



قطر تستحق الأفضل
Qatar Deserves The Best

Ashghal Building Information Modelling Standards (ABIMS)

Abbreviations and Terminology

Guide	Specification	Template
Code	D0102	
Version	V1	
Date	16 January 2022	
Owner	Public Works Authority (Ashghal)	
Author	Engineering Services Department	

Document Properties

Document Title	Abbreviations and Terminology
Document Owner	Public Works Authority – Ashghal (State of Qatar)
Document Author	Engineering Services Department (ESD)

Version Control

Version	Purpose / Modification	Author	Date
V1	Issued for Approval	ESD	16 January 2022

Release Authorization

The current version of the document is valid from the issue date to the revision date. The document has been authorized by the following:

#	Position	Name
1	President of the Public Works Authority	Dr. Eng. Saad bin Ahmad Al Mahanadi
2	Manager of Engineering Services Department	Ghanem Rashid Al-Mansoori
3	Head of Engineering Information Systems Section	Issa Omran I M Alkuwari

Technical Contact

For any technical enquiries and support, please contact

Eng. Amna Ameer Al Baker (e-mail: bim@ashghal.gov.qa)

Disclaimer

This document and any information or descriptive matter set out hereon is a copyright and property of the Public Works Authority (Ashghal) of the State of Qatar. It must not be disclosed, loaned, copied, or used for manufacturing, tendering or for any other purpose without written permission by Ashghal.

This document is intended to be neither static nor all-inclusive and thus will be updated and enhanced as appropriate. Hardcopies of this document are considered uncontrolled. Please contact the Engineering Services Department of Ashghal for the latest version.

TABLE OF CONTENTS

Purpose of the document.....	4
1 Abbreviations.....	5
2 Terminology.....	7
List of Tables	15

PURPOSE OF THE DOCUMENT

This document provides definitions for the use of BIM-specific terms and abbreviations across all Ashghal BIM Standards. It aims to provide a consistent approach to terminology across BIM within Ashghal.

The document consists of two parts:

- Abbreviations – For definitions of the shortened forms of terms used, or acronyms, please refer to Section 1.
- Terminology – For the definition of each Term used in the PWA BIM Suite please refer to Section 2.

1 ABBREVIATIONS

Abbreviation	Description
AIA	American Institute of Architects
API	Application Programming Interface
AIM	Asset Information Model
BCF	BIM Collaboration Format
BEP	BIM Execution Plan
BOM	Bill of Material
BOQ	Bill of Quantities
BS	British Standards
BIM	Building Information Modelling
CD	Clash Detection
CDM	Clash Detection Matrix
CDE	Common Data Environment
CAD	Computer Aided Design
CAFM	Computer Aided Facilities Management
CMMS	Computerized Maintenance Management System
CDMS	Consolidated Document Management System
CIC	Construction Industry Council
COBie	Construction Operations Building Information Exchange
2D	Two Dimensional
3D	Three Dimensional
4D	Four Dimensional
5D	Five Dimensional
DC	Document Controller
EAMS	Enterprise Asset Management System
EIR	Exchange Information Requirements
FM	Facility Management
GIS	Geographic Information System
GUID	Globally Unique Identifier
HPCS	Handover & Project Closure Stage
ID	Identifier
IFC	Industry Foundation Classes

ITO	Information Take Off
IP	Intellectual Property
ISO	International Organization for Standardization
KPI	Key Performance Indicator
LOD	Level of Detail
LOI	Level of Information
MIDP	Master Information Delivery Plan
MTO	Material Take Off
MEA	Model Element Author
MET	Model Element Table
NBS	National Building Specification
O&M	Operations and Maintenance
PRC	Product Representation Compact
PIM	Project Information Model
PAS	Publicly Available Specifications
QCS	Qatar Construction Specification
QND	Qatar National Datum
QNG	Qatar National Grid
QA	Quality Assurance
QC	Quality Control
QTO	Quantity Take Off
RFI	Request for Information
RASCI	Responsible, Accountable, Supporting, Consulted and Informed
SIPOC	Suppliers, Inputs, Process, Outputs and Customers
TBS	Task Breakdown Structure
TIDP	Task Information Delivery Plan
VDC	Virtual Design and Construction
WBS	Work Breakdown Structure

Table 1: Abbreviations

2 TERMINOLOGY

Terms	Description
2D	A two-dimensional (length, width, height) drawing or element, e.g. line drawings.
3D	A three-dimensional (length, width, height, depth) model or element, e.g. 3D model.
American Institute of Architects	An organisation for members of the Architectural profession in the United States.
Application Programme Interface	The interface implemented in a software application which allows customisation of functionality or allows other tools to access the software.
Asset Handover	The process of delivering information on the assets developed to allow operation and maintenance of the assets. It includes sub-activities such as operational readiness, commissioning, handover and record modelling.
Asset Information Model	A maintained Information Model used to manage, maintain and operate the asset. May contain documentation, non-graphical information, and graphical model.
Attributes / Parameters	A piece of data that describes a characteristic an object or entity.
BIM Collaboration Format	An open file format based on XML that allows the addition of comments to an IFC (Industry Foundation Classes) Project Information Model.
BIM Execution Plan	The plan prepared by the awarded party to explain how the information modelling aspects of the project will be carried out.
BIM Manager	Refer to <i>Information Manager</i>
BIM Protocol	A supplementary legal agreement that can be incorporated into professional services appointments, construction contracts, subcontracts, and novation agreements to address application of BIM within a traditional contract.
Bill of Material	Bill of Material refers to a list of materials derived from the design information, e.g. asphalt, or concrete.
Bill of Quantities	It is a document which is used in construction work for Quantification and Costing during several stages on a project for all of the works or a part of work.
British Standards	Technical specifications or practices used for guidance on the production of a product, carrying out a process or providing a service.

Building Information Modelling	Building Information Modelling is a process for creating and managing information on a construction project across the project lifecycle.
Clash Detection	The activity of analysing Information Models to identify if any Model Elements physically conflict with other Model Elements.
Clash Detection Matrix	A table which identifies the applicable values for applying clash detection rules across the project information.
Clash Group	This is an alphanumeric code added to individual elements to categorise them and allow for selection within the clash detection process. It is composed of a letter identifying the discipline and a four-digit numbers of the element category.
Clash Priority	This alphabetical value is added to individual elements categorise the priority of the element. It can vary from A to B to C, where A is the highest priority and C is the lowest. Priority is based on the importance of the element during the clash detection Process. Ex: Structural Wall shall be as Priority A, whereas Signage Products as Priority B and Space allocation for equipment's as Priority C.
Clash Reporting	The process of generating outputs for communicating clash detection issues in specific formats.
Clash Severity Level	A grade of importance of the specific clash.
Clash Test	Clash test is the process of undertaking clash detection rules across the Project Information Model.
Clash Type	Category of Clash Test which is predefined in Navisworks settings for performing the Clash tests against the Model Elements.
Classified Components	Defines components which are correctly classified under the Uniclass 2015 Classification system.
Clearance Clash	A clearance clash is where Object A and Object B do not intersect but are within a specified minimum distance (clearance) of each other.
Client	Entity, individual or organisation commissioning and funding the project either directly or indirectly. Also known as the Owner.
Common Data Environment	A combination of hardware, software and workflow that is used to collect, manage and disseminate all relevant approved files, documents and data for multidisciplinary teams in a managed process.
Computer Aided Design	Computer-aided design is the use of computers to aid in the creation, modification, analysis, or optimization of a design.
Computer Aided Facilities Management	Systems used to assist facilities managers with planning, managing, reporting and tracking facilities operations.
Computerized Maintenance Management System	Computer-based software approach to maintenance management. Used to organise and automate the record keeping process.

Consolidated Document Management System	Consolidated Document Management System is a term used by PWA to refer to their central document storage.
Construction Industry Council	Forum of professional bodies, research organisations and specialist business associations in the construction industry.
Construction Operations Building Information Exchange	Construction Operations Building Information Exchange (COBie) is a non-proprietary data format for the publication of a subset of Asset Information Models (AIM) focused on delivering asset data rather than geometric information. It is formally defined as a subset of the Industry Foundation Classes (IFC - the international standard for sharing and exchanging BIM data across different software applications) but can also be conveyed using worksheets or relational databases.
Construction Scheduling	Construction Scheduling is an act of combining a project's timeline (i.e. Gantt chart) with the Project Information Model to study in digitally in advance the construction process.
Cost Management	Cost Management is the act of controlling the cost on a construction project.
Data Shortcuts	A data shortcut is simply a link to a Civil 3D object between drawings using an XML file. This enables users to work in other drawings and share Civil 3D objects.
Data Type	Data Type represents the format in which each field must be filled. Example: String, Integer, Boolean etc.
Delivery Team	Delivery Team is the Consultant or Contractor, including their suppliers.
Design Review	Design Review is the act of reviewing a design or construction model to validate using specific BIM software: - certain technical requirements based on design rules (e.g. the distance between elements or if the dry utilities are located above wet utilities) - model specific quality (e.g. filling of parameters with units or descriptions) or the naming of family / block / filenames)
Design Validation Engineer	An engineer that is appointed by PWA to review and validate the designs submitted by design consultants against relevant standards and appropriateness for the project.
Digital Terrain Model	A digital terrain model is a 3D representation of a terrain's surface.
Document Controller	Person that registers and manages the communication processes, usually on the instruction of a project manager.
Drawing Production	The process of developing 2D drawings from 3D Models.
Element Validation	The process of checking a particular element complies with the required standards.

Emergency Response	Emergency Response refers to preparing the asset information so that it can be used by other Qatari Government Agencies.
Engineering Analysis	Engineering Analysis is the act of using the design for calculation purposes. With BIM there are different tools available depending on the discipline at hand.
Enterprise Asset Management System	A software solution which supports the management of the maintenance of physical assets of an organization throughout each asset's lifecycle.
Exchange Information Requirements	A document setting out the information to be managed and delivered and the standards and processes to be adopted in the management and delivery of Project Information.
Facility Management	The management of facilities in the built environment at both a strategic and day to day level to deliver operational objectives and to maintain a safe and efficient environment.
Feature Class	Feature Class is the GIS term for Assets. It is a collection of geographic features with same geometry type (such as point, line, or polygon) and the same set of attribute fields for a common area.
Federation Strategy	Defines the strategy for combining and/ or segregating project information including models, drawings, construction programmes and cost plans.
Gateways / Stage Gates	Gateways / Stage Gates are used to refer to time-based portions of the project with a clear scope and purpose that help team members refer to what they are working on, e.g. design stage.
Geographic Information System	Allows data to be captured, mapped, managed, visualised, and interrogated according to its location in space and time.
Globally Unique Identifier	128-bit number used to identify digital information.
Handover & Project Closure Stage	The final stage of formally closing the projects' life cycle, usually by the Contractor after construction stage.
Hard Clash	A hard clash is the intersection of Object A with Object B, by more than the tolerance value set in the clash test.
Identifier	Allow the precise tracking of information. Everything within a model will have an identifier (GUID), the facility, floors, spaces, assets etc., will all have an identifier. Changes to objects in different models' versions can be tracked as an object maintains its GUID.
Industry Foundation Classes	Neutral, non-proprietary data format used to describe, exchange and share information. It is the international standard for Project Information Modelling used for sharing and exchanging construction and facility management data across different software applications (also refer to ISO16739).
Information Delivery Plan	Overall plan of delivering information. Informs the development of Master Information Delivery Plans (MIDP) and Task Information Delivery Plans (TIDP).

Information Manager	An individual responsible for the Implementation and Management of BIM during the Design, Construction and Handover Stages of a Project. It includes setting up and manage the Common Data Environment (CDE) to ensure the agreed protocol are followed and the data is secured.
Information Model	A set of structured and/or unstructured information containing any combination of geometrical information, alphanumerical information, and documentation.
Information Particular	Information Particular means the front page of PWA BIM Protocol, the documents identified therein and (to the extent not identified in the Information Particulars) any Exchange Information Requirements, Appointing Party's Exchange Information Particulars, BIM Execution Plan, Master Information Delivery Plan, Risk Register, High Level Responsibility Matrix, Mobilization Plan and/or Security Management Plan.
Information Take Off	Analyse component information within a Project Information Model, including classifications, locations, and quantities.
Intellectual Property	Property that is individually created and includes inventions, literary and artistic work, designs, symbols and names and images used in commerce. Intellectual property protection includes copyright, patents, designs and trademarks.
Interference Check	Interference occurs when components of two independent parts attempt to occupy the same space. When working with multiple parts or the components of an assembly, you should frequently check for interference among them. Example: In Civil3D, Interference checks between pipes, pipe Structure to be carried out for any Utility design process.
International Organization for Standardization	Independent organisation responsible to produce voluntary international standards.
Key Performance Indicator	A performance indicator that is crucial to explain / measure the performance of a process or business.
Laser Scan	Within the field of 3D object scanning, laser scanning (also known as lidar) combines controlled steering of laser beams with a laser rangefinder. By taking a distance measurement at every direction the scanner rapidly captures the surface shape of objects, buildings and landscapes.
Lead Consultant	Consultant that directs the work of the consultant team and is the main point of contact for communication between the client and the consultant team, except for on significant design issues where the lead designer may become the main point of contact.
Lead Designer	Individual or organisation that directs and coordinates other designers in the consultant team as well as any specialist designers that are appointed.
Level of Detail	The geometrical appearance of Information Model objects as specified in the Information Particulars

Level of Information	The level of detail of non-geometrical content as defined in the Information Particulars.
Level of Information Need	The framework which defines the extent and granularity of information as may be identified in the Information Particulars or provided in accordance with the Information Standard.
Master Information Delivery Plan	The primary plan for the preparation of the project information required by the Exchange Information Requirements, setting out programme, responsibility, protocols, and procedures.
Material Take Off	This is a term used in engineering and construction and refers to a list of materials with quantities and types (such as specific grades of steel) that are required to build a designed structure or item.
Model Author	The person responsible for physically producing an Information Model.
Model Element	An Element in the Model, that represents the actual 2D/3D Geometry including any Information describing that element for design/construction/operation.
Model Element Author	The Authoring Party of a Model Element. Ex: Mechanical Engineer for Mechanical Equipment's.
Model Element Table	The Model Element Table is a structured overview of elements, based on Uniclass categories that are expected to be modelled on a project.
Non-Graphical Data	Information contained in the model that is not physically represented.
Object Data	Object data in Civil 3D, is attribute data that is attached to individual objects and stored in tables in the drawing. Object data tables store text and numerical information related to an object.
Operations and Maintenance	Operations and Maintenance means the functions, duties and labour associated with the daily operations and normal repairs, replacement of parts, and needed to preserve an asset so that it continues to provide acceptable services and achieves its expected life.
Owner	The owner of the asset and responsible for its maintenance.
Product Representation Compact	File format which represents the geometry, physical structure, and manufacturing metadata for a 3D model.
Project Information Model	The Information Model developed during the design and construction phase of a project.
Project Schedule	A project schedule is an estimation of the duration of all the task on a project brought together in a single system.

Publicly Available Specifications	Standardisation document that closely resembles a formal standard but has a different development model. PAS Standards do not conflict or contradict formal Standards.
Qatar Construction Specification	Construction specifications and guidelines for Qatar.
Qatar National Datum	Qatar National Datum 1995 is a geodetic datum first defined in 1995-01-01 and is suitable for use in Qatar - onshore. Qatar National Datum 1995 is a geodetic datum for Topographic mapping. It was defined by information from the Qatar Centre for Geographic Information Systems (CGIS).
Qatar National Grid	QNG is a two-dimensional coordinate reference system that is the standard for geographic mapping in Qatar.
Quality Assurance	Quality assurance (QA) is any systematic process of determining whether a product or service meets specified requirements.
Quality Control	Ensures products and services comply with requirements.
Quantity Take Off	Quantity Take Off is a term that is used for the extraction of quantities and measurements from design. Traditionally done by a quantity surveyor. With BIM some information can also be generated by people that are not quantity surveyors.
Request for Information	A formal question asked by one party to a contract on a construction project to the other party.
Responsible, Accountable, Supporting, Consulted and Informed	To identify what a specific role must do a so called RASCI Matrix is used to make this clear. RASCI can stand for Responsible, Accountable, Supporting, Consulted or Informed, and quickly makes it clear who is doing what in a process.
Rulesets	Rulesets are used to define the criteria for rule-based model checking in Solibri.
Search Sets	Search Sets are a dynamic group of items filtered by a set criteria in Navisworks. Search Sets will automatically re-run if the underlying models change.
Stakeholders	An individual, group, or organisation, who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project.
Suitability Code	Defines the suitability of information in a model, drawing or document.
Supervision Consultant	A consultant appointed by PWA that manages the Main Contractor with regards to the design and project execution.
Suppliers, Inputs, Process, Outputs and Customers	Suppliers, Inputs, Process, Outputs and Customers are terms used on a SIPOC diagram. This type of diagram is used to demonstrate the flow of information from a supplier to a customer.

Task Breakdown Structure	A task breakdown structure is term used to describe a way of breaking down a piece of work into the tasks required to create it.
Task Information Delivery Plan	Prepared by individual task team managers, setting out the responsibilities for each individual information deliverable.
Tolerance	Tolerance is the range of variation permitted in maintaining a specified standard for performing clash detection.
Unclassified components	Defines components which are not correctly classified under the Uniclass 2015 Classification system.
Virtual Design and Construction	Virtual Design and Construction means the incorporation of the design and construction process as computer readable models that can be tested digitally. This helps reduces the issues encountered during the project execution if no VDC would have been applied. VDC can also refer to specific software systems.
Work Breakdown Structure	A work breakdown structure is term used to describe away of breaking down a (construction) project into smaller sub-components that can be more easily controlled than the entire project.

Table 2: Terminology

LIST OF TABLES

Table 1: Abbreviations	6
Table 2: Terminology	14