



ANNUAL REPORT 2018

NSAI TECHNICAL COMMITTEE
NSAI/TC 047/SC 22

BUILDING INFORMATION
MODELLING

5.2.3	International Standards Reviewed	8
5.2.4	International Voting Results.....	8
5.3	Regulatory Development/Update	9
6	Irish Publications/Reviews	10

Contents

1	Chairman's Statement	3
2	Introduction	4
3	Scope of NSAI Technical Committee 047/SC 22	4
4	Structure and Membership	5
4.1	Structure	5
4.2	Members	5
5	Summary of 2018 Activities	6
5.1	National	6
5.1.1	Meetings	6
5.1.2	National Work	6
5.2	International	7
5.2.1	Meetings	7
5.2.2	International Work	7
5.2.3	International Standards Reviewed	8
5.2.4	International Voting Results	8
5.3	Regulatory Development/Update	9
6	Publications and Reviews	10
6.1	Publications	10
6.2	Reviews	10
7	Work programme for 2019 onwards	10
8	Additional Information	10

1 Chairman's Statement

Buildings, built infrastructure, or the built environment, are critical to all people in society. They support living, working, education, healthcare, transport, law enforcement, social activities, etc. As we embrace the “digital information age”, and become a “smart society”, how we produce, manage and exchange “information” about our buildings, built infrastructure, or built environment, is increasingly important, particularly if we want to avoid unnecessary duplication of effort, and the poor productivity or poor performance outcomes, associated with “poor information”.

Standards for producing, managing and exchanging information about buildings, or the built environment, are critical to a “smart society”. Not only the methodologies, processes or procedures to produce or manage digital data, but also the structure of the data itself, to ensure interoperability between information systems, and prevent expensive loss or corruption of data.

The Government Construction Contracts Committee (GCCC), through their strategy launched in November 2017, under the Office of Public Procurement, require the use of digital tools on public sector projects over the 2018-2021 period.

“Standards” is one of 4 key pillars identified in the “Roadmap to the Digitisation of Ireland’s Construction Industry 2018-2021” launched in December 2017, by the National BIM Council of Ireland. The Roadmap calls on NSAI to take a proactive role in the development of standards and certification in relation to the “digital transition” of the construction and property sector. To date, resources and support for the committee to get “actively” involved in the standards development work at CEN and ISO, has not been available, and the effort has mainly been “watch and see” what is happening, but it is hoped that the “roadmap” will allow for better allocation of resources and support, for a more active engagement with CEN & ISO.

Ralph Montague

2 Introduction

Building Information Modelling (BIM) is an industry term that covers the sharing of structured information for Built Assets. “Sharing” requires consideration of processes and interoperability, “structured” requires the use of common data schemas and “information” may depend on development of common terminology.

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 NSAI Technical Committee 047/SC 22

NSAI established NSAI/TC 047/SC 22 as a National Mirror Committee (NMC) to track the work of CEN/TC 442 (Building Information Modelling).

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.

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

Name	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 (CAG)**
CEN/TC 442/WG 6	Infrastructure
CEN/TC 442/WG 7	Horizontal role
** Does not develop standards	

Scope of CEN/TC 442 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."

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

Name	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/TF 01	Terminology
ISO/TC 59/SC 13/TF 02	Strategy and business planning
ISO/TC 59/SC 13/WG 6	Framework for object-oriented information
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
JWG 12 (ISO/TC 59/SC 13_ISO/TC 184/SC 4)	Development of ISO 16739 and other building data related standards
ISO/TC 59/SC 13/WG 13	Implementation of collaborative working over the asset lifecycle
JWG 14	GIS-BIM interoperability

4 Structure and Membership

4.1 Structure

At present, national contributions to the European standardisation programme are managed by NSAI/TC 047/SC 22. Should the need arise, Working Groups will be established to facilitate inputs from national experts to niche areas.

4.2 Members

Table 2 lists the membership for 2018.

Table 2 – Member list for 2018

Name	Organisation	Role
Ralph Montague	ARCDOX	Chair
Aonghus O'Keeffe	Roughan O'Donovan	Member
Bobby Gallagher	DFM Systems	Member
David O'Connell	McCauley Daye O'Connell	Member
Fergal O'Byrne	NSAI, Certification	Member
James O'Donnell	UCD	Member
Jan Bednarik	ESB International	Member
Jim O'Connor	GMIT	Member
John Collins	ERVIA	Member
Joseph Mady	CIF	Member
Laura Swaine Lawlor	Jacobs	Member
Mairead Phelan	LGMA	Member
Mark Costello	RPS Group	Member
Markus Helfert	DCU	Member
Noel Kennedy	Intel	Member
Pat Columb	Self employed	Member
Paul Brennan	BAM Ireland	Member
Raymond O'Reilly	Quinn Building Products	Member
Richard DePalma	DPW Group	Member
Robert Moore	Grangegorman Development Agency	Member
Shane Brodie	MMA Consulting Engineers	Member
Shawn O'Keeffe	MMA Consulting Engineers	Member
Stephen Lynam	OGP	Member
William Power	Reddy Architecture	Member

5 Summary of 2018 Activities

5.1 National

5.1.1 Meetings

Committee meetings held in NSAI during 2018 are shown in Table 3.

Table 3 – Committee meetings held in 2018

Meeting No.	Date	Comment
1	19 June 2018	
2	28 September 2018	

5.1.2 National Work

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.

5.2 International

5.2.1 Meetings

Table 4 lists the meetings of CEN/TC 442 and its Working Groups attended by members during 2018.

Table 4 – CEN/TC 442 and Working Group meetings attended

Committee Name	Location	Date	No. of Attendees
CEN/TC 442/WG 4	Virtual meeting	12 January 2018	1
CEN/TC 442/WG 4	Virtual meeting	06 February 2018	1
CEN/TC 442/WG 4	Virtual meeting	26 February 2018	1
CEN/TC 442/WG 4	Milan, Italy	07 March 2018	1
CEN/TC 442	Copenhagen, Denmark	15/16 May 2018	---
CEN/TC 442/WG 4	Avignon, France	26 June 2018	1
CEN/TC 442/WG 4	Paris, France	13 September 2018	1
CEN/TC 442	London, England	14 November 2018	---
CEN/TC 442/WG 4	Paris, France	14 December 2018	1

5.2.2 International Work

In 2018, CEN/TC 442 work programme consisted of the following registered work items with ISO/TC 059/SC 13 as the Vienna Agreement/ISO Lead for some items:

- **prEN ISO 19650-1** *Organization of information about construction works - Information management using building information modelling - Part 1: Concepts and principles***
- **prEN ISO 19650-2** *Organization of information about construction works - Information management using building information modelling - Part 2: Delivery phase of the assets***
- **prEN ISO 23386** *Building information modelling and other digital processes used in Construction – Methodology to describe, author and maintain properties in interconnected dictionaries*
- **prEN ISO 23387** *Product data templates based on CEN/CENELEC standards in an open European data dictionary - Part 1: General structure of a product data template and how to relate it to Industry Foundation Classes (IFC)*
- **prEN ISO 16757-1** *Data structures for electronic product catalogues for building services - Part 1: Concepts, architecture and model (ISO 16757-1:2015)*
- **prEN ISO 16757-2** *Data structures for electronic product catalogues for building services - Part 2: Geometry (ISO 16757-2:2016)*
- **WI 00442008** *Product data templates based on CEN/CENELEC standards in an open European Data Dictionary - Part 2: Framework for product data templates based on harmonised technical specifications under the Construction Products Regulation (CPR), and how to relate the product data templates to Industry Foundation Classes (IFC)*
- **WI 00442009** *Building Information Modelling - Level of Information Need - Part 1: Concepts and principles*
- **WI 00442011** *Digital information exchange - Definition of activities and transactions – Use cases of built assets within a framework of steps of maturity and activities*
- **WI 00442018** *Building Information Modelling – Exchange structure for product data templates and product data based on ifcXML*

- **prEN ISO 21597-1** *Organization of information about construction works - Information container for data drop (ICDD) - Part 1: Container***
- **prEN ISO 21597-2** *Organization of information about construction works - Information container for data drop (ICDD) - Part 2: Dynamic semantics***
- **prEN ISO 19650-3** *Organization of information about construction works -- Information management using building information modelling -- Part 3: Operational phase of assets***
- **prEN ISO 19650-5** *Organization of information about construction works -- Information management using building information modelling - Part 5: Specification for security-minded building information modelling, digital built environments and smart asset management***
- **prEN ISO 12006-3** *Building construction - Organization of information about construction works - Part 3: Framework for object-oriented information**.*

** = Vienna Agreement parallel/ISO Lead

Note: The CEN/TC 442 work programme includes, according to the Vienna agreement and where appropriate, to make current ISO standards for BIM valid as EN standards or technical specifications. EN standards will be implemented as national standards within EU Member States and thereby have a greater impact on national level than ISO standards not implemented as national standards.

5.2.3 International Standards Reviewed

- **prEN ISO 21597-2** *Information container for data drop - Exchange specification - Part 2: Dynamic semantics*
- **prEN ISO 19650-1** *Organization of information about construction works - Information management using building information modelling - Part 1: Concepts and principles*
- **prEN ISO 19650-2** *Organization of information about construction works - Information management using building information modelling - Part 2: Delivery phase of the assets*
- **prEN ISO 21597-1** *Information container for data drop - Exchange specification - Part 1: Container*
- **prEN ISO 16757-1** *Data structures for electronic product catalogues for building services - Part 1: Concepts, architecture and model (ISO 16757-1:2015)*
- **prEN ISO 16757-2** *Data structures for electronic product catalogues for building services - Part 2: Geometry (ISO 16757-2:2016)*
- **prEN ISO 23386** *Building information modelling and other digital processes used in Construction – Methodology to describe, author and maintain properties in interconnected dictionaries*
- **TR Guideline** *on how to understand and utilize EN ISO 29481-1 and - 2 (Building information models - Information delivery manual).*

5.2.4 International Voting Results

The following CEN/TC 442 ballots closed during 2018.

- NWIP ISO/NP 19650-3 *Organization of information about construction works -- Information management using building information modelling -- Part 3:Operational phase of assets (Vienna Agreement);*
- Call for new experts WG 1;
- **prEN ISO 21597-2** *Information container for data drop - Exchange specification - Part 2: Dynamic semantics;*
- **prEN ISO 19650-1** *Organization of information about construction works - Information management using building information modelling - Part 1: Concepts and principles;*

- prEN ISO 19650-2 *Organization of information about construction works - Information management using building information modelling - Part 2: Delivery phase of the assets;*
- Activation of PWI 442007 *Building information modelling and other digital processes in Construction - Methodology to describe, author and maintain properties in interconnected dictionaries*
- Activation of PWI 442008 *Product data templates, for products and systems used in construction works, stored in a data dictionary framework - Part 2: Specification of Product data templates based on harmonised technical specifications under the Construction Products Regulation (CPR), and how to link the product data templates to Industry Foundation Classes (IFC)*
- Activation of PWI 442010 *Product data templates, for products and systems used in construction works, stored in a data dictionary framework - Part 1: General concepts of PDTs and how to link PDTs to IFC;*
- prEN ISO 21597-1 *Information container for data drop - Exchange specification - Part 1: Container;*
- NWIP Modelling and linking between semantic ontologies;
- Decision to skip Formal Vote for prEN ISO 19650-1;
- Decision to skip Formal Vote for prEN ISO 19650-2;
- Guidance on how to implement EN ISO 19650-1 and 2 in Europe;
- Creation of WG 6 "Infrastructure";
- Creation of WG 7 "Horizontal role";
- Call for experts - *PWI Modelling and linking between semantic ontologies;*
- Appointment of WG 6 Convenor;
- Appointment of WG 7 convenor;
- prEN ISO 16757-1 *Data structures for electronic product catalogues for building services - Part 1: Concepts, architecture and model (ISO 16757-1:2015);*
- prEN ISO 16757-2 *Data structures for electronic product catalogues for building services - Part 2: Geometry (ISO 16757-2:2016);*
- Launch Enquiry prEN ISO 23386 *Building information modelling and other digital processes used in Construction – Methodology to describe, author and maintain properties in interconnected dictionaries;*
- Skip Formal Vote prEN 16757-1 and -2;
- prEN ISO 21597-1 *Information container for data drop - Exchange specification - Part 1: Container (ISO/DIS 21597-1:2018);*
- prEN ISO 21597-2 *Information container for data drop - Exchange specification - Part 2: Dynamic semantics (ISO/DIS 21597-2:2018);*
- Deletion of PWI 442011 *Digital information exchange - Definition of activities and transactions – use cases of built assets within a framework of steps of maturity and activities;*
- TR Guideline on how to understand and utilize EN ISO 29481-1 and – 2;
- Guideline for the implementation of BEP and EIR on European level based on EN ISO 19650-1 and - 2.

5.3 Regulatory Development/Update

NSAI/TC 047/SC 22 does not engage in any standards development work of a regulatory nature.

6 Publications and Reviews

6.1 Publications

The Committee does not publish any indigenous standards. The work of the committee is bound by CEN "Standstill procedure".

CEN Standstill procedure explained: As soon as work is started at European level, there is an agreement between the CEN National Members not to develop or publish a new or revised national standard on the same subject that could endanger the progress of the work at European level. This is called 'standstill'.

6.2 Reviews

In the absence of indigenous Irish Standards on BIM, reviews were not undertaken during 2018.

7 Work programme for 2019 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 in Section 5.2.2 of this report and will also monitor the following preliminary work items registered with CEN/TC 442:

- 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;
- 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;
- Building Information Modelling (BIM) - Modelling and linking between semantic ontologies; and
- Building Information Modelling – Exchange structure for product data templates and product data based on ifcXML.

8 Additional Information

✚ Chair and Technical Secretary met with CIF during 2018 and presented on BIM standardisation to their "Construction 4.0" committee.

✚ New members welcomed during 2018:

- Aonghus O'Keeffe (Roughan O'Donovan);
- John Collins (ERVIA);
- Laura Swaine Lawlor (Jacobs);
- Pat Columb; and
- Stephen Lynam (OGP).

✚ On December 19th, 2018, CEN/TC 442 announced the publication of:

- EN ISO 19650-1 "*Organization of information about construction works - Information management using building information modelling - Part 1: Concepts and principles*"; and
- EN ISO 19650-2 "*Organization of information about construction works - Information management using building information modelling - Part 2: Delivery phase of the assets*".

✚ EN ISO standards for BIM adopted to date in Ireland:

- **I.S. EN ISO 12006-3:2016**, *Building construction - Organization of information about construction works - Part 3: Framework for object-oriented information* (ISO 12006-3:2007);
- **I.S. EN ISO 16739:2016** *Industry Foundation Classes (IFC) for data sharing in the construction and facility management industries* (ISO 16739:2013);
- **I.S. EN ISO 29481-1:2017**, *Building information models - Information delivery manual - Part 1: Methodology and format*; and
- **I.S. EN ISO 29481-2:2016**, *Building information models - Information delivery manual - Part 2: interaction framework*.