



CIF

BIM Guide

Standards & Policies

August 2017



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BIM Guide

Standards & Policies

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Section 1 Glossary and Definitions

BIM	Building Information Modelling
BIM Level 0	<p>In its simplest form, level 0 effectively means no collaboration. 2D CAD drafting only is utilised, mainly for Production Information (RIBA Plan of Work 2013 stage 4). Output and distribution is via paper or electronic prints, or a mixture of both. The majority of the industry is already well ahead of this now (Source: https://www.thenbs.com/knowledge/bim-levels-explained)</p>
BIM Level 1	<p>This is the level at which many organisations are currently operating. This typically comprises a mixture of 3D CAD for concept work, and 2D for drafting of statutory approval documentation and Production Information. CAD standards are managed to BS 1192:2007, and electronic sharing of data is carried out from a common data environment (CDE), often managed by the contractor. Models are not shared between project team members. (Source: https://www.thenbs.com/knowledge/bim-levels-explained)</p>
BIM Level 2	<p>This is distinguished by collaborative working – all parties use their own 3D CAD models, but not necessarily working on a single, shared model. The collaboration comes in the form of how the information is exchanged between different parties – and is the crucial aspect of this level. Design information is shared through a common file format, which enables any organisation to be able to combine that data with their own in order to make a federated BIM model, and to carry out interrogative checks on it. Hence any CAD software that each party used must be capable of exporting to one of the common file formats such as IFC (Industry Foundation Class) or COBie (Construction Operations Building Information Exchange). This is the method of working that has been set as a minimum target by the UK government for all work on public-sector work, by 2016. (Source: https://www.thenbs.com/knowledge/bim-levels-explained)</p>



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BG 6/2014	BSRIA Design Framework for Building Services 4th Edition
BSRIA	The Building Services Research & Information Association
BRE	Building Research Establishment
BSI	British Standards Institution
CDE	Common Data Environment
CEN	European Committee for Standardization
CEN/TC	European Committee for Standardization/ Technical Committees
CIC	Construction Industry Council
COBie	Construction Operations Building Information Exchange
Construction 2020	'A Strategy for a Renewed Construction Sector' - Department's Role
Digital Plan of Work (DPoW).	Employers are responsible for defining the deliverables required at each stage of a construction project as a digital plan of work
Facility Management (FM)	FM is the practice of coordinating the physical workplace with the people and work of the organization. It integrates the principles of business administration, architecture and the behavioural and engineering sciences.
GSL	Government Soft Landings
IFC	Industry Foundation Classes
Information Requirements	The information needed to support a project during operations.
ISO 19650	Organization of information about construction works -- Information management using building information modelling
Model Production and Delivery Table (MPDT)	Model Production and Delivery Table is a Table that outlines who is responsible for developing the BIM model to what Level of detail and Level of Information and at what stage of the project.
National Mirror Committee	National Standards Authority of Ireland, committee to monitor the work of CDE.



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NBC	National BIM Council
NSAI	National Standards Authority of Ireland
PAS 1192-2:2013	Specification for information management for the capital/delivery phase of construction projects using building information modelling
PAS 1192-3:2014	Specification for information management for the operational phase of assets using building information modelling
POE	Post Occupancy Evaluation
RIAI	Royal Institute Of The Architects Of Ireland
RIBA	Royal Institute of British Architects
Soft Landings	Soft Landings is a building delivery process which runs through the project, from inception to completion and beyond, to ensure all decisions made during the project are based on improving operational performance of the building and meeting the client's expectations
See a full list of BIM Terminology on the BRE Website:	https://www.bre.co.uk/bim-terminology.jsp



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Section 2 Introduction

The CIF Lean Construction, Building Information Modelling (BIM), Innovation and Continuous Improvement Committee was established in 2016 as a sub-committee of the CIF Executive Body. The purpose of setting up this Committee was to consider policy developments, to oversee and guide the Federation's relations with relevant national and local bodies and to develop the Federation's strategy with regard to its evolving relationship with client organisations in both the public and private sector in the area of Lean Construction, BIM, Innovation and Continuous Improvement. In order to deliver these objectives, it was determined that technical and strategic representatives would be required and the Committee should be representative of all regions, sectors and company sizes. Following a call for representatives, nominations were received from 18 different member companies. The inaugural meeting of the Committee took place on 6th December at which Eoin Vaughan, Mercury Engineering was nominated as Chairman and Cillian Kelly, John Sisk and Son Ltd was nominated as Vice Chairman.

The National BIM Council (NBC), established by Enterprise Ireland, is currently developing a BIM roadmap for the Irish AEC industry. Due to this, one of the first tasks of the Lean Construction, Building Information Modelling (BIM), Innovation and Continuous Improvement Committee was to determine a present state analysis of BIM and to assist in the development of a contemporaneous policy position from a contractor's perspective. A BIM Working Group of technical committee members was set up to review reference material currently available, to consider the application of PAS 1192 in an Irish context and to examine what the adoption by NSAI of these new European standards will mean for the development of a roadmap for BIM in Ireland.

This BIM Guide was prepared by the CIF Lean Construction, Building Information Modelling (BIM), Innovation and Continuous Improvement Committee BIM Working Group. The purpose of this guide is designed to present contractors with a technical glossary containing a plain English explanation of the typical BIM standards and information protocols generally found in use here in Ireland and other relevant jurisdictions.



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2.1 Purpose

This document outlines a present state analysis of the existing standards and policy guidance relating to BIM. The purpose of the document is to outline what relevant documents/standards/policies exist and to explain the use and purpose of such.

These documents/standards/policies have been reviewed by leading BIM Managers currently operating in Ireland and the UK and are deemed to be relevant for any contractor/developer considering their approach to BIM. There is a number of additional standards required and advised to review as part the core BIM Level 2 documentation, along with some other useful supporting documents. See the BRE BIM Level 2 Documents and Standards <https://www.bre.co.uk/page.jsp?id=3508>.

2.2 Document Goal

The goal of the document is to give contractors a high level understanding of existing standards and policy guidance relating to BIM.

2.3 BIM Working Group

This document has been researched and developed by the following individuals:

Name	Role	Company Name	Contact Details
Cillian Kelly	BIM Leader Ireland	John Sisk & Son	c.kelly@sisk.ie
Brian Cass	BIM Coordinator	Clancy Construction	bcass@clancy.ie
Ciaran McManus	BIM Surveyor	Mercury Engineering	ciaran.mcmanus@mercuryeng.com
Joe Mady	BIM/CAD Manager	Designer Group	joemady@designergrp.com
Paul Brennan	Virtual Design & Construction Manager	BAM Ireland	pbrennan@bamcontractors.ie
Michael O'Brien	BIM Coordinator / Information Manager	BAM Ireland	mobrien@bamcontractors.ie

Fig. 1 - CIF BIM Working Group



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2.4 Where to find the Standards?

All documents are available to download using the following link on the BRE Global Ltd Website:

BRE Global Ltd. Website:

- PAS 1192-2
- PAS 1192-3
- BIM Protocol
- BS 8536-1

<https://www.bre.co.uk/page.jsp?id=3508>

BIM Task Group:

- COBie

<http://www.bimtaskgroup.org/cobie-uk-2012/>

RIBA Plan of Work:

- RIBA Plan of Work 2013

<https://www.ribaplanofwork.com/Download.aspx>

BSRIA.CO.UK

- Design Framework for Building Services 4th Edition (BG 6/2014)

<https://www.google.ie/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwi43d348brVAhWqAcAKHUuRBJIQFgglMAA&url=https%3A%2F%2Fwww.bsria.co.uk%2Fdownload%2Fproduct%2F%3Ffile%3Dp0a8WDRa85s%253D&usg=AFQjCNE4nNsMgteFtBUWMAuEl-Xznkr9g>



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Section 3 BIM Standard Review

3.1 PAS 1192-2

PAS1192-2 Specification for information management for the capital/delivery phase of construction projects using Building Information Modelling.

- The purpose of the PAS is to support the objective to achieve BIM maturity Level 2 by specifying requirements for this level, setting set out the framework for collaborative working on BIM enabled projects and providing specific guidance for the information management requirements associated with projects delivered using BIM— acts across the full range of sectors and project sizes
- The requirements within the PAS build on the existing code of practice for the collaborative production of architectural, engineering and construction information, defined within BS 1192:2007. The PAS describes the shared use of individually authored models in a Common Data Environment (CDE), being a single source of information for any given project, used to collect, manage and disseminate all relevant approved project documents for multi-disciplinary teams— integrates sustainable design processes
- BS1192:2007 provides details of the standards and processes that should be adopted to enable consistent, structured, efficient and accurate information exchange. However, only information exchanges specific to BIM (i.e. structured data) are described in this PAS — provides flexibility in relation to (town) planning procedures.
- In addition, PAS 1192-2 focuses specifically on the 'delivery' phase of projects (from strategic identification of need through to handover of asset), where the majority of graphical data, non-graphical data and documents are accumulated from design and construction activities.





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3.2 BIM Protocol

The CIC BIM Protocol has been designed to be used by Construction Clients and Contractor Clients.

- A supplementary legal agreement that is incorporated into professional services appointments and construction contracts by means of a simple amendment.
- Creates additional obligations and rights for the employer and the contracted party.
- Key principles of the application of the CIC BIM Protocol are as follows:
 - All parties that are responsible for the production of Building Information Models on behalf of the Employer should have the Protocol incorporated into their contract/appointment.
 - The same version of the Protocol and Appendices should be incorporated into each contract.
 - The Protocol should detail all Building Information Models that are going to be produced by all parties contracted to the employer on the project
 - Changes to the Protocol and its Appendices should be treated as variations to the Contract
 - The CIC BIM Protocol Appendices are the only documents which need to be completed with specific project details.
 - Appendix 1 – Model Production and Delivery Table. This must include references to all Building Information Models that are required by the employer at each project stage.
 - Appendix 2 – Information Requirements. This details the information management standards that will be adopted on a project.





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3.3 ISO 19650

- ISO 19650 Specification for information management for the capital/delivery phase of construction projects using building information modelling – **Work In Progress**
- ISO 19650 is adapting British Standards – **BS 1192:2007 & PAS 1192-2:2013**
- These define BIM Level 2 requirements for: – Employer (Client) – Supply Chain
- ISO 19650 consists of the following parts:
 - Part 1: Concepts and principles
 - Part 2: Delivery phase of assets
 - This document is part of an International Standard for information management using building information modelling (BIM). It sets out the concepts and principles for successful information management at a stage of maturity described as “BIM according to ISO 19650”.
 - This standard applies to the whole life cycle of a built asset, including the strategic stage, initial design and construction, day-to-day operation, maintenance, refurbishment, repair and end-of-life.



As a response to an International Drive for BIM level 2
ISO 19650 series is being developed

“Organization of information about construction works -
Information management using BIM”





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3.4 COBie UK 2012

COBie is formal schema that helps organise information about new and existing facilities. It is general enough that it can be used to document both Buildings and Infrastructure assets. It is simple enough that it can be transmitted using a spreadsheet.

"It is means of sharing structured information."

	A	B	C	D	E	F	G	H	I	J
	Name	CreatedBy	CreatedOn	Category	ExtSystem	ExtObject	ExtIdentifier	Description	Elevation	Height
1										
2	Ground Floor Plan	e.geraghty@sisk.ie	2016-04-06T10:09:09	Floor	Autodesk Revit	Levels	e3e052f9-0156-	n/a	14300	n/a
3	First Floor Plan	e.geraghty@sisk.ie	2016-04-06T10:09:09	Floor	Autodesk Revit	Levels	458c0e49-01bb-	n/a	18350	n/a
4	Fourth Floor Plan	e.geraghty@sisk.ie	2016-04-06T10:09:09	Floor	Autodesk Revit	Levels	2d233137-dd2f-	n/a	30500	n/a
5	Second Floor Plan	e.geraghty@sisk.ie	2016-04-06T10:09:09	Floor	Autodesk Revit	Levels	e75df87a-8ab2-	n/a	22400	n/a
6	Third Floor Plan	e.geraghty@sisk.ie	2016-04-06T10:09:09	Floor	Autodesk Revit	Levels	e75df87a-8ab2-	n/a	26450	n/a
7	Roof Plan Level	e.geraghty@sisk.ie	2016-04-06T10:09:09	Floor	Autodesk Revit	Levels	b823807b-800c-	n/a	34700	n/a
8	future expansion	e.geraghty@sisk.ie	2016-04-06T10:09:09	Floor	Autodesk Revit	Levels	86b83377-b574-	n/a	38900	n/a
9	Lower Ground Level	e.geraghty@sisk.ie	2016-04-06T10:09:09	Floor	Autodesk Revit	Levels	4a3e7095-2ddb-	n/a	13250	n/a
10	Ground Floor Plan	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	2d0e6b6e-a54f-	n/a	14350	n/a
11	First Floor Plan	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	6f3d62d6-7c8b-	n/a	18350	n/a
12	Second Floor Plan (w	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	6f3d62d6-7c8b-	n/a	22400	n/a
13	Third Floor Plan (work	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	6f3d62d6-7c8b-	n/a	26450	n/a
14	Fourth Floor Plan (wo	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	4bca6e33-6fa0-	n/a	30500	n/a
15	Roof Plan Level	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	4bca6e33-6fa0-	n/a	34700	n/a
16	First Floor Slab	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	3d7b4577-8a5a-	n/a	17900	n/a
17	Second Floor Slab	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	3d7b4577-8a5a-	n/a	22100	n/a
18	Third Floor Slab	admin@pureelectrical.i	2016-10-27T05:19:25	Floor	Autodesk Revit	Levels	3d7b4577-8a5a-	n/a	26150	n/a

The Owners View

An owner may require the delivery of COBie from the lead designer and/or lead contractor to support the timely delivery of information to support the management of the Facility. A complete COBie should be expected at the time of Handover, but earlier interim deliveries can be used to monitor the business case for the facility and to help plan for taking ownership.

The COBie information can be either kept as delivered, or held in ordinary databases, or it can be loaded into existing Facility Management and Operations applications, either automatically or using simple copy-and-pasting. The owner should be explicit about the purposes for which the information is required and about the timing and content of any interim deliveries.

The Designers and Contractors View

COBie allows the team to document their knowledge about a Facility in both its spatial and physical aspects. Spatially it can document the spaces and their grouping into floors/sectors and into other zones. Physically it documents the components and their grouping into product types and into other systems. Usually the information needed to complete the COBie deliverable will be available already, either in your BIM models or in reports and schedules and in other material prepared for handover.

Some information may be offered to you in unstructured formats (such as paper and scanned documents), but you should arrange to obtain COBie information on specific aspects from other team members and suppliers.



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Product Specifiers and Supplier

COBie can be used to document product data to support the specification/selection/replacement process. If the client requirements include this, then the product Types should be given the specific attributes appropriate to that Type.

3.5 RIBA Plan of Work 2013

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. It details the tasks and outputs required at each stage which may vary or overlap to suit specific project requirements.

The RIBA Plan of Work 2013:

- Acts across the full range of sectors and project sizes
- Provides straightforward mapping for all forms of procurement
- Integrates sustainable design processes
- Maps Building Information Modelling (BIM) processes, and
- Provides flexibility in relation to (town) planning procedures.

The RIBA Plan of Work 2013 consists of eight stages defined by the numbers 0–7, and eight task bars as illustrated in figure on next page.



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www.ribaplanoftwork.com

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.

RIBA



Stages	0	1	2	3	4	5	6	7
Tasks	Strategic Definition	Preparation and Brief	Concept Design	Developed Design	Technical Design	Construction	Handover and Close Out	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, including Quality Aspirations, Project Budget, and other parameters or constraints or 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 Project Budget, and other 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 Project Budget, and other relevant Project Strategies in accordance with Design Programme.	Prepare Technical Design in accordance with Design Responsibility Matrix and Project Strategies to include building services information, specialist subcontractor design and specifications, in accordance with Design Programme.	Offsite manufacturing and on-site 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	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 the RIBA Plan of Work 2013 will set out the specific tasks and milestones 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	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	Pre-application discussions.	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 Budget and other parameters or constraints or develop Initial Project Brief. Undertake Feasibility Studies and review of Site Information.	Prepare Sustainability and Operational Strategy and review Handover Strategy and Risk Assessments. Undertake third party consultation, including 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. Prepare and submit Building Services Design and 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, Maintenance and Operational and Handover Strategies and Risk Assessments. Prepare and submit Building Services Design and 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 Operational Strategy, including agreement of information required for commissioning, training, future monitoring and ongoing maintenance and ongoing completion of 'As-constructed' Information. Update Construction and Health and Safety Strategies.	Carry out activities listed in Sustainability Strategy including Feedback for future projects. Updating of Project Information as required.	Conclude activities listed in Sustainability Strategy including Feedback for future projects. 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.ribaplanoftwork.com a specific bar is selected from a number of options.

© RIBA



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RIBA Plan of Work 2013

RIBA Work Stage					CIC Work Stage			
Preparation	A	Appraisal			1	Preparation	1	Brief
	B	Design Brief						
Design	C	Concept			2	Concept Design	2	Concept
	D	Design Development						
	E	Technical Design						
Pre-Construction	F	F1	Production Information		4	Technical Design	4	Production
		F2						
	G	Tender Documentation						
	H	Tender Action						
				5	Specialist Design	5	Installation	
Construction	J	Mobilisation						
	K	Construction to Practical Completion		6	Construction (Offsite & Onsite)	6	As Constructed	
Use	L	L1	Post Practical Completion					7
		L2						
		L3						

Figure 1: Mapping the new Plan of Work, and alignment with the current proposed CIC stages



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3.6 Soft Landings BS 8536: Part 1 2015

BS 8536-1 Code of practice for facilities management (Buildings infrastructure)

This BS captures the opportunity for intelligent briefing by bringing soft landings and post occupancy evaluation into the building information modelling process. BS 8536-1 includes recommendations for briefing that involve the operations team from inception and incorporates the principles of government soft landings (GSL).

BS 8536-1:2015 gives recommendations for briefing for design and construction, to ensure that designers consider the expected performance of a building in use. The standard applies to all new buildings projects and major refurbishments.

BS 8536-1 aims to:

Involve the operator, the operations team and their supply chain from the outset

Extend the involvement of the supply chain for the project's delivery through to operations and defined periods of aftercare.

The scope of the revised BS 8536-1 has been expanded to include briefing requirements for soft landings, building information modelling (BIM) and post occupancy evaluation (POE).

This standard provides a clear breakdown of what is required at each work stage and is concerned with defining the business case for the new or upgraded asset, the project outcomes, required operational performance and other core considerations. It provides an essential baseline to assist in clarifying strategic intentions, not least the asset's contribution to the business of the owner.





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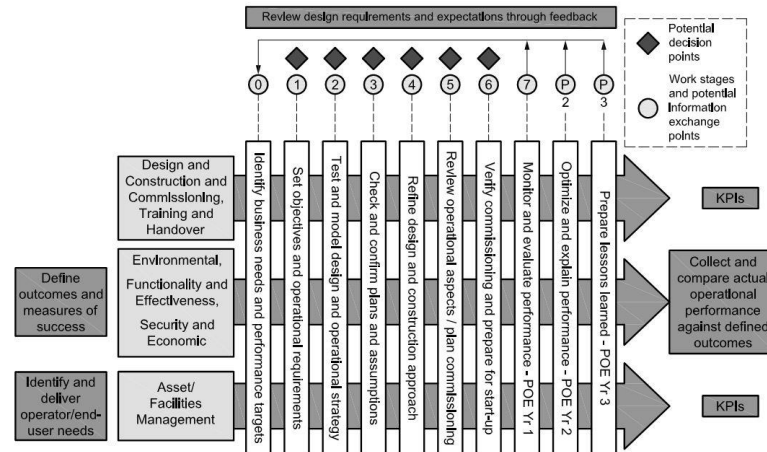


Figure 1

Figure 1 highlights the overall approach highlighting the importance of performance reviews and feedback

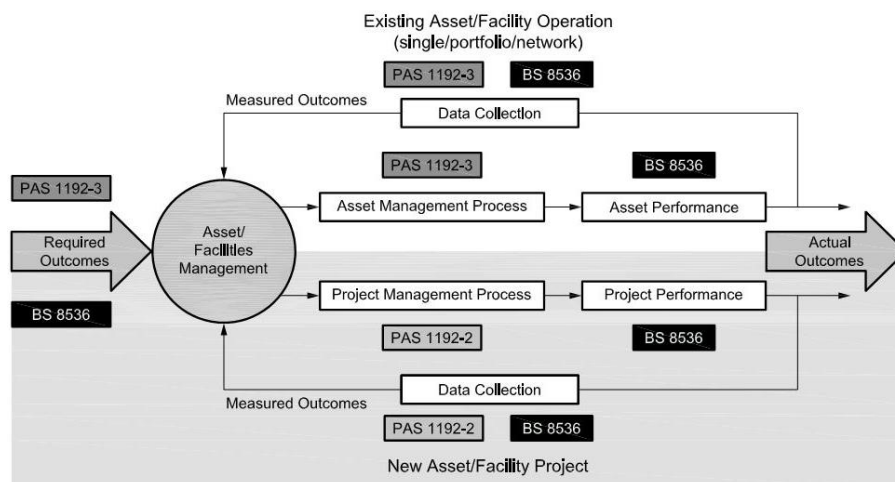


Figure 2

Figure 2 clearly demonstrates the asset-project systems and feedback system

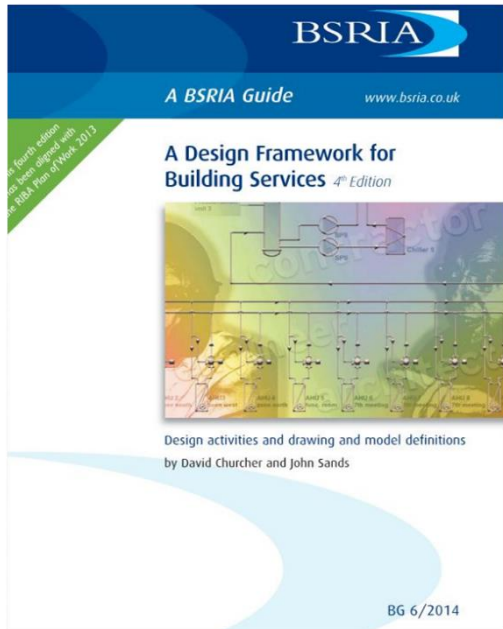


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3.7 BSRIA Design Framework for Building Services 4th Edition (BG 6/2014)



Following the introduction of PAS 1192: Part 2, BG6 in 2014 became the industry standard document for building services in the UK.

The purpose of this technical guide is to provide a framework for allocating many of the design activities, in connection with the building services aspects of a construction project, to the different members of a project team.

- This is done by completing the pro-formas in Appendices A and B and referring to the relevant drawing and building information model definitions and examples, also in Appendix A.

- Alignment of RIBA Plan of Work 2013 and digital plan of work.
- The document informs on the current RIBA Plan of Work has stages numbered 0 to 7, whereas the previous plan of work used letters A to L. Many of the new stages align with the old ones, but there are some significant changes that have required the structure of the BSRIA pro-formas in BG 6 to be amended.
- The pro-formas, drawing/model definitions and exemplars in Appendix A have been restructured to match the RIBA Plan of Work 2013 and also align with the draft digital Plan of Work 2013 that has been developed by the BIM Task Group. There are significant changes in the new Stage 3 which incorporates all the design activities from the previous stage E.
- The old RIBA Stages J and K which were covered in the previous proforma 6 have now been replaced with new RIBA Stages 5 and 6 although the split between these pairs of Stages has changed significantly.



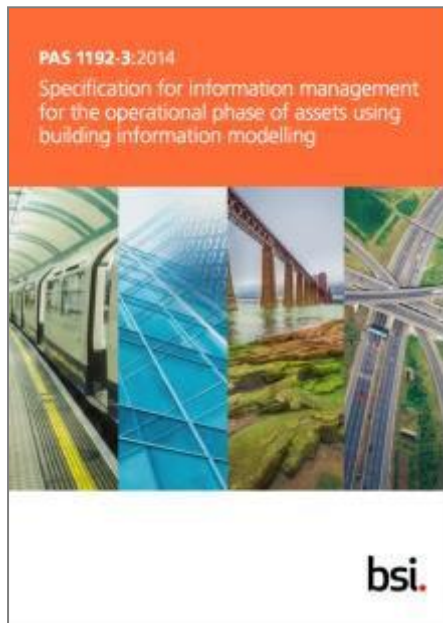
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3.8 PAS 1192-3:2014

Speciation for information management for the operational phase of assets using building information modelling



PAS 1192-3 is the 'Specification for information management for the operational phase of construction projects using building information modelling'. It was issued for consultation by the British Standards Institute (BSI) in 2013 and its final version came into effect on 31 March 2014.

PAS 1192-3 is a companion document to PAS 1192-2, which specified an information management process to support building information modelling (BIM) Level 2 in the capital/delivery phase of projects. In contrast, PAS 1192-3 focuses on the operational phase of assets irrespective of whether these were commissioned through major works, acquired through transfer of ownership or already existed in an asset portfolio. The operational phase of an asset is deemed to commence at handover, but the requirements within PAS 1192-3 may also be helpful during major works.

Like PAS 1192-2, PAS 1192-3 applies to both building and infrastructure assets. In addition, both PAS 1192-2 and PAS 1192-3 assume a certain level of knowledge regarding BIM and BS 1192:2007.

The discipline of asset management allows organisations to optimise the whole life cost of managing portfolios of assets which can be complex and varied in nature, distributed over extensive geographical areas and may be subjected to differing demand/utilisation requirements. Integrating the management of information across the longer term activity of asset management with the shorter term activity of asset construction for a portfolio of assets should deliver real savings.



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Section 4 BIM Committees

4.1 National BIM Council (NBC) Ireland



The National BIM Council (NBC) is a national body to support the advancement of digital in the construction sector. NBC was formed as a recommendation of the Enterprise Ireland 2014 National BIM Forum and is a key measure in fulfilling the Government's national 'Construction 2020' strategy.

NBC Objective:

To recognise the role that technology and 'better information management' plays in achieving measured improvements in productivity, international competitiveness, collaboration and innovation in the construction industry.

NBC Role:

NBC Ireland is a strategic group that will provide vision, leadership and a collective voice for the advancement of digital design, construction and operation of built assets.

NBC Ireland will aim to develop a national road map to optimise the successful implementation of BIM Level 2 and beyond. The roadmap should be informed by BIM adoption in other countries and considered in the context of the domestic and overseas trading environment today and tomorrow.

Council Members:

Irish Property Unit Trust (IPUT plc) – **Mr. Tom Costello** NDFA – **Mr. Damian Duffy** GCCC – **Mr. David O'Brien** OPW – **Mr. Gerard Bourke** CIF – **Mr. Sean Downey** Engineers Ireland – **Ms. Caroline Spillane (chair)** Intel – **Mr. Noel Kennedy** Arcdox and CitA BIM Group – **Mr. Ralph Montague** CitA – **Dr Alan Hore**, Enterprise Ireland – **Mr. John Hunt**



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4.2 CEN/TC 442 (working with ISO/TC 559)



Scope:

Standardization in the field of structured semantic life-cycle information for the built environment. The committee will develop a structured set of standards, specifications and reports which specify methodologies to define, describe, exchange, monitor, record

and securely handle asset data, semantics and processes with links to geospatial and other external data.

The CEN technical committee (CEN/TC442) is continuing to develop standards in the area of BIM, working closely with the International Standards Organisation (ISO) technical committee (ISO/TC59), and the NSAI have established a National Mirror Committee, to continue to monitor this work.

The National Standards Authority of Ireland (NSAI) has informed the AEC professional bodies that the European Committee for Standardization (CEN) have recently adopted three international standards for building information, as listed below, with the aim to build a more competitive and sustainable construction industry in Europe. These are available from the NSAI website.

- EN ISO 16739:2016 Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries (ISO 16739:2013)
- EN ISO 12006-3:2016 Building construction - Organization of information about construction works - Part 3: Framework for object-oriented information (ISO 12006-3:2007)
- EN ISO 29481-2:2016 Building information models - Information delivery manual - Part 2: Interaction framework (ISO 29481- 2:2012)

What do these standards cover?

These standards deal with the process for structuring electronic or digital building information, using Building Information Modelling (BIM). BIM refers to the use of a shared digital representation of a built object to facilitate the construction process including buildings and infrastructure. BIM facilitates design, construction and operation processes to form a reliable basis for decisions.



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What is the significance of this?

While the use of standards is not mandatory (unless referred to in regulation), it is important to note that once CEN adopts a standard at European level, member states are precluded from developing or maintaining separate or conflicting national standards.

How do these standards affect construction professionals?

The standards above are quite technical, and are primarily written for software developers in the planning, construction, facility and asset management sectors, dealing with issues like data schemas, data dictionaries, and data delivery methodologies. However, professionals working in these sectors, who are involved in the production, management, exchange and use of digital building information, should be aware of the standards, and should also confirm that the software they use complies with these standards (i.e. can import and export to these standards). We would also recommend that anyone developing software in Ireland, within the planning, design, construction and facility or asset management sectors, also make themselves aware of these standards.