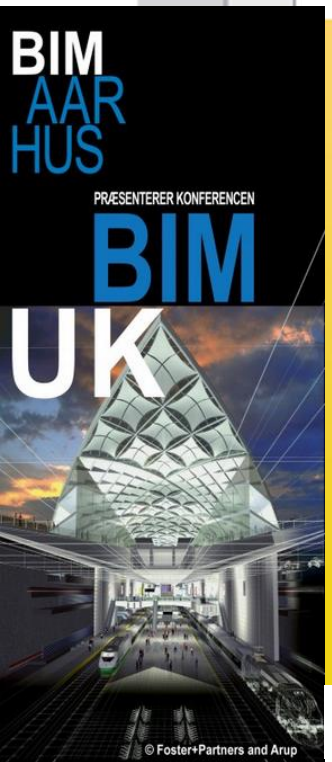
BIM in the UK today

Dr Stephen Hamil – NBS Director of Design and Innovation

October 2013



#BIMAarhus

BiM Technologies Alliance

NBS and RIBA Enterprises are members of the BIM Technologies Alliance supporting the UK Government's Construction Strategy BIM Working Group

BIM – in the UK today

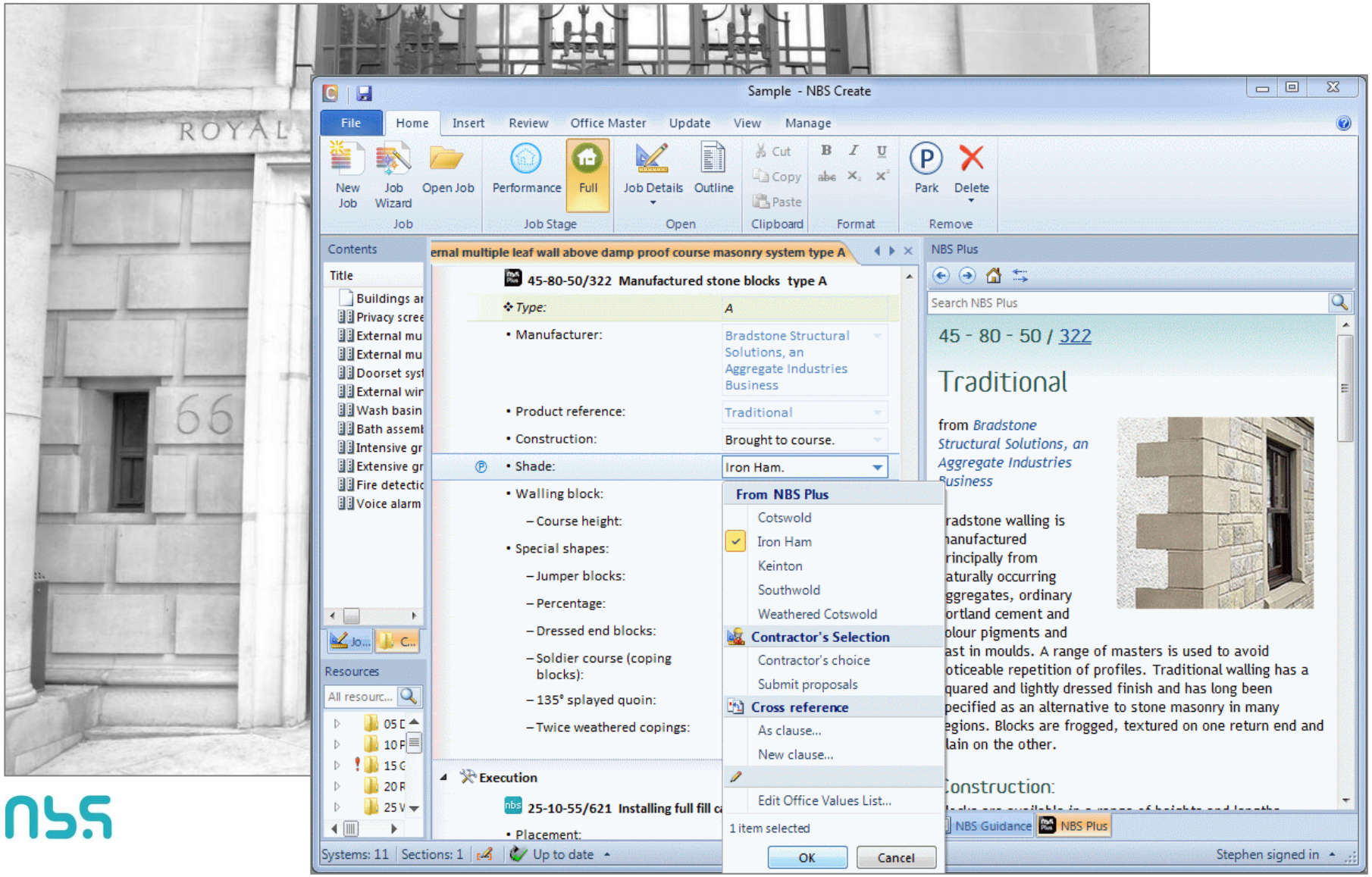
1. Project preparation
2. BIM through the design stages
3. Construction and in-use

BIM – in the UK today

An introduction

BIM – in the UK today

BIM – in the UK today



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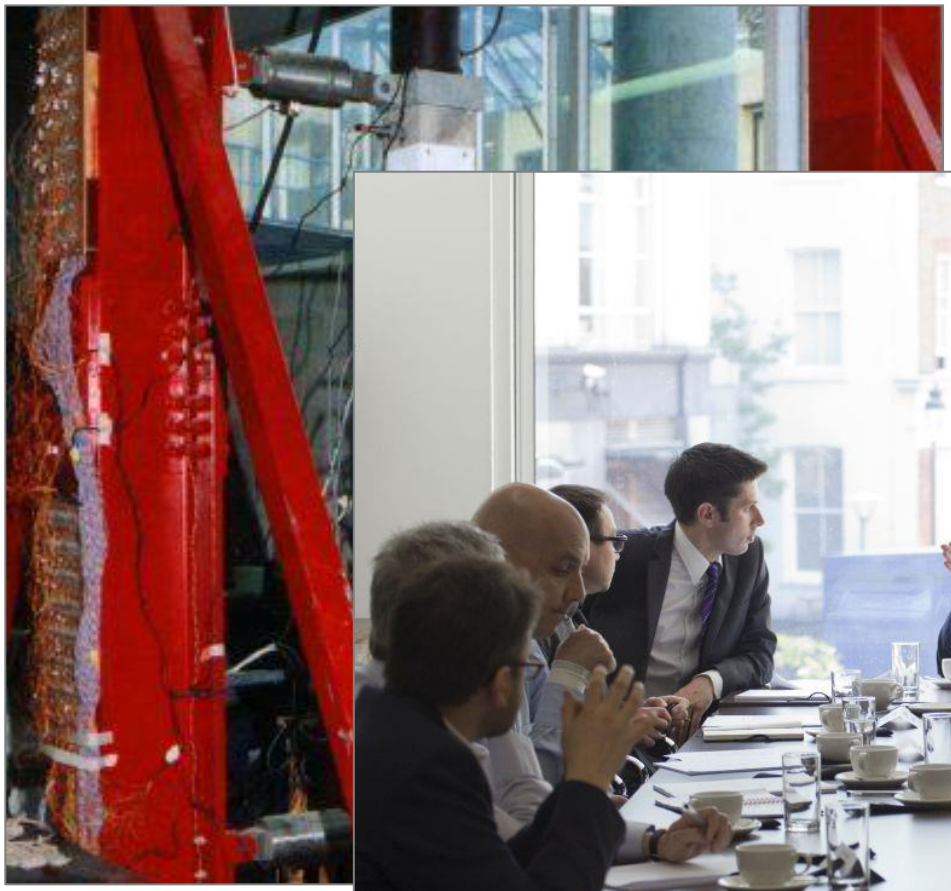
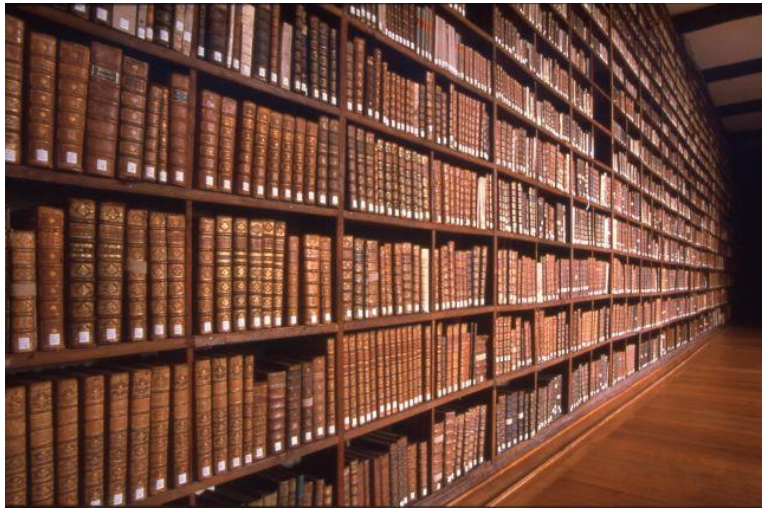


BIM – we live in a digital world

Music

BIM – we live in a digital world

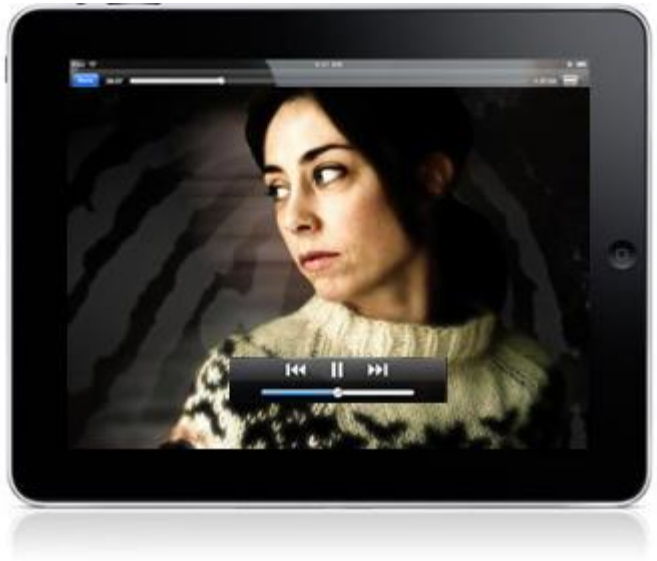


Books

BIM – we live in a digital world

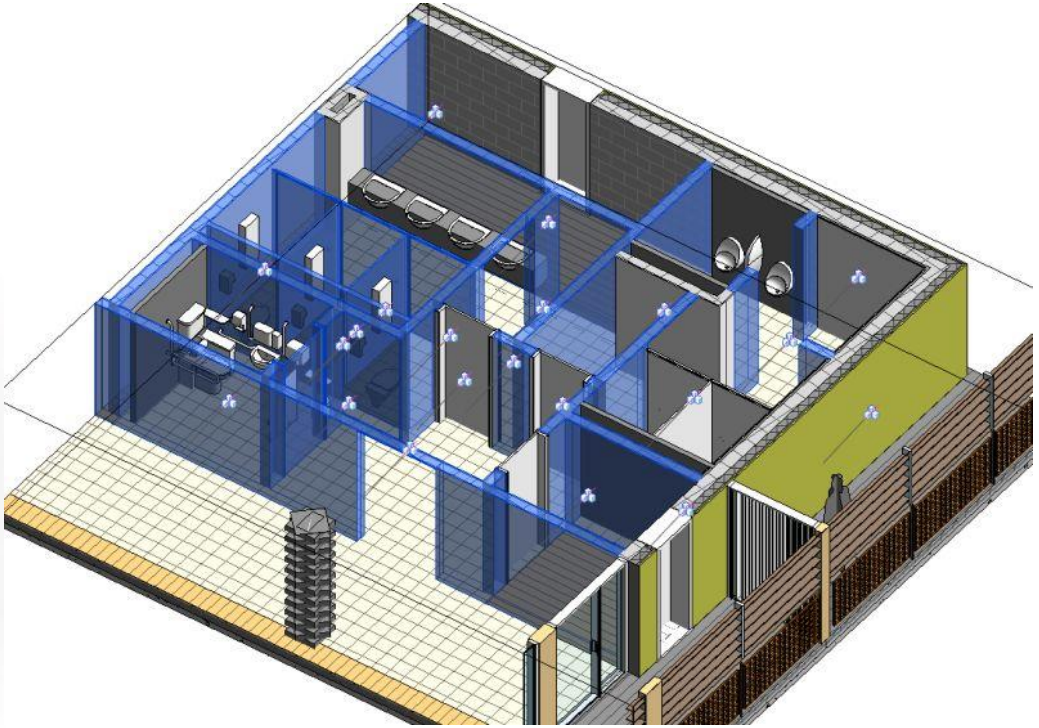
Movies

BIM – we live in a digital world



Movies

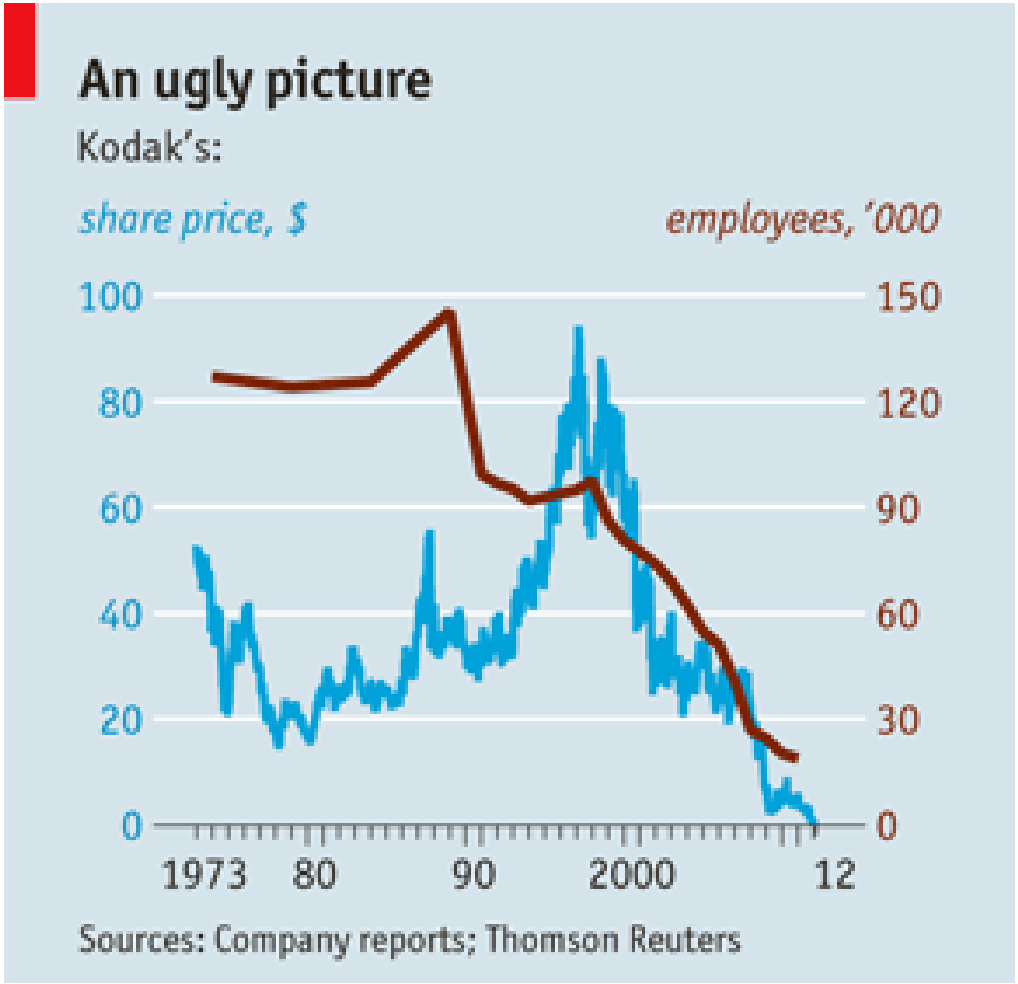
BIM – we live in a digital world



Construction

BIM – we live in a digital world

BIM – we live in a digital world



BIM – in the UK today

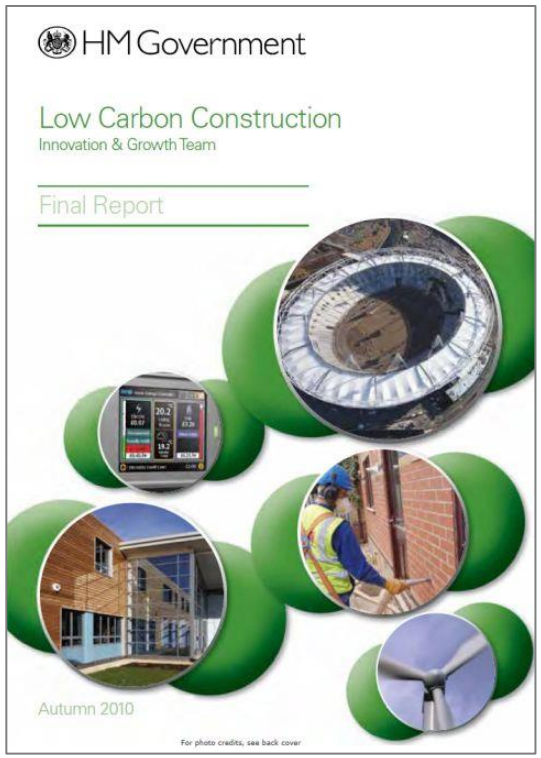
2010-2011

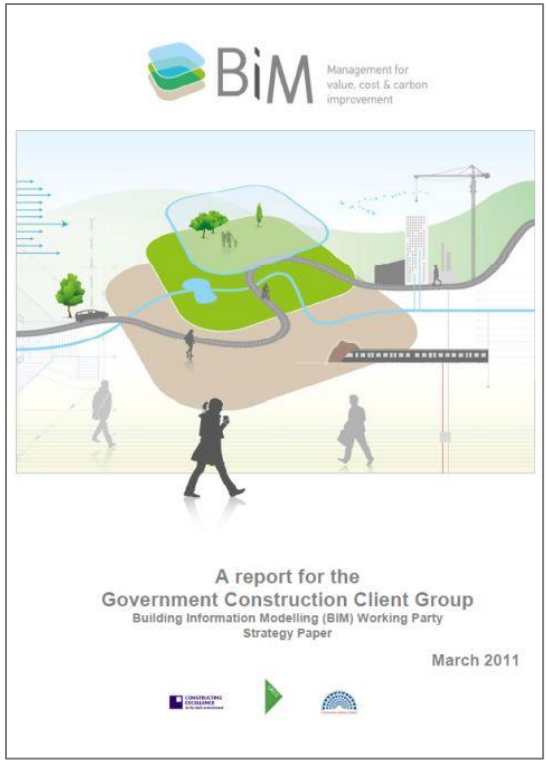
BIM – in the UK today

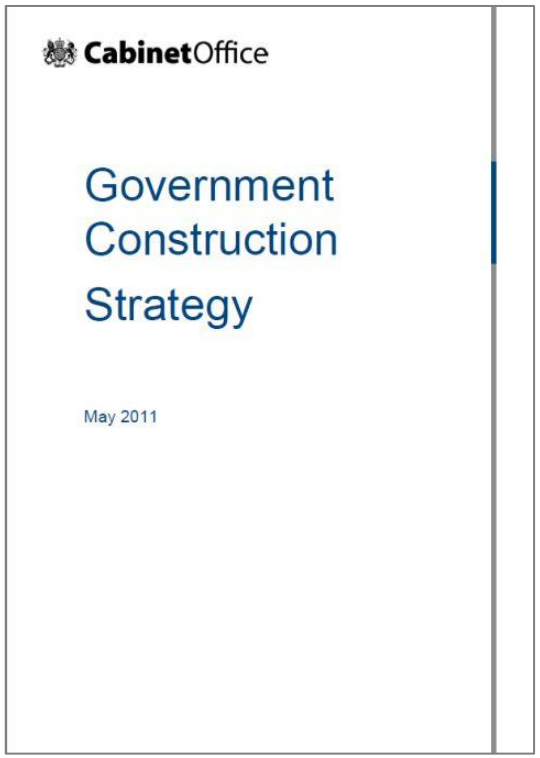
Francis Maude

Minister for the Cabinet Office

BIM – in the UK today







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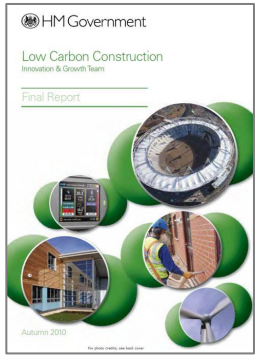


Recommendation 3.11: That the industry should work, through a collaborative forum, to identify when the use of BIM is appropriate (in terms of the type or scale of project), what the barriers to its more widespread take-up are, and how those barriers might be surpassed, leading to an outline protocol for future ways of working.

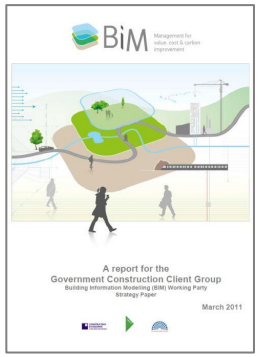
6.1.4 Embedding 21st Century Integrated processes

Specific recommendations to support this priority, first to Government, are:

- to mandate Building Information Modelling (BIM) methodology for central Government projects with a value greater than £50 million (Recommendation 6.14)

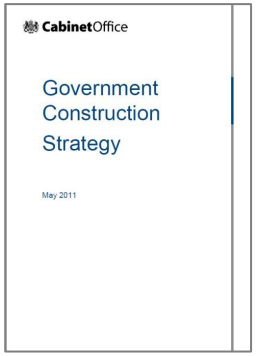
Low Carbon Construction Innovation and Growth Team – Nov 2010

BIM – in the UK today



1. Leave complexity in the supply chain
2. Be very specific in terms of what is required
3. Make use of what is required post occupancy
4. Provide the appropriate support infrastructure
5. Take progressive steps
6. Aim to help the trailing edge

Government Construction Client Group Strategy Paper – Mar 2011



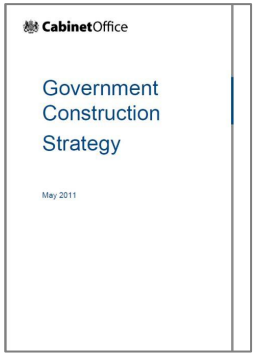
Strategy Objectives

2.31 "…all members of the supply chain to work collaboratively through Building Information Modelling."

2.32 "Government will require fully collaborative 3D BIM as a minimum by 2016."

Government Construction Strategy – May 2011

BIM – in the UK today



1. **Best value for money**
   Benefit to UK tax payer – reduce costs by 20%

2. **Clearly specified requirements**
   Stimulate higher levels of innovation that will make construction more affordable at home and create new opportunities abroad

Government Construction Strategy – May 2011

BIM – in the UK today

2013

1. Project Preparation

RIBA

RIBA Plan of Work 2013
Overview

RIBA Plan of Work 2013

www.ribaplanofwork.com

RIBA Plan of Work 2013

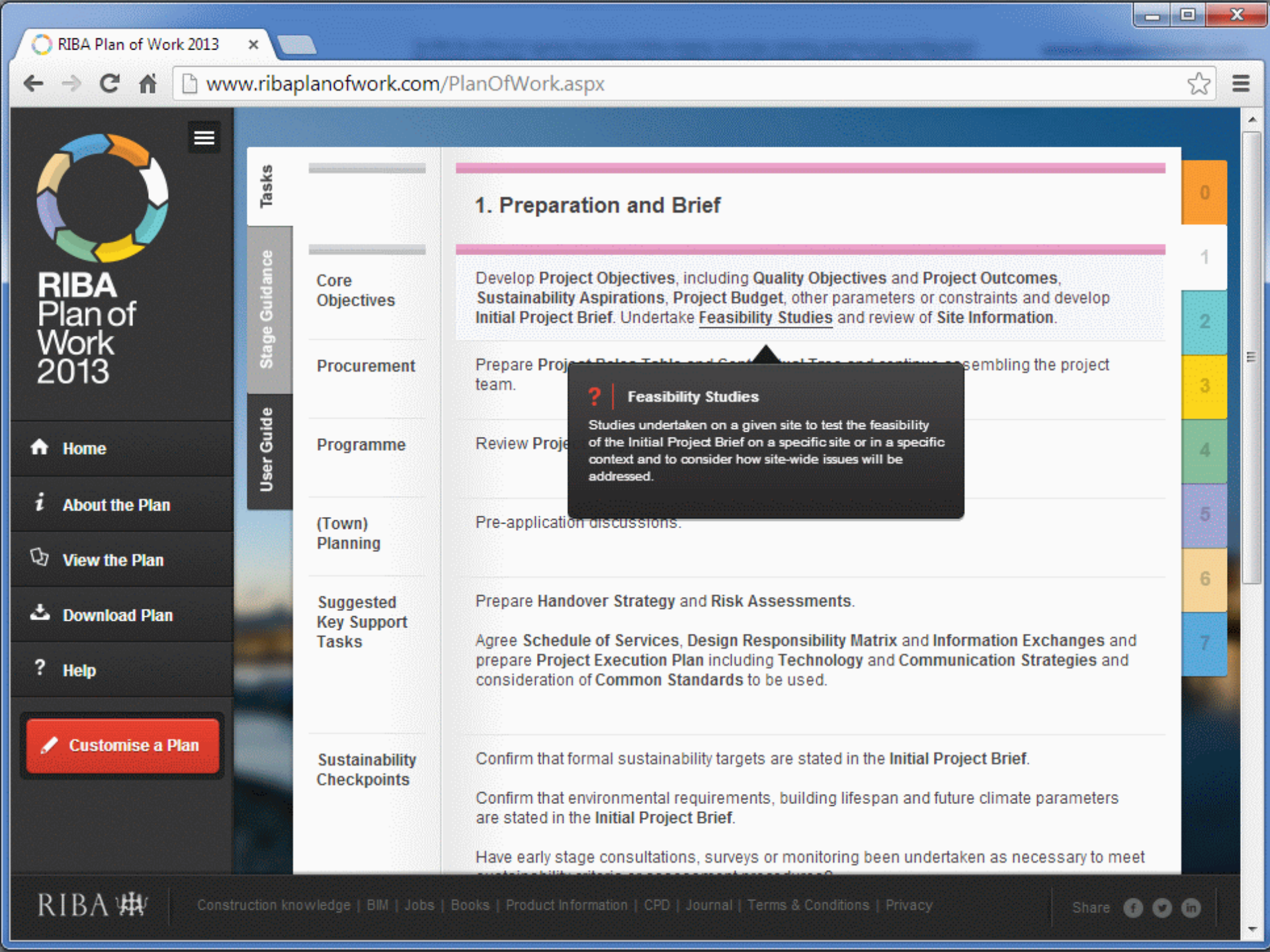
RIBA

The RIBA Plan of Work 2013 organises the process of briefing, designing, constructing, maintaining, operating and using building projects into a number of key stages. The content of stages may vary or overlap to suit specific project requirements. The RIBA Plan of Work 2013 should be used solely as guidance for the preparation of detailed professional services contracts and building contracts.

www.ribaplanofwork.com

Stages / Tasks	0 Strategic Definition	1 Preparation and Brief	2 Concept Design	3 Developed Design	4 Technical Design	5 Construction	6 Handover and Close Out	7 In Use
Core Objectives	Identify client's **Business Case** and **Strategic Brief** and other core project requirements.	Develop **Project Objectives**, including **Quality Objectives** and **Project Outcomes**, **Sustainability Aspirations**, **Project Budget**, other parameters or constraints and develop **Initial Project Brief**. Undertake **Feasibility Studies** and review of **Site Information**.	Prepare **Concept Design**, including outline proposals for structural design, building services systems, outline specifications and preliminary **Cost Information** along with relevant **Project Strategies** in accordance with **Design Programme**. Agree alterations to brief and issue **Final Project Brief**.	Prepare **Developed Design**, including coordinated and updated proposals for structural design, building services systems, outline specifications, **Cost Information** and **Project Strategies** in accordance with **Design Programme**.	Prepare **Technical Design** in accordance with **Design Responsibility Matrix** and **Project Strategies** to include all architectural, structural and building services information, specialist subcontractor design and specifications, in accordance with **Design Programme**.	Offsite manufacturing and onsite **Construction** in accordance with **Construction Programme** and resolution of **Design Queries** from site as they arise.	Handover of building and conclusion of **Building Contract**.	Undertake **In Use** services in accordance with **Schedule of Services**.
Procurement *Variable task bar	Initial considerations for assembling the project team.	Prepare **Project Roles Table** and **Contractual Tree** and continue assembling the project team.	The procurement strategy does not fundamentally alter the progression of the design or the level of detail prepared at a given stage. However, **Information Exchanges** will vary depending on the selected procurement route and **Building Contract**. A bespoke **RIBA Plan of Work 2013** will set out the specific tendering and procurement activities that will occur at each stage in relation to the chosen procurement route.			Administration of **Building Contract**, including regular site inspections and review of progress.	Conclude administration of **Building Contract**.	
Programme *Variable task bar	Establish **Project Programme**.	Review **Project Programme**.	Review **Project Programme**.	The procurement route may dictate the **Project Programme** and may result in certain stages overlapping or being undertaken concurrently. A bespoke **RIBA Plan of Work 2013** will clarify the stage overlaps. The **Project Programme** will set out the specific stage dates and detailed programme durations.				
(Town) Planning *Variable task bar	Pre-application discussions.	Pre-application discussions.	Planning applications are typically made using the Stage 3 output. A bespoke **RIBA Plan of Work 2013** will identify when the planning application is to be made.					
Suggested Key Support Tasks	Review **Feedback** from previous projects.	Prepare **Handover Strategy** and **Risk Assessments**. Agree **Schedule of Services**, **Design Responsibility Matrix** and **Information Exchanges** and prepare **Project Execution Plan** including **Technology** and **Communication Strategies** and consideration of **Common Standards** to be used.	Prepare **Sustainability Strategy**, **Maintenance and Operational Strategy** and review **Handover Strategy** and **Risk Assessments**. Undertake third party consultations as required and any **Research and Development** aspects. Review and update **Project Execution Plan**. Consider **Construction Strategy**, including offsite fabrication, and develop **Health and Safety Strategy**.	Review and update **Sustainability**, **Maintenance and Operational** and **Handover Strategies** and **Risk Assessments**. Undertake third party consultations as required and conclude **Research and Development** aspects. Review and update **Project Execution Plan**, including **Change Control Procedures**. Review and update **Construction** and **Health and Safety Strategies**.	Review and update **Sustainability**, **Maintenance and Operational** and **Handover Strategies** and **Risk Assessments**. Prepare and submit Building Regulations submission and any other third party submissions requiring consent. Review and update **Project Execution Plan**. Review **Construction Strategy**, including sequencing, and update **Health and Safety Strategy**.	Review and update **Sustainability Strategy** and implement **Handover Strategy**, including agreement of information required for commissioning, training, handover, asset management, future monitoring and maintenance and ongoing compilation of **'As-constructed' Information**. Update **Construction** and **Health and Safety Strategies**.	Carry out activities listed in **Handover Strategy** including **Feedback** for use during the future life of the building or on future projects. Updating of **Project Information** as required.	Conclude activities listed in **Handover Strategy** including **Post-occupancy Evaluation**, review of **Project Performance**, **Project Outcomes** and **Research and Development** aspects. Updating of **Project Information**, as required, in response to ongoing client **Feedback** until the end of the building's life.
Sustainability Checkpoints	**Sustainability Checkpoint – 0**	**Sustainability Checkpoint – 1**	**Sustainability Checkpoint – 2**	**Sustainability Checkpoint – 3**	**Sustainability Checkpoint – 4**	**Sustainability Checkpoint – 5**	**Sustainability Checkpoint – 6**	**Sustainability Checkpoint – 7**
Information Exchanges (at stage completion)	**Strategic Brief**.	**Initial Project Brief**.	**Concept Design** including outline structural and building services design, associated **Project Strategies**, preliminary **Cost Information** and **Final Project Brief**.	**Developed Design**, including the coordinated architectural, structural and building services design and updated **Cost Information**.	Completed **Technical Design** of the project.	**'As-constructed' Information**.	Updated **'As-constructed' Information**.	**'As-constructed' Information** updated in response to ongoing client **Feedback** and maintenance or operational developments.
UK Government Information Exchanges	Not required.	Required.	Required.	Required.	Not required.	Not required.	Required.	As required.

*Variable task bar – in creating a bespoke project or practice specific RIBA Plan of Work 2013 via www.ribaplanofwork.com a specific bar is selected from a number of options.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1. Preparation and Brief
Core Objectives
Develop Project Objectives, including Quality Objectives and Project Outcomes, Sustainability Aspirations, Project Budget, other parameters or constraints and develop Initial Project Brief. Undertake Feasibility Studies and review of Site Information.
Procurement
Prepare Proj sembling the project team.
Programme
Review Proje
(Town) Planning
Pre-application discussions.
Suggested Key Support Tasks
Prepare Handover Strategy and Risk Assessments.
Agree Schedule of Services, Design Responsibility Matrix and Information Exchanges and prepare Project Execution Plan including Technology and Communication Strategies and consideration of Common Standards to be used.
Sustainability Checkpoints
Confirm that formal sustainability targets are stated in the Initial Project Brief.
Confirm that environmental requirements, building lifespan and future climate parameters are stated in the Initial Project Brief.
Have early stage consultations, surveys or monitoring been undertaken as necessary to meet
Feasibility Studies
Studies undertaken on a given site to test the feasibility of the Initial Project Brief on a specific site or in a specific context and to consider how site-wide issues will be addressed.
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2
3
4
5
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Tasks | Stage Guidance | User Guide

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(Town) Planning

Suggested Key Support Tasks

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prepare **Project Executi**

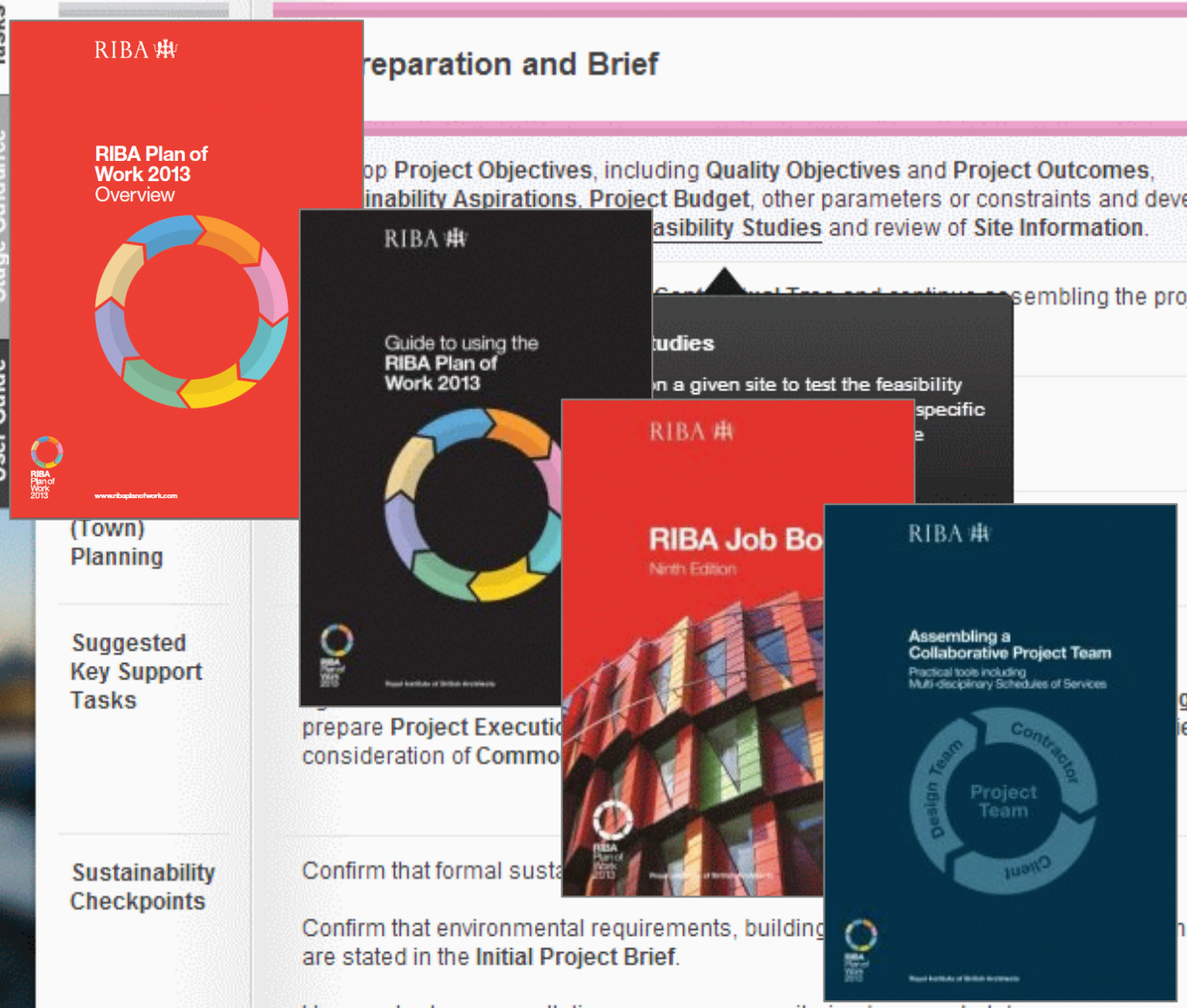
consideration of **Commo**

Sustainability Checkpoints

Confirm that formal susta

Confirm that environmental requirements, building neters are stated in the **Initial Project Brief**.

Have early stage consultations, surveys or monitoring been undertaken as necessary to meet



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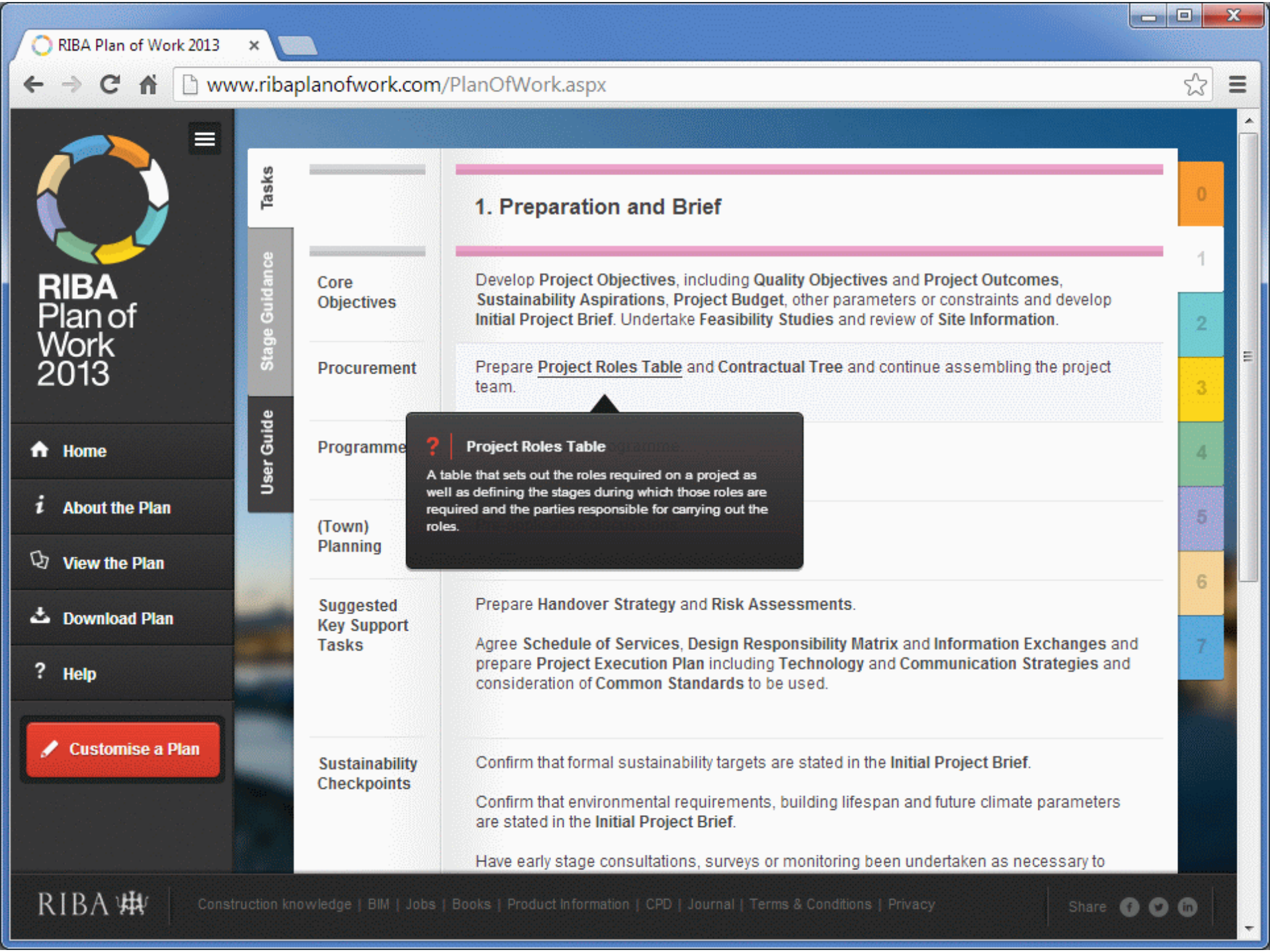
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User Guide
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Procurement
Prepare Project Roles Table and Contractual Tree and continue assembling the project team.
Programme
(Town) Planning
Project Roles Table
A table that sets out the roles required on a project as well as defining the stages during which those roles are required and the parties responsible for carrying out the roles.
Suggested Key Support Tasks
Prepare Handover Strategy and Risk Assessments.
Agree Schedule of Services, Design Responsibility Matrix and Information Exchanges and prepare Project Execution Plan including Technology and Communication Strategies and consideration of Common Standards to be used.
Sustainability Checkpoints
Confirm that formal sustainability targets are stated in the Initial Project Brief.
Confirm that environmental requirements, building lifespan and future climate parameters are stated in the Initial Project Brief.
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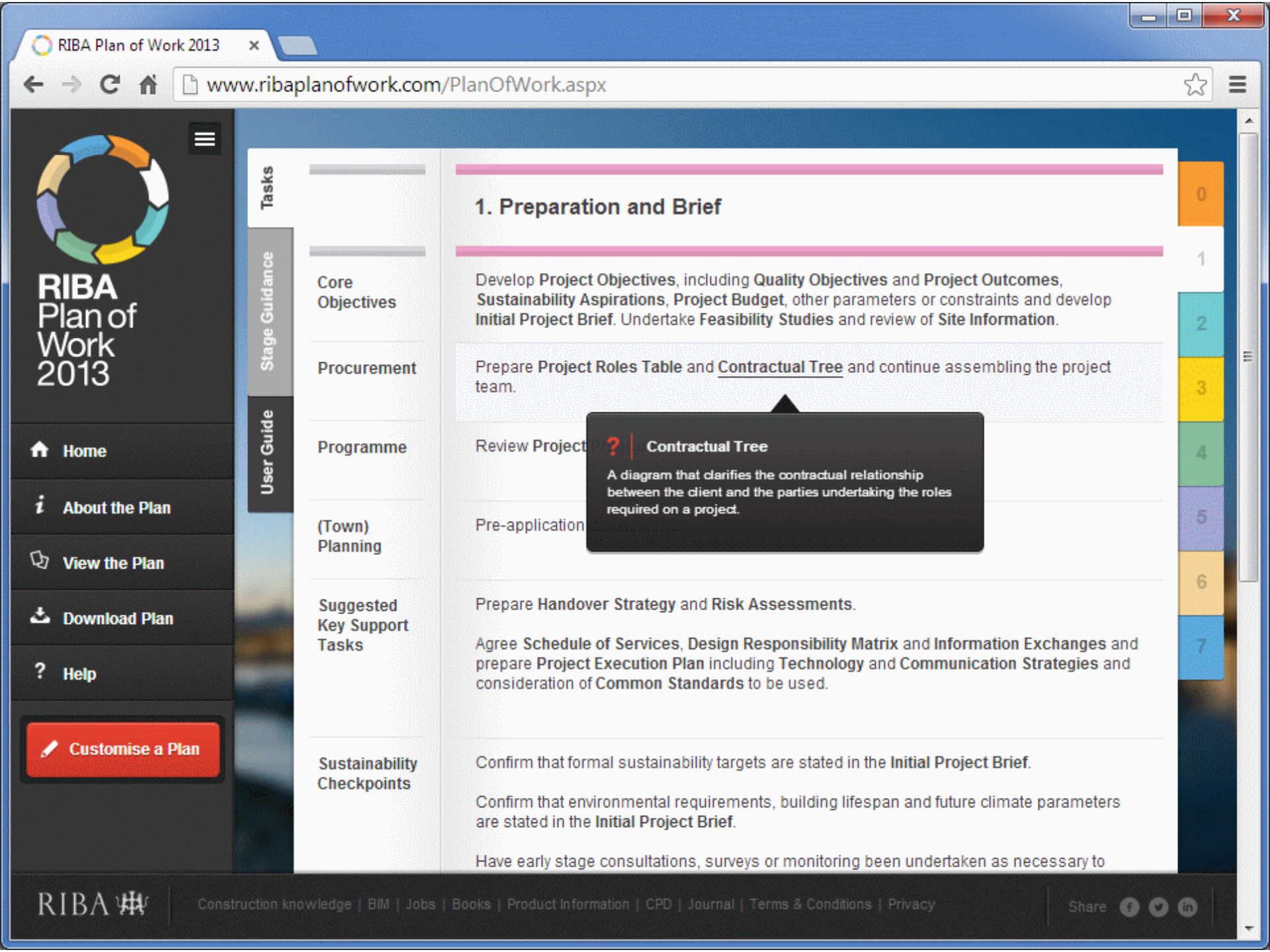
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Tasks
Stage Guidance
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Procurement
Prepare Project Roles Table and Contractual Tree and continue assembling the project team.
Contractual Tree
A diagram that clarifies the contractual relationship between the client and the parties undertaking the roles required on a project.
Programme
Review Project
(Town) Planning
Pre-application
Suggested Key Support Tasks
Prepare Handover Strategy and Risk Assessments.
Agree Schedule of Services, Design Responsibility Matrix and Information Exchanges and prepare Project Execution Plan including Technology and Communication Strategies and consideration of Common Standards to be used.
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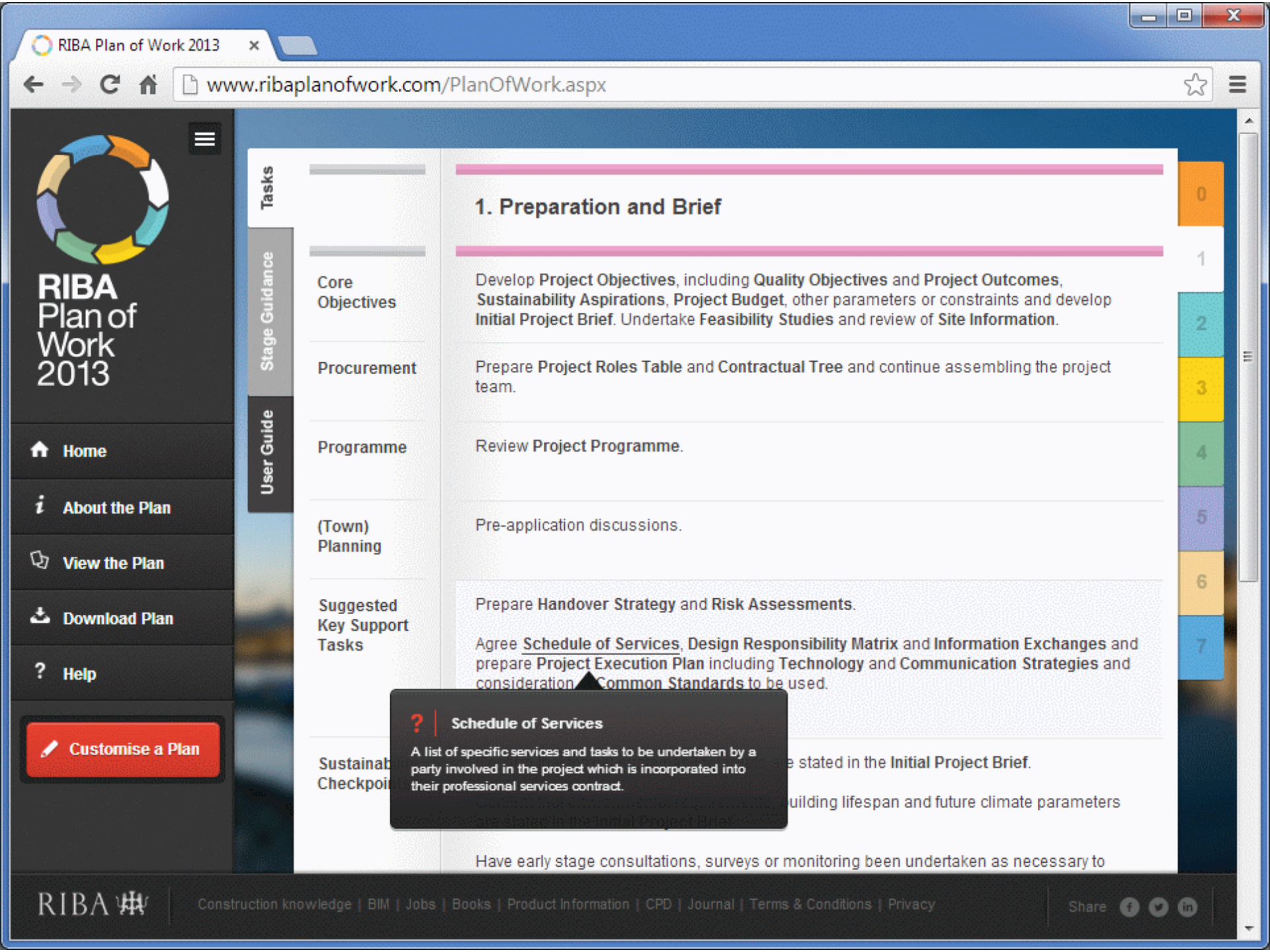
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User Guide
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Procurement
Prepare Project Roles Table and Contractual Tree and continue assembling the project team.
Programme
Review Project Programme.
(Town) Planning
Pre-application discussions.
Suggested Key Support Tasks
Prepare Handover Strategy and Risk Assessments.
Agree Schedule of Services, Design Responsibility Matrix and Information Exchanges and prepare Project Execution Plan including Technology and Communication Strategies and consideration
Common Standards to be used.
Schedule of Services
A list of specific services and tasks to be undertaken by a party involved in the project which is incorporated into their professional services contract.
Sustainab
Checkpoi
e stated in the Initial Project Brief.
uilding lifespan and future climate parameters
Have early stage consultations, surveys or monitoring been undertaken as necessary to
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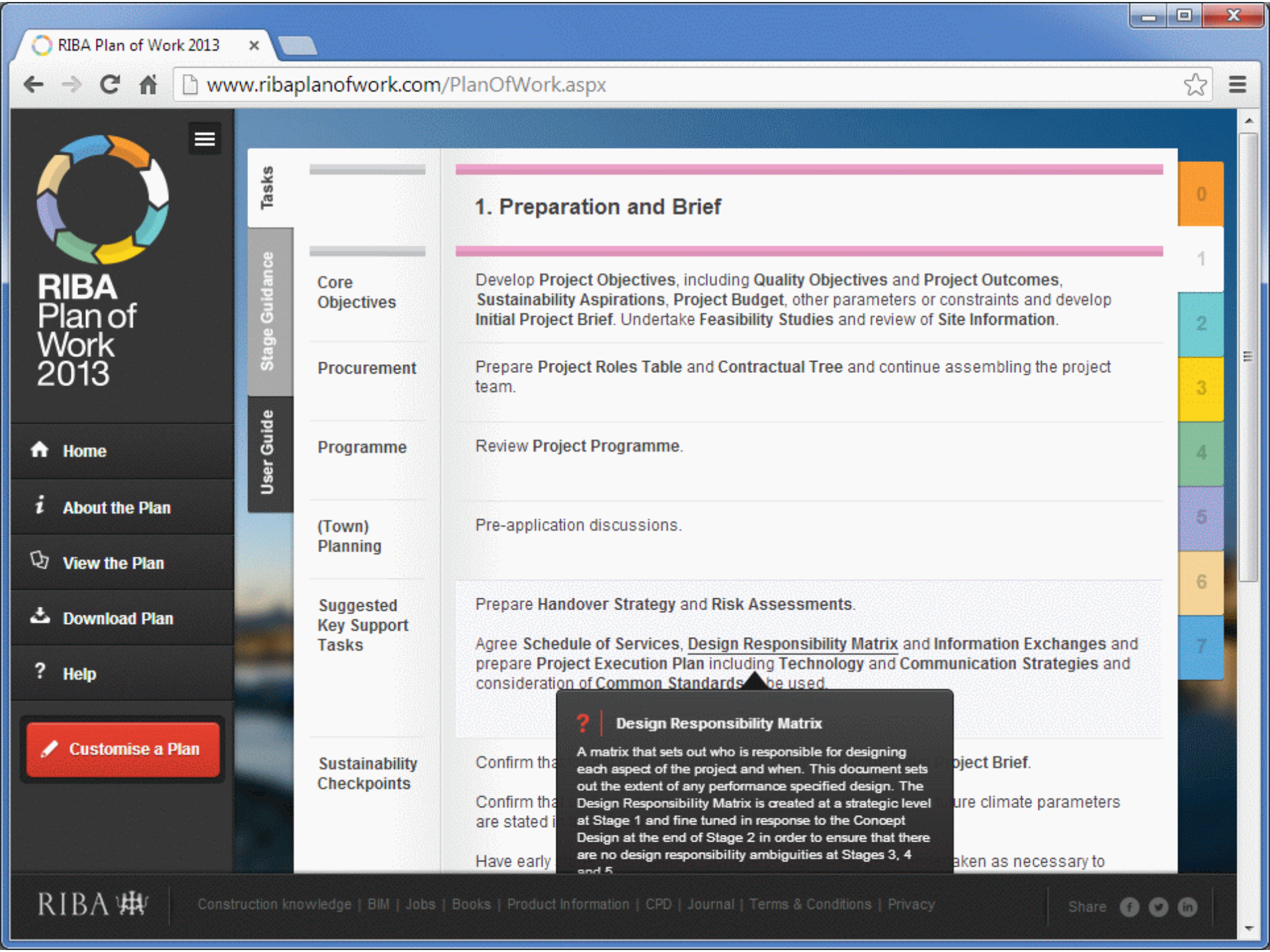
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Tasks
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User Guide
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Programme
Review Project Programme.
(Town) Planning
Pre-application discussions.
Suggested Key Support Tasks
Prepare Handover Strategy and Risk Assessments.
Agree Schedule of Services, Design Responsibility Matrix and Information Exchanges and prepare Project Execution Plan including Technology and Communication Strategies and consideration of Common Standards to be used.
Design Responsibility Matrix
A matrix that sets out who is responsible for designing each aspect of the project and when. This document sets out the extent of any performance specified design. The Design Responsibility Matrix is created at a strategic level at Stage 1 and fine tuned in response to the Concept Design at the end of Stage 2 in order to ensure that there are no design responsibility ambiguities at Stages 3, 4 and 5
Sustainability Checkpoints
Confirm tha
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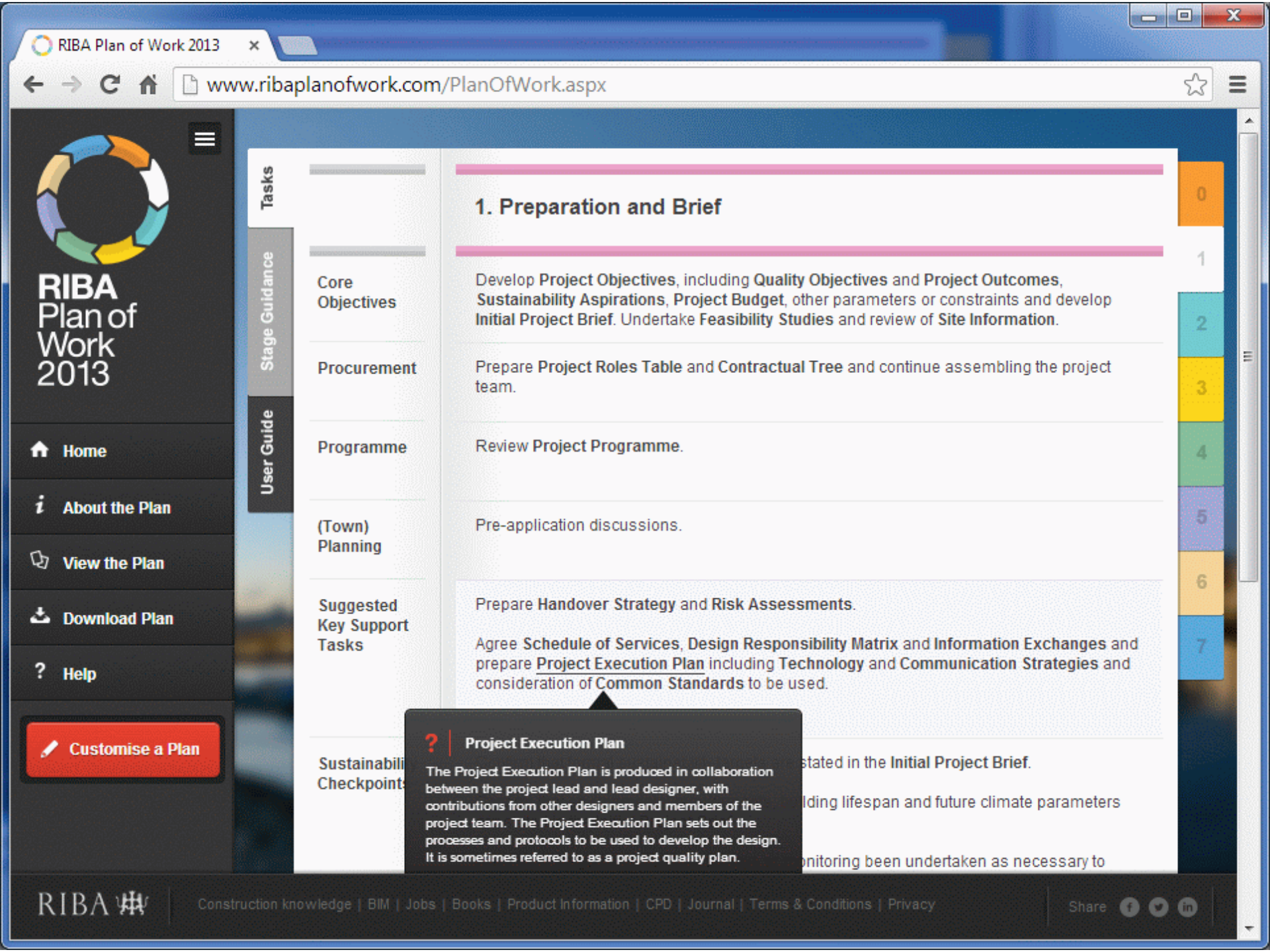
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View the Plan
Download Plan
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Tasks
Stage Guidance
User Guide
1. Preparation and Brief
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Procurement
Prepare Project Roles Table and Contractual Tree and continue assembling the project team.
Programme
Review Project Programme.
(Town) Planning
Pre-application discussions.
Suggested Key Support Tasks
Prepare Handover Strategy and Risk Assessments.
Agree Schedule of Services, Design Responsibility Matrix and Information Exchanges and prepare Project Execution Plan including Technology and Communication Strategies and consideration of Common Standards to be used.
Project Execution Plan
The Project Execution Plan is produced in collaboration between the project lead and lead designer, with contributions from other designers and members of the project team. The Project Execution Plan sets out the processes and protocols to be used to develop the design. It is sometimes referred to as a project quality plan.
0
1
2
3
4
5
6
7
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Project Roles Table

	0 Strategic Definition	1 Preparation and Brief	2 Concept Design	3 Developed Design
Client	Big Widget Ltd	Big Widget Ltd	Big Widget Ltd	Big Widget Ltd
Client adviser	Sam Wilson	Sam Wilson	[Not required]	[Not required]
Project lead	Sam Wilson	Sam Wilson	[Not decided]	[Not decided]
Lead designer	[Not required]	City Centre Architects	City Centre Architects	[Not decided]
Construction lead	[Not required]	[Not required]	[Not decided]	[Not decided]
Architect	City Centre Architects	City Centre Architects	[Not decided]	[Not decided]
Civil and structural engineer	[Not required]	[Not required]		[Not decided]
Building services engineer	[Not required]	[Not required]		[Not decided]
Cost consultant	[Not required]	Clear Costs LLP		[Not decided]
Contract administrator	[Not required]	[Not required]		[Not decided]
Health and safety advisor	[Not required]	[Not required]		[Not decided]
Access consultant				
Acoustic consultant				
Archaeologist				
BREEAM assessor				
Cladding specialist				
Catering consultant				
Facilities management (FM) advisor				
Fire engineer				
Highways consultant				

RIBA Plan of Work 2013

RIBA

Multidisciplinary Roles and Responsibilities

1 - Preparation & Brief

Project role	Party	Tasks to be undertaken
All roles		Provide information for and contribute to contents of Project Execution Plan as required
Client and/or Client Advisor	Sam Wilson	Contribute to development of Initial Project Brief including Project Objectives, Quality Objectives, Project Outcomes, Sustainability Aspirations, Project Budget and other parameters or constraints
Project Lead	Sam Wilson	Develop Initial Project Brief with project team including Project Objectives, Quality Objectives, Project Outcomes, Sustainability Aspirations, Project Budget and other parameters or constraints
		Collate comments and facilitate workshops as required to develop Initial Project Brief
		Prepare Project Roles Table and Contractual Tree and continue assembling and appointing project team members
		Prepare Schedule of Services and develop Design Responsibility Matrix including Information

Design Responsibility Matrix

	2 - Concept Design			3 - Developed Design		
Aspect of design	**Design team**			**Design team**		
	Design responsibility	**Level of design**	**Information exchange**	**Design responsibility**	**Level of design**	**Information exchange**
15 PREPARATORY ELEMENTS						
20 WHOLE-ENTITY STRUCTURAL ELEMENTS						
25 WALL AND BARRIER ELEMENTS						
30 ROOF, FLOOR AND PAVING ELEMENTS						
35 FIXED ACCESS, TUNNEL, SHAFT, VESSEL AND TOWER ELEMENTS						
40 SIGNAGE AND FITTINGS, FURNISHINGS AND EQUIPMENT (FF&E) ELEMENTS						
40-10 Signage						
40-10-30 External signage	LKJ Landscapes	Outline	1:100	LKJ Landscapes	Performance	1:100
40-10-40 Internal signage	City Centre Architects	Outline	1:100	City Centre Architects	Full (generic)	
40-10-85 Signage power supply and protection	Wires & Fires Ltd	Outline	1:100	Wires & Fires Ltd	Performance	
40-15 Fittings, furnishings and equipment (FF&E)	City Centre Architects	Outline	1:100	City Centre Architects	Outline	
45 FLORA AND FAUNA ELEMENTS						
50 DISPOSAL ELEMENTS						
55 PIPED SUPPLY ELEMENTS						
60 HEATING, COOLING AND REFRIGERATION ELEMENTS						
65 VENTILATION AND AIR CONDITIONING ELEMENTS						
70 ELECTRICAL ELEMENTS						
75 COMMUNICATIONS, SECURITY, SAFETY,						

1:200
1:100
1:50
1:20
1:10
1:5
1:2
1:1

COMPLEXES

ENTITIES

ACTIVITIES

SPACES

ELEMENTS

SYSTEMS

PRODUCTS

ISO 12006-2

COMPLEXES

CIOB THE CHARTERED INSTITUTE OF BUILDING

CIBSE

RICS the mark of property professionalism worldwide

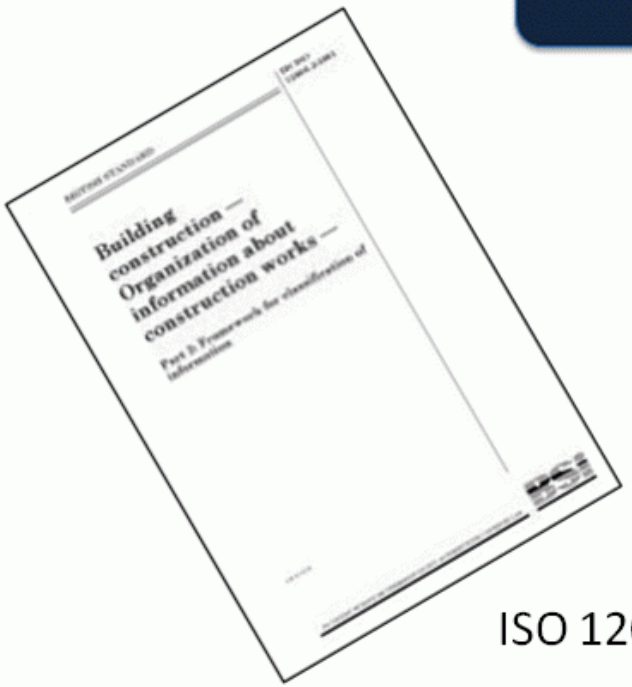
UKCG

RIBA

ice Institution of Civil Engineers

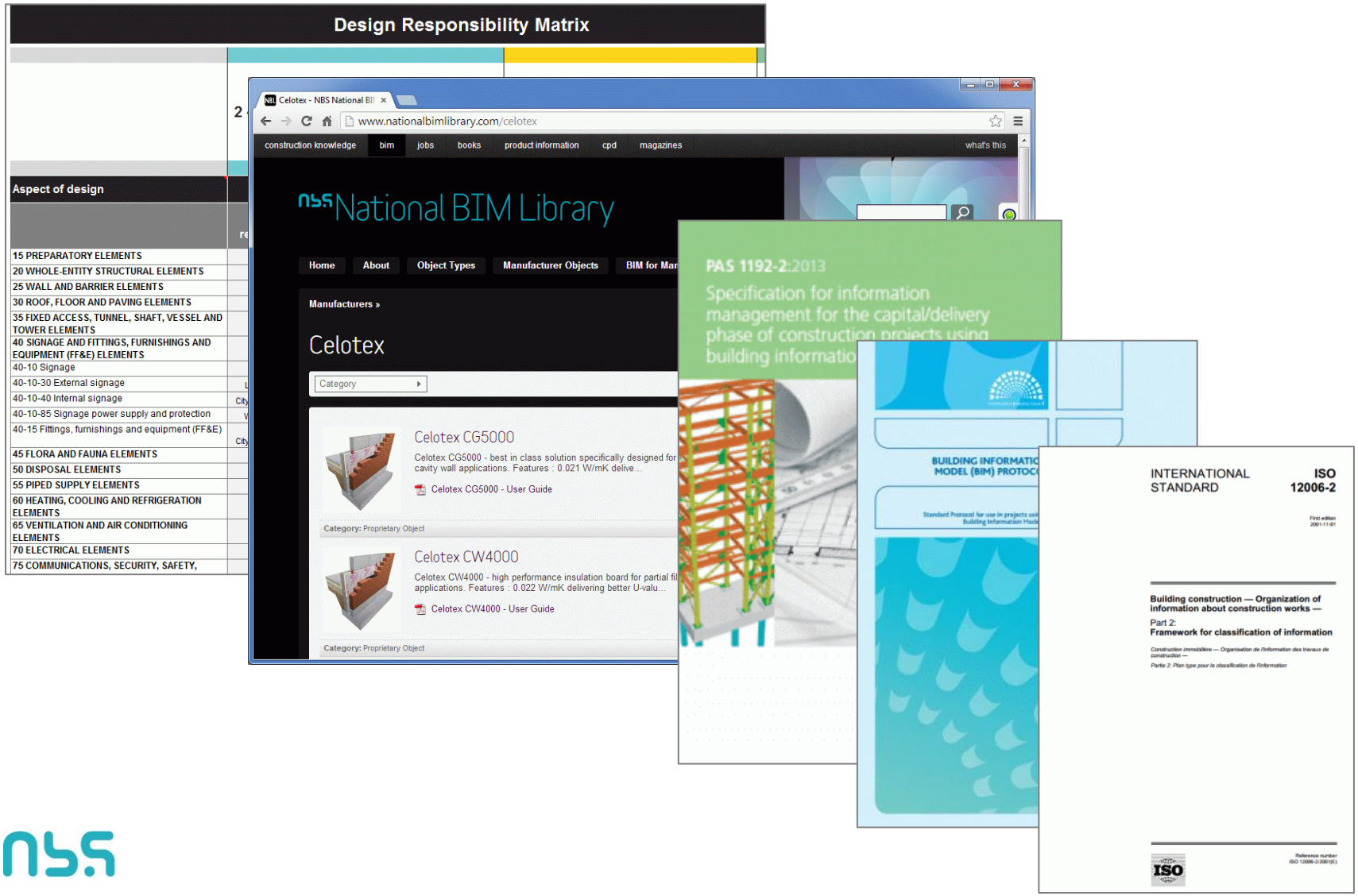
CIAT

PRODUCTS



ISO 12006-2

BIM – 1. Project Preparation – Project Execution Plan



BIM – 1. Project Preparation

The project has been prepared

- Who
- What
- How
- When

To utilise digital technologies and a common data language

2. BIM through the design stages

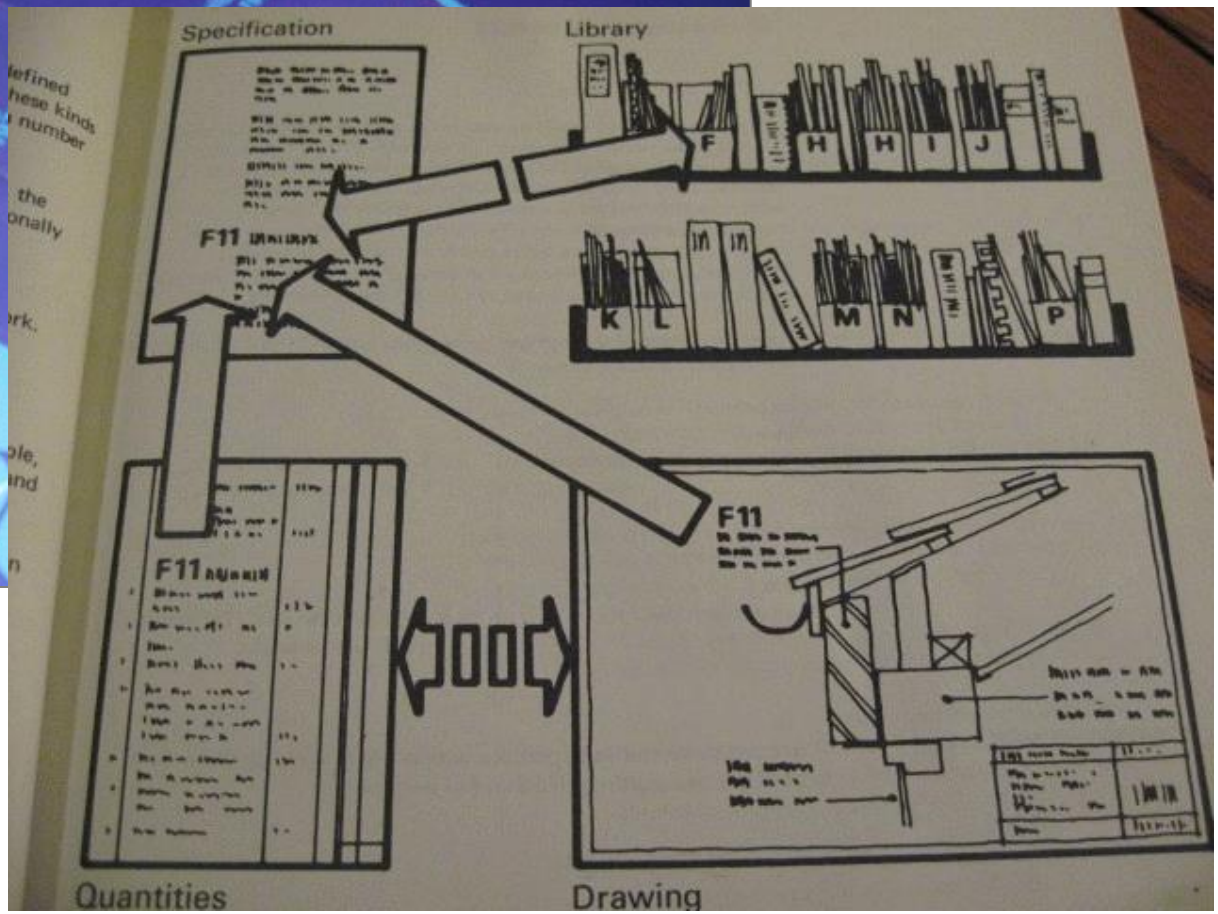
2. BIM through the design stages

BIM design tools

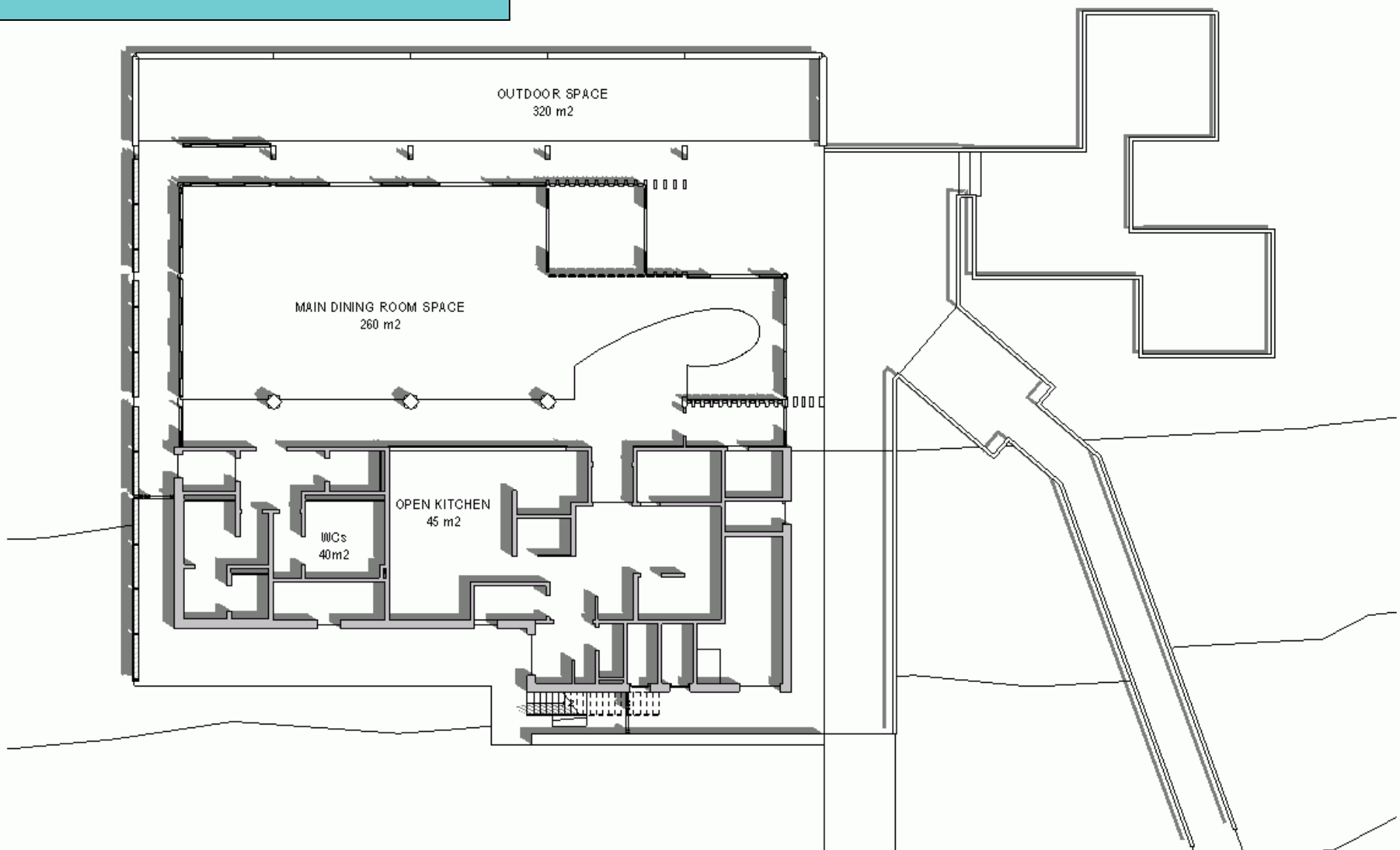
CELEBRATING

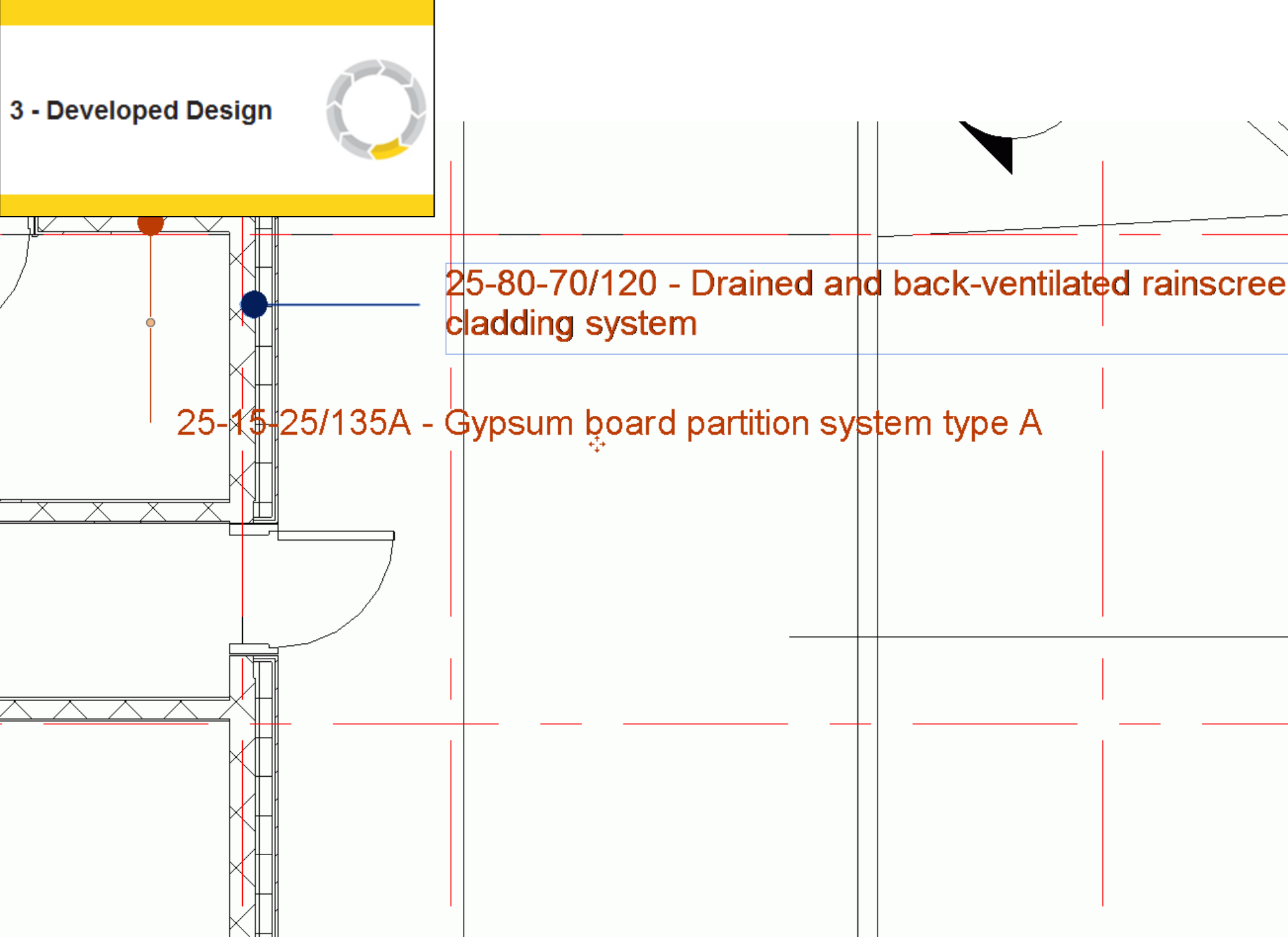
1973

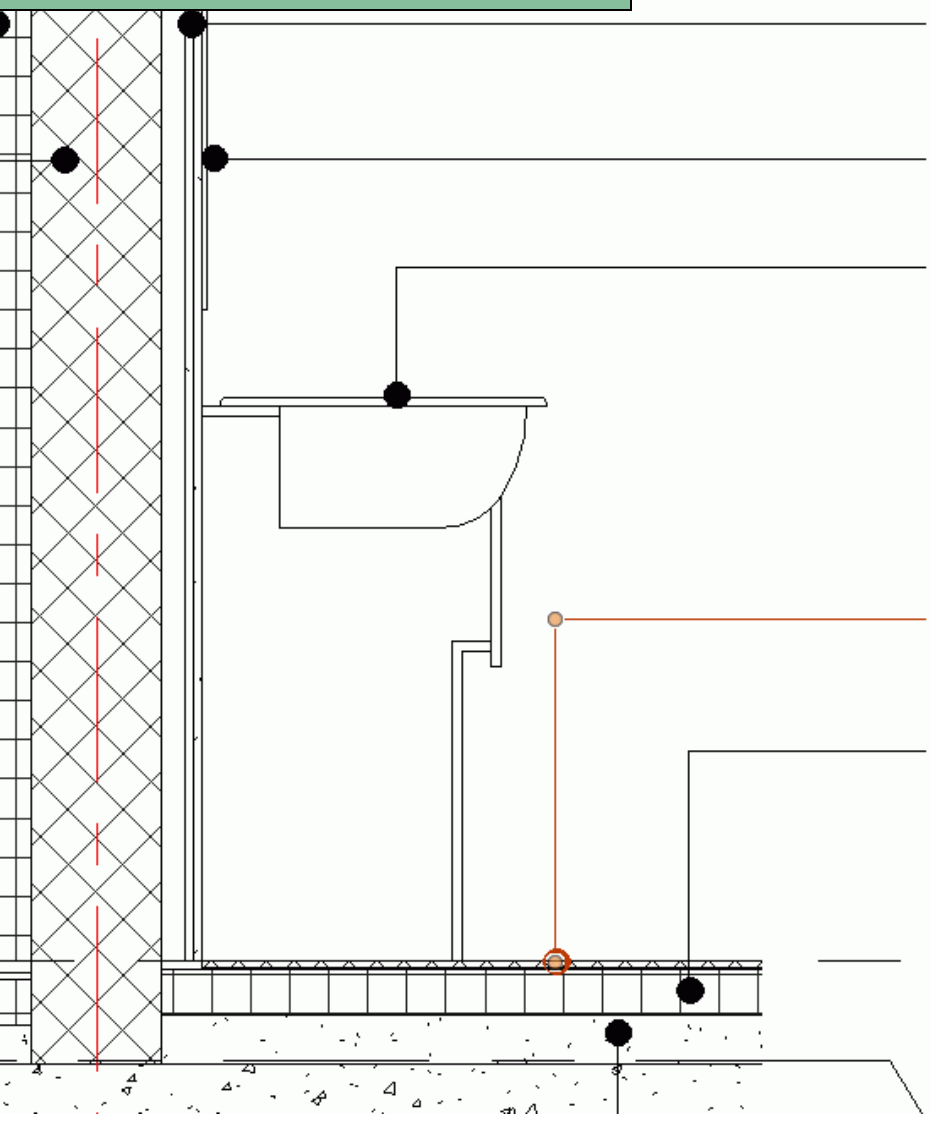
YEARS



2 - Concept Design




3 - Developed Design
25-80-70/120 - Drained and back-ventilated rainscree
cladding system
25-15-25/135A - Gypsum board partition system type A



25-85-45/140 - Gypsum board wall lining system

45-45-50/390 - Standard gypsum plasterboard - type A

45-45-50/390 - Standard gypsum plasterboard - type A

45-35-72/336 - VitrA Round mirror 44037

35-70-70/124A - Encore 600 Wash Basin

45-80-95/310 - Karo Grip Ceramic Tiles

45-45-65/410 - Extruded polystyrene (XPS) board

Ground Floor

0

DECK BEAMS

2. BIM through the design stages

BIM specification tools

2 - Concept Design

System description

Outline specification

- 20 Roof, floor and paving systems
- 20-15 Paving and hardstanding systems
- 20-15-25 External deck and boardwalk systems

125 Deck system type A

Type: A

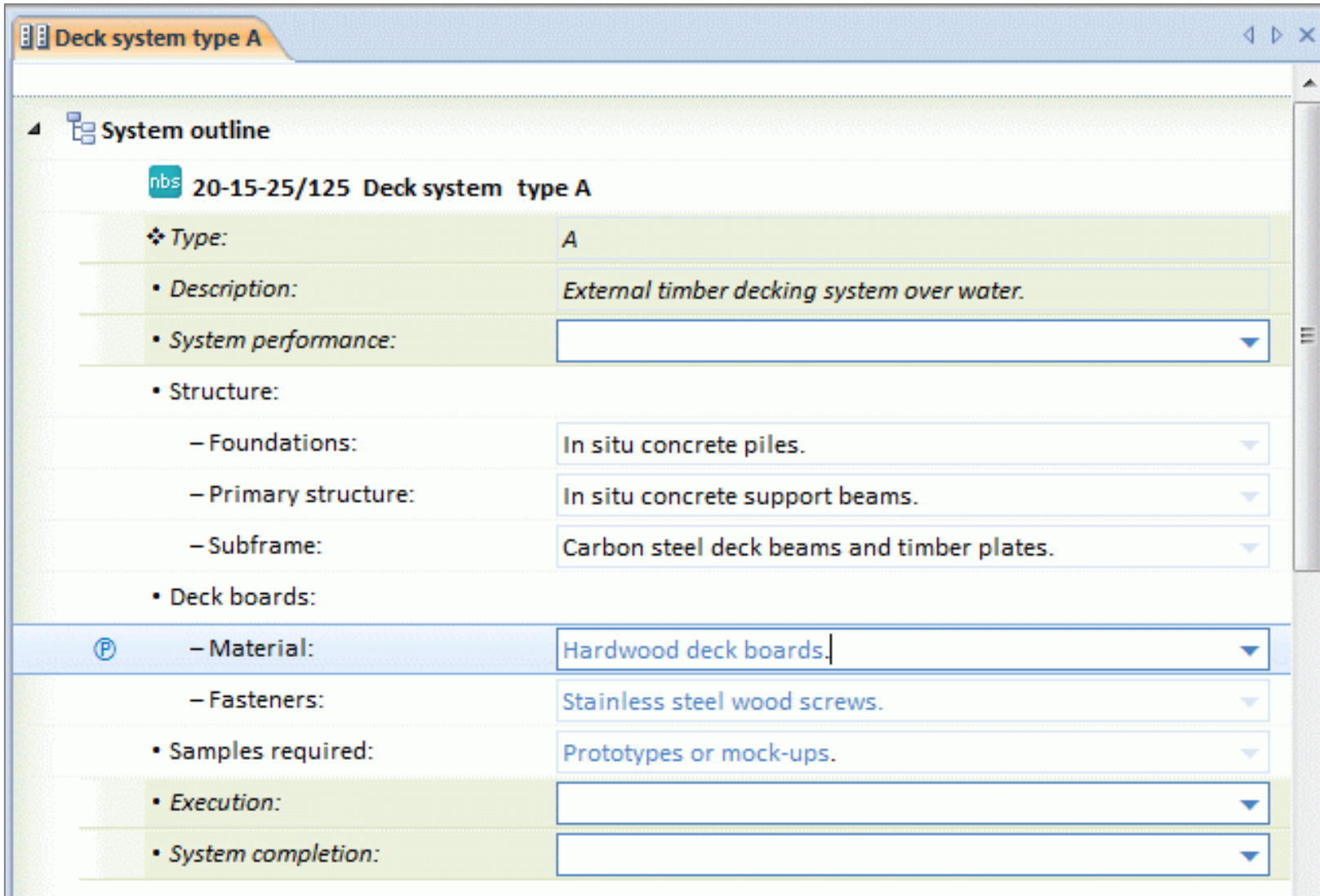
- Description: External timber decking system over water.

125 Deck system type B

Type: B

- Description: External metal decking system over water.

System outline



System performance

Deck system type A

System outline

20-15-25/125 Deck system type A

Type:	A
Description:	External timber decking system over water.
System performance:	Design submittals; Structural design; Permanent and imposed loads; Functional performance; and Accessibility.
Structure:	
– Foundations:	In situ concrete piles.
– Primary structure:	In situ concrete support beams.
– Subframe:	Carbon steel deck beams and timber plates.
Deck boards:	
– Material:	Hardwood deck boards.
– Fasteners:	Stainless steel wood screws.
Samples required:	Prototypes or mock-ups.
Execution:	Installation of deck boards and Installation generally.
Ⓟ System completion:	Removal of samples and Documentation.

System performance

Deck system type A

System performance

Structural design

• Design responsibility:	Deck and fixings.
• Standards:	To the Eurocodes appropriate to the nature and location of the structure.
• Deflections and other structural movements:	Compatible with use.

Permanent and imposed loads

• Standard:	In accordance with BS EN 1991-1-1.
• Information provided:	Outline design by Structural Engineer.

Functional performance

• Performance criteria:	Pedestrian access only. Ease of maintenance.

Accessibility

Ⓟ • Inclusive design:	Complete detailed design in accordance with BS 8300, allowing for use by children.
• Finished surfaces on accessible areas:	Free of irregularities capable of inflicting personal injury.

Deck system type A

Full - generic

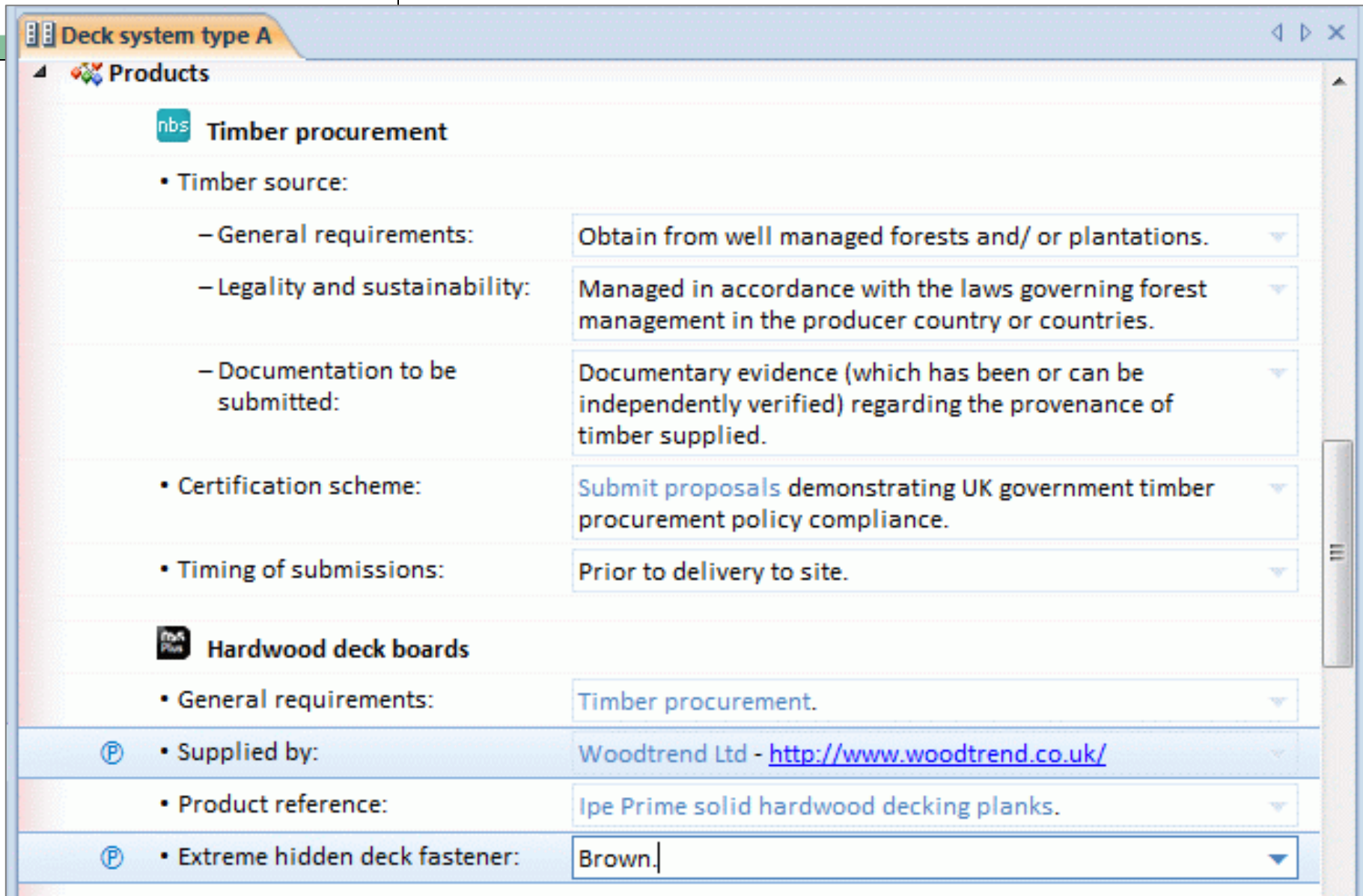
Products

Timber procurement

- Timber source:
  - General requirements: Obtain from well managed forests and/ or plantations.
  - Legality and sustainability: Managed in accordance with the laws governing forest management in the producer country or countries.
  - Documentation to be submitted: Documentary evidence (which has been or can be independently verified) regarding the provenance of timber supplied.
- Certification scheme: Submit proposals demonstrating UK government timber procurement policy compliance.
- Timing of submissions: Prior to delivery to site.

Hardwood deck boards

- General requirements: Timber procurement.
- Supplied by: Submit proposals.
- Ⓟ Species: Ipe.
- Profile: Grooved with anti-slip insert strip.
- Finished size:
  - Section: 125 x 45 mm.
  - Length: 3.1 m.
- Finish as delivered:
  - Preservative treatment: Manufacturer's standard.
  - Fire retardant treatment: Flame retardant treatment to WPA Commodity Specification FR5, type LR.
- Features: Pre-drilled fixing holes.


Deck system type A
Products
Timber procurement
• Timber source:
– General requirements:
Obtain from well managed forests and/ or plantations.
– Legality and sustainability:
Managed in accordance with the laws governing forest management in the producer country or countries.
– Documentation to be submitted:
Documentary evidence (which has been or can be independently verified) regarding the provenance of timber supplied.
• Certification scheme:
Submit proposals demonstrating UK government timber procurement policy compliance.
• Timing of submissions:
Prior to delivery to site.
Hardwood deck boards
• General requirements:
Timber procurement.
Ⓟ • Supplied by:
Woodtrend Ltd - http://www.woodtrend.co.uk/
• Product reference:
Ipe Prime solid hardwood decking planks.
Ⓟ • Extreme hidden deck fastener:
Brown.

BIM – coordinating information

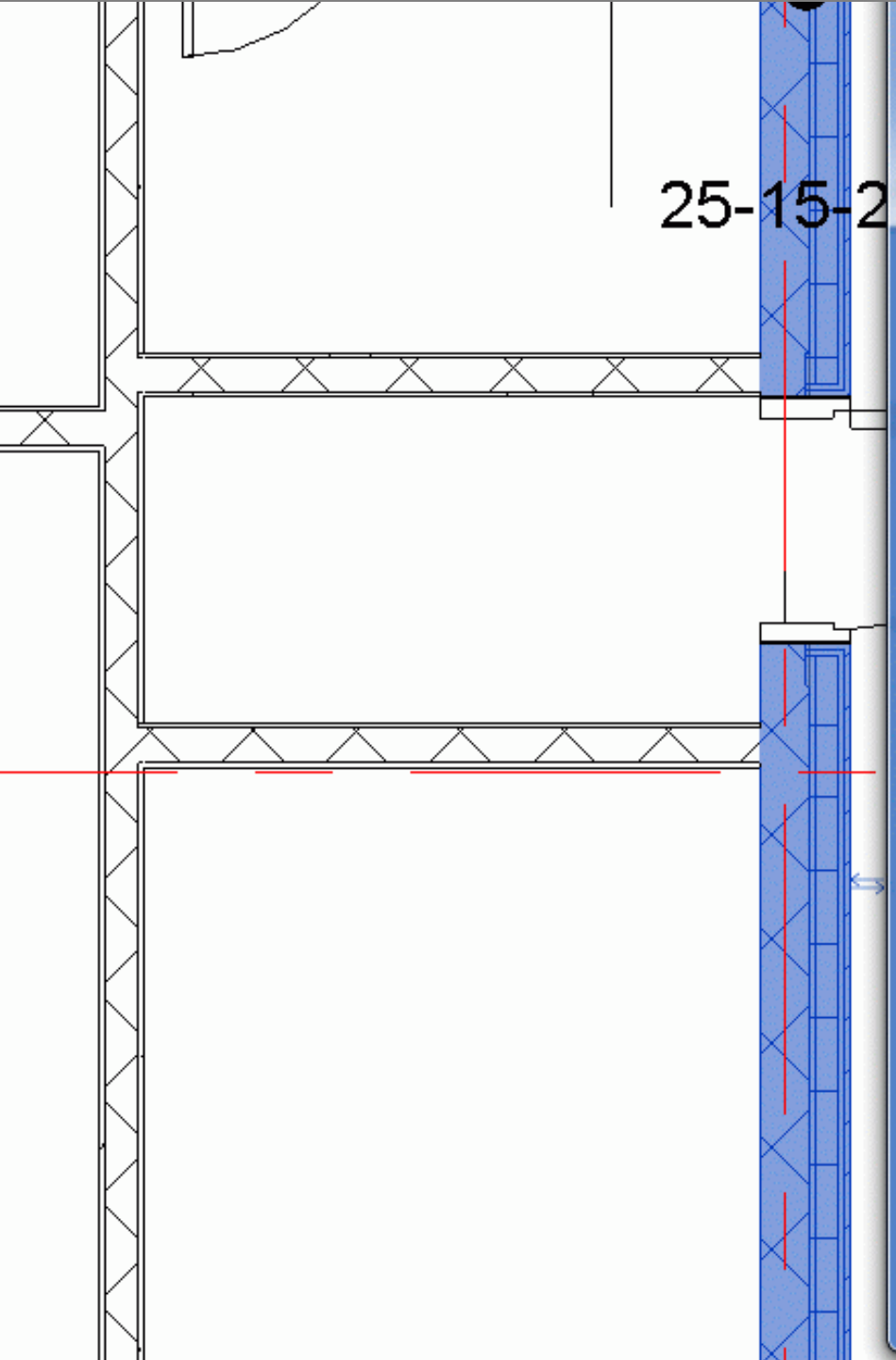
Design
Specification


Design
Specification
£2bn
the cost of rework
every year

Contributing to the £2bn…

- *Or equal* specifications
- Conflict between drawings and specifications
- Ambiguity
- Defective specifications (buildability)
- Inaccurate technical data

BIM – making things better



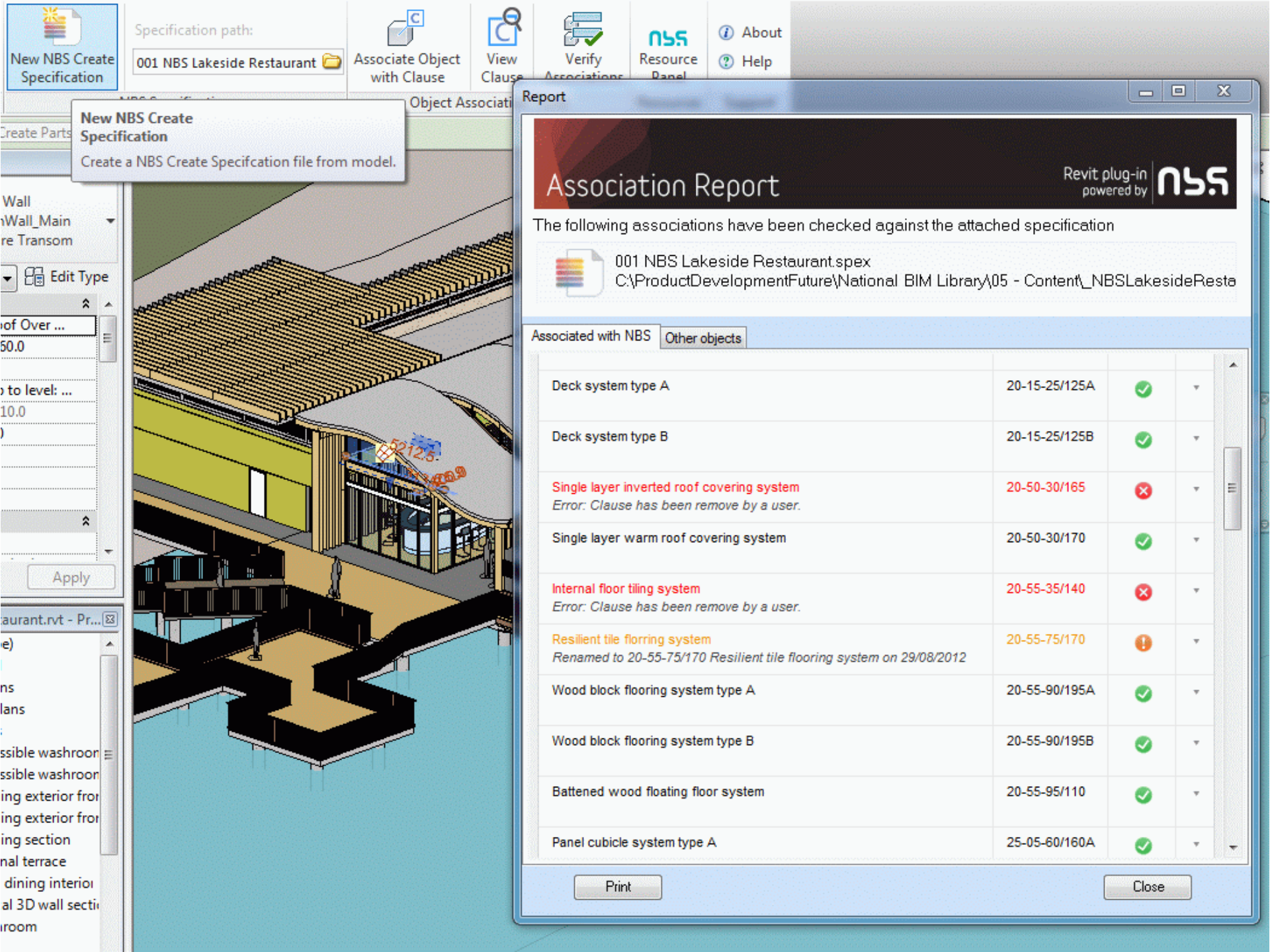
NBS Guidance

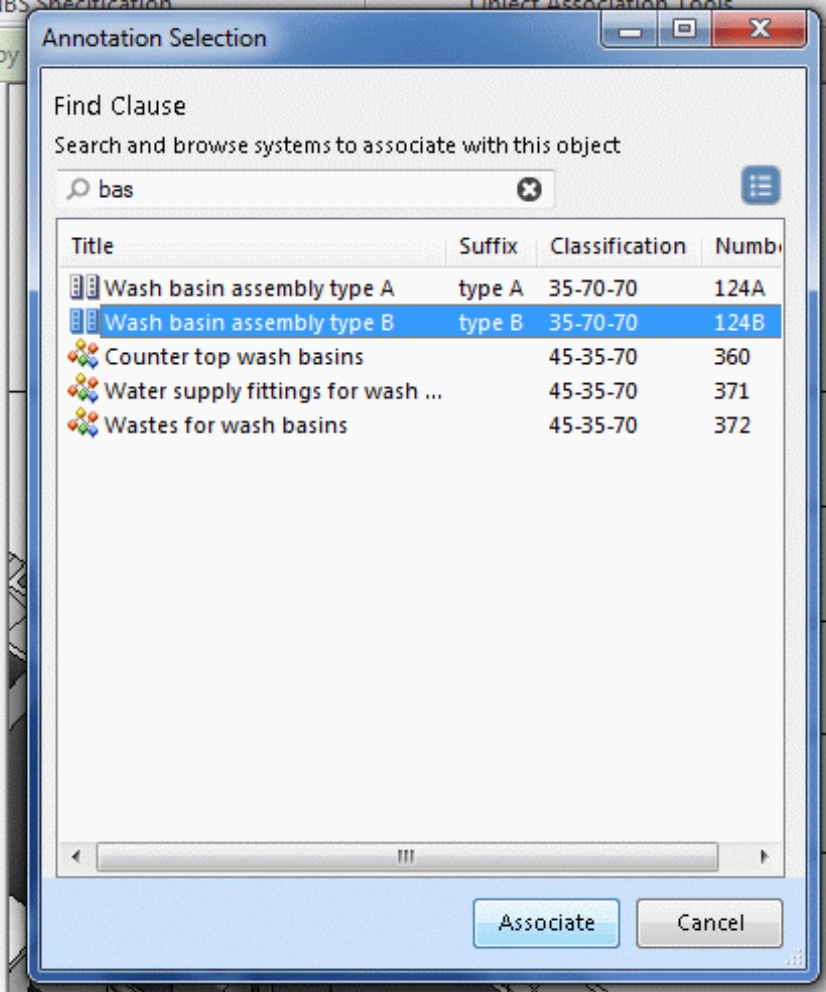
25 - 80 - 70

Rainscreen cladding systems

Add Note | View all guidance

- Scope
- General guidance [-]
  - 1 Introduction
  - 2 Standards [-]
    - 2.1 CWCT standards
    - 2.2 NHBC standards
  - 3 Rainscreen design principles
  - 4 CWCT guidance on ventilated cavities [-]
    - 4.1 General requirements
    - 4.2 Rainscreen joints
    - 4.3 Rainscreen cavities
  - 5 Rainscreen panels [-]
    - 5.1 Materials
    - 5.2 Panel fixing systems
    - 5.3 Secondary support systems
    - 5.4 Incompatibility of materials and corrosion
    - 5.5 Impact loads
  - 6 Breather membranes
  - 7 Fire performance [-]
    - 7.1 General requirement
    - 7.2 Propagation and spread of flame within ventilated cavities


New NBS Create Specification
Specification path:
001 NBS Lakeside Restaurant
Associate Object with Clause
View Clause
Verify Associations
Resource Panel
About
Help
Object Associati
New NBS Create Specification
Create a NBS Create Specifcation file from model.
Edit Type
Apply
Report
Association Report
Revit plug-in powered by NBS
The following associations have been checked against the attached specification
001 NBS Lakeside Restaurant.spex
C:\ProductDevelopmentFuture\National BIM Library\05 - Content_NBSLakesideResta
Associated with NBS
Other objects
Deck system type A 20-15-25/125A
Deck system type B 20-15-25/125B
Single layer inverted roof covering system 20-50-30/165
Error: Clause has been remove by a user.
Single layer warm roof covering system 20-50-30/170
Internal floor tiling system 20-55-35/140
Error: Clause has been remove by a user.
Resilient tile florring system 20-55-75/170
Renamed to 20-55-75/170 Resilient tile flooring system on 29/08/2012
Wood block flooring system type A 20-55-90/195A
Wood block flooring system type B 20-55-90/195B
Battened wood floating floor system 20-55-95/110
Panel cubicle system type A 25-05-60/160A
Print
Close



45-35-72/360 - Support rails

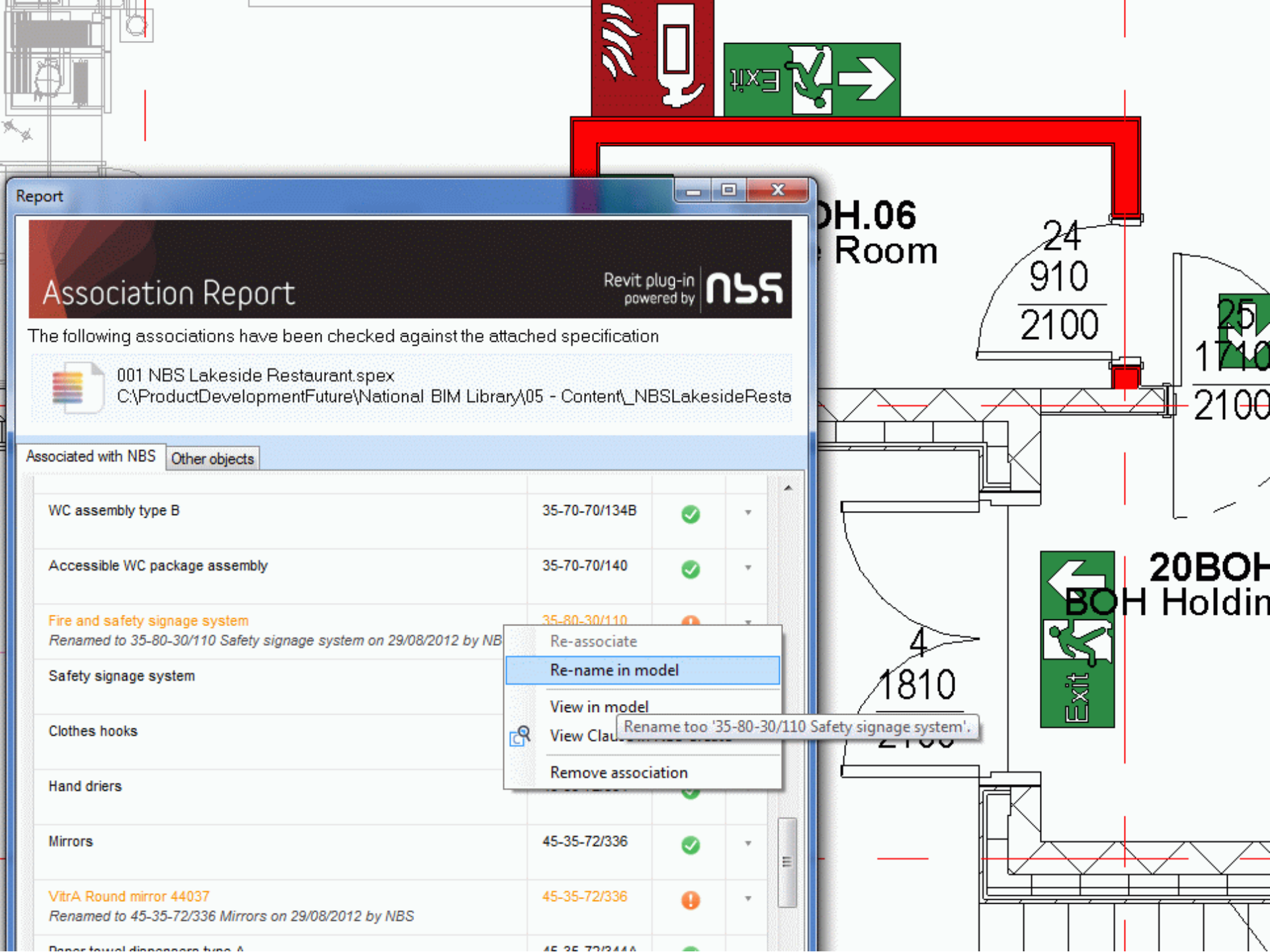
35-70-70/134B - WC assembly type B

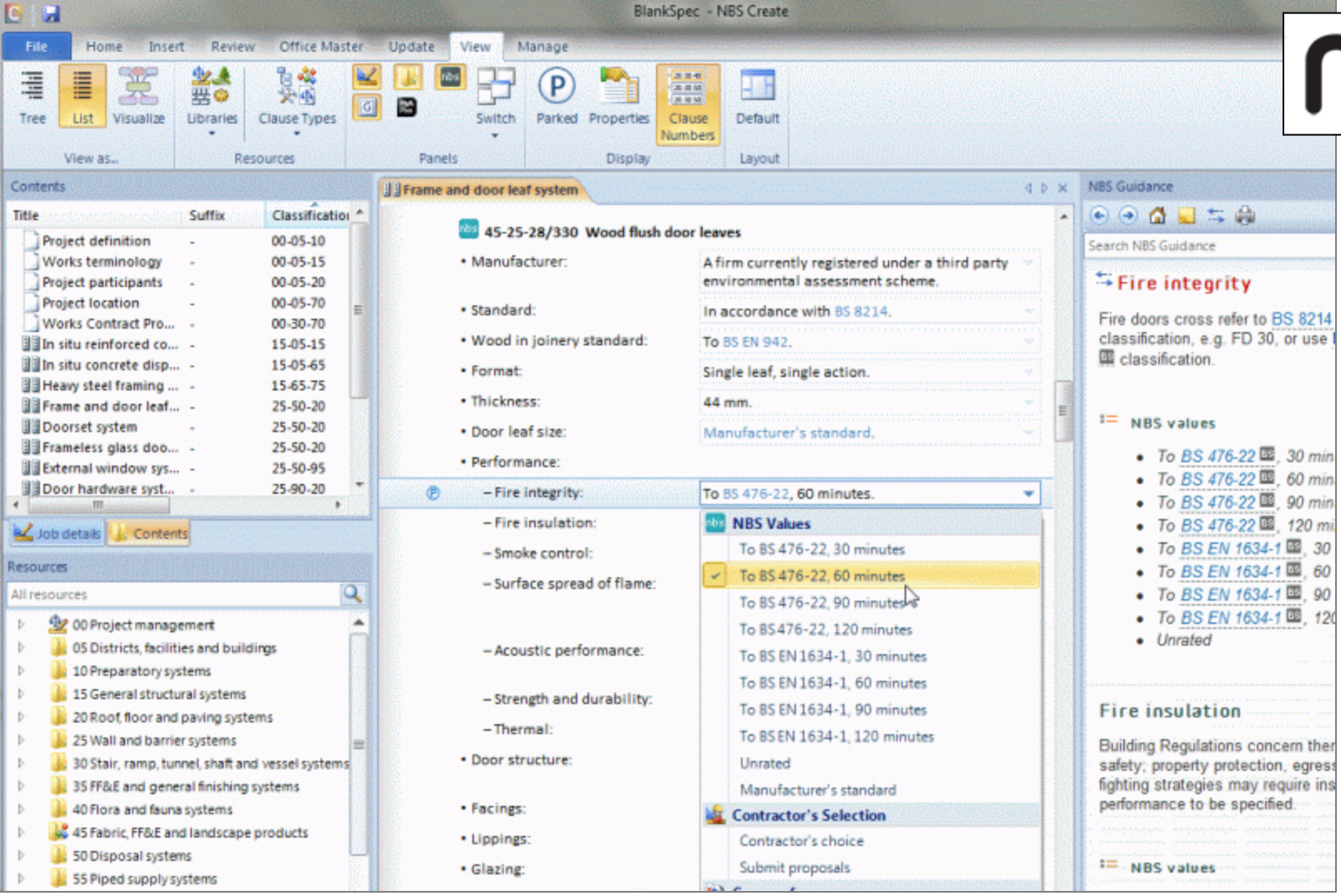
45-35-72/344A - Paper towel dispenser

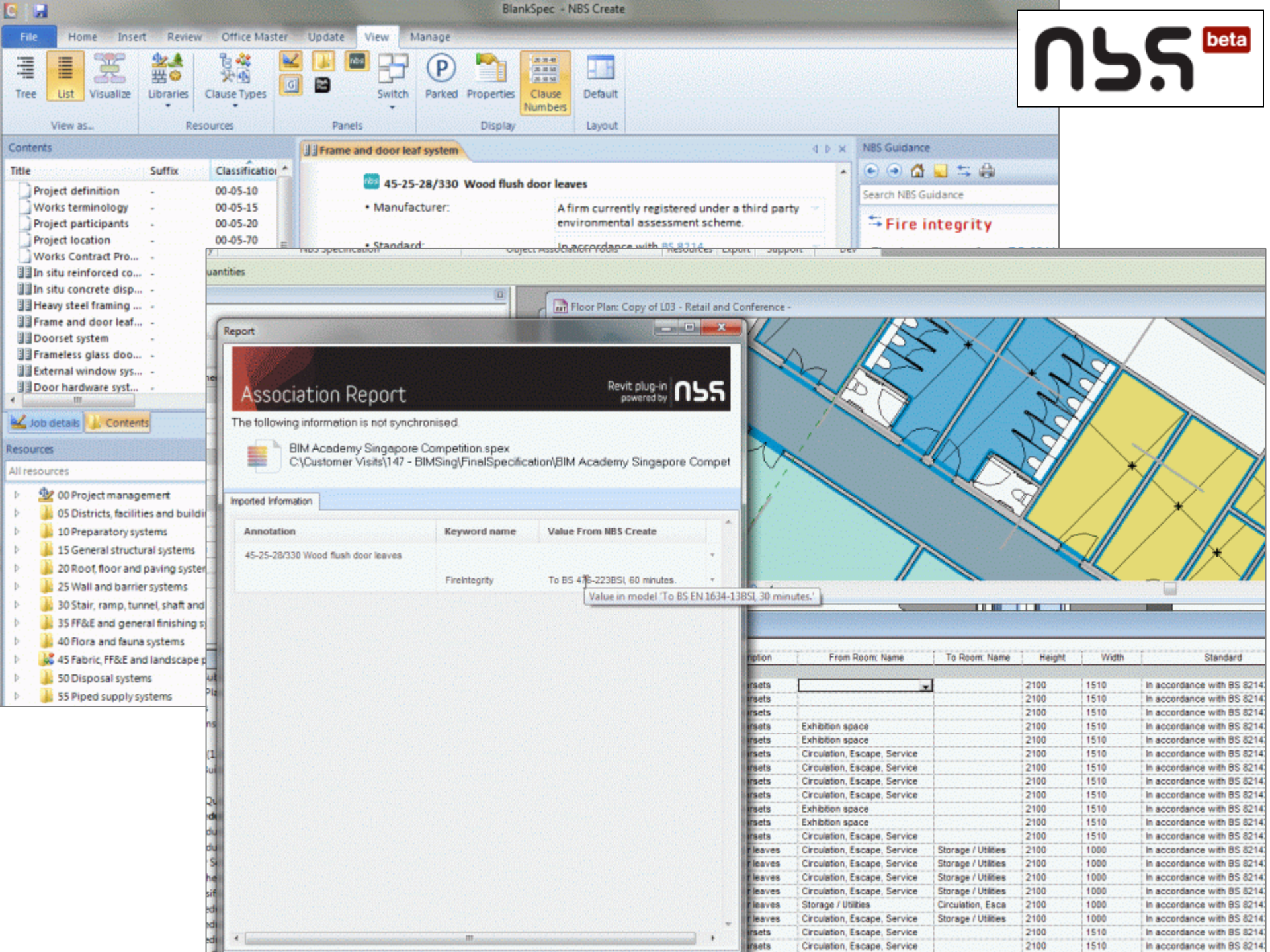
35-70-70/124B - Wash basin assembly

45-35-72/334 - Hand driers

25-15-25/135A - Gypsum board partitio


Report
Association Report
Revit plug-in powered by NBS
The following associations have been checked against the attached specification
001 NBS Lakeside Restaurant.spex
C:\ProductDevelopmentFuture\National BIM Library\05 - Content_NBSLakesideResta
Associated with NBS
Other objects
WC assembly type B
35-70-70/134B
Accessible WC package assembly
35-70-70/140
Fire and safety signage system
Renamed to 35-80-30/110 Safety signage system on 29/08/2012 by NB
Safety signage system
Clothes hooks
Hand driers
Mirrors
45-35-72/336
VitrA Round mirror 44037
Renamed to 45-35-72/336 Mirrors on 29/08/2012 by NBS
45-35-72/336
Re-associate
Re-name in model
View in model
Remove association
Rename too '35-80-30/110 Safety signage system'.
Exit
24
910
2100
4
1810
Room


BlankSpec - NBS Create
File
Home
Insert
Review
Office Master
Update
View
Manage
Tree
List
Visualize
Libraries
Clause Types
Switch
Parked
Properties
Clause Numbers
Default
View as...
Resources
Panels
Display
Layout
Contents
Title
Suffix
Classificatio
Project definition - 00-05-10
Works terminology - 00-05-15
Project participants - 00-05-20
Project location - 00-05-70
Works Contract Pro... - 00-30-70
In situ reinforced co... - 15-05-15
In situ concrete disp... - 15-05-65
Heavy steel framing ... - 15-65-75
Frame and door leaf... - 25-50-20
Doorset system - 25-50-20
Frameless glass doo... - 25-50-20
External window sys... - 25-50-95
Door hardware syst... - 25-90-20
Job details
Contents
Resources
All resources
00 Project management
05 Districts, facilities and buildings
10 Preparatory systems
15 General structural systems
20 Roof, floor and paving systems
25 Wall and barrier systems
30 Stair, ramp, tunnel, shaft and vessel systems
35 FF&E and general finishing systems
40 Flora and fauna systems
45 Fabric, FF&E and landscape products
50 Disposal systems
55 Piped supply systems
Frame and door leaf system
45-25-28/330 Wood flush door leaves
• Manufacturer:
A firm currently registered under a third party environmental assessment scheme.
• Standard:
In accordance with BS 8214.
• Wood in joinery standard:
To BS EN 942.
• Format:
Single leaf, single action.
• Thickness:
44 mm.
• Door leaf size:
Manufacturer's standard.
• Performance:
– Fire integrity:
To BS 476-22, 60 minutes.
– Fire insulation:
– Smoke control:
– Surface spread of flame:
– Acoustic performance:
– Strength and durability:
– Thermal:
• Door structure:
• Facings:
• Lippings:
• Glazing:
NBS Values
To BS 476-22, 30 minutes
To BS 476-22, 60 minutes
To BS 476-22, 90 minutes
To BS476-22, 120 minutes
To BS EN 1634-1, 30 minutes
To BS EN 1634-1, 60 minutes
To BS EN 1634-1, 90 minutes
To BS EN 1634-1, 120 minutes
Unrated
Manufacturer's standard
Contractor's Selection
Contractor's choice
Submit proposals
NBS Guidance
Search NBS Guidance
Fire integrity
Fire doors cross refer to BS 8214
classification, e.g. FD 30, or use
classification.
NBS values
To BS 476-22, 30 min
To BS 476-22, 60 min
To BS 476-22, 90 min
To BS 476-22, 120 mi
To BS EN 1634-1, 30
To BS EN 1634-1, 60
To BS EN 1634-1, 90
To BS EN 1634-1, 120
Unrated
Fire insulation
Building Regulations concern ther
safety; property protection, egress
fighting strategies may require ins
performance to be specified.
NBS values


BlankSpec - NBS Create
File
Home
Insert
Review
Office Master
Update
View
Manage
Tree
List
Visualize
Libraries
Clause Types
Switch
Parked
Properties
Clause Numbers
Default
View as...
Resources
Panels
Display
Layout
Contents
Title
Suffix
Classificatio
Project definition
Works terminology
Project participants
Project location
Works Contract Pro...
In situ reinforced co...
In situ concrete disp...
Heavy steel framing ...
Frame and door leaf...
Doorset system
Frameless glass doo...
External window sys...
Door hardware syst...
Frame and door leaf system
45-25-28/330 Wood flush door leaves
Manufacturer:
A firm currently registered under a third party environmental assessment scheme.
Standard:
NBS Guidance
Search NBS Guidance
Fire integrity
Job details
Contents
Resources
All resources
00 Project management
05 Districts, facilities and buildi
10 Preparatory systems
15 General structural systems
20 Roof, floor and paving syste
25 Wall and barrier systems
30 Stair, ramp, tunnel, shaft and
35 FF&E and general finishing s
40 Flora and fauna systems
45 Fabric, FF&E and landscape p
50 Disposal systems
55 Piped supply systems
Report
Association Report
Revit plug-in
powered by
The following information is not synchronised
BIM Academy Singapore Competition.spex
C:\Customer Visits\147 - BIMSing\FinalSpecification\BIM Academy Singapore Compet
Imported Information
Annotation
Keyword name
Value From NBS Create
45-25-28/330 Wood flush door leaves
FireIntegrity
To BS 476-22BSI, 60 minutes.
Value in model 'To BS EN 1634-13BSI, 30 minutes.'
Floor Plan: Copy of L03 - Retail and Conference -
From Room: Name
To Room: Name
Height
Width
Standard
2100
1510
In accordance with BS 8214
Exhibition space
Circulation, Escape, Service
Storage / Utilities
1000
Circulation, Esca
beta

Design takes place working with objects

- Uniclass 2 – From element to system to product
- Better delivery of information
- Coordinated design and specification
- Product selection
- Automated checking

3. BIM during construction and operation

COBie
Explained

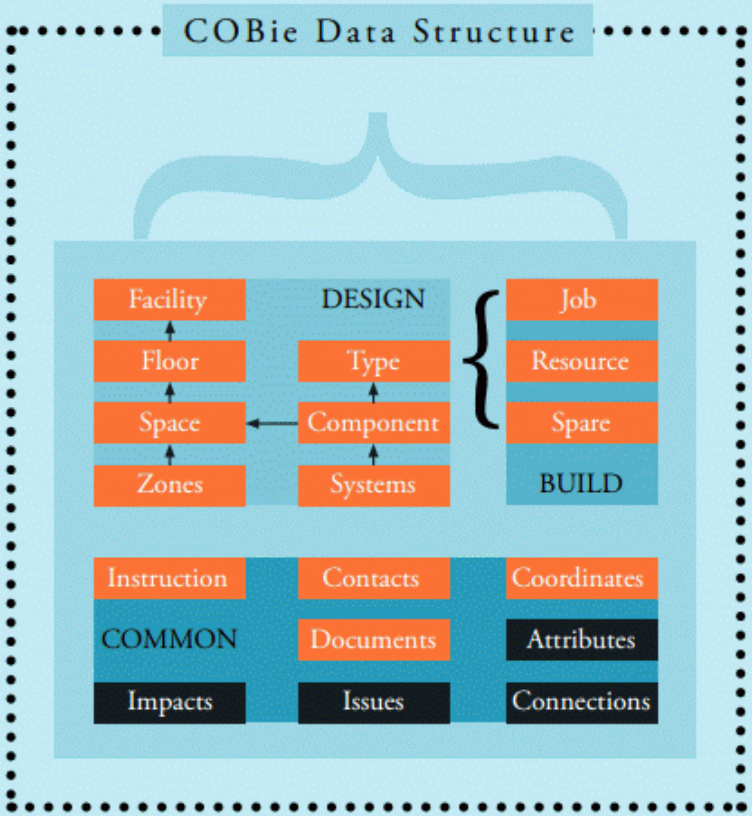
Government as a client can derive significant improvements in cost, value and carbon performance through the use of open sharable asset information

by Jaimie Johnston

★

Some of the most frequent questions that the Task Group are asked (and ask ourselves) relate to COBie (Construction Operations Building information exchange). It is a critical part of HM Government's BIM strategy, and so ensuring its widespread adoption is essential for successfully making the change to 'data driven' projects. However, COBie is often the least well understood part of the strategy.

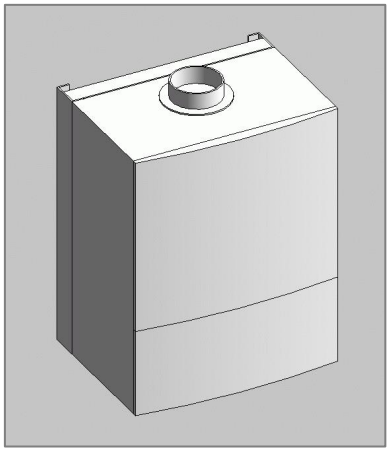
The purpose of this article is not to give a detailed overview of the data structure of COBie or describe how the detail is built up – this is already covered in a range of resources available on the Task Group website (see below). Instead the intention is to explain the relevance of COBie to making HM Government a better and more consistent client in how it makes decisions relating to the procurement, running, maintenance and ultimately disposal of its assets.



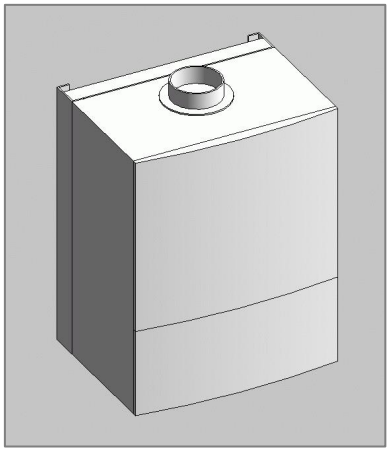
Common properties
AssetIdentifier
Classification
ExpectedLife
InstallationDate
Manufacturer
ModelNumber
ParentSpace
ReplacementCost
Warranty

Common properties

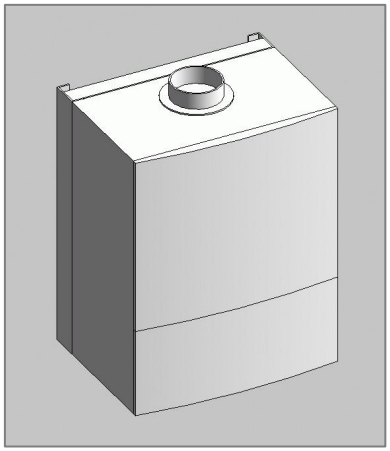
AssetIdentifier	*978-3-16-148410-0*
Classification	*90-40-05/330 Gas fired boilers*
ExpectedLife	*25 years*
InstallationDate	*28th August 2013*
Manufacturer	*Worcester*
ModelNumber	*Greenstar 30CDi Classic*
ParentSpace	*R01.05*
ReplacementCost	*£1,500*
Warranty	*5 year guarantee on main unit, 10 year guarantee on primary heat exchanger*

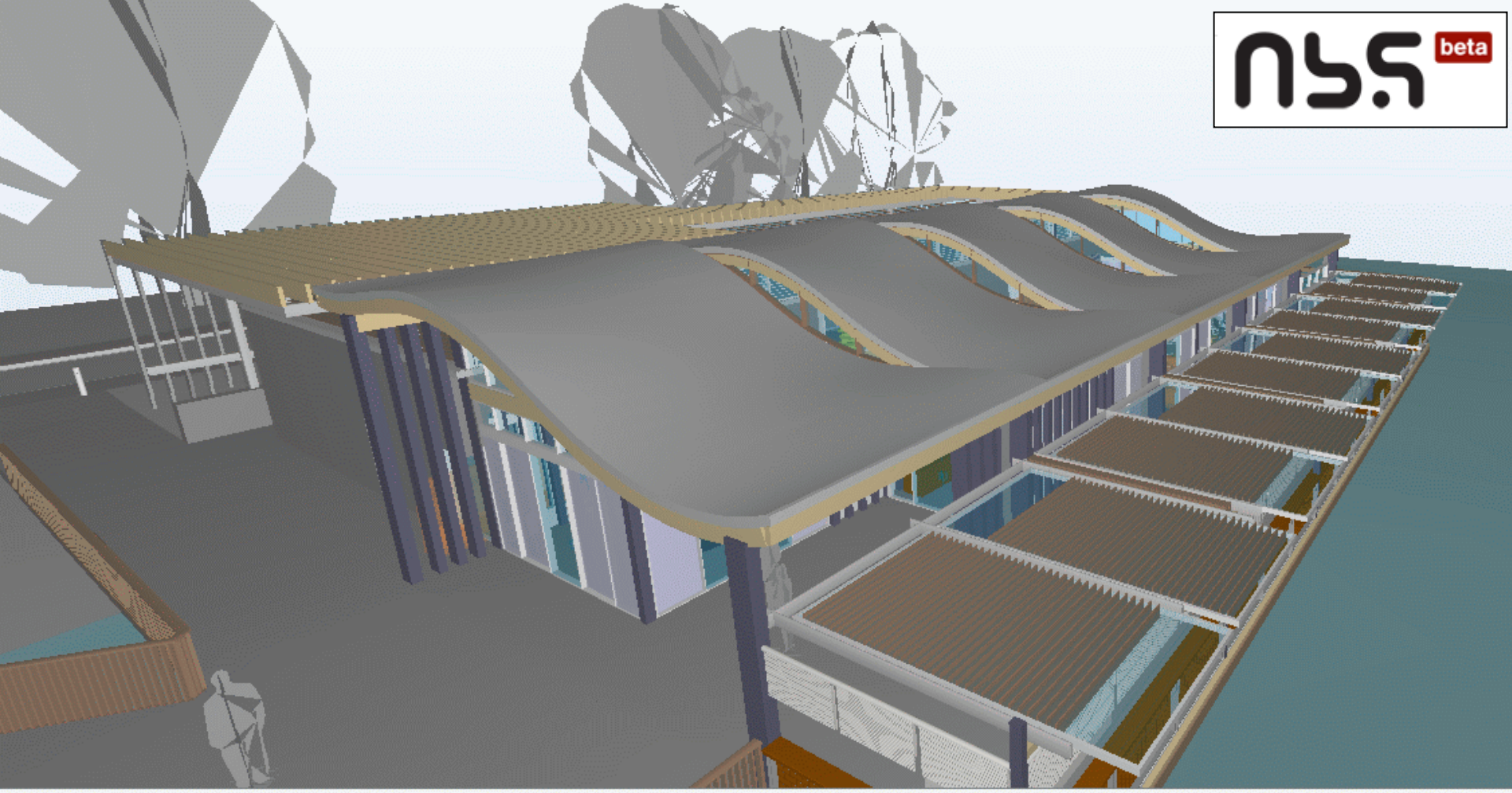


Specific properties 90-40-05/330 Gas fired boilers	
Standard	
Ouput	
Seasonal efficiency	
NOx emissions	
Operating pressure	
Test pressure	
Operating temperature	
Fuel	
Electrical performance	



Specific properties 90-40-05/330 Gas fired boilers	
Standard	*To BS EN 297, type B11.*
Ouput	*30 kw*
Seasonal efficiency	*90.3%*
NOx emissions	*40mg/kWh*
Operating pressure	*150 kPa*
Test pressure	*300 kPa*
Operating temperature	*81˚C flow, 75˚C return*
Fuel	*Natural gas*
Electrical performance	*To BS 5986*





COBie

	A	B	C	D	E	F	G
40	Centre-PnlInt_TYPE B		01-01-1970T02:00:00	25-05-60/160B	Panel cubicle system type B	n/a	n/a
41	Column_Surround:Column_Surround		01-01-1970T02:00:00	n/a	n/a	n/a	n/a
42	Compound Ceiling:nbl_ExpGrid_SqrTileMnrl-FrmMtl		01-01-1970T02:00:00	20-10-20/190A	Unit suspended ceiling system type A	n/a	n/a
43	Compound Ceiling:nbl_ExpGrid_SqrTileMnrl-FrmMtl-...		01-01-1970T02:00:00	20-10-20/190B	Unit suspended ceiling system type B	n/a	n/a
44	Compound Ceiling:nbl_ExpGrid_SqrTileMtl-FrmMtl		01-01-1970T02:00:00	20-10-20/190C	Unit suspended ceiling system type C	n/a	n/a
45	Compound Ceiling:nbl_ExpGrid_SqrTileMtl-FrmMtl-I...		01-01-1970T02:00:00	20-10-20/190D	Unit suspended ceiling system type D	n/a	n/a
46	Compound Ceiling:nbl_PlstrbrdGyp		01-01-1970T02:00:00	20-10-10/110A	Board suspended ceiling system type A	n/a	n/a
47	Compound Ceiling:nbl_PlstrbrdGyp-Insul		01-01-1970T02:00:00	20-10-10/110B	Board suspended ceiling system type B	n/a	n/a
48	Concrete Rectangular:200 X 400		01-01-1970T02:00:00	n/a	n/a	n/a	n/a

Instruction | Contact | Facility | Floor | Space | Zone | Type | Component | System | Assembly | Connection | Spare | Resource | Job | Impact | Document | Attribute | Coordinate | Issue | PickLists

Information continues to grow

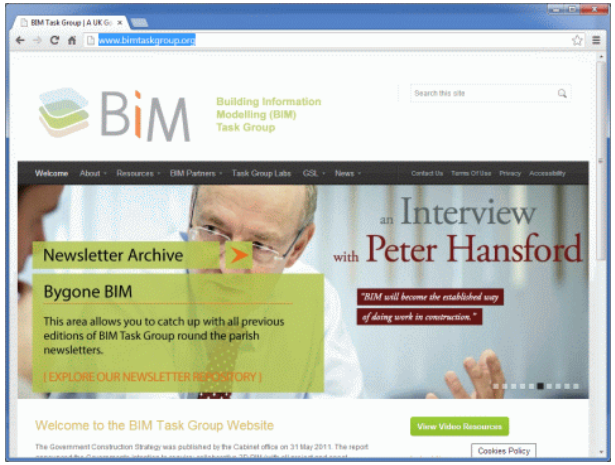
- Actual products installed
- Common and specific property sets
- Digital information for operation

BIM – in the UK today

Summary

- Online templates, standards and guidance
- BIM used throughout the timeline
- *Technology* supporting *information* and *process*

BIM - in the UK today - Tak



BIMTaskGroup.org

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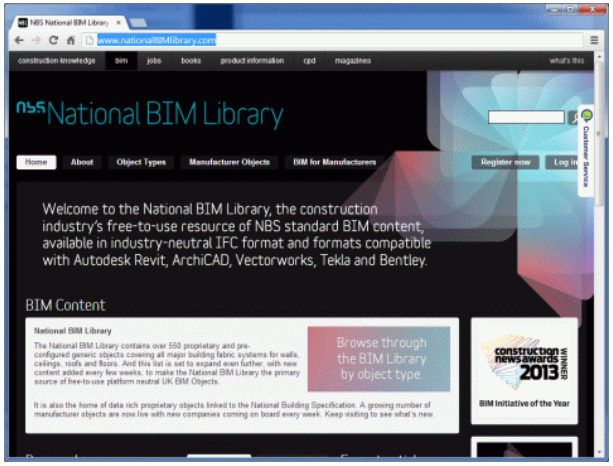

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