ASSET INFORMATION REQUIREMENTS (AIR) – HERITAGE (HIR_AIR_V1)

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

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1

Asset Information Requirements – Heritage

Guidance Notes

How to use this document

This document provides a framework and guidance in establishing project/organisation specific Asset Information Requirements (AIR) 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.

This document is aligned with PAS1192-3:2014 *Specification for information management for the operational phase of assets using building information modelling* but pays particular attention to conservation practice and UK consent procedures.

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 AIR.

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

Asset Information Requirements Explained

Asset Information Requirements (AIR) – *data and information requirements of the organisation in relation to the asset(s) it is responsible for.* (PAS1192-3:2014)

Asset information requirements should be compiled to provide the information necessary to meet the established organisational information requirements (OIR) – *refer to HIR_OIR_V1.* They define the data and information that is required in an asset information model (AIM) to support the needs of the asset management system and other organisational functions.

Development of asset information requirements (AIR) is a considerable task that requires time and effort to complete. Taking sufficient time to develop robust asset information requirements will significantly improve the process of developing an AIM for an historic asset which will require significant initial input of information and legacy data.

Collaborative, workshop style sessions are recommended at an early stage to discuss project aspirations and information requirements and to establish the detailed pieces of information that will answer the questions raised in the OIR.

Asset Information Requirements – Heritage

Contents

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1.0   Scope

As a requirement of PAS1192-3:2014 this document has been produced by xxxxxxxxxx (the client) to set out Asset Information Requirements (AIR) in the form of data, documents and geometry required in the development of an Asset Information Model (AIM) to enable facility and asset management teams to effectively operate and maintain the asset – xxxxxxxxxx (name of asset).

This AIR should be read in conjunction with the full suite of documents including:

OIR xxxxxxxxxxxx

EIR xxxxxxxxxxxx

PLQ xxxxxxxxxxxx

Document references should be completed above.

The asset information model (AIM) developed in response to this AIR should provide a central source of validated information about the asset, to be accessed by all project stakeholders. It should be managed within the context of the overarching asset management system and using an established Common Data Environment (CDE).

The asset information model should be used within the asset management system for retrieval of data to inform asset management activities. In the event of a new conservation, repair, maintenance or capital investment project this AIR will inform the employer's information requirements (EIR) – *see HIR_EIR_V1*.

Processes should be established to respond to changes in the AIR as a result of, or during, project works.

PAS1192-3:2014 identifies a range of activities that may require data to be retrieved from the AIM. In a heritage context, the following activities will require data to be retrieved from the H-AIM:

- Deciding to manage heritage asset information using a BIM approach
- Planned or reactive maintenance work to a heritage asset
- Minor works or repairs to a heritage asset
- Developing proposals for major works, restoration or renovation projects
- Evaluating performance of an asset
- Change in regulations relating to the asset
- Change in organizational requirements for the asset
- Change in owner, operator or maintainer

2.0   Information Management Process

The following sections have been considered and defined in order to communicate the information management process (IMP) developed in accordance with PAS1192-3.

2.1   Information Governance

Roles and responsibilities for information management have been determined and provided in:

xxxxxxxxxx

Roles and responsibilities should be established and provided in a separate annexe or, within information exchange templates (see 2.4).

Guidance on responsibilities for information management processes is available in Annex D, Table D.1, PAS1192-3.

2.2   Common Data Environment

xxxxxxxxxx *(the client)* have selected the following common data environment (CDE) within which the asset information model (AIM) will be managed -

Enter reference to, or details of, chose common data environment such as an organisational sharepoint or BIM document management software such as Viewpoint for Projects.

2.3   Classification

xxxxxxxxxx *(the client)* have selected the following classification system for structuring asset information within the asset information model –

Enter reference to, or details of, chosen classification system such as Uniclass 2015 or organisation's own classification system.

N.B.

The specified asset information requirements and resulting data and information will need to be structured using an agreed classification system.

Data may be structured using an agreed classification system or using the structure of the file and data store software that is used.

PAS1192-3:2014 states that whilst the choice of classification system should meet industry standards where possible, it should also take account of the organisation's specific requirements.

Further guidance on classification systems is provided in the Historic England document – BIM for Heritage: Developing an Asset Information Model.

2.4   Information Exchange

Information and data exchanges should be delivered using the following specified format:

Enter reference to, or details of, chosen information exchange format such as COBie (with added conservation parameters) or, an organisational information and data exchange template spreadsheet.

The information and data exchange template document should be given a reference number and provided here:

The information and data exchange template includes information from the following sections:

3. 1 Data Categories / Maintainable Assets

2. 1 Roles & Responsibilities Matrix

  Data exchange timings / Data drops

Include a list of all sections that are included in your template.

<mark>*An example information and data exchange template is provided in Annex A: xxxxxxxxxxxx*</mark>

As noted above, alternatively COBie spreadsheets may be used.

2.5   Data Validation Process

The process for data validation is defined as follows:

Data validation processes should be determined by the individual organisation. This may include the use of RAG (Red, Amber, Green) reports.

3.0   Information Requirements

3.1   Data Categories / Maintainable Assets

Assets that will require maintenance will need information to be recorded about them. A list of maintainable assets should be developed and agreed by the client and estate and facilities management teams. It should be categorised using established classification systems (such as Uniclass 2015 or a bespoke organisational classification system).

Whilst establishing a list of maintainable assets can be difficult at the outset of a new build project, it will be easier for existing assets such as heritage assets.

The maintainable assets list may begin as a simple framework that is developed as time goes on. The list might initially include the main external / building fabric components (particularly for heritage ruins), with fixtures, fittings, plumbing and M&E items where applicable added at a later date.

An example table is provided below:

REF.	ASSET TYPE	DESCRIPTION	NRM1 MAPPING
1	Sub-structure / Structural Foundations	Structural foundations, piles, retaining walls etc all below slab level	1.1 Sub-structure
2	Structural Floors	All structural separating elements	2.1 Frame
3	Flooring Systems	All manufactured floor systems and floor finishes.	3.2 Floor finishes
4	Structural Frames	Structural Beam Systems, Columns, Connections, Framing, Stiffeners, Trusses	2.1 Frame
5	External Walls (Masonry)	All masonry components that form part of the building envelope	2.5 External Walls
6	Architectural Features - Elevations	Architectural features that form part of the external elevation - masonry	2.5 External Walls
7	Columns	Architectural columns - masonry & timber	2.5 External Walls
8	Chimneystack	All chimneystack components	2.5 External Walls
9	Stairs & Ramps	Stairs and ramps including handrails and balustrades	2.4 Stairs & Ramps
10	Windows	All external and internal windows and associated elements including decorative surrounds	2.6 Windows & External Doors
11	Doors / Access Panels / Hatches	All internal and external doors including decorative surrounds. All panels and hatches used for access.	Multiple
12	Ceilings	Suspended or supported ceiling systems and ceiling finishes - including decorative plasterwork	3.3 Ceiling finishes
13	Roofs	All roof components including trusses and coverings	2.3 Roof
14	General Joinery items	All joinery such as skirting, architrave, window boards etc	3.0 Internal Finishes
15	Fixed fittings, furnishing & equipment	Fixed Storage and furniture items including shelving, bookcases etc.	4.0 Fittings, furnishing & equipment
16	Sanitary Fixtures	All items of sanitary equipment associated with sanitaryware and sanitary spaces such as taps, showers, flush mechanisms etc	5.1 Sanitary Installations
17	Sanitaryware	Sanitaryware including WC's, Wash Hand Basins, Baths, Shower Cubicles etc	5.1 Sanitary Installations
18	Lifts and Conveyors	Systems and Equipment used for building occupant circulation such as lifts, hoists and escalators etc	5.10 Lift / Conveyor Installations
19	Communication Devices	All in-line equipment and end of line devices associated with communication systems.	5.12 Communication, security & control systems
20	BMS (fire, security, data specialist systems etc)	All plant, equipment and fixtures associated with Building Management Systems (fire, security, specialist systems etc)	5.13 Specialist installations
21	Specialty End User Equipment	All speciality equipment relating to functional use of the built asset. Excludes building services equipment.	5.13 Specialist installations
22	Specialty maintenance Equipment	All operational equiptment used to conduct maintenance tasks. Includes maintenance access equipment.	5.13 Specialist installations
23	Mechanical Equipment	All mechanical equipment and components ahu's, fans, A.C. Units, pumps, values, clorifiers,sprinklers etc.	Multiple
24	Drainage	All in-line drainage system components providing access or requiring maintenance. E.g. inspection chambers, gullies, drains, rodding eyes etc.	5.3 Disposal installations
25	Electrical Equipment	All electrical plant / equipment associated with power, data and lighting distribution	5.8 Electrical installations
26	Electrical Fixtures	All electrical fixtures within power, data and lighting systems	5.8 Electrical installations
27	Ironmongery	All ironmongery associated with doors and window systems	Multiple
28	Pipes	All pipes and connections relating to building services systems.	Multiple
29	Railings, Fences, Balconies and external furniture	Railings, balconies, fences, gates, balconies, canopies, handrails, benches, edge protection systems	Multiple
30	Spaces / Rooms / Zones	All designed internal and external spaces including rooms and building services zones	Not Applicable

3.2   Conservation Parameters

The particular pieces of information that makes BIM for heritage different to traditional BIM are the 'conservation' data parameters (or data attributes) that are collated and added to the AIM.

Parameters required to meet specific heritage asset management activities and organisational functions should be established.

Within the overall asset information and data exchange template (whether bespoke or COBie) conservation parameters should be listed against the maintainable assets list and a schedule of the parameters required for individual assets should be made.

See asset information and date exchange template HIR_AIR_ AnnexA_V1.

A range of parameters are provided below. The following are examples developed by conservation professionals that may be used as a reference. Each organisation should develop their own parameters based on asset management activities and organisational requirements and enter them into the information and data exchange template. These might include some or all of the following:

Facility Parameters
Asset Number / Unique Identifier
Occupier
Owner
Responsible Authority/Trust/Manager etc
Building / Monument Name
Building / Monument Address
Conservation Designation (Grading)
Scheduled Monument Number / List Entry Number (link to listing description)
National Grid Reference
Conservation Area (Yes/No)
Property Type (Heritage Estate - Roofed, Un-roofed, Ruin etc)
Current Status / Use
Original building date
Statement of Significance / Heritage Assessment (link to document)
Conservation Management Plan (link to document)
Existing Drawings (link to documents)
Existing Condition Survey (link to document)
Asbestos (Y/N) - (link to asbestos register/management plan)
Structural Integrity (Y/N) - (link to structural survey)
Project Files (archived - link to document)
O&M Manual (link to document)
Ecology Issues (Y/N) - (link to ecology survey)
Photograph - current / historic (link to documents)
Archive Records - (link to list of archive references)
Insurance (Y/N) (Link to document)

Room / Space Parameters
Room Number
Room Name
Known As - Historic Name
Use
Space Classification / Type
Room / Space Significance
Room / Space Vulnerability
Access Details (Public Access Y/N)
Historic Collections/Interiors (Y/N)
Perimeter
Height
Floor Area
Volume
Survey Documentation (link to document)
Survey Notes
Structural Integrity (Y/N) - (link to structural survey)
Historical Documentation (link to document - room data sheet)
Historical Notes
Asbestos (Y/N) (link to asbestos register)
Asbestos Notes
Ecology Issues (Y/N) - (link to ecology survey)
Photograph - current / historic (link to documents)
Environmental monitoring (Y/N) - (link to documents or readings)

Element Parameters
Unique Identifier (UID)
Historic / Common Name (historic/architectural features)
Year of Construction / Historical Construction Phase
Installation Date
Life Expectancy
Original / Historic Fabric (Y/N)
Level of Significance (value)
Material - high level (Stone, Timber etc)
Material specification (link to stone matching report/petrographic analysis etc)
Colour
Finish / Mix / Ratio (link to mortar analysis etc)
Material Source / Supplier
Sustainable Material (Y/N) / Sustainability Note
Asbestos (Y/N)
Condition - Good, Fair, Poor etc
Priority - Urgent, within 12mths, within 24mths etc
Defect Description
Current Defect (Y/N)
Repair / Task
Reversible Repair (Y/N)
Cost / Defect Liability
PPM Task / Cyclical Maintenance Task (planned and preventative maintenance)
Ecology Issues (Y/N) - Bats, Bees, Birds, Newts etc
Environmental Monitoring (Y/N) - (link to doc/reading)
Existing Drawings (Y/N) - (link to drawings)
Archaeological record (Y/N) - (link to document)
Other Specialist Reports (Y/N) - (link to document)

4.0   Other Sources of Information

The following documents should be read before using this document:

BIM for Heritage: Developing a Historic Building Information Model

BIM for Heritage: Developing an Asset Information Model (AIM)

It should be used in conjunction with the full suite of HBIM Information Requirements (HIRs) templates:

Organisational Information Requirements (OIR) – Heritage (HIR_OIR_V1)

Employers Information Requirements (EIR) – Heritage (HIR_EIR_V1)

Plain Language Questions (PLQ) – Heritage (HIR_PLQ_V1)