



Exchange Information Requirements (EIR)

**Information Standards, Information
Production Methods and Procedures.**

Template

August 2020

**Exchange Information
Requirements (EIR)**
Information Standards, Information
Production Methods and Procedures.

Template

August 2020

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
P01.01	25/05/2020	Maurizio Bianco	Juan Rossi Dan Rossiter		First draft
P01	31/07/2020	Maurizio Bianco	Juan Rossi	Jamie Robertson	First Issue
P02	28/08/2020	Siân Morris	Juan Rossi	Sean Kearney	Second issue; information requirements table revised.

Document reference: 401428-MMD-ZZ-PW-ZZ-TK-0013

Information class: Standard

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it. This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties.

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

Template Content Selection

This section is intended to assist with the selection of applicable template content, this is dependent on the project and combined project delivery team's Building Information Modelling (BIM) experience. The experience measures are aligned to the BIM Toolkit Overview (401428-MMD-ZZ-PW-ZZ-TK-0001) BIM adoption journey table. Once the applicable answer is selected below, the template will automatically populate the relevant content sections.

To begin populating the template please select the answer, from the dropdown menu, that best relates to your information requirements in response to the following question;

Have you established a clear set of objectives that are supported by Building Information Modelling (BIM) principles for the appointment of the project delivery team?

Answer:

Select an answer

Answer selection criteria:

If your answer is "NO" (the template will be populated as a low maturity Exchange Information Requirements (EIR)). This is intended for users that have never used ISO 19650 principles before or have some experience in the use of models-based Building Information Modelling (BIM) or Virtual Design Construction (VDC).

If your answer is "YES" (the template will be populated as a high maturity Exchange Information Requirements (EIR)). This is intended for advanced users that have experience in creating information requirements and have a consistent and standardized level of Building Information Modelling (BIM).

Contents

Template Content Selection	2
1 Introduction	5
1.1 Exchange Information Requirements (EIR) purpose	5
1.2 Information management goals and objectives	5
1.2.1 Goals	5
1.2.2 Objectives	5
1.3 Information requirements hierarchy and progression.	5
1.3.1 Information requirements hierarchy	5
1.3.2 Exchange Information Requirements (EIR) response requirements	5
1.3.2.2 Supplementary documents	5
1.3.2.3 Delivery team's BIM Execution Plan (BEP)	5
2 Information requirements	6
2.1 Information purpose	6
2.2 Plan of work	6
2.3 Information delivery milestones	6
2.4 Information security requirements	6
2.5 Spatial coordination requirements	6
2.6 Project Information Model (PIM)	8
2.7 Asset Information Model (AIM)	8
2.8 Information management Key Performance Indicators (KPIs)	8
2.9 Health and safety and design construction risk management	8
3 Information standards, information production methods and procedures	10
3.1 Information Standards	10
3.1.1 Project specific standards	10
3.1.2 Information identification conventions	10
3.1.3 Method of assignment for level of information need	11
3.1.4 Data authoring	11
3.1.5 Information software platforms	11
3.1.6 Information model quality	12
3.2 Information Production methods and procedures	13
3.2.1 Information management functions	13
3.2.2 Information collaboration process	13
3.2.3 Authorization and acceptance process	13
3.2.4 Spatial coordination strategy	13
3.2.5 Legacy information and shared resources requirements	14
3.2.6 Capture of existing asset information	14
3.2.7 Information container breakdown structure	14
3.2.8 Lessons learnt	14

Tables

Table 2.1: Information delivery milestones	6
Table 2.2: Spatial coordination information requirements	7
Table 2.3: Key Performance Indicators (KPIs)	8
Table 2.4: Health and safety information requirements	9
Table 3.1: Preferred software authoring tools	11
Table 3.2: Required exchange formats	11
Table 3.3: Information software platforms	12

1 Introduction

1.1 Exchange Information Requirements (EIR) purpose

<Outline the purpose of the Exchange Information Requirements (EIR) for the project and its intended use.>

1.2 Information management goals and objectives

<Provide an overview of the appointing party's commitment to their organizational BIM goals and objectives.>

1.2.1 Goals

< Define the appointing party's information management goals, for both the project delivery and asset operation, relating to the Organizational Information Requirements (OIR).>

1.2.2 Objectives

<Outline the project's information management objectives; these should be considered, specific actions that are to be implemented on the project, in order to achieve the above goals, relating to the Project Information Requirements (PIR).>

1.3 Information requirements hierarchy and progression.

<Outline the project documentation management process from procurement to handover.>

1.3.1 Information requirements hierarchy

<Provide an understanding of the information requirements hierarchy>

1.3.2 Exchange Information Requirements (EIR) response requirements

<The pre-appointment BIM Execution Plan (pre-BEP) is produced at tender stage by the prospective delivery team in response to the invitation to tender. It should outline the proposed delivery methodology that the delivery team intends to implement, in order to meet the information requirements. This section should contain the minimum content that the appointing party expects to receive in response to the Exchange Information Requirements (EIR).>

1.3.2.1 Pre-appointment BIM Execution Plan (pre-BEP)

<Outline the expectations of the delivery team to highlight any potential risks associated with meeting the delivery milestones and provide a description of how they intend to mitigate these risks.>

1.3.2.2 Supplementary documents

<Outline any supplementary pre-appointment BIM Execution Plan (pre-BEP) documents, that are expected in response to the Exchange Information Requirements (EIR).>

1.3.2.3 Delivery team's BIM Execution Plan (BEP)

<Outline how the information requirements and information management documentation is progressed throughout the project.>

2 Information requirements

2.1 Information purpose

<Provide an overview of the appointing party's purpose for requiring the information specified below.>

2.2 Plan of work

<Define the principal stages in the design, construction work and maintenance of a project and identify the main tasks.>

2.3 Information delivery milestones

<Specify when information is going to be delivered, Table 2.1: Information delivery milestones, this could be aligned to the plan of work. Provide actual delivery dates.>

Table 2.1: Information delivery milestones

Work Stage	Milestone	Work-package/activity	Deliverables	Date
<Insert work stage.>	<Insert milestone.>	<Insert work package/activity.>	<Insert deliverables>	<Date.>
	<Insert milestone.>			
	<Insert milestone.>			

2.4 Information security requirements

<Provide the security requirements that have been identified for this project.>

2.5 Spatial coordination requirements

<Outline the expectations of how the delivery team are to ensure a coordinated design through clash avoidance and detection. Use Table 2.2: Spatial coordination information requirements, to specify the minimum frequency of clash rendition activities, how the delivery team should illustrate the clash rendition workflow and the methodology of reporting clash resolutions.>

Table 2.2: Spatial coordination information requirements

Milestone	Description	Supporting information	Information Requirements	Information Container	Exceptions	Acceptance criteria
<Milestone number.>	<Description>	<Insert supporting information.>	<Insert information requirements.>	<Insert information container.>	<Exceptions.>	<Acceptance criteria.>

2.6 Project Information Model (PIM)

<Define information deliverables required for the Project Information Model (PIM), this should include identifying the task team responsibilities.>

2.7 Asset Information Model (AIM)

<Define information deliverables required for the collation of the Asset Information Model (AIM), this should include identifying the task team responsibilities. These should reflect the Asset Information Requirements (AIR).>

2.8 Information management Key Performance Indicators (KPIs)

<Provide an outline of the specific Key Performance Indicators (KPIs), Table 2.3: Key Performance Indicators (KPIs), that the lead appointed party is required to analyze and provide feedback on to the appointing party at agreed intervals.>

Table 2.3: Key Performance Indicators (KPIs)

KPI's	Description and outcome	Frequency	Project stage
<KPI Title>	<Description>	<Frequency>	<Project stage this applies to>

2.9 Health and safety and design construction risk management

<Identify the appointing party's health and safety requirements, this could be a reference to either an internal or external standard, in Table 2.4: Health and safety information requirements. Describe how the delivery team should approach utilizing the information model, aligning with the work stages, to meet these requirements. This could include, but not be limited to; access and maintenance, equipment routes, site orientation/welfare, temporary works, designer risk assessment and risk scheduling. If the model is not being used for this purpose an explanation should be provided.>

Table 2.4: Health and safety information requirements

Milestone	Description	Supporting information	Information Requirements	Information Container	Exceptions	Acceptance criteria
<Milestone number.>	<Description>	<Insert supporting information.>	<Insert information requirements.>	<Insert information container.>	<Exceptions.>	<Acceptance criteria.>

3 Information standards, information production methods and procedures

<Outline the purpose of the information standards, information production methods, and procedures for the project and it's intended use.>

3.1 Information Standards

<Define the information standards that are to be adhered to on this project.>

3.1.1 Project specific standards

<Define both the internal and external standards that all project information production and management should adhere to. These should be reflected within the main body of the document.>

3.1.2 Information identification conventions

<Provide references to standards that define information containers, space and object naming conventions that are to be adhered to on this project. Different countries might refer to local standards or the standard that they are more comfortable with.>

3.1.2.1 Information container identification

<Provide the information metadata standards that the delivery team must comply with. Metadata can refer to different characteristics of the files. It can include status code, revision code, security classification owner, etc. All files shall be populated with appropriate metadata. This could include references to specific standards.>

3.1.2.2 Common Data Environment (CDE) metadata requirements

<Outline any further metadata requirements.>

Status and revision metadata

<Identify the status and revision metadata requirements for the project, these will depend on the complexity of the project.>

Security classification

<If any security requirements have been identified on the project, then provide reference of any classification standards that security metadata should adhere to.>

Information classification

<If any information classifications have been identified on the project, then provide reference of any classification standards that security metadata should adhere to.>

3.1.3 Method of assignment for level of information need

<Provide further definition or reference to standards for both the Level of Detail (LOD) and Level of Information (LOI);

LOD – Level of Detail refers to the amount of geometry shown in the graphical digital representation at a particular-stage of the project.

LOI – Level of information refers to the amount of information (data) contained within or associated with the model at a particular-stage of the project.>

3.1.4 Data authoring

<Specify the compatibility requirements of file formats that each task team are to comply with. There should be an explanation of how the delivery team are expected to comply. This could be references to specific software for the BIM model authoring, Table 3.1: Preferred software authoring tools, provides a list of desirable software for graphical model and drawing authoring.>

Table 3.1: Preferred software authoring tools

Discipline	Software	Version	Format
Architecture	<Native file formats>	<Version>	<Format>
Civil	<Native file formats>	<Version>	<Format>
Structural	<Native file formats>	<Version>	<Format>
Mechanical	<Native file formats>	<Version>	<Format>
Drainage	<Native file formats>	<Version>	<Format>

3.1.4.1 Data exchange formats

<Specify the file formats required for specific information containers. The formats of each file type should be defined within the table below.>

Table 3.2: Required exchange formats

Type	Native file formats	Version	Rendition formats	Relevant data drops
MS Office documentation	<Native file formats>	<Version>	<Rendition formats>	<Data drops>
Models & drawings	<Native file formats>	<Version>	<Rendition formats>	<Data drops>
GIS models	<Native file formats>	<Version>	<Rendition formats>	<Data drops>
Cost plans	<Native file formats>	<Version>	<Rendition formats>	<Data drops>
Programmes	<Native file formats>	<Version>	<Rendition formats>	<Data drops>
Photos, videos, animations	<Native file formats>	<Version>	<Rendition formats>	<Data drops>

3.1.5 Information software platforms

<Specify the software that the appointing party is going to use throughout the project and operation, if applicable. The delivery team is required to consider the interoperability of these platforms, Table 3.3: Information software platforms.>

Table 3.3: Information software platforms

Purpose	Software	Version
Non-graphical data management system (e.g. Common Data Environment for Non-graphical PDF and Office files)	<Software name>	<Software version>
Drawing and model viewers	<Software name>	<Software version>
Document viewing/authoring/editing	<Software name>	<Software version>

3.1.6 Information model quality

<Provide the minimum quality assurance requirements that each aspect of the information model should adhere to.>

3.2 Information Production methods and procedures

<Define the information production methods and procedures that are to be adhered to on this project.>

3.2.1 Information management functions

<Specify the parties' responsibilities for the information management activities identified in ISO 19650-2: 2018.>

3.2.2 Information collaboration process

<Define an overview of the expectations for collaboration on this project, describing the required frequency of information sharing. This should include both digital information exchanges and meetings for the whole delivery team. The subsections below are to outline detailed processes for collaboration.>

3.2.2.1 Common Data Environment (CDE) workflow

<Provide an overview of the Common Data Environment (CDE) procedures. Define the responsibilities of the delivery team, determining who will be responsible for hosting and managing the Common Data Environment (CDE). Describe how it should be used to share all project information, including the quality assurance requirements at each step.>

3.2.2.2 Information exchange frequency

<State the minimum frequency of information exchanges expected of the delivery team. This should include periodical model sharing.>

3.2.2.3 Mobilization

<Set the expectation that the delivery team is to identify all training, tests and checks that will be performed before any project work begins.>

3.2.2.4 Training

<Define, if any, the training requirements for each task team involved in the production and management of information. Identify who will be responsible for providing training at relevant project stages, it can include specific references to standards, teaching techniques and best practice.>

3.2.3 Authorization and acceptance process

<Define the appointing party's information approval process. Provide a workflow that outlines; how the delivery team should submit information for approval and for the review procedure, include both successful and unsuccessful outcomes. All approval processes should be via the Common Data Environment (CDE).>

3.2.4 Spatial coordination strategy

<Identify the minimum requirements that the delivery team should comply with when creating the federation strategy, Table 3.3: Required exchange formats. This should explain the criteria for defining the information container sets; this could be set on discipline, clash avoidance, file

size limits or task team responsibilities. Minimally there should be at least one volume per discipline.>

3.2.5 Legacy information and shared resources requirements

<Explain any legacy information and shared resources that have been provided and its intended usage.>

3.2.6 Capture of existing asset information

<Describe how the delivery team are to capture existing asset information throughout the project. This may be through using traditional survey techniques or more sophisticated techniques such as 3D scanning and photogrammetry.>

3.2.7 Information container breakdown structure

<Identify the minimum requirements that the delivery team should comply with when creating the federation strategy. This should explain the criteria for defining the information container sets; this could be set on discipline, clash avoidance, file size limits or task team responsibilities. Minimally there should be at least one volume per discipline.>

3.2.8 Lessons learnt

<Stipulate when lesson learnt reviews should occur and how the feedback should be adopted by the current delivery team if appropriate.>



M
M
MOTT
MACDONALD



Foreign &
Commonwealth
Office

See the unseen
Act with conviction
Impact progress

smartinfrastructure.com

cdbb
Centre for Digital Built Britain