



NSAI

ANNUAL REPORT 2021

NSAI TECHNICAL COMMITTEES
NSAI/TC 68 BUILDING
INFORMATION MODELLING (BIM)

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1 Chair's Statement

The 'Built Environment' is made up of every building, roadway, waterway, utility network, park, and much more. It supports almost every activity of our society: living, working, learning, healthcare, transport, entertainment, leisure, and sports. The Built Environment's proper functioning is dependent on information. As our world becomes more digital, how we produce, manage and exchange "information" on a construction project - known as Building Information Modelling or BIM - is increasingly important.

BIM is a process for creating and managing information on a construction project across the lifecycle of the project. An output of this process is the Building Information Model; the digital description of every aspect of the built asset from information assembled collaboratively and updated at key stages of a project. This model enables those who interact with the building to optimize their actions, resulting in a greater whole life value for the asset.

Standards for BIM are critical to a "smart society". The standards do not only streamline the methodologies to produce or manage this digital data, but also the structure of the data itself. Standards ensure interoperability between information systems, and prevent the expensive loss or corruption of data.

The I.S. EN ISO 19650 series are the key BIM standards, having been adopted by ISO, CEN and nationally, as standards for managing information over the whole life cycle of a built asset using BIM. In 2021 we adopted a National Annex to Part 2 in that series; NA:2021 to I.S. EN ISO 19650-2:2018. This National Annex provides guidance on how to implement I.S. EN ISO 19650-2:2018 within the national context of construction projects. More specifically, it contains the Irish technical parameters on data components used in BIM, such as field identification and information containers.

The entire I.S. EN ISO 19650 series, including the National Annex, can be purchased on the NSAI store.

Demonstrating just how important BIM has become in the construction industry, the Government Construction Contracts Committee has a strategy for all public sector projects in the future to make use of the technology in line with best practice, as outlined in Irish Standards. As time goes on, we can only expect for this to become a more common request for construction projects up and down the country. BIM standards have a key role to play in supporting the Smart Built-Environment for Ireland.

In November 2021, the Minister for Public Expenditure and Reform, Michael McGrath TD, awarded €2.5 million funding grant to the Build Digital Alliance, led by TU Dublin and the Construction IT Alliance (CITA), established under Project Ireland 2040 to foster increasing levels of innovation in the Irish Construction Sector. Project Ireland 2040 needs a competitive, dynamic and sustainable construction sector to deliver new social, economic and climate resilient infrastructure, and standization of information management processes across industry, are critical to achieve these objectives.

The NSAI technical committee looks forward to working closely with the Build Digital Project team in the coming years.

Ralph Montague

Chair

2 Introduction

The introduction of Building Information Modelling (BIM) is seen as being the solution to the management of information during the design, construction and operational phases of the asset lifecycle. The development of BIM is advancing rapidly and requires the application of common standards to ensure future compatibility of data exchange and use. The introduction of common standards and operating methods using BIM is intended to:

- Reduce barriers to operation and trade across the European market area and beyond;
- Reduce both the capital and operating cost of construction assets;
- Improve certainty of the construction output including increases in quality and reductions in defects;
- Improve resource efficiency of construction products and materials, improving both operating and embodied carbon performance; and
- Support improvements in team working and collaboration.

3 Scope of TC

NSAI established NSAI/TC 068 (replacing NSAI/TC 47/SC 22) as a National Mirror Committee (NMC) to track the work of CEN/TC 442 (Building Information Modelling). Its purpose is to:

- Provide national inputs to ballots from CEN/TC 442;
- Respond to information requests from CEN/TC 442;
- Act as an Observer Member (O-Member) to ISO/TC 59/SC 13.

3.1 [CEN/TC 442](#)

Details of the CEN technical committee and its operational Working Groups tracked by members are provided in Table 1.

Table 1 - CEN Technical Committee and Working Groups

Committee Name	Committee Title
CEN/TC 442	Building Information Modelling (BIM)
CEN/TC 442/WG 1	Terminology
CEN/TC 442/WG 2	Exchange information
CEN/TC 442/WG 3	Information Delivery Specification
CEN/TC 442/WG 4	Support Data Dictionaries
CEN/TC 442/WG 5	Chairperson's Advisory Group
CEN/TC 442/WG 6	Infrastructure
CEN/TC 442/WG 7	Horizontal role
CEN/TC 442/WG 8	Competence
CEN/TC 442/WG 10	Strategy and Planning

The scope of CEN/TC 442 is defined as:

"Standardization in the field of structured semantic life-cycle information for the built environment. The committee will develop a structured set of standards, specifications and reports which specify methodologies to define, describe, exchange, monitor, record and

securely handle asset data, semantics and processes with links to geospatial and other external data."

3.2 ISO/TC 59/SC 13

Because a considerable portion of the BIM standardisation programme is being progressed by [ISO/TC 59/SC 13](#) "Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM)", Ireland is now an Observing Member of this Technical Committee. Task Forces and Working Groups operating under ISO/TC 59/SC 13 are shown in Table 2.

Table 2 - ISO/TC 59/SC 13

Committee Name	Committee Title
ISO/TC 59/SC 13	Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM)
ISO/TC 59/SC 13/JWG 12	Joint ISO/TC 59/SC 13 - ISO/TC 184/SC 4 WG: Development of building data related standards
ISO/TC 59/SC 13/JWG 14	Joint ISO/TC 59/SC 13 - ISO/TC 211 WG: GIS-BIM interoperability
ISO/TC 59/SC 13/TF 1	Terminology
ISO/TC 59/SC 13/TF 2	Business Planning and Strategy
ISO/TC 59/SC 13/WG 6	Framework for object-oriented information exchange
ISO/TC 59/SC 13/WG 8	Building information models - Information delivery manual
ISO/TC 59/SC 13/WG 11	Product data for building services systems model
ISO/TC 59/SC 13/WG 13	Implementation of collaborative working over the asset lifecycle

The scope of ISO/TC 59 is defined as:

"SC 13 is charged by TC 59 to focus on international standardization of information through the whole life cycle of buildings and infrastructure across the built environment

- to enable interoperability of information;
- to deliver a structured set of standards, specifications and reports to define, describe, exchange, monitor, record and securely handle information, semantics and processes, with links to geospatial and other related built environment information;
- to enable object-related digital information exchange."

4 Structure and Membership

4.1 Structure

At present, national contributions to the European standardisation programme are managed by NSAI/TC 068. Working group (WG) 01 was established in 2019 to draft a National Annex to I.S. EN ISO 19650-2. WG 02 was established in 2019 to provide national input to a European standard which will offer guidance on the implementation of BIM Execution Plans (BEP) and Exchange Information Requirements (EIR) based on EN ISO 19650-1 and -2. Both working groups are now dormant having completed their tasks. Figure 1 below, illustrates the structure of the Committee:

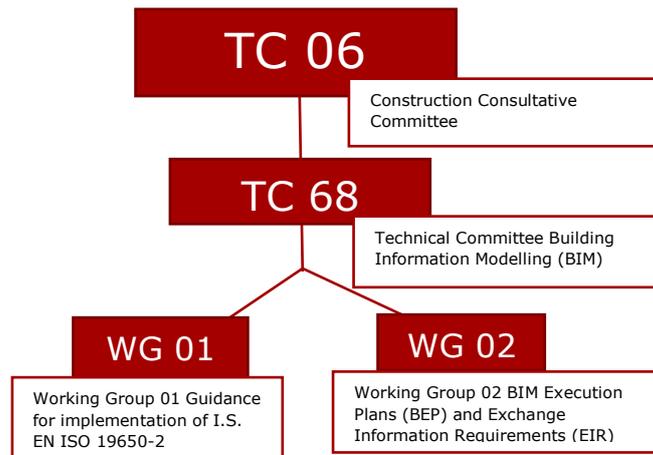


Figure 1 – Structure of NSAI/TC 68

4.2 Members

Table 3 lists the organisations represented in membership of NSAI/TC 68 for 2021.

Table 3 – Membership of NSAI/TC 68 in 2021

Organisation	Role
ARCDOX	Chair
NSAI, Standards	Technical Secretary
BAM Ireland	Member
Build Digital Project	Member
C+W O'Brien	Member
Construction Industry Federation	Member
DCT Group	Member
DFM Systems	Member
DPW Group	Member
ERVIA	Member
ESB International	Member
Fergal O'Byrne Solutions Ltd.	Member
Grangegorman Development Agency	Member
GS1 Ireland	Member
Intel	Member
Kingspan	Member
Local Government Management Agency (LGMA)	Member
MaREI Centre, UCC	Member
Maynooth University (MU)	Member
McCauley Daye O'Connell	Member
MMA Consulting Engineers	Member

MMA Consulting Engineers	Member
Office of Government Procurement (OGP)	Member
Quinn Building Products	Member
Roughan & O'Donovan	Member
RPS Group	Member
Self employed	Member
University College Dublin (UCD)	Member

Table 4 lists the CEN/TC 442 structures which have registered Irish representative members.

Table 4 – Irish representative membership of CEN/TC 442 structures

Structure	Title
CEN/TC 442	Building Information Modelling (BIM)
CEN/TC 442/WG 1	Terminology
CEN/TC 442/WG 2	Exchange information
CEN/TC 442/WG 3	Information Delivery Specification
CEN/TC 442/WG 4	Support Data Dictionaries
CEN/TC 442/WG 5	Chairperson's Advisory Group
CEN/TC 442/WG 6	Infrastructure
CEN/TC 442/WG 7	Horizontal role
CEN/TC 442/WG 8	Competence
CEN/TC 442/WG 10	Strategy and Planning

5 Summary of 2021 Activities

5.1 National

5.1.1 Meetings

All meetings in 2021 were virtual due to Covid 19.

Committee meetings of NSAI/TC 68 in 2021 are shown in Table 5.

Table 5 – NSAI/TC 68 Committee meetings held in 2021

NSAI structure	Date of meeting
NSAI/TC 68	28 th January 2021
NSAI/TC 68	14 th May 2021
NSAI/TC 68	27 th August 2021
NSAI/TC 68	03 rd December 2021

5.1.2 National Work

Generally the focus of NSAI/TC 068 is on the provision of inputs to ballots and responding to queries coming from CEN/TC 442.

In 2021 the focus was on the work of the working groups.

- In February 2021, WG 01 published the National Annex (NA) to I.S. EN ISO 19650-2 "Organization of information about construction works - Information management using building information modelling - Part 2: Delivery phase of the assets". It gives guidance for the implementation of I.S. EN ISO 19650-2:2018, within the national context of construction projects.

NA:2021 to I.S. EN ISO 19650-2:2018 is available to purchase at: https://shop.standards.ie/en-ie/standards/na-2021-to-i-s-en-iso-19650-2-2018-1206951_saig_nsai_nsai_2919352/
- WG 02 provided national input to CEN/TC 442/WG 3/TG's drafting a European Technical Report to provide guidance on the implementation of BEP and EIR based on EN ISO 19650-1 and -2.

S.R. CEN/TR 17654:2021 was published on 02nd August 2021 and is available to purchase at: https://shop.standards.ie/en-ie/standards/s-r-cen-tr-17654-2021-1233621_saig_nsai_nsai_2989089/

5.2 International/Regional

5.2.1 Meetings

Irish experts variously participated in CEN/TC 442 working group activities in 2021, in particular:

- CEN/TC 442/WG 2
- CEN/TC 442/WG 3
- CEN/TC 442/WG 4

5.2.2 International/Regional Work

Table 7 is a record of [CEN/TC 442](#) work programme, as of 28th January 2022.

Table 7 - CEN/TC 442 work programme, as of 28th January 2022

Title	Status	Last Milestone (Stage Codes)
Guidance for understanding and utilize EN/ISO 29481-1 Building information models - Information delivery manual - Part 1: Methodology and format	Active	60.60
Framework and Implementation of Common Data Environment Solutions, in accordance with EN ISO 19650	Active	20.60
Guidance on how to implement EN ISO 19650-1, -2, -3 and -5 in Europe	Waiting	00.60

Building information modelling - Information structure based on EN ISO 16739 1 to exchange data templates and data sheets for construction objects - Part 1: Data templates and configured construction objects	Active	40.20
Building information modelling - Information structure based on EN ISO 16739 1 to exchange data templates and data sheets for construction objects - Part 2: Configurable construction objects and requirements	Active	40.60
Building Information Modelling (BIM) - Semantic Modelling and Linking (SML)	Active	45.99
"Building Information Modelling – Level of information need – Part 3: Data Schema"	Waiting	00.60
Building Information Modelling – Level of information need – Part 2: Guidance for application	Waiting	00.60
Common Data Environments (CDE) for BIM projects –Open data exchange between platforms of different vendors via an open CDE API	Waiting	00.60
ISO 19650-6: Organization and digitization of information about buildings and civil engineering works, including building information modelling - Information management using building information modelling – Part 6: Health and Safety	Active	10.99
Building information modelling (BIM) - Data templates for construction objects used in the life cycle of built assets - Data templates based on European	Active	20.60

standards and technical specifications		
BIM in infrastructure – standardization need and recommendations	Active	10.99
Professions and competence related to the Building Information Management	Waiting	00.60
Building construction - Organization of information about construction works - Part 3: Framework for object-oriented information (ISO/DIS 12006-3:2021)	Active	45.99
Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 4: Information exchange (ISO/DIS 19650-4:2021)	Active	40.60
Information container for data drop (ICDD)	Split	30.97
Building information models - Information delivery manual - Part 3: Data schema and code (ISO/DIS 29481-3:2021)	Active	40.60
Guidance on how to implement EN ISO 19650-1 and -2 in Europe	Active	60.60
Guideline for the implementation of Exchange Information Requirements (EIR) and BIM Execution Plans (BEP) on European level based on EN ISO 19650-1 and -2	Active	60.60
Building Information Modelling - Level of Information Need - Part 1: Concepts and principles	Active	60.60

Building construction - Organization of information about construction works - Part 2: Framework for classification (ISO 12006-2:2015)	Active	60.60
Building construction - Organization of information about construction works - Part 3: Framework for object-oriented information (ISO 12006-3:2007)	Active	60.60
Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries - Part 1: Data schema (ISO 16739-1:2018)	Active	60.60
Data structures for electronic product catalogues for building services - Part 1: Concepts, architecture and model (ISO 16757-1:2015)	Active	60.60
Data structures for electronic product catalogues for building services - Part 2: Geometry (ISO 16757-2:2016)	Active	60.60
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)	Active	60.60
Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 2: Delivery phase of the assets (ISO 19650-2:2018)	Active	60.60

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 3: Operational phase of the assets (ISO 19650-3:2020)	Active	60.60
Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 5: Security-minded approach to information management (ISO 19650-5:2020)	Active	60.60
Information container for linked document delivery - Exchange specification - Part 1: Container (ISO 21597-1:2020)	Active	60.60
Information container for linked document delivery - Exchange specification - Part 2: Link types (ISO 21597-2:2020)	Active	60.60
Building information modelling and other digital processes used in construction - Methodology to describe, author and maintain properties in interconnected data dictionaries (ISO 23386:2020)	Active	60.60
Building information modelling (BIM) - Data templates for construction objects used in the life cycle of built assets - Concepts and principles (ISO 23387:2020)	Active	60.60
Building information models - Information delivery manual -	Active	60.60

Part 1: Methodology and format (ISO 29481-1:2016)		
Building information models - Information delivery manual - Part 2: Interaction framework (ISO 29481-2:2012)	Active	60.60

Table 8 is a record of the [ISO/TC 59/SC 13](#) work programme, as of 28th January 2022.

Table 8 - ISO/TC 59/SC 13 work programme, as of 28th January 2022

Standard and/or project under the direct responsibility of ISO/TC 59/SC 13 Secretariat (5)	Title	Last Milestone (Stage Codes)
ISO/DIS 7817	Building Information Modelling – Level of Information Need – Concepts and principles	40.2
ISO/CD 12006-3	Building construction – Organization of information about construction works – Part 3: Framework for object-oriented information	40.6
ISO/CD 12911	Framework for building information modelling (BIM) guidance	40.0
ISO/CD 19650-4	Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling – Part 4: Information exchange	40.6
ISO/AW 19650-6	Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling – Part 6: Health and Safety	20
ISO/WD 29481-3	Building information modelling – Information delivery manual – Part 3: Data schema and classification	40.6

5.2.3 International/Regional Voting Results

CEN/TC 442 votes closed in 2021:

- IFMA liaison request
- ISO/CD 29481-3 IDM - Part 3: Data schema and code
- FprCEN/TR 17654
- Call for BIM experts to CEN/TC 348/WG 6 Space measurements
- CEN/TC 442 Liaison representative to CEN/TC 348
- CEN/TC 442 Project Management Handbook - draft for approval
- ISO/NP 19650-6
- NWIP ISO 19650-6 Vienna Agreement ISO lead
- prEN 17632
- ISO/CD 12911 - Framework for building information modelling
- Tolerance request WI 442035
- Creation of WG 8 Competence
- PNWI proposal - Professions and competence related to BIM
- PWI proposal - Revision of CEN/TR 17439:2020
- ISO/NP 7817 - Vienna Agreement; Adoption of EN 17412-1:20...
- Activation of WI 00442027 BIM in infrastructure
- ISO 29481-1:2016 (Ed 2)
- ISO/DIS 12006-3 (Ed 2)
- ISO/DIS 19650-4

5.3 Regulatory Development/Update

NSAI/TC 068 does not engage in any standards development work currently intended to support regulation. NSAI is working closely with DETE and other government departments to ensure that standardisation work to support related government initiatives/policy such as outputs from the Construction Sector Group and actions associated with Housing for All, Climate Action Plan are identified and progressed as appropriate.

6 Irish Publications/Reviews

6.1 Publications

In 2021 the following were adopted in Ireland:

- [NA:2021 TO I.S. EN ISO 19650-2:2018](#) Organisation and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 2: Delivery phase of assets
- [S.R. CEN/TR 17654:2021](#) Guideline for the implementation of Exchange Information Requirements (EIR) and BIM Execution Plans (BEP) on European level based on EN ISO 19650-1 and -2
- [S.R. CEN/TR 17741:2021](#) Guidance for understanding and utilize EN/ISO 29481-1 Building information models - Information delivery manual - Part 1: Methodology and format,

All standards are available for purchase at www.standards.ie.

6.2 Reviews

In the absence of indigenous Irish Standards on BIM, reviews were not undertaken during 2021.

7 Work programme for 2022 onwards

Because of the international nature of BIM, NSAI/TC 068 will continue to contribute to standardisation work at European and international levels.

NSAI/TC 068 will input as necessary to the CEN/TC 442 work programme listed above and will monitor in particular the following work items:

- prEN ISO 19650-6 (WI = 00442036) Organization and digitization of information about buildings and civil engineering works, including building information modelling -- Information management using building information modelling – Part 6: Health and Safety
- prEN 17632(WI=00442021) Building Information Modelling (BIM) - Semantic Modelling and Linking (SML)
- prEN 17549- 1(WI=00442018) Building Information Modelling (BIM) - Information structure based on EN ISO 16739 1:2018 to exchange data templates and data sheets for construction objects - Part 1: Data templates and configured construction objects
- prEN 17549-2 (WI=00442033) Building information modelling - Exchange structure for product data templates and product data sheets based on ISO 16739-1 - Part 2: Requirements and configurable products

and ballot:

- NWIP Data templates based on European standards and TS.

8 Additional Information

8.1 Membership matters in 2021:

8.1.1 New members welcomed during 2021:

NSAI/TC 68 welcomed two new members from the Build Digital Project in 2021.

8.1.2 Review of membership

NSAI secretariat commenced a review of the committee membership in 2021.

All members are encouraged to review their own membership arrangements for this committee and its sub-structures and to notify the NSAI secretariat if there are any changes to be made.

Anyone interested in becoming a committee member can register their interest [here](#).

8.2 National Annex published in 2021:

The National Annex NA:2021 to I.S. EN ISO 19650-2:2018 was published in February 2021. The entire I.S. EN ISO 19650 series, including the National Annex, can be purchased on our NSAI store through the following hyperlinks:

- [I.S. 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)
- [I.S. EN ISO 19650-2:2018](#) Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) -

Information management using building information modelling - Part 2: Delivery phase of the assets (ISO 19650-2:2018)

- **[NA:2021 to I.S. EN ISO 19650-2:2018](#)** Irish National Annex to I.S. EN ISO 19650 - 2:2018, Organisation and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 2: Delivery phase of assets
- **[I.S. EN ISO 19650-3:2020](#)** Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 3: Operational phase of the assets (ISO 19650-3:2020)
- **[I.S. EN ISO 19650-5:2020](#)** Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 5: Security minded approach to information management (ISO 19650- 5:2020)

The fourth part in the series, relating to information exchange, is in development and will be available to purchase on the NSAI store in due course.