

# **Asset Information Requirements (AIR)**

Guidance



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# Executive summary

The international information management standards ISO 19650 series defines the recommended concepts and principles for information management using building information modelling (BIM), as well as specifying the activities to be undertaken to support information management during the delivery phase.

The ISO 19650 series recommends that an organisation should consider the information it needs to support the operation of an asset, meeting the organisation's and/or interested party's asset-specific strategic objectives, as defined within the organisational information requirements (OIR).

It is likely that the facilities management processes will already be in place within your organisation; however, they may not have been structured in a way that enables the information requirements upon which they depend to have been specified. This guidance document is intended to highlight specific items for consideration when adopting the ISO 19650 series and structuring the asset information requirements (AIR). Collating/referencing existing information management processes into the asset information requirements (AIR) template enables an organisation to evaluate its collective information needs.

Each set of requirements is in anticipation of key events/actions required to operate an asset, taking any security requirements into consideration. Only the asset information requirements (AIR) relevant to each appointment will be integrated into the appointment/contractual documentation, via the exchange information requirements (EIR).

This guidance document has been developed to assist users in the completion of the asset information requirements (AIR) template.

# 1 Maintainable assets

## 1.1 Schedule of maintainable assets

Identify your organisation's maintainable assets. This should include any item, component or system within an asset that requires information from the delivery phase of an asset for maintenance.

To understand the extent of the information required for the operation of an asset, it is important to identify the elements that will require maintenance throughout an asset's life cycle.

<The example below, **Error! Reference source not found.**, demonstrates a schedule of assets that require certain information to be efficiently operated and maintained. It is important to identify only the assets/components that require maintenance in order to ensure that the appointing party will get only the information they need and the asset information model (AIM) will not contain any superfluous data.

This example is not an exhaustive list; if adopted, it should be developed by an asset management and/or facilitated by a management professional that can provide insights and help to define the relevant maintainable assets. If an alternative or existing schedule is to be adopted, it should be referenced in this section, with an explanation of its intended use.>

{Insert reference} outlines the maintainable assets required by {appointing party} to maintain their organisation-wide active asset register.

## 2 Information requirements

<The purpose of this section is to outline the relevant information that is essential to achieve the organisation's strategic objectives. These should be the specific requirements for the delivery phase of an asset, to ensure the delivery of a coherent asset information model (AIM).

### 2.1 Data structure

Identify the data structure for the information exchanges/asset information model (AIM) that will support and integrate with the operational management system.

The relevant standards can be identified in Section 3.

To facilitate the effective integration of new asset information, generated as part of the delivery phase of an asset/project, with the existing operational management system, it is important to utilise a cohesive data structure.

The adopted data structure should be adhered to for all identified asset information.

<The example below demonstrates the potential structure of the asset information deliverables; it is based on the principles of BS 1192-4:2014 using COBie (Construction Operations Building Information Exchange). As mentioned above, the structure should align with the operational management system that will be used. This section refers to the structure only; the standards of the data structure and the relevant field conventions should be identified in the information standards, information production method and procedures, referred to in Section 3.>

All identified asset information shall be incorporated into the information model using the COBie (Construction Operations Building Information Exchange) structure, utilising the relevant parameters. As a subset of IFC (Industry Foundation Class), which is an open data schema, it provides a recognised structure for asset information deliverables. The use of COBie (Construction Operations Building Information Exchange) mitigates the time and potential inefficiency of transferring data between platforms. The asset information requirements (AIR) shall be a single federated export schedule in .xls format, structured to meet BS 1192-4:2014 requirements.

## 2.2 Asset information requirements (AIR)

Define the information required by your organisation to support an asset operation activity.

The following asset information requirements (AIR) specify information, and its associated acceptance criteria, to support **{client name}**'s organisational operation objectives.

These strategic operational requirements and systems, for improved information management, are derived from a combination of internal and external policies.

<The example below demonstrates the potential information requirements that correspond to different operation activities; you should ensure that these reflect your organisation's asset operational needs.>

### 2.2.1 Maintenance

Describe what information is required to assist with both proactive and reactive maintenance.

Maintenance and repairs are critical activities to maintain an asset at the optimum performance level. This requires specific structural information set to facilitate remedial action throughout the asset life cycle.

<The example below demonstrates the information required for both proactive and reactive maintenance activities.

This could be a reference to an existing policy/procedure.>

The following requirements should form part of the federated COBie (Construction Operations Building Information Exchange) export.

**Table 2.1: Maintenance information requirements**

Operation activity	Policy or external influencer	Information requirement	Information container	Exceptions	Acceptance criteria
Proactive maintenance	<ul style="list-style-type: none"> <li>• {Client's name} maintenance policy</li> <li>• {Client's name} asset register</li> </ul>	<ul style="list-style-type: none"> <li>• Asset identifier</li> <li>• Asset type</li> <li>• Description</li> <li>• Classification</li> <li>• NRM1</li> <li>• Installation date</li> <li>• Warranty commencement date</li> <li>• Warranty guarantor part</li> <li>• Warranty guarantor labour</li> <li>• Warranty duration of part</li> <li>• Warranty duration of part</li> </ul>	<ul style="list-style-type: none"> <li>• A spreadsheet (.xlsx)</li> </ul>	N/A	Must adhere to standards; fixed assets must have location.
Reactive repairs	<ul style="list-style-type: none"> <li>• {Client's name} maintenance policy</li> <li>• {Client's name} asset register</li> </ul>	<ul style="list-style-type: none"> <li>• Installation date</li> <li>• Warranty commencement date</li> <li>• Warranty guarantor part</li> <li>• Warranty guarantor labour</li> <li>• Warranty duration of part</li> <li>• Warranty duration of part</li> <li>• Operations and maintenance specification</li> </ul>	<ul style="list-style-type: none"> <li>• A spreadsheet (.xlsx)</li> <li>• Federated digital O&amp;M manual</li> </ul>	N/A	Must adhere to standards and federated.



## 2.2.2 Sustainability

Specify the information that will assist with the organisational sustainability objectives.

To monitor the organisation's success in achieving its **{insert sustainability goal}**, the following information is required.

<The example below demonstrates information that may be required to meet environmental and sustainability policies. For instance, they could focus on performance attribute data.>

**Table 2.2: Sustainability information requirements**

Operation activity	Policy or external influencer	Information requirement	Information container	Exceptions	Acceptance criteria
Energy usage monitoring	<ul style="list-style-type: none"> <li>• <b>{Client's name}</b> energy policy</li> </ul>	<ul style="list-style-type: none"> <li>• Actual building energy consumption (kWh/m2)</li> <li>• Building emission rate (kgCO2/m2)</li> <li>• Annual energy consumption (kWh per annum per m2 gross internal floor area)</li> <li>• Operational carbon dioxide emissions (tonnes per annum CO2)</li> <li>• Annual water consumption (litres per annum per m2 gross internal floor area or by per occupant)</li> <li>• Waste (tonnes per annum m2 gross internal floor area)</li> </ul>	A spreadsheet (.xlsx)	N/A	Must adhere to standards.
Sustainability KPI	<ul style="list-style-type: none"> <li>• <b>{Client's name}</b> energy policy</li> </ul>	<ul style="list-style-type: none"> <li>• Code performance</li> <li>• Sustainability performance</li> <li>• System specifications</li> </ul>	<ul style="list-style-type: none"> <li>• A spreadsheet (.xlsx)</li> <li>• Specifications in PDF</li> </ul>	N/A	Must adhere to standards.

### 2.2.3 Asset operation efficiency

To achieve the most value for money, it is important to capture and understand the operational costs associated with an asset.

Describe the information required to be able to make these comparisons.

The purpose of asset operational performance targets is to provide the criteria for benchmarking the progress of the overall aim to reduce/minimise the costs of operating the asset.

This includes ensuring that assets function as intended/specified (soft landings), as well as comparing estimated design operational costs against the actual operational costs.

<The example table below demonstrates the key information that is required to understand the variation between the intended and actual operation efficiency. This will not only allow organisations to understand the cost of running the asset but also provide the opportunity to address any performance issues compared to the specification.

Complete the table below to outline the information required to provide this understanding.>

**Table 2.3: Operation information requirements**

Operation activity	Policy or external influencer	Information requirement	Information container	Exceptions	Acceptance criteria
Anticipated energy usage	<ul style="list-style-type: none"> <li>• <b>{Client's name}</b> energy policy</li> </ul>	<ul style="list-style-type: none"> <li>• Notional building energy consumption (kWh/m<sup>2</sup>)</li> <li>• Target emission rate (kgCO<sub>2</sub>/m<sup>2</sup>)</li> <li>• Seasonal deficits</li> </ul>	A spreadsheet (.xlsx)	N/A	Must adhere to standards.

## 3 Information standards, information production methods and procedures

This section is divided into two parts: the first half should be used to determine the standards that information containers should comply with; and the second half should define their required production methodology and procedures.

This section provides the information standards, as well as the information production methods and procedures, that should be implemented to meet the appointing party's information requirements. This is to ensure consistent quality and cohesive information deliverables throughout the delivery phase of the asset.

<Outline the purpose of the information standards, information methods and procedures for the asset information requirements (AIR) for the project.

This section has been included in the asset information requirements (AIR) to provide a reference and set expectations for the delivery of asset information. These should be combined with the project information standards, information production methods and procedures for appointment.>

### 3.1 Information standards

Define the standards that information containers should comply with.

These standards are to be adhered to on this project.

< List the information standards that the delivery and operational team will adopt to fulfil and discharge appointing-party contract obligations.>

#### 3.1.1 Information management standards

Throughout this document, various standards will be referenced. Provide a list/directory of standards that will assist the delivery team to understand the information requirements.

The standards specified below are referenced through this section and should be adhered to as specified.

<The example below demonstrates project-specific standards that could be adopted. Any standards (both internal and external) that are to be used on the project should be listed, including their revision/version. These should be reflected within the main body of the document.>

- ISO 19650–3:2020 – Organisation and digitisation of information about buildings and civil engineering works, including building information modelling (BIM). Information management using building information modelling. Operational phase of the assets.
- BS 1192–4:2014 – Collaborative production of information Part 4: Fulfilling an employer's information exchange requirements using COBie (to be superseded by ISO 19650-4).
- Uniclass 2015.
- ISO 19650–5:2020 – Organisation and digitisation of information about buildings and civil engineering works, including building information modelling (BIM) – information management using building information modelling – Part 5: Security-minded approach to information management.
- PAS 1192–6:2018 – Specification for collaborative sharing and use of structured health and safety information using BIM.

<Other standards and specifications to be added here>

If any of the standards detailed above or throughout this document are superseded during the life of the project, the lead appointed party shall provide the appointing party with a report detailing the change in standard and any implications from the adoption of these changes for the project.

The revised standard can only be implemented following an explicit agreement from the appointing party management. These should be reflected within the main body of the document.

### 3.1.2 Asset identification

Describe the identification convention for assets, which is important for use within current systems and possible physical asset tagging.

Each asset requires a unique identification code, which allows efficient management and maintenance of an asset.

<The example below demonstrates a possible convention for generating a unique asset identification code. This should align with your current asset management standards, as such a reference could be provided.>

The unique asset identification reference key shall capture the following in its line of code; it could contain the following but is not limited to:

- Asset code
- Floor
- Instance number
- NRM1 code
- Title

**Table 3.1: Asset identification convention**

Field 1	Field 2	Field 3	Field 4	Field 5
Asset code	Floor	Instance number	NRM1 code	Title
XXXX	XX	XXXXXX	XX_XX_XX	XXXXXX
<i>Example: 1234-01-00002- EF_70_80-Light</i>				

### 3.1.3 Asset information model (AIM) deliverables

Outline the asset information model (AIM) deliverables, which are to form part of the information exchange at the end of a project.

The following deliverables are required at the handover of the asset information model (AIM).

<The example below demonstrates what is required for handover of the asset information model (AIM). All deliverables are to meet the information requirements and adhere to the information standards. Typically, this is the relevant asset information collated from the project information model (PIM).>

Consider any as-construction requirements and tolerances of fixed assets. In this section the objective is to capture the required information to enable the seamless exchange of information for its integration into the asset information model (AIM).>

Any verification and validation procedures described within the information production methods and procedures are to be considered.

Information deliverables:

- Native versions of each volume of 3D model;
- All volume models in IFC format;
- The federated asset information requirements (AIR) in the data structure mentioned above, Section 2.1, in .xls format;
- Federated 3D model in .xyz format;
- GA plans @ 1:100 in .dfx format, which must contain the corresponding space and floor identification/schemas.

### 3.1.4 Information classification

Provide references to the information classification standards to be adopted for information containers and model elements.

To assist with the identification of information containers and model elements, it is important that the relevant information classification requirements to comply with the information requirements be adhered to.

Provide a methodology for incorporating these classifications in line with information requirements.

<Provide references to the classification standards that are to be utilised for asset information.>

## 3.2 Information production methods and procedures

The different methods of generating data and information can potentially impact its functionality.

Determine the information production methods and procedures. This could include responsibilities, workflows and approval processes.

The following information production methods and procedures are to be adhered to on this project.

<Define information production methods and procedures, as specified within ISO 19650-2:2018, 5.1.5, which should reflect the purpose and functionality required for the information deliverables.>

### 3.2.1 Soft landings

Describe the soft landings approach to this project, which typically includes post-occupation evaluations of the assets/systems to ensure that they are meeting their performance specification.

It is essential that all assets are meeting their performance specification to ensure that the overall energy usage is optimised. The following describes the minimum requirements for the assets 'soft landings' approach.

<This section should describe the handover/post-occupation evaluation of assets to ensure that the agreed performance is being met. This could be a reference to a national standard or internal policy or omitted if not required.>



