



# **BIM for Housing Associations**

Asset management in the 21st century

**Part two: toolkit and guidance**

**NATIONAL  
HOUSING  
FEDERATION**

# Part 2:

# Toolkit and Guidance

## BIM for Housing Associations

### Asset Management in the 21<sup>st</sup> Century

August 2022

Toolkit with V2.0 updates

## What is in the Box

The set of template and exemplar documents by BIM for Housing Associations (BIM4HAs) are designed to assist a housing association in its journey implementing BIM. These is a complete set of tools developed by a group of housing association asset managers, development leads and external consultants and contractors, all with experience in BIM. These tools are aligned with the Golden Thread Principals and UK BIM Framework.

Please join the BIM4HAs community to share your experience using these tools, have your say and give feedback to improve the next iteration.

The toolkit includes:

1. Equivalency Table of Definitions
2. Exemplar **Scopes of Services (SoS)** – this describes **Who** does What and When and inform your appointments and overall process
3. Exemplar **Asset Information Requirements (AIRs)** – this describes **What** is required to maintain your built asset; together with
4. Exemplar **Construction Operation Building Information Exchange (COBie)** spreadsheet – a base set of asset information set out according to a transferrable format.
5. Exemplar **Exchange Information Requirements (EIRs)** – this describes **How** you want your information delivered on a project.
6. Exemplar **Model Information Delivery Plan (MIDP)** – this is the **When** document. It sets out who will be providing what, at what stage and at what Level of Information Need.
7. Spatial Hierarchy example from a BIM4HA member of how to map spaces from a BIM project information model across to an asset information model
8. **Organisation Information Requirements (OIR)** - Organisational Information Requirements describe the information required by an organisation for asset management systems and other organisational functions.
9. BIM Implementation Plan matrix reflecting the tasks from the scopes of services set out against RIBA work stages.
10. **BIM for Existing Buildings** – An essay on how to implement BIM processes on your existing assets.

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12. An introduction to the **Housing Association Data Dictionary** project, how you can access the pilot outputs on doors and doorsets.
13. **Release Notes** for version 2.0 of the Toolkit showing what has changed.

Your organisation's Information Manager should work with your asset management and development teams internally in the first instance, to determine what is required in your AIR and EIR before a BIM project commences, this is detailed in the Scopes of Services.

These documents should be read and used alongside the contents of this document and Part 1 of this publication, which is a report explaining the project and the business case for BIM. Please read the disclaimer at the end of this document.

|   | Who should read: | Executive | Asset Management | Building Safety | Development | Contractors and Consultants | Toolkit 2.0 Version |
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| <b>Part 1: The Business Case for BIM</b>        |                  |           |                  |                 |             |                             |                     |
| The Business Case for BIM                       |                  |           |                  |                 |             |                             | 1.0                 |
| <b>Part 2: Toolkit and Guidance</b>             |                  |           |                  |                 |             |                             |                     |
| Guidance Document                               |                  |           |                  |                 |             |                             | 2.0                 |
| What is in the box and how to use               |                  |           |                  |                 |             |                             | 2.0                 |
| Equivalency Table of Definitions                |                  |           |                  |                 |             |                             | 1.0                 |
| <b>Existing Toolkit Items</b>                   |                  |           |                  |                 |             |                             |                     |
| Scopes of Services (SoS)                        |                  |           |                  |                 |             |                             | 1.0                 |
| Organisation Information Requirements (OIR)     |                  |           |                  |                 |             |                             | 1.0                 |
| Asset Information Requirements (AIR)            |                  |           |                  |                 |             |                             | 2.0                 |
| COBie Spreadsheet of Asset Information          |                  |           |                  |                 |             |                             | 2.0                 |
| Exchange Information Requirements (EIR)         |                  |           |                  |                 |             |                             | 1.0                 |
| Master Information Delivery Plan (MIDP) Example |                  |           |                  |                 |             |                             | 1.0                 |
| Diagram: Hierarchy of Information Requirements  |                  |           |                  |                 |             |                             | 1.0                 |
| Diagram: BIM Implementation                     |                  |           |                  |                 |             |                             | 1.1                 |
| Asset Spatial Hierarchy Example                 |                  |           |                  |                 |             |                             | 1.0                 |
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This document also includes some guidance to help you use these documents, including:

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This table takes the language of ISO 19650 actors and translates each term into the corresponding roles within JCT Contracts Standard Information.

It will allow the client and contractors to understand what their roles are within the EIRs.

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## Scope of Services (SoS): the Who

This document is designed to help instruct key BIM related roles and clarify by RIBA works stage all the tasks and responsibilities for a you the Client, the Information Manager, Lead Designer and BIM Coordination tasks the Main Contractor needs to provide. These are included in the EIR exemplar that sets out where information exchanges are required. The tasks and responsibilities are reflected in the BIM Implementation Plan to represent these across a timeline and key project stages.

Take this document and look at how it compares to your own scopes of services. Use the document to update your designer and consultant appointments. Adapt and evolve it further to meet your own organisational requirements.

## Asset information Requirements (AIR): The What

Asset Information Requirements (AIR) describe what information you will need to maintain your built asset throughout its lifecycle, broken down into format types, document types and areas of information required; for example, what mechanical,

electrical, architectural and fire safety related elements to request, why you'll need them and what format you'll need the information in.

This document is a guide— use it as a starting point to diagnose and define your own asset information needs to manage your own organisation's assets.

Your organisation should only have one set of AIRs. Update it periodically but make sure you transfer this update of requirements across your organisation.

## COBie: data format example

Construction Operation Building Information Exchange (COBie) is a simplified method of collecting your asset information into one source. COBie is a schema for compiling and transferring data between software (displayed here as an Excel spreadsheet). Because COBie is provided in Excel format it is compatible with all asset management (AM/CAFM) systems. It is the format in which data about your asset will be transferred into your systems at key information exchanges.

The BIM4HAs COBie is a suggested set of information to be collected for all planned preventative maintenance (PPM) and building/fire safety requirements. Use it as the **foundation upon which to build your organisation's needs**.

## Exchange Information Requirements (EIR): The How

The Exchange Information Requirements (EIRs) is a document to enable the client to highlight what their objectives are for a project and *how* they want this to be delivered by their project team. EIRs define key information such as information exchanges, format types, common data environments and security protocols. They also set out the standards that will be used on the project.

The BIM4HAs EIRs is an initial template for you to amend to reflect your organisational requirements. You should refer to your EIRs within your Employer Requirements (ERs) and the EIRs should be provided at the Information to Tender (ITT) stage. As with AIRs, EIRs should be periodically reviewed, but not changed on a project-by-project basis.

## Master Information Delivery Plan (MIDP)

A MIDP is a project level document which sets out what information will be provided throughout the life of the project. It sets out who will be providing what, at what stage and at what Level of Information Need.

The BIM4HAs MIDP is a broad template which you should adapt for each project, to suit your needs. Make sure that you are only asking for the information that is to be collected within the project concerned. The EIR will refer to this document.



# Spatial Hierarchy Mapping Example

|          |   |   |          |      |       |       |      |       |    |    |       |    |    |    |  |   |
|----------|---|---|----------|------|-------|-------|------|-------|----|----|-------|----|----|----|--|---|
| Estate   |   |   | Building | Core | Floor |       | Flat |       |    |    |       |    |    |    |  | Housing Association   |
| 1        | 2 | 3 | 4        | 5    | 6     | 7     | 8    | 10    | 11 | 12 | 13    | 14 | 15 | 16 |  | Facility/AM Database<br>Character positions                                 |
| FACILITY |   |   | ZONE     |      |       | Zone  |      | Floor |    |    | zone  |    |    |    |  | COBie spatial hierarchy   |
| Site     |   |   | Property |      |       | Group |      | Floor |    |    | Group |    |    |    |  | HACT (Housing Association<br>Charitable Trust) / OSCRE<br>spatial hierarchy |

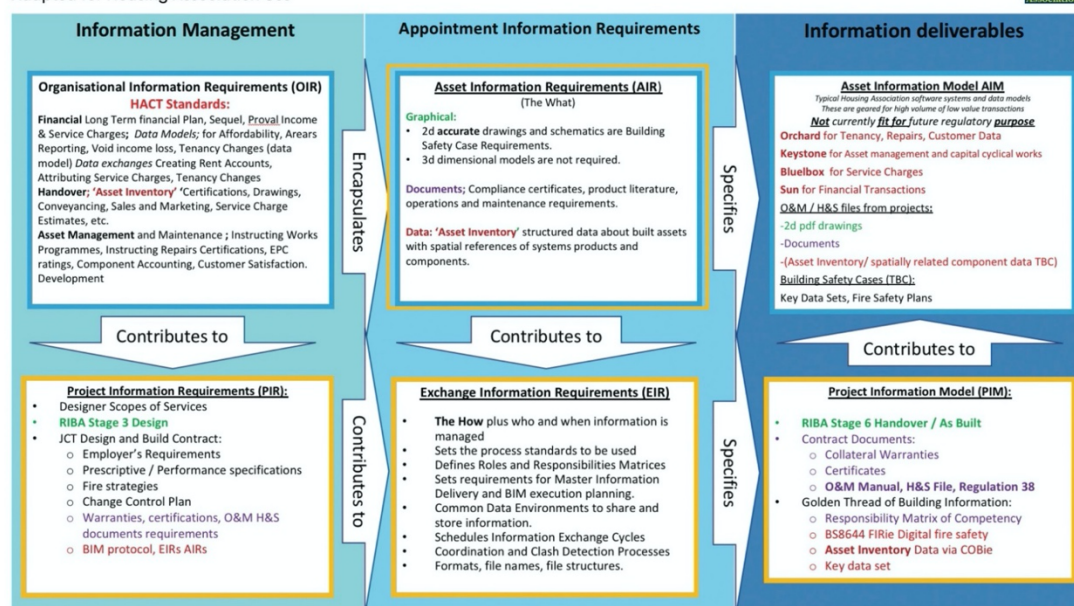
This table illustrates how spatial hierarchies have been mapped across from COBie to the HACT UK Housing Data Standard work. This example enables COBie data to be mapped to the Data Standard, for example, we have mapped the term 'Facility' within COBie standards to 'Site' in HACT standards. The example procedural document from Southern Housing Group details how to apply this in detail from generic Project Information Models into their native asset management system (Keystone) and Asset Information Model.

## Hierarchy of Information Requirements

Adapted for Housing Association use from *ISO EN 19650 concepts and principles*. It provides the high-level strategic overview categories of information and how they relate to each other. It illustrates the cross-cutting nature the asset information management requirements we will need to continue developing for Golden Thread Compliance.

## Hierarchy of Information Requirements

Adapted for Housing Association Use



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020 7067 1126 | housing.org.uk | National Housing Federation Limited,  
trading as National Housing Federation. A company with limited liability.  
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# BIM Implementation Plan

This diagram takes the key tasks from the Scopes of Services and maps them across the RIBA Plan of Work stages and the Hackitt Gateways.

The strategy part of this implementation plan is about making your organisation capable of instructing BIM and identify when and how to instruct it.

The implementation plan has had some minor updates in language to ensure it aligns with the latest version of the National BIM Framework.

## BIM Implementation

Aligned with the RIBA Plan of Work 2020



| Strategy   |   |  |   | Project   |  | Review   |  |
|--|---|--|---|---|--|--|--|
| 0 Define the organisation's BIM Strategy   |   |  |   | 4 Procure Contractor and Technical Services   |  | 7 Finalise BIM   |  |
| 0.1 Nominate Executive sponsor(s) and empower an accountable lead  | 1.1 Define and execute an Internal BIM implementation plan                                      | 2.1 Define BIM objectives for the project  | 3.1 Monitor design team's BIM Performance   | 4.1 Issue BIM project specific BIM contract documents, EIR, AIR, BIM information Protocol, BIM specific JCT Contract Amendments | 5.1 Verify preconstruction Building Safety and Golden Thread Information   | 6.1 Validate Final Handover of Digital Information (General, Building Safety and Golden Thread information etc.) | 7.1 Update to the Project Information from 12 months Defects Liability Period, Past Project Reviews, and evaluations |
| 0.2 Clarify the BIM process, outline its benefits, costs and organisation wide impacts   | 1.2 Obtain BIM information management expertise   | 2.2 Adapt designer scopes of services and construction contracts   | 3.2 Verify compliance of: a. BEP b. DRM c. MIDP d. CDE  | 4.2 Assess contractor BIM capability and capacity responses, pre appointment BIM Execution Plans (BEP).                         |  | 6.2 Use 3d model for asset management, or archive as appropriate   | 7.2 Review BIM performance and integrate lessons learned into standard documentation and processes                   |
| 0.3 Analyse existing building information management for gaps against standards, best practices and emerging compliance requirements | 1.3 Define roles and responsibilities   | 2.3 Issue BIM project specific BIM enabling docs (EIR, AIR)  | 3.3 Use BIM to manage design team progress  | 4.3 Validate Contractors proposed: BEP, DRM, MIDP   |  |  |  |
| 0.4 Decide strategies scope and focus, new buildings, existing buildings, size and scale, etc.                                       | 1.4 Employ BIM expertise/ Information Manager   | 2.4 Assess designer BIM capability and capacity responses, pre appointment BIM Execution Plans (Pre-BEP)                         | 3.4 Verify Golden Thread of Information is being developed  |   |  |  |  |
|  | 1.5 Produce standard set of BIM enabling documents (EIR, AIR, etc.) for organisational wide use | 2.5 Appoint team, Coordinate BEPs  | 3.5 Audit Clash Detection to measure BIM benefits   |   |  |  |  |
|  | 1.6 Decide Common Data Environment (CDE) approach   | 2.6 Establish a CDE  |   |   |  |  |  |
|  |   | 2.7 Validate design team's proposed: Coordinated BEP, Design Responsibility Matrix (DRP), Master Information Deliver Plan (MIDP) |   |   |  |  |  |
| 0.5 Formally Adopt BS 119650, BS 8844, HACT Development Handover standards, etc.   | 1.7 Commit to improving Internal information management, handover                               |  | 3.6 Receive and validate Information Exchange   | 4.4 Receive and validate Information Exchange   | 5.2 Receive and validate Information Exchange                              | 6.3 Receive and validate Information Exchange  | 7.3 Update internal Asset Information Model (AIM) from Project Information.  |
|  | 1.8 Update EIR, AIR etc. by applying lessons learned from 7.4                                   |  | 3.7 Initiate 'Property Creation' of Project in Internal Asset Information Model (AIM) from Project Info | 4.5 Update Internal Asset Information Model (AIM) from Project Information  | 5.3 Update Internal Asset Information Model (AIM) from Project Information | 6.4 Update Internal Asset Information Model (AIM) from Project Information.                                      | 7.4 Review Internal information processes and update as appropriate.   |

April 2022 | Version 1.1 | Part of the BIM for Housing Associations Toolkit

Key: Development Team:   Asset Information Management:   Project Team:  

## BIM for Existing Buildings

Social housing providers are long-term asset holders that act as landlords and therefore have much to gain from using BIM and the principles of Information Management for the in-use phase of a building's life.

Read the separate essay for a discussion of how BIM for existing buildings might work for existing assets.



## Disclaimer

This document is part of the BIM for Housing Associations Toolkit. For more information about the project, to download the rest of the Toolkit and join the BIM4HAs community of please visit [housing.org.uk/BIM4HAs](https://housing.org.uk/BIM4HAs) or email [BIM4HAs@ukbimalliance.org](mailto:BIM4HAs@ukbimalliance.org)

The details in the report, this guidance and attached template documents are for general information purposes only.

Nothing in these documents constitutes legal advice or gives rise to a solicitor/client relationship. Specialist legal advice should be taken in relation to specific circumstances.

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# Spatial Hierarchy Mapping Example

|          |   |   |          |   |   |       |   |       |       |    |       |  |  |      |    |    |    |   |
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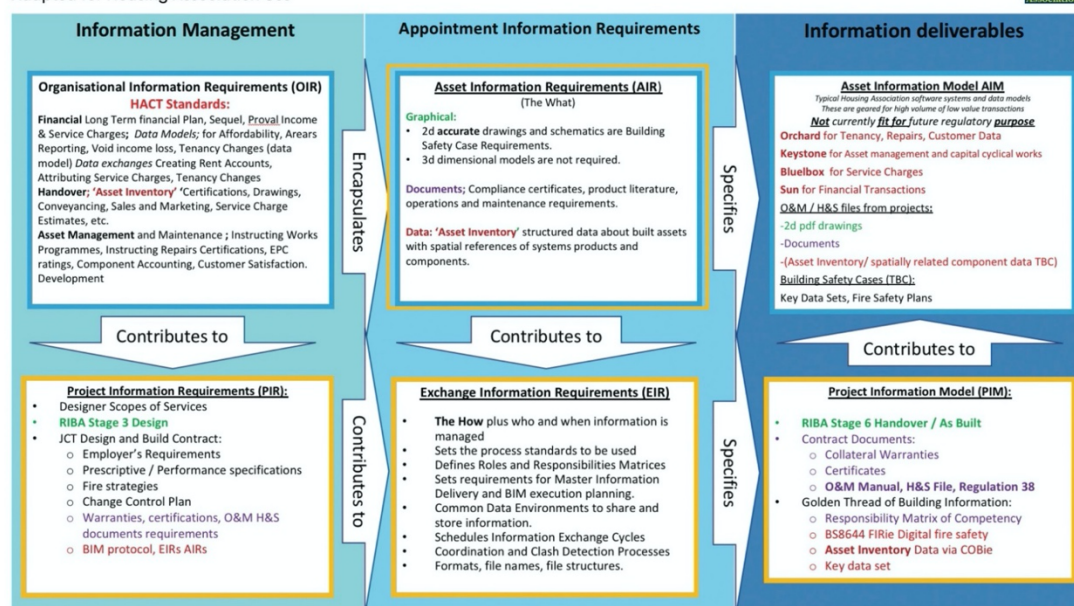
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| 0.2 Clarify the BIM process, outline its benefits, costs and organisation wide impacts   | 1.2 Obtain BIM information management expertise   | 2.2 Adapt designer scopes of services and construction contracts   | 3.2 Verify compliance of: a. BEP b. DRM c. MIDP d. CDE  | 4.2 Assess contractor BIM capability and capacity responses, pre appointment BIM Execution Plans (BEP).                         |  | 6.2 Use 3d model for asset management, or archive as appropriate   | 7.2 Review BIM performance and integrate lessons learned into standard documentation and processes                   |
| 0.3 Analyse existing building information management for gaps against standards, best practices and emerging compliance requirements | 1.3 Define roles and responsibilities   | 2.3 Issue BIM project specific BIM enabling docs (EIR, AIR)  | 3.3 Use BIM to manage design team progress  | 4.3 Validate Contractors proposed: BEP, DRM, MIDP   |  |  |  |
| 0.4 Decide strategies scope and focus, new buildings, existing buildings, size and scale, etc.                                       | 1.4 Employ BIM expertise/ Information Manager   | 2.4 Assess designer BIM capability and capacity responses, pre appointment BIM Execution Plans (Pre-BEP)                         | 3.4 Verify Golden Thread of Information is being developed  |   |  |  |  |
|  | 1.5 Produce standard set of BIM enabling documents (EIR, AIR, etc.) for organisational wide use | 2.5 Appoint team, Coordinate BEPs  | 3.5 Audit Clash Detection to measure BIM benefits   |   |  |  |  |
|  | 1.6 Decide Common Data Environment (CDE) approach   | 2.6 Establish a CDE  |   |   |  |  |  |
|  |   | 2.7 Validate design team's proposed: Coordinated BEP, Design Responsibility Matrix (DRP), Master Information Deliver Plan (MIDP) |   |   |  |  |  |
| 0.5 Formally Adopt BS 119650, BS 8844, HACT Development Handover standards, etc.   | 1.7 Commit to improving Internal information management, handover                               |  | 3.6 Receive and validate Information Exchange   | 4.4 Receive and validate Information Exchange   | 5.2 Receive and validate Information Exchange                              | 6.3 Receive and validate Information Exchange  | 7.3 Update internal Asset Information Model (AIM) from Project Information.  |
|  | 1.8 Update EIR, AIR etc. by applying lessons learned from 7.4                                   |  | 3.7 Initiate 'Property Creation' of Project in Internal Asset Information Model (AIM) from Project Info | 4.5 Update Internal Asset Information Model (AIM) from Project Information  | 5.3 Update Internal Asset Information Model (AIM) from Project Information | 6.4 Update Internal Asset Information Model (AIM) from Project Information.                                      | 7.4 Review Internal information processes and update as appropriate.   |

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Key: Development Team: Asset Information Management: Project Team:

## BIM for Existing Buildings

Social housing providers are long-term asset holders that act as landlords and therefore have much to gain from using BIM and the principles of Information Management for the in-use phase of a building's life.

Read the separate essay for a discussion of how BIM for existing buildings might work for existing assets.

## Disclaimer

This document is part of the BIM for Housing Associations Toolkit. For more information about the project, to download the rest of the Toolkit and join the BIM4HAs community of please visit [housing.org.uk/BIM4HAs](https://housing.org.uk/BIM4HAs) or email [BIM4HAs@ukbimalliance.org](mailto:BIM4HAs@ukbimalliance.org)

The details in the report, this guidance and attached template documents are for general information purposes only.

Nothing in these documents constitutes legal advice or gives rise to a solicitor/client relationship. Specialist legal advice should be taken in relation to specific circumstances.

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# About BIM for Housing Associations

## Project participants

### Funded by

A2Dominion  
Hyde  
LiveWest  
Notting Hill Genesis  
Optivo

Orbit  
Origin  
Peabody  
Southern Housing Group  
Sovereign Housing

### Contributions to V2 from

A2Dominion  
AEC3  
Altair Ltd  
Aster Group  
Bond Bryan Architects  
BSI  
Buro Happold  
Calfordseaden Ilp  
Catalyst Housing Group  
Clarion  
Connect Housing  
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Housing 21  
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Network Homes  
Notting Hill Genesis  
One Housing  
One Vision Housing  
Optivo  
Origin Housing  
Silver  
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UK BIM Alliance  
University of Nottingham  
University of Salford  
Wandle  
Watford Community Housing

## How to participate

Visit [housing.org.uk/BIM4HAs](https://housing.org.uk/BIM4HAs) to:

- Download the business case, guidance and toolkit.
- Join the BIM4HAs MS Teams Forum.

### In partnership with

National Housing Federation  
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