

Project Information Requirements

Building Information Modelling

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Queensland Health Project Information Requirements - Building Information Modelling

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For more information contact:

Health Capital Division, Department of Health, Queensland Health, GPO Box 48, Brisbane QLD 4001, email HCDCorro@health.qld.gov.au, phone (07) 3328 9310.

An electronic version of this document is available at <https://www.health.qld.gov.au/system-governance/policies-standards/doh-policy>

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Terms

Term	Definition
Appointed Party	A provider of information for the project, including services and typically has a lead party such as an Architect or Managing Contractor
Asset Information Model (AIM)	Information model relating to the operational stage. As per ISO19650
Asset Information Requirements (AIR)	Information requirements in relation to the operation of the asset. As per ISO19650
BIM Execution Plan (BEP)	A detailed plan, created from the Queensland Health BEP Template, that documents the use of BIM on a project. It outlines who is responsible for what in the BIM process, when in the process they are responsible for it, and how they will execute Queensland Health requirements as specified in the Project Information Requirements (PIR) and Capital Infrastructure Requirements (CIR)
BEP Template	The standard Queensland Health Building Information Modelling (BIM) Execution Plan Template to be used by Delivery Teams. Refers to Design BEP (DBEP) and Construction BEP (CBEP)
Building Information Modelling (BIM)	The use of a shared digital representation of a built asset to facilitate design, construction and operation processes to form a reliable basis for decisions
Building Information Models (BIM/s)	Means all models that any contributing party (or its sub-contractors) is required to produce and deliver in accordance with the BEP, PIR and CIR
BIM Manager	A Delivery Team provided resource to manage the BIM and asset information creation processes on the project
Delivery Team	A collection of Appointed Parties contributing to capital works project – the composition of which may change according to the project requirements and schedule, but typically comprises design consultants, Contractor and sub-Contractors, as per ISO 19650. For the purposes of this document, the Delivery Team excludes Queensland Health and its internal Project Managers as its representatives
Exchange Information Requirements (EIR)	Queensland Health requirements to enable the exchange of information from the (Project Information Model) PIM to the AIM. In this instance, the EIR is combined with the PIR to reduce the number of documents to be reviewed by the Delivery Team
Federated Model	An assembly of discipline/trade BIM/s combined for uses such as coordination, collaboration, and exchange with the Appointing Party

Term	Definition
Key Decision	A business decision that Queensland Health values which can be made using information created by the Delivery Team
Level of Development (LOD)	The degree to which the element's geometry and attached information have been progressed and the degree to which Delivery Team members may rely on the information when using the model. Queensland Health doesn't specify the LOD requirements per stage, however, if the Delivery Team wishes to use LOD, the 2021 US BIM forum specification shall be used as a guiding principle
Level of Information	The specific asset data associated with the individual objects within the BIM
Level of Information Need	The level of information need provides methods for describing information to be exchanged according to the EIR and namely the PIR
Laser Scanning	The process of capturing digital information about the shape of an object with equipment that uses a laser to measure the distance between itself and the object, the resulting output is a point cloud
Massing Model	An early volumetric model useful for understanding bulk and scale, areas of floor plates and departmental layouts and adjacencies
Model Content Plan (MCP)	A Quantity Surveyor (QS) developed document that defines the modelling requirements (units of measure, codification) for the Delivery Team to enable the QS to perform cost estimating from BIM
Model Element	An individual component within a BIM (e.g. wall, floor, nurse call device, room, diffuser, column etc)
Model Element Author	A person responsible for creating an element (object) in the BIM environment
openBIM	A universal approach to the collaborative design, realisation and operation of buildings based on open standards and workflows
Photogrammetry	The process of extracting 3D information from photos or video to convert into digital models or point clouds
Project Brie	Queensland Health requirements for a specific project
Project Information Model (PIM)	The information model relating to the delivery stage. The PIM consists of documentation, non-geometric information and geometric information of the project typically using BIM, CAD and GIS. As per ISO19650
Project Information Requirements (PIR)	Queensland Health information requirements and exchange processes to enable the creation and management of the PIM to support the ongoing AIM

Term	Definition
Project Manager	A Queensland Health assigned resource to ensure the Delivery Team complies with the PIR and BEP enabling the creation of the PIM and AIM. The Project Manager's responsibility is to manage the scope, time, cost, quality, resources, communications, and risk aspects of the project

Acronyms

Abbreviated Terms	Definition
3D	Three-dimensional digital model
AusHFG	Australasian Health Facility Guidelines
AIM	Asset Information Model
AIR	Asset Information Requirements
BIM	Building Information Modelling
BIM/s	Building Information Models
BEP	BIM Execution Plan (refers to DBEP and CBEP)
CAD	Computer Aided Design/Drafting
CBEP	Construction BIM Execution Plan
CIR	Capital Infrastructure Requirements
CMMS	Computer Maintenance Management System
DBEP	Design BIM Execution Plan
FF&E	Furniture Fixture and Equipment
HCD	Health Capital Division
HHS	Hospital and Health Service
IFC	Industry Foundation Classes (IFC)
LOD	Level of Development
LOI	Level of Information
PIM	Project Information Model
PIR	Project Information Requirements

Abbreviated Terms	Definition
RDS	Room Data Sheets
SiD	Safety in Design
SoA	Schedule of Accommodation

1 Introduction

Through the Capital Infrastructure Requirements (CIR), Queensland Health has, for over a decade, requested the use of Building Information Modelling (BIM) on selected projects. This is in recognition of the benefits that BIM processes and technologies bring to the design, construction, and ultimately operational management of Queensland Health facilities.

In November 2018, the Queensland Government through the Department of State Development, Manufacturing, Infrastructure and Planning released the Digital Enablement for Queensland Infrastructure - Principles for BIM Implementation¹. The principles apply to Queensland Health and those who are involved in any part of the lifecycle of new major construction assets, including the planning, procurement, design, contract management, construction, operation or maintenance of the assets. This includes:

The design, delivery and asset management of all new major construction projects and those involving significant alterations, extensions, renovations and repurposing of existing assets

To support the implementation of the Queensland BIM principles, Queensland Health has developed this document, the Project Information Requirements (PIR) for BIM which:

- supports the existing CIR
- defines Queensland Health required uses of BIM by the Delivery Team and identifies the information required by the Delivery Team at specific stages
- is aligned with the International Standard for BIM – ISO 19650 and the Digital Enablement for Queensland Infrastructure - Principles for BIM Implementation Policy

This revised version of the PIR also incorporates the Exchange Information Requirements (EIR) and Asset Information Requirements (AIR) to reduce the number of documents and to aid Delivery Team understanding of the required BIM/asset deliverables in one document.

As Queensland Health's information needs further evolve, it is anticipated this document will continually be developed.



Figure 1: Understanding of the information requirements continual improvement cycle

¹ <https://www.statedevelopment.qld.gov.au/industry/infrastructure/infrastructure-planning-and-policy/building-information-modelling>

1.1 Document structure

The document is divided up into Commercial, Managerial and Technical sections in alignment with ISO 19650.

Table 1: Project information requirements structure

Sections	2 - Commercial	3 - Managerial	4 - Technical
Audience	Project Owner / Director, Senior Delivery Team staff, Managing Contractor	Project Manager, BIM Manager, discipline/trade leads, Managing Contractor and sub-Contractors	BIM authors and technical delivery personnel

The Managerial section is further split into the logical project delivery stages. In this way, Appointed Parties can work through the project delivery stages, understanding the specific BIM requirements for each discipline for the given stage.

This document articulates how information shall be structured, managed and delivered by each Appointed Party contracted by Queensland Health, creating a Project Information Model (PIM) during design and construction stages (see Figure 2, outer arrows).

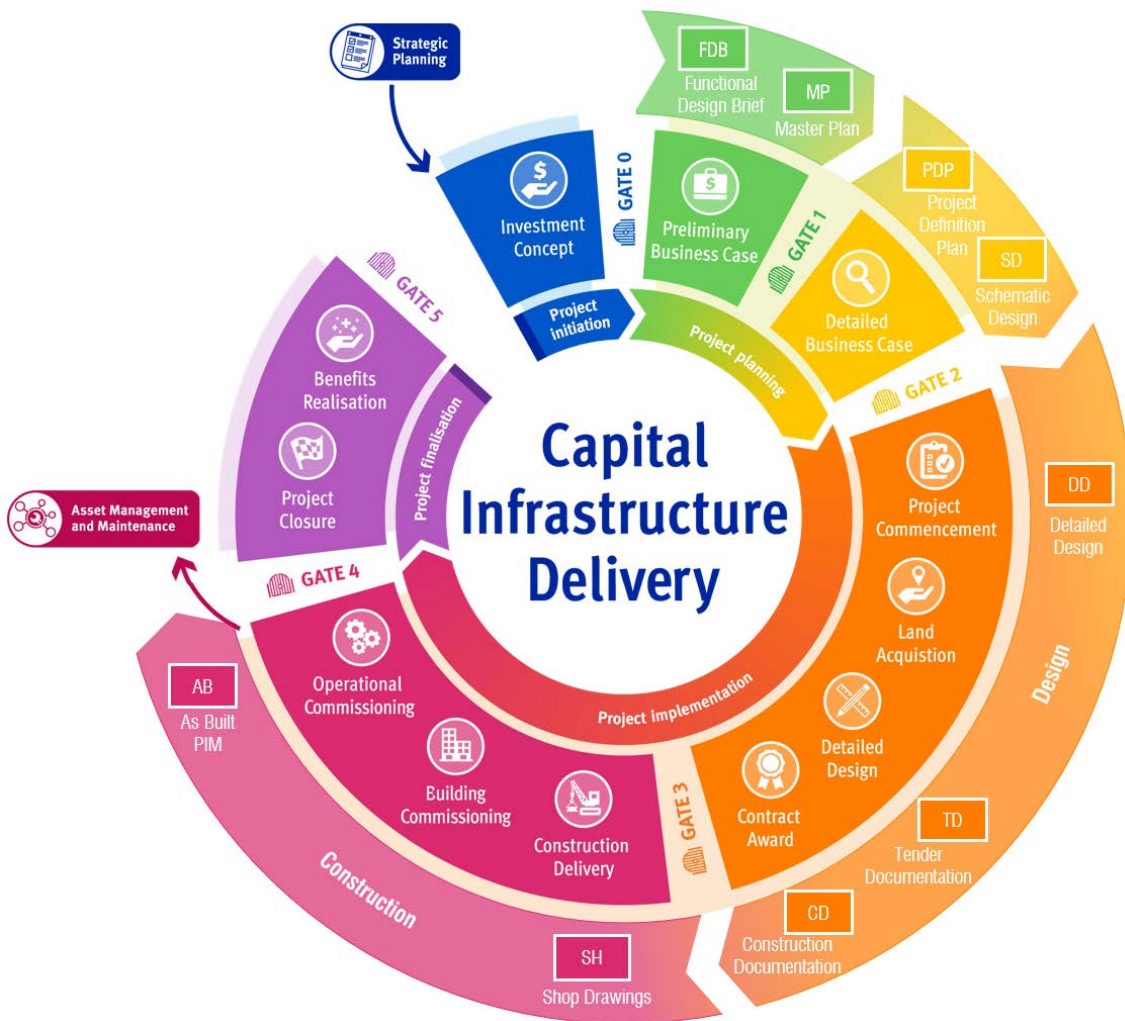


Figure 2: Queensland Health project stages (outer arrows)

1.2 Projects requiring BIM

Understanding that not all Queensland Health Delivery Teams are at the same level of BIM maturity, the following capital works projects tiers (explained in Table 2) have been defined.

BIM Tier 1 - Project value of more than \$100 million

BIM Tier 2 - Project value between \$10 million and \$100 million

BIM Tier 3 - Under \$10 million (where the value of BIM is clearly demonstrable)

The Queensland Health Project Director/Manager/procurement officer will confirm the BIM Tier for the project. It is important the tendering parties confirm the BIM Tier with Queensland Health before attempting to respond to the PIR through a Design BIM Execution Plan (BEP) (DBEP) or Construction BIM Execution Plan (CBEP).

1.3 Queensland health BIM objectives

The objective of this PIR is to detail the Queensland Health BIM exchange and AIR, not to recreate the CIR. Queensland Health intends to utilise the BIM as part of the broader PIM. For clarity, the PIM is defined as the information needed to design and construct the facility. BIM is just one element of the PIM, along with other elements such as the cost plan, drawings, reports, schedules, Room Data Sheets (RDS) and Schedule of Accommodation (SoA) (see Figure 3).

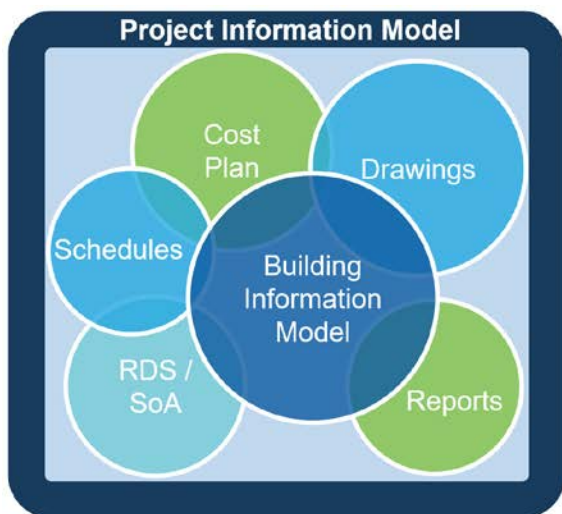


Figure 4: Project Information Model

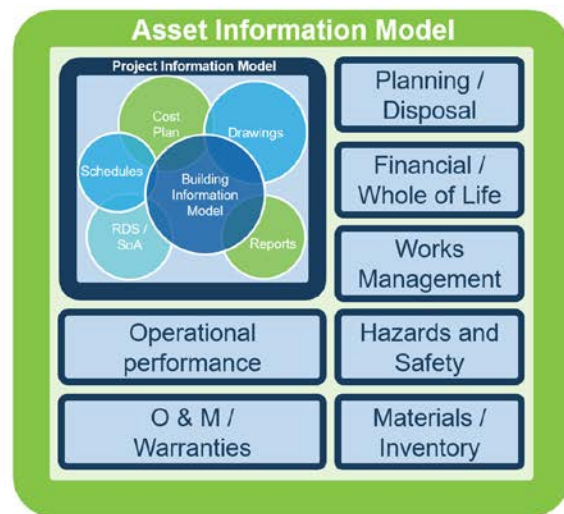


Figure 3: Asset Information Model (including elements of the Project Information Model)

This approach supports the Hospital and Health Services (HHS) in the ongoing use of the Asset Information Model (AIM) (see Figure 4). For clarity, the AIM is defined as the information used to operate and maintain the facility. The PIM shall be developed to assist the HHS longer-term AIM needs and strategies as defined by ISO19650 (BIM) and ISO55000 (Asset Management). The BIM/s shall be leveraged when upgrades are required of the asset. It is therefore important that BIM is scalable and delivered in native and an openBIM format (Industry Foundation Classes (IFC)) at handover to enable enhancement over time.

Table 2: BIM Objectives, outlines Queensland Health's key BIM priorities. Follow the objective title hyperlinks to read detailed breakdowns of each objective in Section 2.

Table 2: BIM Objectives

Queensland Health BIM Objectives			
No:	Queensland Health BIM Objective	Required uses of BIM by Appointed Parties	BIM Tiers
1	BIM is procured and incorporated into project delivery	From the earliest outset, a BEP is to be created, based on the PIR and CIR. The BEP is to be administered and updated by a Delivery Team BIM Manager	ALL
2	Improving collaboration, coordination and capacity	Discipline/trade BIM/s are to be combined into a Federated Model and used as a primary decision-making tool for coordination, collaboration	ALL
3	Platform agnostic – use of openBIM formats	Both native formats and IFC are contractual deliverables at handover.	ALL
4	Structured and gradual development of BIM to provide an as-built dataset	Continual development of the planning and design BIM/s to support the construction/as-built BIM/s, and any associated Asset Information Requirements	ALL
5	Improved data structuring and information coordination	SoA, drawings, schedules, Australasian Health Facility Guidelines (AusHFG) and HHS asset coding to be coordinated and linked to BIM	ALL
6	Benefits realisation is measured and tracked	BIM benefits realisation are discussed and reported at milestone deliverables by the Delivery Team using the Queensland Health BIM metrics for projects.xlsx	ALL
7	Clearer design and construction comprehension	The Delivery Team shall leverage BIM visualisation tools (3D collaboration tools that may be supplemented with VR/AR) to help inform stakeholders of design/constructability solutions	ALL
8	Workplace Health and Safety in BIM	Identified Safety in Design (SiD) risks must be navigable within the Federated Model to improve understanding and minimise or eliminate these risks	Tier 1 & 2 only
9	Quantity Surveying from BIM	The Quantity Surveyor (QS) is to use design BIM/s to inform the cost planning activities including whole-of-life costs	Tier 1 & 2 only
10	BIM to be used for operational planning and staging	The Delivery Team is to leverage BIM for operational planning, decanting and staging, and construction planning	Tier 1 only

2 Commercial

From 1st July 2019, BIM is required on Queensland Health projects, with Tier 3 projects under \$10million on an agreed value demonstrated basis, at the request of a Queensland Health Project Director.

Queensland Health requires BIM, project and asset information to be actively implemented and managed as part of the project procurement and delivery processes.

As there are many procurement methods in use by Queensland Health, a one size fits all approach to the development of BIM and corresponding BEP cannot be achieved, however, the BEP shall start to be developed and documented as part of the preliminary business case stage prior to completion of the Functional Design Brief. The development of the BEPs is further detailed in Section 3.1 BIM Execution Plans.

Capability and information management principles

Queensland Health requires the Delivery Team to adhere to, and demonstrate the following:

- a) Information shall be collaboratively developed, shared and managed, using a Common Data Environment (CDE) or a centralised approach to information management
- b) Object-based design and construction models (referred to as BIM/s) shall be created to satisfy the PIR, driving efficiency and predictability throughout the project. BIM/s shall be scalable, interoperable between Appointed Parties and a Federated Model shall be available for review using model reviewing software
- c) 2D documentation, schedules and visualisations shall be produced from relevant BIM/s. Any proposed use of CAD (e.g. typical 2D details) shall be documented in the BEP and approved by the Queensland Health representative
- d) The Delivery Team shall nominate a dedicated BIM Manager for design and again for construction who will manage the BIM processes for the project
- e) The responsibility for the production, development and implementation of the BEP lies with the Delivery Team and shall be managed by the Delivery Team BIM Manager. The Delivery Team shall ensure that the contents of the BEP are collaboratively developed with their supply chain, as each are appointed. The BIM approach must be documented in the relevant Queensland Health BEP Template with each appointed party agreeing to the approach as they are appointed. The CBEP shall build on the information within the DBEP to ensure consistency across the project
- f) Capability, capacity, and competence of the Delivery Team to meet the PIR shall be demonstrated in the BEP. If there are any requirements of the PIR that cannot be met due to capability or technical reasons, these shall be clearly stated in the returnable pre-contract BEP section - Amendments to PIR. Post-award these items shall be addressed and negotiated before final acceptance of the BEP as a contractually binding document.

Allowable BIM uses

Queensland Health recognises that information created on each capital project has significant benefit to the overall operational stages of the facility/HHS asset managers. Queensland Health acknowledges that information will be created by many discreet Appointed Parties, each with specific responsibilities during the process of design and construction. Critically, information created by any single Appointed Party can be used by other Appointed Parties for decision-making.

Both the DBEP and CBEP shall state the allowable uses of the discipline or trade-centric information (e.g. costing, coordination, information delivery) during and at the end of specific milestones. These uses shall cover those defined in the PIR and Project Brief.

Note: The Delivery Team BEP and BIM/s are contractually binding documents.

Reviewing BIM against the PIR

Queensland Health has an obligation to report on the BIM implementation progress to the Queensland Government, to advance the Queensland public sector and industry adoption of BIM.

Now that the implementation of BIM into Queensland Health is “business as usual” and has developed to include the detailed AIR and transfer schemas to the HHS Computer Maintenance Management System (CMMS), the progressive review of asset information is key to improving data quality at handover.

Any BIM/s produced by the Delivery Team during design and construction shall be reviewed for compliance with the PIR. The objective is to improve the collective capability of the Queensland Health supply chain and use of BIM as a process to improve information management practices

All Queensland Health BIM projects

For Tier 1, 2 and 3 projects, BIM/s shall be created to include all existing and proposed building, civil and site geometry of the affected capital works. The BIM/s shall contain the physical characteristics (geometric data) and HHS critical asset information (non-geometric data – see Section 4.13) needed to describe the design and construction works. 2D drawings and schedules (documentation) required for assessment, design review and construction shall be generated as extractions from the discipline/trade BIM/s and/or space planning tool.

Building and infrastructure systems shall be geometrically modelled to facilitate verification of access clearances, analysis of conflicts/clashes and coordination of the work with other aspects of the project including surrounding existing conditions.

2.1 BIM is procured and incorporated into project delivery

The use of BIM, as defined in this PIR, on projects as outlined in Section 1.2 Projects requiring BIM, is mandatory and contractual. All Queensland Health BIM projects shall have a

documented BEP for both design and construction. Information management is a critical element of BIM, especially when using external data sources such as space planning tools. A BIM Manager (for both design and construction) shall be appointed by the Delivery Team to oversee the creation of the discipline and trade-centric BIM files, administer the BEP, manage the CDE, undertake coordination and clash detection and ensure compliance with this PIR document.

A Queensland Health Project Manager (or representative) shall review the information created in BIM by the Delivery Team at defined stages.

2.2 Improving collaboration, coordination and capacity

The discipline/trade-centric BIM/s for the project shall be aggregated to form a Federated Model by the Delivery Team BIM Manager. The Federated Model shall be used as the primary coordination and decision-making tool, improving common understanding within the Delivery Team and Queensland Health. The objective is to leverage the Federated Model over traditional 2D drawings, focusing effort on geometric coordination, data creation and collaboration, rather than using 2D drawings for coordination. BIM shall be used for stakeholder consultation (user groups) and for all deliverables.

2.3 Platform agnostic – use of openBIM formats

Queensland Health does not specify the BIM authoring software to be used by the Delivery Team on the project. However, the information generated by the software shall be interoperable between the Delivery Team's chosen BIM systems using an openBIM² approach. The discipline and trade-centric BIM/s (in IFC format) shall be federated to form a holistic view of the project (Federated Model). The chosen BIM software shall have IFC 2x3 (or later) export and import functionality, IFC format deliverables are to include Queensland Health custom Property Sets, and are required at major milestones, along with the native BIM authoring files.

2.4 Structured and gradual development of BIM to provide an as-built dataset

The BIM/s created for the project shall gradually increase in geometric accuracy and embedded data throughout design and construction, aligned to Queensland Health project stages (see Figure 2). Queensland Health does not use Level of Development (LOD) to measure this progression but recognises industry uses these terms. Over the long term, there is a preference to move towards more granular definition of level of information need, but it is appreciated

² <https://www.buildingsmart.org/about/openbim/>

this will be a gradual transition requiring further input from Queensland Health. In the meantime, the following LOD bands shall provide guidance:

- a) Master Planning to Schematic Design, up to LOD 200
- b) Detailed Design to Construction Documentation, up to LOD 300
- c) Construction to as-built, up to LOD 400

Queensland Health requires the BIM/s being created to meet the CIR, this PIR, including the embedded AIR and any project-specific requirements. This includes any requirements for asset data transfer into the HHS CMMS, as-built documentation (drawings, O&M manuals, specifications, schedules etc.) and the native BIM authoring files including IFC format BIM/s at project completion.

A key element of any Queensland Health project is the SoA. The BIM environment shall be linked to the SoA, either natively in BIM or by using an external space planning or database tool with the ability to cross-check the designed requirements (from BIM) against the briefed requirements.

2.5 Improved data structuring and information coordination

At the project outset, it is important to consider and agree on the critical data structures, asset classification and information requirements of the end-users, the HHS facility managers, that may be beyond the requirements specified in this PIR. Workshops shall be held from the early stages of design onwards with HHS Facilities Managers to determine all project-specific needs. This includes consistent naming, identifiers, drawing numbering, etc. and shall be agreed between Appointed Parties, the HHS and the Queensland Health Project Manager and documented in the BEP. The minimum Level of Information Need is documented in Section 4.

The BIM/s produced shall be integrated with information from other sources such as the cost plan, SoA, AusHFG coding and standard components. Scheduling of elements (rooms, doors, windows, FF&E) shall be undertaken in BIM or alternatively bidirectionally linked to a space planning or database tool. Regardless, this information shall be coordinated between systems. Drawings shall be derived from the discipline/trade-centric models, post coordination with other discipline/trade models.

2.6 Benefits realisation is measured and tracked

As BIM is now a mandatory delivery mechanism for Queensland Health projects, the benefits realised in the use of BIM shall be identified early, analysed and planned for appropriately. Determining the relevant BIM benefits realisation metrics for each project shall occur from the earliest outset. This shall include the strategic outcomes, measurable benefits, when the benefits will be realised and who ultimately will benefit.

Ongoing monitoring and reporting using the **Queensland Health BIM metrics for projects.xlsx** tool shall be completed by the Delivery Team BIM Manager and Queensland Health project management.

This way, all parties have a say in how the benefits will be measured throughout project stages (Schematic Design, Detailed Design, Construction Documentation and Construction) and these shall be reported to Queensland Health by the completion of each project stage.

2.7 Clearer design and construction comprehension

BIM shall be used to convey the project's design intent and constructability more clearly to Queensland Health and other relevant parties. The use of BIM and 3D helps reduce misunderstandings or confusion about proposed design/construction solutions. Whether aiding user group sign-off, ensuring better client understanding, briefing sub-contractors, or reviewing the design or construction staging, BIM shall be considered as a means of producing clearer, more engaging visual aids. This may include the use of the federated model, static images, animations, interactive walk-throughs, immersive Virtual Reality or Augmented Reality.

QR codes shall be provided on drawings to link to the immersive technology delivered by the project team.

Additional requirements for Tier 1 and Tier 2 Projects

In addition to the above Queensland Health requirements for BIM on all projects, the following objectives apply to all Tier 1 and 2 projects.

2.8 Workplace health and safety in BIM

The use of BIM greatly improves a common understanding in relation to health and safety issues. The Queensland *Work Health and Safety Act 2011*³ requires that a Safety in Design (SiD) risk register is created and maintained during delivery and construction. For Tier 1 & 2 projects, this SiD risk register shall be linked to the Federated Model, highlighting areas or specific equipment of concern. The Federated Model shall be used to not only identify, assess and track SiD, but to support other safety assessments and operational workshops. This may be as simple as identifying health and safety issues in issue tracking software, or using health and safety indicators containing register IDs in the Federated Model.

2.9 Quantity surveying from BIM

Cost planning and management is a fundamental part of any project. It is therefore crucial that the Quantity Surveyor (QS) can input as early as possible into the BIM processes. It is imperative to ensure the discipline/trade BIM/s are set-up with proper geometric tolerances, units of measure and contains key information required by the QS for effective cost planning.

³ <https://www.legislation.qld.gov.au/view/html/inforce/current/act-2011-018>

For Tier 1 & 2 projects, a Model Content Plan (MCP)⁴ is preferred and allows the QS needs (e.g. units of measure, QS classification) to be articulated to the Delivery Team. The QS shall work with Appointed Parties to ensure they understand what information from BIM is to be used by the QS and at which stage this information is needed. This process enables the QS to manage the BIM expectations efficiently, ensuring the QS can confidently use the BIM/s being produced for quantity surveying and costing purposes.

For Tier 3 projects only, the QS requirements of the BIM/s can be included in the BEP rather than a separable MCP.

For Tier 1 & 2 projects the linkage between the SoA, BIM and cost plan must be demonstrable using a common classification schema.

Additional requirements for Tier 1 Projects

In addition to the above Queensland Health requirements for BIM, the following objectives also apply to all Tier 1 projects.

2.10 BIM to be used for operational planning and staging

Most Queensland Health projects incorporate refurbishments and expansions to existing facilities. This requires careful planning for project delivery operational staging, decanting and construction staging to minimise disruptions. High-level planning, staging and diagrammatically showing this through design options in BIM is useful for stakeholder consultation and improving understanding of the proposed construction works.

For Tier 1 projects, it is a requirement that the Delivery Team use BIM for operational staging and decanting purposes to convey the intent more clearly to all stakeholders.

⁴https://bim.natspec.org/images/Article_files/Resources/Partner_documents/ANZIQS_2018__BIM_Best_Practice_SoftCopy_FINAL.pdf

3 Management

This section outlines the management of the project deliverables and the required approaches to BIM by the Delivery Team. Each project stage contains what is required to be actioned by the Delivery Team, including any key BIM deliverables and asset information requirements.

3.1 BIM execution plan

As changes during project delivery are inevitable, such as new Delivery Team members joining the project, the BEP shall be revised by the BIM Manager when any new Appointed Party joins the project and/or before each new project stage commences (see Figure 5: BIM documents (outer circle) aligned to the Capital Infrastructure Delivery Lifecycle).

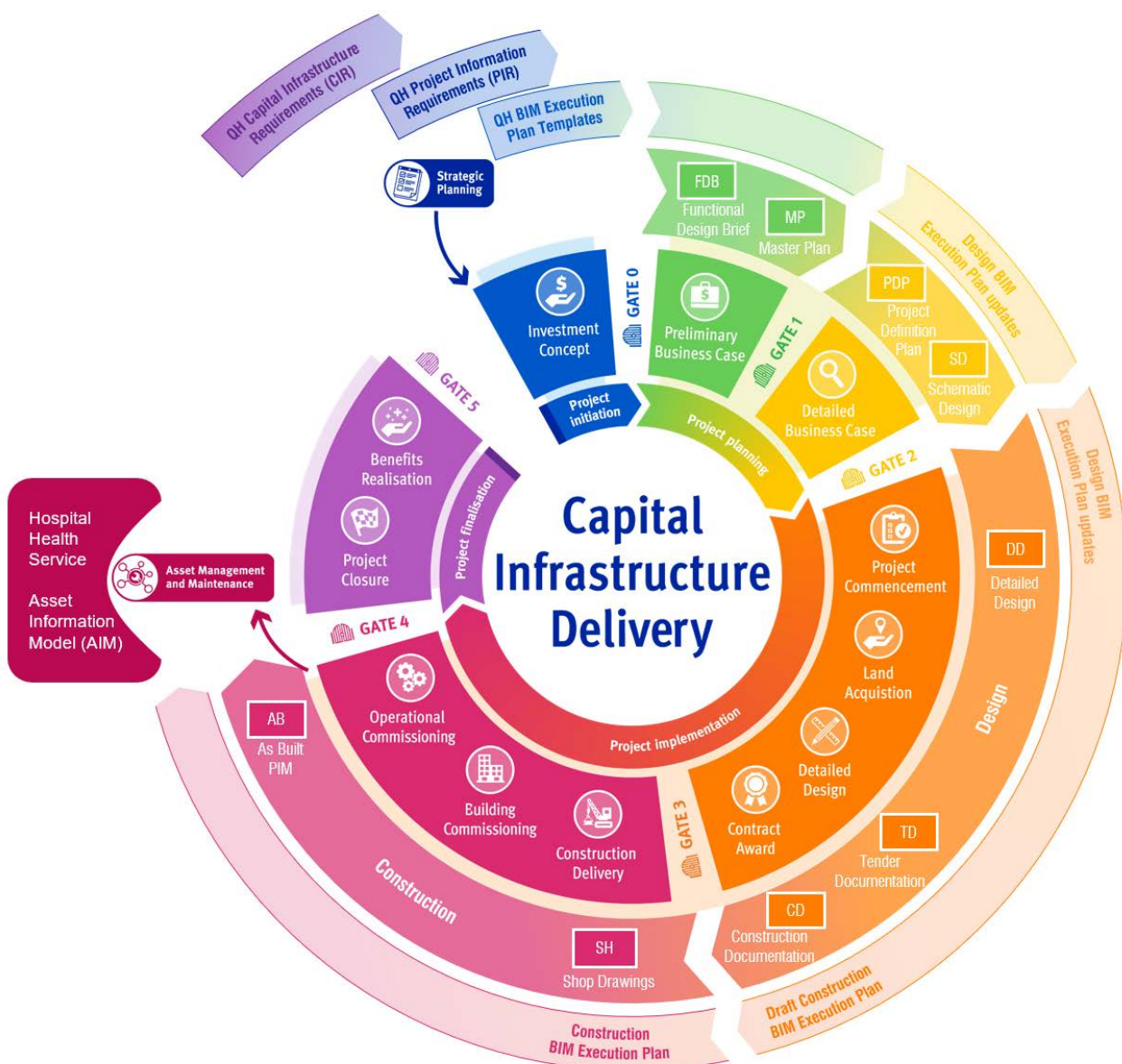


Figure 5: BIM documents (outer circle) aligned to the Capital Infrastructure Delivery Lifecycle

Once agreement between Appointed Parties has occurred, Queensland Health must be advised of the BEP updates and be provided with the opportunity to review the BEP at the following points:

- a) When a newly appointed party joins (or leaves) the Delivery Team
- b) Prior to the start of any major project stage (Schematic Design, Detailed Design, Construction Documentation, etc.)
- c) When a change (client, design, or contractor/vendor initiated) occurs that has a material impact on the previously agreed time, cost and/or information deliverables

Tendering parties shall demonstrate compliance with this PIR through the creation of the project-specific BEP, first for design and then for construction, created in the Queensland Health BEP Word templates (see Figure 6). This shall be achieved by:

- d) using the Queensland Health BEP Word templates (DBEP and CBEP) to create a BEP included as part of their tender, for use by Queensland Health as part of the assessment criteria for Delivery Team award
- e) the finalisation of the DBEP and/or CBEP within 45 days post-award (for known stages the Delivery Team is appointed for.)

The BEP shall cover all BIM related design tasks, construction uses of BIM, and ultimately handover of asset information. The BEPs shall be managed by the Delivery Team appointed BIM Manager, with input from all Appointed Parties.

The Appointed Parties and Queensland Health must agree to the processes and requirements defined in the BEP, as the BEP shall be contractually binding.



Figure 6: BIM Execution Plan templates connecting the BIM requirements and deliverables

When authoring the BIM Executions Plans, the following Queensland Health documents should be considered (as seen in Figure 6):

1. CIR
2. Queensland Health Uniclass 2015 Guidelines
3. Project Information Requirements
4. Queensland Health Asset Equipment Lists
5. Queensland Health BIM Shared Parameters
6. Queensland Health Project Schedules (Revit)
7. Design BIM Execution Plan Template
8. Construction BIM Execution Plan Template
9. Discipline/Trade and Federated BIM/s deliverables
10. Queensland Health IFC Export Mapping
11. Queensland Health BIM Metrics for Projects.xlsx
12. Queensland Health BIM Data Uploader Template.xlsx

Any DBEP amendments must occur prior to the Delivery Team progressing to the next design stage, this includes:

- Master Plan
- Project Definition Plan
- Schematic Design
- Detailed Design
- Tender/Construction Documentation

Any CBEP amendments will occur prior to the Delivery Team progressing to the next construction stage, this includes:

- Construction Administration
- Commissioning and Handover
- Project closure

Benefits realisation metrics shall be recorded and tracked throughout the course of the project, at each of the above project stages in the **Queensland Health BIM metrics for projects.xlsx** template, thus informing the benefits realisation during project finalisation.

3.1.1 BEP development – design BEP

For all projects, the design BIM Manager shall create a DBEP from the Queensland Health DBEP Word template as part of their tender submission. The design BIM manager shall be responsible for updating the DBEP when material changes to the project occur. The DBEP shall be based on the requirements defined in the PIR and shall reference the relevant sections from this document. This will enable all parties to understand whether the BIM requirements and uses have been met for specific project stages.

3.1.2 BEP development – construction BEP

At the contractor tendering stage, the tendering contractors shall create a CBEP using the Queensland Health CBEP Word template. The CBEP shall be based on the previously developed DBEP and reference the relevant PIR sections. The pre-award CBEP shall be included as part of the contractor's tender submission. If the contractor has additional requirements for the use of BIM, beyond the Queensland Health PIR, these shall be clearly identified in the CBEP (e.g. work packages planning, sub-trade progress payments etc). These items may require further negotiation with any existing Appointed Parties.

3.2 Existing conditions modelling

All Appointed Parties shall verify with Queensland Health the availability of any previous as-built BIM/s and/or drawings prior to undertaking any work in any of the early design stages.

Existing drawings, surveys and any BIM/s (if available) shall be obtained, and site checked for accuracy by the Delivery Team. Existing critical assets, as defined by the HHS shall be modelled and incorporated into the Federated Model. These asset locations shall be agreed prior to modelling and verified by means of traditional survey or laser scanning. The use of laser scans (point clouds) should be considered, facilitating the existing condition capture and verification of the existing conditions modelling.

The extent of modelling beyond the affected areas and the required level of critical asset information shall be determined and agreed based on the cost, timeliness, HHS and project needs. These requirements shall be discussed and agreed during the project kick-off meeting and shall be documented in the BEP.

BIM Requirements by Project Stages

3.3 Project planning – preliminary business case - functional design brief



To ensure the project is developed with specific HHS needs in mind, collaboration with the ultimate facility managers for the project should be sought during the Functional Design Brief stage, determining the additional asset information management effort required beyond the minimum AIR already defined in Section 4.13.

The information sourced during the strategic assessment (functional requirements, existing conditions, easements, topography, orientation etc) shall be collated and validated for currency to be leveraged in future stages including the development of the BIM/s.

Consideration should be given to using a space planning or database tool that can manage the SoA and briefed area, supporting the strategic Functional Design Brief and strategic

infrastructure assessment. The space planning tool can also be linked to the BIM/s, providing a robust way of tracking the HHS SoA brief vs designed requirements, and even the asset data.

The benefits realisation shall be populated for this stage, in close consultation with the HHS and Queensland Health using **Queensland Health BIM metrics for projects.xlsx** template.

3.3.1 Tier 1 & 2 projects

- a) The QS shall work with the Delivery Team to collaboratively develop the MCP

3.3.2 Functional design brief BIM deliverables

Table 3: Functional Design Brief BIM deliverables

No.	Deliverable	Required uses of BIM by Appointed Parties
1	Updated DBEP	Post-award, the draft (pre-award) DBEP is to be updated based on this PIR and further scope discussions with Queensland Health and the HHS
2	Queensland Health BIM metrics for projects.xlsx	The BIM metrics spreadsheet shall be populated for this stage by the Delivery Team and Queensland Health

3.4 Project planning – preliminary business case - master plan



The Delivery Team appointed BIM Manager and any appointed Delivery Team members shall revise the proposed approach to BIM in the DBEP, for the project phases they are engaged for. The approach to information management and the CDE must be documented in the DBEP and complemented with a proposed information container diagram, highlighting discipline/trade models that constitute the Federated Model, cost plan, SoA, RDS, etc.

If a Master Plan massing model is created, it shall be generated in the BIM-enabled platform throughout the Master Plan stage, enabling continuity from the Master Plan to Schematic Design. Basic general arrangement drawings and visualisations shall be produced from BIM at this stage. Departmental functional relationships and adjacency diagrams and the whole of hospital departmental relationships shall be refined at this stage.

The BIM benefits realisation shall be documented for this stage by the Design BIM Manager, in close consultation with the HHS and Queensland Health using Queensland Health BIM metrics for **Queensland Health BIM metrics for projects.xlsx**.

3.4.1 Tier 1 & 2 projects

- a) The QS shall have a defined MCP and all engaged Delivery Team parties shall be developing the BIM/s to enable area-based costing by the QS

3.4.2 Tier 1 projects only

- a) High-level operational planning and staging diagrams shall be produced from the massing model, aiding stakeholder understanding of the proposed works

3.4.3 Master plan BIM deliverables

Table 4: Master Plan BIM deliverables

No.	Deliverable	Required uses of BIM by Appointed Parties
1	Updated DBEP	The DBEP is to be updated based on this PIR and further scope discussions with Queensland Health and the HHS
2	Master Plan BIM	Master Plan massing model delivered in native formats
3	Queensland Health BIM metrics for projects.xlsx	The BIM metrics spreadsheet shall be populated for this stage by both the Delivery Team and Queensland Health

3.5 Project planning – detailed business case - schematic design



Before Schematic Design proceeds, a DBEP must be defined and in place. A nominated BIM Manager shall be assigned to the project by the Delivery Team. The development of the Schematic Design will require a preferred option to be refined and documented in BIM up until the submission of Schematic Design. The BEP shall form part of the Detailed Business Case and Schematic Design deliverables.

The building set out, orientation, preliminary building grid, and floor-to-floor heights (including allocation of space for services) shall be confirmed at this stage and defined in BIM.

The various Schematic Designs in BIM (options) shall be undertaken. This shall provide area analysis that can be linked to the Functional Design Brief, initial cost plan and SoA. All existing conditions and survey information shall be verified at this stage to ensure the proposed Schematic Design options created in BIM will integrate with the existing condition constraints.

Circulation areas (footpaths, walkways, ramps, stairs, vertical transportation etc) shall be generically modelled. Travel distance routes (both horizontal and vertical) shall be modelled to validate that distances have been kept to a minimum.

The use of space planning tools and BIM/s for user group consultation and visualisation is preferred. The asset data for Building and Spaces asset tiers shall be populated as defined in Section 4.13.

The BIM benefits realisation shall be documented for this stage by the Design BIM Manager, in close consultation with the HHS and Queensland Health using Queensland Health BIM metrics for **Queensland Health BIM metrics for projects.xlsx**.

3.5.1 Tier 1 & 2 projects

- a) The approach linking SiD, Work, Health and Safety risks to the Federated Model shall be defined at this stage supporting risk management
- b) Areas derived from the briefed SoA shall be linked to design departmental areas in BIM, and Model Elements as defined in the MCP shall be used to inform the cost plan

3.5.2 Tier 1 projects only

- a) Further developed and detailed operational planning and staging diagrams shall be produced from the BIM, aiding stakeholder understanding of the proposed works

3.5.3 Schematic design BIM deliverables

Table 5: Schematic Design BIM deliverables

No.	Deliverable	Required uses of BIM by Appointed Parties
1	Updated DBEP	The DBEP is to be updated based on the developing Delivery Team, this PIR and further scope discussions with Queensland Health and the HHS
2	Schematic Design BIM/s	Separate discipline models in native formats, and a federated model shall be submitted (if available at this stage)
3	Asset Data Extracts	All specified asset data for Building and Space asset tiers shall be extracted into the provided Queensland Health BIM Data Uploader Template.xlsx template, as defined in Section 4.13
4	Queensland Health BIM metrics for projects.xlsx	The BIM metrics spreadsheet shall be populated for this stage by both the Delivery Team and Queensland Health

3.6 Project implementation – detailed design



The Delivery Team shall continue to use BIM during the Detailed Design stage, building on the requirements of Schematic Design. The Delivery Team is responsible for enabling, creating and progressively delivering information that increases in detail (geometric and non-geometric data) from design through construction. This shall be managed by the Delivery Team BIM Manager. The following apply to this design stage and onwards:

- a) Demonstrate that the requirements of this PIR and the Project Brief are documented within the BEP and the BIM/s being produced comply with these requirements.
- b) When 2D drawings are required, these shall be derived from the BIM. Documentation and data cannot be created using separate 2D processes or detached data. Any drawings (e.g. typical details) that are developed outside of BIM shall be clearly identified in the BEP and approved by Queensland Health prior to implementation.
- c) All FF&E shall be identified in BIM and RDS with the appropriate AusHFG coding, and attributed with the corresponding Group 1, 2 and 3 and subgroups.
- d) All new maintainable assets shall be attributed with the specified asset data for Building, Space, System and all equipment asset tiers shall be extracted into the provided **Queensland Health BIM Data Uploader Template.xlsx**, as defined in Section 4.13
- e) A Federated Model of the civil, structural, mechanical, electrical, fire, security and hydraulic model (plus any other discipline models) with the architectural model will occur during this design stage by the Delivery Team BIM Manager for review by the Project Manager.
- f) Using an IFC compatible BIM coordination tool, prepare a clash detection report that will be reviewed and actioned by all design team parties. The discipline/trade BIM/s must be made available in both native and IFC format. A Federated model using the IFC format shall be submitted to Queensland Health as defined by the project milestone delivery schedules.
- g) Technologies such as virtual and augmented reality can be beneficial aids to support drawings and the RDS and should be used at this stage to gain final user group sign off.

The design intent BIM/s shall be developed to a level of completeness whereby the Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. Non-geometric asset information shall also be attached to the Model Element.

The BIM benefits realisation shall be documented for this stage by the Design BIM Manager, in close consultation with the HHS and Queensland Health using **Queensland Health BIM metrics for projects.xlsx**.

The Federated Model based on the discipline/trade IFC BIM/s, will be independently audited by a Queensland Health representative against this PIR, the DBEP and other relevant Queensland Health requirements for project delivery. Any error or omissions will need to be remedied by the originating authors, managed by the Design BIM Manager.

3.6.1 Tier 1 & 2 projects

- a) SiD, Work, Health and Safety risks shall be documented and navigable in the Federated Model for ease of tracking and review
- b) During Detailed Development, detailed elemental costing by the QS, associated with the BIM and whole of life costing is required

3.6.2 Tier 1 projects only

- a) Detailed operational planning such as the detailed decanting options shall be undertaken using the BIM/s prior to completion of Tender Documentation

3.6.3 Detailed design BIM deliverables

Table 6: Detailed Design BIM deliverables

No.	Deliverable	Required uses of BIM by Appointed Parties
1	Updated DBEP	The DBEP is to be updated at each project stage to capture changes to workflows or deliverables as agreed by the Delivery Team and Queensland Health
2	Detailed Design BIM/s	Separate discipline models in both native and IFC formats, and a coordinated federated (IFC) model shall be submitted at each project stage
3	Asset Data Extracts	All specified asset data for Building, Space, System and all equipment asset tiers shall be extracted into the provided Queensland Health BIM Data Uploader Template.xlsx , as defined in Section 4.13
4	Queensland Health BIM metrics for projects.xlsx	The BIM metrics spreadsheet shall be populated for this stage by both the Delivery Team and Queensland Health

3.7 Project implementation – tender documentation



BIM/s and other information containers, such as the cost plan, SoA and RDS will be further developed during this stage to greater geometric and non-geometric precision, informing the investment decision by Queensland Health and ultimately Tender Documentation. The Federated Model shall be supplied to prospective tenderers for uses defined in the DBEP, supporting the traditional 2D documentation.

The DBEP must be updated at the beginning of this project stage, by the Design BIM Manager, to reflect the modelling approaches, systems, and actual processes employed by the Delivery Team for all design stages prior to construction.

As part of the contractor’s tender, a draft CBEP (based on the updated DBEP) shall be developed and submitted as part of the tender deliverables. Post-award the successful contractor shall have in place a construction BIM Manager, which may or may not be the Design BIM Manager. Handover of BIM/s from design to construction must occur, i.e. IFC format and native BIM format for each design BIM.

The extent of any retained Delivery Team, sub-contractors, fabricators and suppliers developing models for construction shall be agreed between Queensland Health and the preferred contractor to fulfil the requirements of the project.

The BIM benefits realisation shall be documented for this stage at this time, by the Design BIM Manager, in close consultation with the HHS and Queensland Health using **Queensland Health BIM metrics for projects.xlsx**.

The Federated Model based on the discipline/trade IFC BIM/s will be independently audited by a Queensland Health representative against this PIR, the DBEP and other relevant Queensland Health requirements for project delivery. Any error or omissions will need to be remedied by the originating authors, and managed by the Design BIM Manager before Issued For Construction documentation is achieved.

3.7.1 Tier 1 & 2 projects

- a) SiD, Work, Health and Safety risks shall be documented and navigable in the Federated Model for ease of tracking and review
- b) Detailed elemental costing associated with the BIM and whole of life costing is required prior to completion of Tender Documentation

3.7.2 Tier 1 projects only

- a) Detailed operational planning such as the detailed decanting options shall be undertaken using the BIM/s prior to completion of Tender Documentation

3.7.3 Tender documentation BIM deliverables

Table 7: Tender Documentation BIM deliverables

No.	Deliverable	Required uses of BIM by Appointed Parties
1	Updated DBEP	The DBEP is to be updated at each project stage to capture changes to workflows or deliverables as agreed by the Delivery Team and Queensland Health
2	Tender BIM/s	Separate discipline models in both native and IFC formats, and a coordinated federated (IFC) model shall be submitted at each project stage
3	Asset Data Extracts	All specified asset data for Building, Space, System and all equipment asset tiers shall be extracted into the provided Queensland Health BIM Data Uploader Template.xlsx , as defined in Section 4.13

3.8 Project implementation – construction documentation



Discipline BIM/s and other information containers, such as the cost plan, SoA, RDS, drawings, schedules and associated specifications will be further developed during this stage to a greater geometric and non-geometric precision, suitable for competitive tendering and construction use i.e. Issued For Construction documentation, specifications and schedules.

The Delivery Team's BIM Manager will undertake a detailed coordination review on the Federated Model and all discipline outputs (BIM/s, drawings, schedules, specifications) ensuring there are minimal geometric coordination issues prior to Construction award.

The BIM benefits realisation shall be documented for this stage at this time, by the Design BIM Manager, in close consultation with the HHS and Queensland Health using **Queensland Health BIM metrics for projects.xlsx**.

The Federated Model based on the discipline/trade IFC BIM/s will be independently audited by a Queensland Health representative against this PIR, the DBEP and other relevant Queensland Health requirements for project delivery. Any error or omissions will need to be remedied by the originating authors, and managed by the Design BIM Manager.

3.8.1 Tier 1 & 2 projects

- a) SiD, Work, Health and Safety risks shall be documented and navigable in the Federated Model for ease of tracking and review
- b) Detailed elemental costing associated with the BIM and whole-of-life costing is required prior to completion of Issued For Construction documentation

3.8.2 Tier 1 projects only

- a) Detailed operational planning such as the detailed decanting options shall be undertaken using the BIM/s prior to completion of Construction Documentation

3.8.3 Construction documentation BIM deliverables

Table 8: Construction Documentation BIM deliverables

No.	Deliverable	Required uses of BIM by Appointed Parties
1	Construction Documentation BIM/s	Separate discipline models in both native and IFC formats, and a coordinated federated (IFC) model shall be submitted at each project stage
2	Asset Data Extracts	All specified asset data for Building, Space, System and all equipment asset tiers shall be extracted into the provided Queensland Health BIM Data Uploader Template.xlsx , as defined in Section 4.13

3.9 Project implementation – construction



Prior to construction commencing, the CBEP shall be updated by the appointed Construction BIM Manager, documenting the approach of transferring the PIM to the AIM supporting the commissioning and handover plan as described in the CIR Volume 4 Engineering & Infrastructure – Section 4.1 Principles.

As constructed redline mark-ups shall be incorporated into the design and construction BIM/s to produce an as-built BIM of the project at handover.

Project-specific critical asset data, beyond that defined in Section 4.13, and the transfer processes shall be confirmed with the HHS Facilities Managers at this stage. Testing of transferring design and future construction asset data from the PIM to the AIM shall occur to improve asset data handover, prior to commissioning and construction completion. The majority of asset data shall be transferred using the provided **Queensland Health BIM Data Uploader Template.xlsx** as defined in Section 4.13.

Sub-contractors may prepare shop drawing models in other 3D CAD software packages, rather than BIM. These shop drawing models must be integrated into the Federated Model for coordination purposes.

The BIM benefits realisation shall be documented for this stage at this time, by the Construction BIM Manager, in close consultation with the HHS and Queensland Health using **Queensland Health BIM metrics for projects.xlsx**.

The Federated Model based on the discipline/trade IFC BIM/s will be independently audited by a Queensland Health representative against this PIR, the DBEP and other relevant Queensland Health requirements for project delivery. Any error or omissions will need to be remedied by the originating authors, and managed by the Construction BIM Manager.

3.9.1 Tier 1 & 2 projects

- a) Safety in Construction, Work, Health and Safety risks shall be finalised and navigable in the Federated Model

3.9.2 Construction BIM deliverables

Table 9: Construction BIM deliverables

No.	Deliverable	Required uses of BIM by Appointed Parties
1	Updated CBEP	Post-award, the draft (pre-award CBEP is to be updated based on this PIR, the existing DBEP and further scope discussions with Queensland Health and the HHS
2	Construction BIM/s	Separate discipline models in both native and IFC formats, and a coordinated federated (IFC) model shall be submitted at each project stage
3	Asset Data Extracts	All specified asset data for Building, Space, System and all equipment asset tiers shall be extracted into the provided Queensland Health BIM Data Uploader Template.xlsx , as defined in Section 4.13
4	Queensland Health BIM metrics for projects.xlsx	The BIM metrics spreadsheet shall be populated for this stage by both the Delivery Team and Queensland Health

3.10 Project implementation – as-built



Before construction begins, an as-built model verification process shall be defined in the CBEP. This may consist of a measured approach using laser scanning, or a visually verified approach using photogrammetry, 360 photos, or photos.

The final updated trade and discipline as-built BIM/s shall be provided to the Queensland Health Project Manager and the HHS Facilities Managers in both native and IFC formats. A Federated Model of the as-built project is required in IFC format, containing the Queensland Health custom property sets defined in Section 4.10.

Any associated as-built 2D documentation including (but not limited to) the Building Users Guide, drawings indicating the location of test points, test reports, operations and maintenance manuals, etc. shall be provided in a searchable digital format.

The final critical asset data transfer of information from the PIM to the AIM will occur at this stage, in line with the asset information management requirements (see Section 4.13) and any additional HHS specific requirements.

The agreed BIM benefit realisation items for construction shall be tracked and reported on by the Construction BIM Manager to Queensland Health project management during the as-built and handover.

The Federated Model based on the discipline/trade IFC BIM/s will be independently audited by a Queensland Health representative against this PIR, the DBEP and other relevant Queensland Health requirements for project delivery. Any error or omissions will need to be remedied by the originating authors, and managed by the Construction BIM Manager.

3.10.1 As-built BIM deliverables

Table 10: As-built BIM Deliverables

No.	Deliverable	Required uses of BIM by Appointed Parties
1	As-built BIM/s	Separate discipline models in both native and IFC formats, and an as-built federated (IFC) model shall be submitted
2	Asset Data Extracts	All specified asset data for Building, Space, System and all equipment asset tiers shall be extracted into the provided Queensland Health BIM Data Uploader Template.xlsx , as defined in Section 4.13
3	Queensland Health BIM metrics for projects.xlsx	The BIM metrics spreadsheet shall be populated for this stage by both the Delivery Team and Queensland Health

3.11 Project finalisation – benefits realisation - project closure



The targeted benefits realisation results shall be reported again at this time, in close consultation with the HHS and Queensland Health to feedback on future refinements. These results shall encompass the implementation of BIM on the project, e.g. coordination issues resolved before construction, reduced number of RFIs, improved user group sign-off process, and enhanced coordination of information deliverables (cost, SoA, briefed versus design outcomes).

These findings will inform future revisions to Queensland Health PIR and BEP Word templates.

4 Technical

The following section outlines the technical BIM requirements for the Delivery Team. This reference is to assist in the development of the BEP, MCP, software selections, coordination and collaboration processes and the like.

4.1 BIM execution plan requirements

The Appointed Parties shall appoint a BIM Manager to collaboratively develop, prepare and manage the BEP and BIM/s for the project at both design and construction stages. The Queensland Health BEP Templates shall be used, referencing the relevant sections of this PIR for ease of tender assessment by Queensland Health. The following shall be addressed:

- a) Project information (relevant HHS, Facility Name, project address/location, project summary/description)
- b) Project stages (including modelling existing assets) and nominated start/end dates (schedule of BIM activities including milestones and submittals)
- c) Specify relevant industry and agree HHS asset data with the HHS Asset/Facilities Manager (classification, nomenclature etc) which will be used in the execution of BIM for the project
- d) Objectives and goals are aligned to Queensland Health PIR with specific benefits realisation metrics defined
- e) Specific uses of BIM aligned to this PIR for Queensland Health uses and nominate any contractor or design uses of BIM not available to Queensland Health
- f) Identify the entire Delivery Team including all Appointed Parties, including proposed parties not yet appointed (contractor, steel fabricator etc)
- g) Responsibility matrix (roles and responsibilities)
- h) Processes of communicating to Queensland Health (both central and HHS) the design, reviews and user group/stakeholder sign off
- i) Communication and collaboration strategies between the Delivery Team (including contractor), the BIM Manager and the Queensland Health Project Manager
- j) Information delivery plan (what data will be authored, at what stage and in which system) and any classification/asset data structures to be used
- k) Model development requirements (if LOD is used, a LOD Matrix)
- l) Level of Information requirements such as critical AIR (noted in Section 4.13)
- m) File, asset coding, room and naming conventions (nomenclature)
- n) Plan for file sharing, suitability of the information, storage and retrieval, and data security (CDE)
- o) Required elements, processes and management techniques required for coordination tasks
- p) Methodology for quality assurance and validation of BIM files, project-wide
- q) Software selections, file format, file exchange requirements

4.2 Roles and responsibilities

The pre-contract BEP shall define the Delivery Team's proposed BIM roles and responsibilities for each discipline and trade for the proposed stages for which they are engaged. This shall detail how these roles will enable the coordination and delivery of the project in BIM to meet this PIR. It is recommended that each discipline/trade allow for a nominated Model Manager to coordinate the development of, and quality assure, the discipline/trade-specific BIM. Depending on the project scale, the Model Manager could be a separate role or on smaller projects, this role could be fulfilled by a senior Model Element Author. The Delivery Team shall carefully consider the following roles and responsibilities as they relate to BIM:

- a) BIM Manager (separate Design and Construction roles or combined)
- b) Discipline/Trade Model Managers (lead modeller)
- c) Model Element Authors (designers, modellers and trades)

The DBEP and CBEP shall define the Delivery Team by way of a table that provides the following information:

- d) Defined role
- e) Company
- f) Name
- g) Contact details (email and phone number)

The Delivery Team shall nominate an overall resource, the BIM Manager for design and construction stages. This role may be resourced by two different individuals to support the proposed procurement method – one for design and a different resource for construction, or could be the same individual in the case of Design and Construct. Regardless, there shall always be an allocated resource undertaking the BIM Management role on the project on behalf of the Delivery Team, and sufficient handover time is allowed if the resource changes.

The BIM Manager shall oversee and report on the BIM and information management process to the Queensland Health Project Manager, ensuring that Appointed Parties conform to the content of the BEP. The following conditions apply:

- h) Any replacement of the BIM Manager shall be advised to the nominated Queensland Health representative within 10 days
- i) If the resource changes, the nominated handover time shall be documented, and prior approval sought from Queensland Health
- j) The BIM Management experience of the resource shall be provided within the BEP Template stating the years, projects, experience, technical and communication abilities
- k) The nominated allocation of time this resource will spend per week, by stage, by deliverable on BIM and information management-related tasks

4.3 Communication and meetings

The Delivery Team shall allow enough time for meetings to discuss any issues with BIM, deliverables and information management, which shall be incorporated into traditional design and construction review meetings. Timeframes for these meetings shall be indicatively

documented in the pre-award BEP and agreed on post-award. As a minimum, Queensland Health anticipates the requirements listed in Table 11.

Table 11: Meetings

Meetings	
BIM Execution Planning	2 weeks after contract award, a review cycle until each party agrees with its contents. Final BEP is required a maximum of 45 days post-award. Revisions only as additional stakeholders become involved with the project and as needed at each project stage, after Queensland Health approval
SiD Workshop	As per the project delivery schedule
3D Coordination / Clash Resolution	As a minimum, this shall take place fortnightly and prior to each project milestone from the end of Schematic Design onwards until handover
3D Design Review Meetings	It is expected that the graphical models (and associated data) will be used throughout Delivery Team meetings in accordance with the project delivery schedule
AIR planning	An allowance of at least two meetings per project stage for the Queensland Health PM, HHS FM, Delivery Team BIM Manager and PMs to discuss any project-specific and/or additional asset/information requirements

4.4 Information containers

The information delivery plan, the BEP, shall identify the information containers (BIM, cost planning, SoA, etc.) that constitute the PIM. The objective is to establish where information will reside and how this information will be consolidated to form an overall PIM for the project. The Delivery Team can then determine what information should exist in BIM and what information should exist externally in another data source, such as space planning, the Federated Model environment, costing or other database tools.

This must be documented in the BEPs by way of a diagram explaining the information containers and the relationships between these containers. The BEPs are broken down into project stages and then subsequent discipline/trades within those stages, enabling understanding of what information will be contained in the relevant discipline-specific information containers at any point during delivery.

4.5 Model federation

The Delivery Team BIM Manager shall combine all design/construction/trade BIM/s into a single Federated Model. This Federated Model shall form the basis for all design reviews and shall remain in alignment with project progress.

It is expected that the Federated Model shall be used internally by the Delivery Team to coordinate and as such should be well organised with useful views and ease of navigation a paramount consideration, relevant to the specific project needs.

At a minimum, the BIM Manager shall submit to Queensland Health an IFC Federated Model for milestone reviews. Federated Model formats can be discussed on a project-by-project basis.

These Federated Models will be used primarily for progress tracking, data validation against this PIR and general scope compliance as well as operational reviews.

4.6 coordination

Design and Construction coordination reviews shall be carried out regularly by the Delivery Team as required to satisfy the project stage requirements and to minimise project risk. As a minimum, this shall take place fortnightly from the end of Schematic Design onwards.

Each Appointed Party shall undertake coordination of their own modelled elements as part of their quality assurance processes, before sharing information with the broader Delivery Team.

The Delivery Team BIM Manager shall then use the Federated Model and focus on significant hard clashes, construction tolerances and safe working/maintenance zones. Issue tracking software shall be used to track and close-out design and coordination issues, rather than just identifying clashes in a static report.

The pre-award BEP shall identify details of the coordination process including:

- a) Proposed software to be used for model federation and clash detection/management
- b) Responsibilities and accountabilities, including timeframes for resolution of identified coordination issues
- c) The coordination priorities and overall management process
- d) Tolerance strategy
- e) Outputs (e.g. coordination issues report, dashboarding, etc.)

4.7 Quality control

The Delivery Team shall provide evidence to their BIM Manager and the Queensland Health Project Manager that activities identified in this PIR and BEP are taking place (e.g. design reviews, RDS, scheduling, linkage to SoA, population of asset data, etc.). The BEP shall detail model and data quality control, consideration shall be given to:

- a) Quality assurance/control procedures
- b) Software used to support quality control procedures
- c) Retaining data integrity/accuracy in BIM and highlighting the integrations with cost planning, construction staging/sequencing, SoA, space planning and resulting 2D drawing and schedule outputs

4.8 Software

Queensland Health does not stipulate the BIM authoring tools used by the Delivery Team and they are encouraged to use whichever BIM authoring tools are best suited to their discipline or trade practices. Information created in their chosen platform shall be interoperable with other BIM authoring, space planning and collaboration tools. Agreement between Appointed Parties on the chosen software and any interoperability testing shall be performed prior to the first deliverable being issued to Queensland Health.

At a minimum, the chosen tools shall support the buildingSMART IFC, for both import and export.

4.9 Software version update policy

Versioning of software shall be managed by the Delivery Team's BIM Manager throughout the project delivery stages. Any software version update(s) shall be agreed with the Delivery Team across all disciplines/trades prior to updating. Once agreed, Queensland Health will review the timings of the upgrade. Only at this stage shall the BIM/s be upgraded, if approved.

It is recommended that the timing of any updates shall align with the end/start of project milestone dates to avoid disruption to the Delivery Team deliverables.

4.10 IFC

From Detailed Design onwards, BIM/s shall be provided to Queensland Health in both native and IFC formats. Native formats provide a method for future works and model maintenance, however, IFC is the mandated openBIM format. All models shall be exported as buildingSMART IFC 2X3 format, however, if all BIM authoring tools are compatible, there is a preference for IFC 4. It is recognised that buildingSMART certification for this standard is not yet commonplace.

In addition to other project and BIM deliverables, a Federated Model in IFC format is required at each project stage from Detailed Design onwards. All IFC BIM/s shall be exported from their BIM authoring tool with the custom **Queensland Health BIM Shared Parameters** (refer to Section 4.13.3) mapped to the Queensland Health IFC User Defined Property Sets.

This gathers all of the Queensland Health BIM Shared Parameters conveniently on their relevant tab. Refer to **Queensland Health IFC Export Mapping** for example mapping.

Table 12: Custom IFC user defined property sets

QH Property Set	IFC Element
QH_Building	IfcBuilding
QH_Space	IfcSpace
QH_Asset	IfcElement
QH_System	IfcSystem

The mapping should also remove the **QH_** prefix to all parameter names. The Property Sets retain their **QH_** prefix. In future, a more integrated approach may be taken to better align Queensland Health BIM Shared Parameters with the native properties of the IFC schema.

4.11 Common data environment

There is a potential misconception that the CDE is more about technology and less about workflows. In fact, it is fundamental that workflows are developed first and solutions are selected to facilitate the workflow. It may also be misunderstood that single technology solutions dominate project information management. This is not the case, and Appointing Parties, Lead Appointed Parties and Appointed Parties could all have their own CDE solutions that make up the project CDE.

The CDE will function as a digital hub within which internal and external stakeholders can collect, manage and disseminate all relevant approved project data in a managed environment. Aconex is typically provided by Queensland Health for use by the wider Project Team. Additional solutions may be provided by the Delivery Team for model collaboration and exchange, issue tracking, etc.

It is expected that all work-in-progress models shall be transmitted and saved to the shared folder within the CDE, replacing the previously issued model, therefore model naming can remain consistent. The CDE workflows shall be clearly documented in the BEPs. If no specific Queensland Health CDE requirements have been stipulated, requirements such as Information Container naming shall align with the upcoming Australian AS ISO 19650-2 national annex, where appropriate.

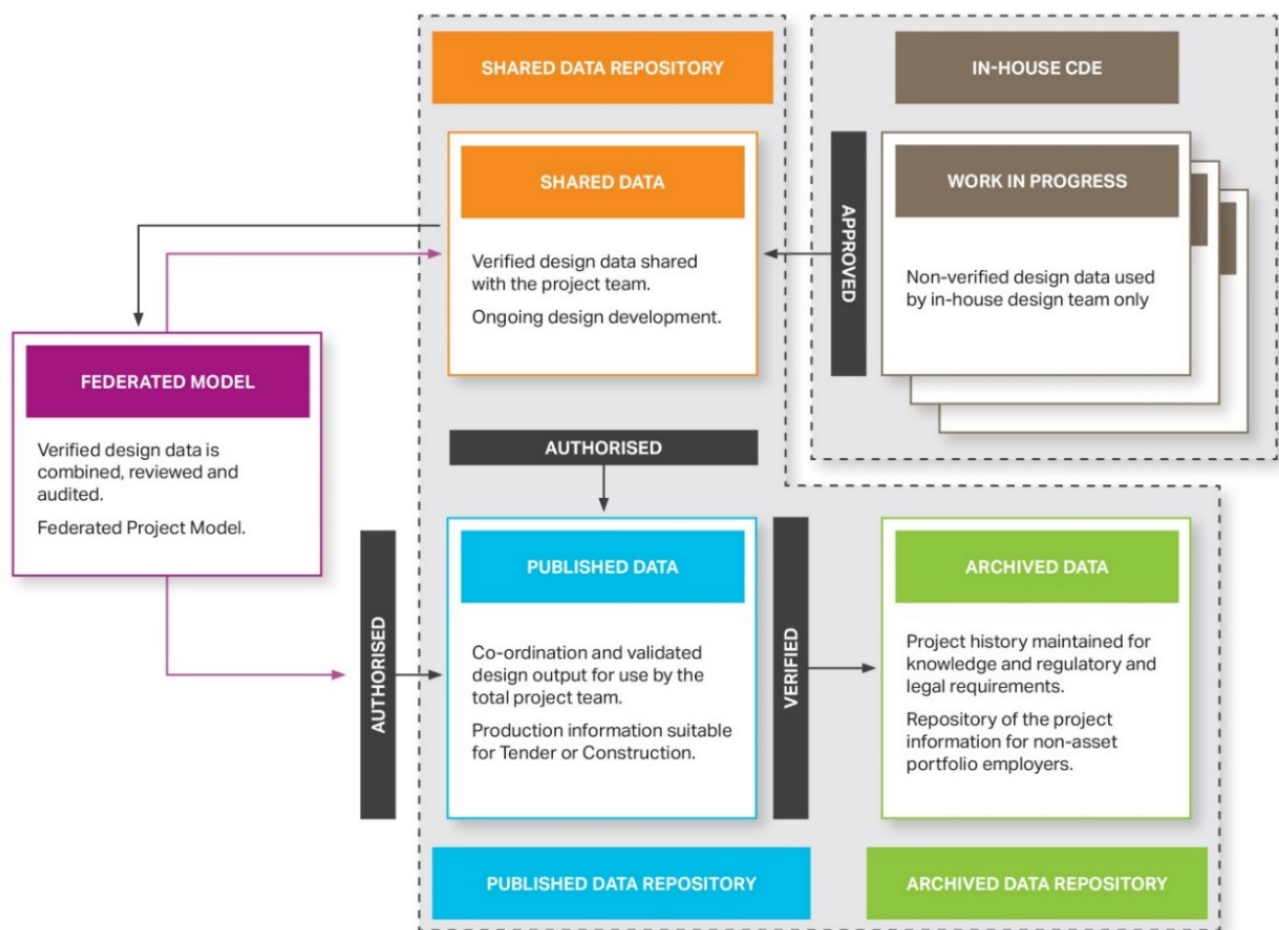


Figure 7: Typical Common Data Environment workflow

4.12 Classification

4.12.1 Uniclass 2015

Queensland Health has recently implemented the use of the Uniclass classification system⁵, initially requiring codes from the Systems (Ss) and Products (Pr) tables for assets appearing on the Queensland Health Asset Equipment Lists.

Where a Uniclass code has been supplied in the Queensland Health Asset Equipment Lists, it may be necessary to add another level of depth depending on the specific product or system being installed. For example, an Air Handling Unit has a provided product code of Pr_60_65_03, however when specifying an AHU a more specific code may now be relevant, e.g. Pr_60_65_03_XX. This may also impact the provided System code. It is expected that all Uniclass codes are updated as necessary to match the most appropriate level as shown in Table 13.

Table 13: Uniclass 2015 code format

Uniclass 2015 Level	Code Format
Table	Aa
Group	Aa_00
Sub-group	Aa_00_00
Section	Aa_00_00_00
Object	Aa_00_00_00_00

Over time, the implementation of Uniclass is intended to be extended to additional medical equipment, FF&E, and ultimately, all modelled objects.

The selection of Uniclass does not exclude the future implementation of complementary classification systems, such as Virtual Buildings Information System⁶. Further information about the implementation of Uniclass is presented in the Queensland Health Uniclass 2015 Guidelines.

4.12.2 AusHFG

All FF&E and any other items defined in the AusHFG Standard Components⁷ shall be populated with the AusHFG code, Group number and Queensland Health Functional Location Code in BIM.

⁵ <https://uniclass.thenbs.com/>

⁶ <https://vbis.com.au/>

⁷ <https://healthfacilityguidelines.com.au/standard-components>

Schedules of this data shall be extracted from Detailed Design onwards for use by the Queensland Health FF&E procurement team.

4.13 Asset information requirements

Queensland Health has recently developed the AIR aligned to the implementation of SAP S/4HANA, Queensland Health’s asset database. The minimum AIR required in BIM by Health Capital Division (HCD) are documented below in Section 4.13.3, however, various CMMS may be used by each HHS, and their asset information needs may vary.

The AIR is the minimum compulsory asset information deliverable. Delivery Team consultation with the HHS Facilities Manager before Detailed Design stage shall determine and agree on the extent of any additional AIR. Consideration of how critical information will be transposed between the PIM and the AIM shall be sought before physical construction occurs on site.

Collaboration with the HHS Facilities Manager will provide much of the needed Queensland Health defined project specifics, such as level naming, approved manufacturers, mandatory service providers, etc. HHS Facilities Managers are encouraged to refer to the HHS Facilities Management Digital Project Involvement Plan.

4.13.1 Functional location codes

Knowledge of the spatial location of all assets and FF&E is important for Queensland Health to be able to successfully manage them. Functional Location Codes (FLC) are unique identifiers used for this purpose across all of Queensland Health. Refer to the Queensland Health Functional Location Standard or consult the Queensland Health Project Manager for instruction on how to generate FLCs. See Figure 8 below for an extract showing a breakdown of the FLCs.

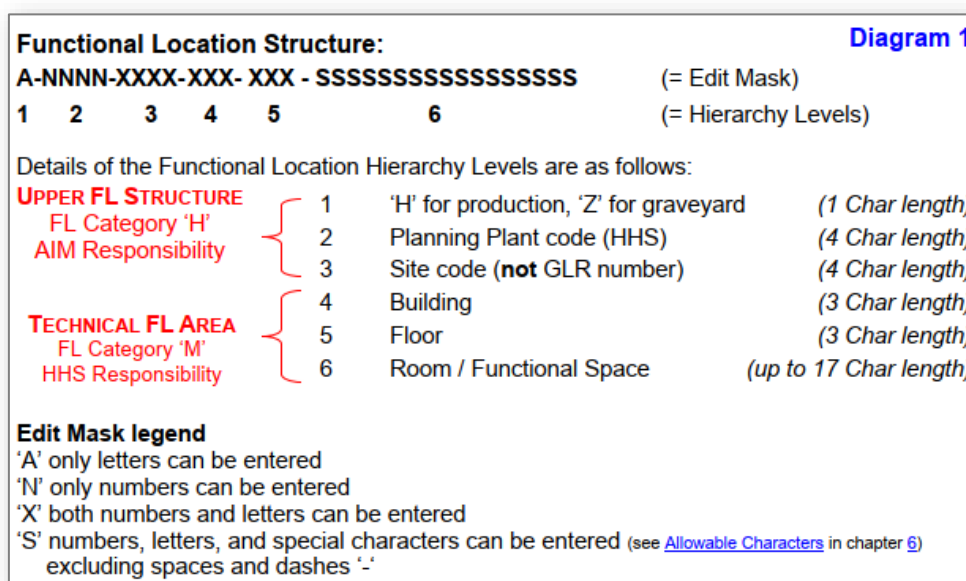


Figure 8: Functional Location Naming

4.13.2 Asset grouping

For ease of specification and documentation, Queensland Health has six asset groups. For the relationships of these groups and their descriptions, refer to Figure 9 and the summaries below. This should be read in conjunction with the Queensland Health Asset Equipment Lists.

Building – asset data captured for the whole building/model (not against individual objects). Refer to Table 14 for the required parameters.

Spaces – asset data captured for each room/space. Refer to Table 15 for the required parameters.

Systems – asset data captured once for each system (not sub-components) on the provided Systems sheet of the Queensland Health Asset Equipment Lists only. Refer to Table 16 for the required parameters.

Major Equipment – asset data captured for each piece of equipment/plant on the provided Major Equipment sheet of the Queensland Health Asset Equipment Lists only. Refer to Table 16 for the required parameters.

Minor Equipment – asset data captured for each piece of equipment on the provided Minor Equipment sheet of the Queensland Health Asset Equipment Lists only. Refer to Table 16 for the required parameters.

Miscellaneous – asset data captured for each item on the provided Miscellaneous sheet of the Queensland Health Asset Equipment Lists only. Refer to Table 16 for the required parameters.



Figure 9: Queensland Health Asset Grouping

Systems, Major Equipment, Minor Equipment and Miscellaneous assets are itemised in the Queensland Health Asset Equipment Lists, with assets listed under the relevant sheet for each group, as seen in Figure 10.

QH Attribute Name >	Asset Grouping	Item / Sub-Code Description	Asset Class	S4 Object Type	Characteristic Values/Attr	Uniclass2015SsCode	Uniclass2015SsTitle	Uniclass2015PcCode	Uniclass2015PcTitle
Systems Major Equipment	Description	Description	Description	Description	Description	Uniclass 2015 Systems (Ss) table code	Corresponding Title (Description) to the provided code. Refer to Uniclass 2015 Systems (Ss) table from IFC.	Uniclass 2015 Product (P) table code	Corresponding Title (Description) to the provided code. Refer to Uniclass 2015 Product (P) table from IFC.
Description	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR
Data Type	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR
Data Elements	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR	QHAR
BIM Parameter Name >	QH Asset Grouping	QH Item Description	QH Asset Class	QH Object Type	QH Asset Attributes	QH Uniclass2015SsCode	QH Uniclass2015SsTitle	QH Uniclass2015PcCode	QH Uniclass2015PcTitle
1	Miscellaneous	Roller Doors & Shutters	DOZZ	510	DCRD	Ss_25_30_20_74	Roller shutter doorset systems	Pr_30_59_84_73	Roller shutters
2	Miscellaneous	Water Tanks	XWZZ	1060	WSWT	Ss_55_15_65	Potable water storage tank systems	Pr_60_50_06	Water tanks and cisterns
3	Miscellaneous	Fire Hydrants	XFZZ	2530	FFFH	Ss_55_30_94_30	Fire hydrant systems	Pr_70_55_97	Water fire extinguishing outlets
4	Miscellaneous	RPZ Valves (Backflow)		1060		Ss_55_70_38_40	Incoming water supply systems	Pr_65_54_94_73	Reduced pressure zone valves
5	Miscellaneous	Double Check Valve (Backflow)		1060		Ss_55_70_38_40	Incoming water supply systems	Pr_65_54_95_05	Backflow prevention check valves
6	Miscellaneous	Thermostatic Mixing Valves (material)	XWZZ	1060	WSTM	Ss_55_70_38	Hot and cold water supply systems	Pr_65_54_95_88	Thermostatic mixing valves
7	Miscellaneous	Tempering Valve	XWZZ	1061	WSTV	Ss_55_70_38	Hot and cold water supply systems	Pr_65_54_95_87	Tempering valves
8	Miscellaneous	Pump Reducing Valve	XWZZ	1062	XWPR	Ss_55_70_38	Hot and cold water supply systems	Pr_65_54_95_86	Pressure reducing valves
9	Miscellaneous	Extinguisher: Carbon Dioxide	FPZZ	2530	FPCC	Ss_55_30_55_55	Portable fire extinguisher systems	Pr_40_50_28_11	Carbon dioxide fire extinguishers
10	Miscellaneous	Extinguisher: Dry Powder	FPZZ	2530	FPDP	Ss_55_30_55_55	Portable fire extinguisher systems	Pr_40_50_28_24	Dry powder fire extinguishers
11	Miscellaneous	Extinguisher: Foam Chemical	FPZZ	2530	FPZC	Ss_55_30_55_55	Portable fire extinguisher systems	Pr_40_50_28_30	Foam fire extinguishers
12	Miscellaneous	Extinguisher: Foam Doped Pressure	FPZZ	2530	FPFS	Ss_55_30_55_55	Portable fire extinguisher systems	Pr_40_50_28_30	Foam fire extinguishers
13	Miscellaneous	Extinguisher: Water Soda Acid	FPZZ	2530	FPSA	Ss_55_30_55_55	Portable fire extinguisher systems	Pr_40_50_28_04	Portable fire extinguishers
14	Miscellaneous	Extinguisher: Water Soda Acid	FPZZ	2530	FPWA	Ss_55_30_55_55	Portable fire extinguisher systems	Pr_40_50_28_44	Portable fire extinguishers

Figure 10: Example of the Equipment List

This Equipment List defines whether an item is treated as an asset - any item on these lists shall be considered an asset and the data relevant to the grouping shall be captured against the asset in BIM. Any item not on these lists does not require asset data.

However, this doesn't mean other BIM requirements do not apply. For example, all objects appearing in the AusHFG shall be populated with the relevant AusHFG code, Group number and FLC as specified elsewhere in this PIR.

Refer to the tables in the following sections for the specific asset parameters required for each asset group.

4.13.3 Asset attributes (BIM parameters)

The AIR for BIM are itemised over the following sections, broken down by asset group.

The list of parameters used in BIM is detailed in the following sections. Queensland Health has prefixed all parameter names with QH_ as they relate directly to Queensland Health's needs. While several base parameters may have been equivalent to the specified parameters, the decision was made to prefix the names to improve consistency, aid in easier identification in the BIM authoring tool environment, and standardise mapping to IFC as defined in Section 4.10.

To assist the supply chain, these parameters are available preconfigured for the project environment in Autodesk Revit 2021. It is understood that not all designers use this BIM authoring tool and it is intended that future versions of the PIR may provide preconfigured parameters for other applications if requested.

Refer Queensland Health BIM Shared Parameters.txt available from September 2022

Refer Queensland Health Project Schedules (Revit).rvt available from September 2022

If these documents aren't compatible with selected BIM authoring tools, use the lists provided below to configure the parameters.

How to read the tables

The arrows under the abbreviated project stages columns indicate the direction of information flow at each project stage.

- ◀ Indicates information required from Queensland Health to enable the population of this field
- ▶ Indicates information being exchanged by the Delivery Team to Queensland Health

Where the **Required?** field is Mandatory, a value must be provided

Where the **Required?** field is Conditional, a value must be provided if one exists. (E.g. if a room has an AusHFG code it must be populated. If no AusHFG code exists for that room type then no value is required.)

Refer to the Queensland Health BIM Data Uploader Template.xlsx for data types and field constraints.

4.13.3.1 Building

The asset information required for projects, at the whole building level, is detailed in Table 14. All parameters in this table should be mapped to the **QH_Building** user defined IFC PropertySet, which applies to IfcBuilding elements. Note: some fields are only required from Architecture (as indicated in the **Required?** Column with (Arch only)). All other disciplines may disregard those (Arch only) parameters.

Table 14: Building Asset Information Requirements

Asset Attribute Details		Project Stages (refer to Figure 5)						Required?	Reference
Parameter Name	Description	SD	DD	TN	CD	CON	AB		
QH_Facility Name	Name of site	▶▶	▶	▶	▶	▶	▶	Mandatory	Project design brief
QH_Building Name	Name of building	▶▶	▶	▶	▶	▶	▶	Mandatory	Project design brief
QH_Building FLC	Building Functional Location Code	▶▶	▶	▶	▶	▶	▶	Mandatory	FLC standard or PM
QH_Discipline	BIM design or trade discipline, as per Uniclass (e.g. Ro_50_XX_XX Design roles)	▶	▶	▶	▶	▶	▶	Mandatory	-
QH_No. of Levels	Number of building floor levels	▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	-
QH_Floor Area	Total floor area (rounded to whole metres) in m2	▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	-
QH_Facade Type	External building materials used. Select all applicable from provided QH list	▶▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	Queensland Health BIM Data Uploader Template.xlsx
QH_Building Expected Useful Life	In years	▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	-

4.13.3.2 Spaces

The asset information required for projects, at the spaces (rooms) level, is detailed in Table 15. All parameters in this table should be mapped to the QH_Space user defined IFC PropertySet, which applies to IfcSpace elements. Note: the Spaces parameters are only required to be populated by Architecture (as indicated in the **Required?** Column). All other disciplines may disregard this table.

Table 15: Spaces Asset Information Requirements

Asset Attribute Details		Project Stages (refer to Figure 5)						Required?	Reference
Parameter Name	Description	SD	DD	TN	CD	CON	AB		
QH_AusHFG Room Code	AusHFG Room Number	▶▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	Design brief / AusHFG
QH_Room Name	Name of room aligned to AusHFG where applicable	▶▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	Design brief / AusHFG
QH_Room FLC	Room Functional Location Code	▶▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	FLC standard or PM
QH_Level Name	Name of building floor level	▶▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	HHS level naming requirements
QH_Room Description	Description of service / use of room	▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	Design brief / AusHFG
QH_Plant Section	Select from provided Plant Section values (description with hierarchy)	▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	Queensland Health BIM Data Uploader Template.xlsx
QH_Room Department	Department room belongs to	▶▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	Design brief / AusHFG
QH_Room floor area	Room floor area - enter whole number (no decimals) in m2	▶▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	Design brief / AusHFG
QH_Ceiling Height	Minimum ceiling height in mm	▶	▶	▶	▶	▶	▶	Mandatory (Arch only)	Design brief / AusHFG

Asset Attribute Details		Project Stages (refer to Figure 5)						Required?	Reference
Parameter Name	Description	SD	DD	TN	CD	CON	AB		
QH_Floor Material	Floor material finish. Use Uniclass description e.g. Resilient sheet floor covering systems	◀	▶	▶	▶	▶	▶	Mandatory (Arch only)	Section or Object level of Uniclass Ss_30_42.

4.13.3.3 Asset equipment list

The asset information required for projects, at the individual equipment level and the overarching system level, is detailed in Table 16. All parameters in this table should be mapped to the QH_Asset user defined IFC PropertySet (applies to IfcElement). Those with a tick in the SYS column should also be mapped to the QH_System user defined IFC PropertySet (applies to IfcSystem).

SYS = System, MJR = Major, MIN = Minor, MSC = Miscellaneous columns relate to the asset grouping (refer to Section 4.13.2). Refer to the Queensland Health Asset Equipment Lists document for detailed lists of equipment that are classed as assets. E.g. if a modelled element is on the Major equipment list, all parameters with a tick in the MJR column shall be populated, if an object is on the Miscellaneous equipment list, only parameters with a tick in the MSC column shall be populated. **If systems/objects are not on the Queensland Health Asset Equipment Lists, this asset data is not required.**

Table 16: System and Equipment Asset Information Requirements (includes Systems (SYS), Major (MJR), Minor (MIN) and Miscellaneous (MSC) Equipment)

Asset Attribute Details		Asset Group				Project Stages (refer to Figure 5)						Required?	Reference
Parameter Name	Description	SYS	MJR	MIN	MSC	SD	DD	TN	CD	CON	AB		
QH_Asset Grouping	Either: Systems, Major Equipment, Minor Equipment, Miscellaneous	✓	✓	✓	✓	◀	▶	▶	▶	▶	▶	Mandatory	Queensland Health Asset Equipment Lists
QH_Item Description	Item / Sub-Code Description from provided Equipment lists	✓	✓	✓	✓	◀	▶	▶	▶	▶	▶	Mandatory	Queensland Health Asset Equipment Lists
QH_Functional Location Code	Asset Functional Location Code	✓	✓	✓	✓	◀	▶	▶	▶	▶	▶	Mandatory	FLC standard or PM
QH_Equipment SAID Number	Single Asset Identifier (SAID)	✓	✓	✓	✓					◀	▶	Mandatory	QH PM or SAID QH-GDL-354-1-1:2017

Asset Attribute Details		Asset Group				Project Stages (refer to Figure 5)						Required?	Reference
Parameter Name	Description	SYS	MJR	MIN	MSC	SD	DD	TN	CD	CON	AB		
QH_Asset Class	Asset Class from provided Equipment lists	☑	☑	☑	☑			◀		▶	▶	Mandatory	Queensland Health Asset Equipment Lists
QH_Object Type	S/4 Object Type from provided Equipment lists	☑	☑	☑	☑			◀		▶	▶	Mandatory	Queensland Health Asset Equipment Lists
QH_Asset Attributes	Characteristic Values/Attributes (if available) from provided Equipment lists	☑	☑	☑	☑			◀		▶	▶	Conditional	Queensland Health Asset Equipment Lists
QH_AusHFG Code	Applies to all AusHFG standard components	☑	☑	☑	☑	◀	▶	▶	▶	▶	▶	Conditional	AusHFG
QH_Uniclass2015 SsCode	Uniclass 2015 Systems (Ss) table code from QH equipment lists	☑	☑	☑	☑			◀		▶	▶	Mandatory	Queensland Health Asset Equipment Lists
QH_Uniclass2015 SsTitle	Uniclass 2015 Systems (Ss) table title from Queensland Health Asset Equipment Lists	☑	☑	☑	☑			◀		▶	▶	Mandatory	Queensland Health Asset Equipment Lists
QH_Uniclass2015 PrCode	Uniclass 2015 Products (Pr) table code from Queensland Health Asset Equipment Lists	☐	☑	☑	☑			◀		▶	▶	Mandatory	Queensland Health Asset Equipment Lists
QH_Uniclass2015 PrTitle	Uniclass 2015 Products (Pr) table title from Queensland Health Asset Equipment Lists	☐	☑	☑	☑			◀		▶	▶	Mandatory	Queensland Health Asset Equipment Lists
QH_Is Medical Equipment	Is this asset considered a medical device or equipment? Y/N	☐	☑	☑	☑		▶	▶	▶	▶	▶	Conditional (populate with Y only)	-
QH_Equipment Manufacturer	Manufacturer of asset. Refer to approved manufacturer list if relevant	☐	☑	☑	☐			◀		▶	▶	Mandatory	Check HHS for approved manufacturer list

Asset Attribute Details		Asset Group				Project Stages (refer to Figure 5)						Required?	Reference
Parameter Name	Description	SYS	MJR	MIN	MSC	SD	DD	TN	CD	CON	AB		
QH_Equipment Model	Manufacturer model number of asset	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>							Mandatory	Check HHS for approved equipment list
QH_Manufacturer Serial Number	Serial number of asset	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>							Mandatory	-
QH_Install Date	Date of asset installation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Mandatory	-
QH_Start Up date	Date of commissioning or first start-up	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Mandatory	-
QH_Design/Service Life	Expected life in months	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Mandatory	-
QH_Mandatory Service Provider	For assets requiring servicing by manufacturer or QH authorised provider	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Conditional	QH PM / HHS
QH_Operating and Maintenance Manual	O&M document reference as agreed with QH. Includes spare parts list and OEM drawings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Mandatory	-
QH_Warranty Start Date	Start date of product warranty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Mandatory	-
QH_Warranty Finish Date	End date of product warranty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Mandatory	-
QH_Warranty Documents	Document references as agreed with QH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							Mandatory	QH PM / HHS

4.13.3.4 BIM data uploader

All populated asset data is to be exported at each project stage from DD onwards and provided to Queensland Health in the **Queensland Health BIM Data Uploader Template.xlsx**.

The data uploader from each discipline is to be consolidated into a single document by the Delivery Team BIM Manager prior to delivery at each project stage.

This data is used to ensure suitable testing and compliance checks can be undertaken throughout project delivery and that the final handover will be fully compatible with Queensland Health's SAP and individual HHS needs.

The **Queensland Health BIM Data Uploader Template.xlsx** is structured to align with the asset grouping, with one sheet for each asset group. Only the relevant parameter columns are present on each sheet, meaning all cells should be populated for each row (except for non-applicable conditional values). This makes it easier for the Delivery Team to export schedules from their BIM authoring tool that are filtered and grouped by asset group type.

4.13.3.5 Queensland health populated data

The following attributes are to be populated by the Queensland Health Project Manager or delegated representative in the **Queensland Health BIM Data Uploader Template.xlsx** template prior to handover to HCD and the relevant HHS.

This data is not required in BIM. This data is not entered by the Delivery Team – it is populated by Queensland Health in the handover spreadsheet prior to uploading to S/4HANA.

Table 17: Queensland Health populated data (in Queensland Health BIM Data Uploader Template.xlsx)

Asset Attribute Details		Asset Group				Due at Hand-over/ as-built	Required?
Parameter Name	Description	SPACES	SYS	MJR	MIN		
Acquisition Date	Date of QH receiving asset (typically PC)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	◀	Mandatory
Acquisition Value	Cost to purchase	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	◀	Mandatory
Acquisition Currency	AUD only	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	◀	Mandatory
Required Condition	Rating of 1 - 5. Refer to condition assessment docs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	◀	Mandatory
Criticality (to operations)	Asset criticality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	◀	Mandatory
Cost Code	QH cost code	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	◀	Mandatory
Cost Centre	QH cost centre	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	◀	Mandatory

4.14 Shared resources

Several sources of information will need to be provided by Queensland Health, so Delivery Teams have the data required to successfully deliver BIM. This includes documents, such as the:

- CIR
- Queensland Health Uniclass 2015 Guidelines
- Queensland Health Asset Equipment Lists
- Queensland Health BIM Shared Parameters
- Queensland Health Project Schedules (Revit)
- DBEP Template and CBEP Template
- Queensland Health IFC Export Mapping
- Queensland Health BIM Data Uploader Template.xlsx
- Queensland Health BIM metrics for projects.xlsx

Other data, such as building level naming and codes for FLC needs are to be provided by the HHS through the Project Manager. If this information isn't forthcoming contact:

HCDCorro@health.qld.gov.au .

