



Advice Note

Terms, Definitions and Abbreviations

Revisions:

Revision	Date	Description	Revised By	Issued To
P01	21.01.2019	First publication	RIAI BIM Subcommittee	RIAI

Purpose of Document

BIM includes numerous terms and acronyms that may not be familiar to everyone as it incorporates terms more commonly used in IT, Project Management and Legal documentation along with adding terms to describe new roles and processes defined by Level 2 BIM standards .

The following terms, definitions and abbreviations have been selected from industry standards relating to BIM such as publications by British Standards Institute, Construction Industry Council and RIBA.

In the interest of achieving a common language in the industry, the terms in this document should be used.

Scope

This Document document is intended to support all BIM work undertaken collaboratively between the design team members identified in the roles defined in PAS1192-2:2013. It is not the intention of this document to state how each organisation will implement BIM with their respective organisations but organisations are encouraged to ensure that their internal procedures support the roles defined in this document in the interest of project quality control and improving collaborative processes.

RIAI BIM Committee

The BIM committee is working together to realise a unified, usable, co-ordinated approach to Building Information Modelling in a design environment.

Committee	
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Update Procedure

Proposed changes to this document should be submitted in writing with accompanying examples, discussion or other supportive material to info@riai.ie for the attention of the RIAI BIM Committee. Feedback will be gathered and continuously reviewed; they will be collated

to form new revisions at appropriate intervals.

Copyright

This format of this document is based requirements of PAS1192-2:2013 and the document structure is based on the CPIc Post Contract-Award Building Information Modelling (BIM) Execution Plan (BEP) template.

It is important to note that this document will only become truly useful if as many companies adopt it as possible. To that extent, it may be freely distributed and used in any format necessary, provided credit is given to the RIAI BIM Committee.

Credits

We wish to thank the members of Construction Project Information committee CPIc (2013) www.cpic.org.uk:

- Royal Institute of British Architects
- Royal Institution of Chartered Surveyors
- UK Contractors Group
- Institution of Civil Engineers
- Chartered Institution of Building Services Engineers
- Chartered Institute of Architectural Technologists
- Chartered Institute of Building

Disclaimer

All the advice outlined in this document is for information only. The authors and contributing companies take no responsibility for the utilisation of these procedures and guidelines. Their suitability should be considered carefully before embarking upon any integration into your current working practices.

Standards and Publications

This document is written with reference to the following documents:

1. BS 1192:2007+A2:2016 - *Collaborative production of architectural, engineering and construction information - Code of practice.*
2. PAS 1192-2:2013 - *Specification for information management for the capital/delivery phase of construction projects using building information modelling.*
3. PAS 1192-3:2014 - *Specification for information management for the operational phase of assets using building information modelling*
4. BS 1192-4:2014 - *Collaborative production of information Part 4: Fulfilling employer's information exchange requirements using COBie – Code of practice.*
5. PAS 1192-5:2015 - *Specification for security-minded building information modelling, digital built environments and smart asset management.*

6. PAS 1192-6:2018 - *Specification for collaborative sharing and use of structured Health and Safety information using BIM.*
7. BS 8541-1:2011 - *Library objects for architecture, engineering and construction Part 1: Identification and classification – Code of practice*
8. BS 8541-2:2011 - *Library objects for architecture, engineering and construction – Part 2: Recommended 2D symbols of building elements for use in building information modelling*
9. BS 8541-3:2012 - *Shape and Measurement – Code of practice*
10. BS 8541-4:2012 - *Collaborative Production of Architectural, Engineering and Construction Information Part 4 – Employer information requirements (COBie).*
11. BS 8541-5:2015 - *Library objects for architecture, engineering and construction – Part 5: Assemblies – Code of practice*
12. BS 8541-6:2015 - *Library objects for architecture, engineering and construction – Part 6: Product and facility declarations – Code of practice*
13. BS 7000-4:2013 - *Design management systems Part 4: Guide to managing design in construction*

Other Publications:

1. Building Information Model (BIM) Protocol (Second Edition) - Construction Industry Council (CIC)
2. Outline Scope of Services for the Role of Information Management - Construction Industry Council (CIC)
3. Best Practice Guide for Professional Indemnity Insurance when using BIM - Construction Industry Council (CIC)
4. NBS Toolkit including Uniclass 2015 classifications - <https://toolkit.thenbs.com>

2D

Two-dimensional.

2D drawing (DR)

A 2D drawing contains a view of a model that is referenced into a “drawing sheet template” (blank drawing and title block). Such drawings must always be considered to be static documents, as they are drawing renditions or snapshots of the design’s model files. Such renditions are generated each time the drawing is prepared for “sharing” at regular milestones.

2D model (M2)

A model with entities having two-dimensional properties. Such models are always to be considered to be dynamic, as they will be made up of “model files” that are “x-ref” or “reference” files.

3D model (M3)

A model with objects having three-dimensional properties. Such models are always to be considered to be dynamic, as they will be made up of “model files” that are “reference” files.

NOTE: 3D Models with data can be considered Level 2 BIM models whereas 3D Models without data are Level 1 BIM. Refer to Figure 1 in PAS 1192-2:2013.

3D Visualization (VS)

3D images from the 3D CAD model, or a virtual representation of the building or facility to be constructed; used for visualizing the project. Refer to Clause 9.2 of BS 1192:2007+A2:2016 where 2D Drawings are represented by the VS Type.

Archive

Component of the common data environment (CDE).

The archive section of the CDE is for inactive or superseded information. Such information will provide a history of the project information transfers, sharing, change orders and knowledge retention, and can be used for other contractual purposes or “discovery”.

ARM

Agreed Rules of Measurement published by the Society of Chartered Surveyors Ireland.

As-built or as-constructed

A model consisting of documentation, non- graphical information and graphical information defining the delivered project.

“As-built” is defined as the record drawings and documentation defining deviation to the designed information occurring during construction at the end of the project.

“As-constructed” defines the defect and deviation to the designed model occurring during construction. The “as-constructed” model and its appended documentation are continually updated through re-measurement as construction progresses. This allows for deviation to be reviewed with respect to the following packages and making knowledgeable assessment of impact and resolution.

Assembly

Group of components or types to enable the reuse of standardized design or specification elements improving productivity of design and delivery as well as providing a location to hold

specifications and lessons learnt in a simple and useable way. They may hold benchmark data for cost and carbon impacts. The contents of assemblies may themselves have attributes and classifications. These properties may include key data which is attached (to the object) for use once it is placed into a model and may include cost, CO2, programme, maintenance and other key information.

Asset Information Requirements (AIR)

The information required for an Asset Information Model (AIM) is defined in the Asset Information Requirements (AIR). This should be developed from Organisational Information Requirements(OIR).

NOTE Refer to PAS 1192-3:2014 - Specification for information management for the operational phase of assets using building information modelling

Attribute

Piece of data forming a partial description of an object or entity. Sometimes referred to as a 'Parameter'.

Asset Information Model (AIM)

The Asset Information Model (AIM) consists of data and information that relates to assets to a level required to support an organization's asset management system. The AIM can be as simple as a spreadsheet with prescribed fields or a complex FM system which has a viewer for the 'As built' models and links to technical manuals for maintainable assets.

BIM Execution Plan (BEP)

A BIM Execution Plan prepared by the project team / supply chain to explain how the information modelling aspects of a project will be carried out in compliance with the Employers Information Requirements. A BIM Execution Plan is submitted firstly at pre-contract to address the issues raised in the EIR and then with more detail at post-contract award to explain the project delivery team's methodology for delivering the project using BIM.

The agreed BIM Execution Plan should be identified Appendix 2 of the BIM Protocol. The Information manager should ensure that the BIM Execution Plan is reviewed prior to the commencement of each project stage.

BIM

Building information modelling.

BIM Protocol

The Protocol is just part of a suite of standards, protocols and tools that underpin delivery to BIM Level 2. It takes the form of a supplementary legal agreement that can be incorporated into professional services appointments and construction contracts by way of an amendment. The BIM Protocol identifies building information models that are required to be produced by the project team and puts in place specific obligations, liabilities and associated limitations on the use of those models.

Presently, the only published standard BIM Protocol is the The CIC Building Information Model (BIM) Protocol - Standard Protocol for use in projects using Building Information Models which was published by the Construction Industry Council (CIC) in 2013 and updated with the Second Edition which was published in 2018.

The CIC BIM Protocol features three appendices and these are the only documents which need to be completed with specific project information.

1. Appendix 1 - Responsibility Matrix setting out responsibility for model or information production in line with defined Project stages.
2. Appendix 2 - Information Particulars sets out requirements for the project and the BIM Execution Plan.
3. Appendix 3 - Security Requirements

The Protocol creates additional obligations and rights for the employer and the contracted party / supplier (Tier 1). It is based on the direct contractual relationship between the employer and the supplier but does not create additional rights or liabilities between different suppliers.

To ensure that the supplier (Tier 1) can undertake its obligations and liabilities, each supplier should incorporate the BIM Protocol into their appointments or contract with subcontractors (Tier 2).

BIM Task Group

The Building Information Modelling (BIM) Task Group is a UK Government-funded group, managed through the Cabinet Office was created in 2011. It was founded to "drive adoption of BIM across government" in support of the Government Construction Strategy. It aimed to strengthen the public sector's capabilities in BIM implementation to that all central government departments can adopt, as a minimum, collaborative 'Level 2' BIM by 2016.

BIM Viewer

Software used to view 3D rendition without requiring the user to have the software that produced the model (Navisworks, Navigator, Solibris, etc.; also eDrawing to view both 2D and 3D rendition).

British Standard (BS)

Standards produced by the BSI Group which is incorporated under a Royal Charter (and which is formally designated as the National Standards Body (NSB) for the UK).

CAD

Computer aided design.

CAD standard

Standard used to produce CAD models that will include origins, units, layering conventions, line specifications, file-naming conventions, drawing numbering, etc.

CAD viewer

Software used to view rendition print files without requiring the user to have the software that produced the model. (Adobe PDF, DWF, etc.)

CADD

Computer aided design and draughting.

NOTE A computer-aided design software application with additional features such as the ability to output drawings from the software.

CAPEX

Capital Expenditure

CAWS

Common Arrangement of Work Sections, published by CPIC for use in specifications and bills of quantities. CAWS is superseded by Uniclass but is still in use and remains very popular due to familiarity and its simple coding system.

CIBSE

Chartered Institution of Building Services Engineers.

CIC

Construction Industry Council (UK)

CIC Scope of Services

Multi-disciplinary scope of services published by the Construction Industry Council (CIC) for use by members of the project team on major projects.

Ci/SfB

The UK version of the Construction Indexing. Classification System for Construction products and elements – a version of the SfB classification system originating from Sweden. Ci/Sfb is superseded by Uniclass.

Clash Rendition (CR)

Rendition of the native format model file to be used specifically for spatial coordination processes. To achieve clash avoidance or to be used for clash detection.

Clash

In design terms a clash occurs when components that make up a built asset are not spatially coordinated and conflict. In a BIM process these clashes can be spotted more easily during the design phase of a project ahead of work starting on site. Types of clashes include:

1. Hard Clash - Two objects fully or partially occupying the same space. Examples are a column running through a wall or pipework through a steel beam. These kinds of clashes can be time consuming and costly to put right if only discovered onsite.
2. Soft Clash - Occurs when an element isn't given the spatial or geometric tolerances it requires or its buffer zone is breached. For example, an air conditioning unit may require certain clearances to allow for maintenance, access or safety that a steel beam would negate.
3. Workflow or 4D Clash - Timeline clashes involving the scheduling of contractors, the delivery of equipment and materials, and general timeline conflicts.

Clash Avoidance

Clash avoidance is a key part of the design and construction process. Documenting a set of standard procedures in a BIM Execution Plan (BEP) and setting out procedures for coordination in Employer's Information Requirements (EIR) as part of a project's contract documentation are crucial. During the design and construction process, design team interface managers should assess design decisions and clashes to see if they can resolve them internally, and where this cannot be done, separate models may be combined for review by a design lead.

In Level 2 BIM, clashes are detected using Clash Detection software which federates models from various disciplines. Clash detection software is becoming increasingly sophisticated, allowing the user to check for clashes within specific subsets (structural elements against walls, for example) and for these to be flagged on screen (often in vibrant colours). Clash Detection software can automatically detect clashes and generate reports of clashes based on agreed tolerances. The process of Clash Detection still requires skilled professionals to be able to differentiate between model and real clashes and to be able to prioritise clashes that are important taking into account the project stage, completeness and accuracy of the objects modelled.

Classification

Systematic arrangement of headings and sub-headings for aspects of construction work including the nature of assets, construction elements, systems and products. Popular Classification Systems include CI/Sfb, CAWS and Uniclass.

Client

Individual or organization commissioning a built asset.

NOTE The client may be different from the employer.

Common Data Environment (CDE)

Single source of information for any given project, used to collect, manage and disseminate all relevant approved project documents for multi-disciplinary teams in a managed process.

NOTE 1 A CDE may use a project server, an extranet, a file-based retrieval system or other suitable toolset.

NOTE 2 Note CDE as defined in the BS 1192:2007+A2:2016.

NOTE 3 The fundamental requirement for producing information through a collaborative activity is to share information early, and to trust the information that is being shared as well as the originator of that information. What is needed is a disciplined auditable process that is transparent and controllable. The method for managing a project through a common data environment (CDE) is applicable to all sizes of practice, and in particular it prepares that office to be able to work collaboratively. As a standard that is adopted by all, it will help to remove the problem of having to constantly retrain on each and every project when client standards are to be applied. If the clients accept the procedures and make them contractual, then these problems disappear. The CDE is a means of allowing information to be shared efficiently and accurately between all members of the project team – whether that information is in 2D or 3D, or indeed textual or numeric. The CDE enables multi-disciplinary design teams to collaborate in a managed environment, where the build-up and development of information follows the design, manufacturing and construction sequence. See BS 1192:2007+A2:2016 or Building Information Modelling – A Standard Framework and Guide to BS 1192, Richards, 2010. The CDE process also ensures that information is only generated once and is then reused as necessary by all members of the supply chain. It also ensures that the information is constantly updated and enriched for final delivery as part of the Facilities Management (FM) document.

Compliance Plan

In accordance with section 5.3, subsection a 1 of PAS1192-2:2013, bidders responding to an Employers Information Requirements are required to submit a compliance plan which includes requirements for bidders' proposals for the management of the co-ordination process. Information exchanged with an employer where applicable must be checked for compliance with the EIR deliverables and completion of the Plain Language Questions. Standard checks in the Compliance Plan include:

- a) Model suitability check;
- b) Standard Method Procedure (SMP) check;
- c) Technical content check;
- d) COBie completeness check;
- e) Drawings extract checks along with any additional documentation that is shared as a co-ordinated package of information; and
- f) Approval by the Task Team Manager and Lead Designer.

Each bidder should provide details of the checks which should be cross reference against the following headings:

- a) Role Responsible
- b) Associated software
- c) Level of Assurance / Frequency

Coordinates

Each Project Information Model shall adopt the common Project Shared Coordinate System which is based on survey information using the local coordinate system. The system in Ireland (Republic only) is the Irish Transverse Mercator (ITM).

CPI

Construction project information

CPIc

Construction Project Information Committee.

CPIx

Construction Project Information Xchange.

COBie-UK-2012

Structured facility information for the commissioning, operation and maintenance of a project often in a neutral spreadsheet format that will be used to supply data to the employer or operator to populate decision making tools, FM and asset management systems.

NOTE Refer to BS 1192-4:2014 - Collaborative production of information Part 4: Fulfilling employer's information exchange requirements using COBie – Code of practice.

Data

Information stored but not yet interpreted or analyzed.

Design Intent Model

Initial version of the Project Information Model developed by the design suppliers.

DGN

File extension for Bentley Systems' MicroStation and Intergraph's Interactive Graphics Design System CAD programs.

Dispositioning Authority

Person or a group of persons assigned responsibility and authority to make decisions on the configuration. [BS ISO 10007:2003]

DMS

Document management system.

Document

Information for use in the briefing, design, construction, operation, maintenance or decommissioning of a construction project, including but not limited to correspondence, drawings, schedules, specifications, calculations, spreadsheets.

Document Repository

Entity including an Electronic Data Management (EDM) system, project extranet or folder hierarchy on a Windows file server.

NOTE Documents must either be immutable or incorporate a means of controlling changes.

Drawing (DR)

Static, printed, graphical representation of part or all of a project or asset.

NOTE Refer to Clause 9.2 of BS 1192:2007+A2:2016 where 2D Drawings are represented by the DR Type.

Drawing Title Block

Framework – often containing the project team's logos – to show the drawing title, number, purpose of issue, status and revision information.

DWF

Design web format. An open, secure file format developed by Autodesk for the distribution and communication of design data to view, review, or print design files.

DWG

Proprietary AutoCAD file format.

NOTE DWG (drawing) is a binary file format used for storing two and three dimensional design data and metadata. It is the native format for several CAD packages including AutoCAD and is supported by many other CAD applications.

DXF

File format used mainly for importing and exporting CAD data between AutoCAD and other CAD-related programs.

Earned Value Analysis (EVA)

A method of project performance measurement that integrates cost, time and scope.

Electronic Document Management System (EDMS)

System for storing, retrieving, sharing and otherwise managing electronic documents.

NOTE An EDMS provides more control and better management of computer-generated files. It adds enhanced file security, revision control, file descriptions, extended file names and user access privileges to the basic file directory management features of the computer operating system.

Employer

Individual or organization for whom the contract is executed and delivered.

Employer's Information Requirements (EIR)

Document setting out the information to be delivered by the supplier as part of the project delivery process to the employer.

Engineers Ireland

The professional body for engineers and engineering in Ireland.

Entity

Synonym for "object".

FM

Facilities Management.

Gate/Stage

Division of a standardized process map for the acquisition of a facility, at some of which the requirements can be delivered.

NOTE The stages at which information exchanges are required should be specified in the Employers Information Requirements (EIR) by reference to the agreed stage and gate names.

Graphical Data

Data conveyed using shape and arrangement in space.

Graphic File

File format designed specifically for representing graphical images.

IAI

International Alliance for Interoperability. Now known as Building Smart.

ICT

Information and Communications Technology.

IFC2x

Industry Foundation Class version 2x.

Information

Representation of data in a formal manner suitable for communication, interpretation or processing by human beings or computer applications.

Information Exchange

Structured collection of information at one of a number of pre-defined stages of a project with defined format and fidelity.

Information Management

Tasks and procedures applied to inputting, processing and generation activities to ensure accuracy and integrity of information.

Information Manager

The Information Manager is a role identified in PAS1192-2:2013. On projects led with the CIC BIM Protocol (Second Edition), a key role is the Information Manager. The Information Manager has a role in facilitating the management of the federated model and the production of project outputs.

The role of the Information Manager is defined in the Outline Scope of Services for the role of Information Management (first edition 2013) drafted by BL Consult and Beale and Company on behalf of the CIC and the BIM Task Group.

The Best Practice Guide for Professional Indemnity Insurance when using BIM published by the Construction Industry Council (CIC) recommends that the role is undertaken by the 'design team leader'.

The Information Manager is also responsible for managing the operation, standards and culture of the Common Data Environment (CDE). The Information Manager is not a standalone role and is expected to shift from design team to contractor prior to start on site.

The role of Information Manager does not include design responsibility or right to issue instructions.

NOTE 1 Refer to Section 7.5 of PAS 1192-2:2013 - Specification for information management for the capital/delivery phase of construction projects using building information modelling.

NOTE 2 Refer to Outline Scope of Services for the Role of Information Management - Construction Industry Council (CIC).

NOTE 3 Refer to Best Practice Guide for Professional Indemnity Insurance when using BIM - Construction Industry Council (CIC)

Information Model

The information model comprises three constituent parts: documentation, non-graphical information and graphical information.

NOTE The model is conveyed using PDF, COBie and native model files.

Information Modelling

Use of data to provide information through better understanding, by applying logic or mathematical functions to derive new data.

Information Particulars

Refers to Appendix 2 of the CIC BIM Protocol (Second Edition) which sets out requirements for the project and the BIM Execution Plan. Information Particulars may include:

- Employers Information Requirements
- BIM Execution Plan
- Project Procedures:
 - Coordination Meetings
 - Resolution of Inconsistencies
 - Standard Methods and Procedures (SMP)
 - Level of Definition
 - Asset Information Model
 - Software formats and interoperability
 - Amendments to Project Information
 - Specified Information not included in the Responsibility Matrix

Interface Manager

The Interface Manager is a Task Team role identified in PAS1192-2:2013.

The Interface Manager shall carry out clash detection in accordance with the process and tolerances defined in the BIM Execution Plan. If a clash is detected which cannot be resolved by the Interface Manager then the Lead Designer shall be involved in the discussion to reach agreement and make the necessary changes to the models.

ISO

The International Organization for Standardization (ISO) is an independent, non-governmental organization, the members of which are the standards organizations of the 168 member countries. It is the world's largest developer of voluntary international standards and facilitates world trade by providing common standards between nations.

Layer

Attribute given to entities within CAD files enabling their visibility to be controlled. Further values may be assigned to the attribute to enable control whether it can be edited or deleted.

Lead Designer

The Lead Designer is a fundamental for role level 2 BIM identified in section 7.5 of PAS1192-2:2013. The role involves the delivery of a co-ordinated project information model to the employer containing graphical and non-graphical information through a single point of responsibility, likely to be the Design Lead or the Main Contractor.

NOTE Refer to Section 7.5 of PAS 1192-2:2013 - Specification for information management for the capital/delivery phase of construction projects using building information modelling.

Lean

Production focused on delivering value for the employer and eliminating all non-value-adding activities using an efficient workflow.

Lean Principles

Understanding value from a client's perspective, identifying the value stream, establish a balanced flow of work, in which the demand for product is pulled from the next customer, with a constant drive for continuous improvement and perfection (Based on "Lean Thinking", Womack & Jones, 2003 edition).

Levels of model detail (LOD)

Description of graphical content of models at each of the stages defined for example in the CIC Scope of Services.

Levels of model information (LOI)

Description of non-graphical content of models at each of the stages defined for example in the CIC Scope of Services.

Manageable Assets

Those aspects of the facility that may be managed during the facility life-cycle include both physical and spatial objects, and their functional groupings.

NOTE 1 An asset is a uniquely identifiable element which has a financial value and against which maintenance actions are recorded.

NOTE 2 Some aspects, such as the structural frame, or individual pipe and duct segments, fixings and secondary elements may be excluded from scope by the employer.

Marked-up Drawing

Paper or electronic drawing that has been marked up with comments from other disciplines or the client.

Master Information Delivery Plan (MIDP)

Primary plan for when project information is to be prepared, by whom and using what protocols and procedures, incorporating all relevant TIDPs.

Metrics

The acceptability of the deliverable may be assessed against the requirements shown in the examples and/ or against indicative ratios and counts based on the information provided.

Model File

Native, proprietary format, CAD file that can be a 2D or 3D model.

NBS Toolkit

The BIM toolkit is a free online software developed by NBS which can be used to help manage and validate responsibility for information development and delivery at each stage of a project. The toolkit includes a significant library of object definitions which are classified using Uniclass and include IFC and COBie compliant parameters. Roles and organisations can be added which can then be cross referenced with objects at each stage of the project to produce a Responsibility Matrix or Digital Plan of Work. The toolkit also includes templates

which include standard Tasks for each stage of a project which are supported by Plain Language Questions (PLQ).

Non-graphical Data

Data conveyed using alphanumeric characters.

NRM

RICS New Rules of Measurement (NRM) for Building Works: a suite of documents issued by the RICS Quantity Surveying and Construction Professional Group.

NRM1

Order of Cost Estimating and Cost Planning for Capital Building Works.

NRM2

Detailed measurement for building works, provides detailed rules for the measurement and description of building works for the purpose of obtaining tender prices.

NRM3

Order of cost estimating and cost planning for building maintenance works is currently in development and is expected to launch in 2013.

Object

Item having state, behaviour and unique identity – for example, a wall object.

OPEX

Operating Expenditure.

Origin

As the setting out point for a project or programme using coordinate geometry or related to the Ordnance Survey (OS) or geospatial reference.

Originator

Author of models, drawings and documents.

Organisation Information Requirements (OIR)

OIR describe the information required by an organisation for asset management systems and other organisational functions. That is, they are organisational-level information requirements rather than task-specific, asset-level requirements.

NOTE Refer to PAS 1192-3:2014 - Specification for information management for the operational phase of assets using building information modelling

OSI

Ordnance Survey Ireland.

PAS

The PAS is a consultative document. Its development process and format is based on the British Standard model. The main difference is in the area of consensus; a British Standard must reach full consensus between all stakeholders on technical content, whilst a PAS invites comments from any interested party but does not necessarily incorporate them.

PDF

Portable Document Format. A standard document format from Adobe Systems for transfer between different computer systems.

Permitted Purpose

Means a purpose related to the Project (and/or the construction, refurbishment, extension, operation, management and/or maintenance of the Project) which is consistent with:

- the applicable Level of Definition of the relevant Project Information;
- the applicable status code of the Project Information in accordance with BS1192:2007+A2:2016;
- the applicable functional state of the Project Information in accordance with BS1192:2007+A2:2016; and
- the purpose for which the relevant Project Information was prepared.

NOTE Some permitted purposes, such as supporting the business case, may be common with the briefing and design processes.

NOTE The Employer may wish to include the Permitted Purpose for each Information Exchange. For example, the last Information Exchange may be for the purpose of Operations and Maintenance and future extensions and/or reconfiguration of the facility. Specific requirements should be included in Appendix 2 of the BIM Protocol to be effective for the entire project delivery team.

Professional Indemnity (PI) Insurance

Professional Indemnity insurance is a legal requirement for many design and construction professionals which offers protection where work is inadequate or substandard or where professional advice does not meet the brief.

As Level 2 BIM involved a substantial change in work practices, the BIM Task Group in the UK collaborated with the Construction Industry Council in the UK to commission a report which included the results of consultations with numerous Insurance companies providing PI insurance. In summary, the report concludes that the use of Level 2 BIM did not significantly increase the risk profile of a design consultancy firm and may indeed provide opportunities to reduce risk. The report does require that a number of conditions must be met which are itemised in the Best Practice Guide for Professional Indemnity Insurance when using BIM published by the Construction Industry Council (CIC).

Placeholder

Simplified or generic representation of a 3D object.

Plain Language Questions (PLQ)

Plain Language Questions (PLQs) is a tool used by a client/employer to assist with the content and timing of Information Exchanges. The response to the PLQs will be included in the Information Exchanges delivered by the project delivery team to the employer.

Depending on the nature of the questions being asked, the response will be provided in a combination of native file formats, PDFs and in the COBie format for data exchange.

Example:

PLQ: Does the design meet the accommodation schedule requirements?

Answer: The Information Exchange at Stage 2 should include rooms in the Project Information Model with numbers and names in accordance with Asset Information Requirements along with areas required and areas provided with a separate calculated field indicating the differential as a percentage of the required area.

Standard PLQs may form part of Organisation Information Requirements (OIR). The NBS Toolkit includes a mechanism for recording PLQs.

Project Delivery Manager

The Project Delivery Manager is a role identified in PAS1192-2:2013. Employers are strongly advised to identify the role of Project Delivery Manager in the Employer Information Requirements. The Project Delivery Manager role may be commonly known as the Project Manager. For the benefit of consistency, Project Delivery Manager should be used. Even where a Project Manager is not utilised, the Project Delivery Manager role should be assigned to an organisation or individual who should undertake all tasks associated with that role under PAS1192-2:2013.

NOTE Refer to Section 7.5 of PAS 1192-2:2013 - Specification for information management for the capital/delivery phase of construction projects using building information modelling.

Project Delivery Team

Group of organizations or individuals contracted either directly or indirectly to deliver services or products to the project. The Project Delivery Team includes Project Roles and Task Team Roles.

Project Information Model (PIM)

Information model developed during the design and production and construction phase of a project, consisting of documentation, non- graphical information and graphical information defining the delivered project.

NOTE The PIM is developed firstly as a design intent model, showing the architectural and engineering intentions of the design suppliers. Then the PIM is developed into a virtual construction model containing all the objects to be manufactured, installed or constructed. It becomes the basis of the Asset Information Model once handed over.

Project Implementation Plan (PIP)

Statement relating to the suppliers' IT and human resources capability to deliver the EIR.

NOTE Also contains standard method and procedure.

Published/documentation

Component of the CDE for drawing renditions that have been approved as suitable for a specific purpose – for example, suitable for construction. Published information should include a status and revisions in accordance with BS1192:2007+A1:2016.

NOTE 1 The published documentation section of the CDE contains drawings – and, if agreed by the project teams, the native model files and renditions – which are snapshots of the shared information taken at a specific time. They are compiled by referencing the relevant approved model files into a coordinated model file and cutting the views and sections from the models.

NOTE 2 Refer to BS 1192:2007+A2:2016 - Collaborative production of architectural, engineering and construction information - Code of practice.

Purpose of Issue

States the purpose for issuing the document.

RACI indicator

Abbreviation used to identify which of a group of participants or stakeholders are responsible for (“R”), authorize (“A”), contribute to (“C”) or are to be kept informed about (“I”) a project activity.

Reference File

CAD model file associated or linked with another CAD model file. Also referred to as an “X-ref”.

Rendition

Documentation in a form enabling the information to be viewed, printed and marked up. For example, PDF, DWF and NWD files are documentation consisting of snapshots of a model.

Requirements

Requirements are the documented expectations of facility owners/commissioners for sharable structured information. These are also referred to as the Employers Information Requirements (EIR) (alternatively, the Clients Information Requirements).

Responsibility Matrix

The document setting out responsibility for model or information production in line with defined Project stages as attached at or referred to in Appendix 1 of the CIC BIM Protocol (Second Edition). The Responsibility Matrix should identify the Specified Information to be produced, shared and published by the Project Team Member and the applicable Level of Definition (the Level of Information and/or Level of Model Detail).

Revision

Used to identify revisions of documents, drawing and model files. The standard codes for Revisions are defined in BS1192:2007+A2:2016.

RIAI

Royal Institute of Architects of Ireland.

RIAI BIM Sub-committee

A sub-committee to the RIAI Practice Committee tasked with promoting standards and professionalism in Building Information Modelling for members.

RIBA

Royal Institute of British Architects.

RICS

Royal Institution of Chartered Surveyors.

Roles, Responsibilities and Authorities

PAS1192-2:2013 includes a number of roles associated with Information Management. For each role, responsibilities and authorities are defined in Table 2. Unless otherwise stated in the EIR or agreed BIM Execution Plan, Level 2 BIM projects should include these roles.

NOTE 1 The roles may be undertaken by one or more individuals depending on the size and complexity of the project. For example, on a small project, the Architect may undertake the role of Lead Designer, Information Manager and Project Delivery Manager but on larger projects, this may be undertaken by separate individuals or organisations.

NOTE 2 It is advisable that the role of Information Manager is undertaken by a person in the the organisation responsible for Design Lead or Contractor Lead. Refer to Best Practice Guide for Professional Indemnity Insurance when using BIM - Construction Industry Council (CIC).

NOTE 3 It is the responsibility of the Employer to assess the capability of the Tier 1 supply chain to undertake the roles defined in PAS1192-2:2013. Tier 1 suppliers in turn are responsible for assessing their suppliers (Tier 2) and so on.

Security Requirements

Refers to Appendix 3 of the CIC BIM Protocol (Second Edition) which sets out security requirements for the project in accordance with PAS 1192-5:2015.

NOTE Refer to PAS 1192-5:2015 - Specification for security-minded building information modelling, digital built environments and smart asset management.

Shared

Component of the CDE. The shared section of the CDE is where information can be made available to others in a “safe” environment. The early release of information assists in the rapid development of the design solution. Depending on security requirements, projects may include more than one shared area for selected task teams.

Published information should include a status and revisions in accordance with BS1192:2007+A1:2016.

NOTE Refer to BS 1192:2007+A2:2016 - Collaborative production of architectural, engineering and construction information - Code of practice.

Society of Chartered Surveyors Ireland

The Society of Chartered Surveyors Ireland is the professional body for construction, land and property professionals in Ireland

Standard Method and Procedure (SMP)

Set of standard methods and procedures covering the way information is named, expressed and referenced. The Standard Method and Procedure may be referenced in Appendix 2 of the BIM Protocol and should be included in the Project Implementation Plan (PIP) as part of the bid and later in Section D of the Post-contract BIM Execution Plan.

Soft Landings

Graduated handover of a built asset from the design and construction team to the operation and maintenance team to allow structured familiarisation of systems and components and fine tuning of controls and other building management systems.

Standard Font

Agreed set of font types and sizes to be used for the project.

Standard Layering Convention

Single layering convention used by the project team. [BS 1192:2007]

Status

Defines the “suitability” of information in a model, drawing or document. Not to be confused with the status in architectural documentation as “new build”, “retain” or “demolish”. The standard codes for Status are defined in BS1192:2007+A2:2016.

Supplier

Provider of services or goods either directly to the employer or to another supplier in a supply chain.

Supplier Information Modelling Assessment Form

The form conveying the capability and experience of a supplier to carry out information modelling in a collaborative environment.

Supplier Information Technology Assessment Form

The form conveying the capability and IT resources of a supplier for exchanging information in a collaborative environment.

Supply Chain Capability Assessment Form

Form summarizing the human resource and IT capability of each organization in a supply chain.

System

Group of components that work together to provide a specific building service such as envelope, ventilation or fire protection.

System (IFC)

Organized combination of related parts, composed for a common purpose or function or to provide a service. System is essentially a functionally related aggregation of products.

Task Information Delivery Plan (TIDP)

Federated lists of information deliverables by each task, including format, date and responsibilities.

Task Team

Task Teams can be any teams assembled to complete a task, eg architects, structures, MEP, road, tunnels, rail etc. PAS 1192-2:2013 defines roles, responsibilities and authorities in connection with information management, but it does not limit further arrangements for specific project requirements.

Task Team Manager

The Task Team Manager is a role identified in PAS1192-2:2013. The Task Team Manager role may be commonly known as the Project Architect, Project Engineer, etc. For the benefit of consistency with standards, Task Team Manager should be used.

NOTE Refer to Section 7.5 of PAS 1192-2:2013 - Specification for information management for the capital/delivery phase of construction projects using building information modelling.

Task Information Manager

The Task Information Manager is a role identified in PAS1192-2:2013. Note: The Task Information Manager role may be commonly known as the BIM Manager. For the benefit of consistency with standards, Task Information Manager should be used.

NOTE Refer to Section 7.5 of PAS 1192-2:2013 - Specification for information management for the capital/delivery phase of construction projects using building information modelling.

Third Party Capability Assessment Form

Form conveying the information management and IT capabilities of non-design, non-construction organizations in a supply chain.

Uniclass

Unified classifications for the construction industry sponsored by CC, RICS, RIBA and CIBSE. The classification system is based on CI/SfB, CAWS and other relevant documents. Complying with BS ISO 12006-2.

User

Individual occupying or using a built asset for its designed purpose.

Virtual Construction Model

Subsequent version of the Project Information Model developed from the design intent model by the construction supplier and their supply chain.

Volume

Manageable spatial subdivision of a project, defined by the “project team” as a subdivision of the overall project that allows more than one person to work on the project models simultaneously and consistent with the analysis and design process.

NOTE 1 Analogous to the volume strategy defined by the lead designer to allocate volumes within the project to different disciplines into which they carry out their system models (walls, structure, pipework, ductwork, electrical, etc). Also achieves spatial coordination prior to detail design. Each volume or subdivision is a reference file. When one or more referenced files is viewed, the full or partial project may be represented. This subdivision also becomes important when using extranets, as it allows the files to be kept to a manageable file size.

Version

Sub-indexing to revision as used in the common data environment to show the development of information and information models, e.g. if a version is named P1.1, P1 is the revision number and .1 is the version to that revision.

NOTE Refer to BS 1192:2007+A2:2016 - Collaborative production of architectural, engineering and construction information - Code of practice.

VPN

Virtual private network.

Work in Progress (WIP)

Component of the Common Data Environment (CDE).

NOTE Refer to BS 1192:2007+A2:2016 - Collaborative production of architectural, engineering and construction information - Code of practice.

X-ref

CAD model file associated or linked with another CAD model file. Also referred to as a “reference file”.