in local GIS, CAD or image processing software.

Subscription Information

Digimap is available to members of subscribing higher and further education institutions in the UK. Individual registration is required, but the service is free at the point of use. More information about subscription fees can be found on our [website](#).



15-SITE

True North and Project North

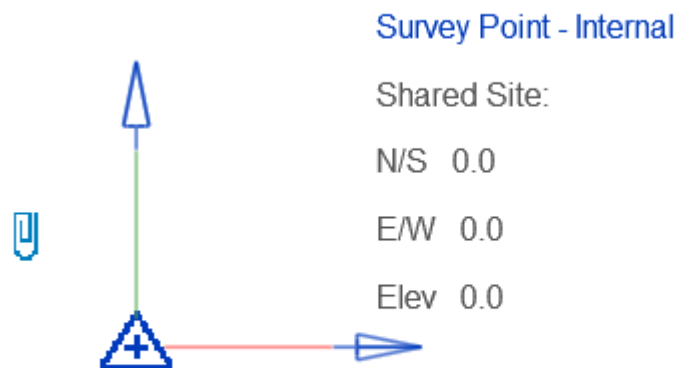
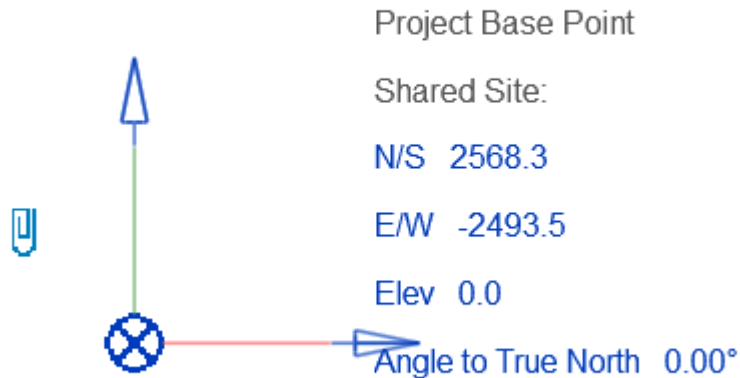


Understanding the use of the coordinate system in Revit is essential for BIM.

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

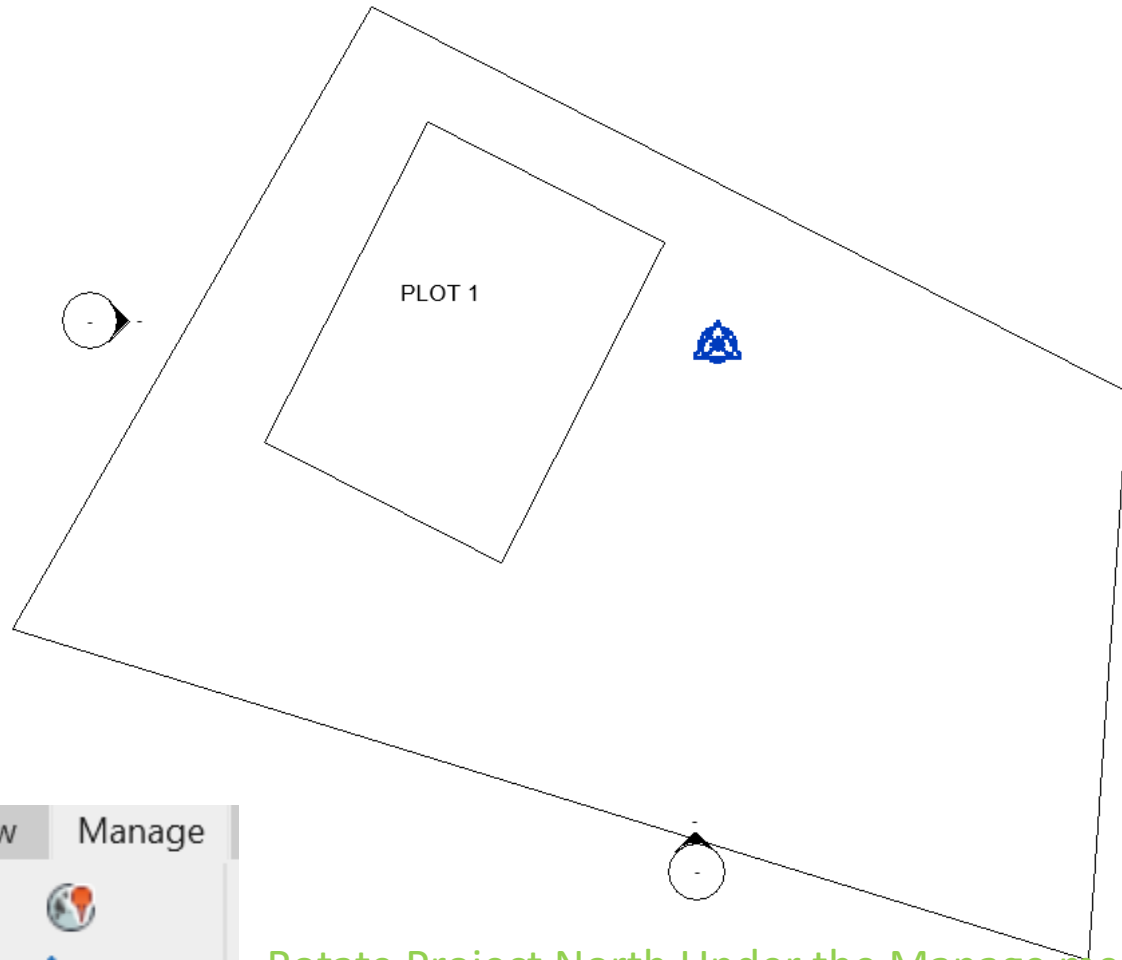
Floor Plan: Site Edit Type

Graphics

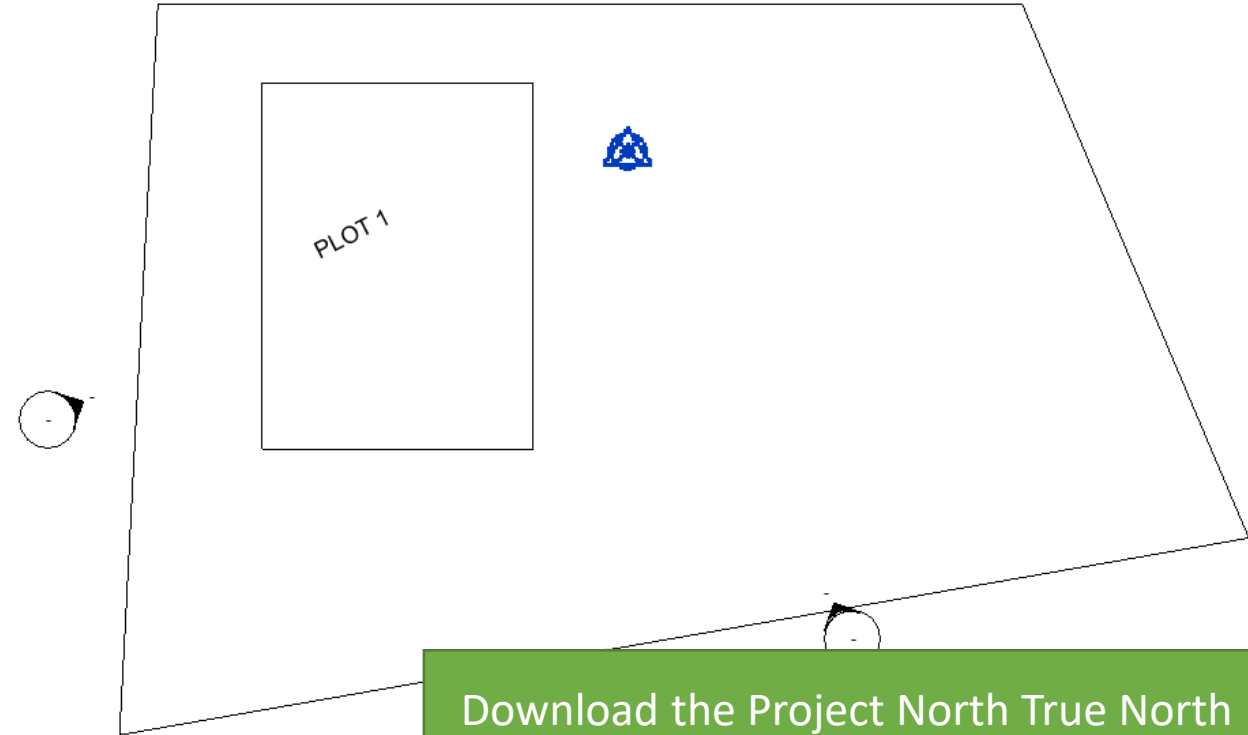
View Scale	1 : 100
Scale Value 1:	100
Display Model	Normal
Detail Level	Coarse
Parts Visibility	Show Original
Visibility/Graphics Ov...	Edit...
Graphic Display Opti...	Edit...
Orientation	True North
Wall Join Display	Clean all wall joins
Discipline	Architectural
Show Hidden Lines	By Discipline

[Properties help](#) Apply

TRUE NORTH

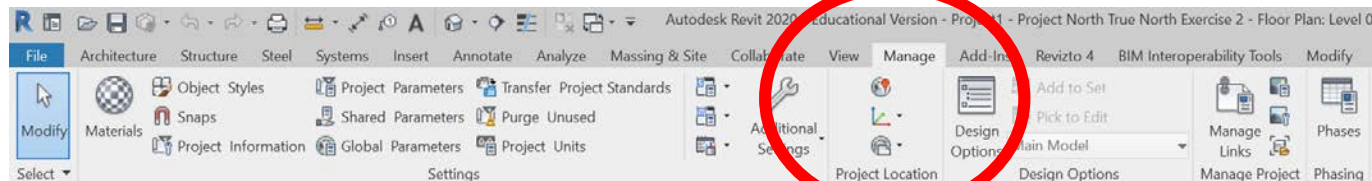
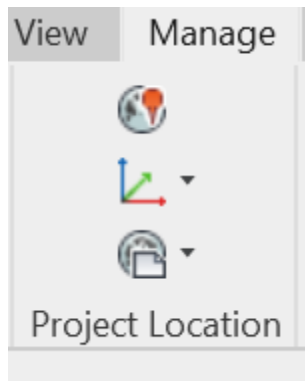


PROJECT NORTH



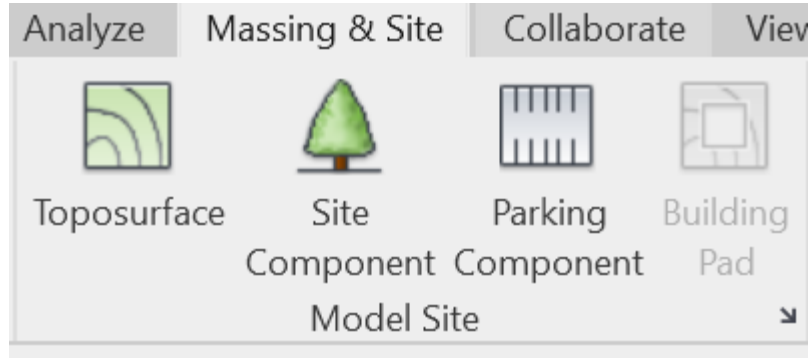
Rotate Project North Under the Manage menu

Download the Project North True North Exercise Projects 1 & 2 Teams Files Wk2



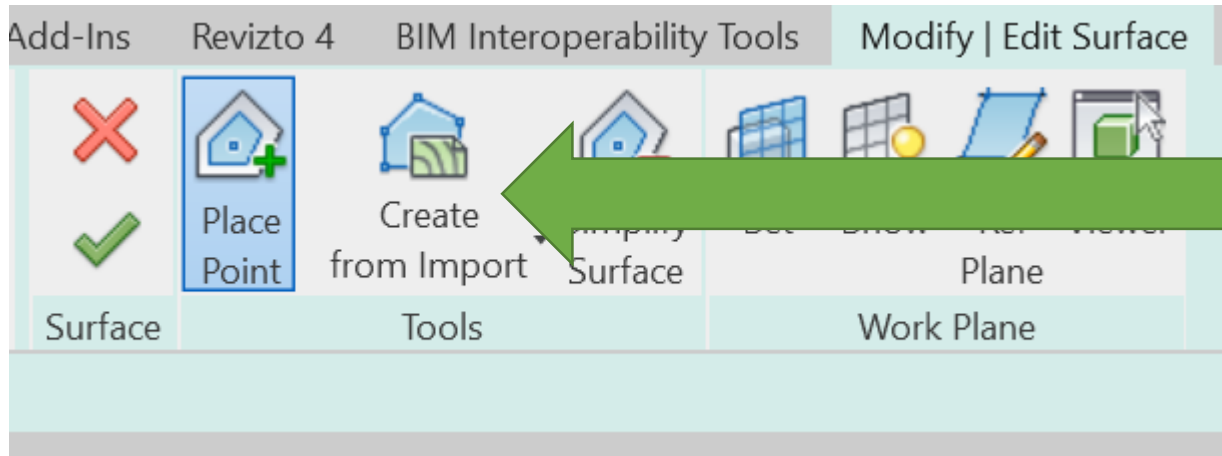


15-SITE



Topography can be created by placing points of the correct elevation value or from an imported site survey.

Use the digimap contours plan to create a toposurface for your house.





Material Browser - Roofing, Tile

Project Materials: All

Name
Roofing, Tile
Roofs
Sand
Shades
Site - Hardcore
Slabs on Grade
Sliding Doors

Home

Name

Spanish Tile - Brown

Information

Generic

Color: RGB 255 255 255

Image: thermal_moisture.roof.tiles.spanish.brown.colour.png

Image Fade: 100

Glossiness: 20

Highlights: Non-Metallic

Reflectivity

Transparency

Cutouts

Self Illumination

Bump

Tint

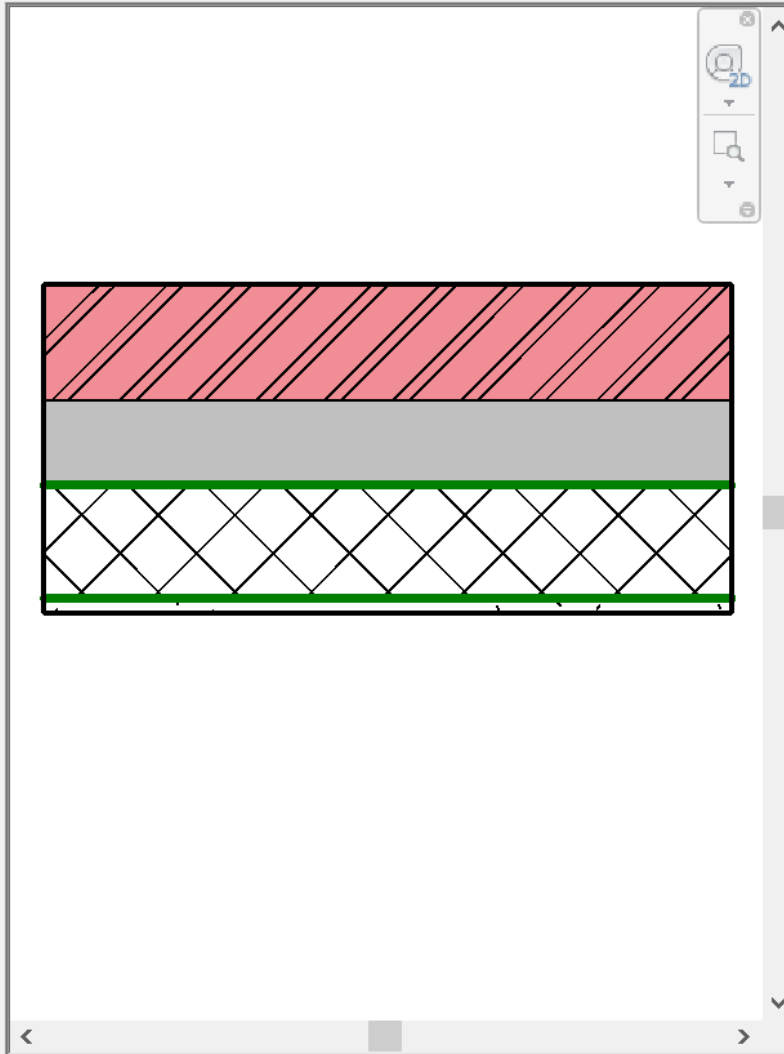
OK Cancel

ACBA 5010
BIM : LEVEL 5

Prifysgol Cymru
Y Ddodol Dewi Sant
University of Wales
Trinity Saint David



Edit Assembly



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

Sample Height: 6096.0

Layers

EXTERIOR SIDE

	Function	Material	Thickness	Wraps	Structural Material
1	Finish 1 [4]	Brick, Common	102.0	☒	☒
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

View: Floor Plan: Modify typ

Preview >>



18-VIEWS



19-PLAN
VIEWS



20-SECTIONS



21-ELEVATIONS



22-CALLOUTS



23-DETAILS



24-3D VIEWS



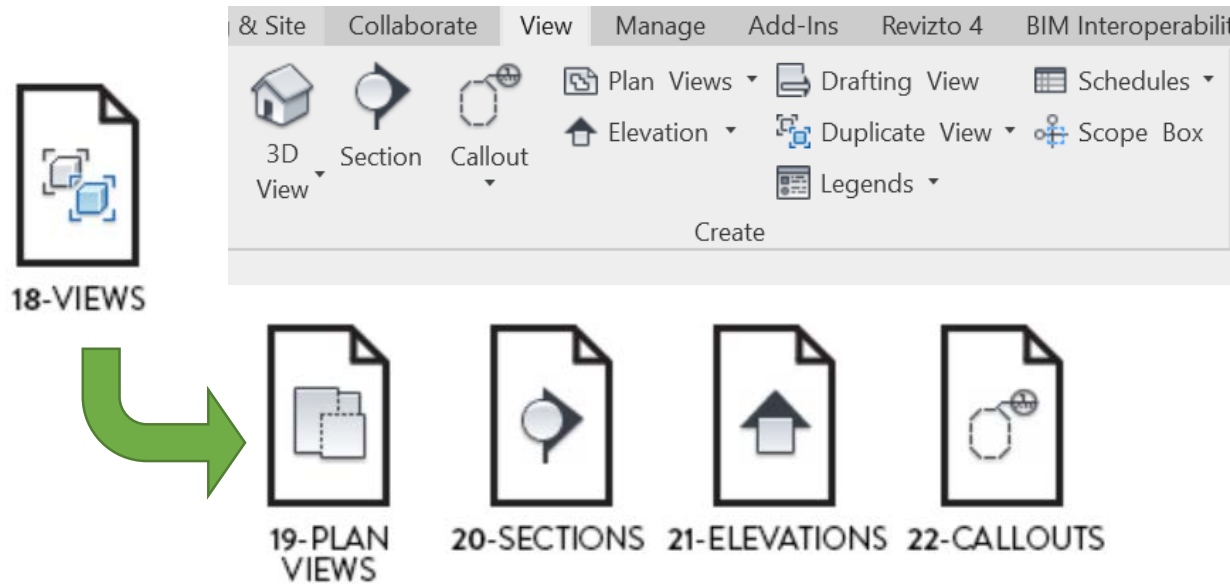
25-LEGENDS



26-VIEW
TEMPLATES



27-VISIBILITY



Revit allows you to create multiple views of your project. As you are working on one model, Revit coordinates all the information which can be presented in a varies levels of scale and detail.

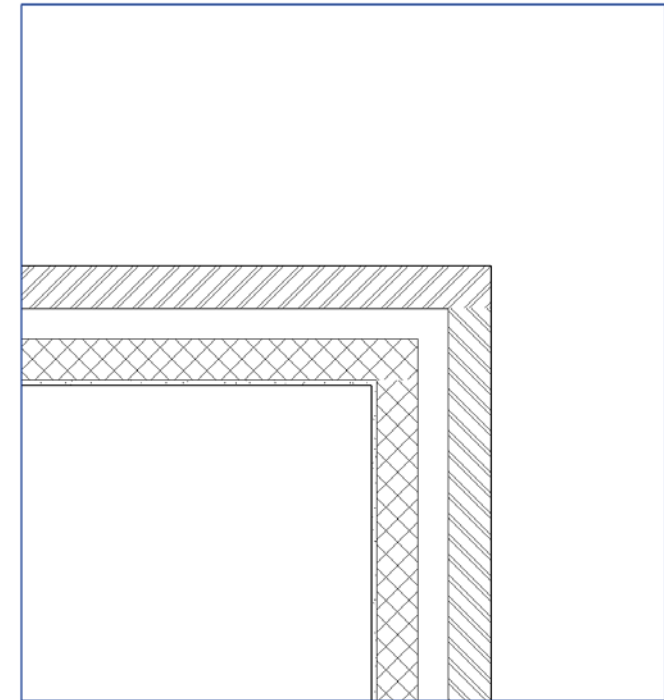
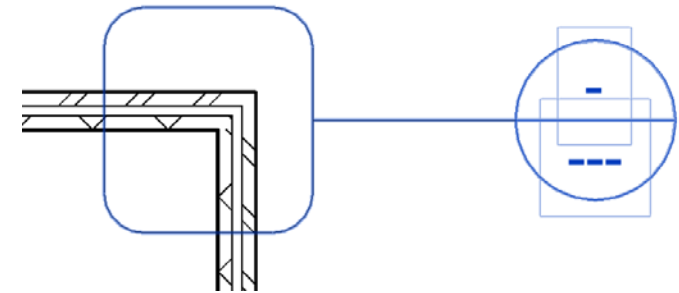
EG.

Ground Floor General arrangement plan 1:100

Ground Floor Setting out plan 1:50

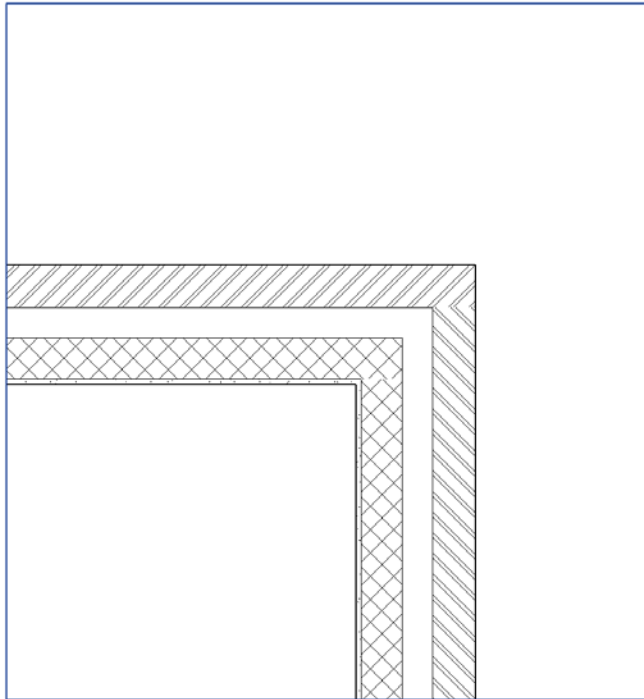
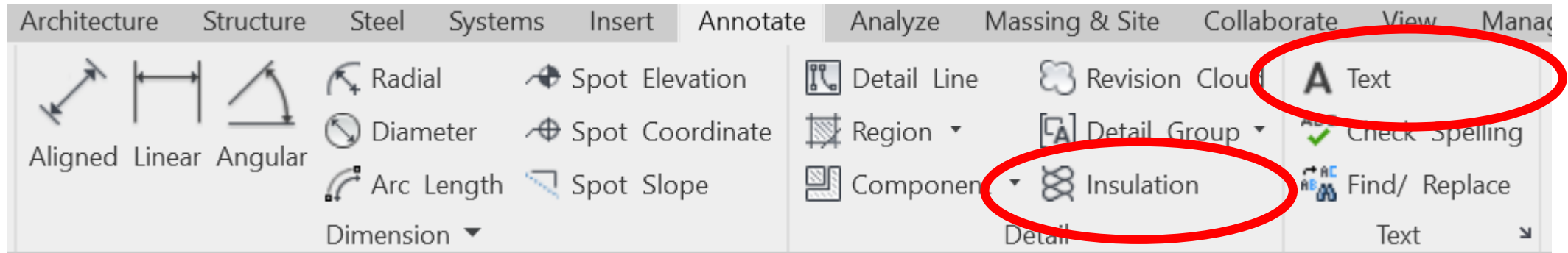
Callout detail of wall junction on plan 1:10

Views can be duplicated 'with detail' allowing multiple representations of the same view.

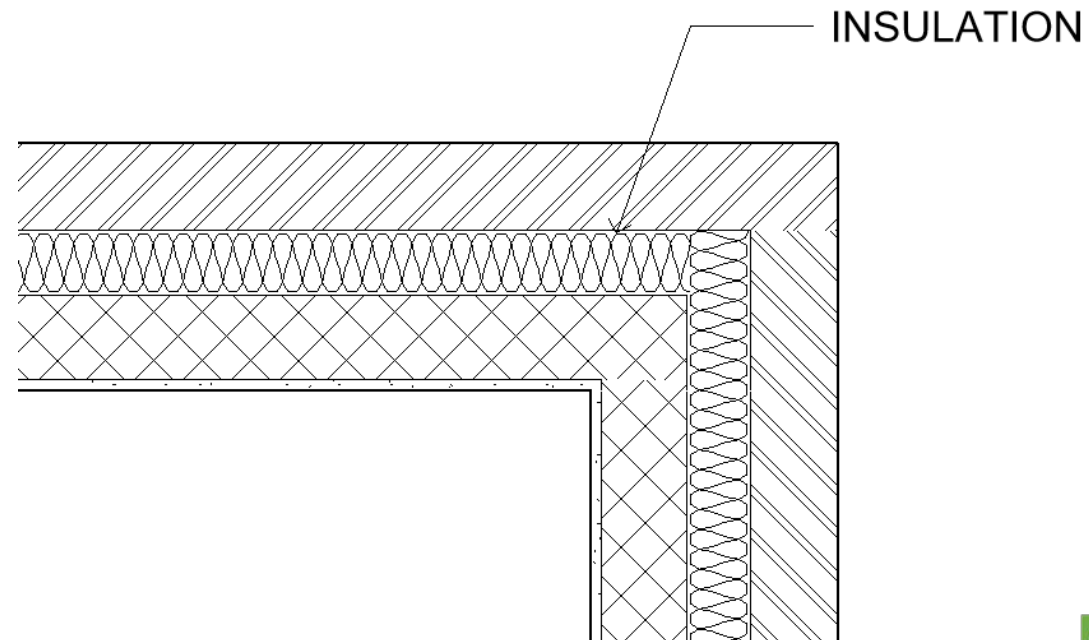




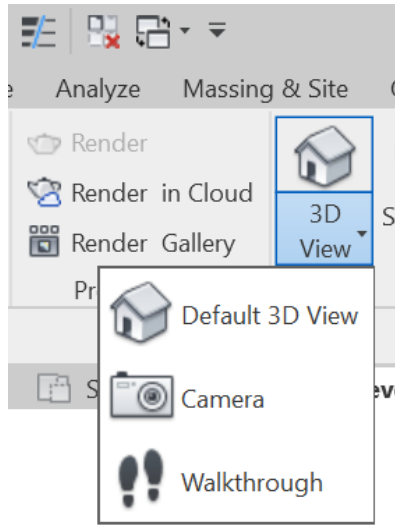
23-DETAILS



Create a Callout Detail for your house and add some annotations.



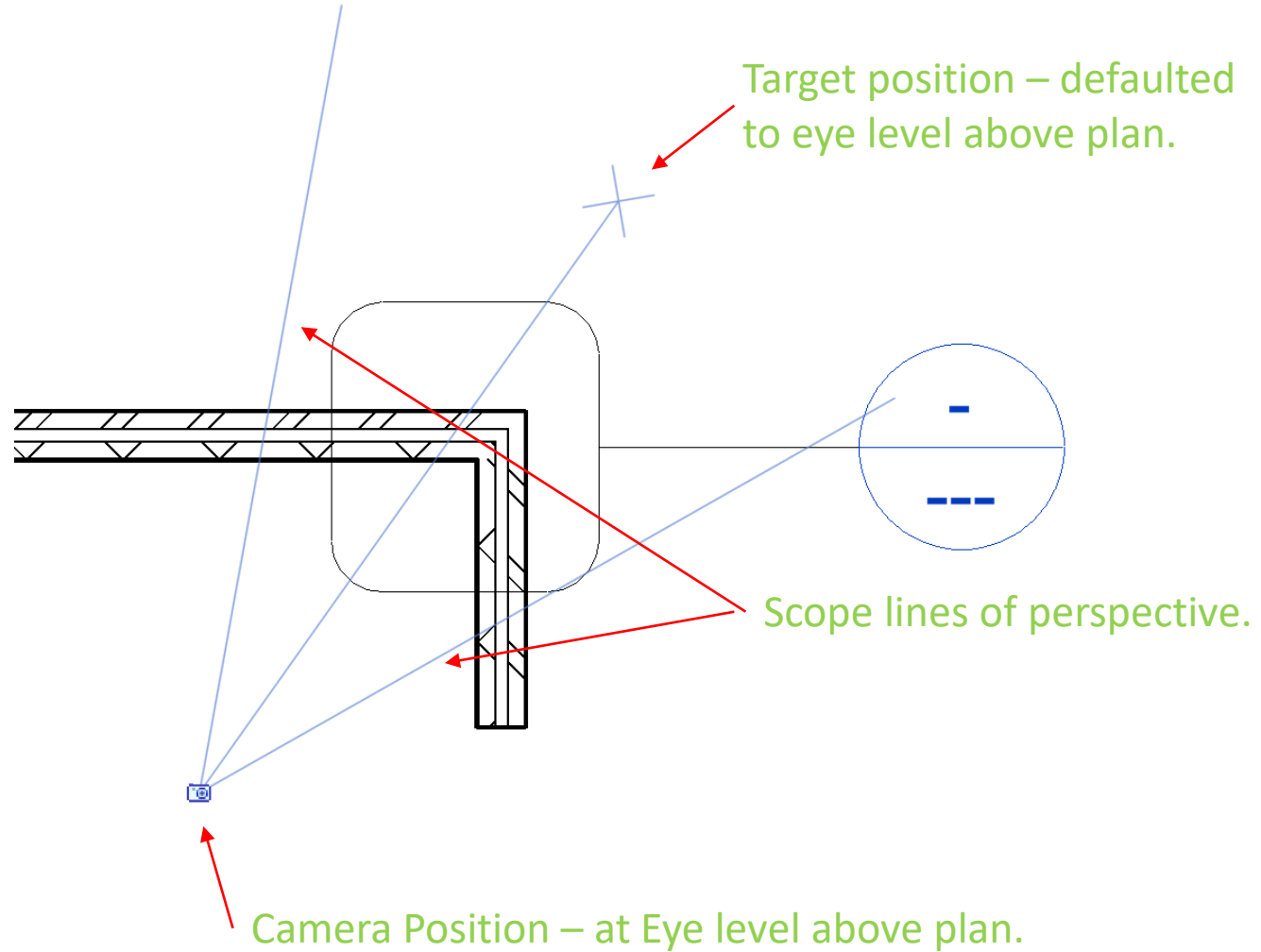
Adding further information to Details



Place Camera Views in PLAN

Click to place camera and drag to show the scope of the perspective view.

A new view will appear in the Project Browser Palette

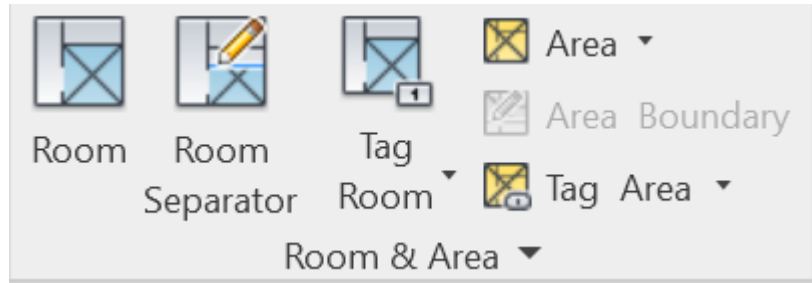




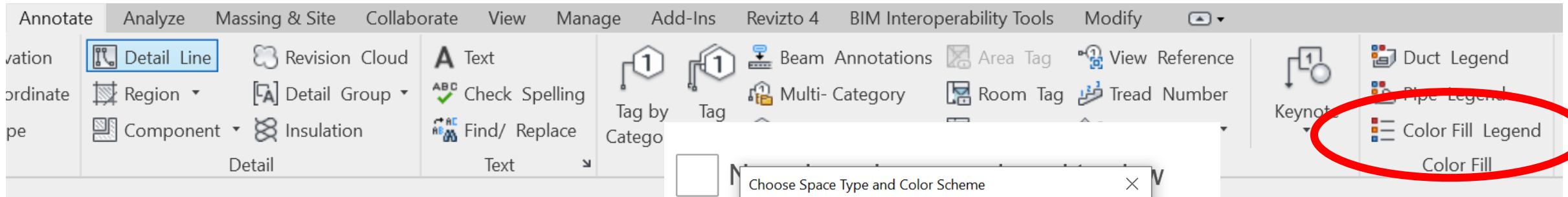
17-ROOMS



25-LEGENDS



Add rooms to your House Plan from the Architecture Menu



Add a colour fill legend to your house Plan from the Annotate Menu



Properties

Floor Plan

Floor Plan: Level 0 Edit Type

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

Model Categories Annotation Categories Analytical Model Categories Imported Categories Filters

☒ Show model categories in this view If a category is unchecked, it will not be visible.

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

All None Invert Expand 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

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 / dinning / 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.

