National Institute of BUILDING SCIENCES™

# COBie v3

## CONSTRUCTION TO OPERATIONS BUILDING INFORMATION EXCHANGE STANDARD

Draft, November 2022

Innovative Solutions for the Built Environment

# Executive Summary

## OVERVIEW AND PURPOSE

The Construction to Operations Building information exchange (COBie) is a data format and process standard. Its purpose is to assist project teams with capturing and delivering data related to the maintainable assets of a facility in a digital format, with the goal of reducing or even eliminating the delay between handover (after design and construction) and when the facilities management system can begin the operations and maintenance of those maintainable assets.

The maintainable assets of a facility for COBie are those items that the owner of a facility will manage in an Operations & Maintenance system. They can include mechanical equipment, electrical equipment, plumbing fixtures, and other items that require maintenance, upkeep, and replacement.

## HISTORY

COBie was first published by the U.S. Army Corps of Engineers in 2007 with support from the National Aeronautics and Space Administration and the White House Office of Science and Technology Policy.

The National Institute of Building Sciences (NIBS) has curated and maintained COBie since 2013 under a Creative Commons License.

COBie version 2.4 was adopted as part of the U.S. National BIM Standard (NBIMS-US™) v3 in 2015.

V3

COBie version 3 is the latest version and will become a part of NBIMS-US v4 in 2023.

## PROCESS

COBie is successful when all project stakeholders are involved. These include the architects, engineers, contractors, suppliers, tradespeople, commissioning agents, and the facility owner. Each is responsible for capturing – in the COBie standardized digital format – information related to the maintainable assets of that facility during the project. This data is delivered at specified milestones in the project, culminating in a full delivery at project handover.

COBie has typically been used for building design and construction projects but can also be used for infrastructure projects or to transfer facility ownership from one party to another.

## STRUCTURE AND FORMAT

The COBie format is a subset of a Building Information Model (BIM). It is non-graphic data defined as a Model View Definition (MVD) of the Industry Foundation Class (IFC) schema. It can also be represented in a spreadsheet format.

The structure of the tables that make up the COBie database includes hierarchies based on the data:

| Overall Tables | Spatial Tables | Asset Tables | Process Tables | Support Tables |
|---|---|---|---|---|
| SCOPE<br>COMPANY | FLOOR<br>ZONE<br>SPACETYPE<br>SPACE<br>COORDINATE | TYPE<br>COMPONENT<br>SYSTEM<br>ATTRIBUTE | PACKAGE<br>JOB<br>EVENT<br>INSTRUCTION<br>RISK | DOCUMENT<br>RESOURCE<br>PICKLISTS |

Each table includes a standardized set of fields, and each field is designated as either always required, required if stated in the contract, or a reference to another field in the database. The COBie standard allows asset owners to define the specific fields they want in their data delivery.

## VERSION 3 UPDATES

V3 of the COBie standard incorporates 58 different updates grouped into four categories.

### Ease of Use

- More concise documentation
- Removal of tables rarely used
- Renaming of fields and headers to better understand their purpose
- Resorting of headers to better group them
- New "Title Block" section

### Modernization

- Removal of personally identifiable information fields
- Replacing "Facility" table with "Scope" table to accommodate infrastructure projects
- Support for JSON format for machine-to-machine exchanges

### Capabilities

- Adding new "PartOf" field on asset tables to better understand relationships
- Adding fields that accommodate classifying and geo-locating projects
- Adding a new "SpaceType" table to better organize Spaces

### Workflow

- Adding tables to better document the activities of a facility (especially useful for handover between owners)
- New "Package", "Event", and "Risk" tables to go along with the existing "Job" table

## COPYRIGHT