



NSAI

ANNUAL REPORT 2020

NSAI TECHNICAL COMMITTEES
NSAI/TC 47/SC 22 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.

As the technical committee looks forward to the work ahead, we hope to get more engagement from key stakeholders within the Irish construction and built-environment sector, from both public sector and private sector to both adopt emerging standards, but also to contribute to the development of future standards, that will support an efficient and productive sector.

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 will:

- 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 047/SC 22 (note renumbering in 2021, see 8.3 below) as a National Mirror Committee (NMC) to track the work of CEN/TC 442 (Building Information Modelling). Its purpose:

- Provide national inputs to ballots from CEN/TC 442;
- Respond to information requests from CEN/TC 442; and
- 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

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 047/SC 22. 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. Figure 1 below, illustrates the structure of the Committee:

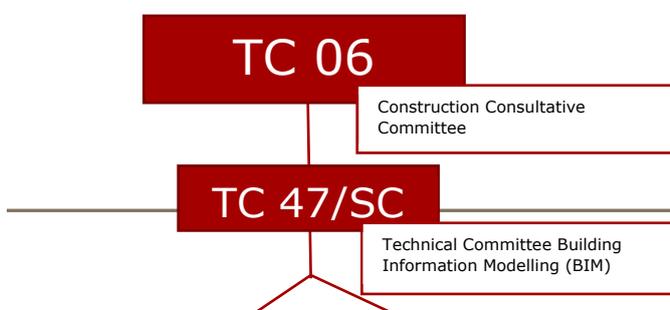


Figure 1 – Structure of NSAI/TC 47/SC 22

4.2 Members

Table 3 lists the organisations represented in membership of NSAI/TC 47/SC 22 for 2020.

Table 3 – Membership of NSAI/TC 47/SC 22 in 2020

Organisation	Role
ARCDOX	Chair
NSAI, Standards	Technical Secretary
Roughan & O'Donovan	Member
DFM Systems	Member
McCauley Daye O'Connell	Member
Fergal O'Byrne Solutions Ltd.	Member
BAM Ireland	Member
University College Dublin (UCD)	Member
ESB International	Member
ERVIA	Member
DCT Group	Member
Local Government Management Agency (LGMA)	Member
RPS Group	Member
Maynooth University (MU)	Member
Construction Industry Federation	Member
MaREI Centre, UCC	Member
Intel	Member
Self employed	Member
BAM Ireland	Member
DPW Group	Member
Grangegorman Development Agency	Member
GS1 Ireland	Member
MMA Consulting Engineers	Member
MMA Consulting Engineers	Member

Office of Government Procurement (OGP)	Member
C+W O'Brien	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	No. of Irish representative members
CEN/TC 442	Building Information Modelling (BIM)	1
CEN/TC 442/WG 1	Terminology	0
CEN/TC 442/WG 2	Exchange information	2
CEN/TC 442/WG 3	Information Delivery Specification	0
CEN/TC 442/WG 4	Support Data Dictionaries	2
CEN/TC 442/WG 5	Chairperson's Advisory Group	0
CEN/TC 442/WG 6	Infrastructure	1
CEN/TC 442/WG 7	Horizontal role	0

5 Summary of 2020 Activities

5.1 National

5.1.1 Meetings

All meetings in 2020 were virtual due to Covid 19. The following meetings took place in 2020: Committee meetings held in NSAI during 2020 are shown in Table 5.

Table 5 – NSAI/TC 47/SC 22 Committee meetings held in 2020

NSAI structure	No. of meetings
NSAI/TC 47/SC 22	1 (29th October 2020)
NSAI/TC 47/SC 22/WG 01	13
NSAI/TC 47/SC 22/WG 02	3

Working Group 01 held thirteen meetings in 2020, to draft the National Annex to I.S. EN ISO 19650-2.

5.1.2 National Work

Generally the focus of NSAI/TC 047/SC 22 is on the provision of inputs to ballots and responding to queries coming from CEN/TC 442.

In 2020 the focus was on the work of the working groups.

- WG 01 drafted a 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. On approval of the TC, the draft went to public consultation from 29th Jun 2020 to 7th Aug 2020 with significant promotion - including email notifications,

placement in national newspapers in both English and Irish, on the NSAI website, and through social media, complete with a purpose made [YouTube](#) video on its contents and how to submit through YSYS. The public consultation secured a high level of interest - the document was downloaded 89 times, and 96 comments were submitted. Following a series of intensive meetings to consider and resolve the public comments, WG 01 submitted the record of comment resolution, along with the final draft to the TC, which approved it for publication in October, subject to NSAI board approval. In December 2020, the NSAI board approved publication the National Annex. Publication was planned for Q1 2021.

- WG 02 provided national input to CEN/TC 442/WG 3/TG's which drafted a European Technical Report to provide guidance on the implementation of BEP and EIR based on EN ISO 19650-1 and -2. Irish construction bodies were invited to be represented on that working group and most contributed. Noting that it was felt that the WG 02's input was incorporated into the draft, WG 02 recommended the TC to support the publication of the Technical Report when it comes to ballot.

5.2 International/Regional

5.2.1 Meetings

Table 6 sets out the CEN/TC 442 meetings in 2020 and the attendance record of Irish representatives:

Table 6 - CEN/TC 442 meetings in 2020 with attendance record of Irish representatives

Committee Name	Location	Date	No. of Irish representatives in attendance
CEN/TC 442	Virtual	17 th June 2020	0
CEN/TC 442	Virtual	11 th November 2020	0

Irish experts variously participated in CEN/TC 442 working group activities in 2020, including:

- Ten meetings of CEN/TC 442/WG 6
- One meeting of CEN/TC 442/WG 3/TG 2.

5.2.2 International/Regional Work

Table 7 is a record of [CEN/TC 442](#) work programme, as of 28th January 2021.

Table 7 - CEN/TC 442 work programme, as of 28th January 2021

Title	Status	Initial Date	Current Stage	Next Stage	Forecasted Voting Date
Building construction -- Organization of information about construction works -- Part 3: Framework for object-oriented information	Under Drafting	2018-02-15	2018-02-15	2018-08-16	2020-03-30
Building information modelling (BIM) - Data templates for construction objects used in the life cycle of any built asset - Data templates based on	Under Approval	2018-04-10	2020-04-16	2020-10-18	2020-10-18

harmonised technical specifications under the Construction Products Regulation (CPR)					
Building information modelling (BIM) - Data templates for construction objects used in the life cycle of any built asset - Data templates based on harmonised technical specifications under the Construction Products Regulation (CPR)	Under Approval	2018-04-10	2020-04-16	2020-10-18	2020-10-18
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	Under Approval	2019-08-20	2020-07-23	2020-08-20	2021-05-28
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	Under Approval	2019-08-20	2020-07-23	2020-08-20	2021-05-28
Building information modelling - Exchange structure for product data templates and product data sheets based on ISO 16739-1 - Part 2: Requirements and configurable products	Under Drafting	2019-10-22	2020-02-27	2020-06-22	2021-07-30
Building information modelling - Exchange structure for product data templates and product data sheets based on ISO 16739-1 - Part 2: Requirements and configurable products	Under Drafting	2019-10-22	2020-02-27	2020-06-22	2021-07-30
ISO 19650-4 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information	Under Drafting	2019-07-05	2019-07-05	2020-01-06	2021-08-16

modelling — Part 4 : Information exchange					
Building Information Modelling (BIM) - Semantic Modelling and Linking (SML)	Under Approval	2020-01-13	2020-11-23	2021-03-18	2021-10-21
Building Information Modelling (BIM) - Semantic Modelling and Linking (SML)	Under Approval	2020-01-13	2020-11-23	2021-03-18	2021-10-21
Building information models — Information delivery manual — Part 3: Data schema and classification	Under Drafting	2020-12-08	2020-12-08	2021-06-08	2023-01-18
Framework and Implementation of Common Data Environment Solutions, in accordance with EN ISO 19650	Preliminary		2019-09-10		
Guideline for the implementation of BIM Execution Plans (BEP) and Exchange Information Requirements (EIR) on European level based on EN ISO 19650-1 and -2	Under Approval	2019-06-04	2020-12-21	2021-01-28	
Guideline on how to understand and utilize EN/ISO 29481 Building information models - Information delivery manual - Part 1: Methodology and format and Part 2: Interaction framework	Under Drafting	2019-06-04	2019-12-05	2021-03-04	
"Building Information Modelling – Level of information need – Part 3: Data Schema"	Preliminary		2019-09-11		
Common Data Environments (CDE) for BIM projects – Open data exchange between platforms of different vendors via an open CDE API	Preliminary		2019-09-13		
BIM in infrastructure – standardization need and recommendations	Preliminary		2019-05-16		
Building Information Modelling – Level of information need – Part 2: Guidance for application	Preliminary		2019-09-11		
"Building Information Modelling – Level of	Preliminary		2019-09-11		

information need – Part 3: Data Schema"					
Common Data Environments (CDE) for BIM projects – Open data exchange between platforms of different vendors via an open CDE API	Preliminary		2019-09-13		
Building Information Modelling – Level of information need – Part 2: Guidance for application	Preliminary		2019-09-11		
BIM in infrastructure – standardization need and recommendations	Preliminary		2019-05-16		
Framework and Implementation of Common Data Environment Solutions, in accordance with EN ISO 19650	Preliminary		2019-09-10		
Guideline for the implementation of BIM Execution Plans (BEP) and Exchange Information Requirements (EIR) on European level based on EN ISO 19650-1 and -2	Under Approval	2019-06-04	2020-12-21	2021-01-28	
Guideline on how to understand and utilize EN/ISO 29481 Building information models - Information delivery manual - Part 1: Methodology and format and Part 2: Interaction framework	Under Drafting	2019-06-04	2019-12-05	2021-03-04	

Table 8 is a record of the [ISO/TC 59/SC 13](#) work programme, as of 28th January 2021.

Table 8 - ISO/TC 59/SC 13 work programme, as of 28th January 2021

Standard and/or project under the direct responsibility of ISO/TC 59/SC 13 Secretariat (5)	Title	Stage	ICS
ISO/CD 12006-3	Building construction – Organization of information about construction works – Part 3: Framework for object-oriented information	30.6	91.010.01
ISO/WD 12911	Framework for building information modelling (BIM) guidance	20.2	91.010.01
ISO/CD 19650-4	Organization and digitization of information about buildings and civil engineering works, including	30.6	93.01 35.240.67 91.010.01

	building information modelling (BIM) – Information management using building information modelling – Part 4: Information exchange		
ISO/DTR 23262.2	GIS (Geospatial) / BIM interoperability	30.99	35.240.67 35.240.70
ISO/WD 29481-3	Building information modelling – Information delivery manual – Part 3: Data schema and classification	20.2	

5.2.3 International/Regional Voting Results

CEN/TC 442 votes closed in 2020:

- Draft ""Handbook on TC 442 routines""
- FprEN ISO 21597-1
- 1st WD WI 442018 for comments
- Draft FprEN ISO 21597-2 for comments
- prEN 17473
- WI 442023 Tolerance request
- 1st WD WI 442033 for comments
- WI 442024 Tolerance Request
- FprEN ISO 19650-5
- FprEN ISO 23387
- FprEN ISO 19650-3
- CEN/TC 134 liaison approval
- WI 442021 for comments
- NWIP ISO/NP 29481-3 Vienna Agreement
- ERMCO liaison request
- FprEN 17412-1
- ISO/CD 19650-4 for comments
- FprEN ISO 21597-2
- Business Plan update - adoption
- WI00442019 EN ISO/CD 12006-3
- Cancellation WI00442008 prEN 17473
- NWIP Data templates based on European standards and TS

5.3 Regulatory Development/Update

NSAI/TC 047/SC 22 does not engage in any standards development work currently intended to support regulation.

6 Irish Publications/Reviews

6.1 Publications

In 2020 the following were adopted in Ireland:

- [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)

These 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 2020.

7 Work programme for 2021 onwards

Because of the international nature of BIM, NSAI/TC 047/SC 22 will continue to contribute to standardisation work at European and international levels.

NSAI/TC 047/SC 22 will input as necessary to the CEN/TC 442 work programme listed above and will monitor in particular the following work items:

- 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(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 2020:

8.1.1 Change of NSAI Technical Secretariat in 2020:

NSAI's Dr Patrick Hayes stepped down from the role of technical secretariat of NSAI/TC 047/SC 22 and its related working groups in 2020. Fiona O'Donovan took over as the technical secretary. Pat was commended for the work which he invested in this committee and its working groups.

8.1.2 New members welcomed during 2020:

NSAI/TC 47/SC 22 welcomed one new member in 2020 from UCC.

NSAI/TC 47/SC 22/WG 01 welcomed one new member in 2020 from Construction Industry Federation (CIF).

NSAI/TC 47/SC 22/WG 02 welcomed eight new members in 2020 from:

- ARCDX - Chair of NSAI/TC 47/SC 22
- Association of Consulting Engineers Ireland (ACEI) x 2
- Construction Industry Federation (CIF) x 2
- Office of Government Procurement (OGP)
- Royal Institute of the Architects of Ireland (RIAI)
- Society of Chartered Surveyors Ireland (SCSI).

8.1.3 Review of membership

NSAI secretariat commenced a review of the committee membership in 2020.

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: [NA:2021 to I.S. EN ISO 19650-2:2018](#)

The National Annex NA:2021 to I.S. EN ISO 19650-2:2018 was published in Q1 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.

8.3 Renumbering of NSAI/TC 47/SC 22 as NSAI/TC 68 in 2021

It is noted that the following review of the work of the committee, NSAI/TC 47/SC 22 was re-established as an independent NSAI Technical Committee *i.e.* NSAI/TC 68 in 2021. In practice this will make minimal difference to the functioning of the committee.