

BS 1192-4:2014



BSI Standards Publication

Collaborative production of information

Part 4: Fulfilling employer's information
exchange requirements using COBie –
Code of practice

bsi.

...making excellence a habit.™

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2014
Published by BSI Standards Limited 2014

ISBN 978 0 580 85255 8

ICS 01.100.30; 35.240.10

The following BSI references relate to the work on this document:

Committee reference B/555

Draft for comment 14/30294671

Publication history

First published September 2014

Amendments issued since publication

Date	Text affected
-------------	----------------------

Contents

Foreword	<i>iii</i>
Introduction	1
1	Scope 3
2	Normative references 3
3	Terms and definitions 3
4	Business process 6
5	Purposes 9
6	Management and quality criteria 13
7	Implementation 19

Annexes

Annex A (informative)	Example COBie entries 29
Annex B (informative)	Unified modelling language (UML) diagram of the COBie schema 48
Bibliography	49

List of figures

Figure 1	– Core maturity model – <i>iv</i>
Figure 2	– Generic view of COBie 1
Figure 3	– Infrastructure view of COBie 2
Figure 4	– Building view of COBie, using standard terms 2
Figure 5	– The Facility lifecycle 7
Figure 6	– Governance 8
Figure B.1	– COBie schema 48

List of tables

Table 1	– Date format 15
Table 2	– Comma separated lists 15
Table 3	– Common units of measure 16
Table 4	– Use of common units of measure 16
Table 5	– Use of units from PickLists 17
Table 6	– Time units 17
Table 7	– Classification recommendations 21
Table 8	– Additional Facility Attributes (buildings and infrastructure) 22
Table 9	– Additional Facility Attributes (building) 24
Table 10	– Additional Facility Attributes (infrastructure) 24
Table 11	– Additional Attributes for internal and external Spaces (locations) 25
Table 12	– Additional Attributes for internal Spaces (locations) 25
Table 13	– Additional Component Attributes 27
Table 14	– Additional Component Attributes (existing facilities) 27
Table 15	– Additional Type Attributes (infrastructure) 28
Table 16	– Optional Component Attribute 28
Table A.1	– COBie Instruction example 29
Table A.2	– COBie Contact example 30
Table A.3	– COBie building Facility example 31
Table A.4	– COBie infrastructure Facility example 32
Table A.5	– COBie building Floor example 33
Table A.6	– COBie infrastructure example 33
Table A.7	– COBie building Space example 34
Table A.8	– COBie infrastructure location example 34
Table A.9	– COBie Zone example 35
Table A.10	– COBie Type example 36
Table A.11	– COBie Component example 37
Table A.12	– COBie System example 37
Table A.13	– COBie Assembly example 38
Table A.14	– COBie Connection example 38
Table A.15	– COBie Spare example 39

Table A.16 – COBie Resource example	39
Table A.17 – COBie Job example	40
Table A.18 – COBie Impact example	41
Table A.19 – COBie Document example	41
Table A.20 – COBie single Attribute example	42
Table A.21 – COBie table Attribute example	42
Table A.22 – COBie simple Coordinate example	43
Table A.23 – COBie GIS Coordinate example	43
Table A.24 – COBie Linear Referencing Coordinates example	44
Table A.25 – COBie Issue example	45
Table A.26 – COBie PickLists example	46

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 50, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 1192 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 September 2014. It was prepared by Technical Committee B/555, *Construction design, modelling and data exchange*. A list of organizations represented on this committee can be obtained on request to its secretary.

Relationship with other publications

BS 1192-4 is closely aligned with the following:

- BS 1192:2007, *Collaborative production of architectural, engineering and construction information – Code of practice*
- PAS 1192-2, *Specification for information management for the capital/delivery phase of construction projects using building information modelling*
- PAS 1192-3, *Specification for information management for the operational phase of assets using building information modelling*

BS 1192:2007, PAS 1192-2 and PAS 1192-3 document best practice for the management of collaborative projects using Facility and Asset Information Modelling based design, construction and use.

BS 1192-4 defines the UK usage of COBie, an internationally agreed information exchange schema for exchanging facility information between the employer and the supply chain.

Figure 1 shows the core maturity model underlying these standards.

BS 1192-4 documents the best practice recommendations for the implementation of COBie as developed in UK Government pilot projects.

Use of this document

As a code of practice, BS 1192-4 takes the form of guidance and recommendations. It should not be quoted as if it was a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this part of BS 1192 is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

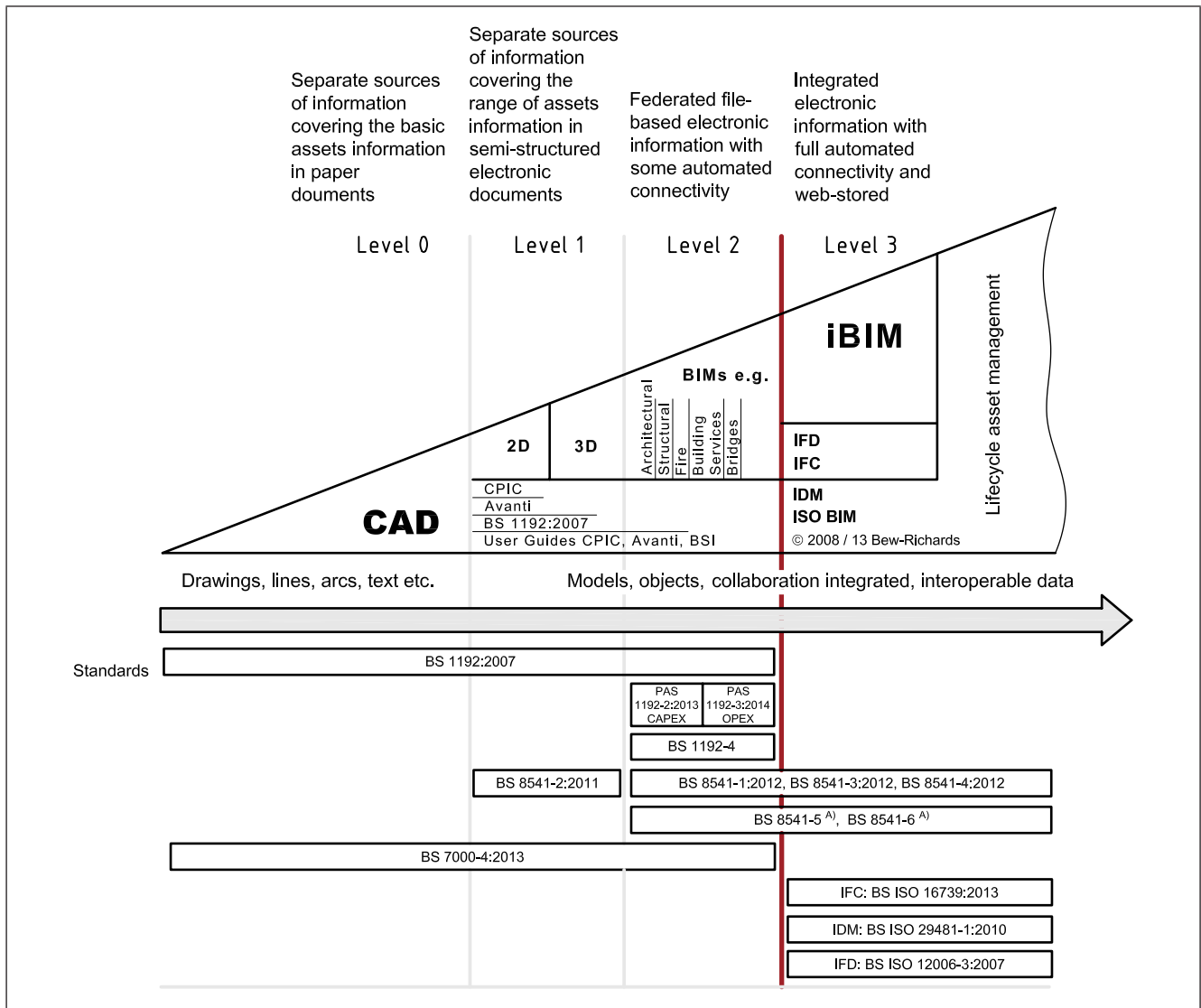
Throughout this Code of Practice, the standard COBie sheets, such as Facility, are capitalized. Example values and units in tables are in italics. Definitions are provided in Clause 3.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Figure 1 Core maturity model



Introduction

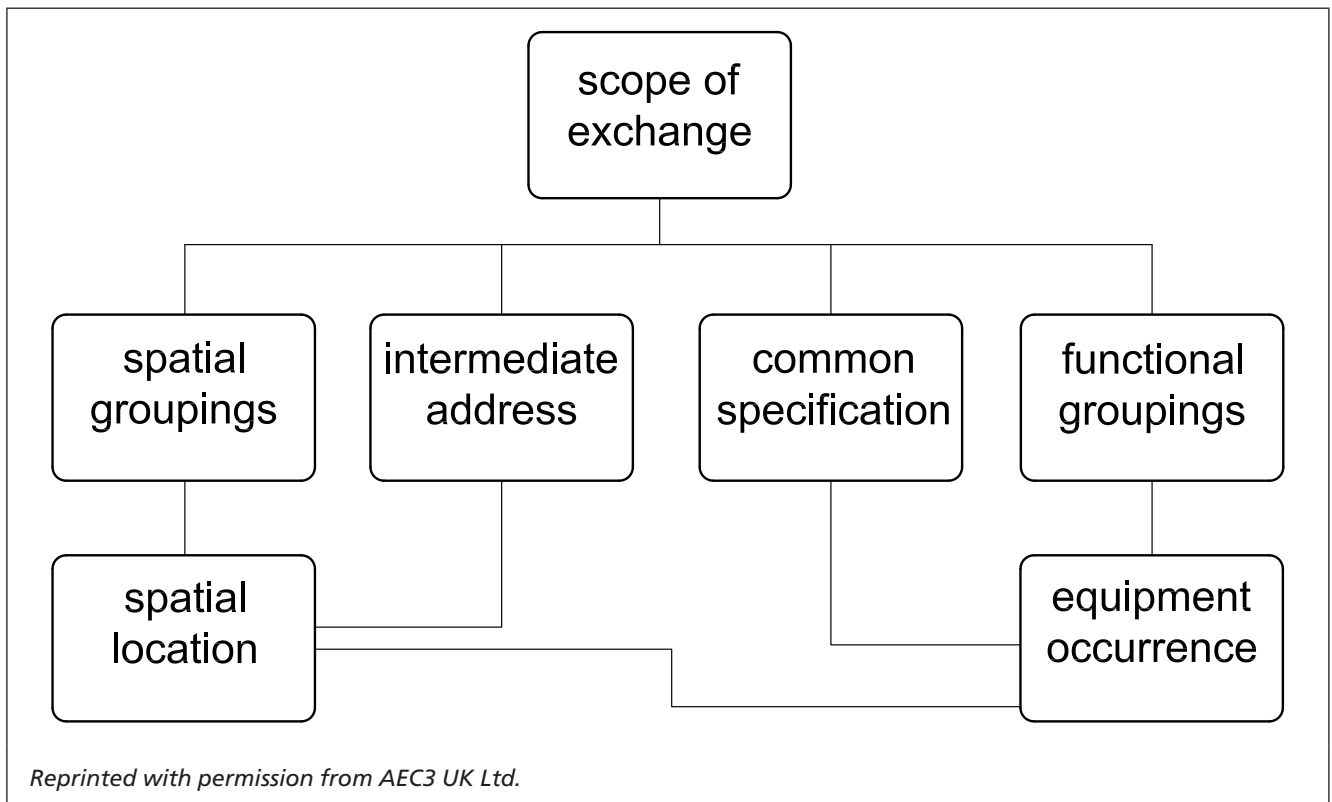
COBie (Construction Operations Building information exchange) provides a common structure for the exchange of information about new and existing Facilities, including both buildings and infrastructure.

This standard defines expectations for the exchange of information throughout the lifecycle of a Facility. The use of COBie ensures that information can be prepared and used without the need for knowledge of the sending and receiving applications or databases. It ensures that the information exchange can be reviewed and validated for compliance, continuity and completeness.

COBie is the UK Government's chosen information exchange schema for federated building information management (BIM) (UK level 2), alongside BIM models and PDF documents, with the aim of integrating commercially valuable information with other parts of the employer's business. It can be used within less structured projects (UK level 1) and might have a role within integrated BIM (UK level 3) alongside a fuller building information model.

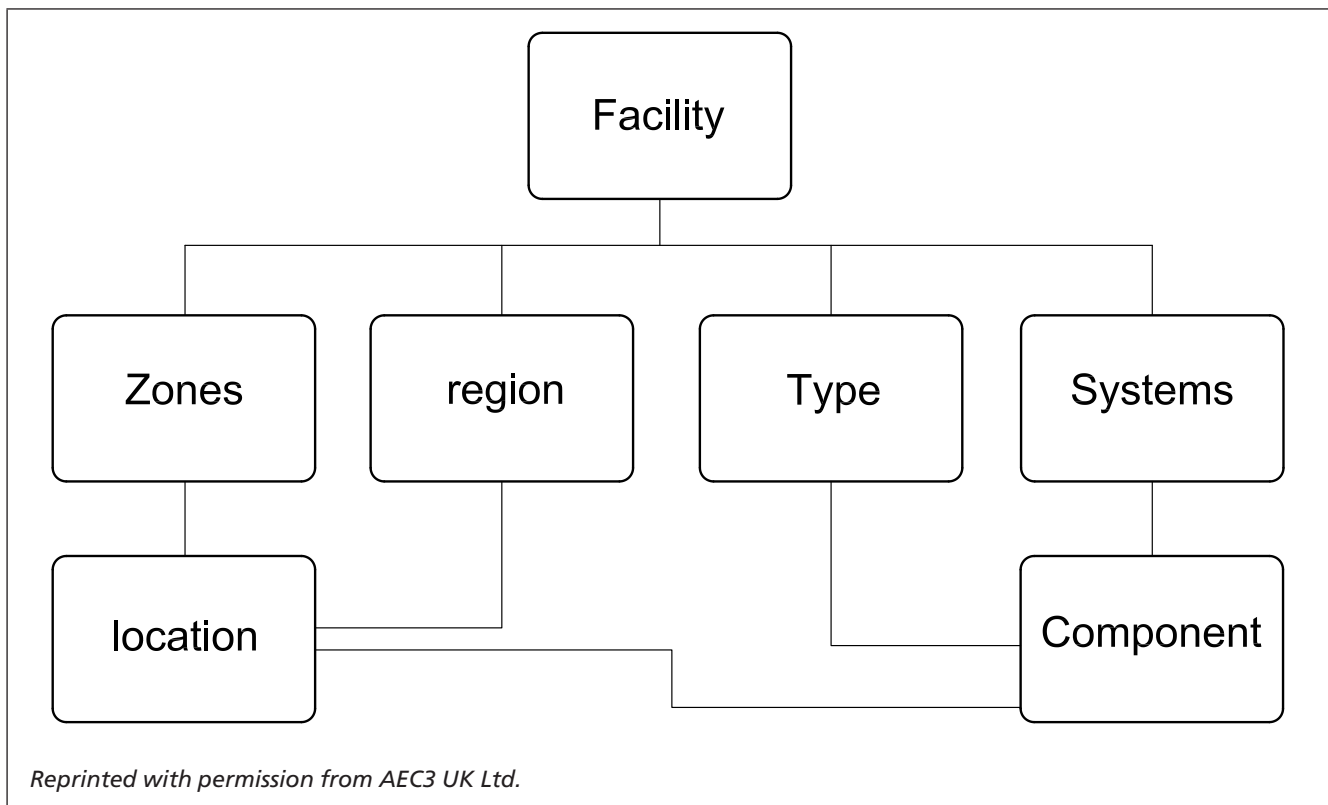
The scope of the exchange is given by the Facility – a distinct operational unit, typically a building or section of infrastructure or network – along with the temporary project and permanent site details. COBie holds information about the spatial locations and the equipment and components that make up the Facility. To make these manageable during the Facility lifecycle, spatial locations are allocated to intermediate addresses or locations and into other spatial groupings, and equipment, and components are assigned their common specification and grouped by their functional purposes (see Figure 2).

Figure 2 Generic view of COBie



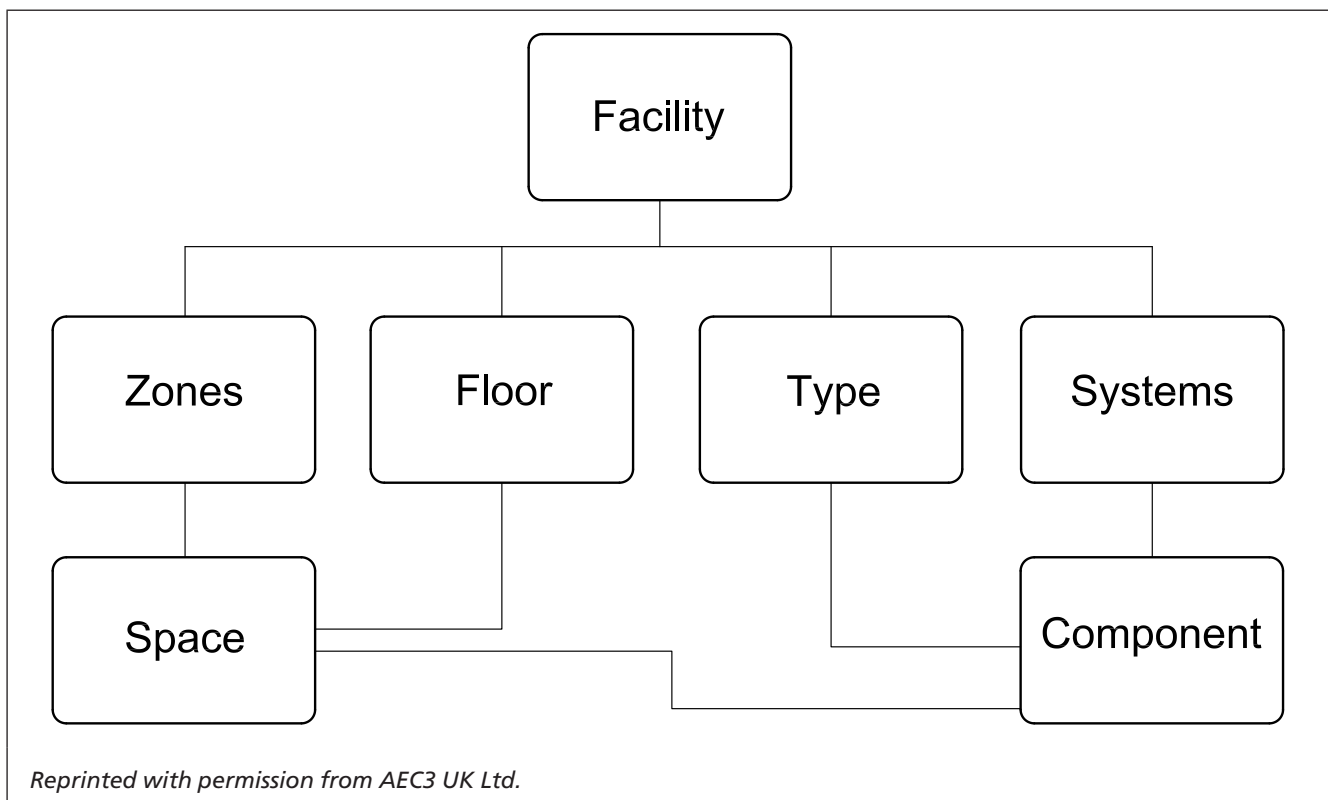
For infrastructure, the assets include the Facility as a whole, and its constituent locations and Components. These are managed through groupings into Zones, regions, Types and Systems (see Figure 3).

Figure 3 Infrastructure view of COBie



For buildings, the assets include the Facility as a whole and its constituent Spaces and Components. These are managed through groupings into Zones, Floors, Types and Systems (see Figure 4).

Figure 4 Building view of COBie, using standard terms



1 Scope

This British Standard defines a methodology for the transfer between parties of structured information relating to Facilities, including buildings and infrastructure. It defines expectations for the design and construction project phases prior to handover and acquisition and the subsequent in-use phase.

This code of practice assists the demand side, including employers with portfolio managers, asset managers and facility managers, to specify their expectations while helping information providers, including the lead designers and contractors, to prepare concise, unambiguous and accessible information.

NOTE 1 During briefing and renovation, these roles might be reversed. Other participants might have both roles.

NOTE 2 Suppliers and specialist designers and contractors might also be involved in providing information.

Clause 4 documents these processes and by whom and when such exchanges are envisaged.

Employer's Information Requirements (EIR) can be specified by the purposes intended for the information; Clause 5 structures these demands by use of "why" and "what".

Clause 6 defines the management and quality criteria that are to be applied in the preparation and acceptance of the information exchange.

Specific implementation for buildings and infrastructure facilities and for new and existing facilities are detailed in Clause 7.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 1192:2007, *Collaborative production of architectural, engineering and construction information – Code of practice*

PAS 1192-2, *Specification for information management for the capital/delivery phase of construction projects using building information modelling*

PAS 1192-3, *Specification for information management for the operational phase of construction projects using building information modelling*

BS ISO 16739, *Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries*

3 Terms and definitions

For the purposes of this part of BS 1192, the terms and definitions given in BS 1192:2007, PAS 1192-2 and PAS 1192-3 and the following apply.

3.1 Asset

3.1.1 assets

includes the overall Facility (3.1.3) and the constituent aspects Space (location) (3.1.5), Floor (region) (3.1.4), Zone (3.1.8), Component (3.1.2), Type (3.1.7) and System (3.1.6)