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Employer's information requirements (EIR)

An overview of facilities management requirements

This document provides an overview of the BIFM employer's information requirements (EIR) template and explains the EIR's function in the Building Information Modelling (BIM) process and how it fits into the BIFM suite of documents.

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The EIR is an important document in the BIM process defined in PAS1192-2 as a "pre-tender document setting out the information to be delivered, and the standards and processes to be adopted by the supplier as part of the project delivery process" (p.4). As such it is a key starting point for clients and facility managers when engaging in BIM projects.

The key aim of the EIR is to ensure that appropriate information is created in a suitable format for use at the right time for tendering in the BIM process, during the course of the project, and afterwards. It is therefore a vital client tool in the BIM process.

The EIR template is used at the critical initial stage in the BIM process, in line with the RIBA 2013 plan of works. It's here where all the main parties involved in the project agree on what they are setting out to create, what it will cost and how they will work together to achieve the desired outcome. The EIR Guidance and Template guides them successfully through this process.

During the critical early stages of the BIM process the client will start to scope out its BIM strategy and information requirements for the project. This will establish what information it needs to be able to optimise the operation of its assets, and consider the project in terms of its level of detail and complexity, along with core project stages and objectives.

By now the client will probably have started to appoint a team to support the project development. This may include appointing a client representative, as recommended in BS 8536. This person's principal task is to ensure that design and construction is planned and controlled so as to enable a smooth transition into operation and beyond for the defined periods of aftercare.

To help establish the BIM FM strategy, the client (or appointed client representative/project information manager*) should review the BS and PAS documents listed below. This will help clarify the desired level of BIM adoption and strategy for the project or programme of works. A more detailed list is in Appendix B of the EIR template.

- BS 8536:2015 Briefing for design and construction – Part 1: code of practice for facilities management (buildings infrastructure)
- BS 8536-2:2016 Briefing for design and construction – Part 2: Code of practice for asset management (Linear and geographical infrastructure)
- BS 1192-4:2014 Collaborative production of information. Fulfilling employer's information exchange requirements using construction operations building information exchange (COBie)
- PAS 1192-2:2013 - Specification for information management for the capital/delivery phase of construction projects using Building Information Modelling
- PAS 1192-3:2014 - Specification for information management for the operational phase of assets using Building Information Modelling
- PAS 1192-5:2015 - Specification for security-minded Building Information Modelling, digital built environments and smart asset management
- CIC building information model (BIM) protocol

The detail in the EIR will help the project team, main contractor and supply chain understand what information is needed at the different stages of the project. This ensures that all necessary data is included and is structured in a way that ensures it can be extracted when required. For example, to create an accurate cost plan from BIM, all the objects in the template need to have the costs attached

when they're being included. The client/client's representative is responsible for liaising with the technical information manager* to ensure this data is in the model when the cost manager* needs it.

The EIR also helps the client define what it wants after project completion. For example, if a client wants its FM team to implement a variable maintenance schedule, this needs to be communicated in the EIR. That way, the project team knows it must enter full product specification details into the model. (This is good practice regardless of the type of maintenance regime implemented.)

EIRs will include:

- Standard methods and procedures providing clarity on information formats and naming conventions and guidance on how to supply information.
- Information-related roles and responsibilities giving a clear definition of information-related roles and what is expected from them.
- An information delivery plan or information schedule identifying which information deliverables should be delivered, by whom and when.
- Recognition of the client's existing CAFM/IWMS and other enterprise management systems and the need to ensure the information and data can be easily transferred into these FM systems.
- A COBie demand matrix identifying the structured data about the facility/ies, floors, spaces, zones and building components that are to be delivered, by whom and when.

* The roles of project information manager, technical information manager and cost manager are not mentioned in the EIR template. But some clients may choose to create these roles in specific BIM projects.

The following table (included in the EIR) summarises some of the key FM activities which FM should initiate for the project in line with the RIBA Plan of Work.

RIBA stage and description	Purpose
Stage 0 Strategic definition	FM involvement at high level to check existing asset and BIM strategy (articulate and describe the *organisation information requirements (OIR) and asset information requirements (AIR)). BS 8536* should be read and consideration given to the information needed at handover and if the principles of government soft landings (GSL) are to be followed. Consideration should be given to what asset data will be needed (eg, asset lifespan, costs, recycling, replacement etc.) BIM standards should be referred to and questions asked to allow the start of drafting the *EIR* template. This phase is absolutely critical as it sets the tone for the project in terms of ensuring engagement between all the stakeholders to deliver real value from the BIM process.
Stage 1 Preparation and brief	FM/client to structure information for project tender documentation. FM to assist with the *project brief* which should be completed in line with guidance in *RIBA PoW 2013*. Another useful document at stages (0, 1 and 2) is RIBA's *Client conversations: insights into successful project outcomes*. This describes development from the initial to the final status. The *project brief* is critically important and should not only be derived from the client's aspirations but as a result of questions asked of them. Ideally, the client should articulate what they need from the building in terms of performance, sustainability, environment (working), ease of use, replacement/demolition strategy, reporting needs etc. The answers to these project specific questions will then form part of the tender questions as opposed to using a generic question set. FM should identify known CAFM/IWMS/other enterprise management systems to be used at stage 7. Check if existing systems are capable of accepting data using COBie. Where no such tool(s) exist or a new one is to be provided, the facility manager should clarify the system as early as possible, and establish how this is to be funded and what training will be provided to necessary FM staff. Thought should be given to using a common data environment (CDE) for the project and how this will be managed during the project and after handover. FM should consider the requirements of the CAFM/IWMS and other systems to communicate with access control, BMS, CCTV, alarms and control systems and other relevant systems. FM should assist capex approval of the *outline business case*.

Stage 2 Concept design	FM to work with design team to give FM input on design concepts through the CDE. This is mainly a reviewing role – eg, asking questions such as "What if?", "How will we?", "What does the client/FM need/expect?" etc.
Stage 3 Developed design	FM to work with design team to give FM input on developed design through the CDE. FM should also develop the process on behalf of the client for working with the contractor (and CAFM/IWMS suppliers) to plan the data transfer into nominated system/s.
Stage 4 Technical design	FM to check the design's fitness for purpose and cost efficiency from a Whole Life Cost (WLC) perspective. This may include fabrication, manufacturing details, verification of systems and elements including commissioning, operation and maintenance information etc.
Stage 5 Construction	FM to check construction progress and compliance of updated production information and to ensure contractor provides correct information for commissioning and handover procedures. The process of implementing the CAFM/IWMS should be considered as the building is being constructed and assets are put in place as this is when the history of the building starts. As such, data can be captured and maintained from this point forward. Pre-completion commissioning and the testing programme should be considered. Note information and data will be required well ahead of the planned completion and handover. BIM model clash recording and resolution as well as snagging and incident reporting should be included in the records of the building. As operations & maintenance (O&M) requirements are compiled, confirmed and validated they should be incorporated into the CAFM rather than being a separate, disjointed entity. At this stage, the level of definition (LOD) is sufficiently detailed and appropriately formatted to be pushed into the relevant data management systems. This stage should be equivalent to a sign off of data that will be used to manage the remainder of the lifecycle.
Stage 6 Handover and closeout	From a FM perspective, this stage should be seen as the "in inspection" of the "as-built information"- ie, accepting the building/facility/asset into service. There should not be any questions at this stage, but simply confirmation and verification. FM should ensure the handover process has already validated and transferred relevant data into CAFM/IWMS or other enterprise management system as defined in the *EIR*. The handover process should allow for CAFM/IWMS integration with other systems as required. All *O&Ms* should be completed and signed off with the client and FM team within the CDE - or appropriate sign of system. FM should also test that they can access all BIM models passed to them. Handover should be considered as a handover of a completed project, with the solutions implemented, tested, validated by the client and, after staff training, signed off as completed.

	As an example of the detail to be considered: when door schedules are finalised, and at a time required by the programme (the planning of such detail should be started early in the process), 2D DWG drawings with all doors (requiring client supplied locks) numbered and scheduled shall be supplied for lock ordering purposes.
Stage 7 In use	FM should test CAFM/IWMS systems to ensure all data can be used to optimise the assets. There may be updates to the practical completion data drop as required during the defects liability period and/or GSL (if applicable). This period is where the FM should focus on refining the CAFM/IWMS system and data quality. BIM as a process must include FM all the way through to ensure the operational teams receive the high quality and accurate data they need to succeed.

Below is a summary of some of the key EIR content from the management, technical and commercial requirements sections of the document. These are an overview of some of the key content an EIR should aim to cover in line with guidance from the BIM Task Group.

The EIR also has appendices to help people compiling the EIR. These include items such as an "supplier BIM assessment form" which can be used to help clients and facility managers assess suppliers capabilities in terms of ability to deliver BIM projects.

4. Management Requirements	▪ 4.1 Applicable standards and guidelines ▪ 4.2 CIC BIM protocol ▪ 4.3 Project roles and responsibilities ▪ 4.4 Existing client CAFM/IWMS or enterprise asset management systems ▪ 4.5 Model creation and ongoing management ▪ 4.5.1 Planning the work and data segregation ▪ 4.5.2 Model management plan ▪ 4.5.3 Collaboration process ▪ 4.5.4 Model size ▪ 4.5.5 Model viewing ▪ 4.5.6 Volumes, zones and areas ▪ 4.5.7 Naming conventions ▪ 4.5.8 Model co-ordination, quality control and clash-detection process ▪ 4.5.9 Use of BIM to help health and safety ▪ 4.5.10 Delivery of asset information to the client ▪ 4.5.11 Information publishing process ▪ 4.5.12 Security of model information ▪ 4.5.13 Training ▪ 4.5.14 Model audits by the client
5. Technical requirements	▪ 5.1 Software ▪ 5.2 IT and system performance constraints ▪ 5.3 Data exchange formats ▪ 5.4 Common co-ordinates system ▪ 5.5 Levels of definition ▪ 5.6 Specified model and information formats ▪ 5.7 Site information, floor and room data information
6. Commercial Requirements	▪ 6.1 Exchange of information in line with RIBA project stages ▪ 6.2 Supplier BIM assessment form ▪ 6.3 BIM tender assessment

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