Asset Information Requirements (AIR)

Company-Name

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To enable continuous improvement, all readers are encouraged to notify the author of errors, omissions, and any other form of feedback.

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1 VERSION CONTROL

Version	Authored	Date	Approved	Version Comments
P01	Steve Rudge	2/05/2023		Draft Issue for approval and comments
P02	Steve Rudge	06/06/2023		Amended to suit Company-Name comments

2 INTRODUCTION

2.1 Executive Summary

This Asset Information Requirements (AIR) document intends to set-out the detailed asset information requirements for Company-Name.

This AIR forms part of the Information Management Process (IMP) and shall be incorporated into the Tender documentation for Lead Appointed Party (Architect) and Appointed Parties (Consultants & Sub-Contractors) and will be part of the contractual documentation.

This document has been produced in accordance with BS EN ISO 19650 standards and shall continue to be reviewed on an annual basis as deemed necessary with any updates required being informed from lessons learned during project implementation. Company-Name partnered with the Symetri UK team in the generation of this AIR document and can be approached for any clarity and guidance through the following contact:

Technical and Delivery Manager
Author Name
Phone number
Author@Example.com

This document should be read in conjunction with other project documentation and Appendices, especially with respect to:

- Company-Name, Exchange Information Requirements (EIR) (001-SYM-XX-XX-BI-Z-0002-EIR)
- Asset requirement COBie Matrix (001-SYM-XX-XX-BI-Z-0003-Asset)

3 COMMERCIAL

3.1 Ownership

This AIR document and the information within shall be maintained and kept up to date by Company-Name.

3.2 Function (Roles) & Responsibilities

3.2.1 Technical Manager

The Company-Name Technical Manager shall be responsible for the inclusion of this AIR document into project Tender information as part of the Exchange Information Requirements (EIR) for project delivery and to support the BIM process by communicating the Asset Information Requirements to the Appointed Parties for successful delivery.

The Lead Appointed Party (Architect), Appointed BIM Specialist and Appointed Parties (Consultants & Sub-Contractors) shall be responsible for ensuring delivery of Asset Information in accordance with this AIR document and shall put into place governance and compliance procedures to provide assurance to the Company-Name team that information is being produced in accordance with the requirements set.

Prior to handover of the project information, all Appointed Parties (Consultants & Sub-Contractors) shall be responsible for verifying and validating the project information supplied meets the specified requirements of this AIR document. Proving, with supporting evidence, the requirements have been met and the information is suitable to be transferred into the Asset Information Model (AIM) Systems.

3.2.2 Company-Name/ Appointed Parties

Company-Name (Appointing Party) shall be responsible for the maintenance and up-keep of this AIR document and management of the Asset Information Model.

The Technical Manager shall be responsible for receiving the information at the end of the project at the point of Handover and Close Out, accepting the information once verified by the Lead Appointed Party (Architect), Appointed BIM Specialist and Appointed Parties (Consultants & Sub-Contractors).

4 ASSET INFORMATION REQUIREMENTS

4.1 Asset Definition

The definition of an Asset for Company-Name is ‘Something that has a requirement for regular Managed Maintenance and compliance management’. This also includes items that need to be managed by law, or compliant with statutory regulations.

Company-Name would like to ensure that data captured can be flexible and linked to various CAFM (Computer Aided Facility Management) systems that will allow COBie information to be extracted directly from a standard UK 2012 format COBie data drop and link to the system. The sheets that will be required are:

- Contact
- Facility
- Floor
- Space
- Type
- Component
- System

All other COBie sheets are not required on this project.

This will include the Space/ Room information from the COBie.space worksheet and the maintainable asset information that will be brought through from the COBie.type and COBie.component worksheets.

4.2 List of Maintainable Assets

Company-Name will maintain a CAFM system and require structured data from its supply chain to allow for the efficient transfer of data from Projects to the Facility Management system. To provide a comprehensive list of required Maintainable Assets, a base around industry practice and aligned to the Uniclass 2015 classification system has been provided in 001-SYM-XX-XX-BI-Z-0003-Asset document.

Where Assets are not listed in 001-SYM-XX-XX-BI-Z-0003-Asset but do require plan preventative maintenance (PPM) information and form part of the design, the Lead Appointed Party (Architect) must inform Company-Name who will record the new equipment type, and ensure a placeholder is available within the Company-Name’s CAFM system ready for asset data migration. The Lead Appointed Party (Architect) along with the Appointed BIM Specialist and Appointed Parties (Consultants & Sub-Contractors) must define in the BEP who is responsible for delivering the information requirements for each asset type.

4.3 Tagging of Assets

Company-Name require all maintainable assets to be given a unique identity and should be agreed with the Company-Name so the project team can include in the structured data drop. This shall be fully detailed in the project BEP. There is no requirement to fully tag all maintainable assets out on site.

4.4 Construction Operations Building Information Exchange (COBie)

In order to deliver and collect the required Asset Data for Facilities Management purposes, Company-Name specify that non-geometrical data is submitted at the point of Handover and Close Out in a COBie structured data drop aligned to the UK 2012 template. This requirement data should be aligned to that defined in the data at agreed project stages as stated within the projects Exchange Information Requirements (EIR) document and should be documented in the Project BEP.

1. Construction Operations Building information exchange (COBie) that conforms the data structure described in BS EN ISO 19650-4:2022 is required as an information exchange format to inform procurement, construction, operation & management of the asset. COBie shall be progressively developed throughout the lifecycle of the project by the Delivery Team, through both design and construction.

2. The Appointed BIM Specialist along with the Lead Appointed Party (Architect) and Appointed Parties (Consultants & Sub-Contractors) shall detail the methods and procedures within the BIM Execution Plan confirming how COBie shall be progressively developed and delivered to Company-Name.

3. The required scope of COBie can be found within section 4 of this AIR and within the COBie Matrix 001-SYM-XX-XX-BI-Z-0003-Asset.

    a) The COBie Matrix
        i. The COBie Matrix provides clear scope definition to the COBie data structure required by Company-Name, the delivery milestone the require data field is to be included in the data drop. It will be the responsibility of the Lead Appointed Party (Architect) and Appointed BIM Specialist to develop the COBie Matrix to including the responsible Task Team for each data field.

    b) Additional Attribute Data
        i. Additional attributes are not required by Company-Name.

    c) Maintainable Asset List
        i. Key Maintainable assets that shall form the COBie Information Exchange are listed, referencing their name and classification.
        ii. The Maintainable Asset List has been developed to support the Invitation to Tender (ITT) and Tender response process. It is recognised that this list will vary between projects. To refine the Maintainable Asset List for the nature of this project, all Appointed Parties shall finalise and agree all maintainable assets with the Company-Name prior to appointment.

    d) COBie to CAFM mapping
        i. The Appointed Parties are required to work with the Company-Name to ensure the COBie data will map into the CAFM system.
        ii. COBie data to BS EN ISO 19650-4:2022 shall form the basis of data for the CAFM requirements.

4. It is of significant importance that the COBie information exchange conforms to that described within BS EN ISO 19650-4:2022.

4.5 Classification

The Appointed BIM Specialist along with the Lead Appointed Party (Architect) and Appointed Parties (Consultants & Sub-Contractors) shall fully document procedures to capture and shall confirm the details for the Classification of model information within the BIM Execution Plan (BEP). Classification schemas to be adopted are detailed below:

Note – Classification is only needed against maintainable assets only.

Schema	Building Entity	Description	RIBA Stage 2	RIBA Stage 3	RIBA Stage 4	RIBA Stage 5	RIBA Stage 6
Uniclass 2015 En_Entities	Facility Information	Describes parts of the complex that provide areas where different activities occur. For example, a building, bridge, tunnel.	☒	☒	☒	☒	☒
Uniclass 2015 SL_Spaces/locations	Rooms / Spaces	Describes spaces or locations within an entity. For example, a room etc.	☒	☒	☒	☒	☒
Uniclass 2015 EF_Elements/functions	All Objects	Describes main components of a structure like a bridge (foundations, piers, deck) or a building (floors, walls and roofs).	☒	☐	☐	☐	☐
Uniclass 2015 Ss_Systems	All Objects	Describe a collection of components or products that carry out a function. For example, a pitched roof system (rafters, lining, tiles, insulation, ceilings) and for a low temperature hot water system (boiler, pipework, tank, radiators).	☐	☒	☒	☒	☒
Uniclass 2015 Pr_Products	All Objects	Describes products used to construct a System. i.e. Joist hangars, terrazzo tiles, gas fired boilers.	☐	☒	☒	☒	☒

5 INFORMATION

5.1 Required Fields

Each maintainable asset will require the fields identified in the spreadsheet in 001-SYM-XX-XX-BI-Z-0003-Asset. These fields can be added to the model via a shared/project shared parameter file or custom attributes depending on the modelling software. The fields that are required will cover the physical maintainable assets and rooms/spaces in the building.

5.2 Format of the required fields

The following tables gives details and examples of the format that should be presented in the COBie data drop.

COBie Contact	Name	Description	Example	Required?
	Email	Email address of main contact	Example@Architect.com	✓
	CreatedBy	Whom the data drop was created by	User@Architect.com	✓
	CreatedOn	The date the data drop was created	2022-XX-XXT12:00:00	✓
	Category	Role on project	Architect	✓
	Company	The name of the Company	Example Architects Ltd	✓
	Phone	The Company Phone number	+44 7543 222861	✓
	ExtSystem	** Not Required	** Not Required	✗
	ExtObject	** Not Required	** Not Required	✗
	ExtIdentifier	** Not Required	** Not Required	✗
	Department	The studio to which the project relates	London Region	✓
	Organization Code	** Not Required	** Not Required	✗
	GivenName	Contact first name	User	✓
	FamilyName	Contact Surname	Example	✓
	Street	Office Address	Office Address	✓
	PostalBox	Postal Box	PO Box 111	✓
	Town	Company Town location within country	Town Location	✓
	StateRegion	Company Region Location within country	Region Location	✓
	PostalCode	Post Code of Company office	AA11 1AA	✓
	Country	Company Country Location	Country Location	✓

COBie Facility	Name	Description	Example	Required?
	Name	Name of Project	Project X	✓
	CreatedBy	Name of person creating Data Drop	User@example.com	✓
	CreatedOn	Date and Time when Data Drop was created	2022-07-05T07:36:19	✓
	Category	Category number for Project	Co_35_50_58	✓
	Project Name	Name of Project	Project X	✓
	SiteName	Name of Site	Project X	** Not Required– Can be left populated
	LinearUnits	Type of Linear Units used	Millimetres	✓
	AreaUnits	Type of Area Units used	Square Meters	✓
	VolumeUnits	Type of Volume Units used	Cubic Meters	✓
	CurrencyUnits	Type of Currency used	Pounds	✓
	AreaMeasurment	Area Measurement used	RICS / BCIS	✓
	ExternalSystem	** Not Required	** Not Required	✗
	ExternalProjectObject	** Not Required	** Not Required	✗
	ExternalProjectIdentifier	** Not Required	** Not Required	✗
	ExternalSiteObject	** Not Required	** Not Required	✗
	ExternalSiteIdentifier	** Not Required	** Not Required	✗
	ExternalFacilityObject	** Not Required	** Not Required	✗
	ExternalFacilityIdentifier	** Not Required	** Not Required	✗
	Description	A Description of the Type of building	Development of a new expanded 70 bed nursing home	✓
	ProjectDescription	A Description of the Type of Project	Nursing Home	✓
	SiteDescription	The Site Description needs to include the site name, Road Address, Town Location, County Location and the Postcode	xxxxxx	✓
	Phase	Should align to the RIBA plan of works	RIBA Stage 6 - Handover	✓

COBie Floor	Name	Description	Example	Required?
	Name	The Names of the Floors within the project	Level 01	✓
	CreatedBy	The Name of the person creating the Data Drop	User@Example.com	✓
	CreatedOn	** Not Required	** Not Required	✗
	Category	** Not Required	** Not Required	✗
	ExtSystem	** Not Required– Can be left populated	** Not Required– Can be left populated	✗
	ExtObject	** Not Required– Can be left populated	** Not Required– Can be left populated	✗
	ExtIdentifier	** Not Required– Can be left populated	** Not Required– Can be left populated	✗
	Description	** Not Required	** Not Required	✗
	Elevation	Elevation in relation to Sea Level	(Ground floor example) 52750	✓
	Height	Height in relation to distant from Ground Floor level	(First floor example) 4000	✓

COBie Space	Name	Description	Example	Required?
	Name	The Name of the Space should be unique to the project (Room Number)	A10	✓
	CreatedBy	Name of the User creating the data drop	User@Example.com	✓
	CreatedOn	** Not Required	** Not Required	✗
	Category	The Category should be the Space name and the Descriptions - Uniclass	SL_20_15_59:Office	✓
	FloorName	The Name of the Floor	Level 01	✓
	Description	The Name of the Space	Office 1	✓
	ExtSystem	** Not Required	** Not Required	✗
	ExtObject	** Not Required	** Not Required	✗
	ExtIdentifier	** Not Required	** Not Required	✗
	RoomTag	Sign fixed to door if different to Name	01-A10	✓
	UsableHeight	** Not Required	** Not Required	✗
	GrossArea	** Not Required	** Not Required	✗
	NetArea	** Not Required	** Not Required	✗

COBie Type	Name	Description	Example	Required?
	Name	The Company-Name_The Type Name (Found on design drawing schedules) with NO Revit ID	SYM_DT-1 (Example for Door Type 1)	✓
	CreatedBy	This will contain the email of the person who created the Data drop for this element	User@Example.com	✓
	CreatedOn	** Not Required	** Not Required	✗
	Category	This will contain the elements UniClass code + The description	Pr_30_59_23 Door Frame and Leaves	✓
	Description	The Description can include a specification reference	Specification reference	✓
	AssetType	** Not Required	** Not Required	✗
	Manufacturer	The Email address of the manufacturer must populate this field	Company@email.com	✓
	ModelNumber	This needs to include the reference to the element product number along with a specific size	TX/800x300x1500	✓
	WarrantyGuarantorParts	The Email address of the manufacturer must populate this field	Company@email.com	✓
	WarrantyDurationParts	This field must include the warranty duration	5	✓
	WarrantyGuarantorLabour	** Not Required	** Not Required	✗
	WarrantyDurationLabour	** Not Required	** Not Required	✗
	WarrantyDurationUnit	The warranty duration unit	Years	✓
	ExtSystem	** Not Required– Can be left populated	** Not Required– Can be left populated	✗
	ExtObject	** Not Required– Can be left populated	** Not Required– Can be left populated	✗
	ExtIdentifier	** Not Required– Can be left populated	** Not Required– Can be left populated	✗

	ReplacementCost	** Not Required	** Not Required	✗
	ExpectedLife	** Not Required	** Not Required	✗
	DurationUnit	** Not Required	** Not Required	✗
	WarrantyDescription	** Not Required	** Not Required	✗
	NominalLength	The Length of the element	1200	✓
	NominalWidth	The Width of the element	50	✓
	NominalHeight	The Height of the element	1400	✓
	ModelReference	** Not Required	** Not Required	✗
	Shape	** Not Required	** Not Required	✗
	Size	** Not Required	** Not Required	✗
	Colour	** Not Required	** Not Required	✗
	Finish	** Not Required	** Not Required	✗
	Grade	** Not Required	** Not Required	✗
	Material	** Not Required	** Not Required	✗
	Constituents	Constituents – Iron Mongery reference	For Doors and Windows	✓
	Features	Features included with product	Auto-close	✓
	AccessibilityPerformance	** Not Required	** Not Required	✗
	CodePerformance	** Not Required	** Not Required	✗
	SustainabilityPerformance	** Not Required	** Not Required	✗

COBie Component	Name	Description	Example	Required?
	Name	The Type Name_Unique Reference_Revit ID	SYM_DT-1_SYM_E_A001_610943	✓
	CreatedBy	This will contain the email of the person who created the Data drop for this element	User@Example.co.uk	✓
	CreatedOn	** Not Required	** Not Required	✗
	TypeName	The Company-Name_The Type Name (Found on design drawing schedules) with NO Revit ID	SYM_DT-1 (Example for Door Type 1)	✓
	SpaceNames	The Name of the Space should be the Floor followed by the unique room number (WP NEEDS to be removed)	A10	✓
	Description	This should include a good description of the asset.	Single 30 min fire door Type 1	✓
	ExtSystem	** Not Required– Can be left populated	** Not Required– Can be left populated	✗
	ExtObject	** Not Required– Can be left populated	** Not Required– Can be left populated	✗
	ExtIdentifier	** Not Required– Can be left populated	** Not Required– Can be left populated	✗
	SerialNumber	This should include the serial number (if suitable)	S4567901	✓
	InstallationDate	** Not Required	** Not Required	✗
	WarrantyStartDate (=PC date)	This should include the start date of this Component	2021-07-10	✓
	TagNumber	Unique Reference for the project	ID0002 (to be defined in the BEP)	✓
	Barcode	** Not Required	** Not Required	✗
	AssetIdentifier	SFG 20 code and description	23-17 Fire Doors	✗

COBie System	Name	Description	Example	Required?
	Name	System Description name	CCTV System	✓
	CreatedBy	This will contain the email of the person who created the Data drop for this element	User@Example.co.uk	✓
	CreatedOn	** Not Required	** Not Required	✗
	Category	Uniclass Ss Reference for the system	Ss_75_40_53_86 Surveillance System	✓
	ComponentNames	** Not Required	** Not Required	✗
	ExtSystem	** Not Required	** Not Required	✗
	ExtObject	** Not Required	** Not Required	✗
	ExtIdentifire	** Not Required	** Not Required	✗
	Description	System Description to identify main manufacturer inc phone number	Secom CCTV System Tel 077343 28302	✓

5.3 Linked O&M

The O&M Manuals shall be provided by the Appointed Parties on this project as defined by the Scope of Works documents. The file shall contain sufficient information for Company-Name to safely operate and maintain this facility. These is not a requirement to provide any links or URL links to the O&M data.

Company-Name require an electronic copy of the O&M Manual in bookmarked .PDF format. Each file shall not exceed 50Mb in size. If the file does exceed this size, the file shall be split into volumes (e.g. volume 1, volume 2 and so on). With bookmarks to identify the context. All information within each file shall be indexed and searchable for the ease and accessibility of use.

An electronic copy of all warranties shall be provided to the client in .PDF format and shall be included within the relevant section of the O&M manuals. If this is not provided then the O&M manuals will be deemed to be incomplete.

5.4 IFC File deliverable

Company-Name do not require a structured data come set through the strucutred IFC output. For this reason a IFC 2x3 Basic FM file format shall be provided at the end of the project to future protect just to capture the geometry only.

5.5 Delivery Strategy for Asset Information

The Lead Appointed Party (Architect) and Appointed Parties (Consultants & Sub-Contractors) shall be responsible for the production of the Asset Information Model (AIM). The AIM shall consist of models, drawings, O&M documentation and COBie data representing the as-constructed/ as-installed asset. Information to be included within the AIM shall consist of:

a) 3D models in their native (unfederated) format – Open file formats (IFC) shall be supplied also.
b) PDF and DWG drawings cut directly from the models
c) A Federated 3D model
d) Documents in PDF - O&M manuals, surveys reports etc
e) Non-geometrical information. COBie data that conforms to the standards set out within BS EN ISO 19650-4:2022.

The methods and procedures to ensure quality and integrity of AIM shall be documented in the BIM Execution Plan.

The AIM shall be developed throughout construction phases by the Appointed BIM Specialist alongside the Lead Appointed Party (Architect) and exchanged through the project Common Data Environment (CDE).

The AIM shall be handed over to Company-Name and shall be audited by the Appointing Party (Company-Name) BIM via the Appointed BIM Specialist. Only information that conforms to the requirements of this EIR shall be accepted. Non-compliant information shall be rejected, if rejected the Appointed Parties have 5 working days to resolve.

The Appointed Parties are required to provide as-built/ as-installed information to Company-Name to support the delivery of asset information as per the Scope of Works. In addition, the as-built/ as-installed information shall be updated at the end of the 12-month aftercare period to capture resolution of defects that may occur within the period as deemed necessary by Company-Name.

6 AS BUILT ASSET INFORMATION MODEL REQUIREMENTS

6.1 Level of information need

The Information needs required for the Asset Information Model shall be in accordance with the below statements.

Stage Number Model Name	6 Handover & Close Out
Systems to be Covered	All
Geometrical Illustration	The Level of Model definition, LOD and LOI requirements shall be aligned to that defined in the EIR.
What can the Model be relied upon for	An accurate record of the asset as constructed at handover, including all information required for operation and maintenance as defined in this AIR.
Output	Individual discipline as-constructed model in native and IFC formats. 2D PDF & DWG drawings derived from the model where possible. Federated, clash resolved model. Structured COBie data drop of the maintainable asset information.
Parametric Information	Updated geometry and installed product information, “as constructed” accuracy / resolution of information.
Critical Interfaces & Logic	As constructed photographic records Element performance test results System commissioning status
Construction Requirements	Confirmed status that the construction aids have been removed

6.2 File Formats

Information Type	Description / Scope	Deliverable Formats
Documentation	This includes all views / sheet files (Drawings) produced from the BIM Models. Individual Drawings produced from any BIM/CAD files and documentation such as reports in Microsoft Office formats.	PDF Export Native document formats (EG: DWG)
Geometrical Information	This includes all model files produced from BIM/CAD systems.	IFC Export – IFC 2X3 Basic FM Handover View. Native CAD/BIM formats. NWC for collaboration (not for IFC files). NWD of the federated model (if Navisworks is being utilised)
Non-Geometrical Data	This is to include all room and maintainable assets as defined in previous sections of this AIR	MS Excel .XLSX COBie file Broken down as required, this does not need to be federated into a single data drop.

6.3 Verification & Validation

The Lead Appointed Party (Architect), Appointed BIM Specialist and Appointed Parties (Consultants & Sub-Contractors) are required to verify to Company-Name that the information has been populated to suit the requirements of this AIR and it is the responsibility of the party who are installing or providing the assets to ensure the data is accurate prior to acceptance of Handover & Close Out and that it is a true representation of what has been constructed/ installed.

Areas with complex systems, plant, equipment or items that are hidden due to boxing in shall be verified as being accurate and complete with photographic evidence and camera location references as a minimum as appropriate. This can be presented on a marked-up floor plan and a structured folder system containing the photos in the CDE. The process should be defined in the project BIM Execution Plan (BEP).

For non-complex systems/ areas traditional surveying techniques can be used to verify the location of assets in the model. Company-Name via the Appointed Parties are to audit the model against the as-constructed state of the assets before sign off.

The Technical Manager shall accept the Information for Handover & Close Out once satisfied that the Information provided meets the requirements specification.

7 GLOSSARY

7.1 Terms & Acronyms

Refer to the EIR 001-SYM-XX-XX-BI-Z-0002-EIR document for a full list of terms and Acronyms.

APPENDIX A: ROOM NUMBERING GUIDELINES

The following guidelines have been developed to explain the procedure for establishing room numbers for new buildings and areas where alterations have been proposed.

The objective is to establish a room numbering system so that building occupants, users, visitors and staff are guided in a logical and sequential manner to rooms required. It is also necessary to incorporate each room number into the system database which holds detail for all space on the project / framework.

Room numbering for all useable space is unique for each floor of a building. It is not possible to have a duplicate number allocated for more than one space on the same floor. Each identifiable space has its own unique number which is incorporated into the system database as a room record. This room record will be linked to the corresponding room on an electronic drawing of the building. The room numbering for all useable space will commence from the main entrance of the building, or major point of access to the floor, and be allocated in a clockwise direction, starting with the lowest number. Occupants/ visitors to the building should be able to follow the sequence of room numbers regardless of their point of entry to the building. The Design team should propose a standard room numbering procedure and describe this within the execution plan to be agreed with the client project and asset teams.

- Circulation space and service space (building common areas) are numbered in the same way as occupied rooms. The numbering sequence for circulation space and service space can be repeated for each floor of a building.

  A change in corridor number will occur when there is a physical break e.g. doors, stairs etc.

- Open plan areas are likely to become more common and may occur within large circulation spaces. Within these open plan areas, space usage may vary without the use of physical barriers in between them. Each of these spaces may be occupied and will require a unique room number for database purposes and space charging purposes. The room numbering should follow the logical sequence already used for the useable space, and the circulation space should follow the logical sequence already used within the building.