

**BIM-MEP**<sup>AUS</sup>



# Guideline

Data templates

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## About

BIM-MEP<sup>AUS</sup> is an industry initiative lead by the AMCA to support the use of best practice building services BIM for digital project delivery and life cycle asset management.

## Contact

Contact us via [www.bimmepaus.com.au](http://www.bimmepaus.com.au)

## Document formatting convention

The following text formats are used in BIM-MEP<sup>AUS</sup> documents:

Text type		Used for
Italicised text	BIM Execution Plan	The generic title for a type of document
Bold italicized text	<b>BIM-MEP<sup>AUS</sup> specification</b>	The name of a referenced document
Red bold text	<b>LOD</b>	First reference to a term or abbreviation that is defined in the BIM-MEP <sup>AUS</sup> website glossary
Blue text	<a href="http://www.bimmepaus.com.au">www.bimmepaus.com.au</a>	Hyperlink / web link
Blue italicized text	<i>Explanatory notes</i>	Explanatory or reference notes

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# 1 INTRODUCTION

## 1.1 Scope

BIM-MEP<sup>AUS</sup> Product data templates and their daughter component data templates have been developed to provide simple to use structured data sets in a Microsoft Excel® format to support industry engagement in efficient and reliable digital data workflows through each phase of the project delivery and transition to operation.

Product data templates contain the shared parameters nominated in the Product Specifications including identity data, performance and quality data, manufacturer product data, commissioning data and completion data.

Component data templates comprise a reduced set of data from the Product Data Template and comprise a design data schedule and a procurement data schedule. The design data Schedule documents those requirements needed to specify the quality and performance requirements whilst the procurement schedule has greater detail and schedules the key data that is typically resolved through the procurement process and needed for technical approvals and equipment procurement and commissioning.

It is expected that data contained in the templates will ultimately be exchanged with databases where it can be used for a wide range of purposes.

## 2 APPROACH

The following provides an overview of the approach taken by BIM-MEP<sup>AUS</sup> to the development of the PDTs and CDTs.

### 2.1 Microsoft Excel® based

The use of Microsoft Excel based product data templates assures that they are easy to complete and by all stakeholders within the industry and hence provide a greater likelihood that the building services sector can digitally transform.

### 2.2 Progressive completion

The intention with the product and component data sets are that they are progressively completed through the project design and delivery limiting the amount of data entry needed by each entity. The benefit of this approach is further enhanced where there is a high level of standardization across the industry.

### 2.3 Industry workflow based

The key purpose of the I in BIM is to support the better design, delivery and the management and operation of building assets.

To do this product data templates need to incorporate the required level of data granularity to support procurement, commissioning and asset management and operation.

COBie was not intended to support the design and delivery workflow requirements, whilst Ifc provides a basis for open BIM it similarly was not intended to support the complex workflows and data exchanges generally associated with Building Services .

The Product Data Templates however reference the COBie Product Classification and BIM Ifc type classifications.

### 2.4 Horizontal vs vertical schedule format

Most BIM standards and software platforms use horizontal schedules to specify data which beyond a small number of fields quickly become difficult to read or comprehend.

Most specification schedules, quotation schedules, commissioning schedules, etc are in the vertical format because they are more readable.

BIM-MEP<sup>AUS</sup> has adopted the vertical format for its product templates to enable easier adoption of templated data.

### 2.5 Shared parameters

The product data templates use BIM-MEP<sup>AUS</sup> shared parameters that can be referenced through the website.

This provides wide ranging benefits as it:

- assures a consistent naming convention across related components
- provides access to defined industry-based value sets for parameters where appropriate assuring appropriate selections can be made.

### 2.6 Metric

BIM-MEP<sup>AUS</sup> defines the units of measure for all shared parameters avoiding the problems associated with soft metric data. For instance all fluid related pressure data is in kPa, rather than a mixture of Bar, Atm, etc.

### 2.7 Sustainability

Only defined sustainability criteria that is in current widespread use is included in the schedules, hence for instance MEPS compliance is scheduled where relevant but not ClimateChangePerUnit

## 2.8 Standards

Standards are extensively referenced by Government Acts and Legislation as well as the National Construction Code and relied upon by industry to define acceptable practice and enable standardisation.

There has been considerable work done by Australian Standards over the last 10 years to:

- Harmonize the structure and terminology across related standards with significant focus on:
  - fire services
  - airside systems
  - product testing and certification.
- Adopting ISO and IEC standards wherever possible resulting in the retirement of many older Australian standards.

There are a small number of exceptions to these overall trends including

- Piping standards are mostly based on:
  - For steel pipe American National Standards Institute (ANSI) and American API (American Petroleum Institute) standards.
  - For copper tube and steel tube Australian Standards
  - For flanges a mixture of AS4087, AS2129 Table), ANSI B 16.5 (CLASS) & ISO 7005 (PN)

Notwithstanding this there has been significant rationalization of piping standards within Australia and BIM-MEP<sup>AUS</sup> references the current industry-based piping standards.

- Ductwork standard AS4254 is specific to Australia however generally aligned with SMACNA ductwork standards.
- Electrical Wiring Rules AS 3000
- Gas Installations AS/NZS 5601

The result of these initiatives is positive however will involve some effort to adjust to new terminology such as FDCIE (Fire Detection Control Indication Equipment) which replaces the more familiar FIP or EWCIE which replaces the EWIS.

## 2.9 Maintenance Schedules

Maintenance schedules are not included in the product data templates as most maintenance scheduling is now generated through specialist maintenance management software which can take into account a range of factors including:

- Statutory essential safety measure requirements
- Maintenance strategy
- Analytics based maintenance.

Scheduling out the maintenance activities is therefore generally of limited real value.

### 3 PRODUCT DATA TEMPLATES

BIM-MEP<sup>AUS</sup> Product Data Templates provide all the data fields related to a specific product type.

The structure of the product data templates is consistent across all product data templates:

- Identity
- Performance / Quality
- Product Data
- Commissioning
- Completion.

In addition, the BIM classification data is nominated in the template for reference.

The component design and procurement data schedules are derived from the product data template and are a reduced set of parameters to meet the specific data sets at this stage.

The Identity and Completion data schedules are consistent across all product types however specific fields may be removed where there is no relevance. For instance, the parameters PowerSource and EnergyMeterGroup are not relevant to ducted attenuators.

## 4 COMPONENT DATA TEMPLATES

### 4.1 Design Data Templates

The Component Design Template is intended to become the primary form of specifying the required performance and quality requirements for a specific component. Rather than have a combination of specification clauses, technical schedules and requirements on drawings the component design schedule provides a single point of truth that clearly identifies the specific requirements for a component.

The intended use of the component design schedules is to create and issue an Excel based tender form for completion by the tenderers.

It is expected that the tenderer would return in Excel format the completed technical schedules based on the selected manufacturer's component data allowing quick and accurate assessments of the bids.

The use of the design data schedules can deliver significant benefits to the various stakeholders involved in the design and specification and tendering processes. These include:

- Design firms are able to pre-populate most of the performance and quality requirements to the schedule (ie move data from specifications to the data schedule) reducing the task of completing the schedule for each project to only those specific items that are particular to the project and component.
- The design data schedule is the information that suppliers have identified is needed to provide a compliant quotation reducing the need for clarifications or qualifications.
- The shared parameters and their defined value ranges represent current practice and industry standards – for instance pipe types listed are those only generally available in Australia.
- Suppliers can quickly and easily respond to tenders providing data in a consistent industry standardized format allowing evaluation by the installers and designers.

### 4.2 Procurement Data Templates

The procurement data template is used by installers and suppliers to finalise the equipment selections as part of the construction engineering activities.

This schedule includes such things as equipment handling and final performance selections and may be used for technical submission approvals.



## 5 SUPPLIER DATA TEMPLATE

The supplier data template provides the supplier data that must generally be included in any proposal.

It includes:

- Installer
- InstallerProjectNumber
- Supplier
- SupplierAddress
- SupplierRepresentative
- SupplierContactDetails
- QuoteDate
- QuoteValidityDuration
- ProcurementLeadTime
- QuoteExchangeRateBasis
- SupplyCost(GSTExclusive).