IEC 62683-2-2

Edition 1.0 2025-09

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## 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

## Appareillage à basse tension - Données et propriétés de produits pour l'échange d'informations - Données d'ingénierie - Partie 2-2: Objets d'ensembles d'appareillage pour la modélisation des informations de la construction



ICS 29.130.20

ISBN 978-2-8327-0583-4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# 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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IEC 62683-2-2 has been prepared by IEC technical committee 121: Switchgear and controlgear and their assemblies for low voltage. It is an International Standard.

The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---|---|
| 121/224/FDIS | 121/229/RVD |

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62683 series, published under the general title *Low-voltage switchgear and controlgear – Product data and properties for information exchange – Engineering data*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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# INTRODUCTION

Building information modelling (BIM) is an optimizing design process for the construction and operation of buildings. The information in the model remains coordinated and consistent throughout the lifecycle of the project to better optimise its construction schedule and operation (see Figure 1). BIM is a digital process enabled by a set of software, dictionaries, BIM objects and data which aims to increase efficiency around the building lifecycle, through the design, operation, maintenance and destruction phases. BIM was initially mainly used at the 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, and simulating thermal and energy behaviour of the building, etc.

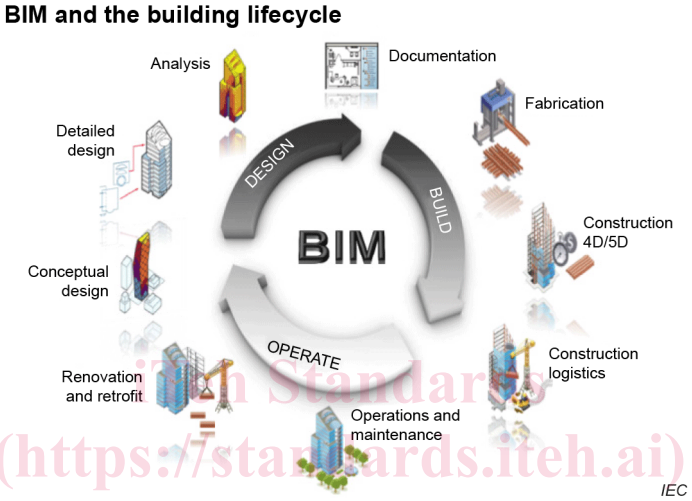


**Figure 1 – BIM and the building lifecycle**

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 recommend or require 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 standards to ISO TC 59.

ISO 19650 defines the information management process.

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

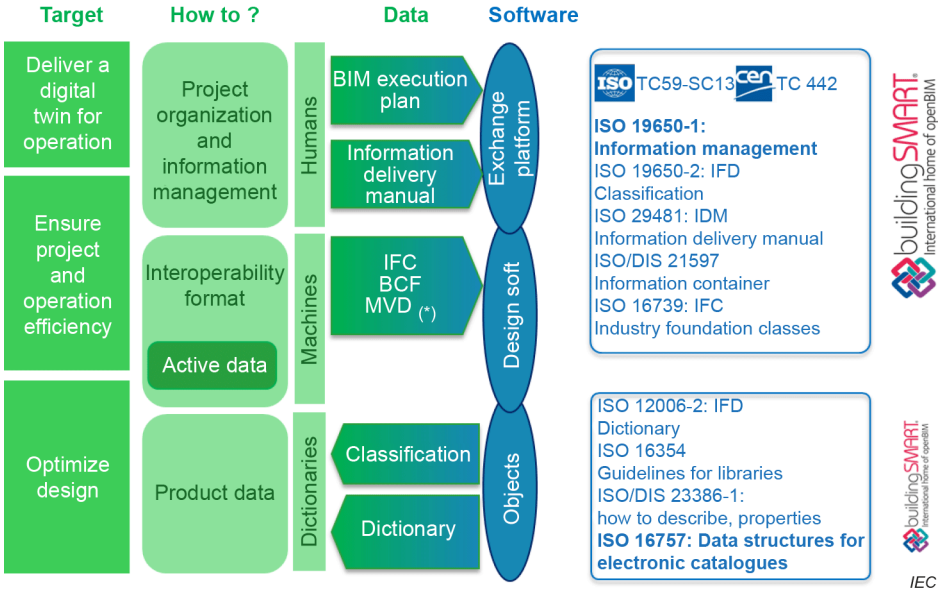


**Figure 2 – BIM data standard overview**



The main elements of the BIM process are:

– Industry foundation class (IFC – ISO 16739-1)
IFC is a standardized, digital description of the built asset industry. It is an open, international standard (ISO 16739-1) 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 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 should 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 the level of information needs (CEN term), the 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.