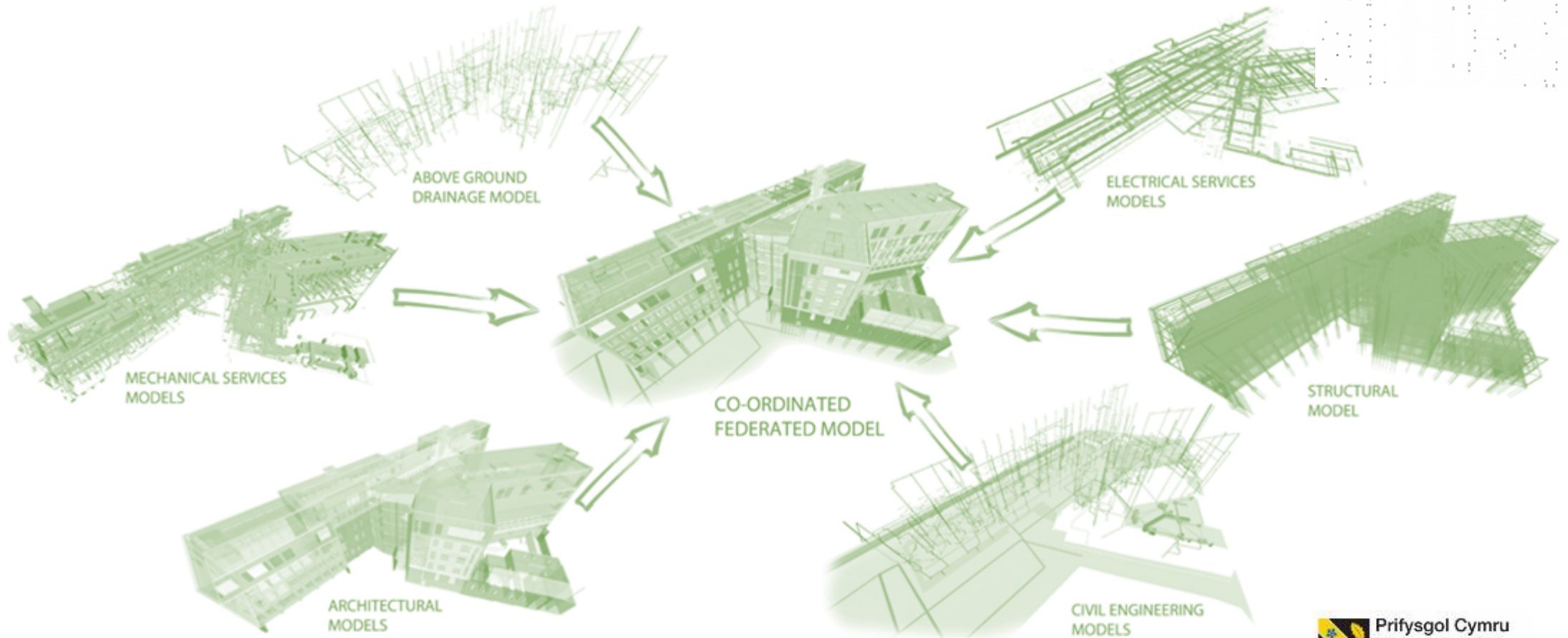


Building Information Modelling

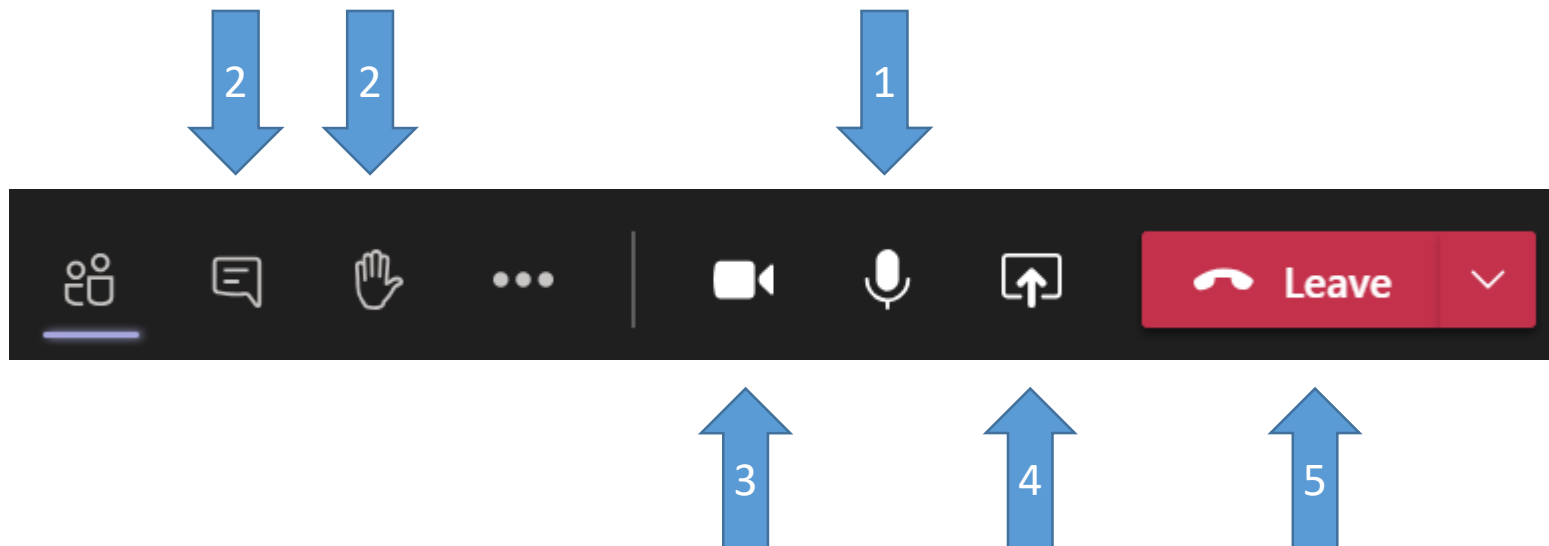


www.onecreativeenvironment.com

NEW

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



Week 10: Revision Session

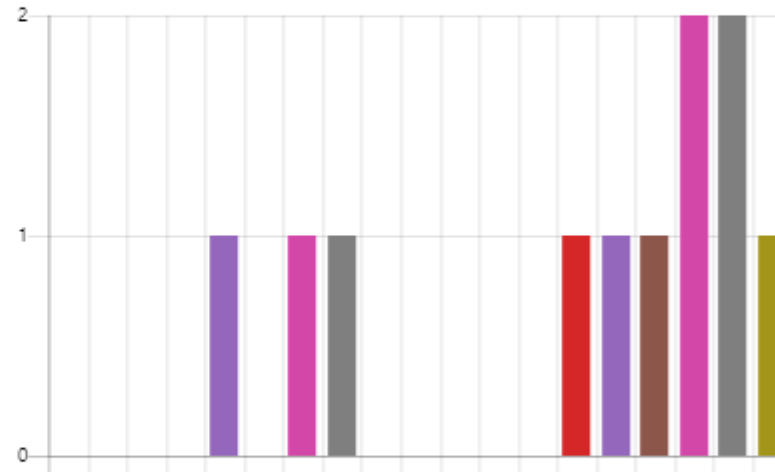
The screenshot shows a Microsoft Teams interface. On the left is a sidebar with navigation icons for Activity, Chat, Teams, Assignments, Calendar, Calls, Files, and Apps. The main area displays a channel named 'ACBA 5010 BIM 2020-21_GRP'. At the top of the channel is a header with a globe icon, 'Wk 10', and tabs for Posts, Files, Notes, and a dropdown menu. Below the header is a post titled 'ACBA 5010 BIM wk10' with the subtitle 'Week 10 Revision Session'. The post content includes a greeting: 'Hi Gavin, when you submit this form, the owner will be able to see your name and email address.' followed by a section marked '* Required' with the question '1. What areas would you like to be covered in the final revision lecture? *'. Below this is a list of topics with checkboxes: Assignment 2 overview, Families, Sheets, Assignment 1 overview, Project Base Point, Linking Revit Files, and BIM Process. The background of the post features a blue gradient with illustrations of a hand holding a tablet, a hand holding a pen over a document, and a hand typing on a keyboard.



1. What areas would you like to be covered in the final revision lecture?

More Details

Walls Floors Roofs Stairs	0
Interface and Levels	0
Views, Callouts and Details	0
Annotations, Tags, Room Lege...	0
Materials	1
Sheets	0
Linking Cad Files	1
Linking Revit Files	1
True North / Project North	0
Project Base Point	0
Phasing	0
Families	0
Structures - Columns Beams P...	0
Schedules - Take Off Schedules	1
Revizto - Collaboration	1
Revit Rendering & Enscape	1
BIM Process	2
Assignment 1 overview	2
Assignment 2 overview	1



4pm :
Careers Talk
with
Melanie Hall

<

>

Search



—

□

×

Activity

Chat

Teams

Assignments

Calendar

Calls

Files

...

Apps

Help

< All teams



ACBA 5010 BIM 2020-2... ⋮

General

Wk 01

Wk 02

Wk 03

Wk 04

Wk 05

Wk 06

Wk 07

Wk 08

Wk 09



General

Posts

Files

Class Notebook

Assignments

1 more ▾

+

↗

↺

📺

+ New ▾

↑ Upload ▾

↻ Sync

🔗 Copy link

🔗 Open in SharePoint

☰ All Documents

General > Class Materials

 Name ▾	Modified ▾	Modified By ▾
 Assignments	January 28	Gavin Traylor
 BIM TitleBlocks	January 28	Gavin Traylor
 Class Exercises	January 28	Gavin Traylor
 L4 Revision Videos	January 12	Gavin Traylor
 Lecture Notes	January 28	Gavin Traylor
 Sample BIM Documents	February 4	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 (2020-50) 12 items in 2 sections

LISTS 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.; Rensselaer, Peter; McGee, 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.

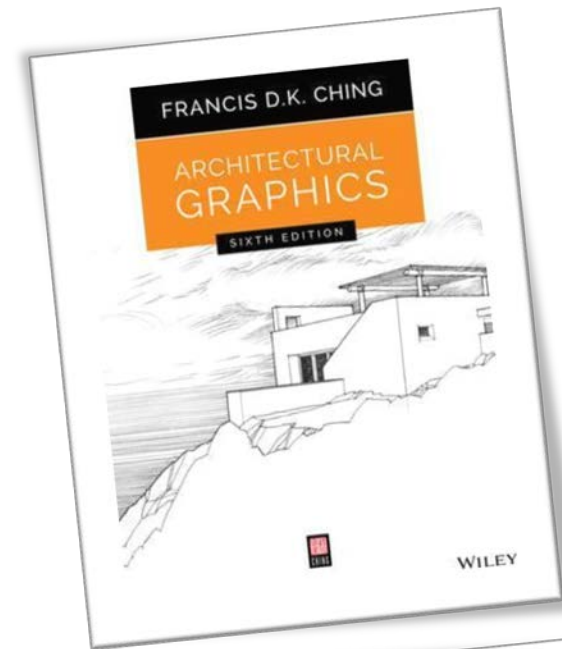
Mordue S Swaddle P and Philp D (2015). *Building Information Modelling for Dummies*. Chichester: John Wiley & Sons Ltd.

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

The periodic table is organized as follows:

- Row 1:**
 - Bs** (Green): BS Strategy
 - Su** (Grey): Su Strategy and Reports
- Row 2:**
 - Fr** (Red): Framework
 - Cu** (Purple): Culture and Information
 - Bt** (Light Green): BSM Tools
 - Lo** (Orange): Level of detail
 - Loi** (Orange): Level of Information
 - Vi** (Grey): Values
- Row 3:**
 - Co** (Red): Common methods
 - Po** (Purple): Process
 - As** (Purple): Assessment and Audit
 - Eir** (Yellow): Employee info platform
 - Cm** (Yellow): Communication
 - In** (Yellow): Investment
 - Sf** (Blue): Software
 - Cd** (Light Green): Capital delivery platform
 - Cl** (Light Green): Collaborative resource optimization
 - Li** (Light Green): Library objects
 - Cs** (Orange): Classification
 - An** (Orange): Analysis tools
 - Ev** (Grey): Events
- Row 4:**
 - Pr** (Red): Procurement code
 - Fo** (Purple): Forms of procurement
 - Ex** (Purple): Execution
 - Bep** (Yellow): BSM execution plan
 - So** (Yellow): Software
 - Ch** (Yellow): Change process
 - Ha** (Blue): Hardware
 - Op** (Light Green): Operational phases
 - Pt** (Light Green): Protocol
 - Pe** (Light Green): Prequalification assessment
 - Cafm** (Orange): Computer-aided facilities management
 - Ct** (Orange): Cost tools
 - Fu** (Grey): Forms and content
- Row 5:**
 - Ca** (Red): Capacity and capacity
 - Di** (Purple): Digital tools
 - De** (Purple): Delivery
 - Midp** (Yellow): Midpoint delivery plan
 - Cp** (Yellow): Cooperation
 - Sh** (Yellow): Share success
 - Tr** (Blue): Training
 - Fm** (Light Green): Facility management
 - Qu** (Light Green): Quality management systems
 - Bsdd** (Orange): Business decision data architecture
 - Pg** (Orange): Programme tools
 - Ad** (Orange): Advertisement tools
 - Sc** (Grey): Social media
- Row 6:**
 - St** (Red): Standardisation and interoperability
 - Ma** (Purple): Maintenance and use
 - Cde** (Yellow): Common data environment
 - Ci** (Yellow): Champion
 - Av** (Yellow): Availability
 - Fi** (Blue): File storage
 - Dg** (Light Green): Digital security
 - Ds** (Light Green): Design management systems
 - Ifc** (Orange): Industry foundation classes
 - Au** (Orange): Authoring tools
 - Mo** (Orange): Model viewers and exporters
 - Bl** (Grey): Blog site
- Row 7:**
 - Dpow** (Light Green): Digital Plan of Work
 - If** (Yellow): Information exchange
 - Sp** (Yellow): Support
 - En** (Yellow): Engage
 - Ir** (Blue): Infrastructure
 - Br** (Light Green): Briefing
 - Am** (Light Green): Asset management
 - Idm** (Orange): Information delivery manual
 - Sp** (Orange): Specification tools
 - Fi** (Orange): File sharing and collaboration
 - Bo** (Grey): Books

Digital Plan of Work stages

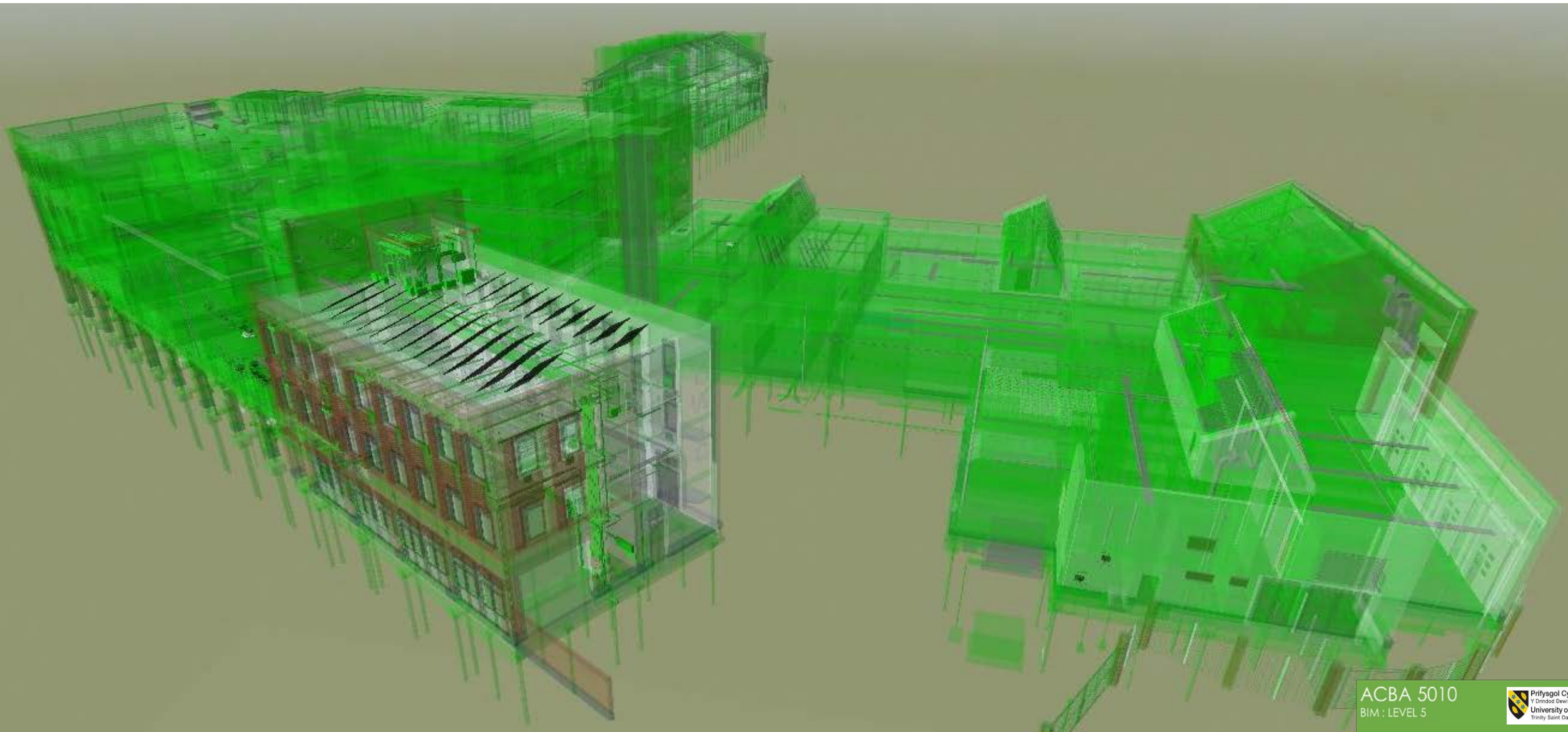
- Sr** (Orange): Strategy
- Bi** (Orange): Brief
- Df** (Orange): Definition
- Dn** (Orange): Design
- Bu** (Orange): Build and construct
- Hn** (Orange): Handover and commission
- Oe** (Orange): Operation
- Ed** (Orange): End of life

- 



ENSCAPE™

An Introduction to BIM



What is your understanding of BIM?

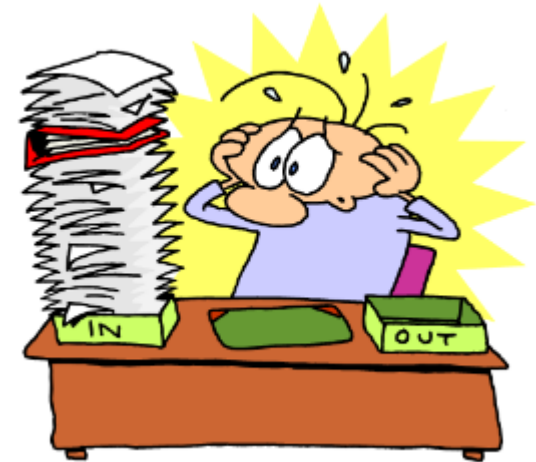


BIM is a Process NOT Software

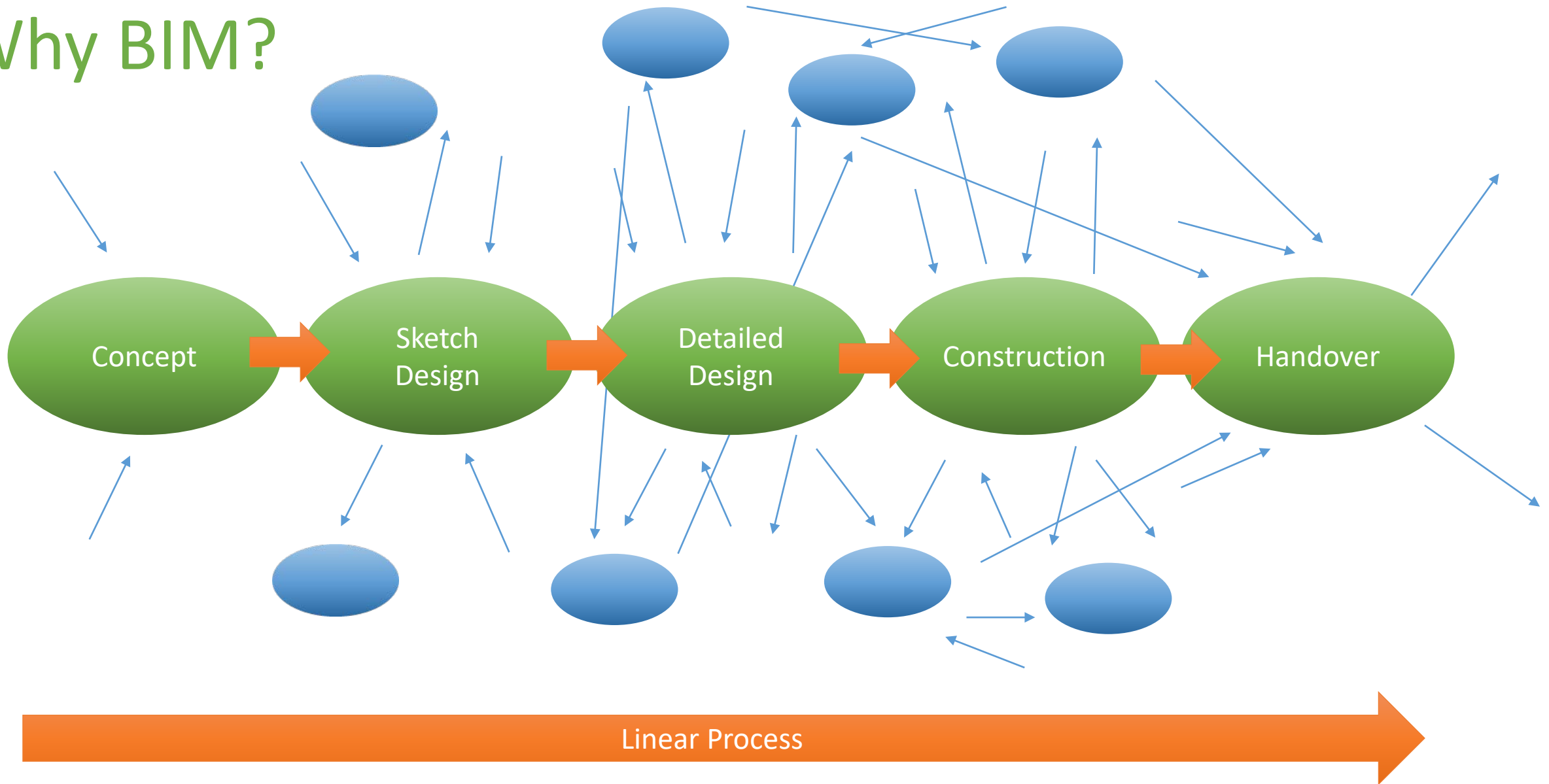
Building Information Modelling

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

Better Information Management



Why BIM?



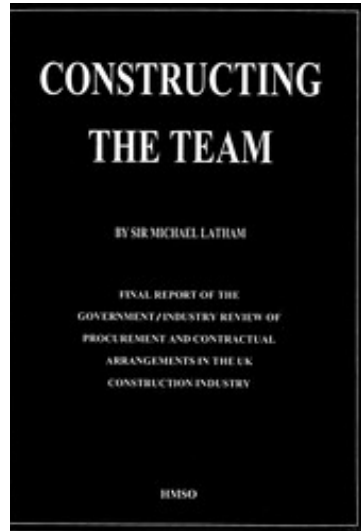
Why BIM?



Origins in UK



Latham
Report



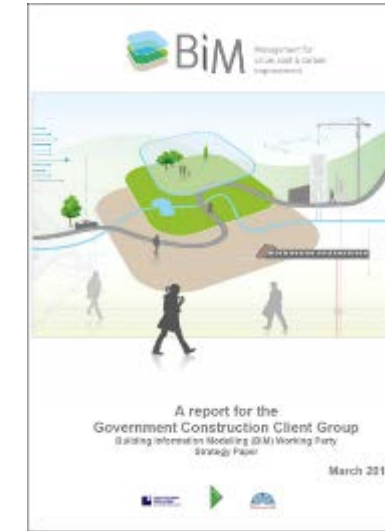
Egan Report

Accelerating
Change



Never
Waste A
Good Crisis

BIS BIM
Strategy



Government
Construction
Strategy

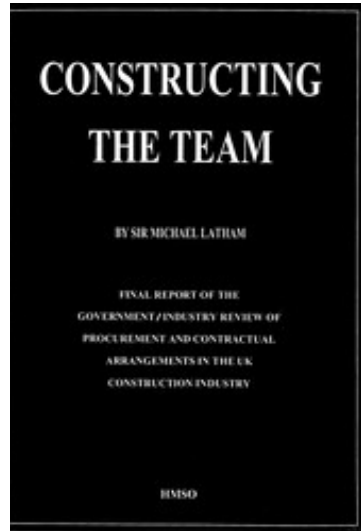


Sir Michael **Latham** described as 'ineffective', 'adversarial', 'fragmented' and 'incapable of delivering for its customers'.

Origins in UK



Latham
Report



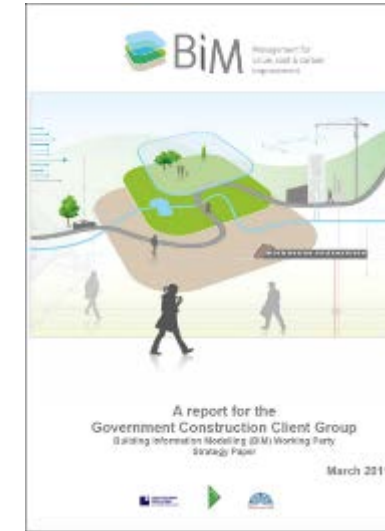
Egan Report

Accelerating
Change



Never
Waste A
Good Crisis

BIS BIM
Strategy



Government
Construction
Strategy

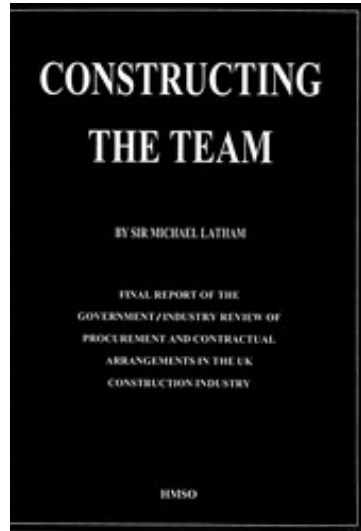


Rethinking Construction through 'demonstration projects', and regional 'cluster groups' or best practice clubs.

Origins in UK



Latham
Report



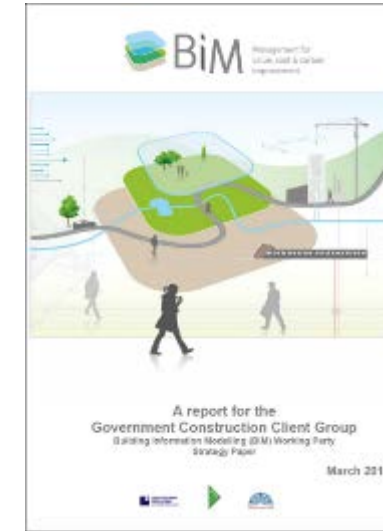
Egan Report

Accelerating
Change



Never
Waste A
Good Crisis

BIS BIM
Strategy



Government
Construction
Strategy

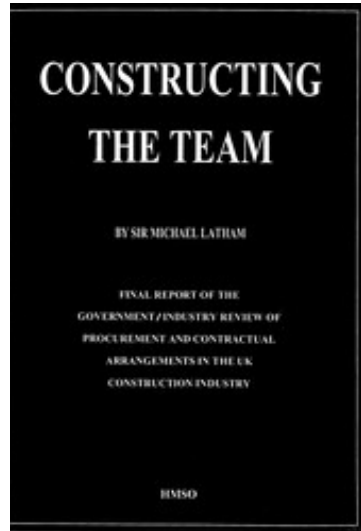


By the end of 2004 20% of construction projects by value should be undertaken by integrated teams and supply chains; and, 20% of client activity by value should embrace the principles of the Clients' Charter.

Origins in UK



Latham
Report



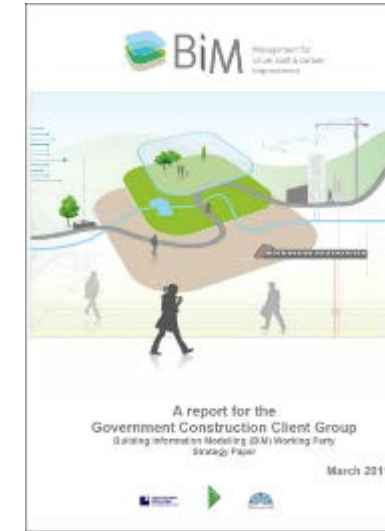
Egan Report

Accelerating
Change



Never
Waste A
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BIS BIM
Strategy



Government
Construction
Strategy

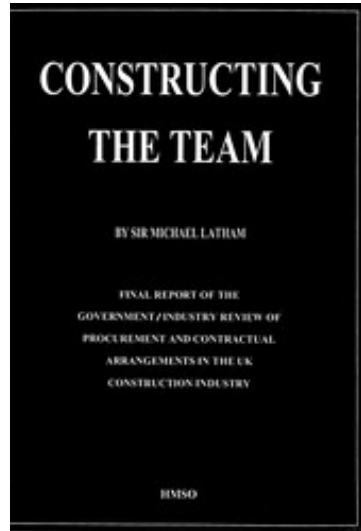


Wolstenholme stated that some progress had been made against Egan's targets, but that the industry's performance fell considerably short in several categories and that compliance with some of Egan's targets was only accomplished in a superficial manner.

Origins in UK



Latham
Report



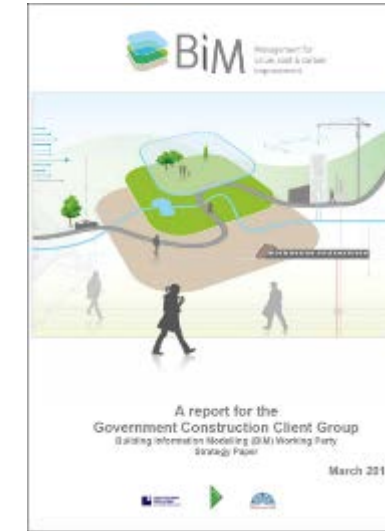
Egan Report

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BIS BIM
Strategy



Government
Construction
Strategy

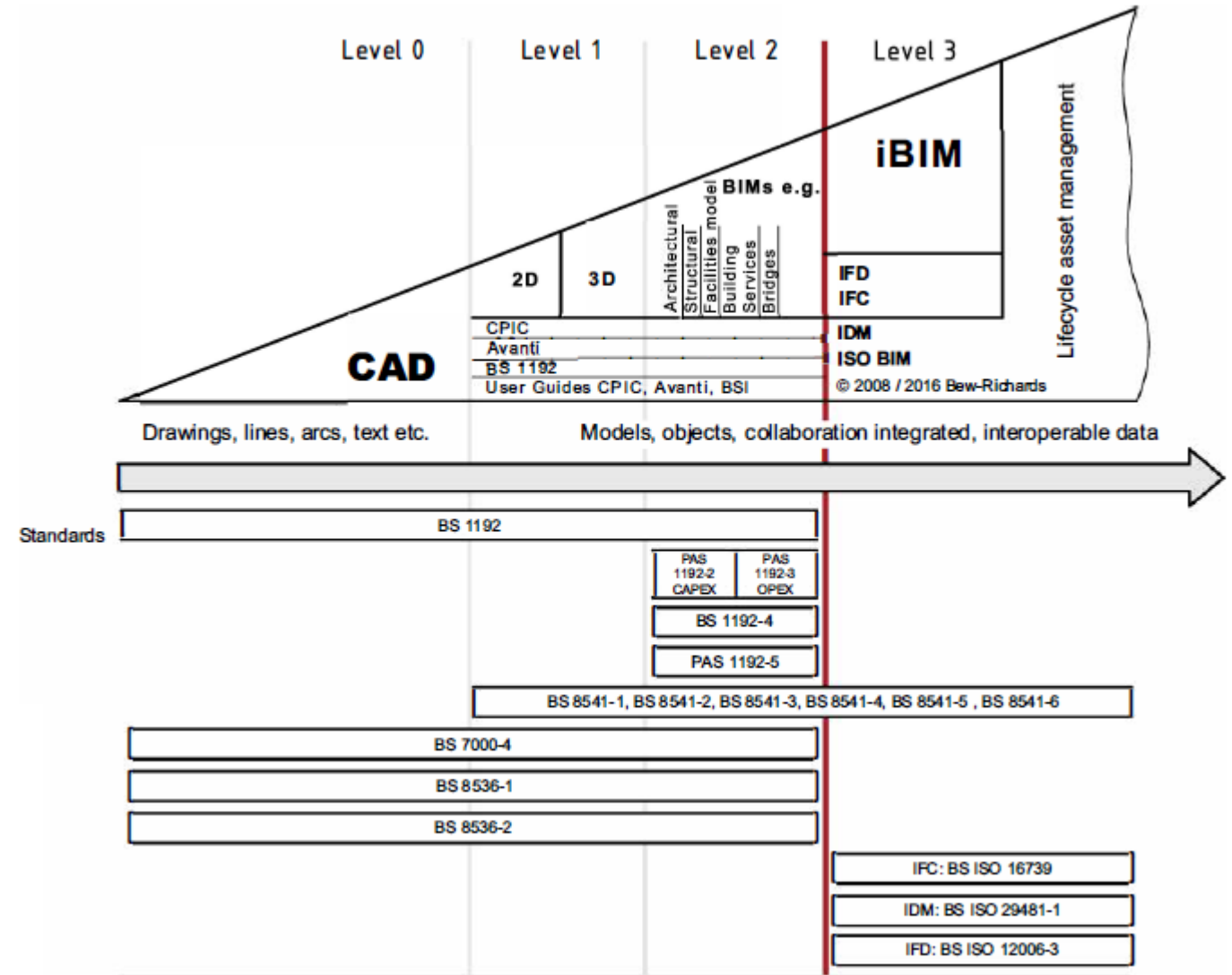


The BIM working group looked at the construction and post-occupancy benefits of BIM for use in the UK building and infrastructure markets. Highlighting recommendations of the working group for a strategy to deliver a structured Government/Sector capability to increase BIM take-up over a five year horizon.

Maturity



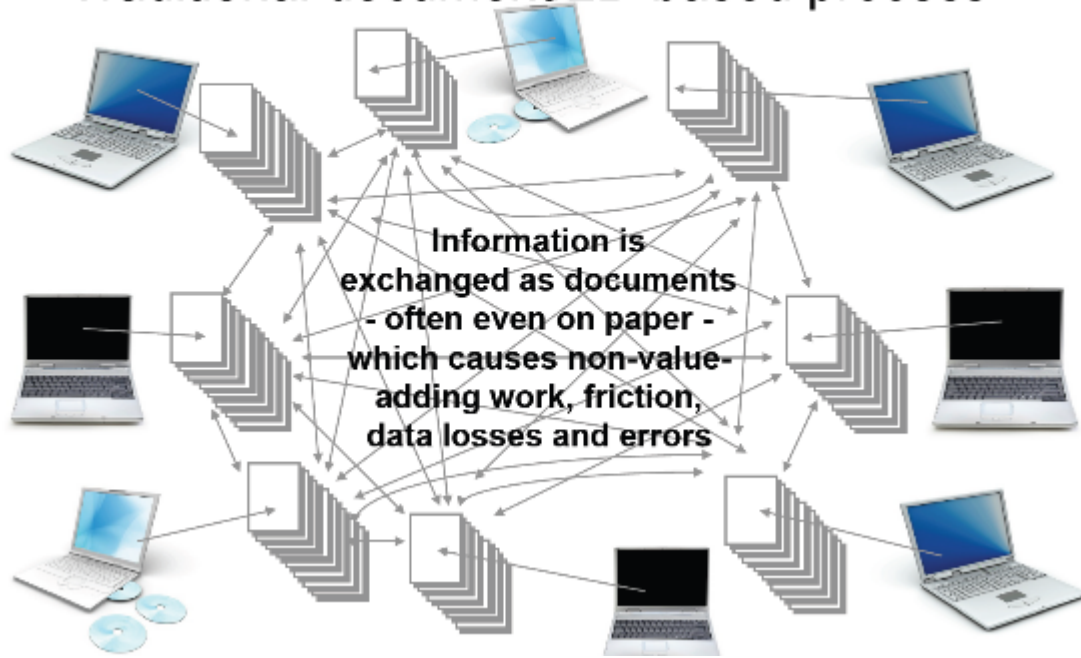
The Construction Strategy aimed at reducing the cost of public sector assets by up to 20% by 2016. To achieve this strategy, the government mandated that construction suppliers tendering for centrally-procured government projects to be working at BIM Level 2.



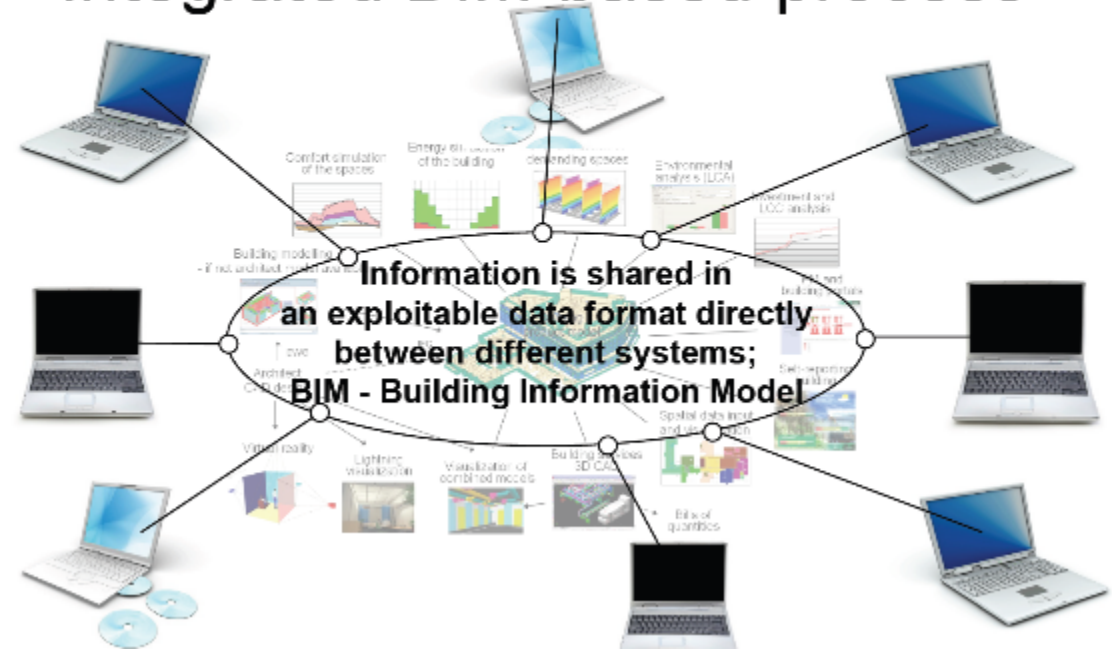
Bew Richards Wedge

Benefits

Traditional document/2D-based process



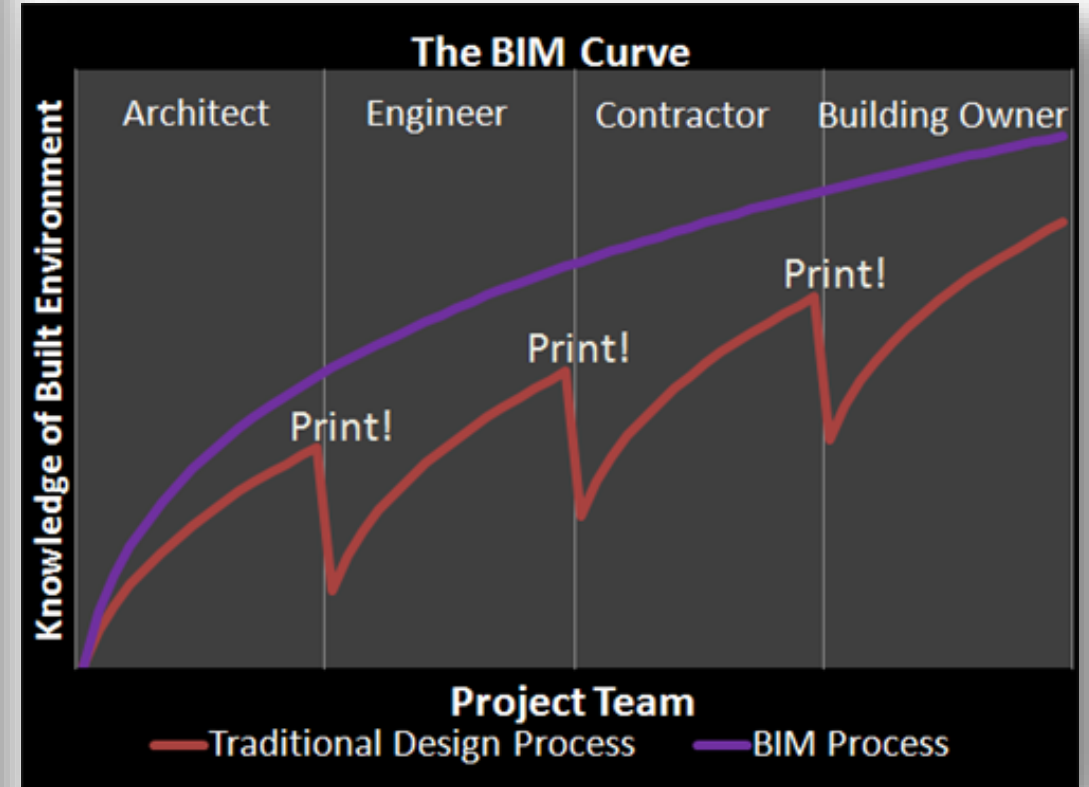
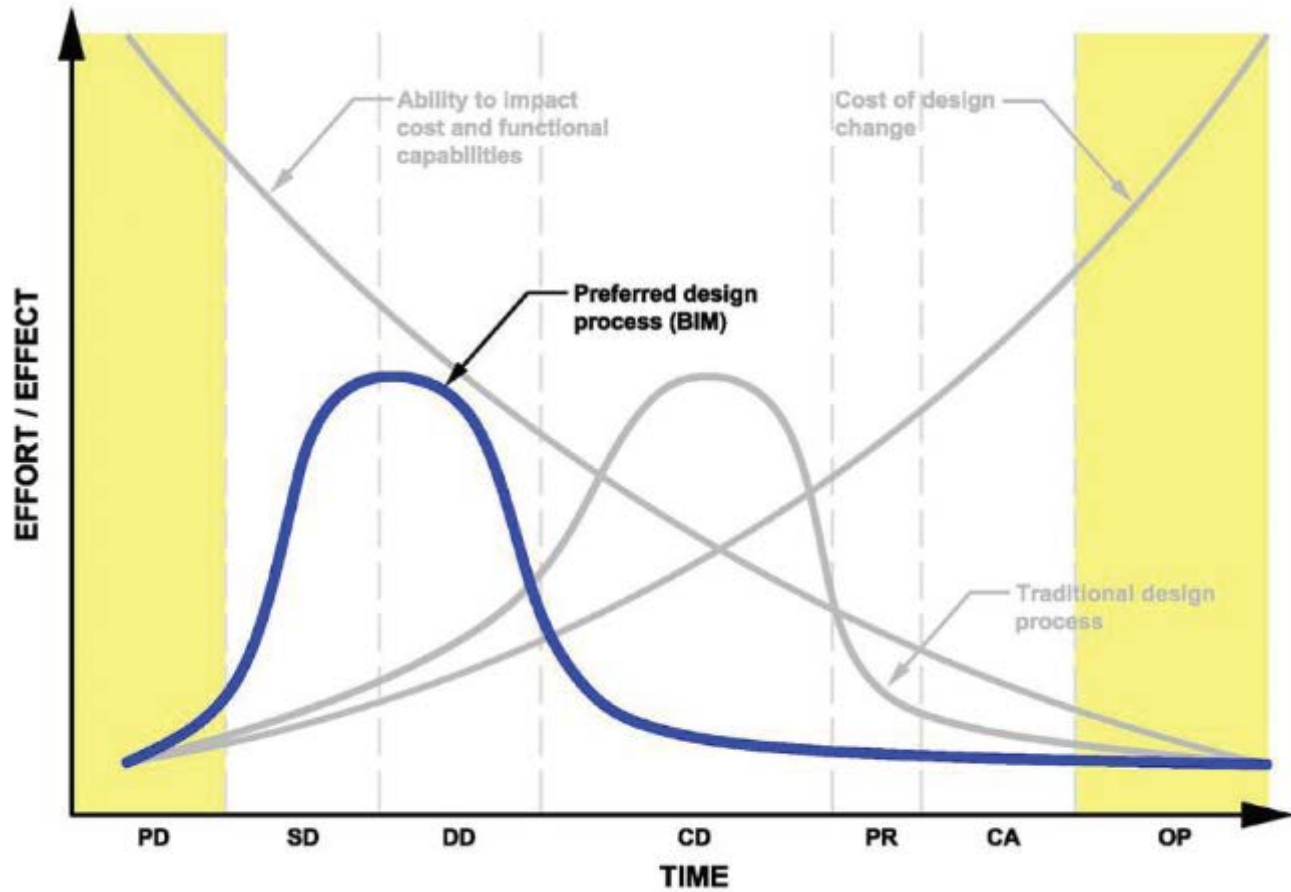
Integrated BIM-based process



BIM Advanced, CE Wales, 16/01/2013

Design, Construct, Operate and Maintain. **One Truth!**

Change Management

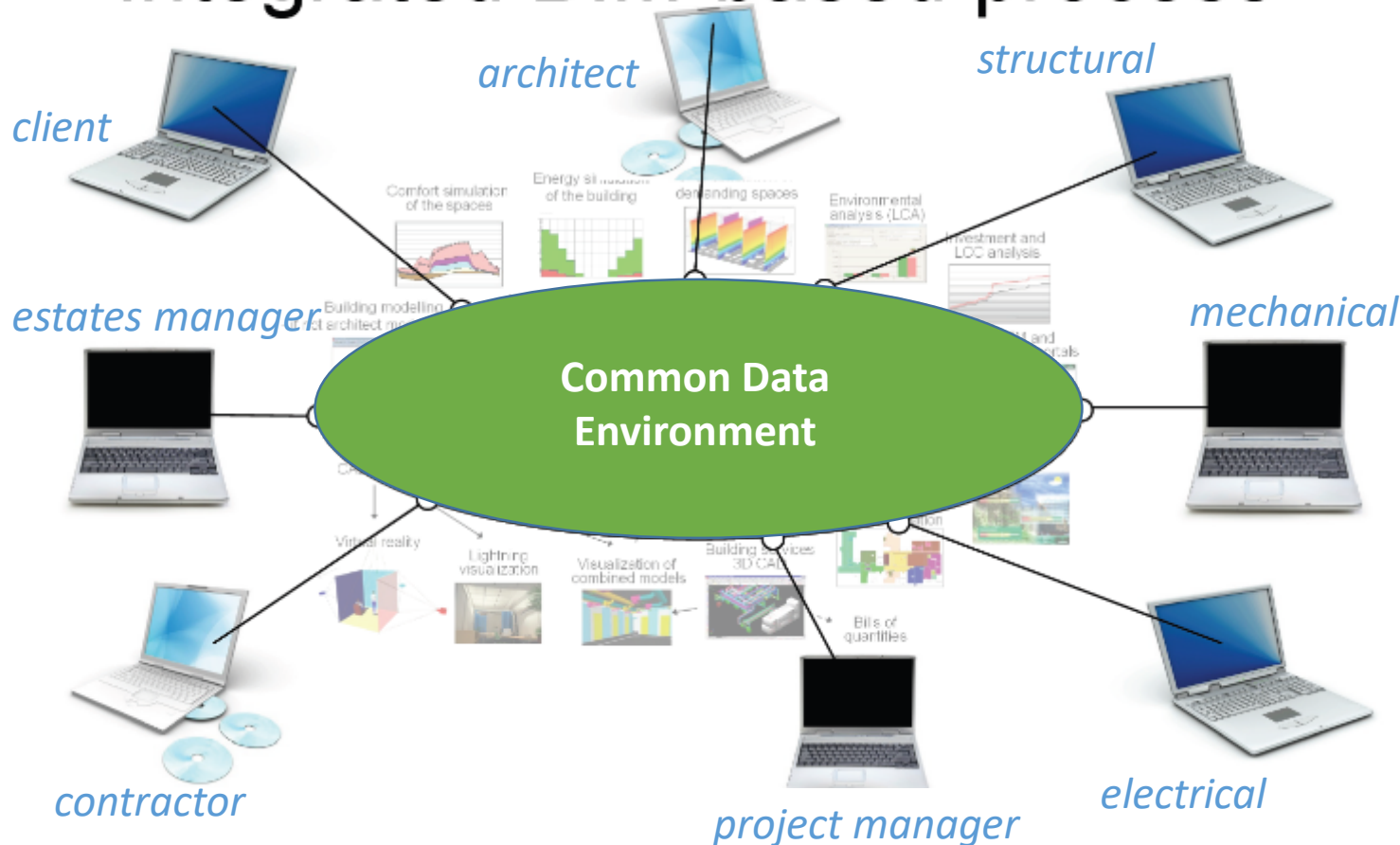


Clash Detection



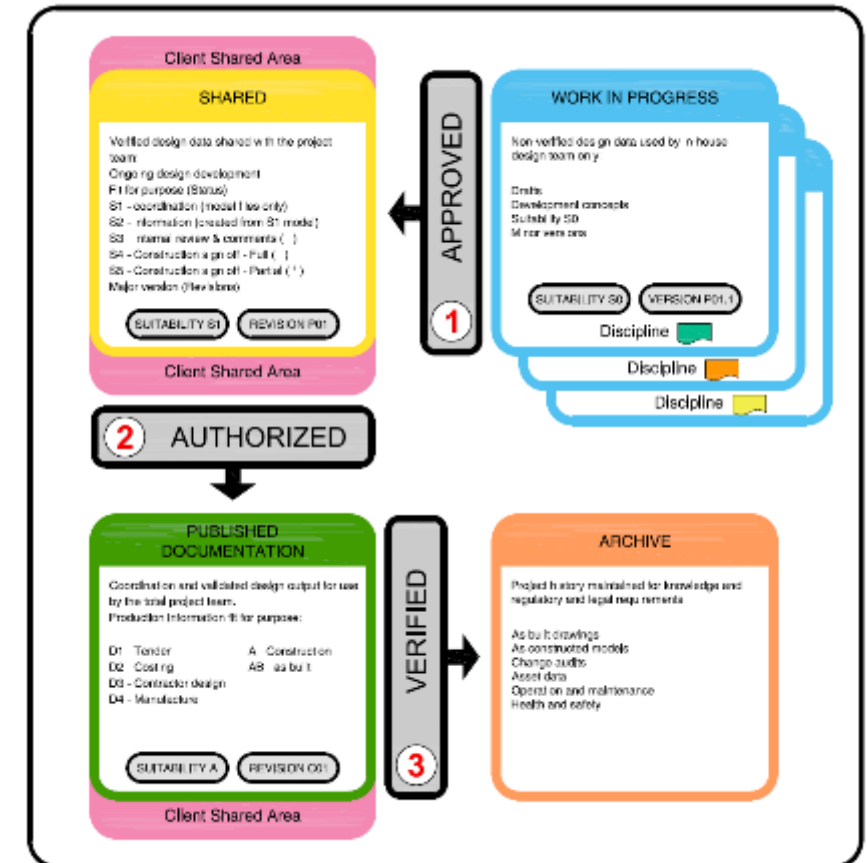
Application

Integrated BIM-based process



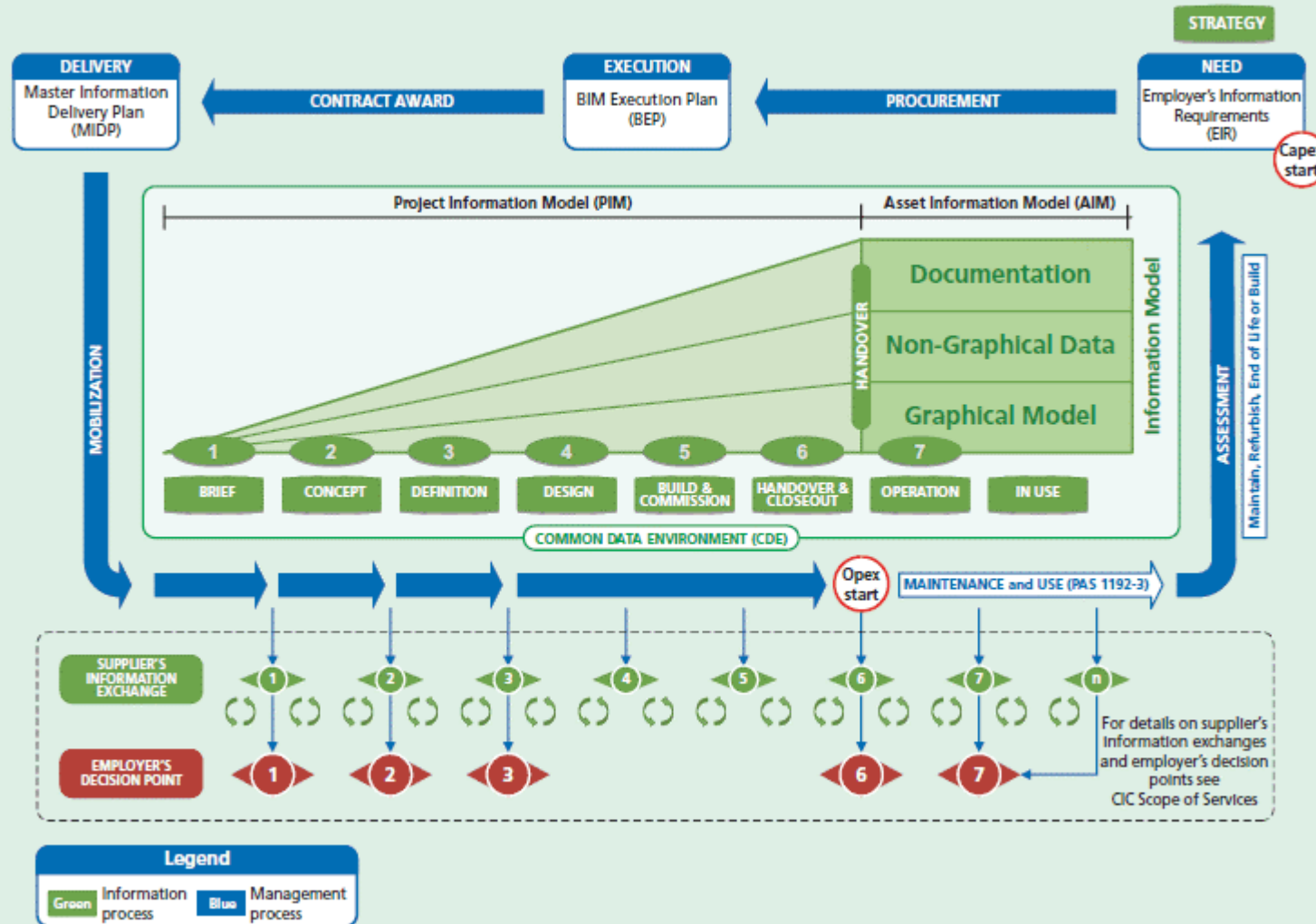
The structured use of a Common Data Environment (CDE) requires strict discipline by all members of a design team in terms of adherence to agreed approaches and procedures, compared with a more traditional approach. The benefits can only be realized with a commitment to operate in a disciplined and consistent manner throughout a project.

PAS 1192-2:2013

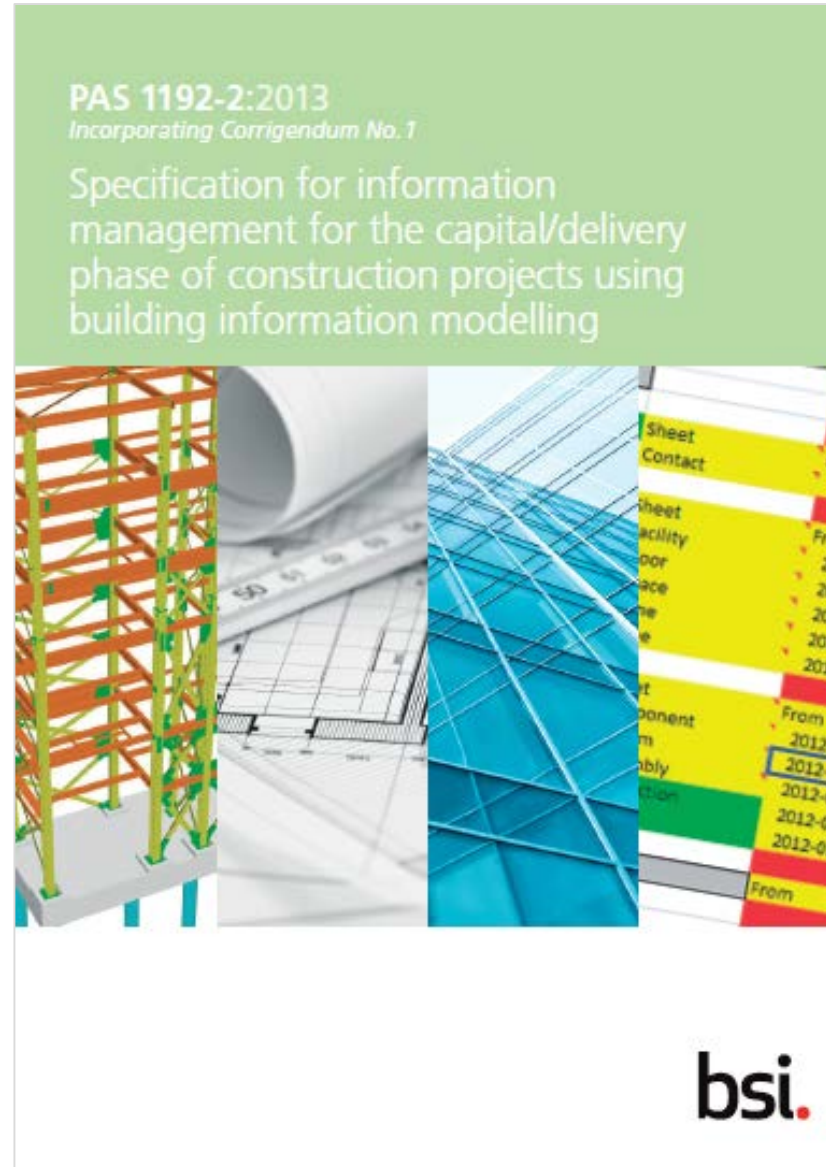
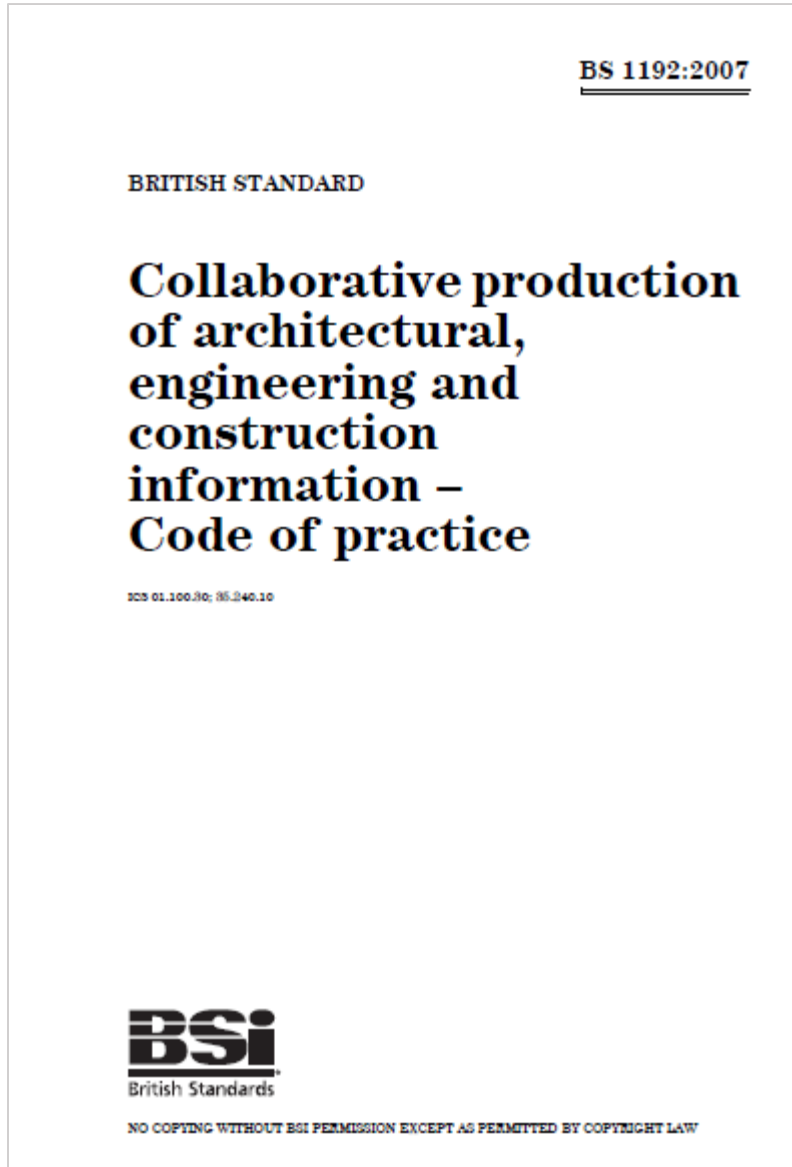


BIM Process Diagram

The information delivery cycle

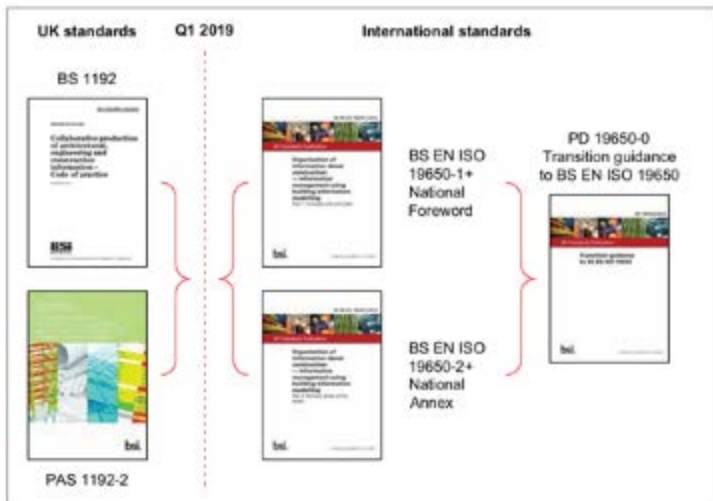


Key Standards



New
Guidance
came into
place
January
2019...

New Standards Q1 2019



BS EN ISO 19650-1:2018



BSI Standards Publication

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling

Part 1: Concepts and principles

bsi.

BS EN ISO 19650-2:2018



BSI Standards Publication

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling

Part 2: Delivery phase of the assets

bsi.



Introducing the new international standard for BIM, ISO 19650

Embedding digital innovation and
accelerating global adoption

bsi.

...making excellence a habit®



What does the ISO 19650 suite consist of?

BS 1192:2007+A2:2016 on principles, and **PAS 1192-2** on the capital delivery phase are superseded by the following standards which are available on the BSI Shop:

- **BS EN ISO 19650-1:** Organization and digitization of information about buildings and civil engineering works, including building information modelling -- Information management using building information modelling: Concepts and principles
- **BS EN ISO 19650-2:** Organization and digitization of information about buildings and civil engineering works, including building information modelling -- Information management using building information modelling: Delivery phase of the assets

Also available on the BSI Shop the following document is published alongside these standards:

- **PD 19650-0 - UK Transition Guidance**, which will along with the UK National Forewords and National Annex aid implementation of the ISO standards in the UK and within the ISO framework

It's anticipated that **PAS 1192-3** and **PAS 1192-5** (the information management of assets and security-minded standards for BIM) will be superseded by the following standards in 2020:

- **BS EN ISO 19650-3** Organization and digitization of information about buildings and civil engineering works, including building information modelling -- Information management using building information modelling -- Part 3: Operational phase of assets
- **BS EN ISO 19650-5** Organization and digitization of information about buildings and civil engineering works, including building information modelling -- Information management using building information modelling -- Part 5: Security-minded approach to information management

	UK Standards		International Standards	
2019	BS 1192:2007+A2:2016 PAS 1192-2	⎓	BS EN ISO 19650-1 + National Foreword BS EN ISO 19650-2 + National Annex	PD 19650-0 + Guide to BS EN ISO 19650
2020	PAS 1192-3 PAS 1192-5	➔	BS EN ISO 19650-3 BS EN ISO 19650-5	

Moving from the UK 1192 series to the ISO 19650 series

The good news is that the differences between the ISO standards and the UK standards are not major as the approach to BIM is very similar with the main differences relating to the terms and definitions. This milestone publication creates a fantastic opportunity to achieve even greater improvements in collaboration and customer satisfaction using BIM.

BSI clients currently holding BIM certification or verification, including the BSI Kitemark, will have the opportunity to transition their system to reflect the new ISO. To help you

upgrade we will be producing lots of supporting materials and services including webinars, training courses developed by experts, and informative whitepapers and articles.

If you are new to BIM, there's no better time to take advantage of the benefits this can mean for your organization.

Little Book of BIM

2019 edition

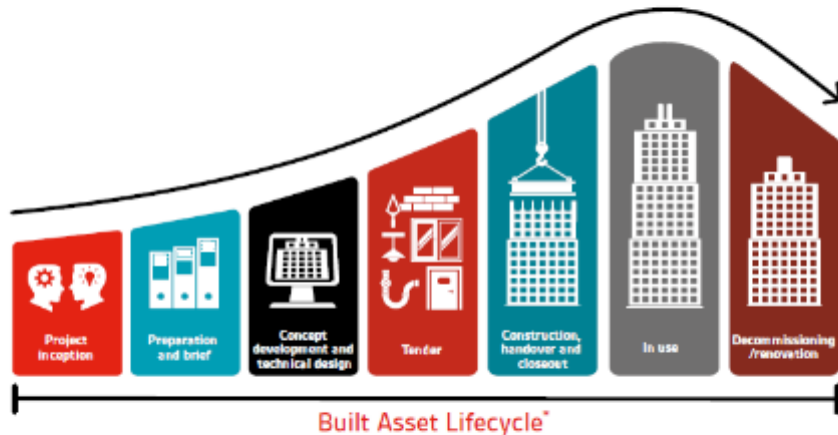
Includes ISO 19650 Standards

bsi.

...making excellence a habit.™

BIM Definition

Building Information Modelling (BIM) is a collaborative way of working underpinned by digital technologies, which allow for more efficient methods of designing, delivering and maintaining physical built assets throughout their entire lifecycle. Greater efficiencies can be realized due to significant pre-planning during the design and construction phases, providing comprehensive information at handover stage.



* This asset lifecycle concept is based on the RIBA Plan of Work 2013

3

Key Standards for BIM

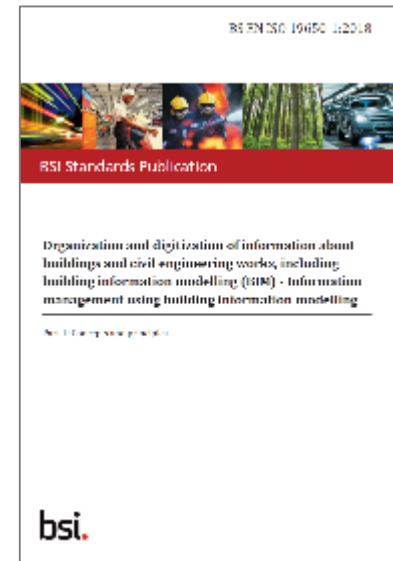
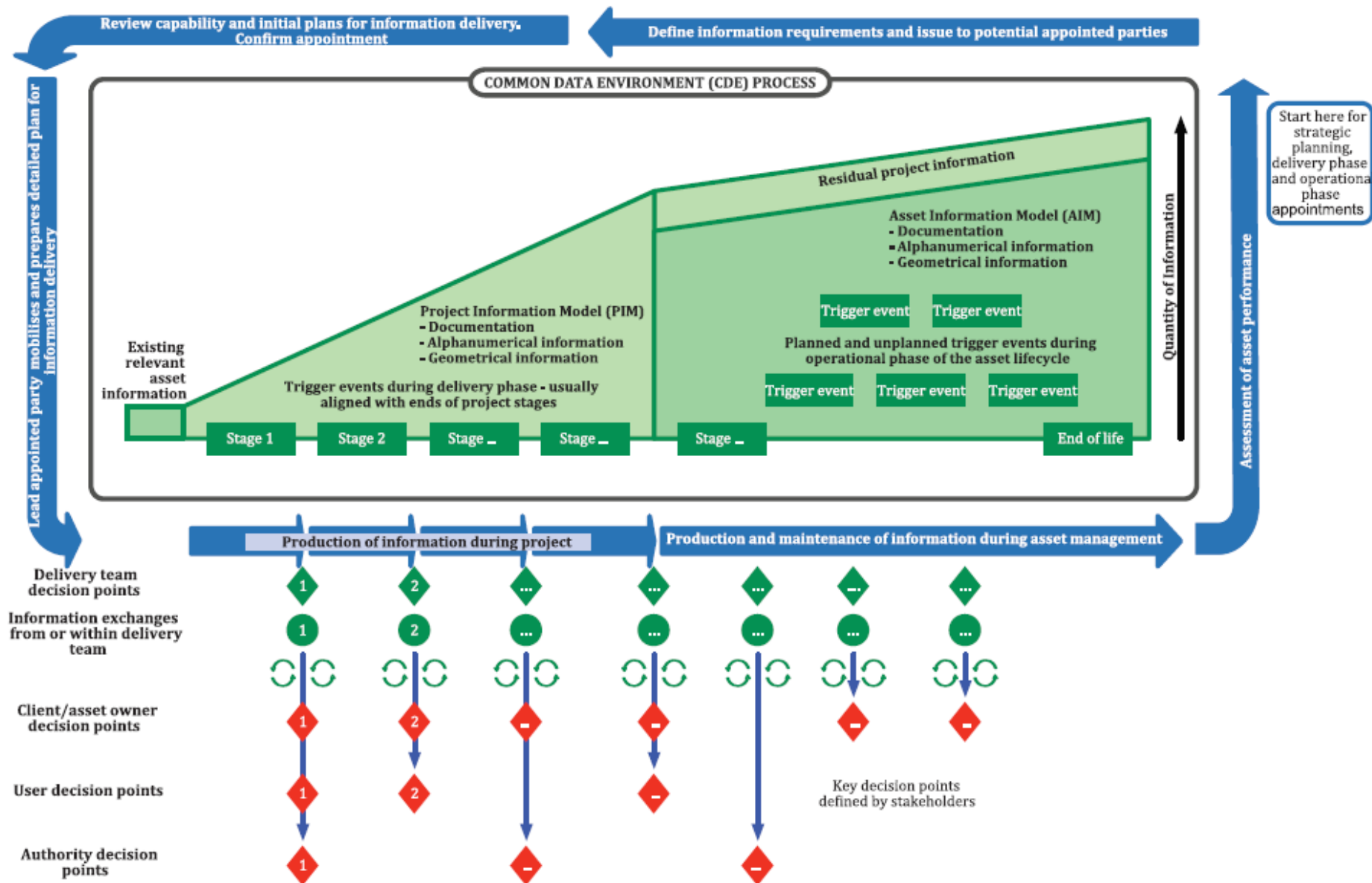
BS EN ISO 19650-1:2018 – Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling. Concepts and principles. This will supersede BS 1192:2007+A2:2016.

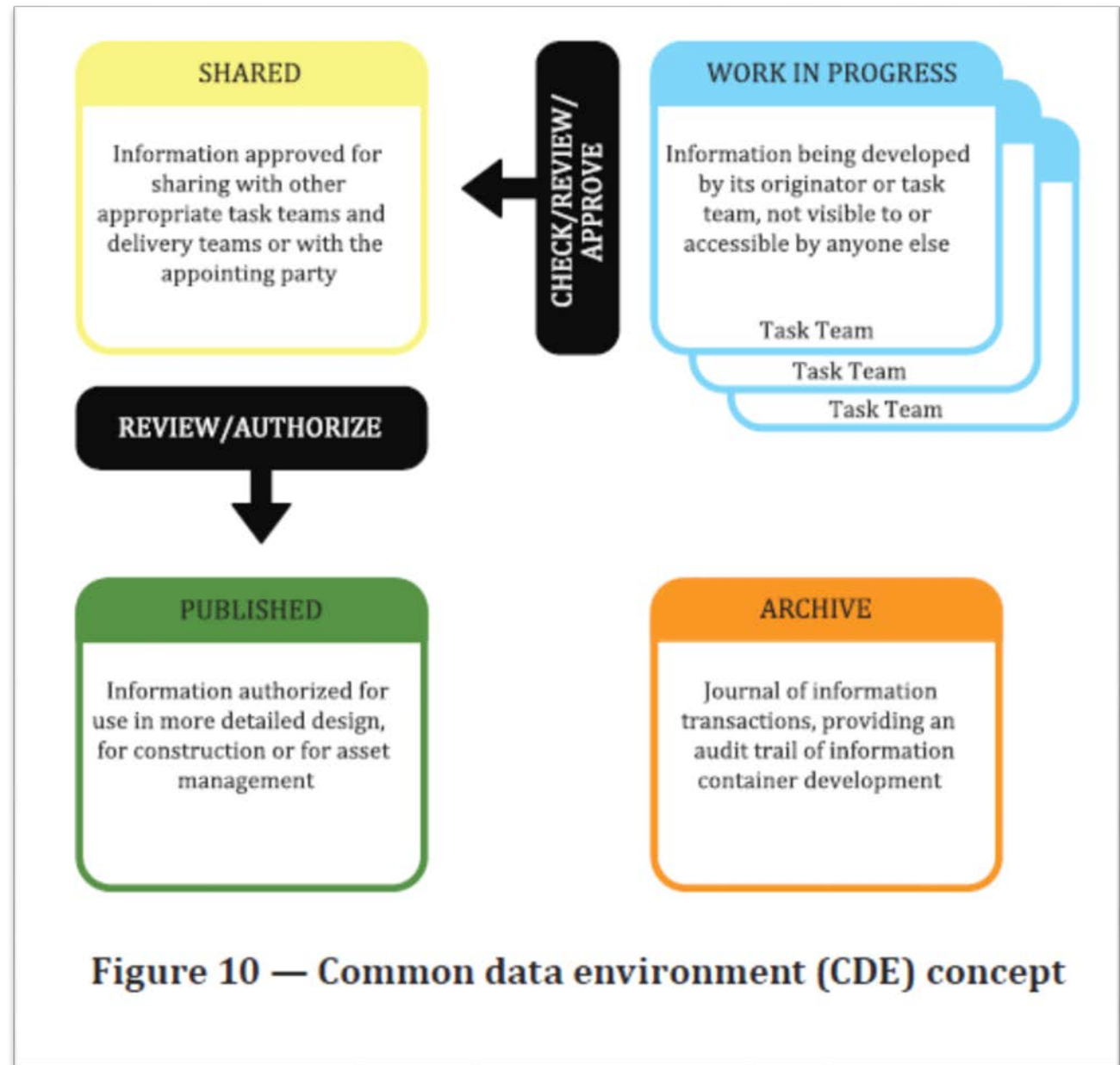
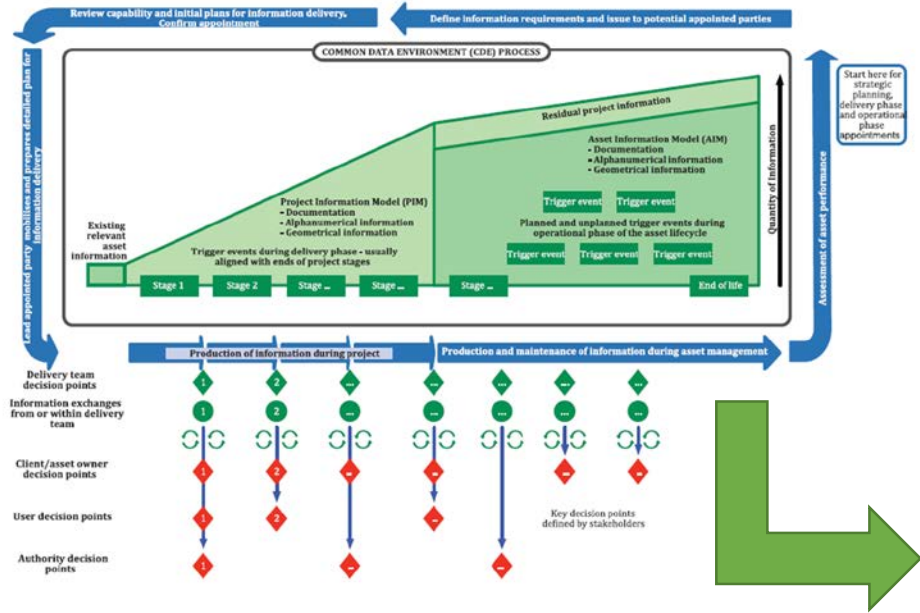
BS EN ISO 19650-2:2018 – Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling. Delivery phase of the assets. This will supersede PAS 1192-2:2013.

PD 19650-0:2019 – Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM). Guide to BS EN ISO 19650:2018

PAS 1192-3:2014 – Specification for information management for the operational phase of assets using building information modelling.

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 Quant 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.

UWTSD Title Block / Template File CAD

General		Architectural		Electrical		Interior Design		Landscape		Mechanical		Structural	

UNIVERSITY OF WALES TRINITY SAINT DAVID										
BIM MAPPING DOCUMENT GUIDE: All new Models, Drawings & Documents										
SYMBOLS										
THE CODE	Project	Originator	Zone	Level	Type	Role	Number	Description	Suitability	Revision
CODE LETTERS REVISION	1-10 letters Project identifier 11-15 letters Project name 16-20 letters Project location 21-25 letters Project description	1-10 letters Originator 11-15 letters Originator name 16-20 letters Originator address 21-25 letters Originator contact details	1-10 letters Zone 11-15 letters Zone name 16-20 letters Zone description 21-25 letters Zone location	1-10 letters Level 11-15 letters Level name 16-20 letters Level description 21-25 letters Level location	1-10 letters Type 11-15 letters Type name 16-20 letters Type description 21-25 letters Type location	1-10 letters Role 11-15 letters Role name 16-20 letters Role description 21-25 letters Role location	1-10 letters Number 11-15 letters Number name 16-20 letters Number description 21-25 letters Number location	1-10 letters Description 11-15 letters Description name 16-20 letters Description description 21-25 letters Description location	1-10 letters Suitability 11-15 letters Suitability name 16-20 letters Suitability description 21-25 letters Suitability location	1-10 letters Revision 11-15 letters Revision name 16-20 letters Revision description 21-25 letters Revision location
NOTE	1-10 letters Note identifier 11-15 letters Note name 16-20 letters Note description 21-25 letters Note location	1-10 letters Note originator 11-15 letters Note originator name 16-20 letters Note originator address 21-25 letters Note originator contact details	1-10 letters Note zone 11-15 letters Note zone name 16-20 letters Note zone description 21-25 letters Note zone location	1-10 letters Note level 11-15 letters Note level name 16-20 letters Note level description 21-25 letters Note level location	1-10 letters Note type 11-15 letters Note type name 16-20 letters Note type description 21-25 letters Note type location	1-10 letters Note role 11-15 letters Note role name 16-20 letters Note role description 21-25 letters Note role location	1-10 letters Note number 11-15 letters Note number name 16-20 letters Note number description 21-25 letters Note number location	1-10 letters Note description 11-15 letters Note description name 16-20 letters Note description description 21-25 letters Note description location	1-10 letters Note suitability 11-15 letters Note suitability name 16-20 letters Note suitability description 21-25 letters Note suitability location	1-10 letters Note revision 11-15 letters Note revision name 16-20 letters Note revision description 21-25 letters Note revision location
SAMPLE	1-10 letters Sample identifier 11-15 letters Sample name 16-20 letters Sample description 21-25 letters Sample location	1-10 letters Sample originator 11-15 letters Sample originator name 16-20 letters Sample originator address 21-25 letters Sample originator contact details	1-10 letters Sample zone 11-15 letters Sample zone name 16-20 letters Sample zone description 21-25 letters Sample zone location	1-10 letters Sample level 11-15 letters Sample level name 16-20 letters Sample level description 21-25 letters Sample level location	1-10 letters Sample type 11-15 letters Sample type name 16-20 letters Sample type description 21-25 letters Sample type location	1-10 letters Sample role 11-15 letters Sample role name 16-20 letters Sample role description 21-25 letters Sample role location	1-10 letters Sample number 11-15 letters Sample number name 16-20 letters Sample number description 21-25 letters Sample number location	1-10 letters Sample description 11-15 letters Sample description name 16-20 letters Sample description description 21-25 letters Sample description location	1-10 letters Sample suitability 11-15 letters Sample suitability name 16-20 letters Sample suitability description 21-25 letters Sample suitability location	1-10 letters Sample revision 11-15 letters Sample revision name 16-20 letters Sample revision description 21-25 letters Sample revision location

Metadata status codes from PAS1192-2	
Status	Description
Work In Progress	
10	Initial status or WP
30	Master document index of file identifiers uploaded into the intranet
Shared (Non Contractual)	
11	Suitable for Co-ordination
12	This file is suitable to be „shared“ and various other disciplines as a background for their information.
32	Suitable for Information
33	Suitable for Internal Review & Comment
54	Suitable for Construction Approval
35	Suitable for Manufacture
36	Suitable for BIM Authorization (Information Exchange 1 & 2)
37	Suitable for AIM Authorization (Information Exchange 5)
21	Suitable for Cladding
22	Suitable for Transfer
23	Suitable for Contract for Design
24	Suitable for Manufacture/Procurement
AM	As Maintained
Published Documentation (Contractual)	
A	Suitable for Construction
	Partially signed off:
B	Re Construction with minor comments from the Client. All minor comments should be indicated by the insertion of a cloud and a statement of "in alignment" until the comment is resolved, the contractual full authorization.
A8	As Built-Handover documentation, PDF, native models, COBie etc.

Layering conventions to British Standards. Within AutoCAD

Numbering to Building Information Modelling standards.

UWTSD Title Block & Splash Page REVIT

										Project Name:Project Name UPRN Code:0001 Originator Code: Role Code:Designer Drawn By:Author Checked By:Checker Date:01/28/21 Project Status:Project Status Prifysgol Cymru Y Ddodol Dewi Sant University of Wales Trinity Saint David ACBA 5010 BIM : LEVEL 5									
Property Title Project Name										Drawn Unnamed									
Property Originator Zone Level Type Role Number Description Subsidiary Revision										0001 - - XX - - - DesignerA100 - Unnamed - Project 0001 -									
File Path:										01/28/21 Checker Author Prifysgol Cymru Y Ddodol Dewi Sant University of Wales Trinity Saint David (S0) UNCONTROLLED Not to be used as a reference document Check Status Before Quoting									

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EBSCO.
GreenFILE offers well-researched information covering all aspects of human impact to the environment. Its collection of scholarly, government and general-interest titles includes content on global warming, green building, pollution, sustainable agriculture, renewable energy, recycling, and more. The database provides indexing and abstracts for more than 384,000 records, as well as Open Access full text for more than 4,700 records.
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4 **IEEE Xplore digital library**
Institute of Electrical and Electronics Engineers.
Covers literature in electrical engineering, computer
COURSE
[Online access >](#)

5 **IHS Markit**
Provides access to legislation, technical standards, g
(CIS), Environmental Management, Specify-It Enhanc
[Online access >](#)

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MarketLine (Firm)
Provides access to a unique & exclusive mix of comp



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Results for ISO 19650
1- 23 of 23 documents

CIS (23)

**Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - information management using building information modelling. Security-minded approach to information management**
British Standards Institution, 2020

**BS EN ISO 19650-2:2018**
Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - information management using building information modelling. Delivery phase of the assets (Incorporating corrigendum February 2021) (+ Revised NA)
British Standards Institution, 2018

**PD 19650-0:2019**
[Transition guidance to BS EN ISO 19650 \(Incorporating Corrigenda No. 1\)](#)
British Standards Institution, 2019

**BS EN ISO 23387:2020**
Building information modelling (BIM) - data templates for

PD 19650-0:2019
Transition guidance to BS EN ISO 19650 (Incorporating Corrigenda No. 1)
British Standards Institution



Document Status
Current

Supplement
Core Supplement

Series
PD

Abstract
Provides information for those familiar with BS 1192:2007+A2:2016 and PAS 1192-2:2013 during the transition to BS EN ISO 19650-1 and BS EN ISO 19650-2. Covers useful terms and definitions, the role, structure and status, BIM level 2 and information management maturity, mapping, language used in ISO 19650 and how it relates in the UK.

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Replaces

 **PD 19650-0:2019**
Transition guidance to BS EN ISO 19650

Technical Resources

 **NBS Building Regulations**
NBS Building Regulations

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Architects' Journal

 **Steel Construction Institute**
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Assignment Overview

BIM (ACBA5010)

Category: Engineering

3

Turnitin Submission Links 2020/21



Client Letter and BEP (DRAFT)



Client Letter and BEP (FINAL)



Federated Model - Ysgol Bae Abertawe (FINAL) - PDF only

Assessment 1

Module Learning Outcomes
(from module syllabus)

Learning Outcomes:

Comprehend and apply the functions and processes needed to manage the life cycle of a built structure in a Building Information Modelling environment and subsequently to produce digital data.

Submission
deadline:

29th April 2021

The image shows two overlapping forms. The top form is titled 'LEVEL 5 ASSESSMENT SPECIFICATION' and contains the following details:

Student name:	Student ID number:		
Programme:	Construction Portfolio		
Module:	BIM	Contribution to Overall Assessment (%)	50%
Module code:	ACBA5010	Internal Verifier:	Ryan Stuckey
Lecturer:	Gavin Traylor	Word count (or equivalent):	2,500 words (or equivalent)
Assignment Title:	Client Letter and Draft BEP	Return date of provisional marks & written feedback:	Within 20 working days
Submission deadline:	Thursday 29 th April		
Submission method:	All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.) Alternative submission method (if applicable): Late submission of the assessment will result in a late penalty mark. Penalties for late submission: Up to one week late, maximum mark of 40%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.		
Academic honesty /	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append that		

The bottom form is titled 'STUDENT FEEDBACK FORM' and contains the following table:

Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills	10	
2. Knowledge and Understanding Skills	25	
3. Cognitive and Intellectual Skills	25	
4. Practical Application Skills	25	
5. Transferable Skills for Life and Professional Practice	15	

Below the table, there is a section for 'Assessment Mark' and 'Late Submission Penalties'.

Assessment 1

Submission
deadline:

29th April 2021

Scenario:

You are the lead consultant in charge of delivering a 'state of the art' infant school in Swansea. The project is a joint funded venture with the Welsh Government, under the 21st Century schools programme and is required to meet the standards of BIM level 2.

Your client Swansea Council has asked you to outline measures that will be taken to show competency of the project team in reaching with BIM level 2.

Assessment 1 (50%) 2500 words

Draft a letter to the client that highlights your understanding of the requirements of BIM level 2 for this project giving details on how information will be shared, coordinated and managed through the appropriate standards.

STUDENT FEEDBACK FORM		
This section details the extent to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.		
Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills	15	
2. Knowledge and Understanding Skills	25	
3. Cognitive and Intellectual Skills	25	
4. Practical Application Skills	20	
5. Transferable Skills for Life and Professional Practice	15	
Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)		Late Submission Penalties (tick if appropriate) Up to 1 week late (40% mark) Over 1 week late (20%)
		%

Assessment 1 cont..

Submission
deadline:

29th April 2021

Appended to your letter, prepare an outline BIM Execution plan which should include and the following

5 sections:

- Project Information
- Management
- Planning and Documentation
- Standards, Methods, and Procedures
- IT Solutions

Appropriate naming conventions should be applied for the BEP.

Assumptions:

Project Number: 5010

Project Title: Ysgol Bae Abertawe

Description: 1 form entry infant school for 90 pupils.

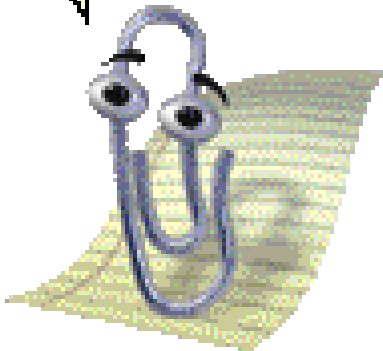
Site location plan attached

STUDENT FEEDBACK FORM		
This section details the extent to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.		
Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills	15	
2. Knowledge and Understanding Skills	25	
3. Cognitive and Intellectual Skills	25	
4. Practical Application Skills	20	
5. Transferable Skills for Life and Professional Practice	15	
Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)		Late Submission Penalties (tick if appropriate) Up to 1 week late (10% mark) Over 1 week late (0% mark)
		%

It looks like you're writing a letter.

Would you like help?

- Get help with writing the letter
- Just type the letter without help
- ☐ Don't show me this tip again



ent that highlights your requirements of BIM level ; details on how are, coordinated and appropriate standards.

BIM Execution Plan (BEP)
N7177 - Swansea Waterfront Innovation Quarter phase 1 BIMXtra

Author: [Kier Design Manager]
Approved By: [Kier BIM Manager]

AGREED BY		
Company	Individual	Date
Kier Construction Western	AG	
Stride Treglown	GB	
Jubb Consultants	TM	
Troup Bywaters + Anders	GH	
Whitehead Buildings Services	DR	
Kier Facilities management	KB	
University of Wales - Trinity St David		

- What is the project?
- Who is doing what, when will it be done, what is required?
- The documents and forms outlining the who, what and when.
- The rules of play.
- What IT format/systems will be used.

Appended to your letter, prepare an outline BIM Execution plan which should include and the following 5 sections:

- Project Information
- Management
- Planning and Documentation
- Standards, Methods, and Procedures
- IT Solutions

Assessment 2

Submission
deadline:

6th May 2021

Module Learning Outcomes (from module syllabus)

Learning Outcomes:

Demonstrate an ability to analyse, classify and produce 2D and 3D drawings using industry-standard CAD software applications.

Demonstrate an ability to render drawings to various scales and media and export drawings to different formats.

LEVEL 5 ASSESSMENT SPECIFICATION

Student name:		Student ID number:	
Programme:	Construction Portfolio		
Module:	BIM		
Module code:	ACBA5010	Contribution to Overall Module Assessment (%):	50%
Lecturer	Gavin Traylor	Internal Verifier:	Ryan Stuckey
Assignment Title:	Federated Models (Architectural & Structural)	Word count (or equivalent):	2,500 words (or equivalent)
Submission deadline:	Thursday 6 th May	Return date of provisional marks & written feedback:	Within 20 working days
Submission method:	All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.) Alternative submission method (if applicable): Late submission of the assessment will result in a late penalty mark. Penalties for late submission: Up to one week late, maximum mark of 40%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.		
Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

Module Learning Outcomes (from module syllabus)

- Demonstrate an ability to analyse, classify and produce 2D and 3D drawings using industry-standard CAD software applications.
- Demonstrate an ability to render drawings to various scales and media and export drawings to different formats.

Assessment 2

Submission
deadline:

6th May 2021

Scenario:

Assessment 2 (50%)

You are the lead consultant in charge of delivering a 'state of the art' infant school in Swansea. The project is a joint funded venture with the Welsh Government, under the 21st Century schools programme and is required to meet the standards of BIM level 2.

Prepare a federated concept Model at RIBA stage One for your first Information Exchange with the client. Your federated model shall consist of architectural and structural models that are linked in Revit using shared coordinates.

The design and construction of the school should be inspiring to create a vibrant facility for the pupils. The schedule of accommodation shall be in accordance with BB99.

Assessment 2

Submission
deadline:

6th May 2021

Digital Submission:

Architectural Model with Architectural drawings:

- Site location plan
- Existing site plan and demolition
- Works plan
- Proposed General arrangement floor plan.
- Proposed Principal elevations
- Proposed Long and Short Section
- Proposed Materials Take off schedule
- Proposed Visualisations

Structural Model with Structural Drawings:

- Foundations Plan
- Primary Structure Plan
- Structural Visualisation

The project must include. Project Base point, survey point. True North/ Project North, Room names, Legends, Tags & Annotations, Dimensions, Levels, North Point.

All Drawings must be appropriately scaled at A1 size and presented in the uwtsd BIM titleblock format with the appropriate naming conventions for all sheets and models.

Digital Submission required in RVT and PDF format.

Assessment 2

Submission
deadline:

6th May 2021

Assumptions:

Project Number: 5010

Project Title: Ysgol Bae Abertawe

1 form entry infant school for 90 pupils.

The site plan attached, shows the proposed location of the school adjacent to the existing observatory within the residential district south of the Maritime Quarter in Swansea. There are remains of warehouse retaining walls and foundations on the site which are to be removed. The boat shed and sculpture on the site are to be demolished.

The school is to be single storey though the hall space should be double height.

Schedule of accommodation at BB99 opposite.

Each classroom should have access the outside.

Car parking for 5 vehicles including 2 disabled bays

Drop off point for deliveries and minibuses.

Hard surface playground

Soft landscaped playground

pupil places		90 pupils		
number of classes		3 classes		
Forms of Entry (FE) and type		1 FE infants		
	max. group size	average area (m ²)	no. of rooms	total area (m ²)
basic teaching				
reception class	30	66	1	66
infant classbase	30	60	2	120
junior classbase	30	60		
specialist practical				
food/science/D&T	8	24	1	24
food/science/D&T	8	38		
ICT/ group room; (no. of computers)			(8)	38
ICT suite; (no. of computers)				
halls				
main hall (used for dining)	30		1	125
small hall	30	80		
studio	30	50		
learning resource areas				
Library resource centre	15 to 30		1	18
small group room (SENco)	5 to 8	12	1	12
small group rooms	5 to 8	9		
TOTAL TEACHING AREA				403
staff and admin.				
head's office/meeting room			1	10
senior management offices		8		
staff room			1	18
general office			1	8
sick bay (adjacent)		3	1	3
entrance/reception			1	2
copier/reprographics				2
SENco/ML/group room		12	1	12
interview/social services		8		
storage				
class storage (reception)		3	1	3
class storage (infant and junior)		1.5	2	3
specialist stores		6 or 8	2	12
PE store (adjacent to hall)		12	1	12
PE store (external)		4	1	4
non-teaching storage				
central stock		8	1	6
cloakrooms/lunch box storage		3		9
dining chair/table store (no. of sittings)			(2)	7
staging/appliance store			1	4
community store		4	1	4
caretakers /maintenance store			1	4
cleaner's store		1.5	2	3
TOTAL NET AREA				529
recommended net area				529
non-net area				
kitchen (full-service)			1	28
servery				6
toilets (and personal care)				
reception toilets			2	8
other pupil toilets				10
accessible toilets/hygiene facilities				7
staff toilets				3.5
circulation				
plant (incl. server)		net x 23%		122
partitions		net x 3%		17
		net x 5%		26
TOTAL GROSS AREA				
recommended gross area (net at 70% of gross)				

ACBA 5010

Assessment 2

Submission
deadline:

6th May 2021

Assessment 2 (Revit Practical)

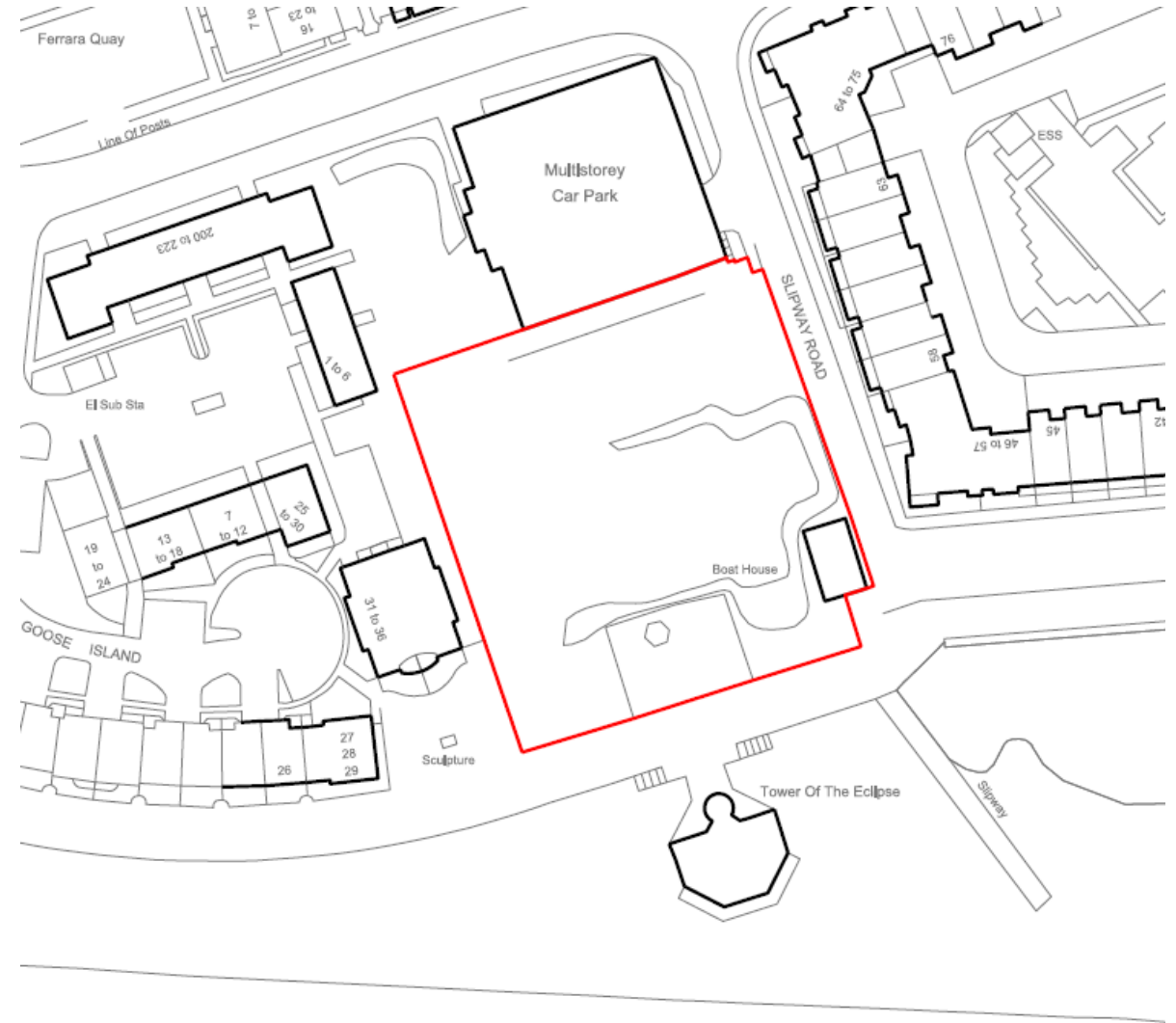
• Use of the BIM naming and format, including completion of splash page and all titleblocks. Revit Link files interlinked	20
• Demonstrating skills in Revit, and organise your work accordingly – views and sheets, PDF outputs	20
• Drawings provided at an appropriate scale, detail and presentation format.	25
• Project Base point, Survey Point. True North / Project North, Room names, Legends, Tags & Annotations, Dimensions, Levels, North Point. Project Phasing	25
• Adherence to brief and Design intent. In accordance with the requirements in the brief and BB99 table.	10

4. Practical Application Skills

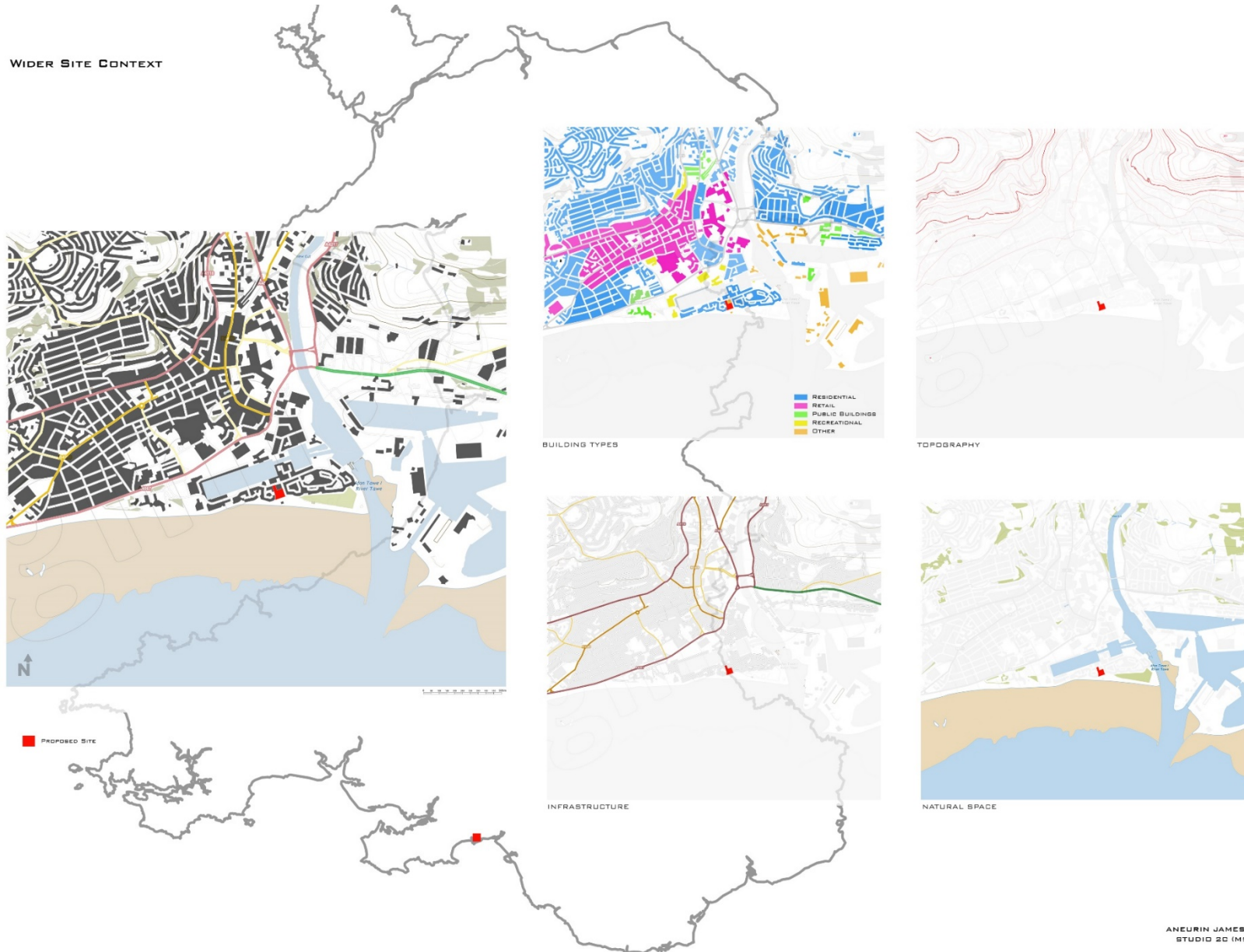
100



The Site



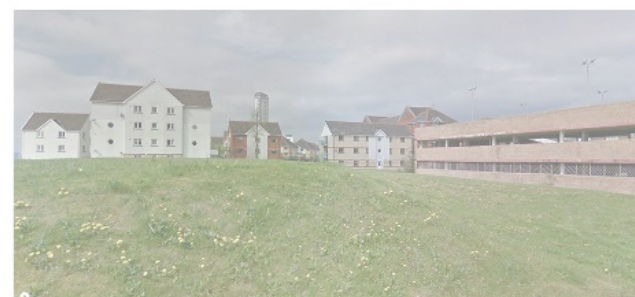
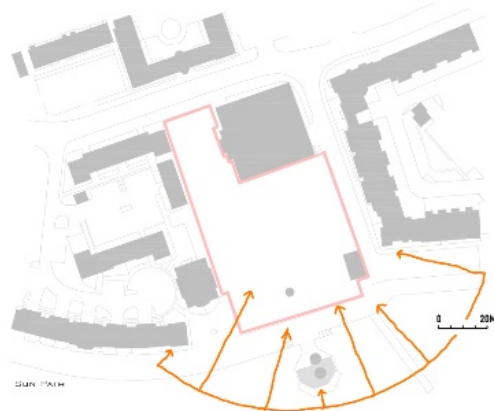
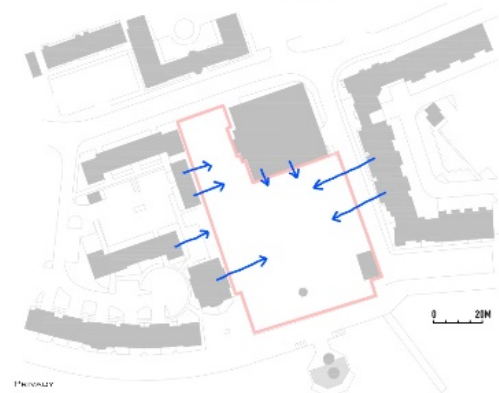
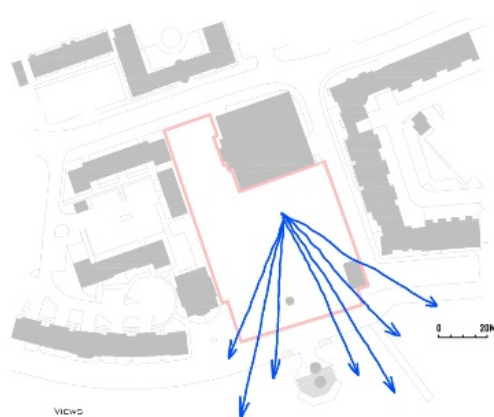
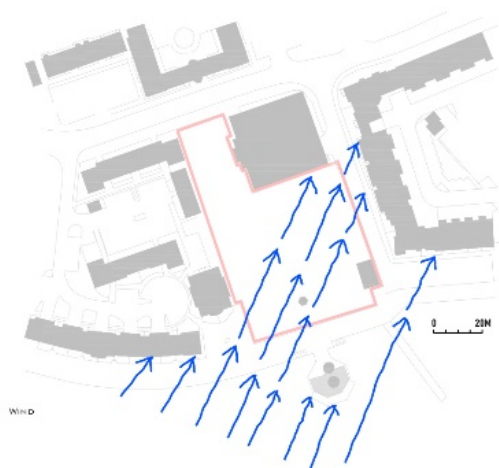
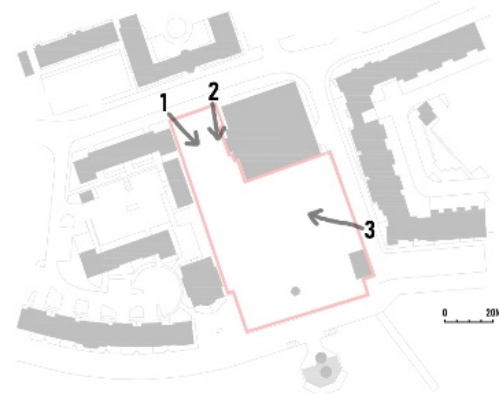
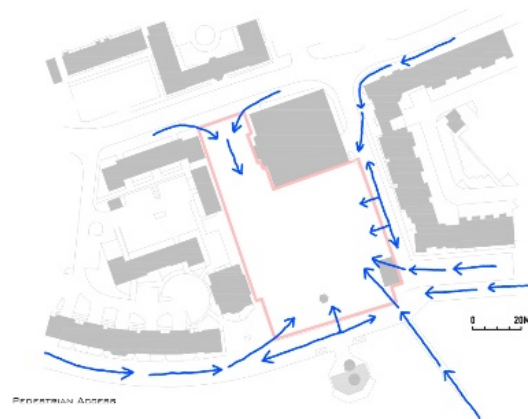
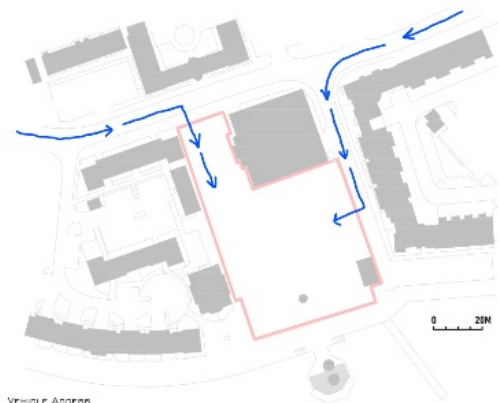
Site Analysis



Example Site Analysis:

Wider Context

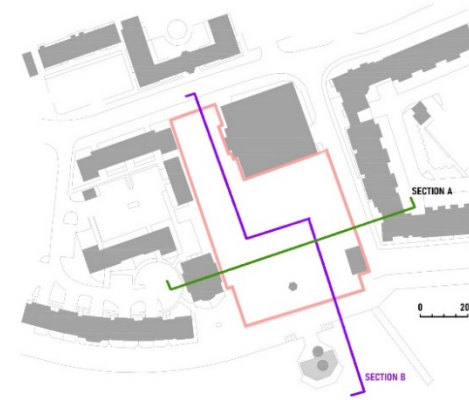
*Courtesy of
Studio 2C (Architecture)*



Example Site Analysis:

Micro Climate

*Courtesy of
Studio 2C (Architecture)*



Example Site Analysis:

Site Sections

*Courtesy of
Studio 2C (Architecture)*



ANEURIN JAMES (1901-1928)
STUDIO 2C (MSX01979)

The Brief

	90 pupils 3 classes 1 FE infants			
	max. group size	average area (m ²)	no. of rooms	total area (m ²)
basic teaching				
reception class	30	66	1	66
infant classbase	30	60	2	120
junior classbase	30	60		
<i>specialist practical</i>				
food/science/D&T	8	24	1	24
food/science/D&T	8	38		
ICT/ group room: (no. of computers)				
ICT suite: (no. of computers)			(8)	38
halls				
main hall (used for dining)	30		1	125
small hall	30	80		
studio	30	50		
learning resource areas				
Library resource centre	15 to 30		1	18
small group room (SENco)	5 to 8	12	1	12
small group rooms	5 to 8	9		
TOTAL TEACHING AREA				403
staff and admin.				
head's office/meeting room			1	10
senior management offices		8		
staff room			1	18
general office			1	8
sick bay (adjacent)		3	1	3
entrance/reception			1	2
copier/reprographics				2
SENco/MI/group room		12	1	12
interview/social services		8		

storage

class storage (reception)	3	1	3
class storage (infant and junior)	1.5	2	3
specialist stores	6 or 8	2	12
PE store (adjacent to hall)	12	1	12
PE store (external)	4	1	4
non-teaching storage			
central stock	8	1	6
cloakrooms/lunch box storage	3		9
dining chair/table store (no. of sittings)		(2)	7
staging/appliance store		1	4
community store	4	1	4
caretakers /maintenance store		1	4
cleaner's store	1.5	2	3

TOTAL NET AREA

recommended net area

non-net area

kitchen (full-service)		1	28
servery			6
toilets (and personal care)			
reception toilets		2	8
other pupil toilets			10
accessible toilets/hygiene facilities			7
staff toilets			3.5

circulation

plant (incl. server)

partitions

TOTAL GROSS AREA

recommended gross area (net at 70% of gross)

net x 23%	122
net x 3%	17
net x 5%	26

Design

GUIDANCE

21st Century Schools and Colleges: building bulletins

Guidance for the design and maintenance of school buildings and land.

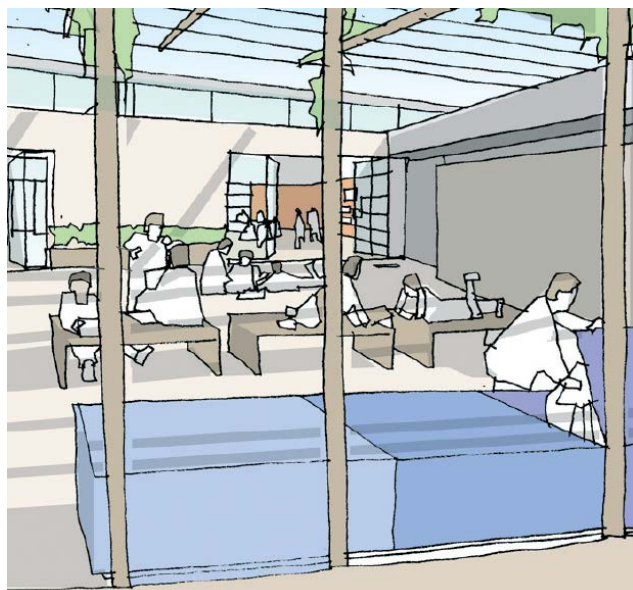
Read details 

Part of: [21st Century Schools and Colleges Programme](#)

First published: 19 June 2019

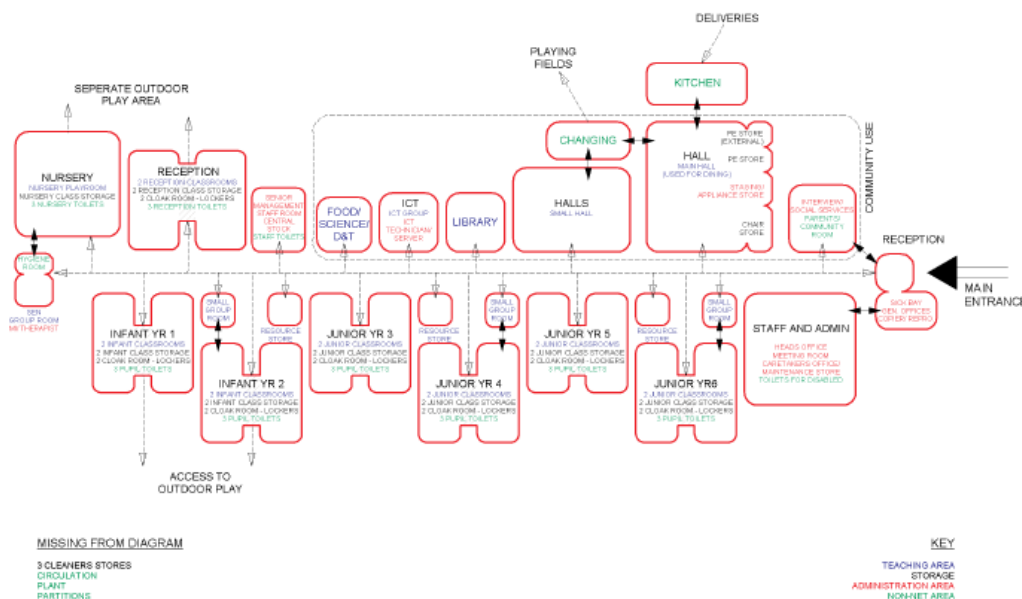
Last updated: 19 June 2019

<https://gov.wales/21st-century-schools-and-colleges-building-bulletins>

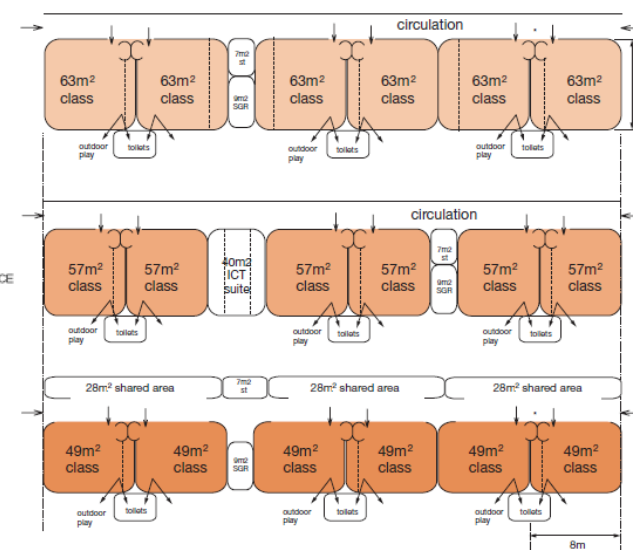


Building Bulletin 99:
Briefing Framework for
Primary School Projects

Incorporating primary school revision to
BB82: Area Guidelines for Schools



PRIMARY EXEMPLAR CORE BRIEF DIAGRAM



Assessment 2

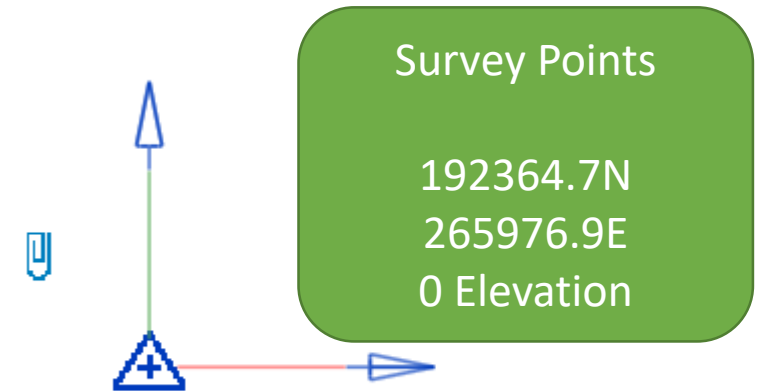
Architectural Model

- Start a new project in REVIT – ‘architectural 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
 - **Set Up Phasing**
 - Load Splash Page Titleblock
 - Load UWTSD Titleblock
- SAVE file (with appropriate naming) and Close

Structural Model

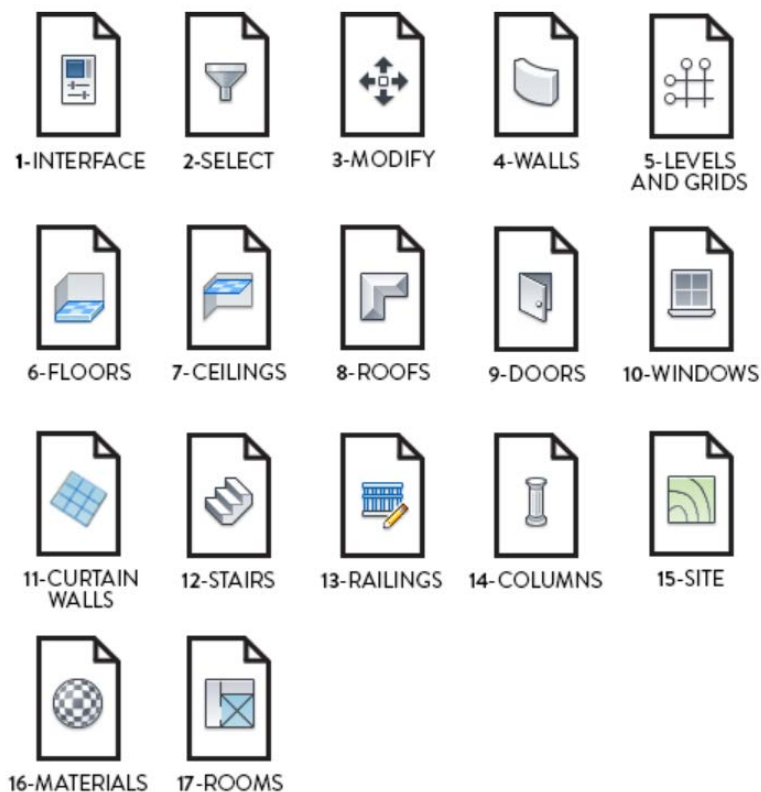
- Start a new project in Revit – ‘structural metric template’
 - Set up levels
 - Insert Revit Link file (above), by ‘internal origin to internal origin’
 - Relocate Project Base Point and Survey Point to the to match those of the Linked File
 - Load Splash Page Titleblock
 - Load UWTSD Titleblock
-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

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

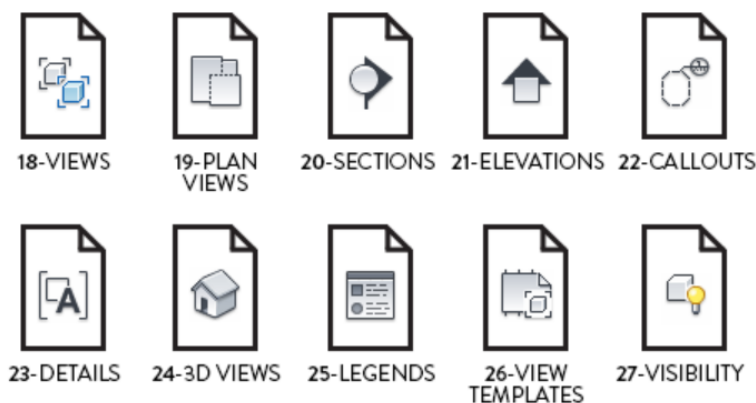


NOW START DRAWING

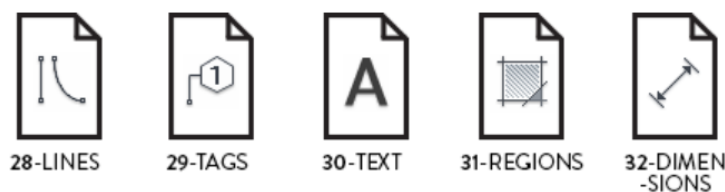
PART 1: MODEL



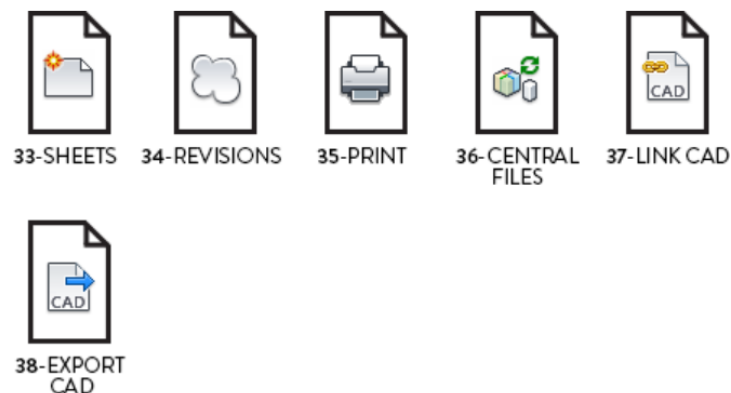
PART 2: VIEWS



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

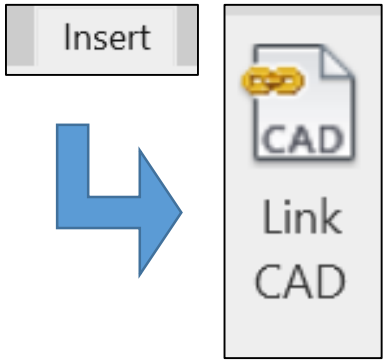


45-DESIGN
OPTIONS



- 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*

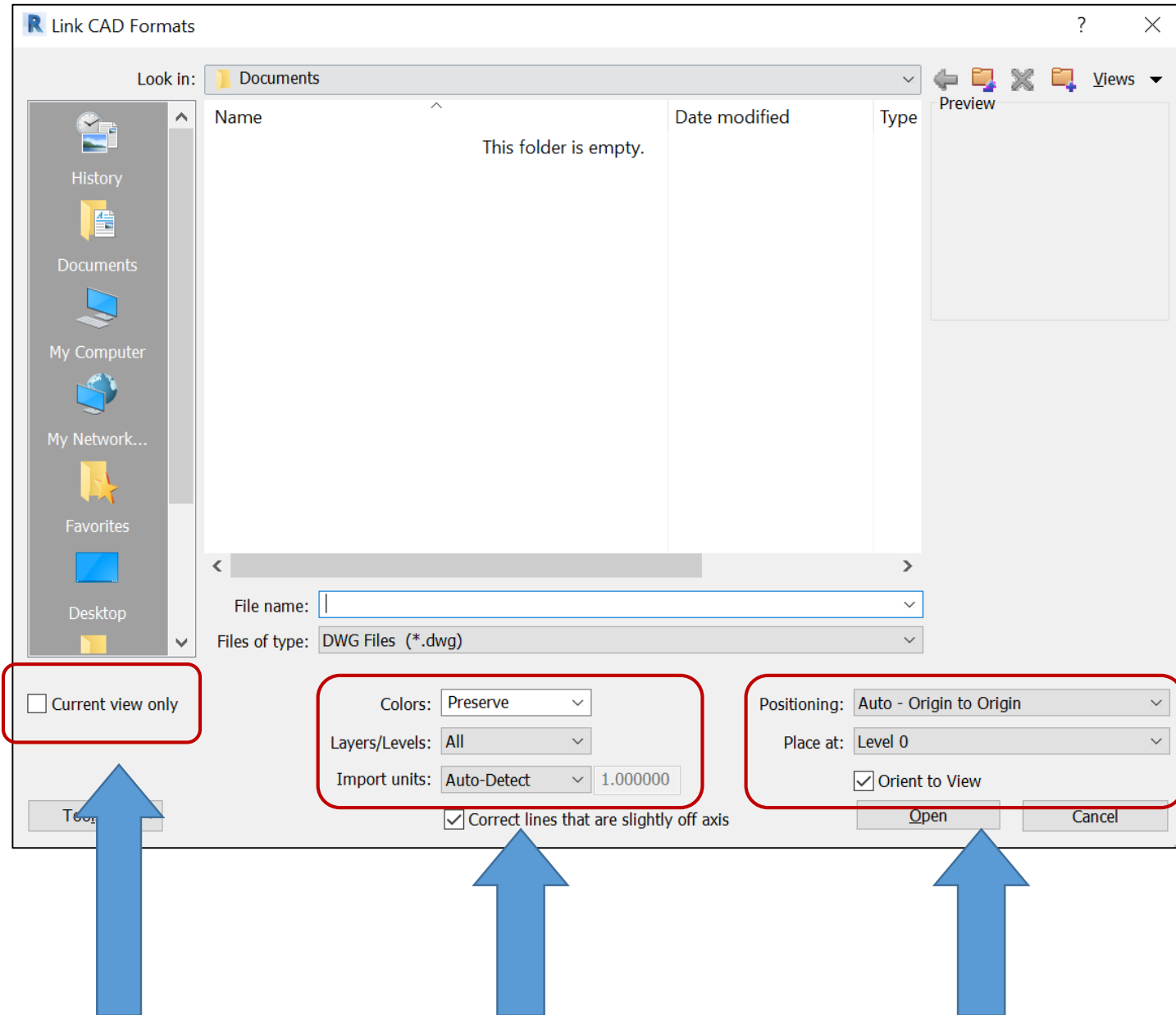
CAD Link Files



CAD files

Cad files can be linked to Revit through the Insert Menu.

Check the fields highlighted before importing files.



Manage Links

RevitIFCCAD FormatsDWF MarkupsPoint CloudsTopography

Link Name	Status	Positions Not Saved	Size	Saved Path	Path Type
OSMAP BoatHouse.dwg	Loaded	☐	161.9 K	C:\Users\g.traylor\OneDrive - Univer	Relative

Save Positions

Reload From...

Reload

Unload

Import

☒ Preserve graphic overrides

OK

C

Manage Links to unload / load updated linked files

Manage Links

Manage Project

Visibility of Links from Visibility / Graphics – Imported Categories. CAD Layers can be switched on and off.

Visibility/Graphic Overrides for Floor Plan: Site

Model CategoriesAnnotation CategoriesAnalytical Model CategoriesImported CategoriesFilters

☒ Show imported categories in this view

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

Visibility	Projection / Surface		Half-tone
	Lines	Patterns	
☒ Imports in Families	Override...		☐
☒ OSMAP BoatHouse.dwg			☐
☒ 0			
☒ Building_Line_Division			
☒ Building_Line_Outline			
☒ Buildings_Or_Structure_T...			
☒ General_Feature_Line			
☒ General_Surface_Line			
☒ General_Surface_Text			
☒ Inland_Water_Line			
☒ Inland_Water_Text			
☒ Landform_Line_Bottom_...			
☒ Landform_Line_Top_Of_...			
☒ Road_Or_Track_Line_Pub...			
☒ Road_Or_Track_Text_Roa...			
☒ Roadside_Text			
☒ Structure_Text			
☒ Terrain_and_Height_Poin...			
☒ Terrain_and_Height_Text			

AllNoneInvertExpand All

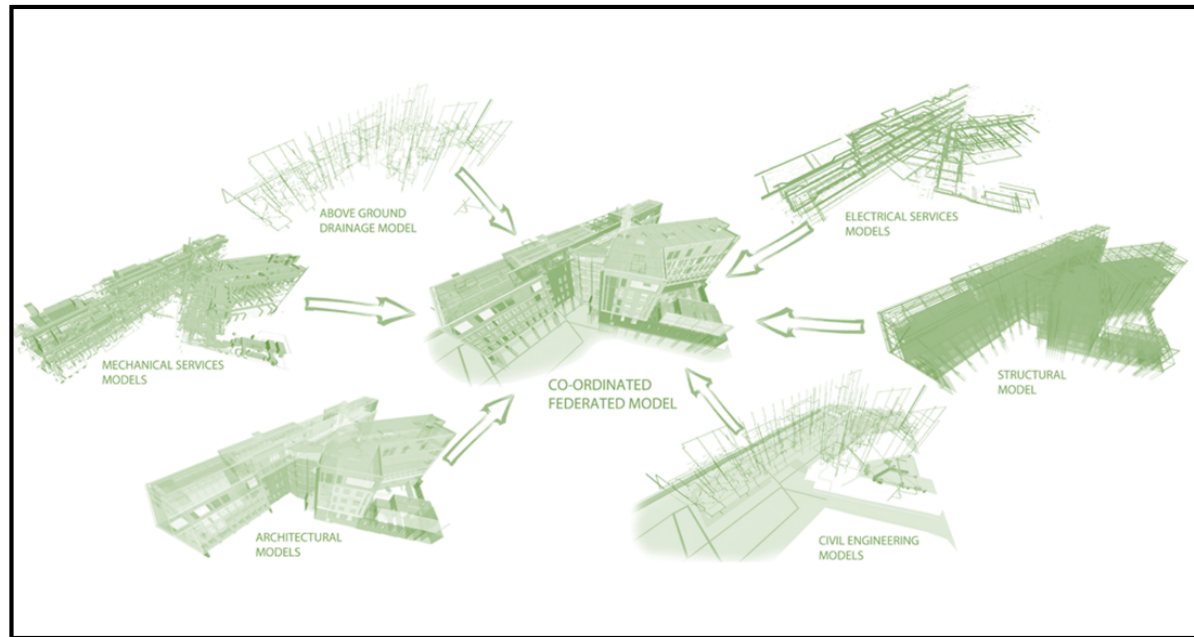
Categories that are not overridden are drawn according to this project's Imported Object Style settings.

Object Styles...

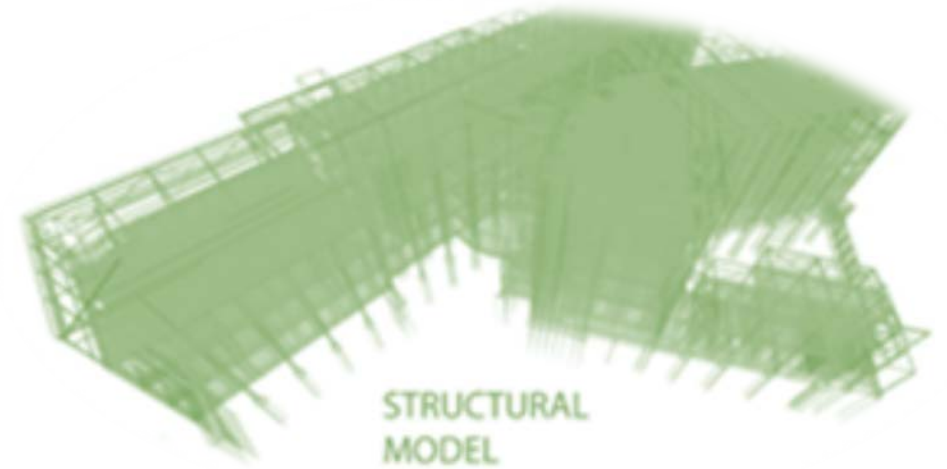
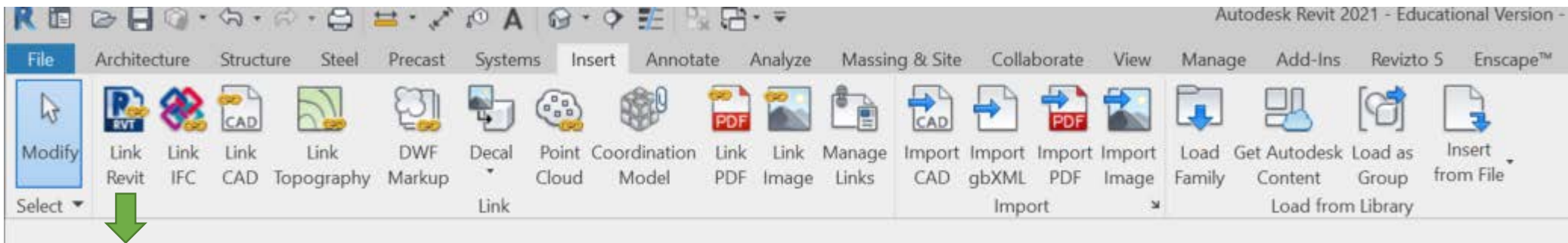
OK

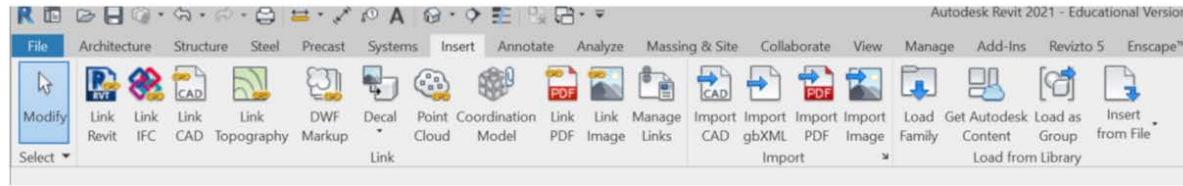
Cancel

Revit Link Files



Revit Link Files and Shared Coordinates





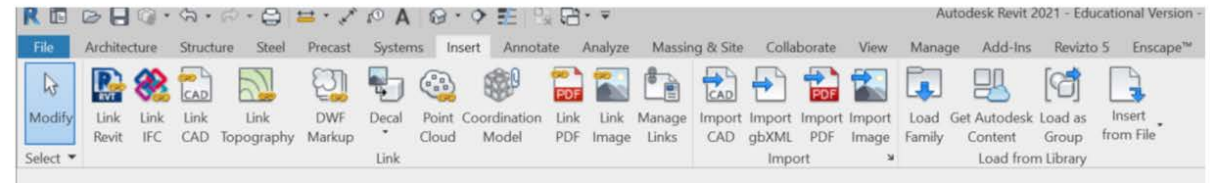
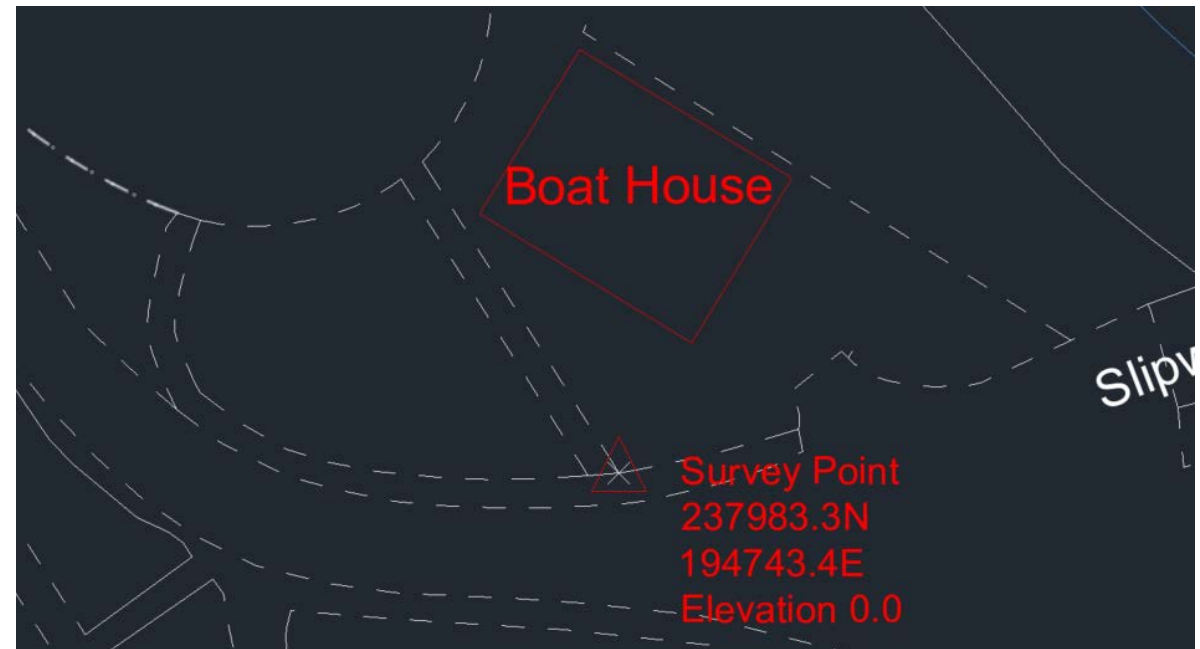
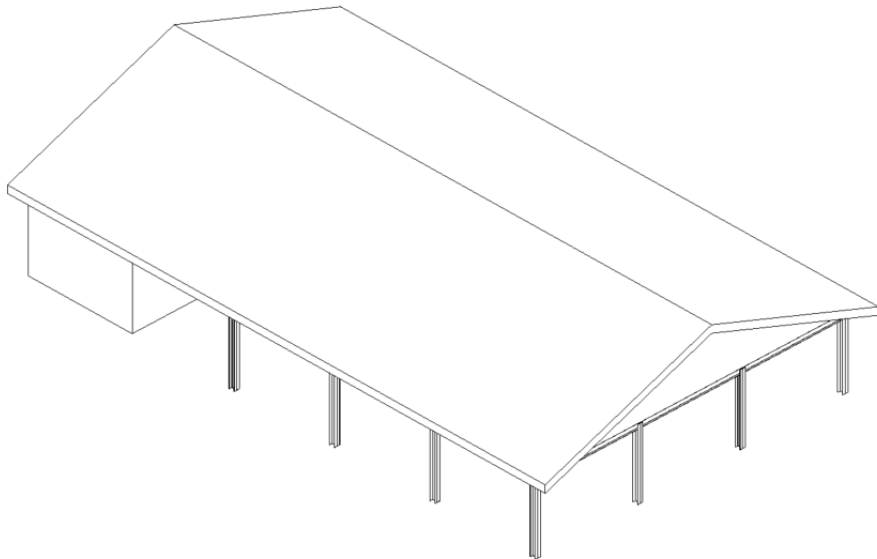
Models can be linked and use the same Project Base Point and Survey Point

Exercise 7

Boathouse revisited. (for some)

Create Architectural and Structural Models

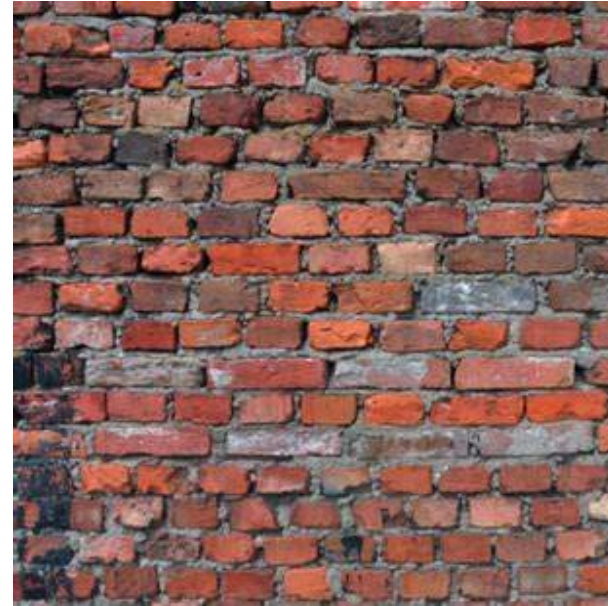
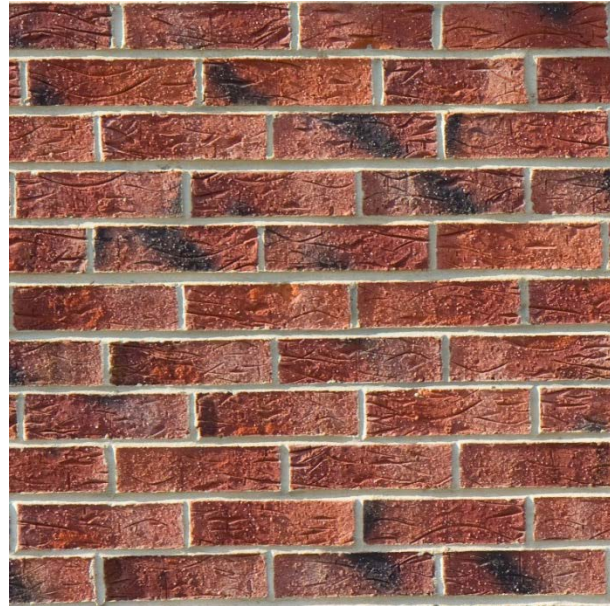
Download the OSMAP from Teams and use the survey points given.

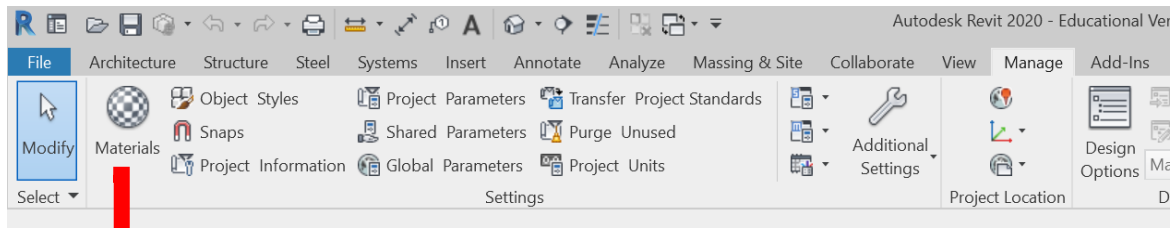


Materials

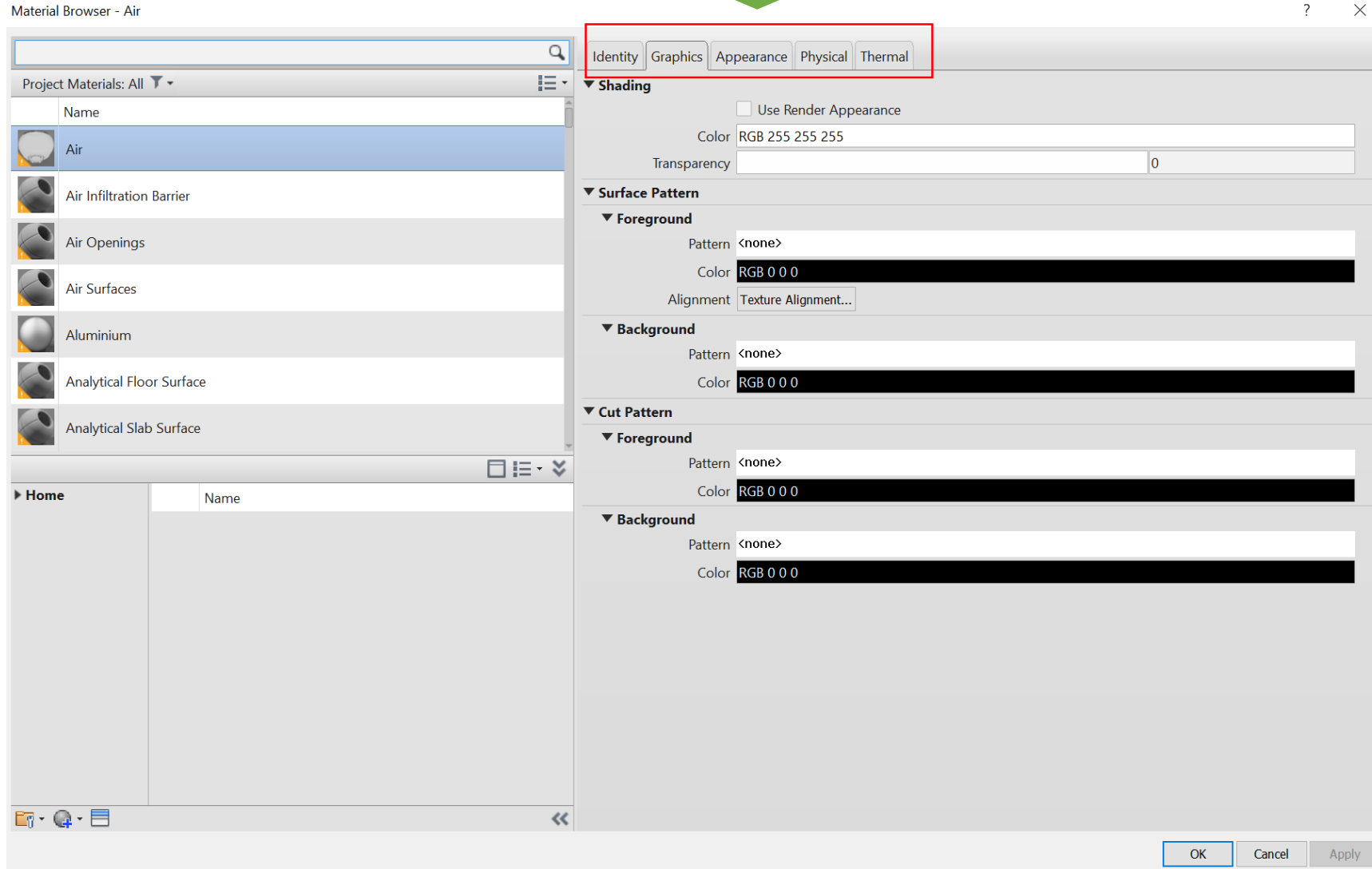


16-MATERIALS





Properties of the Material



Materials
Loaded within
the project



16-MATERIALS

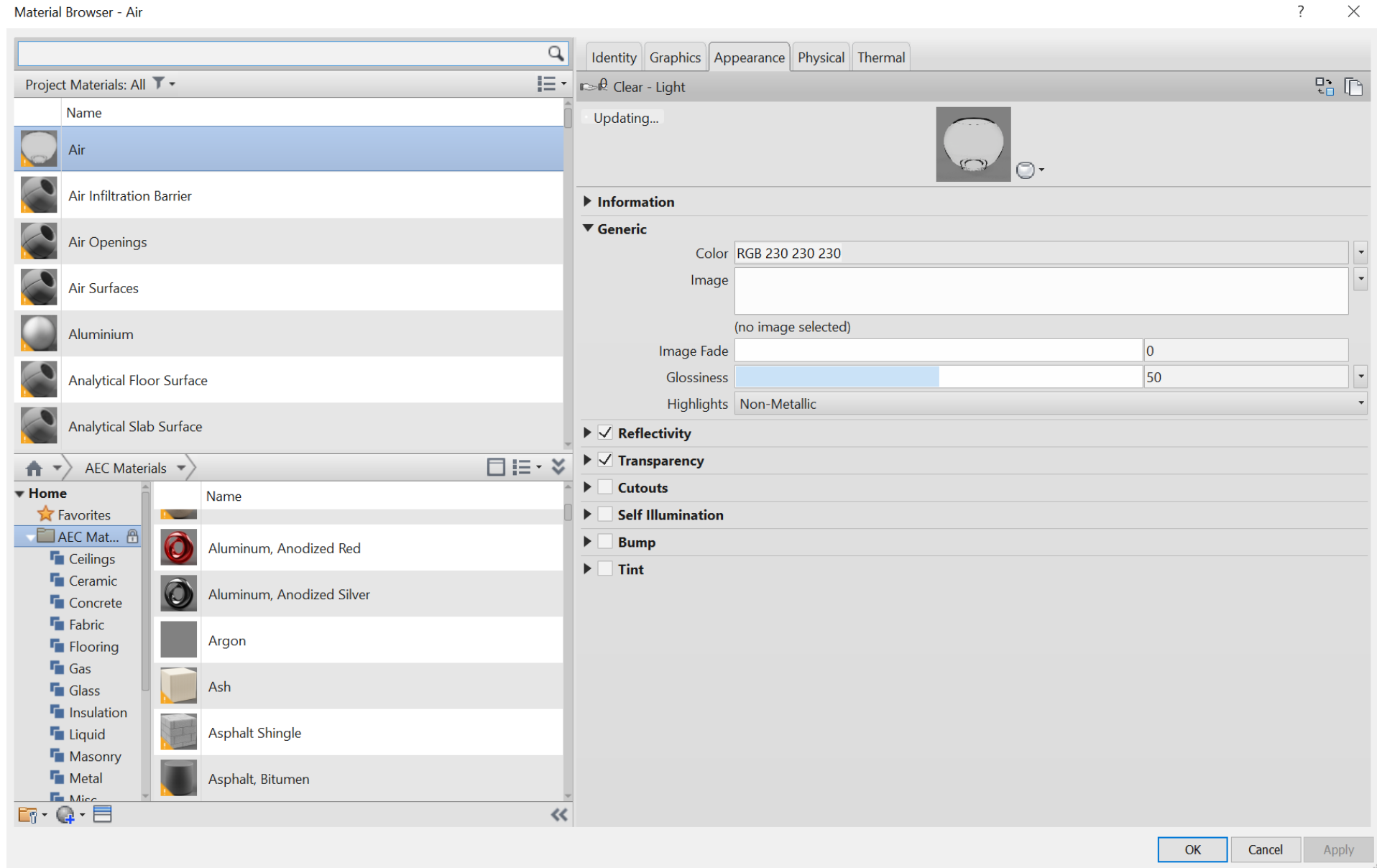


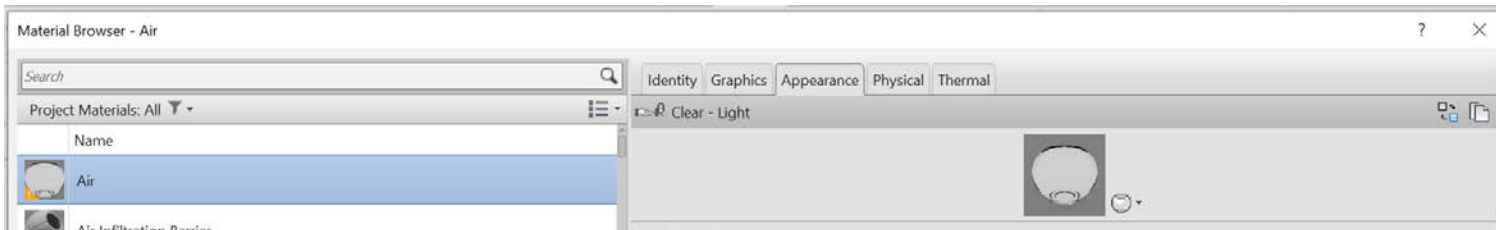
16-MATERIALS

Open the Home
Menu to view
AEC Materials
Library

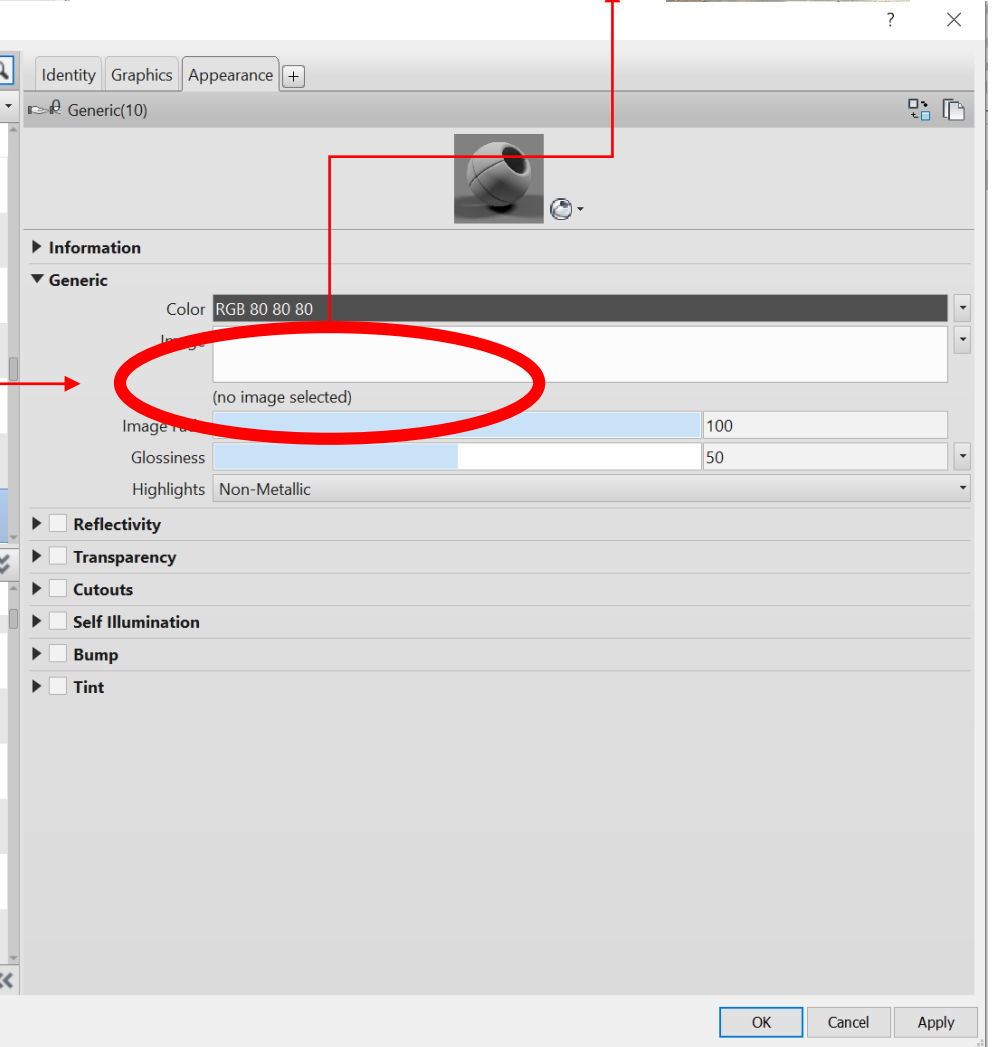
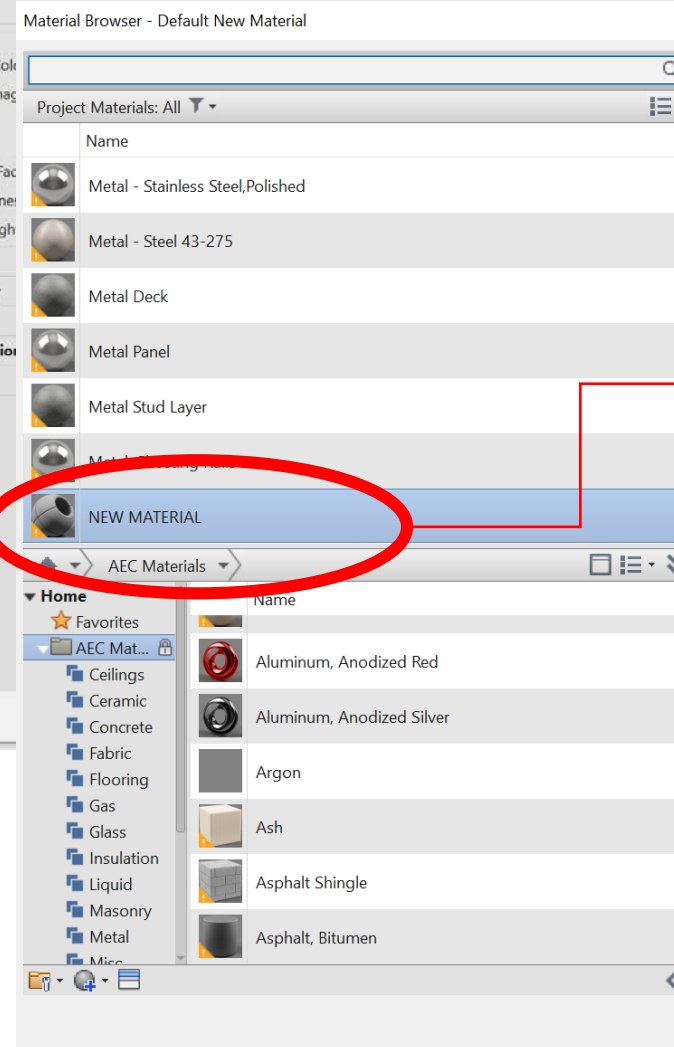
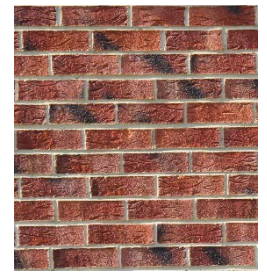


Additional
Materials can be
loaded in to the
project.





Load your
own image of
the material



Create a New Material and Rename it.
Images for the material can be added



Materials can then be applied to 'Families' such as Walls / Roofs / Floors / Windows etc.

Edit Assembly

2D

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

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	12.0	☒	☐

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

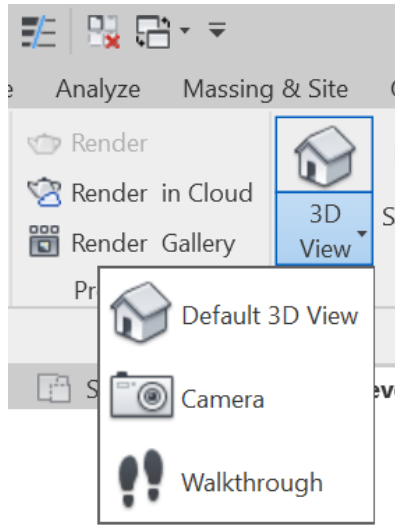
Cancel

Help

View: Floor Plan: Modify typ

Preview >>

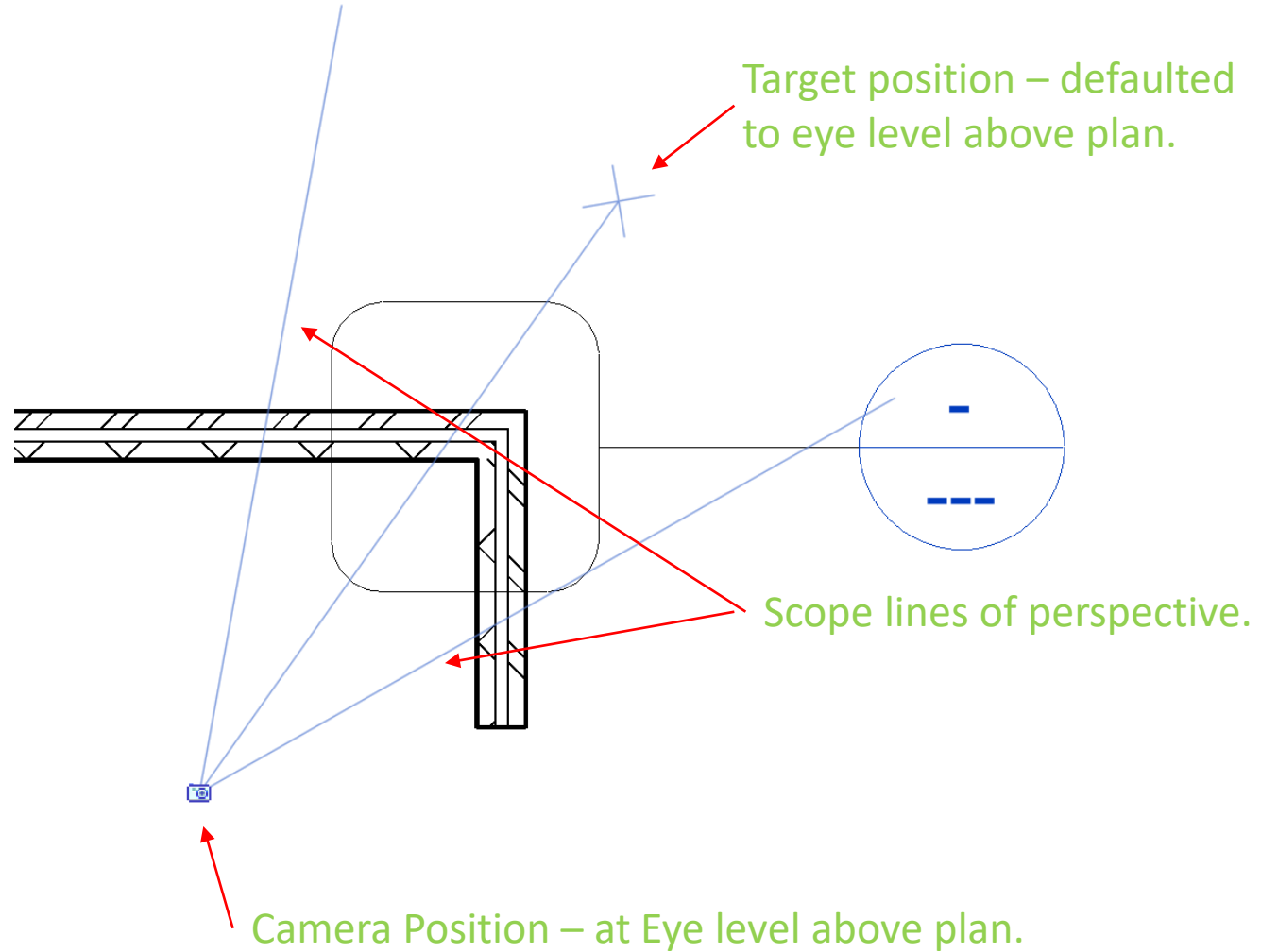
Visualization



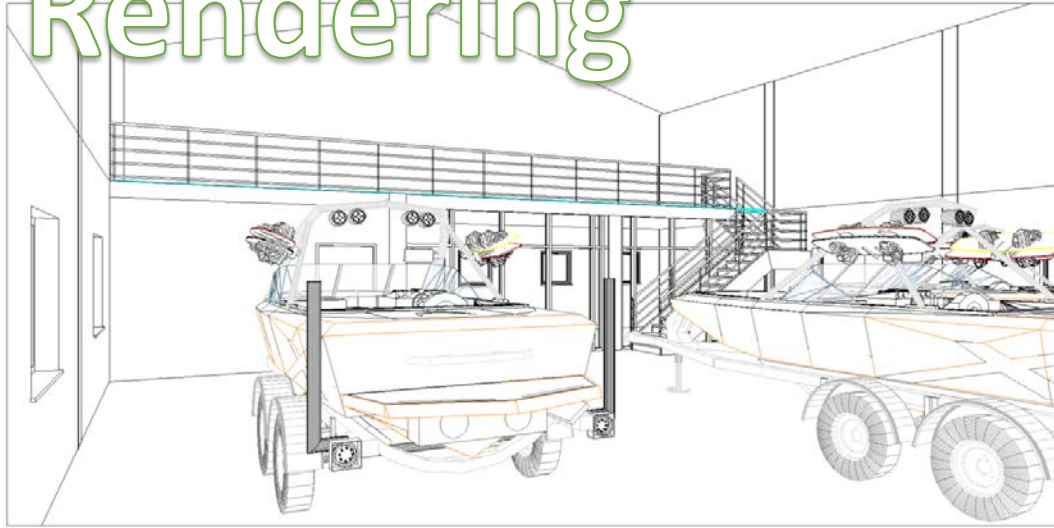
Place Camera Views in PLAN

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

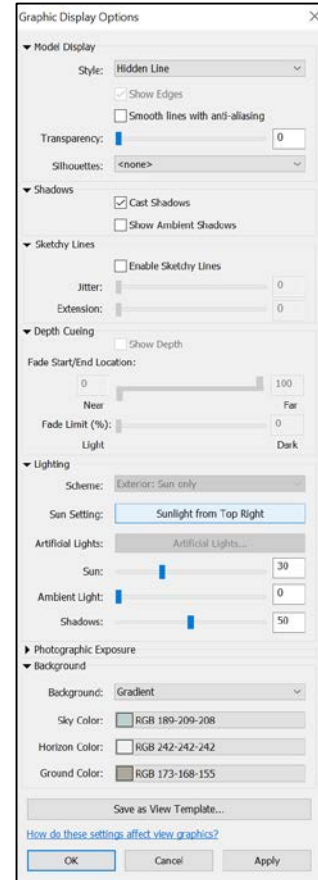
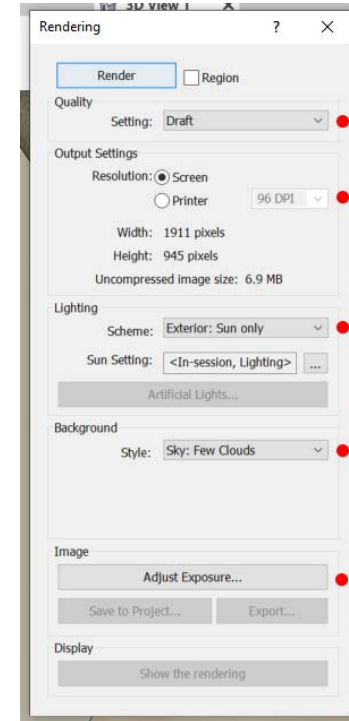
A new view will appear in the Project Browser Palette

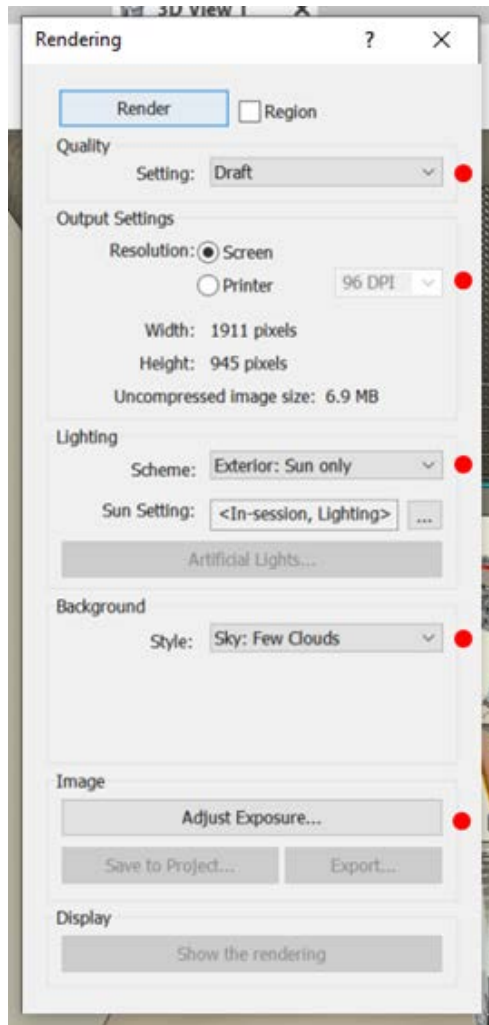


Rendering



As well as adjusting the Graphical Display, Revit has a decent render engine to produce realistic views. The Render icon (teapot) allows you to set the graphical controls for the render.



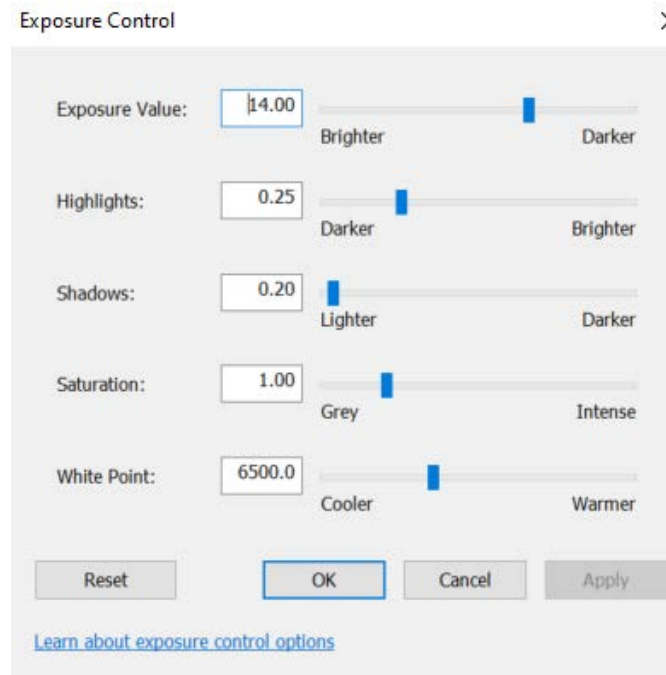


Speed / resolution

Resolution to Screen or DPI

Lighting – Exterior or Internal views

Type of Sky



Exposure Values can be altered before or after a render whilst the dialogue box is open.

NB: Remember to Save your Rendered View to the Model

Rendering ? X

☐ Region

Quality
Setting:

Output Settings
Resolution: ☒ Screen
☐ Printer 96 DPI
Width: 1911 pixels
Height: 945 pixels
Uncompressed image size: 6.9 MB

Lighting
Scheme:
Sun Setting: ...

Background
Style:

Image

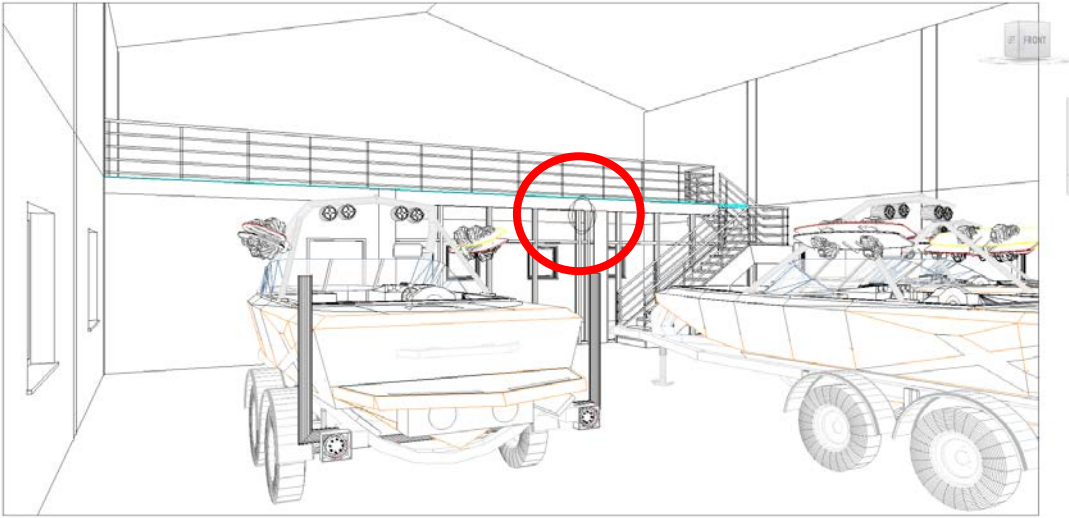
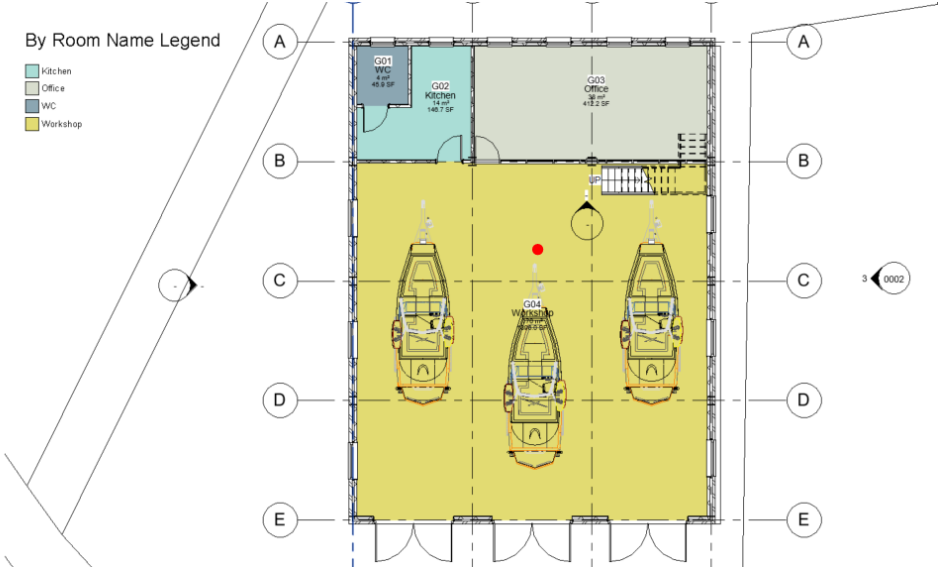
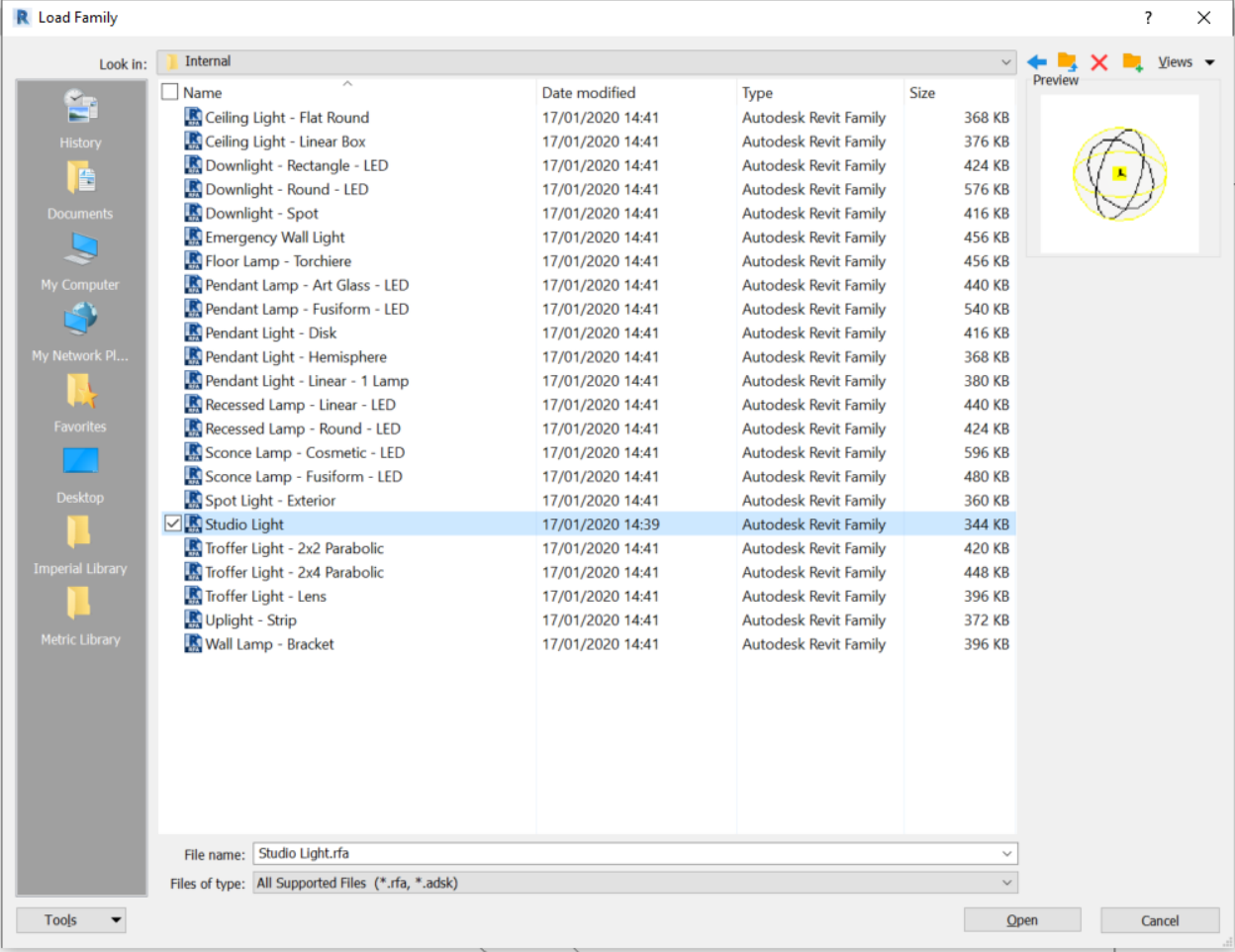
☒

Display

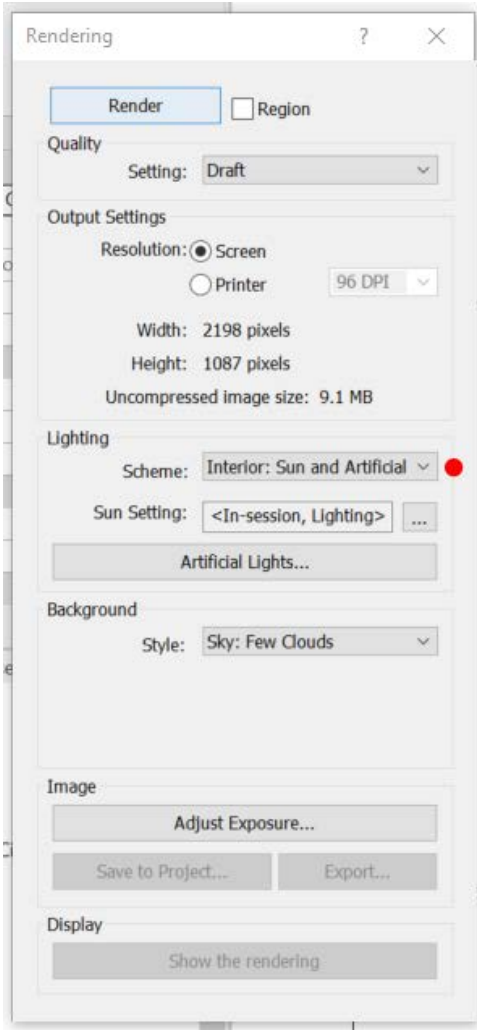


NB: Remember to Save your Rendered View to the Model

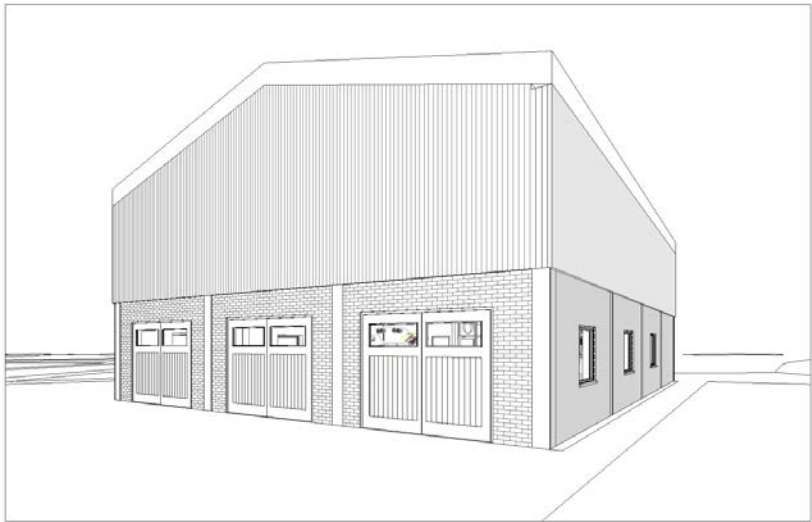
You can add Lighting families to your model such as a Studio Light



You can add then adjust your lighting settings to consider both the Sun and Artificial Lighting.
The more artificial lights you add the more time it takes to process the render.



Material Choices



Autodesk Revit 2020 - Educational Version

Architecture | Structure | Steel | Systems | Insert | Annotate | Analyze | Modeling & Site | Collaboration | View | Manage | Add-ins

Material | Project Information | Global Parameters | Project Units | Settings | Additional Settings | Project Location | Design Options | Project Location

Material Browser - Air

Project Materials: All

Name

- Air
- Air Infiltration Barrier
- Air Openings
- Air Surfaces
- Aluminum
- Analytical Floor Surface
- Analytical Slab Surface

Home

Name

Properties of the Material

Identity | Graphics | Appearance | Physical | Thermal

Shading

Use Sender Appearance

Color: RGB 255 255 255

Transparency: 0

Surface Pattern

Foreground

Pattern: none

Color: RGB 0 0 0

Alignment: Texture Alignment

Background

Pattern: none

Color: RGB 0 0 0

Cut Pattern

Foreground

Pattern: none

Color: RGB 0 0 0

Background

Pattern: none

Color: RGB 0 0 0

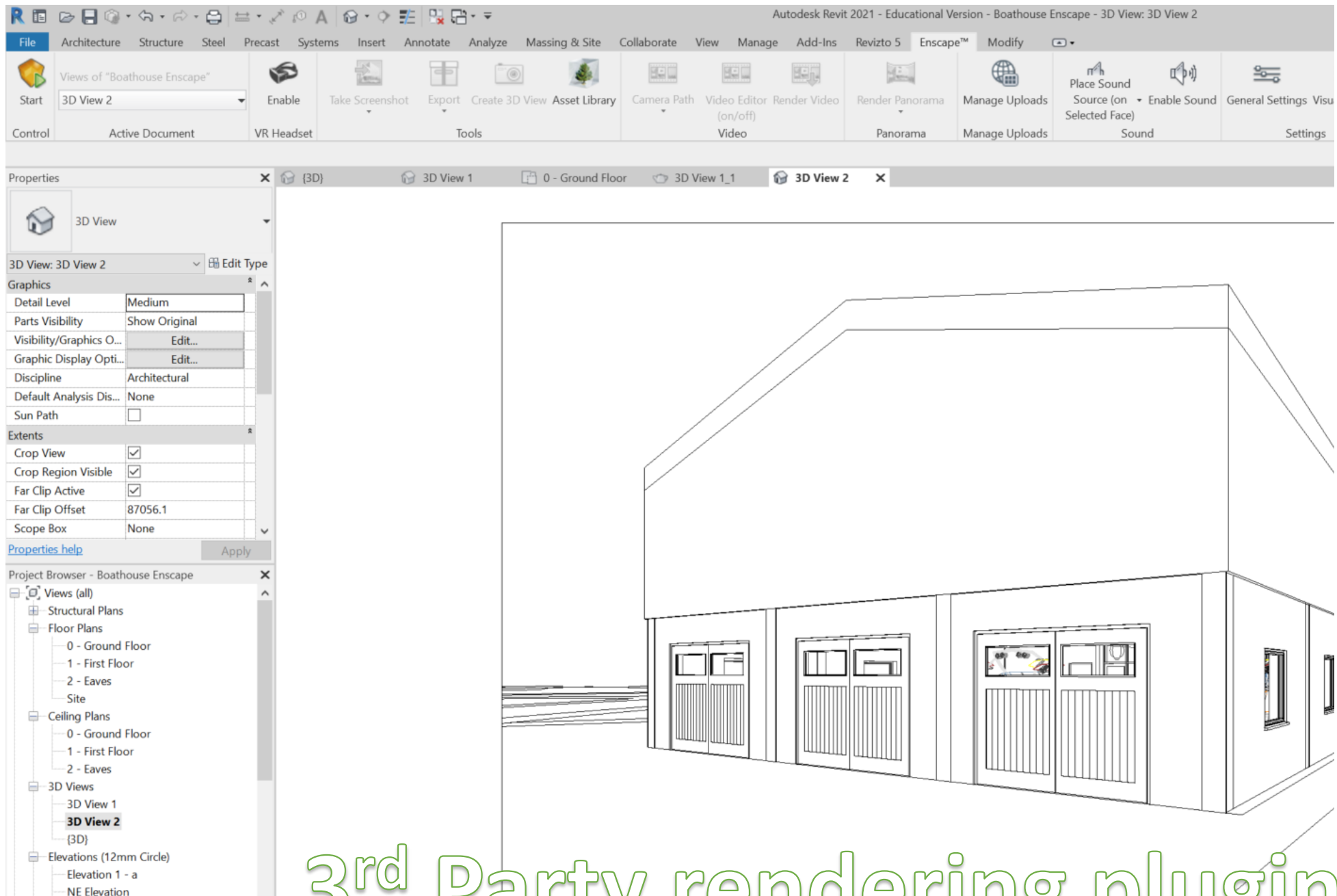
OK Cancel

ACBA 5010

16-MATERIALS

Lecture 6
material notes

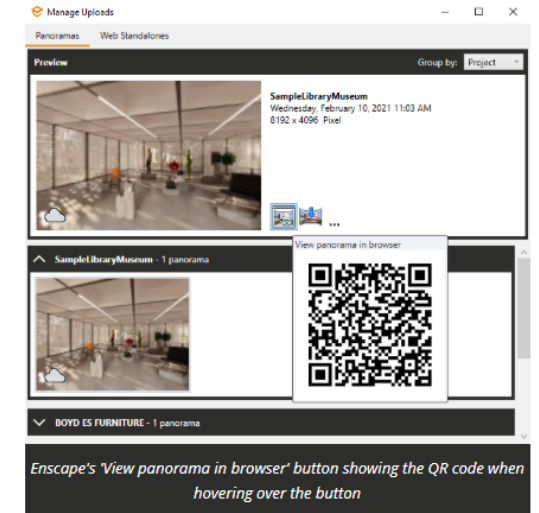




<https://youtu.be/go-HRFXIHZM>



Once you have uploaded the panorama to the cloud, the **Upload panorama to cloud** button changes to the **View panorama in browser** button. Clicking on the button will directly open the panorama in your browser; hovering over this button will reveal a QR code that can be scanned with QR scanning software which will directly open the link to the panorama in the devices default browser.



Enscape can be linked to VR Technologies.
It can create Panoramic images for Google Cardboard

QR Codes can be generated to assist coordination
and realisation of design drawings and ideas.



Apply for your free educational license

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<https://enscape3d.com/educational-license/>



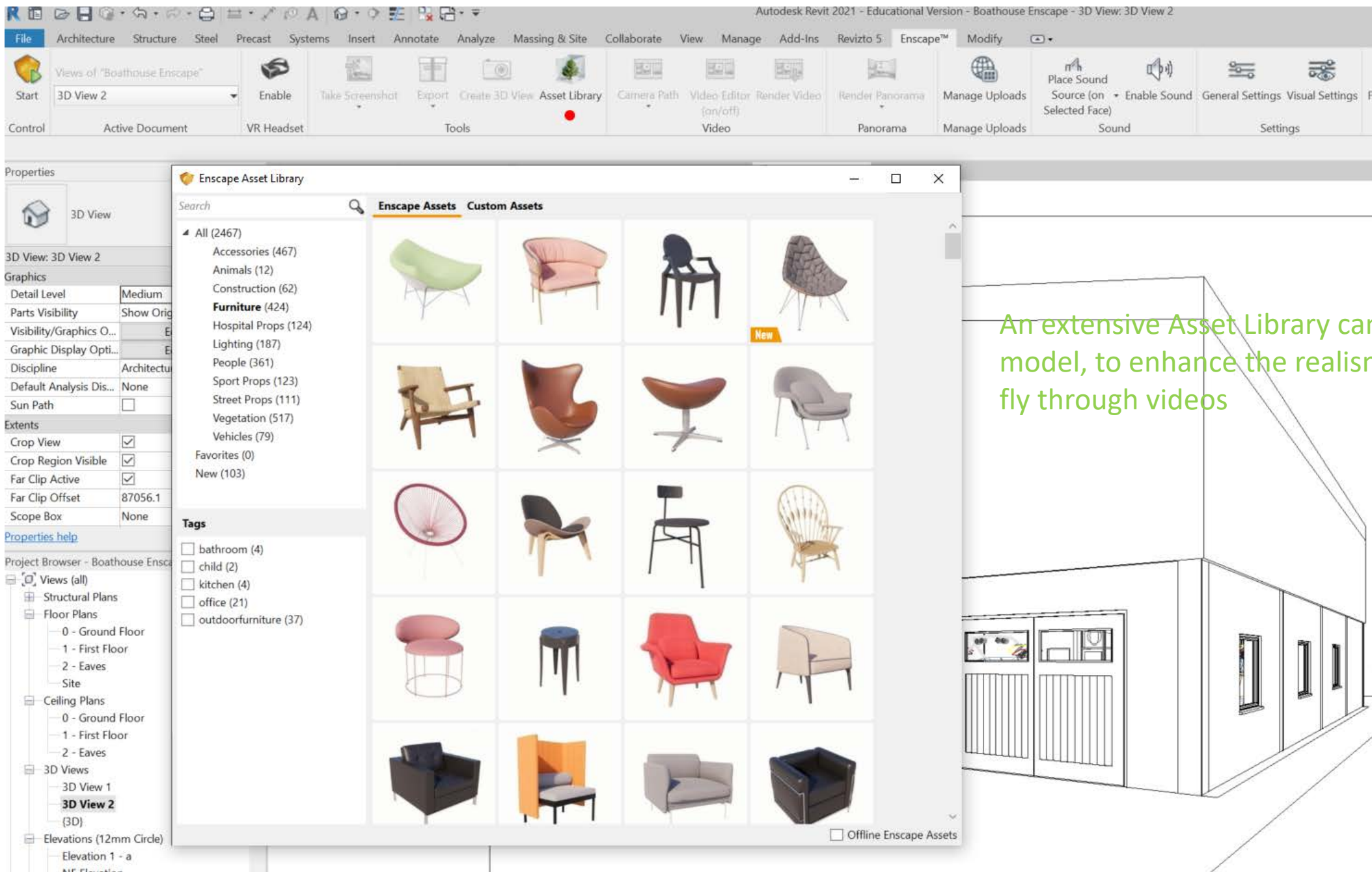
<https://youtu.be/HZhw1ln2rNk>

Realtime Rendering updated directly to the Revit Model



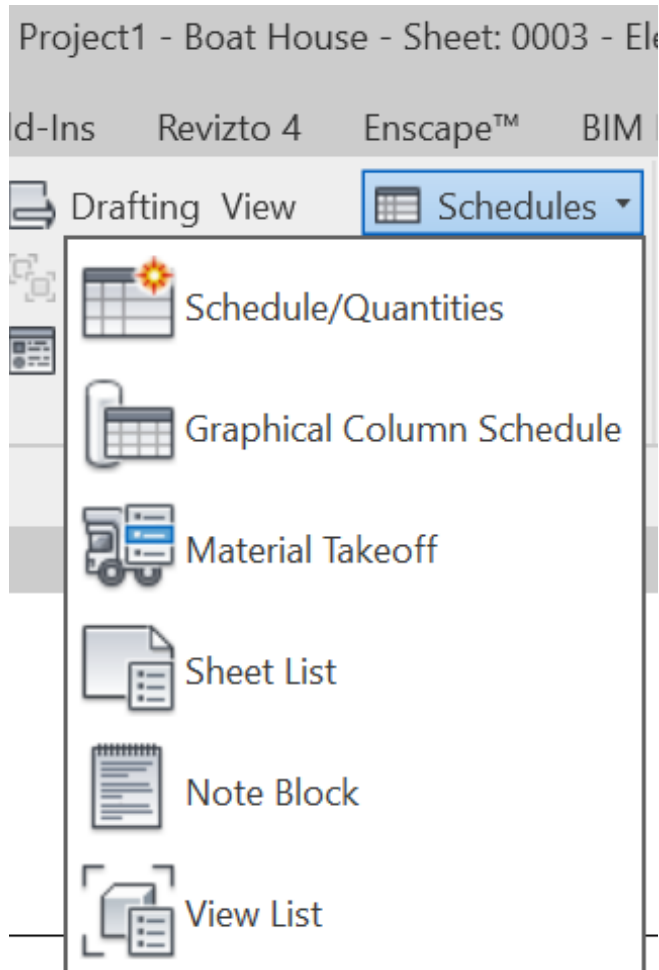
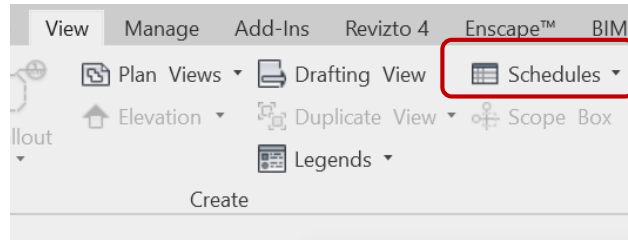
Interior views and materiality can be explored and updated within the Revit Model



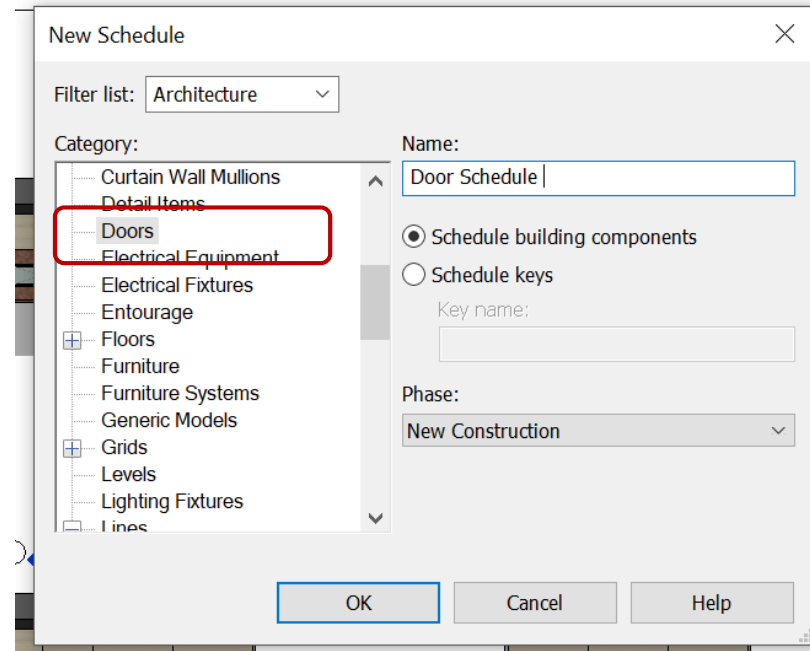
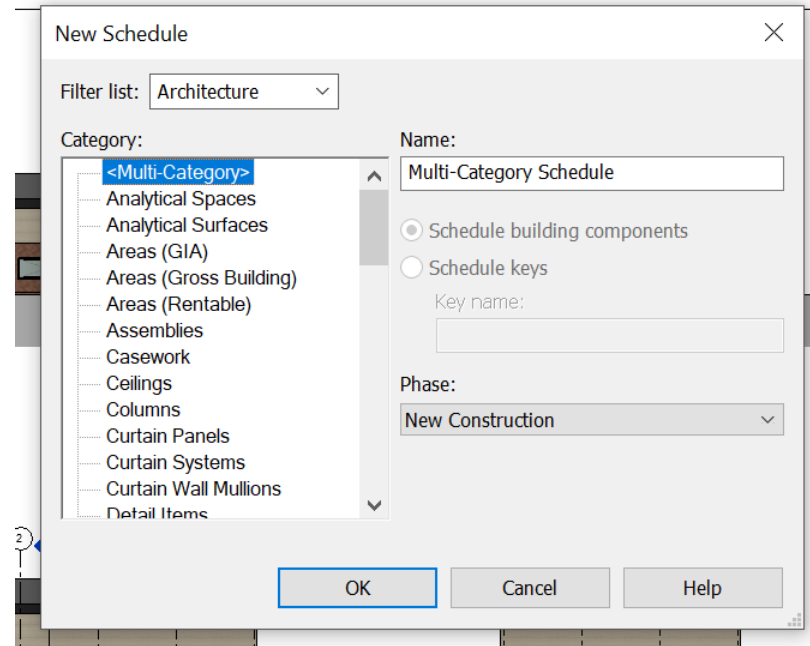


An extensive Asset Library can be added to your model, to enhance the realism of you views and fly through videos

Schedules



Schedule types



Schedules can be created from the View Menu

Different type of schedules can be generated.

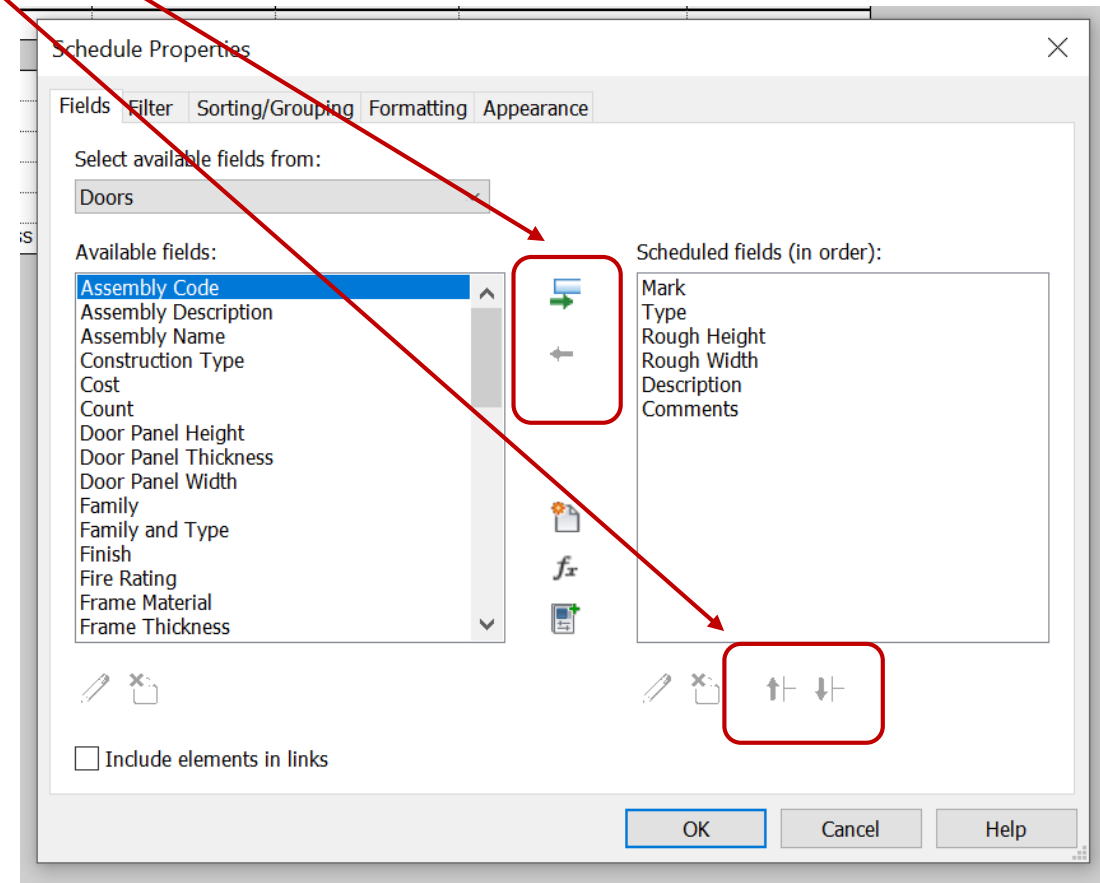
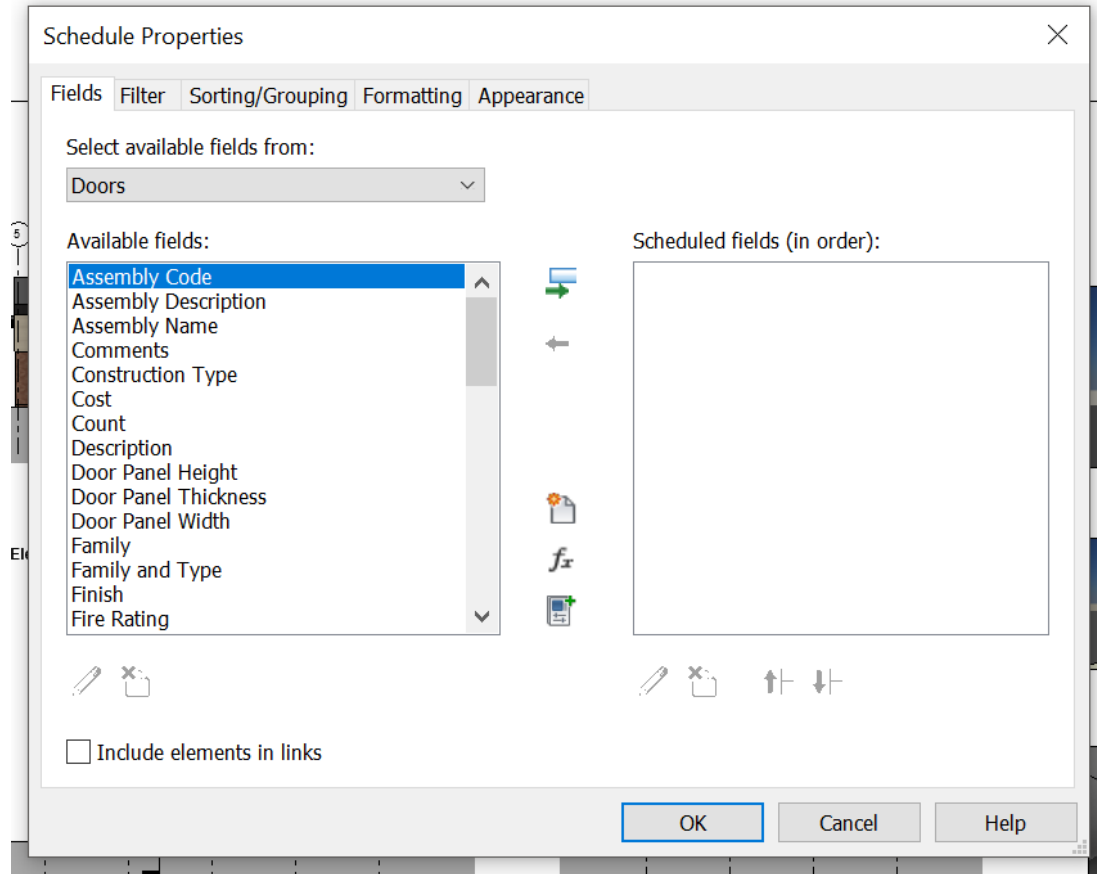
Select Schedule /Quantities to create a New Schedule

In the Category select your schedule type



39-SCHEDULES

In the Schedule Properties Dialogue box 'Add' the Fields for the schedule.
Add and Remove Fields
Change order of the Fields





39-SCHEDULES

Edits and
formatting

Properties

Schedule

Schedule: Door Schedule Edit Type

View Name Door Schedule

Dependency Independent

Phasing

Phase Filter Show All

Phase New Construction

Other

Fields Edit...

Filter Edit...

Sorting/Groupi... Edit...

Formatting Edit...

Appearance Edit...

Properties help Apply

Project Browser - Project1 - Boat Ho...

- NW Facing Elevation
- SE Facing Elevation
- SW Facing Elevation
- Sections (Building Section)
 - Section 1
 - Section 1 - Callout 1
- Legends
- Schedules/Quantities (all)
 - Door Schedule**
 - Room Schedule
 - View List

0003 - Elevations & Views Door Schedule X

<Door Schedule>

A	B	C	D	E	F
Mark	Type	Rough Height	Rough Width	Description	Comments
DG01a	3000x2200mm 2	2200	3000		
DG01b	3000x2200mm 2	2200	3000		
DG01c	3000x2200mm 2	2200	3000		
DG02	1010x2110mm	2110	1010	Internal Single Door	
DG03	1010x2110mm	2110	1010	Internal Single Door	
DG04	Glass_Panel-12mm_Thickness				Glazed with manefe

Your Schedule will now appear in the Project Browser.

You can add Schedules to sheet just like any other view



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

39-SCHEDULES

Schedule

Schedule: Multi-Category [Edit Type](#)

Identity Data

View Template <None>

View Name Multi-Category ...

Dependency Independent

Phasing

Phase Filter Show All

Phase New Construction

Other

Fields Edit...

Filter Edit...

Sorting/Groupi... Edit...

Formatting Edit...

[Properties help](#) [Apply](#)

Project Browser - Project1 - Boat Ho...

- {3D}
- Elevations (12mm Circle)
 - NE Facing Elevation
 - NW Facing Elevation
 - SE Facing Elevation
 - SW Facing Elevation
- Sections (Building Section)
 - Section 1
 - Section 1 - Callout 1
- Legends
- Schedules/Quantities (all)
 - Door Schedule
 - Multi-Category Material Takeoff**

<Multi-Category Material Takeoff>								
A	B	C	D	E	F	G	H	I
Family and Type	Material: Name	Material: Description	Material: Manufactur	Material: Area	Material: Volume	Material: Cost	Material: Com	Cost of Materials
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Fiberglass Batt	Fiberglass batt insulation	Celotex	36 m²	2.73 m³	5.00		£182.01
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Plaster	Plaster	British Gypsum	36 m²	0.46 m³	4.00		£145.61
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Concrete Masonry Units _Low Density	Concrete masonry units	Forterra	36 m²	3.64 m³	1.00		£36.4
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Brick, Dark Blend, Running	Common Brick, Running, Dark	Instock Facing	36 m²	3.73 m³	20.00		£728.03
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Fiberglass Batt	Fiberglass batt insulation	Celotex	47 m²	3.56 m³	5.00		£237.15
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Plaster	Plaster	British Gypsum	47 m²	0.59 m³	4.00		£189.72
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Concrete Masonry Units _Low Density	Concrete masonry units	Forterra	47 m²	4.74 m³	1.00		£47.43
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Brick, Dark Blend, Running	Common Brick, Running, Dark	Instock Facing	47 m²	4.86 m³	20.00		£948.59
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Fiberglass Batt	Fiberglass batt insulation	Celotex	21 m²	1.55 m³	5.00		£103.5
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Plaster	Plaster	British Gypsum	21 m²	0.26 m³	4.00		£82.8
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Concrete Masonry Units _Low Density	Concrete masonry units	Forterra	21 m²	2.07 m³	1.00		£20.7
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Brick, Dark Blend, Running	Common Brick, Running, Dark	Instock Facing	21 m²	2.12 m³	20.00		£414
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Fiberglass Batt	Fiberglass batt insulation	Celotex	47 m²	3.49 m³	5.00		£232.8
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Plaster	Plaster	British Gypsum	47 m²	0.58 m³	4.00		£186.24
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Concrete Masonry Units _Low Density	Concrete masonry units	Forterra	47 m²	4.66 m³	1.00		£46.56
Basic Wall: Wall-Ext_102Bwk-75Ins-100LBk-12P	Brick, Dark Blend, Running	Common Brick, Running, Dark	Instock Facing	47 m²	4.77 m³	20.00		£931.19
Basic Wall: Wall-Int_12P-100Bk-12P	Concrete Masonry Units	Concrete masonry units	Forterra	10 m²	0.98 m³	36.00		£354.26
Basic Wall: Wall-Int_12P-100Bk-12P	Plaster	Plaster	British Gypsum	20 m²	0.25 m³	4.00		£78.73
Basic Wall: Wall-Int_12P-100Bk-12P	Concrete Masonry Units	Concrete masonry units	Forterra	12 m²	1.23 m³	36.00		£443.53
Basic Wall: Wall-Int_12P-100Bk-12P	Plaster	Plaster	British Gypsum	25 m²	0.31 m³	4.00		£98.56
Basic Wall: Wall-Int_12P-100Bk-12P	Concrete Masonry Units	Concrete masonry units	Forterra	6 m²	0.65 m³	36.00		£232.69
Basic Wall: Wall-Int_12P-100Bk-12P	Plaster	Plaster	British Gypsum	13 m²	0.16 m³	4.00		£51.71
Basic Wall: Wall-Int_12P-100Bk-12P	Concrete Masonry Units	Concrete masonry units	Forterra	3 m²	0.34 m³	36.00		£124.09
Basic Wall: Wall-Int_12P-100Bk-12P	Plaster	Plaster	British Gypsum	7 m²	0.09 m³	4.00		£27.58
Doors_Sgl_Glass_1: Glass_Panel-12mm_Thickness	Glass	Soda Lime Glass	Pilkingtons	3 m²	0.02 m³	29.00		£86.74
Doors_Sgl_Glass_1: Glass_Panel-12mm_Thickness	Metal - Aluminum		Senior Aluminium	2 m²	0.02 m³	1.00		£1.74
Doors_IntSgl: 1010x2110mm	Door - Panel		Leaderflush	4 m²	0.07 m³	14.00		£56.59
Doors_IntSgl: 1010x2110mm	Door - Handle		Dorma	0 m²	0.00 m³	34.00		£1.21
Doors_IntSgl: 1010x2110mm	Door - Frame/Mullion (1)		Leaderflush	2 m²	0.02 m³	56.00		£119.54
Doors_IntSgl: 1010x2110mm	Door - Architrave		Leaderflush	2 m²	0.01 m³	4.00		£7.02
Doors_IntSgl: 1010x2110mm	Door - Panel		Leaderflush	4 m²	0.07 m³	14.00		£56.59
Doors_IntSgl: 1010x2110mm	Door - Handle		Dorma	0 m²	0.00 m³	34.00		£1.21
Doors_IntSgl: 1010x2110mm	Door - Frame/Mullion (1)		Leaderflush	2 m²	0.02 m³	56.00		£119.54
Doors_IntSgl: 1010x2110mm	Door - Architrave		Leaderflush	2 m²	0.01 m³	4.00		£7.02

Sheets and Printing

PART 4: PUBLISH AND COLLABORATE



33-SHEETS



34-REVISIONS



35-PRINT



36-CENTRAL
FILES



37-LINK CAD



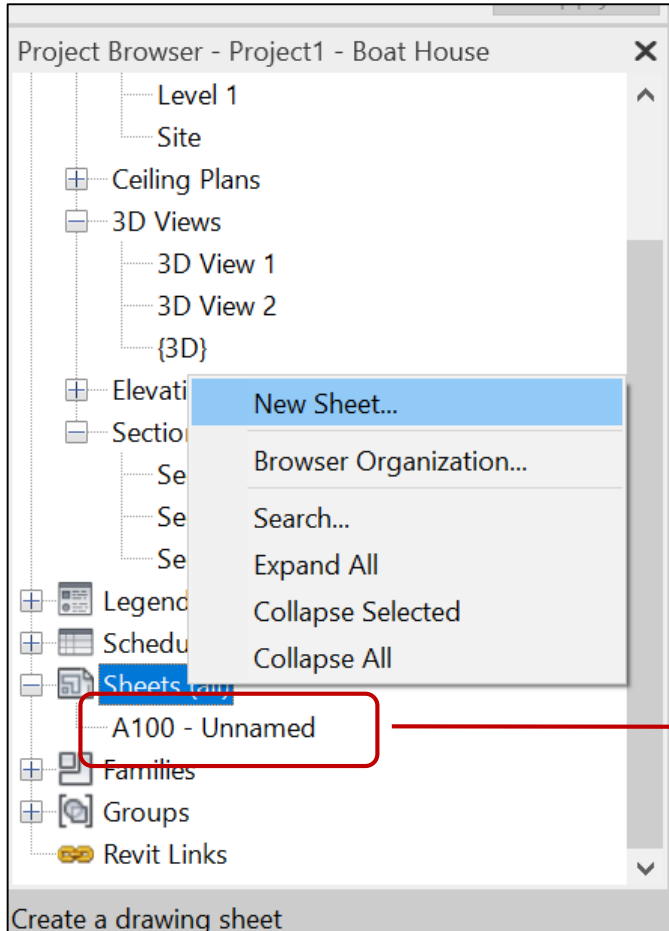
38-EXPORT
CAD



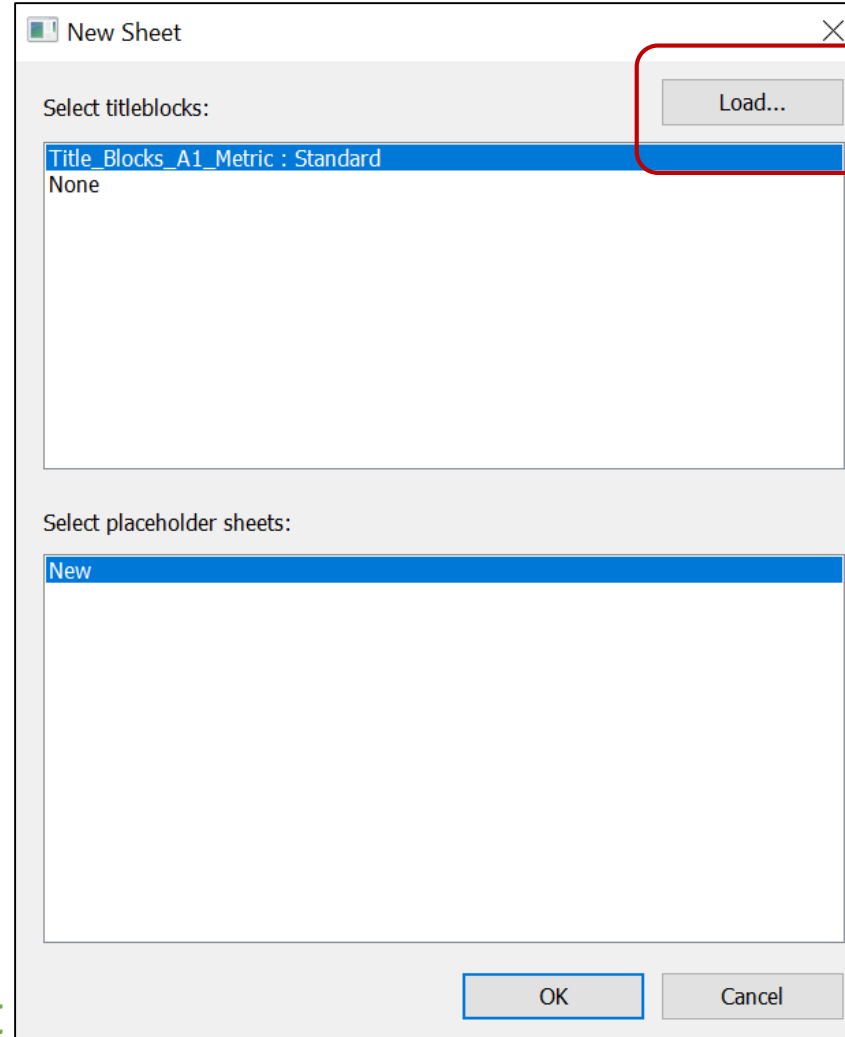
33-SHEETS

Download the UWTSD Splash Page and Titleblock from Teams

Right Click on Sheets
and select New Sheet



Right Click &
Delete
AutoDesk
Default sheet



Load:
Splash Page

Note:
Many practices use
a Splash Page to
hold common data
about the Model.

Project Name: Boat House Fishg

UPRN Code: 5010

Originator Code: UWTSD

Role Code: Designer

Drawn By: Author

Checked By: Checker

Date: 02/18/21

Project Status: S0

C:\Users\g.traylor\OneDrive - University of Wales Trinity Saint David\01 Lectures 2020-21\ACBA 5010 - BIM\01 Lecture notes\Boathouse deec2020.rvt

Prifysgol Cymru

5010

ACBA 5010

LEVEL 5

A

BIM

Project Name: Boat House Fishguard

UPRN Code: 5010

Originator Code: UWTSD

Role Code: Designer

Drawn By: Author

Checked By: Checker

Date: 02/18/21

Project Status: S0

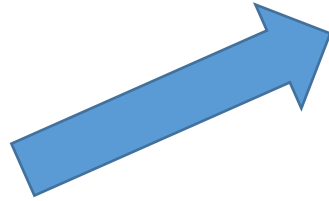
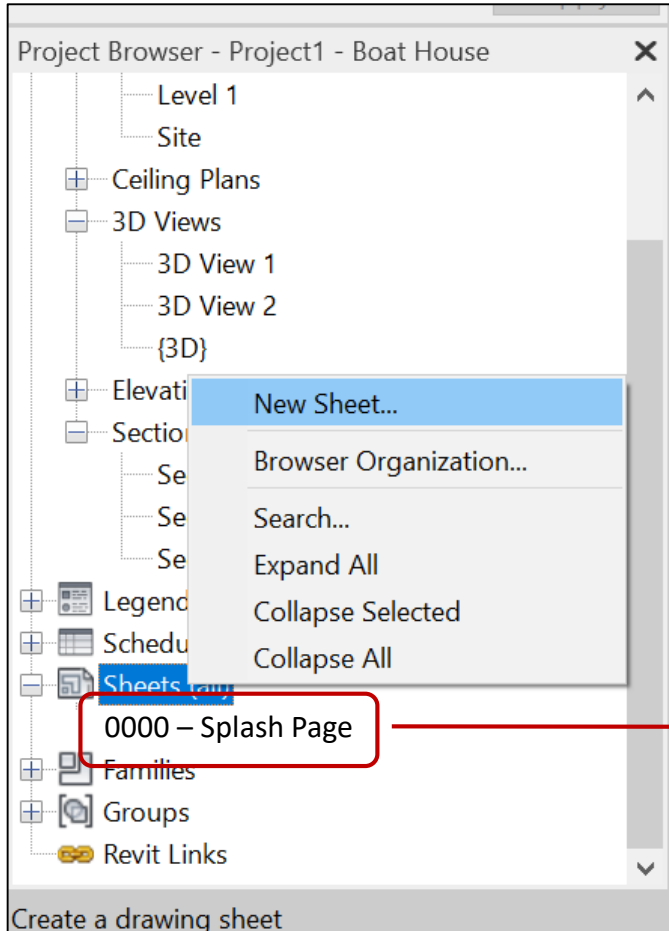
C:\Users\g.traylor\OneDrive - University of Wales Trinity Saint David\01 Lectures 2020-21\ACBA 5010 - BIM\01 Lecture notes\Boathouse deec2020.rvt

These common
BIM fields will be
transferred to all
new sheets

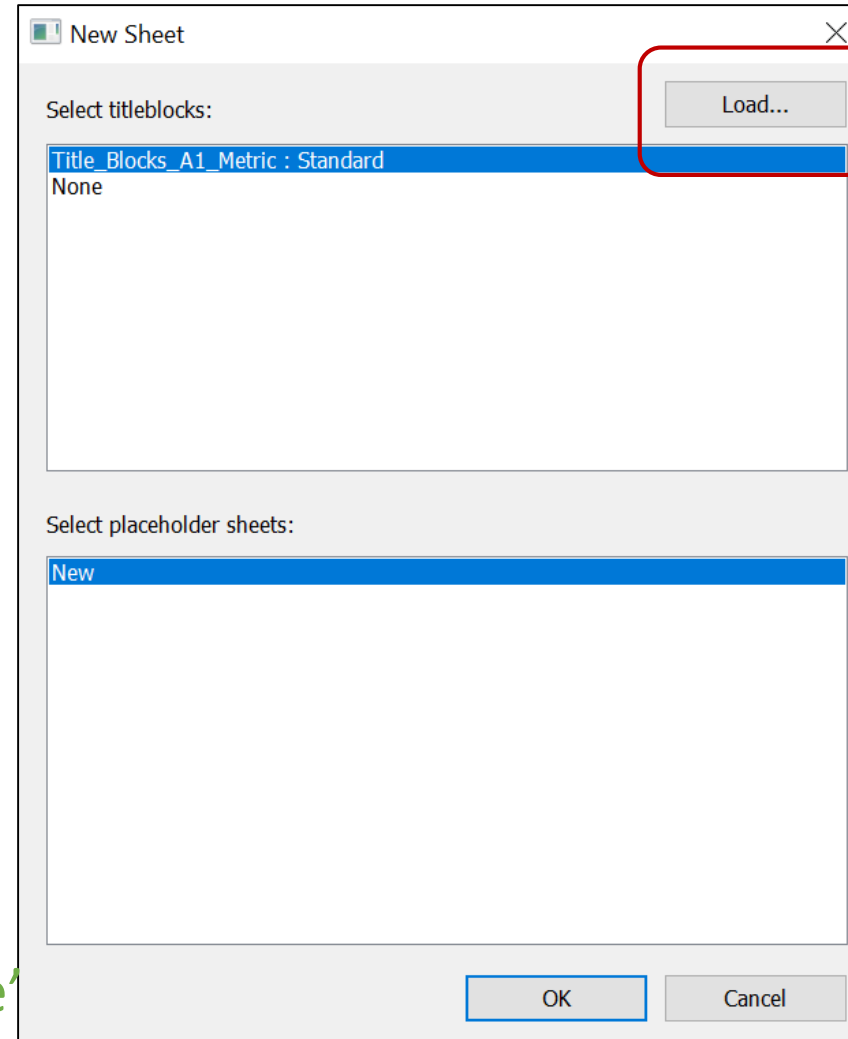


33-SHEETS

Right Click on Sheets
and select New Sheet



Right Click
and Rename
'0000'
'Splash Page'



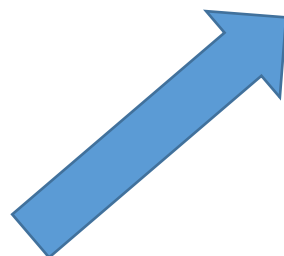
Load:
UWTSD titleblock



33-SHEETS

Fields can be filled in to suit the drawing

Property	Originator	Zone	Level	Type	Role	Number	Description	Suitability	Revision
4005	UWTSD	XX	XX	DR	Designer	0004	Unnamed	S0	—
File Path: C:\Users\g.traylor\Documents\Project1 - Boat House.rvt									



Property Title Boat House Goodwick Beach	Detail Unnamed	Property — Originator — Zone — Level — Type — Role — Number — Description — Suitability — Revision	SC00	EWAT	 Prifysgol Cymru Y Ddodol Dewi Sant University of Wales Trinity Saint David	(S0) UNCONTROLLED Not to be used as a reference document Check Status Before Quoting	Notified Notes	
		4005 — UWTSD — XX — XX — DR — Designer0004 — Unnamed — S0 —	000	27/05/2020				Author
		File Path: C:\Users\David\Documents\Boat House.dwg	23/04/20	Checker				



Scale Value	1: 100
Display Model	Normal
Detail Level	Coarse
Parts Visibility	Show Original
Detail Number	1
Rotation on Sh...	None
Visibility/Graph...	Edit...
Graphic Displa...	Edit...
Orientation	Project North
Wall Join Display	Clean all wall joins

Apply

Project Browser - Project1 - Boat Ho...

  Views (all)

 Floor Plans

0 - Ground Floor

1 - First Floor

..... Site Location Plan 1_500

Site Location Plan 1_1250

Ceiling Plans

0 - Ground Floor

1 - First Floor

 3D Views

3D View 1

3D View 2

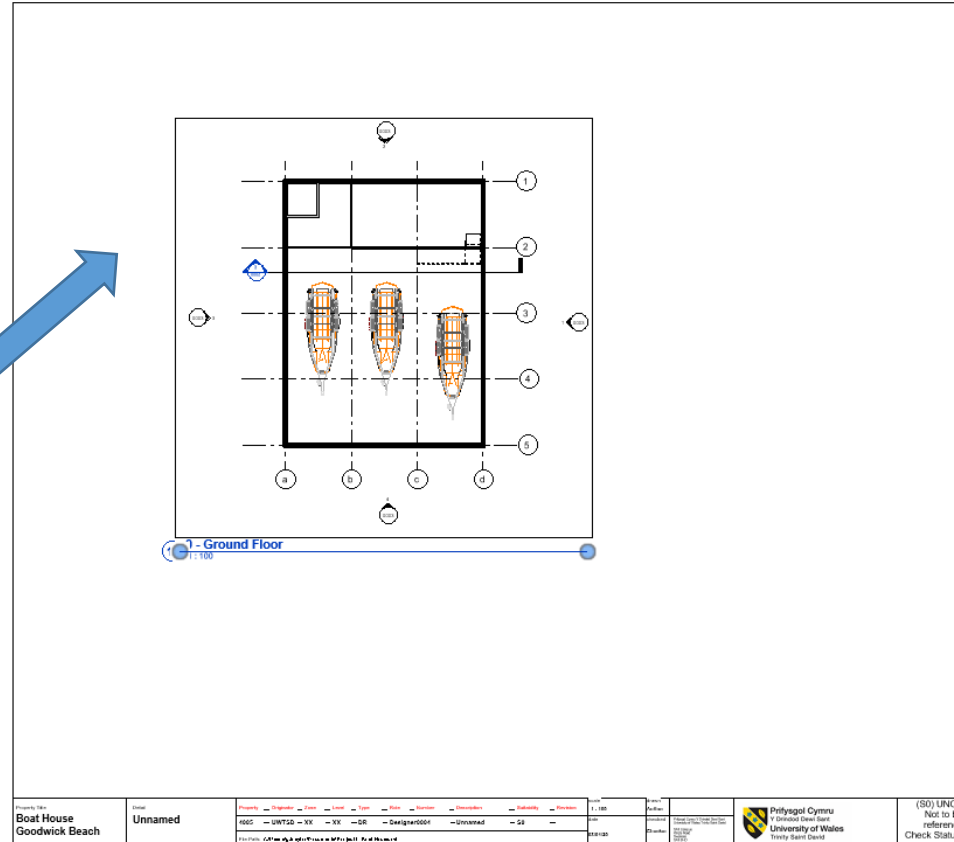
3D View 3

{3D}

 Elevations (12mm Circle)

NE Facing Elevation

NW Facing Elevation



Note: A view can only appear on one sheet. If you want a view to appear on more than one sheet you have to duplicate the view (right click on the view – duplicate with detailing)



Scale 1 : 100

Identity Data

Dependency	Independent
------------	-------------

Referencing Sh...

Referencing De...

Current Revisio...

Current Revisio...

Current Revisio...

Current Revisio...

Current Revisio...

[Properties help](#)

Apply

Project Browser - Project1 - Boat Ho... X

..... NW Facing Elevation

-----SE Facing Elevation

SW Facing Elevation

 Sections (Building Section)

Section 1

Section 1 - Callout 1

  Legends

 Schedules/Quantities (all)

Door Schedule

Room Schedule

[View List](#)

 Sheets (all)

0000 - Spl

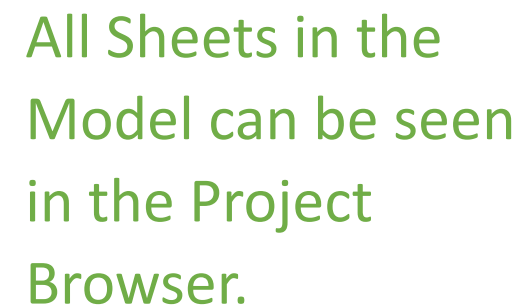
0001 - Site Location

+ 0002 - Plans and Sec

0003 - Elevations & View

Families

 Groups



Printing in Revit



35-PRINT

File

Architecture

Structure

Steel

Systems

Insert

Annotate

Analyze

Massing & Site

Collaborate

View

Manage

Add-Ins

Revit

Enscape

BIM Interoperability Tools

Modify

New

Open

Save

Save As

Export

Print

Close

Prints and previews the current drawing area or selected views and sheets.

Print

Sends the current drawing area or selected views and sheets to a printer or a printable file.

Print Preview

Displays a preview version of the current view or sheet to print.

Print Setup

Specifies print options.

Options

Exit Revit

Project Browser

Project: Boat House

NW Facing Elevation

SE Facing Elevation

SW Facing Elevation

Sections (Building Section)

Section 1

Section 1 - Callout 1

Legends

Schedules/Quantities (all)

Door Schedule

Room Schedule

View List

Sheets (all)

0000 - Splash Page

0001 - Site Location

0002 - Plans and Sections

0003 - Elevations & Views

Families

Groups

Revit Links

Autodesk Revit 2020 - Educational Version - Project1 - Boat House - Sheet: 0003 - Elevations & Views

Sign In

File

Architecture

Structure

Steel

Systems

Insert

Annotate

Analyze

Massing & Site

Collaborate

View

Manage

Add-Ins

Revit

Enscape

BIM Interoperability Tools

Modify

Floor

Curtain System

Curtain Mullion

Grid

Railing

Ramp

Stair

Circulation

Model Text

Model Line

Model Group

Model

Room

Room Separator

Tag Room

Room & Area

Area

Area Boundary

Tag Area

By Face

Shaft

Wall

Vertical

Dormer

Opening

Level

Grid

Datum

Show

Ref Plane

Set

Viewer

Work Plane

NE Facing Elevation

1 : 100

NW Facing Elevation

1 : 100

SE Facing Elevation

1 : 100

SW Facing Elevation

1 : 100

Boat House

Boat House

Boat House

Boat House

Boat House

Goodwick Beach

Elevations & Views

Project: Boat House

Sheet: 0003 - Elevations & Views

Scale: 1 : 100

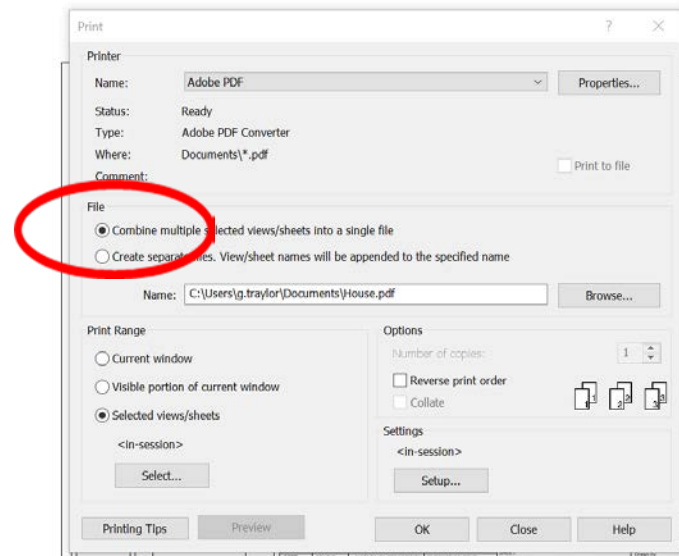
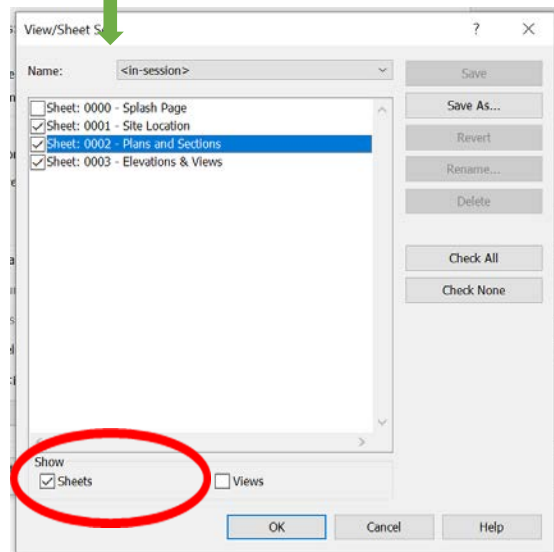
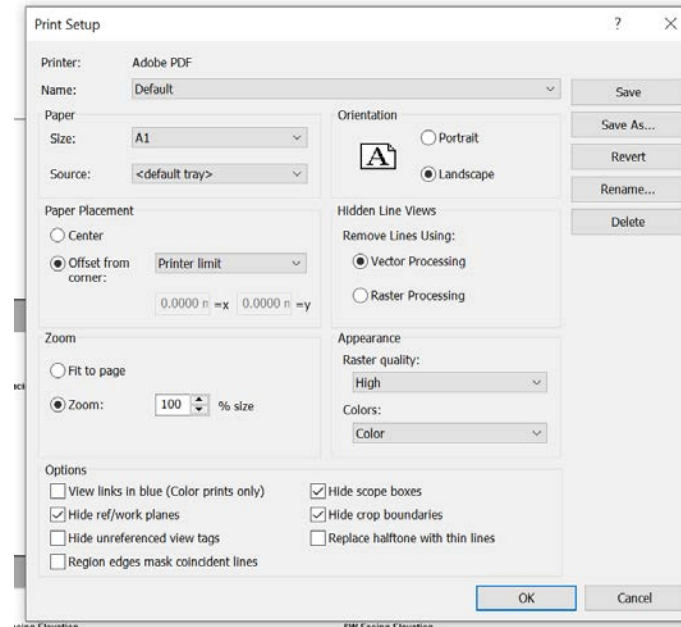
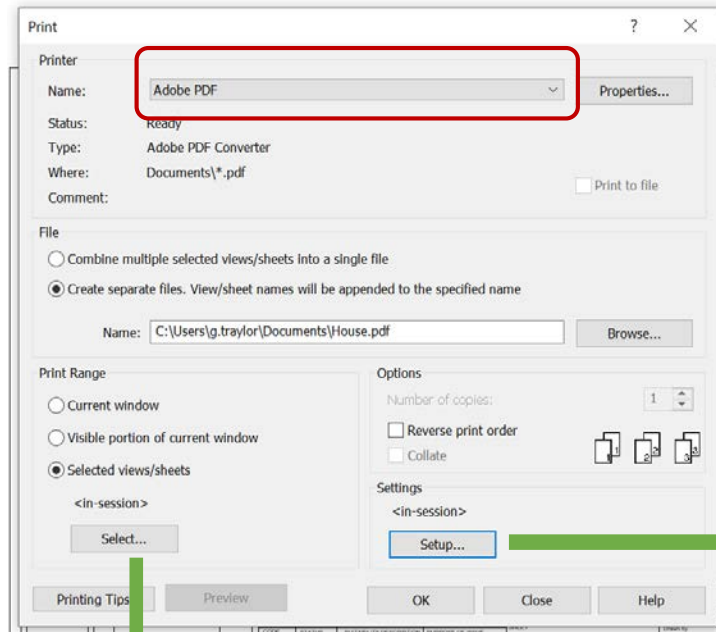
Author: [Name]

Check Status Before Cutoing

Print Dialogue: Use the **Setup** button to change Size – ensure Zoom is set to 100%. Click OK
Use **Select** button to select sheets to print – ensure Sheets is ticked. Click OK



35-PRINT



To combine into One PDF ensure the COMBINE MULTIPLE is selected.