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BIM in infrastructure - Standardization need and recommendations

Modélisation des informations de la construction (BIM) applicable dans les infrastructures - Besoin de normalisation et recommandations

BIM in der Infrastruktur - Normungsbedarf und Empfehlungen

This Technical Report was approved by CEN on 30 January 2023. It has been drawn up by the Technical Committee CEN/TC 442.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (CEN/TR 17920:2023) has been prepared by Technical Committee CEN/TC 442 “Building Information Modelling (BIM)”, the secretariat of which is held by Standards Norway.

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Introduction

CEN/TC 442 is the European technical committee for standardization in the field of structured semantic life cycle information for the built environment. CEN/TC 442 has published numerous European standards for BIM in recent years, and many others are in development. Most of this standardization effort has been in collaboration with international organizations, especially ISO/TC 59/SC 13, the international standardization committee for organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM).

There is a perception that the information requirements of stakeholders in the infrastructure (3.1) domain are not as well served by European and international standards as the requirements of those in the buildings domain. CEN/TC 442 Working Group 6 (WG 6), Infrastructure, was established to identify stakeholders in the infrastructure (3.1) domain, ascertain their needs in relation to standardization for BIM, review if those needs are met by current and forthcoming standards, and, accordingly, make recommendations for the development or revision of standards.

This document presents the findings and recommendations of CEN/TC 442/WG 6. The report is intended to inform future work of CEN/TC 442. In its current work-in-progress state, this report is also intended to support consultation by WG 6 with other working groups within CEN/TC 442 on the basis that those working groups are more familiar with the standards for which they are responsible and the associated standardization efforts.

The process for identification of relevant stakeholder groupings and the results of engagement with selected stakeholders are presented in Clause 4. Engagement included discussions with stakeholders at a national level and survey of stakeholders across Europe. Selected current initiatives for standardization of BIM for infrastructure (3.1) are discussed in Clause 5. Clauses 6 through 13 are structured to correspond to EN ISO 19650-1:2018, Clauses 5 through 12. Based on the analyses conducted by Working Group 6, each clause discusses the characteristics of BIM for infrastructure (3.1) relative to those of BIM for buildings, in the context of the relevant standards. The key question asked in each case is if the standards suitably meet the needs of infrastructure. Key findings are then presented in each case.

The findings are summarized in Clause 14 and recommendations are provided in Clause 15. In addition to looking broadly across the range of BIM standards, Working Group 6 investigated some detailed use cases to enable contextualisation of analyses within real-life industry practice. Annex A presents details of selected case studies analysed. Annex B provides the questions fromt the industry survey.

As of August 2022, Working Group 6 is in the processes of final editing and refinement of this report. This should be borne in mind by those reviewing this work-in-progress report issued for the purpose of internal CEN/TC 442 consideration.

1 Scope

The scope of this document is as per the scope of CEN/TC 442/WG 6, that is:

— Identify key stakeholders.

— Investigate existing activities within standardization for BIM in infrastructure (3.1).

— Formulate the need for standardization related to the implementation of BIM for infrastructure (3.1) in Europe, not covered by existing standards and ongoing standards development.

— Make recommendation on whether standards are to be developed and if so, how this can be done.

For the purpose of this document, the term 'BIM standards' is a loose reference to standards available for the use of BIM, including those under the responsibility of CEN/TC 442, ISO/TC 211 and ISO/TC 59. It is not a defined term.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 19650-1:2018, *Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 1: Concepts and principles (ISO 19650-1:2018)*

ISO 6707-1:2020, *Buildings and civil engineering works — Vocabulary — Part 1: General terms*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6707-1:2020 and EN ISO 19650-1:2018 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
infrastructure
system of fixed assets needed for the operation of an organization

Note 1 to entry: For the purpose of this document, infrastructure is taken to cover civil assets and exclude building assets.

Note 2 to entry: Examples include a structure such as a dam, bridge, road, railway, runway, utilities, pipeline, or sewerage system, or the result of operations such as dredging, earthwork, geotechnical processes. [Adapted from ISO 6707-1:2004]

[SOURCE: Adapted from EN ISO 9000:2015 [1] and ISO 50007:2017 [2]]