

EMPLOYER’S INFORMATION REQUIREMENTS (EIR) – HERITAGE (HIR_EIR_V1)

Information requirements for structured data sets and the application of digital data management and building information modelling (BIM) for heritage asset management.

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Employer's Information Requirements – Heritage

Guidance Notes

How to use this document

This document provides a framework and guidance in developing project specific Employer's Information Requirements (EIR) specifically for application in a heritage context and, heritage asset management. This guidance should be applied to all projects to ensure consistent data management across the organisation.

The document is intended to be generic, for use by the whole heritage sector, and to be modified to meet the specific requirements of individual projects or organisations.

The document template provides a framework for completing your own EIR. It includes a full range of potential Employer's Information Requirements but should be modified to suit specific organisational or project requirements. The EIR should be concise as possible. If sections of this document are not applicable to your organisation or project then they should be deleted.

Before using this document the Historic England Guidance document – *BIM for Heritage: Developing an Asset Information Model (AIM)* should be read.

Employer's Information Requirements Defined

Employer's Information Requirements (EIR) – *Pre-tender document setting out the information to be delivered, and the standards and processes to be adopted by the supplier as part of the project delivery process. (PAS1192-2:2013)*

Employer’s Information Requirements – Heritage

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Employer's Information Requirements – Heritage

1 Introduction

1.0 Document Purpose

- 1.0.1 This document confirms the Employer's Information Requirements (EIR) as a sub-set of the Employer's Requirements or equivalent contract documentation and introduces information requirements, reasons and purpose to the Project Team or Supplier, along with technical and commercial particulars that need to be addressed to support the implementation of building information modelling (BIM) to heritage projects and, heritage asset management.
- 1.0.2 The EIRs are an important element of Project BIM Implementation as they are used to set out clearly to the project team or supplier what information (models, documents and structured data) is required generally and also at each project stage, possibly via a stage based Information Delivery Plan (IDP).
- 1.0.3 This document forms part of the HBIM Information Requirements Template Suite (HIRs) produced by Historic England and adopted and amended by xxxxxxxxxxxxxxxxxxxxxxxxxxxx to define the standards and specifications for the use of BIM.

1.1 Responding to this document

- 1.1.1 In accordance with PAS1192-2:2013 the EIR should be responded to by the Supplier by including a BIM Execution Plan (BEP) within their tender submission. This should directly respond to the EIR, in the same layout and using reference numbers.

The Employer/Client may request only certain parts of the EIR to be responded to in the pre-contract BEP. This should be made clear within the document.

- 1.1.2 The BIM execution plan (pre and post contract) should include the following:
- Specific response to the EIR with cross-referencing
 - Specific response to the information delivery plan (IDP) including confirmation of ability to deliver the information requirements, in the requested format and to the specified LOI or, where delivery is impractical, alternative delivery proposals
 - Project goals for collaboration and information modelling and management
 - Major project milestones consistent with the project programme and IDP
- 1.1.3 A compliant BEP in support of a project tender will demonstrate how each section of the EIR and IDP will be met. The BEP and its response to the EIR will form part of the tender scoring process and subsequent supplier selection.

1.2 BIM Vision and Objectives

1.2.1 Our BIM vision on project work is to receive the required information deliverables (models, documents and structured data) at the right time and in the required format to enable:

- Engagement with appropriate stakeholders
- Drive project delivery and efficiency
- Make the right project gateway decisions
- To supply appropriate information and structured data at project handover to add to and update the AIM for ongoing heritage asset management
- To provide data once and to ensure it is available to multiple users thereafter

The Employer/Client should amend or update the list of items above to reflect their own BIM visions.

1.2.2 Our key objective is to use BIM methodologies to ensure the right information is received and correct workflows are followed to develop conservation proposals, deliver high quality conservation projects and facilitate ongoing heritage asset management in accordance with our organisational requirements.

The Employer/Client should amend or update the key objective (or list of objectives) in accordance with their own BIM objectives.

In a heritage context this is a good chance to fully consider the reasons for using BIM and to document this. Suggested objectives include:

- *To provide accurate 3D digital documentation of heritage assets*
- *To provide a comprehensive, digital record of conservation intervention*
- *To provide structured data sets at project completion to be used for ongoing heritage asset management*

1.2.3 xxxxxxxxxxxxxxxx have defined their organisational information requirements (OIR) and asset information requirements (AIR) in the following documents:

Reference OIR and AIR documents here

2 BIM Information Requirements

2.0 Information Exchanges and Project Deliverables

2.0.1 This section communicates the timing and content of information exchanges between the Project Team/Supplier and the Employer. It defines how information exchanges are aligned to project work stages. It confirms that information may flow both ways.

2.0.2 xxxxxxxxxxxxxxxx work to the xxxxxxxxxxxxxxxx work stages.

Enter the chosen plan of works used by your organisation such as RIBA Plan of Work 2013 or, an internal project management system/plan of works. This should be aligned with the Construction Industry Council (CIC) stages.

- 2.0.3 Whilst information may be exchanged at any time during the course of the stage, formal published information exchanges should take place prior to the end of a stage to advise gateway decisions.
- 2.0.4 The frequency of required information exchanges is defined within the IDP.
- 2.0.5 Information deliverables required at each information exchange are defined within the IDP.
- 2.0.6 Information deliverables may include:
- 3D models in native discipline (un-federated) and/or open format federated (IFC)
 - Drawings (extracted from models where models exist) in PDF and DWG format
 - Documents (reports, surveys, O&M manuals) in PDF and native format
 - Structured Data in agreed format – COBie (PAS1192-4:2014) for BIM Level 2 or alternative information and data exchange template in XLS format.
Structured data may be manual entry in the case of a Heritage BIM workflow and procurement for the development of an AIM or, automatic entry from data models.

2.1 Information Delivery Plan (IDP)

- 2.1.1 A project specific information delivery plan has been produced and is appended to this EIR:

Enter ref. to IDP here

The design team or supplier should review this plan and confirm its ability to provide the information using appropriate resources, in the appropriate formats at the appropriate stage decision gates.

- 2.1.2 It is intended that the Employer's IDP should be used to develop the Supplier's Master Information Delivery Plan (MIDP) for preparation and submission of information to the Employer at the appropriate stages.
- 2.1.3 Any proposed variation from or addition to the IDP should be made clear to the Employer within the Supplier's pre-contract BEP.

2.2 Level of Definition (Development), Detail and Information

- 2.2.1 The Level of Definition (LOD) defines the level of maturity required for a particular information deliverable at a particular plan of work stage. It defines both:
Level of Detail (LOD) – referring to the level of model geometry
Level of Information (LOI) – referring to the level of associated information
- 2.2.2 xxxxxxxx have selected the following Level of Definition standards for this project:

Enter ref. to Level of Definition standards here

LOD standards that may be used include:

BIM Forum Level of Development Specification (for building information and models) 2018 – Part I and II

https://bimforum.org/wp-content/uploads/2018/09/BIMForum-LOD-2018_Spec-Part-1_and_Guide_2018-09.pdf

Historic England – BIM for Heritage: Developing a historic building information model. This includes suggestions for levels of detail developed specifically for historic buildings.

2.3 Health & Safety and Construction (Design & Management)

2.3.1 Information deliverables in respect of H&S/CDM are detailed in the Information Delivery Plan. The Supplier should confirm how these will be used to meet their obligations under the Construction (Design & Management) Regulations 2015 within their pre-contract BIM execution plan (BEP).

3 Management

3.0 Standards

3.0.1 This section defines the BIM standards that are incorporated into the Information Requirements.

3.0.2 The core documents that are to be used on this project are:

- PAS1192-2:2013
- PAS1192-3:2014
- PAS1192-4:2014
- PAS1192-5:2015
- BS1192:2007
- PAS55-1:2008

Supplementary guidance to provide Heritage specific standards will also be used as follows:

- Historic England *BIM for Heritage: Developing a historic building information model*
- Historic England *BIM for Heritage: Developing an asset information model for heritage asset management*
- Historic England *BIM for Heritage Technical Guidance: HBIM Information Requirements Template Suite (HIRs)*

3.1 Roles & Responsibilities

3.1.1 This section should bring to the attention of the project team the allocated roles associated with the management of the model and project information.

3.1.2 Roles themselves are addressed in the specific appointments.

3.1.3 Roles to be taken on directly by the Supplier include:

Refer to PAS1192-2:2013 for a full table of project team member roles and specify here

3.1.4 Roles to be taken on directly by the Employer include:

Refer to PAS1192-2:2013 for a full table of project team member roles and specify here

3.2 Collaboration Process

3.2.1 This section defines how, where and when project information will be shared.

3.2.2 The Project Team or Supplier is expected to manage the Project Common Data Environment for each stage of the project. The management and system providing this service may change with the appointment of different Project Teams or Suppliers for different stages or phases. There will only be one Project CDE in operation at any one time to avoid duplicate information and to ensure one single source of truth.

3.2.3 Details of the collaboration process sufficient to demonstrate competence and capability shall be provided in the pre-contract BIM Execution Plan (BEP), with full details provided in the post-contract BEP.

3.2.4 The BEP shall include:

- Process and format of information exchanges at project work stages
- Frequency of collaboration and information exchange
- Proposals to manage restrictions around the sharing of data and information in connection with the Employer's security requirements
- Details of how the requirements of the Information Delivery Plan will be met and tracked
- Extent and form of model co-ordination and federation
- Details of model review workshops and other collaborative working practices e.g. use of model federation and coordination at design and/or site meetings

3.3 Modelling Process and Data Segregation

3.3.1 The purpose of this section is to set out requirements for the bidder's proposals for the management of the modelling process.

3.3.2 Information should be managed in accordance with the processes described in PAS 1192-2:2013, PAS 1192-5:2015 and BS 1192:2007.

3.3.3 The Information Delivery Plan confirms the information delivery, information packaging and information exchange requirements for models, documents and data. All published transmittals shall be accompanied by a COBie spreadsheet (or agreed alternative information and data exchange template) confirming the included exchange files.

3.4.4 Where xxxxxxxxxxxx has specific requirements for work management, including security aspects, the requirement and request for proposals should be identified on a project specific basis or as part of the Information Delivery Plan (IDP).

3.4.5 The following are required and should be confirmed in the BEP:

Model Management

Detail of management and quality assurance processes co-ordinated by the Information Manager

Volumes, Zones and Areas

Definitions of zones and the management of adjacency within the discipline models

Confirmation of the definition of the project volume structure

Confirmation of the volume or space naming convention to be adopted

Requirements in connection with the use of separate project volumes for sensitive assets and systems

Naming Conventions

In order to comply with the requirements of the OIR and AIR standards, consistent adoption of the xxxxxxxxxxxx naming convention will be confirmed and applied from the outset, where each site, building asset, floor, space, system and component will be identified, classified and categorised in accordance with the required standard.

There will be an agreed and consistent space naming convention for space type and project-specific nomenclature.

File Classification and Naming Convention approved by xxxxxxxxxxxx shall be adopted for all projects irrespective of size, value or complexity.

The file naming convention shall be used for all document types uploaded to a CDE in line with BS1192:2007(A2) 2016 as below:

Enter details of organisation specific file naming conventions with examples

Publishing Processes

Confirmation of the use of the following procedures should be confirmed in the Pre-Contract BIM Execution Plan (BEP). Any deviation from these procedures should be expressly stated with reasons for the change.

- The contents of stage Information Exchanges are defined in the Information Delivery Plan and expanded upon in the corresponding Master Information Delivery Plan
- These will be published by the Supplier Information Manager from the appropriate CDE to complete the particular delivery stage.
- Data delivered at key work stages will be accompanied by a COBie file (or alternative agreed information and data exchange template) which will be used to validate the delivery.

- The Supplier Information Manager will notify the Employer Information Manager once all required data deliverables have been uploaded to the CDE.
- The Employer Information Manager will validate the data and produce a Red Amber Green (RAG) acceptance report to the Supplier Information Manager.
- Green packages will be published into the Employer CDE Published file area and the COBie data (or alternative information and data) and file linkages published into the Employer CDE data area for onward use.
- Amber or Red packages should be remedied by the Supplier.
- Acceptance of failure and resubmission of deliverables in accordance with the Information Delivery Plan is unlikely to cause a variation/compensation event.

The Employer should review the suggested publishing process above and amend or re-write in accordance with their own requirements.

3.4 Security

- 3.4.1 The purpose of this section is to communicate client specific security measures in order to secure the data.
- 3.4.2 For all built assets, specific security measures related to information exchange will be identified on a project specific basis and communicated to the supply chain accordingly. Specific requirements will be noted in the information delivery plan (IDP).
- 3.4.3 The tender submission should demonstrate the supplier's compliance with any mandated security requirements. The BIM execution plan will set out compliance processes and the means by which compliance is monitored and managed to delivery against these security requirements.

3.5 Co-ordination and Clash Detection Process

- 3.5.1 The purpose of this section is to ask the supplier to define their co-ordination process, in order to meet employer requirements for quality control.
- 3.5.2 The following details of the co-ordination and clash detection process should be detailed in the Pre-Contract BIM Execution Plan and may include the following:
- Associated Software
 - Process overview
 - Responsibilities
 - Outputs
 - Proposed workflow and systems for verifying generated and received project data
 - Proposed workflow and systems for validating generated and received project data
 - Tolerance strategy
 - Clash resolution process
 - Verifying technical queries to the supplier (files and data in place), validating suitability of data content with supplier
 - Proposal for quality assurance and liaison with the Client / end users when incorporating PIM data into an Asset Information Model (for FM Operations, and other Heritage Asset Management purposes)
 - How this process will align with the employers contractual and process requirements, such as ongoing / periodic technical review.

The Employer should consider the suggested list of co-ordination and clash detection processes and amend or re-write to meet their own project or organisational requirements.

3.6 Compliance Plan

- 3.6.1 The purpose of this section is to enable the supplier to communicate how the integrity, and hence quality, of the model and other data sources will be maintained.
- 3.6.2 All published information exchanges will be validated using the included COBie (or other information and data exchange template) file against the Information Delivery Plan for the stage information exchange. Only compliant exchanges will be accepted.
- 3.6.3 The supplier should confirm his own internal model file and data standards and compliance procedures including references to standards and compliance software in the BIM Execution Plan.
- 3.6.4 This should refer to:
- Quality assurance/control procedure
 - Associated software
 - Period of aftercare (the number of years that the model should be managed for)
 - Security and information assurance requirements
- 3.6.5 The Employer or Employer Project or Information Manager should be given reasonable access to the Supplier CDE to enable compliance monitoring and audits.
- 3.6.6 The Supplier shall confirm their quality assurance processes for Data, Models and Documents.

3.7 Delivery Strategy for Asset Information

- 3.7.1 This section defines the information exchange standard for asset information and enables the employer to obtain proposals with regards to asset information delivery into the employer's FM or asset management environment.
- 3.7.2 The information exchange format for provision to the Asset Information Model (AIM) will be as defined in the Information Delivery plan transmitted and contained in the published information exchange COBie file (or bespoke information and data exchange template) together with associated exchange information files.
- 3.7.3 xxxxxxxxx uses the following systems/databases/information formats. The supplier should demonstrate their ability to provide the information requirements for these systems:

List the systems, databases and information formats used by your organisation here

- 3.7.4 Where practicable, COBie BS1192-4 excel sheet data structure (or another bespoke information and data exchange structure in XLS format) shall be used as the default exchange format for all project related information whether 3D modelling is involved or otherwise.

3.8 Master Information Delivery Plan (MIDP) and Project Plan (PP)

- 3.8.1 The following approach should be used by the Supplier to ensure information coordination and consistency:
- 3.8.2 Master Information Delivery Plan (MIDP)
This should be prepared by the supplier in response to the Information Delivery Plan and should follow a similar or related format.
- 3.8.3 Project Plan (PP)
This will be provided to the Supplier to allow an appreciation of the strategic programme intent for the project and to enable the development of the Suppliers programme proposal.
- 3.8.4 In the absence of the Project Plan the Information Delivery Plan will be used by all team members to manage and monitor progress and information delivery for the duration of the project.

3.9 Training

- 3.9.1 The purpose of this section is to provide bidders with details of training that will be provided in connection with project systems, or training requirements which the bidder will be required to deliver as part of their appointment/contract.
- 3.9.2 The Supplier shall confirm the training that they will provide for their tools and systems that the Employer and others will be expected to use.
- 3.9.3 The supplier will be responsible for maintaining and delivering appropriate information handling and access training to all interfacing parties including any Employer staff, for the operation and access to the Supplier CDE.
- 3.9.4 Training for access and operation to the Employer CDE will be provided by the Employer to interfacing Supplier staff as required. If proprietary model viewing software is proposed in variance to that shown as held by the Employer in this document then reasonable access and training is to be provided by the Supplier at no cost.
- 3.9.5 Any general security awareness and induction requirements, as well as any role-based security requirements, will be highlighted to the Supplier on a project specific basis, and set out in the Employer's Built Asset Security Management Plan (BASMP).
- 3.9.6 Information should be progressively shared and published from the Supplier CDE to the Employer CDE so that in normal circumstances the Employer will not need access to the Supplier CDE other than for compliance purposes.

4 Technical

4.0 Software Platforms

- 4.0.1 The purpose of this section is to communicate software platforms and versions where they are known and where they might influence the preparation of a bid.
- 4.0.2 Platforms and versions used by **xxxxxxx** *the Employer* include:
- *Provide details of Common Data Environment*
 - *Provide details of model authoring software*
 - *Provide details of model federation and viewing software*
 - *Provide details of any other software platforms deemed necessary*
- 4.0.3 The ability of the bidder to work with these platforms should be made clear in the response.
- 4.0.4 Designers and constructors should align their model attribute data with the data exchange format PAS1192-4:2014. *If a specific data exchange format is required (such as the Heritage information and data exchange template) this should be noted.*
- 4.0.5 The BEP should confirm the process of data compilation between the model and COBie *(or other data exchange format as defined).*
- 4.0.6 The supplier should confirm how data and information from their BIM authoring tools will be prepared and published so that it can be used within the software platforms outlined above.

4.1 System Performance

- 4.1.1 This section communicates constraints in the employer's IT systems and/or any specific IT requirements which may need additional resources or non-standard solutions.
- 4.1.2 IT system restrictions and requirements should be taken into consideration when completing the BIM execution plan (BEP).
- 4.1.3 The following employer-side restrictions and requirements should be considered:
Model Size – *enter any model size restrictions*
Software Uses – *enter details such as; IFC federated model visualisation can be viewed in the Employer CDE*
Security Issues – *enter any security issues*

4.2 Data Exchange Format

- 4.2.1 This section defines the formats used to delivery information / data exchanges. Information

will be required in a format as specified in the Information Delivery Plan (IDP) and may include any of the following:

- Native – 3D discipline model files for all design and analysis models (individual and unfederated) – *enter requirements*
- Common File Format – such as IFC - *enter requirements*
- COBie or other bespoke information and data exchange template – *enter requirements*
- PDF files – *enter version number*

4.3 Co-ordinates

4.3.1 It is encouraged that a common co-ordinate system is adopted for all BIM data and models. This section defines the requirements for a common co-ordinate system to be applied to all BIM data.

4.3.2 The minimum requirement is spatial coordination stated as follows:

Intersection of grids XX and YY - xxxxxx.xxxE and xxxxxx.xxxN
Intersection of grids AA and BB - xxxxxx.xxxE and xxxxxx.xxxN
Ground floor FFL = xxx.xxx

4.3.3 Other coordination standards defined in the BIM Execution Plan should include:

Origin rotation
Offsets
Datum information
Units to be used

4.3.4 3D geo-location co-ordinates to be shown to no less accurate than 10mm (0.01m) in all directions.

The above section provides an outline of suggested co-ordinate requirements. These should be updated, amended, removed, to suit the specific requirements of your project or organisation.

5 Commercial

5.0 BIM Execution Plan (BEP)

5.0.1 The Supplier shall prepare, deliver and maintain a BIM Execution Plan (BEP) for the project that responds directly to this Employer Information Requirements using correlating section references.

5.0.2 The Supplier shall review their BEP regularly and additionally when there is any change to their contract.

5.0.2 Pre and Post Building Information Modelling Execution Plans are to be provided in response to the Employer's Information Requirements identifying the Supplier proposals clause by clause. The Pre-Contract BIM Execution Plan will be scored as part of the tender submission.

5.1 BIM Specific Competence Requirements

- 5.1.1 This section details the information that a bidder/supplier should provide as part of a tender submission in order to demonstrate BIM capacity and experience.
- 5.1.2 Responses should describe the BIM maturity and capabilities of the bidding organisation, including specific examples and with reference to the standards stated in this EIR.
- 5.1.3 Tenderers should include the following details:
- Organisational BIM culture and approach
 - Organisational and personnel BIM experience, skill and competency
 - BIM capability including examples of previous BIM experience in accordance with the standards stated in this EIR
 - Security understanding, capability, competence and experience
 - Details of any out-sourced BIM related roles

The Employer should amend the list above and add any further specific requirements as necessary.

5.2 Confirmation of BIM Toolset

- 5.2.1 Responses will describe the processes and procedures that make up the bidder's BIM and information management toolkit, specifically where this is in accordance with the standards stated in this EIR.
- 5.2.2 Tenderers should include the detail on procedures aligned with core project stages as follows:
- PAS1192:2007
 - PAS1192-2:2013
 - PAS1192-3:2014 (where applicable)
 - PAS1192-4:2014 (or other bespoke processes)

The Employer should amend the section above to suit project or organisational specific requirements.

5.3 Details of BIM Workload and Resourcing

- 5.3.1 Responses should describe the resources (and levels) that available to the project.
- 5.3.2 Tenderers should include the following detail:
- Resource matrix with level, number and utilisation
 - Outsourcing details or services

The content of the assessment is described as the supplier BIM assessment form described in PAS1192-2:2013.

5.4 Principal Supply Chain

5.4.1 Responses will describe the supply chain's ability to link into the process and how this will be assessed.

5.4.2 Tenderers should / might include the following detail:

- Key supply chain partners
- Expected outputs
- Assessment process

The information requested in this section is detailed further in PAS1192-2:2013.

Consultation Draft