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Responsible committee: PEL/121 Switchgear and Controlgear and their assemblies for low voltage

Interested committees:

Title: BS EN IEC 62683-2-2 Low-voltage switchgear and controlgear - Product data and properties for information exchange - Engineering data

Part 2-2: Switchgear and controlgear assembly objects for building information modelling

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- iii) requires additional national guidance or information

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



121/152/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER: IEC 62683-2-2 ED1	
DATE OF CIRCULATION: 2023-12-01	CLOSING DATE FOR COMMENTS: 2024-01-26
SUPERSEDES DOCUMENTS: 121/125/CD, 121/131A/CC	

IEC TC 121 : SWITCHGEAR AND CONTROLGEAR AND THEIR ASSEMBLIES FOR LOW VOLTAGE	
SECRETARIAT: France	SECRETARY: Mr Michaël LAHEURTE
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 3,SC 3D,SC 22G,SC 22H,SC 23E,SC 121A,SC 121B	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	

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TITLE:

Low-voltage switchgear and controlgear - Product data and properties for information exchange - Engineering data - Part 2-2: Switchgear and controlgear assembly objects for building information modelling

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SWITCHGEAR AND CONTROLGEAR AND
THEIR ASSEMBLIES FOR LOW VOLTAGE –****Product data and properties for information exchange –
Engineering data – Part 2-2: Switchgear and controlgear assembly objects
for building information modelling**

FOREWORD

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- International Standard IEC 62683-2-2 has been prepared by subcommittee 121: Switchgear and controlgear and their assemblies for low voltage.

The text of this standard is based on the following documents:

FDIS	Report on voting
121/xx/FDIS	121/xx/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

94 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

95 The committee has decided that the contents of this publication will remain unchanged until the
96 stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to
97 the specific publication. At this date, the publication will be

- 98 • reconfirmed,
- 99 • withdrawn,
- 100 • replaced by a revised edition, or
- 101 • amended.

102

103 The National Committees are requested to note that for this publication the stability date
104 is 20XX.

105 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED
106 AT THE PUBLICATION STAGE.

107

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INTRODUCTION

Building Information Modelling (BIM) is as an optimizing design process for construction and operation of the building. The information in the model remains coordinated and consistent throughout the lifecycle of the project in order to better optimise its construction schedule and operation. BIM is a digital process enabled by a set of software, dictionaries, objects and data which aims to increase efficiency around the building lifecycle, though design, operation, maintenance and destruction phase. The use of BIM was initially mainly at design stage to avoid collisions between the different elements of the construction. However, BIM offers many other possible use cases to be investigated such as extracting electrical load demands, simulating photovoltaic production capacity, simulating thermal and energy behaviour of the building etc ...

BIM and the Building Lifecycle

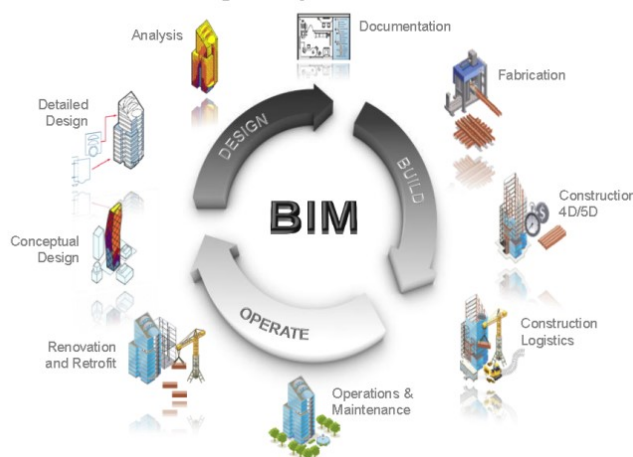


Figure 1 – BIM and the building lifecycle

The main intended benefits of BIM are:

- Increasing design dependability and process transparency;
- Improving project communication and project marketing;
- Shortening construction periods;
- Minimizing risks in execution and reducing construction costs;
- Increasing the degree of prefabrication;
- Use information for building operation purposes.

Governments, worldwide, are recommending or requiring the use of digitalised information for public construction projects, recognizing its value for helping to deliver projects successfully.

BIM is a standardised process by ISO TC 59/SC 13 and includes a 3D representation and an optimised set of data, which can be enhanced by adding further information, such as technical features.

BuildingSMART is a global community committed to creating and developing open digital ways of working for built asset environment. BuildingSMART promotes international consensus among stakeholders on specific standards to accelerate implementation and uptake and propose standard to ISO TC59.

ISO 19650 standard defines the information management process.

Other standards are more specifically addressing the exchange format such as ISO 16739 and dictionaries such as ISO 12006. An overview is shown in Figure 2.

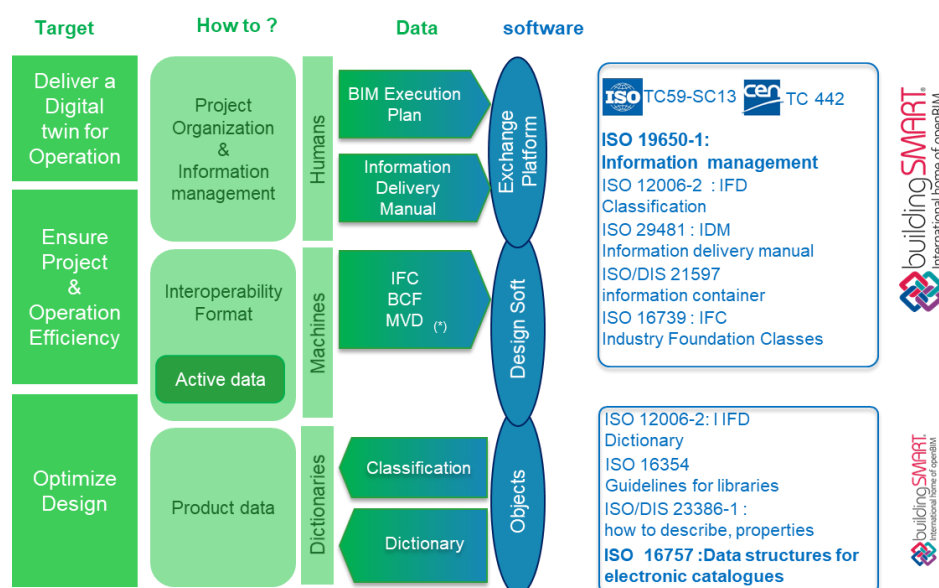


Figure 2 – BIM data standard overview

The main elements of the BIM process and are:

- Industry foundation class (IFC - [ISO 16739-1:2018](#))
IFC is a standardized, digital description of the built asset industry. It is an open, international standard (ISO 16739-1:2018) and promotes vendor-neutral, or agnostic, and usable capabilities across a wide range of hardware devices, software platforms, and interfaces for many different use cases
- Information Delivery Specifications (IDS)
An Information Delivery Specification (IDS) is a computer interpretable document that defines the Exchange Requirements of model-based exchange. It defines how objects, classifications, materials, properties, and even values need to be delivered and exchanged. This is often done based on Industry Foundation Classes (IFC) and additional classifications, materials and properties (national agreements or company specific ones; either stored in bSDD or somewhere else). This is the standard to use to define your Level of Information Needs (CEN term), your Exchange Information Requirements (ISO 19650 term) or even to exchange Product Data Templates with some more details.
- Building smart data dictionary (bSDD ISO 12006-3, ISO 23386)
The buildingSMART Data Dictionary (bSDD) is a library of classes, properties, relations and units. It is an online service that hosts classifications and their properties, allowed values, units and translations. The bSDD allows linking between all the content inside the database. It provides a standardized workflow to guarantee data quality and information consistency.
- BIM Collaboration Format (BCF)
The BIM Collaboration Format (BCF) allows different BIM applications to communicate model-based issues with each other by leveraging IFC data that have been previously shared among project collaborators. BCF was created for facilitating open communications and improving IFC-based processes to more readily identify and exchange model-based issues between BIM software tools, bypassing proprietary formats and workflows.
- Information Delivery Manual (IDM, ISO 29481-1)
The built asset industry (including buildings and civil infrastructure) is characterized by bringing many different companies and authorities together in a project specific organisation. In order to work efficiently, it is necessary for all participants in the organisation to know which and when different kind of information has to communicated. The issue is even more important when digital tools are applied, since most industry tools have a very low threshold of tolerance when it comes to the ability to interpret digital data. The “Building information modelling – Information delivery manual” standard

has been developed by buildingSMART in order to have a methodology to capture and specify processes and information flow during the lifecycle of a facility.

Up to now, electrical engineering has not been adequately represented in BIM (IFC, IDS, BSDD) although electrical engineering is an essential trade within every property.

Particularly in electrical systems engineering, the expectation is to cover from planning, execution, operation, to demolition and improve ease of exchange and interoperability between, different phases, electrical personas and electrical CAD and CAE software's.

BIM is the right approach as a working method in the electrotechnical trade of a building (low voltage + medium voltage). But objects of electrical assemblies need to be further detailed and standardised.

BIM design software need to be supplied with objects. The properties of these objects, for example, the functional description of an electrical distribution panel, will be easier to be handled by a building designer if this description is based on a common ontology defined by recognised electrical standards.

This part of IEC 62683-2 series is intended to be used in combination with the following part:

- IEC 62683-1, *Catalogue data*

The described data models including in this part is intended to be hosted within [IEC CDD](#) in the class tree dedicated to engineering data of low-voltage switchgear, controlgear and their assemblies. This branch of the [62683 DB](#) dictionary is intended to be used by catalogue consortia, other database standards and engineering software editors as reference to low-voltage switchgear and controlgear standards.

IEC CDD ontology data model is following IEC 61360-2/ISO 13584-42. It includes the unique identification of each dictionary and dictionary element according to ISO 29002-5 called "international registration data identifier" (IRDI). This identifier includes the IEC International Code Designator (ICD) "0112" registered according to the registration authority identification concept as defined in ISO/IEC 6523-1.