



# APPENDIX F

## EXCHANGE INFORMATION REQUIREMENTS TEMPLATE

DIGITAL GUIDANCE SUITE:  
AOTEAROA | NEW ZEALAND 2023



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Guidance notes throughout this document are written in **red text**, these will need to be either revised or deleted prior to issue.

Read, review and where appropriate modify every section of this document to ensure it is specific to your project requirements prior to sharing as part of an RFP.

When preparing this document please consider the following:

- Type of Asset
- Security-minded approach
- Project Stages
- Information Requirements
- Procurement Strategy
- IT Requirements
- Alignment of Documents
- Detailed Technical Information Requirements

# 1— INTRODUCTION

## 1.1 DOCUMENT PURPOSE

This document confirms the Exchange Information Requirements (EIRs) as a sub-set of the project requirements or equivalent contract documentation and introduces information requirements, reasons, and purpose to prospective design consultants and/or construction contractor, along with technical and commercial details that need to be addressed through the implementation of Building Information Modelling (BIM).

EIRs are an important element of implementing BIM on a project as they are used to set out clearly to the bidders the models that are required and what the purposes of the models will be. These requirements will be written into the projects' appointment documentation and implemented through the project BIM Execution Plans (BEPs).

## 1.2 RESPONDING TO THIS DOCUMENT

The prospective design consultants and/or construction contractor are to include pre-appointment BEPs in their proposals. Throughout this document specific responses are sought from the prospective design consultants and/or construction contractor through their BEPs.

The pre-appointment BEP shall include the following content:

**(revise to suit project specific requirements)**

- Specific response to this EIR
- Specific response to the information delivery requirements, highlighting where deliverables are over or under specified or impractical to deliver, including details about alternative delivery proposals
- Project goals (time, cost, quality) for collaboration and information modelling
- Major project milestones consistent with the project programme
- BIM delivery strategy where in variance with the requirements

A compliant pre-appointment BEP in support of this project tender will demonstrate how the requirements of this EIR will be met. The BEP and its response to the EIR will form part of tender scoring and hence selection.

## 1.3 BIM DISCLAIMERS AND LEVEL OF RELIANCE

**(Insert client name)** agrees that the exchange of models and re-use of information are the very basis of the BIM process. All stakeholders need to understand the level of reliance that they can place on the models and associated data/information deliverables that they are receiving so they can make informed decisions on how to use the information in the most effective way. This approach reduces waste, rework, and duplication of effort. Models can contain far more information than traditional electronic deliverables.

The issuer of a Model is responsible for clearly describing how the model and information deliverables can (and cannot) be used in relation to the specified information requirements and uses of BIM specified in this EIR. The Model Description Document (MDD) template should be used to communicate this. Alternatively, status codes as described in the National Annex of BS EN ISO19650-2-2108 could also be used.

To maximise the benefits of BIM and a collaborative approach, this information is required to be freely available for other project stakeholders to use during the development of the design and construction of the project.

Overarching Disclaimers undermine the usefulness and effectiveness of the information exchange process and go against the outcomes that are expected for this project. **(insert client name)** expects the project participants to positively engage with the process of collaboration, coordination, and information exchange through the delivery of the project.

Therefore, **(insert client name)** will challenge Disclaimers that restrict collaboration and the re-use of information through the BIM process for this project.

#### 1.4 2D DRAWINGS AND 3D MODELS

2D drawings that relate specifically to the design shall be generated from the 3D model, there shall be no separate design-specific 'detail drawings' that are produced outside the model authoring tool.

**(Insert client name)** expects that if drawings are generated from the 3D model, and drawings are verified through traditional processes, any model element that is visible on a drawing has been verified and can be relied upon for the information requirements and uses of BIM specified in this EIR.

The exception to this requirement is 'standard' or 'typical' details sheets. This includes but is not limited to flashing details, waterproofing details, typical timber or steelwork connection details, typical reinforcement details.

## 2— BIM VISION & OBJECTIVES

The objective of implementing BIM on this project is to enable **(insert client name)** to receive the required information deliverables (models, documents & data) at the appropriate time, in the right formats to:

**(revise to suit project-specific requirements)**

- Engage with the appropriate stakeholders
- Drive project delivery and efficiency
- Encourage standardisation
- Support project milestone decisions
- Integrate the built asset and its information with the **(Insert client name)** asset management portfolio

The objectives for the implementation of BIM are:

- Improve stakeholder engagement
- Reduce duplication of effort during design
- Optimise the construction schedule
- Optimise handover

## 2.1 USES OF BIM

The following table outlines the uses of BIM that have been identified by **(insert client name)** as being able to support the objectives set out above. The detailed requirements relating to these objectives are defined in the following sections:

- **RACI Matrix**, which defines detailed roles and responsibilities for each tenderer
- **Project Information Requirements**, which define the information to be created at various project stages to support the objectives below, including detailing, for example the number of Safety in Design reviews using the 3D model
- **Collaboration**, which includes the number and types of BIM meetings/workshops required
- **Coordination and Clash Detection Procedures**, which defines the number of reviews expected to be completed and the regularity of those reviews

The prospective design consultants and/or construction contractor should propose any additional uses of BIM as appropriate to support the delivery of the project.

PROJECT OBJECTIVES		HOW	USES OF BIM
Improved stakeholder engagement		Using the 3D model as a visual communication aid, using virtual 'walk throughs' of facilities and static renders	<ul style="list-style-type: none"> <li>• Design Authoring</li> <li>• 3D Design review</li> <li>• Virtual Reality</li> </ul>
Reduced duplication of effort during design		Through developing and mandating a model element author schedule during design as part of the BEP process	<ul style="list-style-type: none"> <li>• Design Authoring</li> </ul>
Optimised construction schedule		A reduction in errors and reduced rework through an improvement in design coordination	<ul style="list-style-type: none"> <li>• Design Authoring</li> <li>• 3D Design Reviews</li> <li>• Design Clash Detection</li> </ul>
Support safety in design		Safety in Design and HAZOP reviews using the 3D model as a visual aid	<ul style="list-style-type: none"> <li>• 3D Design Reviews</li> <li>• Virtual Reality</li> </ul>
Optimised handover, Improved O&M	Reliable and complete as built information (Model Geometry)	A digital as built model at handover that includes site verified information about critical assets such as mechanical, electrical, hydraulic, and plumbing equipment.	<ul style="list-style-type: none"> <li>• Record Modelling</li> </ul>
	Reliable and complete as built information (Data)	A tabular data deliverable at handover that contains critical asset information that can be imported into the Exchange CAFM/CMMS system.	<ul style="list-style-type: none"> <li>• Asset Data Delivery</li> </ul>

## 3— ROLES AND RESPONSIBILITIES

The pre-appointment BEP should define the prospective design consultants' and/or construction contractor's proposed BIM roles and responsibilities in response to the requirements below and detail how these roles will be delivered and coordinated.

**Change the following section to be specific to the project. This section defines the roles and responsibilities of the project team aligned with specific activities and deliverables**

### 3.1 RESPONSIBLE, ACCOUNTABLE, CONSULTED, INFORMED (RACI) MATRIX

FUNCTIONS	ACTIVITIES & DELIVERABLES	CLIENT	CLIENT BIM ADVISOR (Where applicable)	BIM MANAGER (Design/ Construction)	DISCIPLINE BIM LEAD	MODEL ELEMENT AUTHOR
Project Information Management	Develop the EIR and the end uses of information	A/R	R	C	I	I
	Specify the Organisation Information Requirements and AIR	A/R	R	C	I	I
	Confirm Asset Information deliverables	A	R	C	C	I
	Confirm GIS deliverables	A	R	C	I	I
	Confirm information standards and procedures	A	R	C	C	I
	Set the requirements for the Common Data Environment CDE	A	R	R/C	C	I
	Set the requirements for project deliverables	A	R	R/C	C	I
	Lead BIM delivery on the project	C	A	R	R/C	R/C
BIM Management, Coordination	Lead the development and updates of the Project-Specific BIM Execution Plan	A/R	R	C	I	I
	Develop Information for procurement activities	A/R	R	C	I	I
	Facilitating the use of the project BIM Execution Plan	A	R	C	C	I
	Setup of Survey Control Model	A	R	C	I	I
	Coordination of federated models	A	R	C	C	I
	Lead model auditing and clash management process through design and construction	A	R	R/C	C	I
	Manage the coordination of as built/record modelling through handover	A	R	R/C	C	I
	Set up and manage the ongoing use of issue tracking tools in the BIM environment	C	A	R	R/C	R/C

KEY	R - Responsible for doing the activity	A - Accountable for activity completion	C - Consulted during activity	I - Informed following activity completion
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FUNCTIONS	ACTIVITIES & DELIVERABLES	CLIENT	CLIENT BIM ADVISOR (Where applicable)	BIM MANAGER (Design/ Construction)	DISCIPLINE BIM LEAD	MODEL ELEMENT AUTHOR
Model Development and Design Management	Developing model files in accordance with the project BIM Execution Plan	I	C	C	A	R
	Modelling elements at the appropriate Level of Development as defined in the Project BIM Execution Plan	I	I	I	A	R
	Developing and validating as-built record model files in accordance with the project BIM Execution Plan	I	C	C	A	R
	Validating Levels of Model Development at each project design stage	I	C	C	A	R
	Communicating issues to Model Element Authors and leading issue resolution	I	I	A/R	C	C
	Implementing discipline-specific coordination and clash detection procedures	I	I	I	A	R
	Model transfer and version control	I	C/R	A	R	R
Collaboration and General Communication	Establish the Common Data Environment	I	A	R	C	C
	Set up and drive a culture of collaboration when using BIM processes and tools on the project	I	I	A/R	R/C	C
	Facilitate BIM meetings and workshops as required during the project	C	C	A/R	C	C
	Clearly communicate information to the BIM team, Project Managers and the Design Leads as required	I	I	A/R	C	C
	Communicate design coordination issues to project stakeholders	I	I	A/R	R/C	I
	Communicate as-built/record modelling issues and progress to project stakeholders.	A	R	C	I	I
Key Meetings	BIM Requirements Kick-Off	C	C	A/R	R/C	C
	BIM Execution Plan Workshop	C	C	A/R	R/C	C
	Internal Model Coordination	I	I	A/R	A/R	C
	BIM Coordination Review	I	I	A/R	R	C
	Issue Tracking Software workshop	I	I	A/R	R	C

KEY	R - Responsible for doing the activity	A - Accountable for activity completion	C - Consulted during activity	I - Informed following activity completion
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# 4— INFORMATION REQUIREMENTS

Change the following section to be specific to the project; some sections may not be applicable. The purpose of this section is to communicate the timing and content of information exchanges between the Project Team/prospective design consultants and/or construction contractor, and client. Information may flow both ways.

Typically develop a schedule or information exchange programme that highlights what information is to be exchanged, the timing, and responsible party and format (if known.)

## 4.1 ASSET INFORMATION REQUIREMENTS

It is a key requirement of (insert client name) that asset information developed in the design and construction phases of the project can be incorporated into the (insert client name) Asset Management System (AMS name). Asset data will be provided to (insert client name) as structured data as defined in Appendix 'X'. (insert appendix as required)

## 4.2 PROJECT INFORMATION REQUIREMENTS

The prospective design consultants and/or construction contractor will be required to generate data (graphical models, drawings, schedules, specifications etc.) to support the objectives and uses of BIM specified in this EIR and the specific purposes/activities at each design stage in accordance with the NZ CIC Guidelines.

The following tables define the project information requirements at each project stage to support the (insert client name) project stage gate/approvals process.

### Concept Design

#	INFORMATION PURPOSE	3D MODEL	VISUALISATION	2D.PDF DRAWINGS/ SKETCH	2D.DWF DRAWING FILES	TABULAR DATA (.XML)	DIGITAL DOCUMENTATION
1	Concept design optioneering						
2	Concept design cost estimate						
3	Client review and concept design approval						
4							
5							



## Preliminary Design

#	INFORMATION PURPOSE	3D MODEL	VISUALISATION	2D.PDF DRAWINGS/ SKETCH	2D.DWF DRAWING FILES	TABULAR DATA (.XML)	DIGITAL DOCUMENTATION
1	Preliminary design coordination						
2	Preliminary design cost estimate						
3	Client review and preliminary design approval						
4							
5							

## Developed Design

#	INFORMATION PURPOSE	3D MODEL	VISUALISATION	2D.PDF DRAWINGS/ SKETCH	2D.DWF DRAWING FILES	TABULAR DATA (.XML)	DIGITAL DOCUMENTATION
1	Safety in Design review						
2	Developed design coordination						
3	Developed design cost estimate						
4	Client review and Developed design approval						
5							

## Detailed Design

#	INFORMATION PURPOSE	3D MODEL	VISUALISATION	2D.PDF DRAWINGS/ SKETCH	2D.DWF DRAWING FILES	TABULAR DATA (.XML)	DIGITAL DOCUMENTATION
1	Safety in Design review						
2	Detailed design coordination						
3	Detailed design cost estimate						
4	Client review and Detailed design approval						
5							

## Construction/Fabrication Design

#	INFORMATION PURPOSE	3D MODEL	VISUALISATION	2D.PDF DRAWINGS/ SKETCH	2D.DWF DRAWING FILES	TABULAR DATA (.XML)	DIGITAL DOCUMENTATION
1	Vendor integration						
2	Construction/ Fabrication design coordination						
3	On-site Safety in Design review						
4							
5							

## Handover

#	INFORMATION PURPOSE	3D MODEL	VISUALISATION	2D.PDF DRAWINGS/ SKETCH	2D.DWF DRAWING FILES	TABULAR DATA (.XML)	DIGITAL DOCUMENTATION
1	Asset Information System population						
2	O&M integration						
3	Commissioning						
4	Client review and Developed design approval						
5							

4.3 GRAPHICAL INFORMATION REQUIREMENTS (LOD)

The pre-appointment BEP should consider the format of required information and the extent to which model geometry will be developed.

Models must be developed in consideration of the best and most appropriate means of communicating data and information and managing project risks in accordance with the objectives specified in this EIR.

The LOD determines the extent and nature of geometry to be included within BIM objects; the proposed LOD for this project is defined in **Appendix 'X' (Insert appendix as required)**

4.4 REFERENCE INFORMATION

The following reference information **has been/will be** made available by **(insert client name)** to support the prospective design consultants and/or construction contractor in delivering the project.

4.5 EXISTING 2D DRAWINGS

The following existing 2D drawings **have been/will be** provided as reference information to support the tender and project delivery process.

DRAWING NAME	FILENAME	FILE FORMAT	LOCATION

4.6 EXISTING 3D DRAWINGS

The following existing 3D models **have been/will be** provided as reference information to support the tender and project delivery process.

DRAWING NAME	FILENAME	FILE FORMAT	LOCATION

#### 4.7 EXISTING SURVEY DATA

The following existing survey data **has been/will be** provided as reference information to support the tender and project delivery process.

DRAWING NAME	FILENAME	FILE FORMAT	LOCATION

**Also consider:**

- Photogrammetry data
- GIS data
- Third-party data such as dial before U dig

#### 4.8 SHARED RESOURCES

The following shared resources have **been/will be** made available by **(insert client name)** to support the prospective design consultants and/or construction contractor in delivering the project.

- BEP template
- Information Delivery Plan template
- Model audit template
- 2D CAD templates
- 3D model templates
- 3D model object container files
- BIM object libraries

#### 4.9 INFORMATION SECURITY

**Document any client-specific information security requirements here.**

# 5— INFORMATION STANDARDS

The purpose of this section is to communicate the Information Standards to the prospective design consultants and/or construction contractor, including object classification systems and naming conventions.

## 5.1 STANDARDS AND GUIDELINES

The core standards and guidelines that are to be used on this project are:

TYPE	TITLE	VERSION
Information management	ISO 19650-2	2018
Information requirements	BIM Forum Level of Development Specification	2022
<b>Modelling guideline</b>	Client modelling standard/guideline	TBC

## 5.2 BIM OBJECT CLASSIFICATION

To aid interoperability in BIM authoring tools, coordination and collaboration platforms and the client's asset management system (**insert classification name**) shall be adopted on the project.

Consider classification systems such as:

- **Omniclass**
- **Uniclass**
- **VBIS**

## 5.3 GENERAL FILE NAMING REQUIREMENTS

Examples below. Insert client requirements if applicable. This may also be documented in a different client standard, which will be referenced in the table above.

## 5.4 CHARACTERS

Names and naming fields shall include only the following characters:

- Uppercase letters (A to Z) from the ISO basic Latin alphabet
- Lowercase letters (a to z) from the ISO basic Latin alphabet
- Numbers (0 to 9)
- Underscore (\_), used only for separating fields within a name
- A single period character (.), used only to separate the file name from the file extension

Names and naming fields shall not include any of the following characters:

- Symbols or mathematical operators, including, but not limited to, ! " , £ \$ % ^ & \* { } [ ] + = < > ? | \ / @ ' ~ # ~ ` `
- Spaces

The use of the hyphen character should be avoided as it can cause errors when the name is used within formulas, for example calculating quantities or bills of materials, due to the hyphen also representing the mathematical subtraction symbol.

5.5 MODEL NAMING CONVENTION

To ensure consistency, model file naming will be as follows:

**Insert client requirements if applicable**

The naming convention is required to be followed by the prospective design consultants and/or construction contractor as it will allow for easy identification of the authoring discipline, the authoring party, and the asset to which the information relates.

6— TECHNICAL

This section establishes technical requirements, including collaboration and coordination processes, software, system performance, coordinate systems and training requirements.

6.1 COLLABORATION PROCESS

The prospective design BIM manager is expected to establish and manage the Common Data Environment (CDE) for the design stage of the project. Upon appointment of a construction contractor, the prospective construction BIM manager is expected to establish and manage the CDE for the construction stage of the project.

**Note: subject to the project procurement there are scenarios where the design CDE platform and the construction CDE platform will be running in parallel, sharing information with one another if design and construction is progressing in parallel.**

6.2 MEETINGS

The following meetings and workshops are required as a minimum to support the approach to BIM delivery on this project.

MEETING TYPE	ATTENDEES	REGULARITY
BIM kick-off meeting		
3D Safety in Design workshop		
Model coordination meeting		
Public (stakeholder) engagement		

### 6.3 COORDINATION AND CLASH-DETECTION PROCEDURES

**Visual design-stage model coordination and issue tracking** should be carried out to satisfy design development and to minimise project risk and waste. As a minimum this should take place **monthly** throughout preliminary design.

**Automated design-stage clash-detection reviews and issue tracking** should be carried out to satisfy design development and to minimise project risk and waste. As a minimum this should take place **fortnightly** from the end of preliminary design onwards.

Focus should be on hard clashes, construction tolerances and safe working, maintenance, and access zones.

### 6.4 QUALITY ASSURANCE

The information model quality assurance procedures that are defined in ISO 19650-2 shall be followed during the delivery of this project.

### 6.5 TRAINING

The prospective design BIM manager and/or the prospective construction BIM manager will be responsible for maintaining and delivering appropriate training to all relevant project stakeholders, including any client staff, in the operation of and access to the prospective BIM managers CDE.

Training for access and operation to the client CDE will be provided by the client to all relevant project stakeholders.

If proprietary model viewing software is proposed in variance to that shown as held by the client in this document, reasonable access and training are to be provided by the prospective design consultants and/or construction contractor at no cost.

Information shall be progressively shared and published by the prospective design BIM manager and/or the prospective construction BIM manager CDE to the client CDE so that in normal circumstances the client will not need access to the prospective design BIM manager and/or the prospective construction BIM manager CDE other than for compliance purposes.

### 6.6 SOFTWARE PLATFORMS

Platforms and versions used by the client across the programme of projects include:

**Consider:**

- **Model authoring tools**
- **Model viewers**
- **CDE systems**
- **CMMs/CAFM system**
- **GIS**

### 6.7 SYSTEM PERFORMANCE

**The purpose of this section is to communicate to bidders any constraints in the client's systems or specific IT requirements that may need additional resources or non-standard solutions.**

The following client system restrictions and requirements need to be considered when developing the pre-appointment BEP:

**Consider:**

- **Model file size**
- **Model viewer requirements**
- **Specific CDE requirements**
- **Information security requirements/restrictions**

# 7— BEP REQUIREMENTS

## 7.1 PRE-APPOINTMENT BIM EXECUTION PLAN

The pre-appointment BEP shall, as a minimum, include the content presented in the table below. For consistency, the structure of prospective design consultants and/or construction contractor BEPs should be formatted in the same order as outlined. These criteria will form the basis for assessment of the pre-appointment BEP.

Guidance has been provided for detail expected for the pre-appointment BEP submission. Maximum page guides have been provided for each section, and prospective design consultants and/or construction contractors may elect to convey information in any form, including tables, diagrams, and text.

#	SECTION	GUIDANCE	PAGE GUIDE	WEIGHTING
1	<b>General</b>		1-2 Pages	
1.1	<b>Scope</b>	Project information, including the scope of work to which the BEP relates, and any exclusions. Reasoning behind BIM scope exclusions shall be detailed in this section.	1-2 Pages	
2	<b>BIM Vision and Objectives</b>		1 1/2 Pages	
2.1	<b>Uses of BIM</b>	This section of the response may outline: <ul style="list-style-type: none"> <li>• Experience with any or all uses of BIM applicable to the project</li> <li>• How the tools and processes currently in use in your business could support these uses</li> <li>• Uses of BIM beyond the EIR requirements that can provide value to the project</li> </ul>	1 1/2 Pages	
3	<b>Roles and Responsibilities</b>		3 Pages	
3.1	<b>RACI Matrix</b>	The prospective design consultants and/or construction contractor should produce a RACI matrix outlining the anticipated roles and responsibilities, at a high level, based on the information available during tender, and the indicative RACI provided in this EIR		
4	<b>Information Requirements</b>		2 Pages + Appendix	
4.1	<b>Asset Information Requirements</b>	Where a specific data import template has not been provided or does not exist, set out proposals for how the prospective design consultants and/or construction contractor will deliver applicable information to <b>(Asset Management System name)</b>	1 Page	
4.2	<b>Project Information Requirements</b>	The pre-appointment BEP should confirm that the information requirements at each design phase can be met. An Information Delivery Plan must be provided as an appendix.	1/2 Page + Appendix	
4.3	<b>Graphical Information Requirements (LOD)</b>	The pre-appointment BEP shall confirm that the Level of Development (LOD) requirements specified in <b>Appendix 'X'</b> can be met. Any deviations from the proposed LODs must be documented in an appendix.	1/2 Page + Appendix	



#	SECTION	GUIDANCE	PAGE GUIDE	WEIGHTING
5	Information Standards			
		The pre-appointment BEP shall confirm that the project's Information Standards can be met. Any deviations must be documented.	1/2 Page	
6	Technical		5 1/2 Pages + Appendix	
6.1	Collaboration Process	<p>Details of the collaboration process sufficient to demonstrate competence and capability must be provided in the pre-appointment BEP.</p> <p>The pre-appointment BEP shall include the following information:</p> <ul style="list-style-type: none"> <li>• Form and process of sharing and publishing information</li> <li>• Frequency of information exchange</li> <li>• Details of model review workshops</li> <li>• CDE publishing processes</li> </ul>	1-2 Pages	
6.2	Coordination and Clash Detection	<p>The BIM Manager pre-appointment BEP shall identify high-level details of the model coordination process, including:</p> <ul style="list-style-type: none"> <li>• Software to be used for model federation and clash detection/issue management</li> <li>• The clash detection process</li> <li>• Responsibilities</li> <li>• Tolerance strategy</li> <li>• Issue tracking and resolution process</li> </ul>	2 Pages + Appendix	
6.3	Quality Assurance	<p>The pre-appointment BEP shall detail information quality control procedures. Consideration should be given to:</p> <ul style="list-style-type: none"> <li>• Quality assurance/control procedures</li> <li>• Software used to support quality control procedures</li> </ul>	1/2 - 1 Page	
6.4	Training	Identify the proposed development and training requirements for the project team members	½ Page	
7	Risk			
7.1	Risk Register	Preliminary register of any risks identified within the requirements set out by the client against the requirements of this EIR	1 Page + Appendix	

## 7.2 PROJECT BIM EXECUTION PLAN

The final project BEP must be developed by the consultant or contractor BIM manager with input from each of the other consultant or sub-contractor BIM leads and **(insert client name)**.

Once agreed, the BEP will be referred to in the prospective design consultants and/or construction contractor contracts/terms of engagement. Any revisions to the design and/or construction BEP shall be documented and agreed to by all relevant parties prior to the implementation of the project.

NOVEMBER 2023

**The New Zealand BIM handbook.**

This document is one of a suite of documents forming the New Zealand BIM Handbook. You can download or view the remaining documents here:

<http://www.biminnz.co.nz/nz-bim-handbook>